Blinded by the Lies or Lifting the Blinds?
Using Signal Detection Theory to Examine Correlates of Belief in Plausible vs. Implausible Conspiracy Theories

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Abstract

Based on signal detection theory, this study provides and tests a framework which considers the possibility that conspiracies do happen and can be plausible, while simultaneously accounting for the problematic epistemic aspects of belief in implausible conspiracy theories. For that purpose, both the ability to accurately distinguish between plausible and implausible conspiracy theories (discernment) as well as the overall inclination to regard conspiracy theories as credible regardless of their plausibility (response bias) are examined. Employing two large scale, preregistered online surveys in Germany and the UK, the credibility judgments about 16 conspiracy theories (eight plausible, eight implausible) were analyzed. Results showed that news media knowledge structures and actively open-minded thinking were consistently associated with participants' discernment. Conspiracy mentality, in turn, was a key determinant of participants' response bias. The framework presented clarifies why rational and irrational elements of conspiracy belief ought to be distinguished - as differences in belief content also relate to differences in citizens information processing capabilities.

Key words: conspiracy theories, plausibility, signal detection theory

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Introduction

Belief in conspiracy theories is often considered to be a threat for deliberative discourse (Frenken & Imhoff, 2025; Papaioannou et al., 2023; E. F. Thomas et al., 2025). Normatively speaking however, only belief in *implausible* conspiracy theories should be considered harmful, whereas belief in *plausible* conspiracy theories could be deemed necessary to hold powerholders responsible for their actions (cf., Arendt, 1993 [1967]; van Aelst et al., 2017). Notably, scholars have recently begun to examine belief in conspiracy theories in a more nuanced manner (e.g., Alper & Yilmaz, 2023; Frenken et al., 2024; Pummerer, Ditrich, et al., 2025). In this line of research, conspiracy theories are not seen as a a-priori false but their (im)plausibility is explicitly examined as part of the research design. For example, Frenken et al. (2024) argue "that groups occasionally indeed engage in conspiring behavior, as evidenced by verified instances like the Watergate scandal" (Frenken et al., 2024, p. 1). To exemplify our proposed framework, consider the following two statements: (1) 'The attacks on September 11, 2001 were not carried out by Islamic terrorists, but by the US administration.' and (2) 'In the Tuskgee Syphilis Experiments of the US Public Health Services (PHS), more than 100 mostly black men died from failure to treat them with penicillin. The test subjects were deliberately withheld the fact that they were infected with syphilis'. Both statements fit into the most common definitions of conspiracy theories as they entail

> (a) a collective nature (i.e., conspiracy theories are about the actions of a group rather than the actions of isolated individuals, and have collective outcomes); (b) intentionality (i.e., conspiracy theories involve deliberate acts); (c) secrecy (i.e., the conspirators act in secret); and (d) malevolence (i.e., the conspirators have ill intent towards other groups) (Nera & Schöpfer, 2023, p. 289).

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However, the first statement about 9/11 combines "correct scientific facts with incorrect inference, wild speculations, and a selective assessment of the evidence" (van Prooijen et al., 2020, p. 174), whereas the second statement about the Tuskgee Syphilis Experiments is backed up by substantial evidence, in the form of journalistic reporting and/or scientific analyses (S. B. Thomas & Quinn, 1991). In other words, whereas the belief that '9/11 was an inside job' is a belief in misinformation and thus normatively undesirable, 'believing' in the plausible statement about the Tuskegee Syphilis Experiments is normatively desirable. Citizens need to be able to discern noise (implausible conspiracy theories) from signal (plausible conspiracy theories). It is precisely the capability for discernment that allows and constitutes deliberative discourse, because "if political parties cannot agree upon the basic facts they base their decisions on, political discourse becomes virtually impossible" (van Aelst et al., 2017, p. 14.; see also Baron, 2019; Gardiner, 2020).

Against this backdrop, drawing from signal detection theory, this study provides and tests a framework which considers the possibility that conspiracies do happen and can be plausible, while simultaneously accounting for the epistemic problematic aspects of belief in implausible conspiracy theories. Thereby we try to provide valuable insights into the information processing styles which enable citizens to accurately discern plausible from implausible conspiracy theories. Our research goal is twofold: On the one hand, we try to gain a better understanding about information processing styles such as cognitive reflection, actively open-minded thinking (AOT) and news media knowledge which might enable citizens to distinguish between plausible and implausible conspiracy theories (*discernment*). On the other hand, we study processing biases such as conspiracy mentality which may increase the belief in any conspiracy theories regardless of its plausibility (*response bias*). For that purpose, we employ two large scale online surveys in which citizens from Germany and the UK indicated their perceived credibility judgements about 16 conspiracy theories (eight plausible and eight implausible).

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Applying Signal Detection Theory to Belief in Plausible vs. Implausible Conspiracy Theories

In the following, we apply signal detection frameworks, which have recently been used in misinformation research (Batailler et al., 2022; Gawronski et al., 2024; Modirrousta-Galian & Higham, 2023), to the research field of conspiracy theories. The basic idea of this framework is to transform participants credibility assessments of (im)plausible conspiracy theories into indices derived from signal detection theory. For that purpose, we have to differentiate between the *perceived credibility* (i.e., how believable does an individual find a particular conspiracy theory to be?) and the *plausibility* of a conspiracy theory (i.e., what does a balanced assessment of the best available evidence tell us about the truth-value of a conspiracy theory?). We argue that assigning high credibility to an implausible conspiracy theory is a "false alarm", whereas a high credibility perception concerning a plausible conspiracy theory is a "hit". This delineation is important, because some parts of the population may over- or underestimate the credibility of (im)plausible conspiracy theories, indicating signal detection errors. Consequently, applying signal detection theory towards conspiracy beliefs allows us to disentangle its rational and irrational aspects.

Slightly complicating the discussion about the rationality of conspiracy beliefs, Jaster (2023) emphasizes that absolute truth-values should not a priori be assigned towards conspiracy theories, because the amount of supporting or disconfirming evidence at one time point might not always correspond with the most plausible explanation of an event at a later time point. For instance, sometimes a formerly implausible conspiracy theory turns out to be plausible in the long run (e.g., the claim that 'the NSA eavesdropped on foreign politicians and citizens for their own political goals'; see Hagen 2022, pp. 96–98). Hence, some claim that researchers should avoid any truth (including plausibility) statements regarding conspiracy theories (Douglas & Sutton, 2023). To be clear, we agree with the objection that what is considered true or plausible might change over time. In fact, we would have considered the NSA conspiracy theory as

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implausible up to the moment when Edward Snowden provided substantial evidence supporting it. At the same time, we don't think that this possibility should preclude taking plausibility into account when evaluating conspiracy theories, as scarcity and abundance of evidence typically (yet not always) correspond to the probability of an explanation being true (Jaster, p. 147).

Taking a similar approach, Poth and Dolega (2023, p. 1193) argue that "rational Bayesian reasoners should, in the long-run, converge to believing the hypothesis that obtains the best track record in terms of its overall evidential support." In essence, the theory with the best "historical track record" (Poth & Dolega, 2023, p. 1197) should be considered plausible until a better explanation is to be found. For conspiracy theories, this track record depends on its specific content and must be weighed against "the competing alternatives" (Poth & Dolega, 2023, p. 1197). This is why, for the sake, of a clear empirical delineation, like Nera and Schöpfer (2023), we base our analysis on epistemically unambiguous conspiracy theories which can be attributed to one of both categories (plausible vs. implausible) with relative certainty. Nevertheless, we refrain from using terms such as true and false conspiracy theories to account for the probabilistic and time dependent nature of these discussions (Pfeifer, 2023).

Applying the logic of signal detection theory towards plausible and implausible conspiracy theories, we can derive two independent indices from participants credibility assessments: response-bias (c) and discernment (d'). In our case, individuals with a comparatively high response bias are more likely to perceive any conspiracy theory as credible (regardless of its plausibility). Thereby, they might rarely be missing a plausible conspiracy theory, at the expense of falsely believing in implausible conspiracy theories (increased false alarm rate). Discernment, on the other hand, is conceptualized as the overall accuracy of participants' judgments. Participants with the highest discernment scores correctly reject implausible conspiracy theories and correctly identify plausible conspiracy theories as credible. In other words, high discernment indicates a good distinction between signal and noise, whereas

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high (more false alarms) or low (more misses) response bias indicate participants' inclination towards accepting or rejecting conspiracy theories in general and regardless of their plausibility.

Conspiracy Mentality and Response Bias

Unlike belief in specific (im)plausible conspiracy theories which often pertain to a concrete event conspiracy mentality is a construct that "taps into the general propensity to suspect that conspiracies are at play" (Imhoff et al., 2022, p. 392). Similar to belief in specific conspiracy theories however, conspiracy mentality is associated with institutional distrust (e.g. Nera, Mora, et al., 2022; van Prooijen et al., 2022). Nevertheless, in terms of their plausibility — like hypotheses — conspiracy beliefs can essentially only be (dis)confirmed if they make specific predictions or provide verifiable explanations. Therefore, broad and abstract beliefs, such as conspiracy mentality, may reflect vague general rules, which are difficult to falsify, whereas a specific conspiracy theory may classify as a concrete example of that rule which can either be a plausible or implausible description of the state of affairs. Building on this assumption, Trella et al. (2024) contend that agreement with statements of the conspiracy mentality questionnaire such as "I think that many very important things happen in the world, which the public is never informed about" lack epistemic riskiness, as examples that substantiate this claim can easily be generated. In contrast, belief in a specific implausible conspiracy theory such as the claim that 'Vaccines cause autism and the government is trying to hide it from us' is epistemically risky and could — if it weren't for sophisticated auxiliar assumptions — be more easily (dis)confirmed as it makes a specific prediction (see Poth & Dolega, 2023, for a similar argument regarding the 'Bill Gates Microchip' conspiracy theory).

In their analysis, Trella et al. (2024) focus on implausible conspiracy theories. However, in theory, the relationship between conspiracy mentality (as a broad and abstract belief) and conspiracy theories (as a specific example) should also apply to plausible conspiracy theories. Therefore, conspiracy mentality may result in a „general shift of trust standards" (Frenken &

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Imhoff, 2023, p. 262) and may thus prima facie increase the overall propensity to believe in conspiracy theories regardless of their plausibility. When individuals deem sources of doubt (e.g., general mistrust in the official version of an event) as relevant, this "specifies a-priori preferences for a decision (e.g., secret coordination involved vs. not) before considering any information" (Frenken & Imhoff, 2022, p. 3). Hence, we hypothesized:

H1: Controlling for information processing variables (NMKS, CRT & AOT), and demographics (age, gender, education, political orientation), conspiracy mentality is associated with higher response bias (*c*).

Discernment and Information Processing

Accurately discerning plausible from implausible conspiracy theories requires sufficient information processing capabilities. Reflective and diligent information processing (i.e., cognitive reflection), as measured by the Cognitive Reflection Task (CRT), may inhibit miserly information processing and therefore debias it (Toplak et al., 2014). That is, high scores on the CRT — which elicits both an intuitive but false response and a non-intuitive but valid response (Frederick, 2005; Thomson & Oppenheimer, 2016) — have been meta-analytically linked to lowered belief in conspiracy theories (Yelbuz et al., 2022). Yelbuz et al. (2022) therefore conclude that good cognitive reflection is an ability which may foster accurate information processing by inhibiting the intuitive thinking styles and biases which incline individuals towards belief in conspiracy theories, because it helps to "detect the logical fallacies inherent in most conspiracy theories" (Yelbuz et al., 2022, p. 734).

Here, Yelbuz et al. (2022) imply that most conspiracy theories are prima facie epistemically suspect. Regarding our distinction between plausible and implausible conspiracy theories, the question then arises whether better cognitive reflection is related to individuals' discernment or their response bias (Binnendyk & Pennycook, 2022). In theory, plausible conspiracy theories should not be associated with the same miserly information processing than

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belief in implausible conspiracy theories, as adhering to plausible information does not require epistemic self-insulation or inadequate responses to counterevidence. Therefore, we propose that higher cognitive reflection should improve discernment.

Supporting this notion, some studies from the field of misinformation research suggest a small to moderate relationship between cognitive reflection and individuals' discernment (Ali & Qazi, 2022; Batailler et al., 2022; Erlich et al., 2023). Although the research context and methods differ in these three studies (Pakistan, USA and Ukraine), they consistently find that better cognitive reflection increases the ability to correctly discern between true and false news content, in some cases even if the headlines are in line with participants' ideology. Subsequently we predict:

H2: Controlling for CM, and demographics (age, gender, education, political orientation), higher performance on the CRT is associated with better discernment (*d'*) between plausible and implausible conspiracy theories.

Introducing a different angle on the formation of implausible conspiracy beliefs, Ståhl and van Prooijen (2018) argue that the mere cognitive ability to process information diligently does not suffice for accurate belief formation. Instead, "people must also value epistemic rationality" (Ståhl & van Prooijen, 2018, p. 161). The reason for this argument is twofold: Firstly, just because one possesses the ability to process information diligently does not mean that this ability is necessarily always applied in a balanced and unbiased way (e.g., Kahan, 2013; Sanchez & Dunning, 2021). Secondly, with regard to conspiracy theories, some individuals may adopt implausible beliefs after processing vast amounts of information on a particular topic in a motivated manner and thus are able to form seemingly sophisticated arguments or auxiliary assumptions to defend their beliefs (Berg, 2023; Levy, 2022; Zinnatullin et al., in press). In conjunction with a hypercritical attitude towards information sources that are

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perceived to be associated with the alleged conspirators (Imhoff et al., 2018; Tomas et al., 2022), motivated reasoning tendencies should not be disregarded.

To counteract such tendencies, a "dispositional willingness to seek out and thoughtfully engage with new and even threatening information" (Carpenter et al., 2018, p. 562) such as actively open-minded thinking (AOT) might be crucial. At a theoretical level, AOT should capture an information processing style which is not reducible to mere cognitive ability. In this sense, AOT may calibrate individuals towards a more balanced assessment of the available evidence (Erlich et al., 2023; Haran et al., 2013). This calibration encompasses the perspective that it is not always necessary to seek flaws, especially when reliable information sources are available. Therefore, AOT could counteract the conspiracists' imperative to 'always do your own research, because nothing is as it seems' (cf., Barkun, 2003). Thus, actively open-minded information processing may facilitate more accurate situation model construction (Zwaan, 2022) by buffering hypercritical attitudes towards uncongenial but reliable information sources. As a result, AOT should enhance the ability to distinguish between plausible and implausible conspiracy theories. Therefore, we predict:

H3: Controlling for CM, and demographics (age, gender, education, political orientation), higher AOT is associated with better discernment (d') between plausible and implausible conspiracy theories.

The conceptualization of AOT leading "to trust insofar as trust is warranted" (Baron, 2019, p. 14) raises the question: How can individuals know what information is trustworthy? We argue that knowledge about the media system may have helped individuals to situate information about the conspiracy theories assessed in this study. This is because media knowledge may be fundamental to selecting relevant and disregarding irrelevant sources in information acquiring processes (Vraga et al., 2021). For instance, if a source presents disconfirming evidence, a decision about whether to accept the evidence or to reject the

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information source must be made. Applying this reasoning to conspiracy beliefs, Winter (2025) suggests that when individuals have already developed a specific conspiracy theory about a topic they are more likely to reject a source providing disconfirming evidence than to accept disconfirming evidence. Hereby, auxiliar assumptions (i.e., 'this news outlet is biased and belongs to the corrupt elite') are of importance (Douglas & Sutton, 2023; Schulz et al., 2020; Sommer et al., 2024). These auxiliar assumptions might be a necessary element in preserving the conspiracists' worldview because they make epistemic self-insulation possible "and exemplify desperate rescues (in which auxiliary hypotheses are changed to accommodate novel evidence)" (Poth & Dolega, 2023, p. 1199).

On the contrary, the development of news media knowledge structures (NMKS) could prevent individuals from forming auxiliar assumptions that justify evidence rejection, because they provide a reference point to contextualize the information encountered within the media environment (Potter, 2020). Similarly, Craft et al. (2017) conceptualized news media literacy for which NMKS are a sub-facet as "an ability to access, analyze, and interpret news messages; it is conceived as an ability to discern what information is trustworthy" (Craft et al., 2017, p. 392). Strikingly, in their empirical test, NMKS emerged as the sole variable consistently showing negative correlations with (implausible) conspiracy theory endorsement among both liberal and conservative U.S. citizens. In sum, NMKS may have helped individuals to properly situate information about political events and should therefore also foster accurate discernment between plausible and implausible conspiracy theories. Thus, we hypothesize:

H4: Controlling for CM, and demographics (age, gender, education, political orientation), higher NMKS is associated with better discernment (d') between plausible and implausible conspiracy theories.

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Method

Overview of Current Research

To test these preregistered hypotheses, two large-scale cross-sectional online surveys in Germany and the UK were employed. In these participants had to rate the credibility of eight plausible and eight implausible conspiracy theories. Data was collected from the 4th to the 19th of March 2024 (in Germany) and on the 13th of January 2025 (in the UK). In Germany, participants were recruited via SoSci-Panel, which provides researchers with a convenience sample of unpaid individuals with a slightly above average education (Leiner, 2012). It was required by the panel administrators to keep the questionnaire open for at least two weeks, therefore we did not have ultimate influence over the final sample size, resulting in overall N = 1194 participants who completed the survey. Due to ethical considerations of the panel administrators, it was decided to inform participants beforehand that they are going to be presented with conspiracy theories during the study and we kept this practice in the UK study. The stratified UK sample was obtained via Prolific. Two separate power analyses were conducted for the studies. As we followed a more explorative approach in the German study, we initially included more variables in the first preregistration (https://aspredicted.org/bp3c9.pdf) and consequently the power analysis.[1] For the replication in the UK, we selected the smallest effect size of interest per variable (R^2 = 0.01); consequently, we calculated an a-prior power analysis based on f^2 = 0.010101. As three information processing variables were our key predictors, we decided to adjust the alpha-level according to the Bonferroni correction to $p = 0.05/3 = .01\overline{6}$ revealing a minimum sample size of N = 1040. To account for exclusions, we preregistered to collect 15% more participants, yielding a sampling goal of N = 1196, and in total, N=1224 participants completed the survey. Data,

[1] However, for the sake of clarity and comparability we base our analysis mostly on the second preregistration (https://aspredicted.org/bdzh-4k7w.pdf). For a detailed description of the changes between both studies and a full list of preregistered results of the German study see supplement (Part C).

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preregistrations and analysis codes are also available on OSF (https://osf.io/daz2q/overview?view_only=962fff6b53764562b1e5f7d9fd61aba0).

Sample Description and Preregistered Exclusions

In Germany, five participants withdrew their data at the end of the study. Furthermore, as preregistered, 45 participants that failed the attention-check were excluded from the main analysis, resulting in a final sample of 1144 participants. A post-hoc power analysis mirroring the a priori power analysis of the UK study was conducted (one tested predictor, six total predictors, $f^2 = 0.010101$, $p = .01\overline{6}$) revealing a post-hoc power of $1\text{-}\beta = .84$. On average, German participants' age was 49.54 (SD = 15.41), most participants had a college degree (59.5%) or acquired general qualification for university entrance (19,8%). Gender was almost equally distributed (50.1% = male, 47.9% = female, 2% = diverse or none indicated). Most German participants (82.2%) report to never use any alternative media outlets to inform themselves about political events.

In the UK forty participants failed either one or both attention checks. Above that three participants speeded through the questionnaire (as indicated by a completion time under 4min). Subsequently and as preregistered these participants were excluded from the main analysis, resulting in a final sample of 1181 participants.[2] On average, UK participants' age was 46.16 (SD = 15.53), most participants had a college degree (56%) or had completed their a-levels (18.8%). Again, gender was almost equally distributed (48.1% = male, 51% =female, 0,9% = non-binary or none indicated). Only a slight minority (48,6%) of UK participants report to never use any alternative media outlets to inform themselves about political events.

[2] Due to slight alterations in the UK questionnaire, we first ran a soft launch (on the same day) with 100 participants to test how much time participants need to complete the questionnaire. Theses 100 participants could- because of Prolific's policy- not be sampled in a stratified manner but were nevertheless included in the main analyses.

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Materials

Rating Task

The conspiracy items on which we base our dependent variables (response bias and discernment) were presented on the first page of each questionnaire in a randomized order. We differentiated plausible from implausible conspiracy theories by classifying only those conspiracy theories as plausible which had multiple reliable journalistic outlets from Germany and the UK (e.g., FAZ, Süddeutsche, BBC, Guardian) reporting on them (for an overview about the journalistic sources used see Supplement B). Diligence was taken in the development of the items so that both subscales were comparable in terms of their length, mentions of individuals, and use of moral keywords indicating the malevolence of the conspirators. An attention-check for carless responding was imbedded within the presented conspiracy theories. In total participants indicated their subjective credibility judgments about 16 conspiracy theories, eight of which we classified as plausible (e.g., "*The car manufacturers VW, BMW, Mercedes and Fiat have deliberately installed switch-off devices in the production of their diesel vehicles in order to manipulate emissions values.*") and eight as implausible (e.g., "*The attacks on September 11, 2001 were not carried out by Islamic terrorists, but by the US administration*."). The underlying factor structure of our proposed scale is explored in the supplement (Part B).

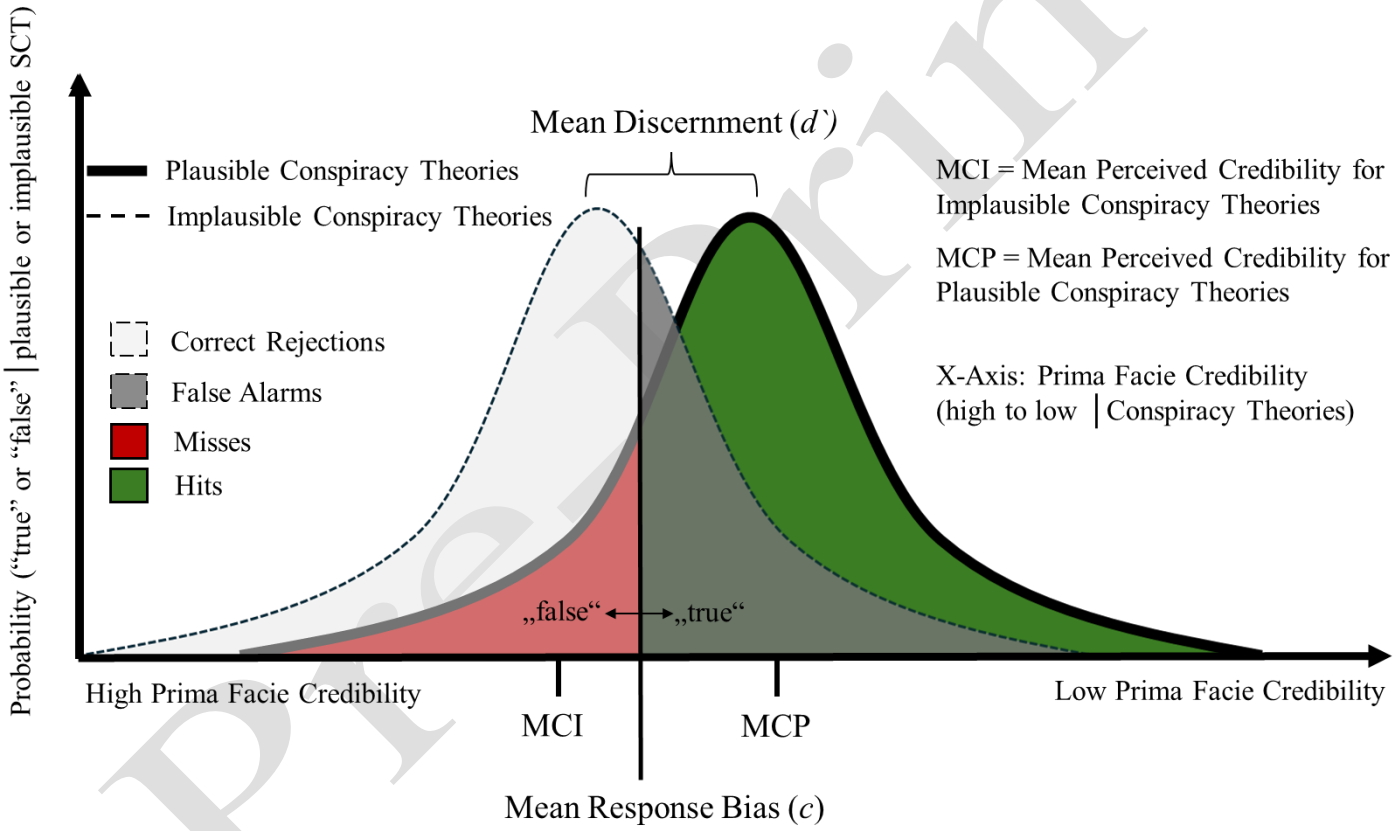
To calculate the indices for discernment (*d'*) and response bias (*c*), the 6-point Likert-scaled credibility assessments of the conspiracy theories (ranging from "definitely false" [1] to "definitely true" [6]) were dichotomized such that values from 1-3 were regarded as rejections and values from 4-6 as acceptances (for a similar procedure see Batailler et al., 2022). An acceptance of an implausible conspiracy theory is considered to be false alarm, whereas acceptance of a plausible conspiracy theory is regarded as a hit. According to Macmillan and Creelman (2004), discernment (*d'*) was calculated by subtracting the z-values of the false alarm rate from the z-values of hit rate. High discernment therefore indicates good distinction between plausible and implausible conspiracy theories (i.e., signal and noise distributions are further

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apart). The response bias (*c*) is the sum of the z-value of false alarm rate and the z-values of hit rate, divided by 2. In our case it is operationalized as the general tendency to accept conspiracy theories in general and regardless of their plausibility. Figures 1 and 2 illustrate the concepts and present the formulas (for more information about the range of *d'* and *c*, see Supplement Part D.)

Figure 1

Graphical Example of Signal Detection Theory's Indices for Response Bias (c) & Discernment (d') on a Population Level.



Note. SCT = Specific Conspiracy Theory. The two distributions indicate the probability that a member of a population responds with "true" or "false" given that the presented stimulus/conspiracy theory belongs to the class of stimuli we classify as plausible conspiracy theories or implausible conspiracy theories. If a population is unable to discriminate between both (*d'* = 0), distributions would overlap completely (MCI = MCP). In this case plausible conspiracy theories would be rated just as credible as implausible conspiracy theories. The lower the average response bias of a population, the less credibility is assigned to any conspiracy theory, regardless of their plausibility. A population with a very low response bias would rate even plausible conspiracy theories as not credible. In that case, the response bias would shift to the right.

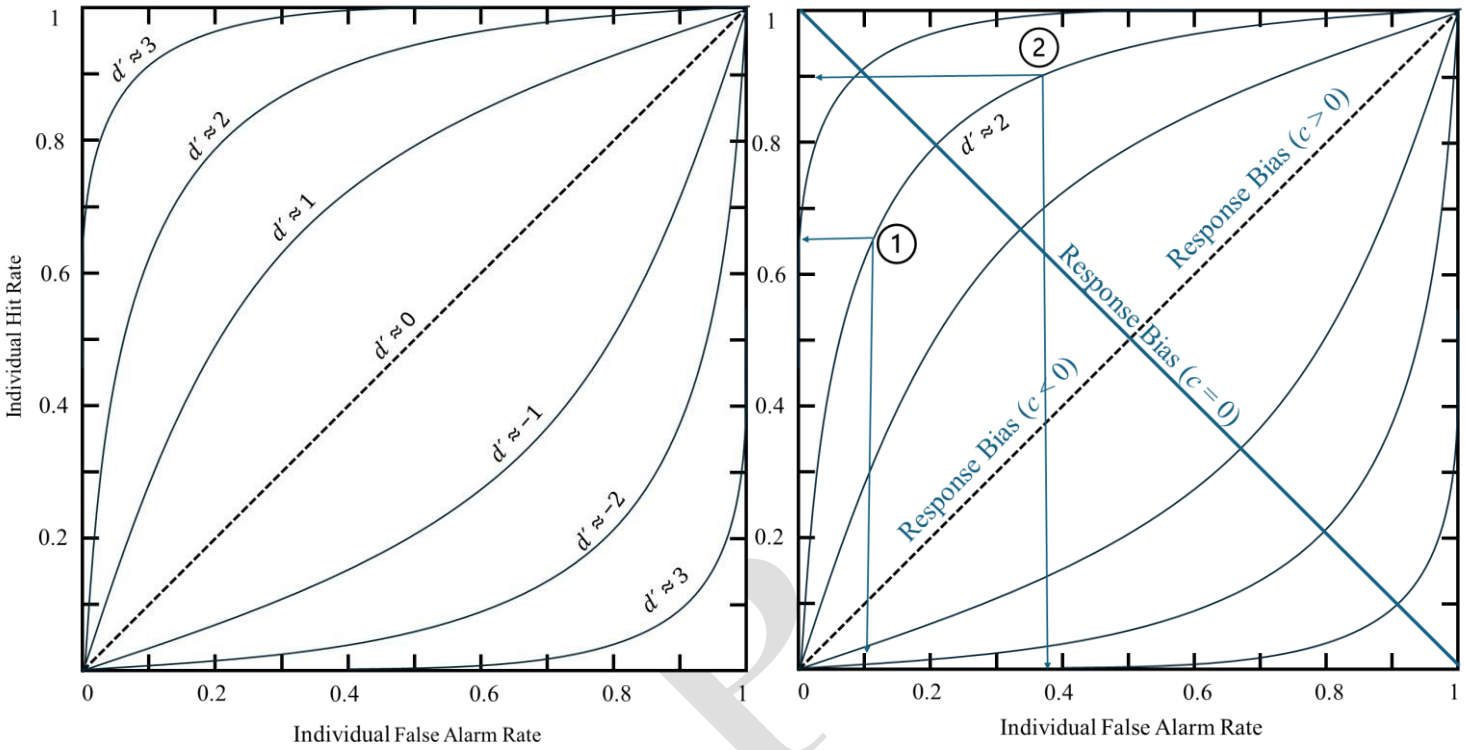
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Figure 2

Illustration of the Calculation of Discernment (d') and Response Bias (c) Based on Receiver Operating Characteristic (ROC) Curves at an Individual Level.

$$d' = z(H_rate) - z(FA_rate)$$

$$c = \frac{z(H) + z\,(FA)}{2}$$



Note. The individual discernment score (*d'*) is calculated by subtracting the z-values of the false alarm rate (*F*) from the z-values of the hit rate (*H*). Participants with a higher hit than false alarm rate, achieve positive discernment (*d'*) values. Discernment (*d'*) is zero when performance is at chance. Participants with (*d'* = 0) cannot distinguish between plausible and implausible conspiracy theories. Both seem just as credible for them. When the false alarm rate is higher than the hit rate (i.e., believing more in implausible than in plausible conspiracy theories), negative discernment values are obtained.

Note. The individual response bias score (*c*) is calculated by adding the z-values of the false alarm rate (*F*) value to the z-values of the hit rate (*H*) and dividing it by two (see Formular). When the false alarm rate is equal to the miss rate (1-H) the response bias is zero. This is indicated by the diagonal blue line. To illustrate the properties of the response bias, consider that both participant (1) and participant (2) achieve the same discernment score of (*d'* = 2). As (1) is more inclined to find conspiracy theories unbelievable (i.e., low false alarm rate at the expense of some misses) their response bias is negative. In comparison (2) finds most conspiracy theories somewhat believable (i.e, less misses at the expense of an increased false alarms rate) their response bias is positive.

Measures

Conspiracy Mentality was measured with the 5-item version based on Bruder et al. (2013) in Germany (α = .84), and with the 12-items scale (Imhoff & Bruder, 2014) in the UK (e.g., "*There are many very important things happening in the world about which the public is not informed*.", α = .91).

Actively Open-Minded Thinking was assessed by an adopted and translated four-item scale (α = .68) of the seven-item scale of Haran et al. (2013) in Germany. The adaptation is based on Beebe and Matheson (2023). In the UK, we used all seven items of the original scale

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(Haran et al., 2013, e.g., "*Allowing oneself to be convinced by an opposing argument is a sign of good character.*", α = .74).

Cognitive Reflection was measured identically in both countries: The Cognitive Reflection Task (CRT) involved participants answering five open-ended questions. Three of the five items were taken from Frederick`s (2005) original version (e.g., "*If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? _____ minutes*"). Two further items developed by Thomson and Oppenheimer (2016) were included, because they do not rely on numeracy as much as the CRT (e.g., "*If you're running a race and you pass the person in second place, what place are you in? _____")*.

News Media Knowledge was tested by an adopted five (Germany) and six (UK) item version of the multiple-choice News Media Knowledge Structures (NMKS) test designed by Maksl et al. (2015). Similar to the CRT, items were regarded as dichotomous, as either a correct or incorrect answer was given (*e.g.,"When it comes to reporting the news, the main difference between a website like Google News and a website like CNN.com is that: a.) Google does not have reporters who gather information, while CNN does. [correct] b.) Google focuses on national news, while CNN focuses on local news. c.) Google has more editors than CNN does. d.) Google charges more money for news than CNN does. e.) Don't know.)*. In the analysis, each participant's NMKS score was determined by adding up the correct answers on the five/six items.

Additional Variables

For exploratory purposes, both studies contain a measurements of political orientation (1=left, 10=right) based on Kroh (2007), social media (adopted from Valenzuela et al., 2022) and alternative media usage.

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Analyses Plan

Preregistered hypothesis testing is conducted as part of a two-step process per study. In a first step, only the control variables mentioned in our hypotheses are entered into the first multiple regression model. For the first hypothesis regarding response bias, the control variables include demographics (age, gender, education), political orientation and the three information processing variables (AOT, CRT, NMKS). In a second step besides the control variables, conspiracy mentality is entered. Both, the incremental increase in R^2 between step one and step two and the p-value of conspiracy mentality is examined to determine whether H1 is supported.

The three hypotheses regarding discernment are also tested as part of a two-step process. Again, in the first step, only the control variables mentioned in our hypotheses are entered into the model. In all three multiple regression models predicting discernment, demographics (age, gender, education), political orientation and conspiracy mentality are entered as controls. To examine the individual impact of each information processing variable (AOT, CRT, NMKS) in step two, three separate multiple regression models are calculated. Again, the incremental increase in R^2 between step one and step two — including only one of the three information processing variables (either AOT or CRT or NMKS) — and the respective p-value of each information processing variable is observed to determine whether H2, H3 or H4 is supported.

To further examine the impact of information processing on discernment and to control for shared variances between AOT, CRT and NMKS — as preregistered — one overall model, in which, besides demographics (age, gender, education) political orientation and conspiracy mentality, all three information variables (AOT, CRT, NMKS) are entered together, is calculated per study. To examine the incremental impact of the information processing variables when entered together, this model is also compared against a model in which only the control variables (age, gender, education, political orientation and conspiracy mentality) according to our information processing hypotheses are entered.

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Since dichotomizing participants responses in order to calculate response bias and discernment results in a slight loss of variance and assumes parametric signal and noise distributions, as preregistered, we also calculated the described regression analyses with non-parametric discernment (AUC) and response bias (B''D) scores – as suggested by Modirrousta-Galian and Higham (2023) – and report the results in the supplement (Part A), there we also report additional analyses with raw credibility scores and the assessed social and alternative media variables.

Results

Descriptive Statistics

Descriptive statistics and zero-order correlations of our key predictors and independent variables can be found in Table 1 (for Germany) and Table 2 (for the UK). On the six-point Likert scale, both in Germany and in the UK, plausible conspiracy theories ($M_{\text{Germany}} = 4.17$; $M_{\text{UK}} = 4.23$) were perceived as more credible than implausible conspiracy theories ($M_{\text{Germany}} = 1.76$; $M_{\text{UK}} = 2.30$). This is also evidenced by the respective average discernment scores ($M_{\text{Germany}} = 1.79$; $M_{\text{UK}} = 1.76$). Thus, both raw credibility ratings and the transformed discernment scores indicate that on average, people are quite good at discerning plausible from implausible conspiracy theories. Furthermore, in both countries the average response bias is negative ($M_{\text{Germany}} = -0.29$; $M_{\text{UK}} = -0.04$) indicating a slight overall inclination to reject conspiracy theories, regardless of their plausibility. This tendency, however, is more pronounced in the German sample.

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Table 1

Descriptive statistics and zero-order correlations between variables for Germany.

	M	**SD**	(1)	(2)	(3)	(4)	(5)
(1) Response Bias	-0.29	0.46					
(2) Discernment	1.79	0.79	.147**				
(3) CM	3.31	1.24	.449**	-.252**			
(4) CRT	2.67	1.44	.064*	.122**	-.063*		
(5) AOT	6.39	0.69	-.120**	.260**	-.261**	.097**	
(6) NMKS	4.15	0.97	-.038	.292**	-.192**	.207**	.236**

Note. CM= Conspiracy Mentality; CRT = Cognitive Reflection; AOT = Actively Open-Minded Thinking; NMKS = News Media Knowledge Structures.

Table 2

Descriptive statistics and zero-order correlations between variables for the UK.

	M	**SD**	(1)	(2)	(3)	(4)	(5)
(1) Response Bias	-0.08	0.50					
(2) Discernment	1.67	0.97	-.174**				
(3) CM	4.60	1.13	.483**	-.380**			
(4) CRT	2.41	1.64	-.048	.223**	-.165**		
(5) AOT	5.35	0.79	-.161**	.425**	-.216**	.215**	
(6) NMKS	4.11	1.26	-.012	.337**	-.149**	.268**	.302**

Note. CM= Conspiracy Mentality; CRT = Cognitive Reflection; AOT = Actively Open-Minded Thinking; NMKS = News Media Knowledge Structures.

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Main Analyses

Results Regarding Response Bias

In H1 we predicted that conspiracy mentality is associated with a higher response bias. The regression models (see Tables 3) suggest that H1 is supported both in Germany (β = .468, t = 16.50, $p < .001$, $\Delta R^2 = .188$, $f^2 = .241$) and the UK (β = .493, t = 18.48, $p < .001$, $\Delta R^2 = .210$, $f^2 = .297$). In both countries, effect-sizes are medium to large. This relationship is increasing even further when calculating non-parametric response bias scores (see Supplement Tables S1 to S4).

Table 3

Regression Models for Response Bias (c).

	Germany (N = 1144)				United Kingdom (N = 1181)			
Predictor	β	*p*	β	*p*	β	*p*	β	*p*
Age	-.056	.076	-.045	.113	-.019	.537	.073	.007
Education	-.061	.046	.008	.759	-.021	.484	.024	.361
Gender (-1,0,1)	.068	.023	.071	.009	.100	<.001	.113	<.001
Pol_orientation	.035	.255	-.052	.060	.089	.003	.017	.520
AOT	-.104	<.001	-.018	.518	-.152	<.001	-.104	<.001
CRT	.073	.019	.070	.012	-.033	.281	.024	.377
NMKS	-.027	.383	.021	.455	.041	.193	.069	.012
CM			.468	<.001			.493	<.001
R^2 (corrected)	.032 (.026)		.220 (.214)		.047 (.041)		.262 (.257)	

Note. CM= Conspiracy Mentality; AOT = Actively Open-Minded Thinking; NMKS = News Media Knowledge Structures; CRT = Cognitive Reflection. For each country the left columns report beta and p-values for the first regression model including only control variables. The right columns report beta and p-values of the second model including the variable of interest (CM).

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Results Regarding Discernment

In H2, H3 and H4, we predicted that better information processing capabilities are associated with participants' discernment. Table 4 presents beta and p-values as well as the incremental variance of each information processing variable, when entered separately towards the control variables according to our analyses plan. As predicted, the separate regression analyses support the notion that increased information processing capability is predictive for accurate discernment between plausible and implausible conspiracy theories. In both countries, all multiple regression model p-values were below our corrected alpha-level of $p < .01\overline{6}$. However, effect sizes are small to medium for all variables: AOT ($f^2_{Germany} = .034, f^2_{UK} = .102$), CRT ($f^2_{Germany} = .008, f^2_{UK} = .029$) and NMKS ($f^2_{Germany} = .058, f^2_{UK} = .083$).[3]

Table 4

Separate Effects of Information Processing Variables on Discernment (d').

	Germany (N=1144)			United Kingdom (N=1181)		
Predictor	β	*p*	ΔR^2 (corrected)	β	*p*	ΔR^2 (corrected)
AOT	.185	<.001	.030 (.030)	.287	<.001	.070 (.070)
CRT	.088	.003	.007 (.006)	.150	<.001	.021 (.021)
NMKS	.233	<.001	.049 (.049)	.253	<.001	.058 (.058)

Note. As control variables age, gender, education, political orientation and conspiracy mentality are entered into the multiple regression analyses. AOT = Actively Open-Minded Thinking; NMKS = News Media Knowledge Structures; CRT = Cognitive Reflection. ΔR^2 reflects the increment when one of the three variables (AOT, CRT or NMKS) is entered individually towards the control variables.

When accounting for shared variances of the information processing variables in an overall model, the results reveal a more nuanced pattern (see Table 5): In Germany, cognitive reflection is no longer a significant predictor of participants' discernment ability (β = .047, *p* = .099).

[3] As preregistered in the supplement to this study we also report non-parametric discernment (AUC) and response-bias (B"D) scores, for which the credibility assessments do not need to be dichotomized. Some slight deviations are observed when calculating these scores: Except for the CRT (for which the incremental variance stays similar in Germany and declines in the UK) the effect sizes are slightly stronger when calculating a non-parametric discernment score (see Supplement Tables S5 to S8).

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Additionally, whereas news media knowledge is the strongest predictor of discernment in Germany (β = .199, $p < .001$), in the UK, when accounting for shared variances, AOT (β = .228, $p < .001$) is the strongest predictor of discernment. Compared to a baseline control model without the three information processing variables, in Germany, the additional incrementally explained variance through AOT, NMKS and CRT together is approximately 7% ($\Delta R^2 = .069$), and 11% in the UK ($\Delta R^2 = .011$).[4] Although not preregistered, both conspiracy mentality and a right-wing political orientation consistently emerged as a significant negative predictor of discernment.

Table 5

Overall Model for Information Processing Variables on Discernment (d').

	Germany (N=1144)		United Kingdom (N=1181)	
Predictor	β	*p*	β	*p*
Age	.027	.349	.147	<.001
Education	.015	.607	.049	.052
Gender (-1,0,1)	.094	<.001	.023	.348
Pol_orientation	-.158	<.001	-.186	<.001
CM	-.133	<.001	-.231	<.001
CRT	.047	.099	.074	.003
AOT	.140	<.001	.228	<.001
NMKS	.199	<.001	.184	<.001
R^2 (corrected)	.181 (.175)		.351 (.346)	

AOT = Actively Open-Minded Thinking; NMKS = News Media Knowledge Structures; CRT = Cognitive Reflection

[4]Calculating non-parametric discernment scores the incremental variance of all information processing variables in both countries is approximately 9% (see Supplement Table S9 and S10).

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Discussion

Drawing from signal detection theory, this study provides and tests a nuanced framework for the examination of conspiracy theories and individuals' beliefs in them. Across two preregistered studies we firstly delineate rational (i.e., belief in plausible conspiracy theories) from irrational (i.e., belief in implausible conspiracy theories) aspects of conspiracy belief and secondly provide empirical evidence that this normative distinction is associated with citizens information processing capabilities. That is, the capability to accurately distinguish between plausible and implausible conspiracy theories (discernment) is associated with more tentative and contextualized information processing, whereas the inclination to belief in conspiracy theories, regardless of their plausibility (response bias) is largely determined by citizens priors.

Specifically, with regards to the individual's response bias, conspiracy mentality seems to be the central variable in explaining why participants assign prima facie credibility to conspiracy theories in general. Beyond that, it also emerged as a negative predictor of discernment, indicating that conspiracy mentality might attune individuals to infer secret coordination in more cases than warranted. Although not preregistered this finding neatly aligns with observations made in other studies looking at the rationality of conspiracy mentality in democratic contexts (Frenken et al., 2024; Pummerer, Winter, et al., 2025). Chronically applying suspicion especially towards actors perceived as unfavourable might strengthen motivated reasoning and undermine deliberative discourse. Paradoxically, through partisan processing and communication, 'healthy scepticism' might be turned into unhealthy 'opportunistic attribution' (cf., Arendt, 1956; Bogatyreva, 2024; Nera, Bertin, & Klein, 2022; Pirro & Taggart, 2023). Therefore, we conclude that in the case of Germany and the UK, conspiracy mentality does not seem to help individuals in 'lifting the blinds', it rather shifts the subjective credibility threshold in favour of epistemically suspect implausible conspiracy theories and thus could be deemed irrational in liberal European democracies with functioning checks and balances and a free press.

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Importantly however, the observed effects could also be bidirectional as the acceptance of implausible conspiracy theories (and possibly plausible conspiracy theories) could also increase conspiracy mentality (Pummerer, 2024). For instance, spillover effects could cause citizens to regard a plausible conspiracy theory (e.g., the Tuskegee Syphilis experiments) as a proxy on which to base credibility judgment decisions about other circulating implausible conspiracy theories (e.g., 9/11 was an inside job). In this chain of conspiracy theorizing, "events which superficially seem to lack a connection, are often the result of secret activities" (Bruder et al., 2013, p. 15). This item by the conspiracy mentality questionnaire captures the paradox citizens face when engaging with conspiracy theories: On the one hand, just because something sounds like a conspiracy theory (i.e., a statement inferring a collective nature, intentionality, secrecy and malevolence), it is not inherently implausible. Sometimes citizens might actually be able to 'lift some blinds'. However, on the other hand, being under the impression to be 'lifting blinds' can end up in being 'blinded by the lies', if information processing becomes biased towards accepting even implausible conspiracy theories. Again paradoxically, suspicion can sometimes shed light on malevolent practices — enlightening deliberative discussions — and at other times topple into absurd reasoning obscuring deliberative discourse.

Concerning the question whether certain information processing styles increase the ability of individuals to accurately discern plausible from implausible conspiracy theories, our data suggests that especially actively open-minded thinking and news media knowledge are predictive of increased discernment. Cognitive reflection, however, only takes a subordinate role in 'lifting the blinds'. News media knowledge seems to enable individuals to determine what information is (un)trustworthy (Craft et al., 2017), because as knowledge about the media system increases, individuals might be more apt to put the information they receive into context (Potter, 2020). Thus, citizens with increased news media knowledge may better be able to situate conspiracy theories properly within the realm of plausibility: 'Lifting blinds' while simultaneously avoiding to be 'blinded by the lies'.

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Furthermore, increased open-mindedness might affect the information search of an individual in such a manner that challenges to held conspiracy beliefs become more likely, potentially fostering (counter)evidence-responsive belief formation. It seems to attune individuals to (dis)trust one's own convictions when (dis)trust is warranted (Baron, 2019). This might be the case precisely because individuals high in AOT weigh evidence of both sides against each other without a preconceived preference for a specific conclusion. Thus, rather than engaging in a biased information acquisition (i.e., 'by wanting to uncover all the lies the government fed us'), balanced information gauging — with adequately calibrated 'lie detection' — might be fostered (cf., Levy, 2022) through AOT. Intriguingly, both AOT and NMKS are constructs that could be taught with relative ease (Erceg et al., 2022; Potter, 2020) and are, thus, a promising concept to be studied in information processing interventions.

The results regarding cognitive reflection are more intricate and require explanation. While we find a small and significant effect of cognitive reflection on discernment in the UK, we do not observe this pattern in Germany nor in the non-parametric discernment score (AUC) regressions for both countries (see Supplement S9, S10). These results lead to the speculation that putting more time and effort into information search is not always better (cf., Baron et al., 2023). For instance, individuals high in cognitive reflection might spend more time doing their own risky research in an effort to justify their (preconceived) notions, even if it is unwarranted. Another explanation might be that, like in the CRT, uncovering alleged conspiracies could be a task similar to riddle solving: An internet user might start off with a particular notion (e.g., 'the elite is up to something') or cue (e.g., a Q-drop) and then gather information in an inquiry. The inquiry might be stopped when the user has gathered enough information to be satisfied with the conclusion reached, subjectively 'uncovering the lie' while falling for it. However, the demand characteristics of the CRT and noisy information environments differ. That is, in the real world "fully searching all available information to come to a completely justified belief is almost always impossible" (Sommer et al., 2024, p. 380) and "there is at least some evidence

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that is subjectively compelling to most people, even if it is false, and a biased search will find it" (Sommer et al., 2024, p. 380). Therefore, this inquiry even if immersive and time consuming, is prone to error, especially when AOT and NMKS are set aside.

Limitations and Future Directions

Like any research, this study has some important limitations. First and foremost, due to the cross-sectional nature of this research, it cannot inform us about possible underlining causal processes or their directionality. Future research should therefore use longitudinal or experimental designs to test the potentially diverging mechanisms of plausible and implausible conspiracy belief formation (Binnendyk & Pennycook, 2022).

Secondly, the eight plausible conspiracy theories presented in our questionnaire might be biased towards left leaning positions as they encompassed conspiracies conducted by cooperations (e.g., ExxonMobil, the automobile and tobacco industry) or against marginalized groups (e.g. the Tuskgee Syphilis Experiment). Therefore, the finding that a right-wing political orientation is associated with an increased response bias and decreased discernment should be interpreted with caution as it is possibly confounded by the overrepresentation of left-leaning plausible conspiracy theories in our study. A more balanced selection of plausible conspiracy theories could resolve this constraint.

Thirdly, out of ethical considerations, participants received information that they will be presented with conspiracy theories before beginning the study. This forewarning could have primed participants into virtuous responding on the AOT self-report scale. In turn, possibly inducing ceiling effects on this variable, this limitation applies in particular to the four-item version used in the German questionnaire. Thought listening tasks, selective exposure paradigms or tracking data could be used to assess biased information inquiries more objectively.

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Conclusion

Based on signal detection theory, this study provides and tests a framework which considers the possibility that conspiracies do happen and can be plausible, while simultaneously accounting for the problematic epistemic aspects of belief in implausible conspiracy theories. From the perspective of democratic theory, specifically the belief in implausible conspiracy theories can be considered as problematic. However, disregarding evidence for plausible conspiracy theories may also be detrimental, for instance, when powerholders are not held accountable for their actions. Both tendencies (to reject plausible conspiracy theories and to accept implausible conspiracy theories) are represented in low discernment. Our results suggest that such low discernment arises from subtle differences in information processing. That is, lower actively open-minded thinking and fewer knowledge about the media system are consistently associated with lowered discernment, whereas the results regarding cognitive reflection are more intricate. Furthermore, conspiracy mentality not only increases people's tendency to believe in conspiracy theories regardless of their plausibility (increased response bias), it also decreases the ability to accurately discern between plausible and implausible conspiracy theories (lowered discernment).

Taken together these results suggest that a nuanced perspective on conspiracy belief formation is advisable. In addition, our theory and results highlight the importance to differentiate between abstract notions such as conspiracy mentality on the one hand, and specific plausible and implausible conspiracy theories on the other hand. If these constructs are used interchangeably, conflation between rational and irrational aspects of conspiracy belief cannot be ruled out. Therefore, although epistemically not trivial, we encourage future research on conspiracy theories to apply signal detection frameworks and to clearly delineate the plausibility of conspiracy theories, especially when they are interested in the question of whether conspiracy theories are a threat to democracy, rationality or deliberative discourse.

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Supplement:

Non-parametric Response Bias

Table S1

*Baseline Model with Control Variables B”D (non-parametric response bias) in **Germany**.*

Predictor	*b* (*SE*)	*t*	β	*p*
Age	-.001 (.001)	-1.80	-.056	.073
Education	-.019 (.006)	-3.00	-.090	.003
Gender (-1,0,1)	.017 (.009)	1.88	.056	.060
Pol_orientation	.009 (.005)	1.65	.050	.098
AOT	-.065 (.014)	-4.76	-.146	<.001
CRT	.021 (.006)	3.233	.099	.001
NMKS	-.008 (.010)	-0.825	-.026	.410
R^2 (corrected)	.053 (.048)			

Table S2

*Overall Model with Control Variables and CM on B´´D (non-parametric response bias) in **Germany**.*

Predictor	*b* (*SE*)	*t*	β	*p*
Age	-.001 (.001)	-1.61	-.043	.108
Education	-.002 (.005)	-0.36	-.009	.721
Gender (-1,0,1)	.018 (.008)	2.31	.059	.021
Pol_orientation	-.009 (.005)	-1.99	-.052	.046
AOT	-.020 (.012)	-1.72	-.046	.086
CRT	.020 (.006)	3.65	.096	<.001
NMKS	.010 (.008)	1.17	.031	.240
CM	.135 (.007)	20.56	.548	<.001
R^2 (corrected)	.310 (.305)			
ΔR^2 for CM	.257 (.257)			

Table S3

*Baseline Model with Control Variables B”D (non-parametric response bias) in the **UK**.*

Predictor	*b* (*SE*)	*t*	β	*p*
Age	-.001 (.001)	-1.75	-.051	.081
Education	-.006 (.005)	-1.08	-.032	.280
Gender (-1,0,1)	.022 (.008)	2.72	.078	.007
Pol_orientation	.014 (.004)	3.94	.117	<.001
AOT	-.078 (.011)	-7.19	-.225	<.001
CRT	-.006 (.005)	-1.12	-.033	.262
NMKS	.006 (.007)	-0.894	.027	.372
R^2 (corrected)		.087 (.082)		

Table S4

*Overall Model with Control Variables on B´´D (non-parametric response bias) in the **UK**.*

Predictor	*b* (*SE*)	*t*	β	*p*
Age	.001(.000)	2.08	.052	.038
Education	.004 (.004)	0.79	.019	.433
Gender (-1,0,1)	.026 (.007)	3.90	.094	<.001
Pol_orientation	.004 (.003)	1.45	.037	.147
AOT	-.059 (.009)	-6.50	-.171	<.001
CRT	.005 (.004)	1.22	.030	.223
NMKS	.013 (.006)	2.33	.060	.020
CM	.136 (.006)	22.44	.556	<.001
R^2 (corrected)		.361 (.357)		
ΔR^2 for CM		.274 (.275)		

Non-parametric Discernment

Table S5

*Baseline Model with Control Variables on AUC (non-parametric discernment) in **Germany**.*

Predictor	*b* (*SE*)	*t*	β	*p*
Age	.000 (.000)	0.10	.003	.92
Education	.007 (.002)	3.03	.084	.003
Gender (-1,0,1)	.009 (.003)	2.56	.069	.010
Pol_orientation	-.010 (.002)	-5.21	-.146	<.001
CM	-.035 (.003)	-12.46	-.349	<.001
R^2 (corrected)	.194 (.190)			

Table S6

*Separate Effects of Information Processing Variables on AUC (non-parametric discernment) in **Germany**.*

Predictor	*b* (*SE*)	*t*	β	*p*	R^2 (corrected)	ΔR^2 (corrected)
AOT	.041 (.005)	8.52	.232	<.001	.242 (.238)	.048 (.048)
CRT	.007 (.002)	3.149	.088	.002	.201 (.196)	.007 (.006)
NMKS	.032 (.003)	9.46	.255	<.001	.252 (.248)	.058 (.058)

Note. As control variables age, gender, education, political orientation and conspiracy mentality are entered into the multiple regression analyses. AOT = Actively Open-Minded Thinking; NMKS = News Media Knowledge Structures; CRT = Cognitive Reflection. ΔR^2 reflects the increment when one of the three variables (AOT, NMKS or CRT) is entered individually towards the control variables.

Table S7

*Baseline Model with Control Variables on AUC (non-parametric discernment) in the **UK**.*

Predictor	*b* (*SE*)	*t*	β	*p*
Age	.002 (.000)	6.96	.185	<.001
Education	.010 (.003)	3.59	.094	<.001
Gender (-1,0,1)	.009 (.004)	2.16	.055	.031
Pol_orientation	-.015 (.002)	-8.33	-.218	<.001
CM	-.048 (.004)	-13.42	-.352	<.001
R^2 (corrected)	.257 (.254)			

Table S8

*Separate Effects of Information Processing Variables on AUC (non-parametric discernment) in the **UK**.*

Predictor	*b* (*SE*)	*t*	β	*p*	R^2 (corrected)	ΔR^2 (corrected)
AOT	.052 (.005)	10.11	.264	<.001	.317 (.313)	.060 (.059)
CRT	.011 (.002)	4.46	.115	<.001	.270 (.266)	.013 (.012)
NMKS	.026 (.003)	8.26	.211	<.001	.298 (.295)	.041 (.041)

Note. As control variables age, gender, education, political orientation and conspiracy mentality are entered into the multiple regression analyses. AOT = Actively Open-Minded Thinking; NMKS = News Media Knowledge Structures; CRT = Cognitive Reflection. ΔR^2 reflects the increment when one of the three variables (AOT, NMKS or CRT) is entered individually towards the control variables.

Table S9

*Overall Model including all Information Processing Variables on AUC (non-parametric discernment) in **Germany**.*

Predictor	*b* (*SE*)	*t*	β	*p*	
Age	-.001 (.000)	1.09	.029	.277	
Education	.004 (.002)	1.62	.043	.107	
Gender (-1,0,1)	.005 (.003)	1.56	.040	.118	
Pol_orientation	-.007 (.002)	-3.95	-.105	<.001	
AOT	.033 (.005)	6.85	.185	<.001	$\Delta R^2 = .09$
CRT	.003 (.002)	1.51	.040	.130	
NMKS	.027 (.003)	7.82	.212	<.001	
CM	-.027 (.003)	-10.20	-.277	<.001	
R^2 (corrected)		.284 (.279)			

Note: R-Scripts for the calculation of non-parametric response-bias (B´´D) and discernment (AUC) scores, were optimized using Claude AI and ChatGPT.

Table S10
*Overall Model including all Information Processing Variables on AUC (non-parametric discernment) in the **UK**.*

Predictor	*b* (*SE*)	*t*	β	*p*	
Age	.000 (.000)	6.13	.156	<.001	
Education	.004 (.003)	1.75	.044	.080	
Gender (-1,0,1)	-.001 (.004)	-0.35	-.009	.725	
Pol_orientation	-.010 (.002)	-5.68	-.145	<.001	
AOT	.043 (.005)	8.19	.219	<.001	$\Delta R^2 = .084$
CRT	.004 (.002)	1.86	.047	.064	
NMKS	.019 (.003)	5.78	.150	<.001	
CM	-.041 (.003)	-11.94	-.301	<.001	
R^2 (corrected)		.341 (.336)			

When calculating non-parametric discernment scores (see tables S9, S11), the effect of CRT on discernment fails to reach significance in Germany (β = .040, *p* = .130) and the UK (β = .047, *p* =.064). This might be explained by looking at the overall regression model with all information processing variables regarding the untransformed measurement of belief in implausible CTs (see tables S11, S13). In these analyses AOT (Germany: β = -.194, p < .001; UK: β = -262, p < .001) and NMKS (Germany: β = -.097, p < .001; UK: β = -.078, p < .001) are both negatively associated with belief in implausible CTs in both countries, while no association between CRT and belief in implausible CTs in neither country emerged (Germany: β = .030, p = .200; UK: β = -.014, p = .516).

Non-transformed Regression Analyses for Belief in Plausible and Implausible Conspiracy Theories

Table S11

*Overall Model with Control Variables on Mean Belief in **Implausible** Conspiracy Theories in **Germany**.*

Predictor	*b* (*SE*)	*t*	β	*p*
Age	-.002 (.001)	-1.47	-.034	.143
Education	-.007 (.012)	-0.55	-.013	.579
Gender (-1,0,1)	-.023 (.017)	-1.34	-.030	.182
Pol_orientation	.032 (.010)	3.20	.074	.001
AOT	-.211 (.026)	-8.28	-.194	<.001
CRT	.015 (.012)	1.28	.030	.200
NMKS	-.075 (.018)	-4.15	-.097	<.001
CM	.331 (.014)	23.32	.547	<.001
R^2 (corrected)		.465 (.462)		

Table S12

*Overall Model with Control Variables on Mean Belief in **Plausible** Conspiracy Theories in **Germany**.*

Predictor	*b* (*SE*)	*t*	β	*p*
Age	.000 (.001)	0.180	.005	.857
Education	.005 (.014)	0.376	.011	.707
Gender (-1,0,1)	.125 (.021)	6.089	.173	<.001
Pol_orientation	-.066 (.012)	-5.464	-.161	<.001
AOT	.116 (.031)	3.743	.111	<.001
CRT	.036 (.015)	2.432	.072	.015
NMKS	.119 (.022)	5.372	.160	<.001
CM	.132 (.017)	7.603	.227	<.001
R^2 (corrected)		.133 (.127)		

Table S13

*Overall Model with Control Variables on Mean Belief in **Implausible** Conspiracy Theories in **UK**.*

Predictor	*b* (*SE*)	*t*	β	*p*
Age	-.003 (.001)	-1.93	-.042	.054
Education	-.011 (.013)	-0.86	-.019	.390
Gender (-1,0,1)	.023 (.020)	1.15	.024	.249
Pol_orientation	.052 (.009)	5.67	.125	<.001
AOT	-.310 (.027)	-11.38	-.262	<.001
CRT	-.008 (.012)	-0.65	-.014	.516
NMKS	-.058 (.017)	-3.46	-.078	<.001
CM	.438 (.018)	24.29	.527	<.001
R^2 (corrected)		.510 (.507)		

Table S14

*Overall Model with Control Variables on Mean Belief in **Plausible** Conspiracy Theories in **UK**.*

Predictor	*b* (*SE*)	*t*	β	*p*
Age	.008 (.001)	6.18	.174	<.001
Education	.028 (.013)	2.24	.062	.250
Gender (-1,0,1)	.113 (.019)	5.98	.162	<.001
Pol_orientation	-.040 (.009)	-4.57	-.129	<.001
AOT	.099 (.026)	3.82	.113	<.001
CRT	.030 (.012)	2.51	.070	.012
NMKS	.123 (.016)	7.75	.223	<.001
CM	.116 (.017)	6.78	.189	<.001
R^2 (corrected)		.191 (185)		

Media Variables

With regards to the assessed media usage variables, a consistent negative association between alternative media usage and discernment (Germany: β = -.070, p = .023; UK: β = -.095, p < .001) was unveiled (see Table S15, S16). This effect emerged in an overall model controlling for all above mentioned variables as well as social media use and other more traditional media outlets. In a similar model predicting response-bias, alternative media usage consistently yielded a positive association (Germany: β = .154, p < .001; UK: β = .129, p < .001) with participants tendency to belief in any conspiracy theory regardless of is plausibility. The only significant effect for social media usage emerged in the UK regarding discernment (β = -.125, p < .001) all other effects of social media did not reach significance.

Table S15

*Overall Model with Control, Information Processing and Media Usage Variables on Discernment (d') and Response Bias (c) in **Germany**.*

	Germany							
	Discernment				Response Bias			
Predictor	*b* (SE)	*t*	β	*p*	*b* (SE)	*t*	β	*p*
Age	-.002 (.002)	-1.46	-.047	0.145	.000 (.001)	-0.35	-.011	.724
Education	-.004 (.015)	-0.25	-.007	0.805	.002 (.009)	0.20	.005	.842
Gender (-1,0,1)	.078 (.022)	3.54	.097	<.001	.028 (.012)	2.31	.061	.021
Political Orientation	-.067 (.013)	-5.09	-.148	<.001	-.014 (.007)	-1.96	-.055	.050
AOT	.155 (.033)	4.70	.134	<.001	-.010 (.018)	-0.55	-.015	.585
CRT	.040 (.016)	2.56	.072	.011	.018 (.009)	2.09	.057	.037
NMKS	.151 (.024)	6.41	.184	<.001	.008 (.013)	0.61	.017	.543
CM	-.029 (.020)	-1.40	-.044	.163	.142 (.011)	12.51	.386	<.001
Social Media Use	-.039 (.044)	-0.88	-.026	.378	.038 (.024)	1.54	.044	.125
Newspaper	.098 (.020)	4.96	.152	<.001	.000 (.011)	-0.03	-.001	.979
Boulevard (e.g. BILD)	-.021 (.029)	-0.72	-.021	.470	-.049(.016)	-3.06	-.087	.002
Public Service Media	.064 (.023)	2.76	.087	.006	-.044 (.013)	-3.48	-.106	<.001
Private TV	-.018 (.021)	-0.85	-.025	.393	-.010 (.011)	-0.88	-.025	.382
Alternative Media	-.065 (.028)	-2.28	-.070	.023	.081 (.016)	5.15	.154	<.001
R^2 (corrected)	.216 (.206)				.262 (.253)			

Table S16

*Overall Model with Control, Information Processing and Media Usage Variables on Discernment (d') in the **UK**.*

	United Kingdom							
	Discernment				Response Bias			
Predictor	*b* (SE)	*T*	β	*p*	*b* (SE)	*t*	β	*p*
Age	.006 (.002)	3.38	.088	.001	.003 (.001)	3.47	.098	<.001
Education	.030 (.016)	1.83	.046	.066	.000 (.009)	0.52	.001	.959
Gender (-1,0,1)	.036 (.023)	1.53	.036	.127	.050 (.013)	3.87	.099	<.001
Political Orientation	-.065 (.011)	-5.70	-.149	<.001	.000 (.006)	0.66	.002	.948
AOT	.237 (.032)	7.31	.193	<.001	-.056 (.018)	-3.08	-.088	.002
CRT	.045 (.015)	3.10	.076	.002	.005 (.008)	0.64	.017	.520
NMKS	.138 (.020)	6.99	.178	<.001	.024 (.011)	2.15	.059	.032
CM	-.138 (.023)	-6.09	-.159	<.001	.202 (.013)	16.06	.452	<.001
Social Media Use	-.127 (.028)	-4.55	-.125	<.001	.023 (.016)	1.48	.044	.138
Newspaper	.035 (.021)	1.65	.046	.098	.016 (.012)	1.33	.040	.183
Boulevard (e.g. SUN)	-.018 (.022)	-0.808	-.022	.420	-.009 (.012)	-0.74	-.022	.458
Public Service Media	.072 (.025)	2.86	.089	.004	-.016 (.014)	-1.13	-.038	.258
Private TV	.047 (.025)	1.87	.056	.062	-.035 (.014)	-2.55	-.082	.011
Alternative Media	-.085 (.024)	-3.59	-.095	<.001	.059 (.013)	4.52	.129	<.001
R^2 (corrected)	.386 (.379)				.289 (.280)			

Supplement Part B

Items & Factor Structure

Exploratory Factor Analysis

To evaluate if implausible CTs and plausible CTs are two separate indicators of CB an exploratory factor analysis (EFA) was conducted. The EFA suggested that two factors had a higher Eigenvalue than one (Kaiser-criterion). Visual inspection of the scree plot also revealed an "elbow" between the second and third factor, further indicating that a two-factor solution seems plausible. However, it is important to note that relying solely on the visual inspection of the scree plot may not provide a definitive interpretation, as it can be subjective. Therefore, a parallel analysis was conducted in R 4.3.3. using the package GPArotation (Bernaards & Jennrich, 2005). This unveiled a slightly more ambiguous solution as the third factor, although below an Eigenvalue of one, could be deemed to be above the randomly generated data.

For that reason, Table S17 reports factor loadings for two oblique rotations both for a two and a three-factor solution. Interestingly, the first rotation method, which extracted two factors using oblique rotation, revealed a low factor correlation between implausible CTs and plausible CTs (r = .09), indicating minimal overlap between both factors. Thus, factor loadings for an orthogonal rotation with a two-factor solution are also reported, as both factors seem to be distinct from each other. None of the implausible CTs displayed a loading value exceeding .30 on the second factor representing beliefs in PCTs. The only plausible CT that displayed positive loadings on both factors was the item measuring agreement with the MKULTRA conspiracy. However, the factor loadings for this item (VT01_10) were higher for the second factor, indicating belief in plausible CTs (see Table 4). Because the EFA was not preregistered and the SDT approach does not necessarily call for a two-factor solution, as the items are grouped and selected normatively, it was decided to include the MKULTRA item into the analysis for Germany.

Table S17

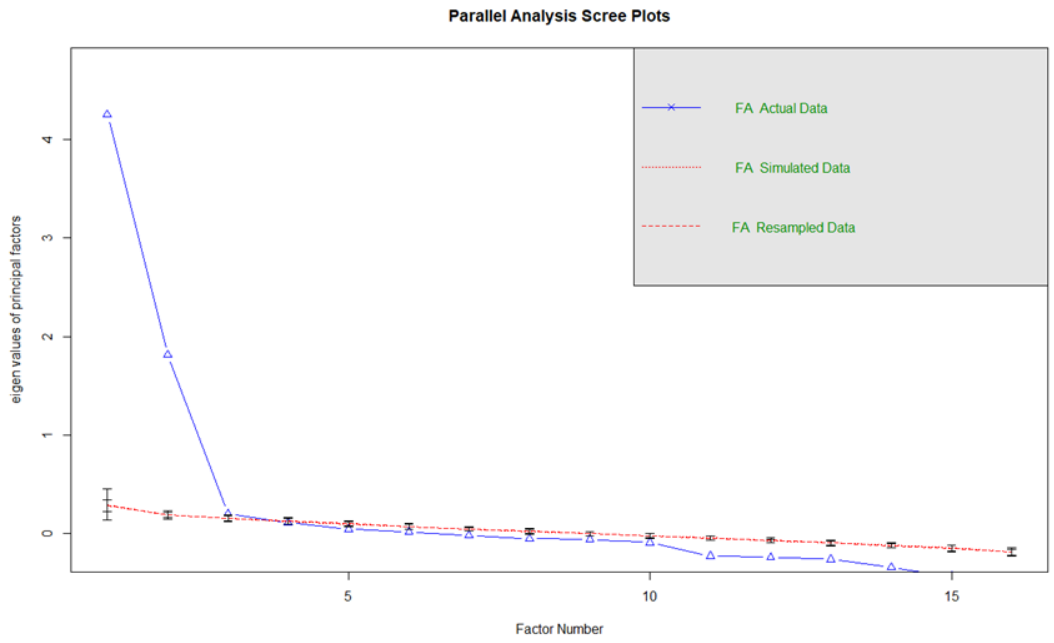
Item Loadings for implausible CTs and plausible CTs in the Exploratory Factor Analyses conducted in Germany

Rotation	oblique		oblique			orthogonal	
Item	Factor loading						
	1	2	1	2	3	1	2
VT01_01	0.77		0.74			0.77	
VT01_02	0.38		0.31	0.21		0.39	
VT01_03	0.77		0.87			0.77	
VT01_04	0.78		0.75			0.77	
VT01_05	0.68		0.69			0.68	
VT01_06	0.86		0.95			0.86	
VT01_07	0.72		0.75			0.71	
VT01_08	0.69		0.59			0.69	
VT01_09		0.42		0.27	0.21		0.43
VT01_10	0.30	0.51		0.77		0.32	0.52
VT01_11		0.54		0.55			0.54
VT01_12	-0.21	0.59			0.56		0.58
VT01_13		0.57			0.72		0.56
VT01_14		0.46		0.53			0.47
VT01_15	-0.20	0.45			0.50		0.44
VT01_16		0.53		0.36	0.23		0.53

Note. Factor loadings below 0.20 are omitted. For the exact wording of the items see table 1. Implausible CTs = Item VT01_01 to VT01_08; plausible CTs = Item 01_09 to VT01_016.

Figure S1

Exploratory Factor Analysis with Parallel Analysis Conducted in Germany



Confirmatory Factor Analysis

To confirm the indicated factor structure of the EFA we decided to conduct a Confirmatory Factor Analysis (CFA) on the data collected in the UK. We tested both a model with two uncorrelated factors and a model with two correlated factors against each other. Goodness of Fit Indices for both CFAs are shown in table S18. As the goodness of fit indices indicated acceptable fit for the uncorrelated model and only minimal deviations between both tested models, it seems likely that in the UK population we can indeed talk about two separate factors: one indicating belief in plausible conspiracy theories and one indicating belief in implausible conspiracy theories.

Table S18

Confirmatory Factor Analysis Fit Indices for UK Data.

Model	RMSEA [90% CI)	SRMR	CFI	TLI	BIC	AIC
Correlated two Factor Model	.061 [.056; .066]	.070	.925	.912	54997.974	54830.529
Uncorrelated two Factor Model	.061 [.056; .066]	.071	.925	.913	54991.943	54829.571

Summary of the Factor Analyses

Both, explorative (in Germany) and confirmatory (in the UK) factor analyses, indicate that a two-factor solution with uncorrelated dimensions fits best to our data. The confirmatory factor analysis with these specifications revealed acceptable fit (RMSEA=.061, CFI=.0925, SRMR =.071). Note however that the signal detection approach introduced in this paper does not necessarily call for a two-factor solution, as the items are selected and grouped normatively in terms of their plausibility. Therefore, a population which is very bad at discerning plausible from implausible conspiracy theories might not yield a similar result.

Materials

Table S19

*Items used to assess Belief in Implausible and Plausible Conspiracy Theories in **Germany.***

Item	Exact Wording
VT01_01	Der Anschlag am 11. September 2001 wurde nicht von Terroristen, sondern von den USA selbst ausgeführt.
VT01_02	Am 22. November 1963 wurde der Präsident der Vereinigten Staaten, John F. Kennedy, in Dallas auf offener Straße ermordet. Die Ermordung war Ergebnis einer detailliert organisierten Verschwörung, mit dem Ziel, den Präsidenten zu töten.
VT01_03	Bei den von Flugzeugen hinterlassenen Kondensstreifen handelt es sich in Wirklichkeit um chemische Substanzen, die im Rahmen eines geheimen Programms von Regierungsbeamten absichtlich versprüht werden.
VT01_04	Die weltweite Verbreitung von gentechnisch veränderten Lebensmitteln durch Monsanto Inc. ist Teil eines geheimen Programms, genannt Agenda 21, das von den Stiftungen Rockefeller und Ford ins Leben gerufen wurde, um die der Weltbevölkerung zu verkleinern.
VT01_05	Wie der britische Wissenschaftler Andrew Wakefield 1998 nachweisen konnte, verursachen Impfungen Autismus. Dennoch wollen Ärzte und die Regierung die Kinder immer noch impfen, obwohl sie wissen, dass diese Impfstoffe Autismus und andere psychische Störungen verursachen.
VT01_06	Die Covid-19 Pandemie wurde von bestimmten Pharmaunternehmen und Regierungsorganisationen geplant, um alle dazu zu zwingen, geimpft zu werden, egal ob sie wollen oder nicht.
VT01_07	Die Erderwärmung ist eine Lüge, welche von der UN und von - mit Steuergeldern finanzierten - Wissenschaftlern/radikalen Umweltschützern verbreitet wird.
VT01_08	Wie ein neu veröffentlichtes Dokument der Führungsriege der Ukraine bestätigt, wollen die NATO und der ukrainische Präsident Selenskyj Belarus angreifen, auch dafür benötigen Sie immer mehr Waffen.
VT01_09	Ein ehemaliger Mitarbeiter der CIA (US-Geheimdienst), hat bewiesen, dass die NSA (National Security Agency) die ganze Welt abhören und überwachen können.
VT01_10	Die CIA hat im streng geheimen Projekt MKULTRA menschenverachtende Experimente durchgeführt, um herauszufinden wie man „Gedankenkontrolle“ über Menschen ausüben kann.
VT01_11	In den Tuskgee Syphilis Experimenten der US Public Health Services (PHS) starben mehr als 100 größtenteils Schwarze Männer an unterlassener Behandlung mit Penicillin. Den Probanden wurde bewusst verschwiegen, dass sie mit Syphilis infiziert sind.
VT01_12	Obwohl der zweitgrößte Öl- und Gaskonzern ExxonMobil schon von der globalen Erderwärmung wusste, diskreditierten Pressesprecher des Konzerns die Forschung zum Klimawandel immer wieder.
VT01_13	Jahrzehntelang hat die Tabakindustrie trotz besseren Wissens verneint, dass Rauchen schädlich ist. Die Konzernchefs sagten sogar einmal unter Eid aus vor dem US-Senat aus, dass sie glauben Nikotin sei nicht süchtig machend.
VT01_14	Die Autokonzerne VW, BMW, Mercedes und Fiat haben gezielt Abschalteinrichtungen bei der Herstellung ihre Dieselfahrzeuge eingebaut, um Abgaswerte zu manipulieren.
VT01_15	Konrad Adenauer hat mithilfe des Geheimdienstes während seiner Amtszeiten als deutscher Kanzler die SPD-Spitze systematisch ausspionieren lassen.
VT01_16	Der britische Journalist Dan McCrum, welcher bei der Aufdeckung von Bilanzfälschungen der Wirecard AG beteiligt war, wurde von dieser bedroht und verleumdet. Die zuständige Behörde (Bafin) erstattete nicht etwa gegen Wirecard Anzeige wegen Betrugs, sondern gegen Dan McCrum wegen Aktienmanipulation.

Note. The first eight items are the implausible CTs used in this study; the last eight items are the plausible CTs.

Table S20

*Items used to assess Belief in Implausible and Plausible Conspiracy Theories in the **UK.***

Item	Exact Wording
CT01_01	Vapor trails left by aircraft are actually chemical agents deliberately sprayed in a clandestine program directed by government officials.
CT01_02	The global dissemination of genetically modified foods by Monsanto Inc is part of a secret program, called Agenda 21, launched by the Rockefeller and Ford foundations to shrink the world's population.
CT01_03	The attacks on September 11, 2001 were not carried out by Islamic terrorists, but by the US administration.
CT01_04	The assassination of John F. Kennedy was not committed by the lone gunman Lee Harvey Oswald but was rather a detailed organized conspiracy to kill the president.
CT01_05	As the British scientist Andrew Wakefield was able to prove in 1998, vaccinations cause autism. Yet doctors and the government still want to vaccinate children, even though they know that these vaccines cause autism and other mental disorders.
CT01_06	The Covid-19 pandemic was planned by certain pharmaceutical companies and government organizations to force everyone to get vaccinated, whether they want to or not.
CT01_07	The claim that the climate is changing due to emissions from fossil fuels is a hoax perpetrated by corrupt scientists who want to spend more taxpayer money on climate research.
CT01_08	As a newly published secret document from Ukraine's leadership confirms, the NATO and the Ukrainian President Zelensky want to attack Belarus, that's why they need more and more weapons.
CT01_09	A former employee of the CIA (US secret service) has proven that the NSA (National Security Agency) eavesdropped and surveilled foreign politicians and citizens for their own political goals.
CT01_10	On the basis of fabricated "evidence" that the Iraqi-Regime possessed weapons of mass destruction, a coalition of the willing led by the USA and the UK invaded Iraq, violating international law.
CT01_11	In the Tuskgee Syphilis Experiments of the US Public Health Services (PHS), more than 100 mostly black men died from failure to treat them with penicillin. The test subjects were deliberately withheld the fact that they were infected with syphilis.
CT01_12	Even though ExxonMobil, the second largest oil and gas company, was well aware of global warming, the company's spokespersons repeatedly discredited climate change research.
CT01_13	Despite better knowledge, the tobacco industry has denied that smoking is harmful for decades.
CT01_14	In the now shut down News Outlet "News of the World" formerly belonging to the "News Corporation" owned by media mogul Rupert Murdoch it was a common practice to hack into phones of newsworthy individuals to obtain private and sensitive information.
CT01_15	The car manufacturers VW, BMW, Mercedes and Fiat have deliberately installed switch-off devices in the production of their diesel vehicles in order to manipulate emissions values.
CT01_16	In the 1980s the US government sold weapons to Iran, violating an embargo, and used the money to support Nicaraguan militants.

Journalistic Sources for Plausible Conspiracy Theories

Item CT01_09/VT01_09:

In German:

https://www.sueddeutsche.de/politik/geopolitische-folgen-der-snowden-enthuellungen-globale-ueberwachung-braucht-globale-antworten-1.1988972; https://www.deutschlandfunk.de/zehn-jahre-nsa-affaere-100.html; https://www.wiwo.de/unternehmen/it/deutsche-telekom-und-der-abhoerskandal-freiheit-und-sicherheit/9481452-3.html; https://www.spiegel.de/politik/deutschland/ueberwachung-nsa-speicherte-mehr-als-300-berichte-ueber-merkel-a-961414.html; https://www.deutschlandfunkkultur.de/fuenf-jahre-snowden-enthuellungen-ein-whistleblower-laesst-100.html; https://www.faz.net/aktuell/politik/ausland/us-gericht-gibt-snowden-recht-nsa-ueberwachung-war-illegal-16936521.html; https://www.reuters.com/article/us-usa-nsa-spying-idUSKBN25T3CK; https://www.zeit.de/digital/datenschutz/2013-06/USA-Verizon-Telekommunikation-Geheimdienst; https://www.tagesschau.de/inland/nospy-105.html; https://www.heise.de/news/NSA-Skandal-Britischer-Parlamentsausschuss-fordert-bessere-Geheimdienstaufsicht-2186113.html?wt_mc=rss.ho.beitrag.atom; https://www.zeit.de/digital/datenschutz/2013-10/hintergrund-nsa-skandal/komplettansicht; https://www.tagesschau.de/ausland/amerika/usa-wikileaks-snowden-folgen-100.html;

In English:

https://www.theguardian.com/world/2013/jun/06/nsa-phone-records-verizon-court-order; https://www.bbc.com/news/world-us-canada-23123964; https://www.reuters.com/article/world/us-court-mass-surveillance-program-exposed-by-snowden-was-illegal-idUSKBN25T3CJ/

Item CT01_10:

In German:

https://www.sueddeutsche.de/politik/fuenf-jahre-abu-ghraib-chronologie-des-folterskandals-1.462901; https://www.handelsblatt.com/politik/international/britischer-premierminister-chronik-der-aera-tony-blair/2806846.html; https://blog.zeit.de/recht-subversiv/2016/07/06/irak-krieg-tony-blair/;

In English:
https://publications.parliament.uk/pa/cm200102/cmhansrd/vo020924/debtext/20924-01.htm; https://www.independent.co.uk/news/uk/politics/chilcot-report-iraq-war-inquiry-tony-blair-george-bush-us-uk-what-happened-a7119761.html; http://news.bbc.co.uk/2/hi/uk_news/politics/2277352.stm; http://news.bbc.co.uk/2/hi/uk_news/politics/8409526.stm; https://www.independent.co.uk/news/uk/politics/chilcot-report-inquiry-tony-blair-iraq-war-weapons-of-mass-destruction-evidence-verdict-a7122361.html;

Item VT01_10:

In German: https://www.deutschlandfunkkultur.de/ahnungslos-im-lsd-rausch-die-menschenversuche-der-cia-100.html

In English: https://www.cia.gov/readingroom/docs/project%20mk-ultra%5B15545700%5D.pdf;

http://digitalcommons.cedarville.edu/history_capstones/6; https://www.bbc.com/reel/playlist/classified?vpid=p0by2ybg; https://www.theguardian.com/us-news/2019/sep/06/from-mind-control-to-murder-how-a-deadly-fall-revealed-the-cias-darkest-secrets

Item CT01_11/VT01_11

In German:

https://www.n-tv.de/wissen/Die-Folgen-eines-grausamen-Menschenversuchs-article23321467.html; https://www.spiegel.de/geschichte/medizin-skandal-todesstudie-von-tuskegee-a-947601.html; https://www.berliner-zeitung.de/gesundheit-oekologie/tuskegee-experiment-folgen-der-grausamen-menschenversuche-reichen-bis-heute-li.228102; https://www.welt.de/geschichte/article226431137/Menschen-als-Versuchsobjekte-Der-Tuskegee-Skandal-und-die-Folgen.html; https://www.spektrum.de/kolumne/kleine-geschichte-eines-verstoerenden-syphilis-experiments/1838749;

In English: https://www.britannica.com/event/Tuskegee-syphilis-study; https://time.com/4867267/tuskegee-syphilis-study/

Item CT01_12/VT01_12

In German:

https://www.zeit.de/wirtschaft/unternehmen/2023-01/klimawandel-exxon-mobil-studie-wissenschaft-kritik; https://www.spektrum.de/news/wie-exxon-den-klimawandel-entdeckte-und-leugnete/1374674; https://www.faz.net/aktuell/wissen/erde-klima/interne-daten-oelkonzern-exxon-wusste-frueh-vom-klimawandel-18599437.html; https://www.tagesschau.de/wissen/klima/exxon-klima-folgen-studie-101.html;

In English: https://www.bbc.com/news/science-environment-64241994; https://news.harvard.edu/gazette/story/2023/01/harvard-led-analysis-finds-exxonmobil-internal-research-accurately-predicted-climate-change/

Item CT01_13/VT01_13

In German:

https://www.deutschlandfunk.de/in-rauch-aufgeloest-100.html; https://magazin.spiegel.de/EpubDelivery/spiegel/pdf/43510688; https://www.wiwo.de/technologie/forschung/einfluss-der-tabakindustrie-die-unbekannte-geschichte-der-stressforschung/10207454.html;

In English: https://www.pbs.org/wgbh/pages/frontline/shows/settlement/timelines/april942.html#nope; https://applications.emro.who.int/docs/FS-TFI-198-2019-EN.pdf?ua=1;

Item CT01_14

In English:

https://www.theguardian.com/media/2021/jul/10/news-of-the-world-10-years-since-phone-hacking-scandal-brought-down-tabloid; https://www.bbc.com/news/uk-24894403; https://www.independent.co.uk/news/uk/home-news/phone-hacking-murdoch-celebraties-b2326608.html; https://edition.cnn.com/2013/10/24/world/europe/uk-phone-hacking-scandal-fast-facts/index.html; https://www.nbcnews.com/id/wbna43750733; https://www.hollywoodreporter.com/business/business-news/rupert-murdoch-denies-911-victims-212945/; https://publications.parliament.uk/pa/cm201012/cmselect/cmcumeds/903/903ii.pdf; https://www.theguardian.com/media/2010/dec/15/phone-hacking-sienna-miller-evidence https://www.reuters.com/world/uk/murdoch-papers-agree-search-evidence-harry-others-phone-hacking-cases-2024-07-29/

Item CT01_15/VT01_14

In German:

https://www.faz.net/aktuell/wirtschaft/unternehmen/abgas-skandal-um-fiat-ducato-wohnmobile-vor-bgh-19341249.html; https://www.n-tv.de/wirtschaft/Umwelthilfe-wirft-BMW-Abgastrickserei-vor-article20166665.html; https://www.spiegel.de/wirtschaft/soziales/kraftfahrt-bundesamt-wie-die-aufseher-den-abgasskandal-moeglich-machten-a-1151932.html; https://www.verbraucherzentrale.de/aktuelle-meldungen/vertraege-reklamation/urteil-gegen-vw-bei-dieselabschalteinrichtung-haftet-der-hersteller-47999; https://www.zeit.de/mobilitaet/2021-04/diesel-abgasemmissionen-manipulation-automobilindustrie-deutsche-umwelthilfe; https://www.sueddeutsche.de/wirtschaft/eugh-abschalteinrichtung-diesel-1.5151573; https://www.ndr.de/ratgeber/verbraucher/Dieselskandal-was-Dieselfahrer-jetzt-wissen-muessen,dieselmotor108.html; https://www.br.de/nachrichten/wirtschaft/diesel-gutachten-acht-abschalteinrichtungen-in-daimler-motor,SnnA2zp; https://www.heise.de/autos/artikel/Was-ist-eine-Abschalteinrichtung4093501.html?seite=all; https://www.justice.gov/opa/pr/usreaches-15-billion-settlement-daimler-ag-over-emissions-cheating-mercedes-benz-diesel;

In English:

https://www.bbc.com/news/articles/cn5r9rgg6yno; https://www.nytimes.com/interactive/2017/business/volkswagen-diesel-emissions-timeline.html; https://www.ft.com/content/802852e4-db18-4914-8f9c-1fa8cf17d8ca; https://www.nbcnews.com/business/corporations/fiat-chrysler-automobiles-pleads-guilty-fined-300-million-emissions-fr-rcna30487; https://www.reuters.com/business/autos-transportation/mercedez-benz-faces-over-300000-uk-claims-over-diesel-emissions-2023-02-09/;

Item CT01_16

In English:

https://www.britannica.com/event/Iran-Contra-Affair; https://www.pbs.org/wgbh/americanexperience/features/reagan-iran/; https://archive.nytimes.com/www.nytimes.com/books/97/06/29/reviews/iran-

chronology.html?oref=login; https://www.nytimes.com/1988/03/17/world/an-iran-contra-guide-what-happened-and-when.html; https://www.bbc.co.uk/programmes/articles/2Nd9Z8bps6pjw8y3Xh3nldm/reagan-and-the-iran-contra-scandal; http://news.bbc.co.uk/2/hi/americas/269619.stm; https://www.washingtonpost.com/archive/politics/1986/11/30/iran-contra-connection-tipped-scale/f48c6a65-5f54-4c37-bace-739606761b14/;

Item VT01_15

In German:

https://www.sueddeutsche.de/politik/adenauer-watergate-spionieren-1.5563729; https://www.zeit.de/wissen/geschichte/2022-04/klaus-dietmar-henke-spionage-bnd-spd; https://www.deutschlandfunkkultur.de/adenauers-spitzel-bei-der-spd-ein-deutsches-watergate-dlf-kultur-ce3ff4bd-100.html; https://www.welt.de/geschichte/article238181367/Spitzeleien-gegen-die-SPD-Angebliches-Super-Watergate-des-BND.html

Item VT01_16

In German:

https://www.deutschlandfunk.de/die-bankenaufsicht-im-wirecard-skandal-was-ist-die-bafin-100.html; https://www.sueddeutsche.de/wirtschaft/wirecard-skandal-staatsanwaltschaft-stellt-ermittlungen-gegen-ft-journalisten-ein-1.5020557; https://www.reuters.com/article/us-wirecard-accounts-financial-times-idUSKBN25U2VT; https://www.ndr.de/fernsehen/sendungen/zapp/Wie-Wirecard-kritische-Medien-ausschalten-wollte,wirecard114.html; https://www.businessinsider.de/wirtschaft/finanzen/bafin-untersuchte-auch-herkunft-der-wirecard-shortseller-und-stellte-daraufhin-vermutung-an-ueber-gemeinsame-absprache/; https://www.zeit.de/wirtschaft/unternehmen/2020-09/wirecard-financial-times-journalisten-verfahren-eingestellt-staatsanwaltschaft-muenchen; https://www.faz.net/aktuell/finanzen/bafin-verdaechtigt-ft-journalisten-im-fall-wirecard-16144310.html; https://www.handelsblatt.com/finanzen/banken-versicherungen/banken/zahlungsdienstleister-staatsanwaltschaft-stellt-ermittlungen-gegen-ft-journalisten-zu-wirecard-berichten-ein/26157048.html; https://www.deutschlandfunk.de/wirecard-und-die-financial-times-zuerst-wurden-die-100.html;

In English:

https://pressgazette.co.uk/news/dan-mccrum-financial-times-wirecard/; https://www.sueddeutsche.de/wirtschaft/nahaufnahme-bis-auf-die-nachkommastelle-1.5105050; https://www.ft.com/content/03a5e318-2479-11e9-8ce6-5db4543da632; https://www.ft.com/content/284fb1ad-ddc0-45df-a075-0709b36868db; https://www.ft.com/wirecard

Supplement Part C

Changes made for Replication in the UK

We exchanged three items from the plausible CTs in the UK study, as indicated by the EFA the MKULTRA item used in Germany exhibited a double loading, therefore we decided to try a different item in the UK study. Furthermore, two items (VT01_15 & VT01_16) from the German study were heavily context dependent and were there exchange for two more renounced items for the UK study. The newly added items are thus: CT01_10, CT01_14 and CT01_16.

Furthermore, in the German questionnaire for NMKS scale had one item less than the scale in the UK. This is due to a translation issue: *Who has the most influence on what gets aired on the local TV news? a.) Individual reporters; b.) The anchor, the person reading the news; c.) The cameraman; d.) The producer/editor (correct); e.) Don't know*. This item was omitted as the producer/editor cannot meaningfully be translated to "*Produzent/Editor*" in German, because the job descriptions do not fit. We would have had to translate is as "*Chefredakteur*", which would make the item very easy.

Results from Germany including all Preregistered Variables

The items measuring traditional media use did not converge into a reliable index. Cronbach´s Alpha was low very low for both for all four items (α = .47) and for Newspapers and Public Service Media combined (α = .53). Thus, differing from the pre-registration the items were entered individually. Table S21 shows the exact wording of each item.

Table S21

Items used to assess Traditional and Alternative Media Use

Item	Exact Wording
1.	Regionale und überregionale Tageszeitungen & Wochenmagazine (z.B. FAZ, Süddeutsche, Spiegel, Focus, Die Zeit) und ihre Online-Angebote
2.	Boulevard-Zeitungen (z.B. BILD) und ihre Online-Angebote (z.B. Bild-TV)
3.	Sendungen der öffentlich-rechtlichen Anbieter (z.B. ARD, ZDF, 3Sat, arte und Dritte Kanäle) und ihre Online-Angebote (z.B. Mediathek, MrWissen2Go)
4.	Private Fernsehsender (RTL, N-TV, Pro Sieben/Sat. 1, N-TV) und ihre Online-Angebote (z.B. Joyn, RTL+)
5.	Alternative Medien und deren Verbreitungswege (z.B. Russia Today, Tichys Einblick, die Junge Freiheit, Reitschuster, Achtung, Reichelt!)

Table S22

*Multiple Regression Analysis Predicting Discrimination Sensitivity (d′) and Response Bias (c) with variables strictly as preregistered in **Germany**.*

	Discrimination Sensitivity (*d′*)				Response Bias (*c*)			
Predictor	*b* (SE)	*t*	β	*p*	*b* (SE)	*t*	β	*p*
Age	-.002 (.002)	-1.28	-.042	.202	.000 (.001)	-0.36	-.012	.716
Gender	.078 (.022)	3.54	.098	<.001	.026 (.012)	2.07	.055	.038
Education	-.003 (.016)	-0.22	-.006	.827	.002 (.009)	0.21	.006	.833
Political Orientation	-.068 (.013)	-5.11	-.149	<.001	-.014 (.007)	-1.93	-.054	0.54
Anomie	-.034 (.024)	0.56	.020	.557	.134 (.017)	0.82	.028	.413
Conspiracy Mentality	.018 (.031)	-1.42	-.052	.157	.014 (.013)	10.20	.365	<.001
AOT	.150 (.035)	4.32	.130	<.001	.000 (.019)	-0.01	.000	.992
CRT	.040 (.016)	2.56	.073	.011	.019 (.009)	2.19	.060	.029
NMKS	.151 (.024)	6.41	.184	<.001	.009 (.013)	0.66	.019	.505
Social Media Use	-.037 (.044)	-0.84	-.025	.403	.034 (.025)	1.38	.039	.169
Alternative Media	-.066 (.029)	-2.29	-.072	.022	.077 (.016)	4.83	.146	<.001
NFISC	.014 (.030)	0.48	.015	.631	-.026 (.017)	-1.53	-.045	.126
Newspaper	.097 (.020)	4.93	.151	<.001	.001(.011)	0.10	.003	.920
Boulevard (e.g. BILD)	-.021 (.029)	-0.73	-.021	.467	-.050 (.016)	-3.13	-.089	.002
Public Service Media	.064 (.023)	2.75	.087	.006	-.042 (.013)	-3.28	-.101	.001
Private TV	-.018 (.021)	-0.86	-.026	.389	-.011 (.012)	-0.96	-.028	.338
R^2 (corrected)	.216 (.205)				.264 (.254)			

Note. N=1144. Anomie (translated from Teymoori et al., 2016); AOT = Actively Open-Minded Thinking (4 Items); NMKS = News Media Knowledge Structures; CRT = Cognitive Reflection; NFISC= Need for Informational Sharing Correctness also known as Information Literacy (adopted from Valenzuela et al., 2022)

Supplement Part D

Discernment and Response Bias Value Range

Perfect discernment is represented by $d' = 3.19$, a discernment of zero indicates that participants credibility judgements are not better than chance. When a participant makes more false alarms than hits d' can also become negative (e.g. – 3.19, see below). If an individual perfectly distinguishes between all 16 implausible and plausible conspiracy theories presented (e.g., rejecting all eight implausible conspiracy theories and accepting all eight plausible conspiracy theories) d' is infinitely high. This is because the individual is at least as good in discriminating between implausible and plausible conspiracy theories as this study tests. However, the person might be even better. This requires a correction term of 0.5 to be added towards the sum of false alarms and the sum of hits, before calculating the z-values (see Batailler et al. 2022 for a similar procedure; for an in depth explanation of the logic behind this correction see Hautus, 1995)

The response bias indicates how likely a participant is to judge any conspiracy theory as credible, regardless of its plausibility. Extreme c values occur when both the hit-rate and the false alarm-rate are very high (c = 1.59) or very low (c = -1.59). A high response bias corresponds to a low/liberal credibility threshold, meaning that little subjective evidence is needed for a conspiracy theory to be regarded as "true" (Figure 1). A low response bias corresponds to a high/conservative credibility threshold, meaning that considerable subjective evidence is needed for a conspiracy theory to be regarded as "true" (see Figure 2). As we present the same amount of plausible and implausible conspiracy theories, a neutral threshold is situated right in between both bell curves, indicating no a priori tendency to reject or accept conspiracy theories per se (see Figure 2). This neutral threshold is represented by a response bias of zero. In our study, to reach the best possible discernment score, a response bias of zero is needed. [1] As both indices are independent from each other, a response bias of zero can also occur when

all implausible conspiracy theories are regarded as credible and all plausible conspiracy theories are rejected. In this scenario, participants would obtain the worst possible discernment score (*d'* = -3.19).

References

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