The Ominous Triangle of Ignorance: Proposing a Three-Axis Analytical Framework in Ignorance Studies

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The original manuscript of this work was authored in Farsi (Persian) by the researcher. The English version was produced through AI-assisted translation and linguistic refinement, utilizing Google Translate and Large Language Models. The author has meticulously reviewed, edited, and verified the final English text to ensure that all theoretical nuances, philosophical arguments, and conceptual frameworks accurately reflect the original Persian content. The author remains fully responsible for the integrity and accuracy of the translation. The original Persian manuscript is available from the author upon reasonable request.

Abstract

Three categories of false belief, namely superstitious or paranormal belief, pseudoscience, and vacuous pseudo-philosophical nonsense, have not previously been treated as a single, named analytical unit in the ignorance studies literature. This paper attempts to fill that gap by introducing and provisionally testing the concept of the "ominous triangle of ignorance", a term the author previously used in a narrative context based on personal observation. Here the concept rests on empirical, peer-reviewed evidence. The paper examines three main questions: first, whether the three vertices correlate, at the level of individual differences, through a shared cognitive mechanism (analytic-reflective thinking style); second, whether the prevalence of these beliefs in the population, as measured by long-running public surveys, has actually risen in the social media era, or whether only the opportunity to act on this shared vulnerability (visibility and content density) has increased; and third, whether documented evidence shows this vulnerability entering formal structures of power, or prevalence genuinely growing in a specific sub-domain.

The findings show that all three vertices, though only partially, correlate with one another. Prevalence in two vertices (superstition and general pseudoscientific belief) has remained largely stable over two decades, while the density of related content has shown event-driven spikes. In one specific sub-domain, vaccine hesitancy, the paper presents a case documenting both influence on policy and formal power and a genuine rise in prevalence across society. The paper does not claim that the ominous triangle is the most important cause of ignorance today, nor that its three vertices form a fully coherent whole. It offers only preliminary evidence for proposing that these three vertices be studied together, as a three-axis analytical framework, within the ignorance studies literature.

Keywords: ominous triangle of ignorance; pseudoscience; superstition; pseudo-philosophical nonsense; analytic-reflective thinking style; ignorance studies

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Introduction

In recent years, following the global spread of the internet and, in particular, the expansion of social media, field evidence and individual observation have suggested that three categories of content have become more prevalent in public conversation: superstitious or paranormal material, pseudo-scientific belief, and vacuous pseudo-philosophical claims. These three categories share

one feature: they conflict with what is accepted within empirical science and classical philosophy. Each receives a specific, documented definition in this paper.

Superstitious or paranormal belief means accepting the existence of forces, beings, or events that lie outside the known laws of nature. Empirical methods have not confirmed these beliefs, and natural science cannot explain them; examples include ghosts, astrology, fortune-telling, and magic (Tobacyk, 2004).

Pseudoscience refers to claims that borrow the appearance and language of science, such as technical terms, references to "research", and statistics, while lacking one or more of its fundamental features: falsifiability, methodological rigour open to scrutiny, and consistency with established scientific knowledge (Hansson, 2017).

Pseudo-philosophical nonsense, or vacuous pseudo-philosophical claims, refers to statements that use abstract, complex vocabulary to convey an impression of depth without offering evaluable or logically coherent content. Cognitive psychology calls this "pseudo-profound bullshit" (Pennycook et al., 2015).

A limitation applies to all three definitions and needs stating here. In practice, the boundary between each vertex and neighbouring phenomena is rarely clear. Consider the line between superstition and institutionalised religious belief: between belief in the evil eye or the unluckiness of the number thirteen, say, and the religious convictions of millions who would die for them. That line is neither fixed nor a matter of consensus. The boundary between pseudoscience and science has also shifted over time. Phlogiston was once accepted scientific theory before being discarded, whereas "water memory" and energy healing are today classed as pseudoscience by consensus. The boundary between pseudo-philosophical nonsense and genuinely difficult philosophy is equally hard to draw, since many valid philosophical theories seemed obscure and hard to grasp at first and gained clarity only over time. This paper offers no definitive solution to this long-standing problem in the philosophy of science, known in the literature as the demarcation problem (Hansson, 2017). It applies the definitions above as the current research literature accepts them, largely Western and English-language, without claiming that this consensus is universal or independent of any particular intellectual tradition. It leaves questions about the geographical and cultural validity of that consensus, and about borderline cases, to other research. This significant methodological limitation shadows, to some degree, nearly every area of work in ignorance studies, and no study escapes it.

What matters for the three categories named here, and for this paper's subject, is their direct effect on everyday life around the world. Some evidence points to a coincidence between the rise of these three topics in public conversation and growing political and social polarisation, and consequent instability, in the United States. Research from the Pew Research Center shows an unprecedented widening of the ideological gap between Democrats and Republicans over the past fifty years (Pew Research Center, 2022). Studies also show that "affective polarisation" in the United States has grown faster over the past four decades than in eleven other OECD countries (Finkel et al., 2020). This growth is not, however, a uniform global trend: the same studies show that several other countries, including Norway, Sweden, and Germany, have experienced falling rather than rising polarisation over the same period.

This paper's position is that, setting aside a shared root and context, namely conflict with the findings of science and knowledge, two further factors give particular importance to addressing these three categories today.

First, not only has the scale, depth, and speed of information spread reached unprecedented levels, but evidence shows that false and baseless material spreads faster among vast numbers of people and has a greater effect. An analysis of over 126,000 Twitter stories found that false news travelled significantly further, faster, and deeper than true news (Vosoughi, Roy, & Aral, 2018).

Second, these false beliefs, at both the individual and social level, come bound up with traditions, rituals, customs, and practices that cause material and psychological harm to different groups worldwide. Alongside overlapping phenomena such as belief in conspiracy theories, they put mental health at risk (Pilch et al., 2023). Section 1 shows how cognitive psychology evidence also indicates that these three categories of false belief relate to, and correlate to some degree with, certain cognitive constructs (Jastrzębski & Chuderski, 2022; Pennycook et al., 2015; Majima, 2015).

Taken together, these factors and reasons support the view, from this paper's standpoint, that the three categories, despite their differences, share a psychological overlap and interact potentially with the information environment. They can therefore be proposed as a shared conceptual cluster in the ignorance studies literature. The author previously referred to this concept in a different context, narrative and based on personal observation rather than empirical evidence, formulating it as the metaphor of the "ominous triangle of ignorance" (Saadat, 2026).

No such framework has so far been distinguished and named as an analytical unit in the ignorance studies literature, but the paper's view does not conflict with classifications traditionally proposed for the concept of ignorance. Every such classification, from pre-modern distinctions across the Greek, Roman, Jewish, Islamic, Christian, Buddhist, and Vedantic traditions to contemporary academic work, including Merton, Smithson, Proctor, Alcoff, Mills, Wehling, Gross, McGoey, Peels, and El Kassar, addresses classification in terms of the nature, meaning, or scope of ignorance. This paper does not aim to define, delimit, or draw boundaries around ignorance. Its aim is to place three categories of concept under a shared conceptual umbrella with a similar function.

The paper attempts to introduce this conceptual cluster as an analytical unit grounded in the literature of the field. To ensure the claim does not exceed what the evidence supports, the paper's claim is limited to the coherence and naming value of this cluster, not to the assertion that these three categories are the most important cause of confusion or polarisation today. A claim of that kind would require systematic comparison with rival explanations, such as the political economy of media, declining institutional trust, and identity-based polarisation, which neither this paper nor the existing literature provides. Such a claim, even if intuitively correct, is not currently defensible. The paper's aim is to show that these three vertices:

(a) are related through independent, though partial, empirical evidence (Section 1);

(b) have, in at least two specific domains, had the contemporary media environment increase the opportunity for their shared vulnerability to be exercised, though not necessarily their prevalence (Section 2);

(c) have, in documented cases, been associated with influence over formal structures of power and genuine growth in prevalence in at least one sub-domain (Section 3).

Together, these three steps provide an initial basis for proposing the joint study of these three vertices, as a three-axis analytical framework within this literature, rather than proof that a fully coherent cluster exists.

One further methodological limitation should be noted here. Unlike the other two vertices, the vertex of vacuous pseudo-philosophical claims is not a directly askable proposition but rather a style of expression. Nobody says "I believe in talking nonsense"; the phenomenon shows itself in how something is said. Measuring its prevalence directly, rather than the correlated psychological construct, therefore requires linguistic content analysis rather than survey questions, and no such construct yet exists in the literature.

We can now turn to the evidence for correlation and shared mechanism within the ominous triangle of ignorance.

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1. From the individual to the population: have those more prone to the content of the ominous triangle become more numerous?

In this paper's metaphor, each of the three great troubles, pseudo-philosophical nonsense, pseudoscience, and superstition, forms a vertex of the triangle. The triangle's sides connect these vertices. On this metaphorical view, the stronger, or geometrically speaking the "longer", these sides are, the more members of society are prone to being caught at more than one vertex at once.

Before anything else, we must answer a prior question: is there any reason to view these three vertices together, as a single analytical framework, rather than as three unrelated phenomena?

Empirical evidence gives a positive, if limited, answer. All three correlate with related cognitive constructs that have been repeatedly replicated, namely the analytic-reflective thinking style, usually measured with the Cognitive Reflection Test (CRT).

The closest evidence bearing on all three vertices together comes from a study by Jastrzębski and Chuderski (2022). Across three experiments involving 827 people, the researchers found that possessing an analytic thinking style correlates with rejecting three categories of false belief: pseudoscience (a correlation of 37%), paranormal belief (around 20%), and conspiracy theories (20%). Conspiracy theory belief is not one of the three vertices of our metaphorical ominous triangle, but the degree of correlation for the other two categories, the other two vertices of our metaphorical triangle, is considerable and significant.

Examining the third vertex, pseudo-philosophical nonsense, requires a different study. Pennycook and colleagues' 2015 research found that possessing the same analytic thinking style correlates with rejecting "pseudo-profound bullshit" (Pennycook et al., 2015), the closest conceptual construct to our third vertex.

Two further studies each bear on one vertex of this paper's metaphorical triangle. Majima's 2015 study measured non-paranormal pseudoscience, such as alternative medicine, separately from paranormal belief and found a positive correlation between the two vertices (Majima, 2015). Pennycook and Rand's 2020 study found that the same thinking style also relates to susceptibility to fake news (Pennycook & Rand, 2020), a neighbouring phenomenon, though not one of the triangle's three vertices.

Despite these findings, three points must be noted here.

First, all these relationships are correlational, not identities, and provide no grounds for asserting a causal relationship.

Second, Jastrzębski and Chuderski's figures, 37% and 20%, come from a single study, not from a single measure assessing all three vertices together. That study explains the share of variance that analytic thinking style accounts for in rejecting each belief separately, not how much variance the

two vertices share with each other. The vertices of the triangle therefore correlate through a shared construct, but this correlation alone does not establish the full coherence of a single cluster. It shows only that part, not all, of the variability in each belief is explicable through this construct: in other words, the sides of the triangle are short, not long.

Third, the measurement tool itself, the CRT, has faced serious methodological criticism. Martire and colleagues found that people who accept implausible beliefs spend longer on the CRT and are not proportionally more likely to give the intuitive, incorrect answer (Martire et al., 2023). Their low scores, then, do not necessarily stem from cognitive laziness or intuitive thinking; they may have another source, such as weaker purely computational ability. This criticism undermines the interpretation of the underlying mechanism, not the correlation itself.

Nonetheless, an independent meta-analysis (Yelbuz, Madan, & Alper, 2022), drawing on 145 samples and 181 effect sizes with no evidence of publication bias, confirmed a significant negative relationship between reflective thinking and belief in conspiracy theories, with a medium effect size ($r = -0.19$). Despite Martire's methodological critique, this link, for a phenomenon neighbouring and overlapping with the triangle rather than one of its vertices, has therefore remained stable at least at the meta-analytic level.

Even allowing for these two warnings, the overall picture in this section stands. All three vertices of the triangle correlate, at least at the level of individual differences, with a shared cognitive construct: a partial, not complete, correlation, drawn from several independent studies rather than a single measure, and one that has remained at least somewhat resistant to a serious methodological critique. This finding answers the question that opened the section: yes, there is reason to view these three vertices as a single analytical framework.

This answer, however, opens a new question. If this individual-level correlation is genuine, has the prevalence of these beliefs, at the population level and over time, also risen? Section 2 addresses this question.

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2. From individual correlation to population prevalence

The previous section showed that one individual trait, the analytic-reflective thinking style, links all three vertices of the triangle at the individual level: someone more prone to rejecting one belief is also more prone to rejecting another. This finding alone, however, does not answer the question this paper pursues: has the prevalence of these beliefs, at the population level and over time, changed?

These two questions are not the same, because individual correlation can be entirely genuine without the proportion of susceptible people in society having risen. This section tests precisely that second question, using population-level data.

One might expect that, if the underlying individual trait has remained relatively stable over a decade, then the prevalence of these beliefs in public surveys should also have remained relatively stable. This paper offers no direct data proving the stability of the trait itself, but is this expectation borne out?

Some evidence suggests that, for two of the three vertices, the answer is yes.

For superstition, Gallup surveys show that belief prevalence, over the longest comparable period (2001 to 2025), has remained largely unchanged (Newport & Strausberg, 2001; Moore, 2005; Yi & Hogenboom-Jones, 2025).

For pseudoscience, the long-running NSF index of belief in the scientific status of astrology shows fluctuation with no clear direction over the period associated with the rise of social media, 2010 to 2018 (National Science Board, 2020).

This stability holds only for these two vertices, not for all three; Section 3 shows that the third vertex, in the form of the sub-domain of vaccine hesitancy, follows a different pattern.

If prevalence has remained stable, why do we sense that these beliefs have become more common?

This paper's likely answer is that what has actually increased is not belief prevalence but the visibility of related content. A time-series analysis of flat-Earth content on Brazilian Telegram illustrates this distinction: content volume spiked in 2020, coinciding with COVID-19, and again in 2021, coinciding with the US election, but this spike occurred in production and circulation, not necessarily in the number of people who hold the belief (Cugler de Moraes Silva, 2024).

An experimental finding, from the same line of research as Section 1, suggests why this distinction between stable prevalence and variable visibility is mechanistically plausible. Pennycook, Cannon, and Rand found that mere prior exposure to a piece of fake news increases its perceived accuracy on a later encounter, independently of a person's thinking style (Pennycook, Cannon, & Rand, 2018).

This shows that increased content density, even without any change in an individual's thinking style, can have an effect. No study, however, has directly shown that increased content density on a particular platform, Brazilian Telegram, has, through this mechanism, raised actual acceptance in that population.

Three independent strands of evidence, then, together form a plausible account: the individual trait has stayed stable, while the opportunity to act on it, not its prevalence, has grown. These three strands do not, however, form a proven chain; the link between the second and third strand has not yet been tested.

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3. Instances of influence on structures of power, and one sub-domain where prevalence is genuinely rising

Earlier sections presented evidence for individual-level correlation among the triangle's three vertices (Section 1) and for relative stability in prevalence across two specific domains, alongside a spike in content density on one particular platform (Section 2). This evidence, however, left one question open: has this shared vulnerability, in any of the triangle's three vertices, moved beyond individual correlation and content density into genuine growth in prevalence, or even into formal power?

This section addresses that question, with two fresh strands of evidence that must be kept separate from each other and from the earlier chain of evidence. Readers should not treat them as links in a proven causal chain running from cognitive trait to media environment to formal power, but as two independent instances that, alongside the earlier evidence, complete the picture.

The first instance is a documented policy event rather than survey data. In February 2025, the United States Senate confirmed Robert F. Kennedy Jr, a well-known anti-vaccine activist with two decades of promoting unfounded claims about a link between vaccines and autism, as Secretary of Health and Human Services (Diamond, 2025; Science/AAAS, 2025). In the months following his appointment, he altered the membership of the Advisory Committee on Immunization Practices to

include vaccine critics and cancelled funding for COVID-era vaccination programmes (PBS News, 2025).

This instance shows only that one individual, with a record matching one of the triangle's vertices, reached formal power; it does not show that his rise resulted from the cognitive mechanism of Section 1, the media opportunity of Section 2, or the triangle in general, and this paper cannot establish such a causal claim. This instance is a single case, not a trend, but it is not isolated or without context. In 2025, a European coalition called Make Europe Healthy Again (MEHA) formed, consciously modelled on the American initiative, with a steering committee made up of European anti-vaccine figures and far-right politicians (Health Policy Watch, 2025), though it remains a political and advocacy coalition rather than a takeover of a formal institution.

The second instance concerns the same sub-domain, vaccine hesitancy, but relies on quantitative evidence. Vaccine hesitancy should not be treated as a pure subset of pseudoscience: the standard definition (SAGE/WHO) attributes it to multiple factors, including institutional trust and political identity, alongside pseudo-scientific belief. For this reason, this sub-domain should not be read as the missing link in the chain formed by Sections 1 and 2. It should instead be treated as independent, and equally limited, evidence bearing on a separate question: has genuine prevalence, rather than mere content density, grown anywhere?

The evidence suggests that, for this one sub-domain, the answer is yes. The CDC's RANDS survey shows that general hesitancy towards COVID-19 vaccination rose from 40.7% in 2021 to 44.6% in 2022 (Nguyen et al., 2024). A four-wave study in Madrid also shows that this rise continued even after the COVID-19 crisis subsided, from 3.8% in 2019 to 18.5% in 2024 (Pichiule-Castañeda et al., 2025).

This finding does not contradict the stability reported in Section 2, since that stability concerned two other domains, superstition and general pseudoscientific belief. It does show, however, that stability is not a permanent feature of every vertex of the triangle; in at least one sub-domain, genuine and sustained growth has occurred.

Readers should treat these instances as exactly as limited as they are, no more. That the paper closes with the example of Kennedy, drawn from the world of politics, decision-making, and power, carries no message in itself about the relative importance of the ominous triangle. This example was chosen purely for being well documented and recent, not for representing a wider trend. Readers should bear in mind the same limitation stated in the introduction regarding the claim of "the most important cause".

Finally, this paper does not claim that the conceptual cluster of false information and unscientific claims making up the ominous triangle of ignorance is the most important cause of ignorance today. Its aim is to show that the content within this triangle is a force that should not be ignored and merits more rigorous research, beyond what this paper has covered.

Conclusion

This paper has attempted to move the concept of the ominous triangle of ignorance from the narrative formulation of the author's earlier book (Saadat, 2026) towards a proposal for an analytical, three-axis framework within the ignorance studies literature, rather than an established analytical unit. Three steps advanced this aim.

First, independent, peer-reviewed evidence showed that all three vertices correlate with related, partially shared cognitive constructs. This correlation alone does not establish full coherence, and it has remained at least somewhat resistant to a serious methodological critique.

Second, longitudinal evidence showed that this correlation, for two vertices, superstition and general pseudoscientific belief, has not translated into rising prevalence among the general population. Instead, the media environment has increased the opportunity to act on this shared vulnerability, though the link between rising content density and genuinely rising acceptance has not yet been tested.

Third, documented instances showed that this current has coincided both with influence over formal structures of power and with genuine, sustained growth in prevalence in at least one further sub-domain, vaccine hesitancy.

It is worth restating what this paper has not proven: neither that the ominous triangle is the most important cause of ignorance or polarisation today, nor that its three vertices form a fully coherent, unified, and well-defined cluster. What it offers is more limited. Preliminary evidence, from independent, peer-reviewed sources, supports the proposal that these three distinct families of belief, despite their occasionally blurred conceptual boundaries and despite the fact that some still lack an independent, measurable construct, merit joint study as an analytical framework within the ignorance studies literature. The content within this triangle is a force that should not be ignored and merits more rigorous research, beyond what has been done so far and beyond the scope of this paper.

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