# Conspiracy Theories Are Not Theories

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#### Abstract

This paper presents the results of two corpus studies investigating the discourse surrounding conspiracy theories and conventional theories. The first study demonstrates that conspiracy theories lack the epistemic and scientific standing characteristic of theories. The second study provides evidence that conspiracy theories are frequently spread in a manner that resembles the dissemination of falsehoods and misinformation. These findings indicate that conspiracy theories do not possess the characteristics typically associated with genuine theories.

**Keywords:** corpus analysis; conspiracy theory; theory; string theory; spreading falsehoods

#### Introduction

The minimalist account makes two claims about conspiracy theories. First, conspiracy theories are argued to be about conspiracies (see, e.g., Basham & Dentith 2016, Cassam 2019, Coady 2008, Cohnitz 2018, Feldman 2011, Harris 2018, Keeley 1999, Pigden 2007, Räikkä 2018). Second, conspiracy theories are argued to be theories (see, e.g., Dentith, 2022, Duetz, 2022, see also Pigden, 2007). Both claims suggest themselves by a compositional analysis of the term. Consider, for example, the composite terms 'game theory', and 'string theory'. Very roughly, game theory is a theory about games, and string theory is a theory about strings. Thus, without evidence to the contrary, we might simply assume the minimalist account to be correct, according to which conspiracy theories are theories about conspiracies.<sup>1</sup>

Empirical evidence against the first characteristic has recently been put forward by Napolitano & Reuter (2021). The results of their experiments reveal a double dissociation of conspiracy and conspiracy theory: Not only are people willing to call a claim or an explanation a conspiracy theory even though no conspiracy has taken place, they also show that even if a conspiracy is part of the explanation that is put forward, laypeople are not inclined to call the explanation a conspiracy theory if the conspiracy has truly taken place. What about the second pillar of the minimalist account: are conspiracy theories really theories? Very recently, several papers have raised

doubts about the status of conspiracy theories as theories (Đorić 2020, Frindte & Frindte 2023, Huneman & Vorms 2018, Napolitano 2022). While Napolitano (2022) argues against the claim that conspiracy theories are theories but rather are self-insulated beliefs in conspiracies, others have defended the minimalist account (Dentith, 2022, Duetz, 2022, see also Pigden, 2007). Most of the arguments in this debate are based on the intuitions of individual scholars. In this paper, we provide empirical evidence that conspiracy theories are not theories using corpus-linguistic tools.

# A Comparative Corpus-Linguistic Approach

Before attempting to determine whether conspiracy theories are truly theories, it is imperative to first address the question of what constitutes a theory. Regrettably, there is limited agreement regarding this matter. Sociologist Abend (2008) recognizes seven distinct meanings of the term 'theory'. Meanwhile, philosophers often differentiate between the syntactic view, which conceives of theories as a collection of theorems formulated in languages of predicate logic (Carnap 1966, Hempel 1966, Winther 2021), and the semantic view, which equates theories with a set of models (Suppes 1960, van Fraassen 1989). Natural scientists rarely provide a definition of a theory, but instead emphasize the unique epistemic status of theories (National Academy of Sciences 1998, see also Popper 1963). They assert that theories undergo testing, confirmation, falsification, substantiation, refinement, and revision in response to the observations and experiments of the phenomena that the theories are meant to explain. In this paper, we adopt the latter practice-driven approach to examine the status of conspiracy theories. If it is found that people similarly test, confirm, substantiate, refine, and revise conspiracy theories, this would provide substantial evidence in support of the argument that conspiracy theories are indeed the-

We examine whether conspiracy theories are regarded as theories through a linguistic analysis. If people engage in activities such as testing, confirming, and refining (conspiracy) theories, we can reasonably anticipate

While the meaning of composite terms is often made up of the meanings of its parts, that is not always the case, e.g., the rainbow press is not the press about rainbows.

that they would also discuss these activities in talking and writing. Hence, examining the language used to describe the handling of theories and conspiracy theories can offer insight into their epistemic and scientific standing. To investigate this, we will observe the language employed by individuals to describe their own and others' interactions with theories. This method is comparatively straightforward as we only need to analyze the language rather than the many ways in which people use and engage with theories.

One way to examine how people talk about what they do with theories and conspiracy theories is to collect a large number of phrases of the form "VERB [target term]", e.g., "test theories", "share conspiracy theories". etc., from a corpus of choice. Importantly, we would need to compare the verbs preceding a whole range of different theories, in order to paint a fairly accurate and representative picture. This is what we have done in Study 1 below. A comparative corpus analysis is, of course, not restricted to verbs only. Further evidence for what theories are and how people specify theories can be collected by investigating adjectives that occur before the target terms: "ADJ [target term]". Previous studies by Napolitano and & Reuter (2021) and Reuter & Baumgartner (forthcoming) have used a similar design, focusing on adjectives rather than verbs.<sup>3</sup> Their studies indicate that the term 'conspiracy theories', in contrast to the term 'theories', is primarily an evaluative term. While these corpus analyses suggest important differences between conspiracy theories and other theories. they do not provide strong enough evidence about the status of conspiracy theories as theories.

Here is how we will proceed: In the next section, we present Corpus Study 1, the results of which demonstrate that conspiracy theories are not subject of scientific and educational activities. Study 1 also reveals a frequent occurrence of spreading terminology preceding the term 'conspiracy theories', which we further investigate in Corpus Study 2. We find remarkable similarities between the way we talk about conspiracy theories and the way we discuss falsehoods and misinformation. In the General Discussion, we present our argument deductively and discuss various objections against our conclusion that conspiracy theories are not theories.

## Corpus Study 1

Verbs occur in many different positions in English sentences. For our purposes, we only observe verbs that occur directly in front of the terms of interest. Let us illustrate the main idea by using a pre-built and freely

available corpus like the NOW corpus. The advantage of using such a corpus is that readers can—after registering—easily replicate the results for themselves. In order to get the respective data, we enter <VERB theories> into the search field of the NOW corpus, then click on options and group by lemma in order to catch all different forms of the verbs. Table 1 (right hand side) shows the most frequent verbs preceding the term 'theories'. This list of the 10 most common verbs provides some positive evidence that a linguistic approach is likely to deliver some promising results. Among the most frequent terms we find 'test', 'develop', and 'support', which highlight some of the scientific activities. Other terms like 'discuss', 'offer', and 'learn', more strongly emphasize some of the educational aspects surrounding theories.<sup>4</sup>

Next, we enter <VERB conspiracy theories> into the NOW search field and observe the most common verbs occuring before 'conspiracy theories' (see Table 1 left hand side). A look at the ten most common verbs preceding 'conspiracy theories' reveals a highly frequent use of verbs referring to the spreading of information. 6 out of 10 verbs in the top 10 belong to that category. In contrast, no terms appear that clearly belong to the scientific or educational realm with the possible exception of 'debunk', which is also the ninth most frequent term in front of 'theories'.

Conspiracy Theories		Theories		
Term Number		Term	Number	
promote	885	fan	1157	
spread	611	test	320	
push	490	develop	182	
believe	441	discuss	125	
peddle	389	offer	105	
embrace	243	share	98	
share	151	promote	96	
amplify	141	support	96	
debunk	136	debunk	95	
espouse	135	learn	83	

**Table 1:** A list of the 10 most frequent verbs in front of 'conspiracy theories', and 'theories'.

While these results indicate some important differences between the way people talk about theories and conspiracy theories, we need to be careful in not over-interpreting those results. First, we have only focused on the 10 most frequent verbs. Second, the NOW corpus only consists of texts from news websites. As such it might not give a representative picture of the way ordinary people talk about theories and conspiracy theories. Third, a more comprehensive comparative analysis should also include several control conditions. Given these limitations, we therefore decided to build our own corpus, include a greater list of verbs, and to throw several control conditions into the mix.

Perhaps one might think that the most revealing linguistic phrase to investigate are phrases of the form "Theories are NOUN". However, people write little in that very manner.

<sup>&</sup>lt;sup>3</sup> see also Baumgartner 2022, Reuter 2019, Reuter et al. 2022, Sytsma et al. 2019, Willemsen et al. 2021.

The most frequent term 'fan' is wrongly identified as a verb by the NOW corpus. Note also that the NOW corpus is a dynamic corpus. Thus, numbers will change given that the corpus grows continously.

#### Methods and Data

As control conditions, we decided to analyze the following target terms: 'critical race theory', 'fan theories', 'game theory', 'music theory', 'string theory', and just 'theories'. The terms 'game theory', 'music theory' and 'string theory' were selected (a) because they are frequently discussed on the internet and would likely deliver a sufficiently large sample, and (b) because they are representative and much-discussed theories from three different domains. The terms 'critical race theory' and 'fan theories' were selected because the status of critical race theory and fan theories as theories is perhaps a little more controversial. If we were to find that a linguistic analysis of 'conspiracy theories' is similar to an analysis of 'critical race theory' and 'fan theories', then this would certainly affect the conclusions we can draw from that data.

For this study, we focus on data from the social media platform Reddit. Reddit is often referred to as "the cesspool of the internet," and it is well known to host a myriad of conspiracy theories. However, one can also find elaborate discussions on more academic topics, such as music theory or string theory. Previous research has shown that Reddit plays an important role in the diffusion of conspiracy theories from Qanon to anti-vaxxers (e.g., Cinelli et al., 2022, Engel et al., 2022, Shahsavari et al., 2020). Hence, Reddit provides abundant corpus data relevant to our investigation.

The data for this study consists of 12,991 target structures extracted from Reddit comments, which were collected using the Pushift API (Baumgartner et al., 2020). The data was cleaned and syntactically annotated (PoStagging) in order to extract our target structures. Except for modal verbs and participles (e.g., "competing theory"), verbs often do not directly precede singular direct and indirect objects without the addition of an article (e.g., "I read a theory"). Hence, the fact that we are focusing on constructions of the form "VERB [target term]" means that we are forced to use either the plural form or standing terms as our targets. We further excluded past, gerund, and present participle constructions, as well as modal verbs.

#### Verbs and Categories

In order to conduct a more quantifiable analysis of the data, we opted to examine the 30 most frequent verbs for all seven target terms and categorize them into five distinct categories.<sup>6</sup>

 scientific: build, confirm, create, develop, discover, disprove, elaborate, falsify, form, prove, solve, test, write.

- (ii) educational: cover, describe, discuss, explain, grasp, learn, study, teach, understand, visualize.
- (iii) **consumptive**: hear, read, see.
- (iv) **attitudinal**: accept, appreciate, believe, embrace, enjoy, hate, like, love, oppose, reject, support.
- (v) **spreading**: fuel, peddle, post, promote, propagate, push, share, spew, spout, spread.

Whether or not terms belong to the category consumptive, attitudinal, and spreading, should be fairly uncontroversial, the categories scientific and educational are certainly less clear. We therefore asked five independent coders to tell us whether these terms belong to the scientific or the educational sector. At least four out of five coders agreed on all terms except two: 'define' and 'know' were subsequently excluded from the analysis.

#### Results

	attitud.	consum.	edu.	scient.	spread.
con. theories	29.70	6.17	5.34	6.73	52.06
crit. race th.	25.92	4.58	60.10	2.54	6.86
fan theories	31.40	30.23	9.30	19.77	9.30
game theory	25.00	7.93	64.02	2.44	0.61
music theory	5.51	0.82	93.08	0.24	0.35
string theory	12.07	4.31	62.93	20.69	0.00
theories	16.65	21.09	18.74	33.04	10.48

**Table 2:** Shares of verb class per target phrase [%]

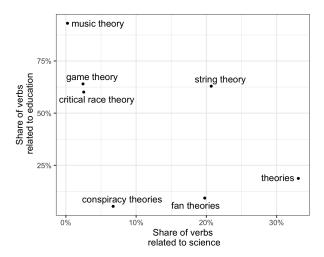
Table 2 displays the percentages of the five categories among all terms selected for classification. Crucial for an evaluation of conspiracy theories are those terms that belong to the scientific and education category. Figure 1 illustrates the proportions of educational verbs versus scientific verbs. As we can see, the term 'conspiracy theories' has the lowest proportions for both verb classes (5.34% educational, 6.73% scientific) taken together. For 'theories', we find the highest proportion of scientific verbs (33.04%), but also relatively low numbers of educational verbs (18.74%). 'Fan theories' is located between the two. On the other hand, 'music theory', 'game theory', and 'critical race theory' are predominantly preceded by educational verbs (>50%) and have very low proportions of scientific verbs (<5%). Lastly, 'string theory' is the only target phrase diametrically opposed to 'conspiracy theory'. If we compare the (summed) proportions of educational and scientific verbs to spreading verbs (Figure 2), we see that 'conspiracy theory' is an outlier, as it is mainly used with spreading verbs (52.06%).

## Discussion

In our Corpus Study 1, conspiracy theories have revealed themselves to be markedly different from other theories. People do not write about conspiracy theories in the same scientific and educational manner in which they write about other theories: Neither do we find verbs that

The syntactic annotation was performed using spacyr (v1.2.1) in R (v4.1.0).

Verbs like 'need' and 'mention', which did not fit any of the categories, were not further analyzed.



**Figure 1:** Relation between the seven different terms on a two-dimensional space spawned by the components scientific and educational.

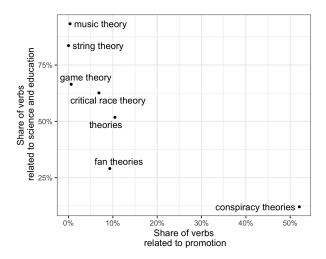


Figure 2: Relation between the seven different terms on a two-dimensional space spawned by the components promotion/spreading and scientific+educational.

indicate people's scientific engagement with conspiracy theories, nor are conspiracy theories taught and studied like other scientific theories.<sup>7</sup> Consequently, conspiracy theories are likely to be theories in name only but not substantial theories that are investigated and studied.

# Corpus Study 2

Not only did we observe a lack of scientific and educational verbs preceding 'conspiracy theories', we also found a class of verbs—spreading verbs—that frequently occur before conspiracy theories but hardly at all with any other of the tested theories. Why would people so frequently talk about conspiracy theories in that way?

An answer might be provided by looking at other things that are spread, pushed and promoted.

In order to explore phenomena that are spread and peddled, we enter <spreading NOUN> and <peddling NOUN> into the search field of the NOW corpus. The most common nouns are displayed in Table 3. These include 'misinformation', 'rumours', 'lies', and 'falsehood'. The term 'conspiracy theories' is the fourth most common noun appearing after 'peddling', the third most frequent noun after 'spouting' and the 21st most common noun after 'spreading'. In other words, many people seem to treat conspiracy theories on par with falsehoods, misinformation and rumours.

spreading		peddling	
Term	Number	Term	Number
misinformation	7162	lies	733
awareness	5825	drugs	557
rumours	3873	falsehood	314
lies	3521	conspiracy [theories]	228
coronavirus	2818	misinformation	200
disinformation	2433	rumours	191

**Table 3:** A list of the 6 most frequent nouns occuring after 'spreading', and 'peddling'.

In order to further inquire into the similarities and dissimilarities of conspiracy theories on the one hand, and falsehoods and misinformation on the other, we decided to run a second corpus analysis in which we compare the categories of verbs preceding 'conspiracy theories' with verbs occurring before terms such as 'falsehoods'. In Table 4, we list the 10 most frequent verbs for 'conspiracy theories' and 'falsehoods' from the NOW corpus.

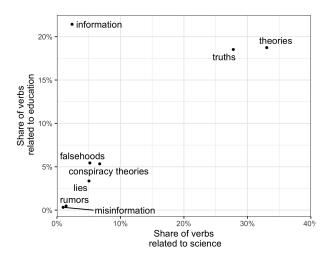
Conspiracy Theories		Falsehoods	
Term	Number	Term	Number
promote	885	spread	748
spread	611	perpetuate	370
push	490	peddle	304
believe	441	contain	142
peddle	389	promote	136
embrace	243	publish	121
share	151	propagate	116
amplify	141	tell	113
debunk	136	use	100
espouse	135	debunk	92

**Table 4:** A list of the 10 most frequent verbs in front of 'conspiracy theories', and 'falsehoods'.

While a direct comparison between the ten most frequent verbs before 'conspiracy theories' and 'falsehoods' displays remarkable similarities, a more comprehensive comparative analysis is warranted once more. We therefore conducted a second corpus analysis using Reddit comments.

For this follow-up, we were interested in how 'conspiracy theories' (along with 'theories') align with broader categories of speech often associated with spreading verbs, viz. 'truths/falsehoods', 'information/misinformation', 'lies', and 'rumors'. The Reddit data for Study 2 consists of 11,997 new comments, in

Critical race theory, music theory, and game theory also have very few scientific verbs preceding them. Perhaps this indicates their status as theories in the social sciences in contrast to theories in the natural sciences.

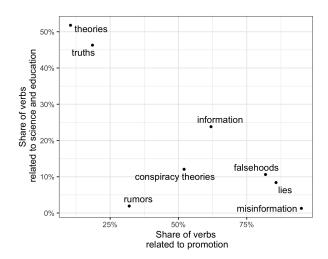


**Figure 3:** Relation between the eight different terms on a two-dimensional space spawned by the components scientific and educational.

addition to the observations for 'conspiracy theories' and 'theories' previously used in Study 1. The preprocessing and annotation used in Study 2 is identical to the one in Study 1. What we find is that 'theories' and 'truths' behave similarly, whereas 'conspiracy theories' is much closer to falsehoods and rumors. Figure 3 shows the proportion of verbs related to education versus science. As we can see, 'conspiracy theories' clusters nicely with 'falsehoods', 'lies', 'misinformation', and 'rumors', which all have very low proportions of either verb category. In contrast, the share of educational verbs is quite high for 'information' (21.43%), 'theories' (18.74%), and 'truths' (16.66%). However, unlike 'theories' (33.04%) and 'truths' (27.78%), 'information' (2.38%) has very low shares of scientific verbs, similar to 'conspiracy theories' (5.34%). Figure 4 compares the proportions of verbs related to science and education with those related to spreading. Here, again, we see 'theories' and 'truths' are used very differently from all other target expressions. Their share of spreading verbs is a lot lower, and their share of scientific and educational verbs is a lot higher compared to the majority of the other terms.

## Discussion

The results of Study 2 indicate that the phrase "conspiracy theory" behaves in a manner similar to expressions associated with the dissemination of false information, while the word "theory" does not. Analysis of verbs used in reference to conspiracy theories revealed a prominence of terms related to spreading, suggesting that people tend to focus on the dissemination aspect of conspiracy theories, similarly to misinformation and lies. These findings provide further support for the argument that conspiracy theories are not widely perceived as theories.



**Figure 4:** Relation between the eight different terms on a two-dimensional space spawned by the components spreading/promotion and scientific+educational.

## General Discussion

The results of Study 1 reveal a significant discrepancy in the manner in which we discuss conspiracy theories as opposed to theories. While theories are commonly described as being tested, developed, and studied, conspiracy theories are infrequently discussed in these terms. Additionally, we discovered that, in contrast to theories, people often express that they spread, promote, and peddle conspiracy theories. Further examination of the prevalent use of spreading terminology in Study 2 shows a significant overlap between the way in which we discuss conspiracy theories and falsehoods. This leads to the conclusion that conspiracy theories are not, in fact, theories.

The conclusion reached in this paper may be met with resistance. To more fully understand and address any potential objections to our conclusion, it is beneficial to present the main argument of this paper in a deductive form. The following argument posits that conspiracy theories (CTs) are not considered theories due to the distinct manner in which they are discussed and treated:

- A systematic difference in the way we talk and write about CTs and theories is observed.
- 2. If such a systematic difference is present, then CTs and theories are treated systematically differently.
- 3. If CTs and theories are treated systematically differently, then CTs are not theories.
  - (C) CTs are not theories.

Premise (1) is firmly supported by the corpus studies presented in this paper. Some may raise concerns that the Reddit comments that make up our main corpus may not be representative and therefore, the data collected could potentially present a distorted perspective.

However, if this were the case, one would expect to observe vastly different results when analyzing the NOW corpus. While the list of verbs used in relation to conspiracy theories may not fully align between the Reddit and NOW corpus, the overall conclusions remain consistent: conspiracy theories are not commonly preceded by scientific or educational verbs and instead frequently co-occur with terms related to spreading.<sup>8</sup>

An additional concern regarding premise (1) may pertain to the specificity of our examination of the term "conspiracy theories." The argument posits that individuals may use differing language when referring to conspiracy theories in the plural form as opposed to a singular conspiracy theory, or when discussing specific conspiracy theories such as the QAnon conspiracy theories or the flat earth theory. However, corpus data does not support this assertion. As presented in Table 5, the most commonly used verbs occurring before both phrases "VERB the conspiracy theory" and "VERB QAnon theories" belong to the category of spreading. It should be noted that this analysis does not suggest that all conspiracy theories are undeserving of the label 'theory'. For instance, theories surrounding the Watergate conspiracy may indeed be considered proper theories as characterized in this article. However, as Napolitano and Reuter (2021) have proposed, such theories may no longer be classified as conspiracy theories in the contemporary understanding of the term.

The Conspiracy Theory		Qanon theories	
Term	Number	Term	Number
promote	155	promote	12
support	126	promote	7
push	117	push	7
spread	87	spread	5
believe	65	retweet	3

**Table 5:** A list of the 5 most frequent verbs in front of 'the conspiracy theory', and 'Qanon theories'.

With regard to premise (2), it may be argued that the connection between the language used to discuss conspiracy theories and the manner in which they are treated may not be entirely justified. A skeptic may posit that language use can often be misleading. While this is a valid point, the operationalization used in this analysis seems to accurately depict the actions taken with regard to theories, i.e., people discuss, apply and explain these theories. A more specific critique may therefore question whether the most frequently used verbs preceding "conspiracy theories" accurately reflect the actions taken with regard to these theories. While it is unlikely that individuals would actively test, develop, and elaborate conspiracy theories but talk about them in a very different manner, here are two possible explanations why such

a discrepancy might exist: 1) individuals may refrain from discussing the development and testing of conspiracy theories due to potential social repercussions, such as mobbing or backlash, and 2) those who approach conspiracy theories from a scientific perspective may be a minority and thus, their discourse is overshadowed by those who dismiss these theories. While these explanations would offer some interesting insight if they were true, they would also imply that the majority of individuals do not consider conspiracy theories to be theories. Are there any independent reasons to grant credibility to the minority's viewpoint? It seems that such a justification can only be established by granting the minority the status of experts. It would be difficult, to say the least, to argue that advocates of conspiracy theories deserve the label 'experts' in any substantial sense.

Finally, can premise (3) be challenged? terargument could be advanced that the term 'theory' is a family-resemblance or exemplar concept, similar to the concept of 'game' (Wittgenstein 1953, Rosch 1978). While the activities associated with vastly different games such as poker and football are likely to be highly disparate, we still categorize both as games. Perhaps conspiracy theories and other theories are also only loosely connected. We don't think that this would be a successful counter-response to our conclusion, but rather support the very point we try to make. There are many ways the term 'theory' can be and has been used (see e.g., Abend 2008). In this paper, we are not interested in finding out whether there is some watered-down version of theory that allows us to classify conspiracy theories as theories. Instead, we aimed to investigate whether the status of conspiracy theories is comparable to the status of theories as they exist in the social and natural sciences. Our investigation strongly suggests that conspiracy theories are not like these theories.

## Conclusion

In this paper, we conducted a set of corpus analyses of the composite term 'conspiracy theory'. The data we collected and analyzed consists of comments from the publicly accessible corpus NOW, as well as a self-built corpus featuring Reddit comments. The results of our studies show that conspiracy theories are not discussed and tested like scientific theories but rather promoted and spread like falsehoods and rumours.

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We do not deny the possibility of variations in language usage regarding conspiracy theories among specific communities.

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