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The functional nature of conspiracy beliefs: Examining the underpinnings of belief in the *Da Vinci Code* conspiracy

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ABSTRACT

Focusing on a contemporary conspiracy theory popularized in the novel *The Da Vinci Code* (Brown, 2002), we examined the underlying psychological factors and individual differences that may predict belief in conspiracy theories, and assessed such beliefs' resistance to counterevidence. Our results suggest that belief in the *Da Vinci Code* conspiracy may be associated with coping with existential threat and death-related anxiety. In addition, the extent to which participants believed in the conspiracy was associated with the endorsement of congruent (New Age spiritual) and competing (Christian religious) beliefs, in opposite directions. Finally, exposure to counterevidence resulted in belief reduction, specifically among more religious participants (i.e. among those endorsing a competing belief system). We suggest that belief in modern conspiracy theories may help individuals attain or maintain a sense of meaning, control, and security.

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1. Introduction

Conspiracy theories, such as those surrounding the 9/11 terrorist attacks, commonly function to explain a variety of significant social events (Swami & Coles, 2010). Although most conspiracy theories rely on politico-economical ideologies, many conspiracy beliefs involve supernatural ideas (e.g. the belief that aliens are abducting American citizens; Banaji & Kihlstrom, 1996; Newman & Baumeister, 1996). Many conspiracy beliefs are not easily falsifiable and may even be resistant to counterevidence provided by experts, as experts are often perceived to be part of the conspiracy (Sharp, 2008). The present research focused on one of the most prevalent contemporary conspiracy theories, popularized in the highly successful novel *The Da Vinci Code* (Brown, 2002). Fictionalizing controversial theories regarding early Christian history (e.g. Baigent, Leigh, & Lincoln, 1982), the novel claimed that the Roman Catholic Church kept secret Jesus' marriage to Mary Magdalene, from which sprang a "holy lineage" protected by a secret organization, the Priory of Sion. We investigated participants' baseline belief in the novel's conspiracy claims, and reassessed their beliefs after exposing them to counterevidence against the claims. Our aim was to advance understanding of conspiracy beliefs by

examining the psychological factors and individual differences that predict adherence to, and resilience of, such beliefs.

Conspiracy beliefs often serve a psychological function by providing a sense of meaning and control. Specifically, social anomie, lack of trust, and feelings of powerlessness are among the main predictors of conspiracy beliefs (Abalakina-Paap, Stephan, Craig, & Gregory, 1999; Goertzel, 1994). These predictors and their relationships to conspiracy beliefs can be understood in light of a psychological need to explain events, particularly complex societal events (Swami & Coles, 2010). Conspiracy beliefs may also allow one to direct anger toward those perceived to be responsible for one's social condition (Swami, Chamorro-Premuzic, & Furnham, 2009). For instance, research focusing on conspiracy beliefs in particular populations (e.g. African Americans) suggests that these beliefs (e.g. that HIV was purposefully spread among African Americans) may arise as a form of making sense of one's marginalized social condition (Thorburn & Bogart, 2005). In addition, when experiences of lack of control are elicited experimentally, conspiracy beliefs increase (Whitson & Galinsky, 2008). Thus, although there is a scarcity of research in this area, an association between conspiracy beliefs and feelings of meaninglessness has been established.

In the present research, we examined potential predictors of belief in conspiracies in the context of the tremendously popular novel *The Da Vinci Code* (Brown, 2002; hereafter, "DVC"). This novel led to the publication of dozens of non-fiction books, which primarily involved criticisms from Christian writers (Barrett, 2007).

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The criticism was exacerbated by author Dan Brown's claims that the novel was the product of significant historical research and offered an educational experience (Fenster, 2008). According to a survey of a nationally representative British sample, undertaken shortly before the UK release of the DVC film, by 2005, 22% of British adults had read the novel, which did impact their beliefs: 64% of readers believed that there was some truth to the idea that Jesus and Mary Magdalene had children, in contrast to 30% of non-readers; and 32% of readers thought that the Priory of Sion was a real organization, as compared to 6% of non-readers (Ivireigh, 2006).

We investigated the functional nature of DVC-related conspiracy beliefs by examining their association with existential anxiety. Substantial evidence stemming primarily from research on terror management theory (TMT) indicates that adhering to belief systems protects people against existential threat arising from awareness of mortality. According to TMT, meaning making is essential for people to be able to cope with the meaninglessness generated by knowledge of their inevitable demise (Greenberg, Solomon, & Pyszczynski, 1997). This meaninglessness can be alleviated by adopting worldviews (either secular or supernatural) that provide individuals with consensual systems of meaning that transcend their personal mortality. Stated differently, people can attain a sense of *symbolic immortality* by perceiving themselves to be part of an enduring worldview or culture that will continue to exist after one's personal death (Solomon, Greenberg, & Pyszczynski, 1991). Reminders of death motivate people to reaffirm the promise of such symbolic immortality by defending their worldviews through a variety of means (e.g. derogating others who hold competing worldviews; for a review, see Burke, Martens, & Faucher, 2010). Relatedly, reminders of death reduce people's sense of meaning, which results in a strong need to combat the felt meaninglessness by regaining meaning in other, non-threatened domains (Heine, Proulx, & Vohs, 2006).

Based on these prior findings, we propose that the need to protect oneself from the anxiety and meaninglessness resulting from awareness of mortality may be associated with conspiracy beliefs. In the specific context of the present study, we suggest that DVC conspiracy beliefs may alleviate death-related anxiety by providing individuals with an enduring belief system, or a worldview, that explains significant societal-historical events in a new, secular light. DVC conspiracy beliefs may provide an explanation for events that, because they may otherwise seem impossible to account for, may represent a significant threat to one's sense of meaning and control (Heine et al., 2006). Thus, we predicted that death-related anxiety (i.e. a chronic reminder of one's ultimate lack of control and loss of meaning) and endorsement of the DVC conspiracy (i.e. a potential psychological means of alleviating this lack of control and meaninglessness) would be positively associated.

We further propose that an individual's complete network of beliefs can either facilitate or hinder the endorsement of conspiracy beliefs. People hold a wide array of beliefs that can be either *congruent* or *competing* with conspiracy beliefs. The likelihood of endorsing a conspiracy theory may increase to the extent that one's network of beliefs is generally congruent with conspiracy beliefs, and decrease to the extent that it is competing or incongruent with conspiracy beliefs. In the context of the DVC conspiracy, Christian beliefs are an example of a competing belief system, whereas New Age beliefs, with their focus on an alternative holistic reading of reality (Farias & Laljee, 2008), represent a congruent belief system.

Based on research that has shown that reminders of death increase people's supernatural beliefs (e.g. Norenzayan & Hansen, 2006), we predicted that greater anxiety about mortality would be associated with greater endorsement of spiritual and religious beliefs (New Age and Christian). We further predicted that endorsement of the DVC conspiracy would be positively associated with holding a congruent belief system (New Age) and negatively

associated with holding a competing belief system (Christianity). Stated differently, we hypothesized that New Age and Christian beliefs would mediate the relationship between death-related anxiety and DVC conspiracy beliefs. Further, we expected these relationships to hold while statistically controlling for a series of control variables, including socially desirable responding (expected to be negatively associated with DVC beliefs), the degree to which participants enjoyed the DVC novel (expected to be positively associated with DVC beliefs), and knowledge regarding statements in the Bible (expected to be negatively associated with DVC beliefs).

We also investigated the resistance of conspiracy beliefs to disconfirmation. Anecdotal observation, based on a television documentary (Cain, 2005), suggested that DVC beliefs may be highly resistant against counterevidence. In a follow-up session conducted after the initial assessment of DVC beliefs, we exposed some participants to an "expert opinion" disconfirming key DVC claims and then assessed their belief in the DVC conspiracy again. We sought not only to understand how resilient conspiracy beliefs are to counterevidence in general but, more specifically, also investigated the role of congruent and competing beliefs in predicting belief resilience. We expected that the more individuals endorsed New Age beliefs, a congruent belief system, the less susceptible they would be to counterevidence. Conversely, endorsing Christian beliefs, a competing belief system, was expected to make people more likely to change their opinions on the DVC conspiracy after exposure to counterevidence.

2. Method

2.1. Participants and procedure

The study was conducted at the height of the DVC's popularity, 4–16 weeks after the UK release of the film in 2006. Participants included 144 students (63% female; mean age = 24; $SD = 7.54$; range: 18–64), all of whom had read the DVC novel. Participants were recruited via poster advertisements and mailing lists across several university departments. In the first session (Time 1), participants completed a questionnaire booklet that included the measures described below, and were entered into a prize drawing as compensation.

At Time 1, participants were asked to provide contact information if they were interested in completing a second study related to the DVC. We invited 50 participants (68% female; mean age = 23; $SD = 4.17$; range: 19–42) to participate in the second session (Time 2), which included the experimental manipulation of counterevidence. These 50 participants did not differ from those who did not complete Time 2 on any of the Time 1 variables, $ps = .191-.677$. At Time 2, participants were assigned either to an experimental condition, where they first read an interview by a historian disconfirming key DVC conspiracy beliefs and then completed a questionnaire booklet that included the measure of DVC conspiracy beliefs from Time 1, or to a control condition where they simply completed the questionnaire booklet. Although the historian to whom the disconfirming claims were attributed was fictional, the claims represented accurate historical information gathered from several sources (e.g. Ehrman, 2004) that countered specific examples of the novel's claims. Time 2 participants received a book voucher as compensation.

2.2. Measures

2.2.1. Da Vinci Code conspiracy beliefs

DVC conspiracy beliefs were assessed with an 11-item scale developed for the present study, consisting of items describing key conspiracy claims in the novel. Items included: "Jesus was married and had descendants"; "Mary Magdalene is depicted in

Leonardo Da Vinci's *Last Supper*"; "The true Holy Grail is the secret about the bloodline descending from Jesus and Mary Magdalene"; and "The church has burned witches and other 'heretics' to keep the truth about Jesus hidden." Participants reported the extent to which they thought each statement was likely to be true by drawing a cross on a 10-cm scale, ranging from "not at all likely" to "very likely." Responses were coded by measuring the distance of the cross in millimeters from the beginning of the scale. A principal components analysis with Oblimin rotation revealed that a single factor accounted for 44.61% of the variance. All but two items loaded on this factor; a mean score was computed after excluding these two items ($\alpha = .88$).

2.2.2. New Age beliefs

We used a 22-item scale of New Age beliefs (Granqvist & Hagkull, 2001) to assess the extent to which participants endorsed alternative spiritual ideas (1 = *strongly disagree* to 6 = *strongly agree*). Items included: "The whole cosmos is an unbroken living whole that modern man has lost contact with" and "A problem with the established health care system is that science has priority over intuition or old wisdom" ($\alpha = .93$).

2.2.3. Religiosity

Religiosity was assessed with the Religious Belief Inventory (Farias et al., 2006), a 32-item measure of strength of religious belief (1 = *strongly disagree* to 6 = *strongly agree*). Items included: "My life is in the hands of God" and "Without religion my life would have little meaning" ($\alpha = .98$).

2.2.4. Death-related anxiety

The extent to which participants were anxious about aspects of death (1 = *not anxious* to 6 = *very anxious*) was measured with the 16-item Collett–Lester Fear of Death scale (Lester, 1994). Items included: "The total isolation of death" and "How it will feel to be dead" ($\alpha = .82$).

2.2.5. Socially desirable responding

We assessed participants' tendency to respond in a socially desirable manner with 10 items from Paulhus's (1984) Balanced Inventory of Desirable Responding (1 = *strongly disagree* to 6 = *strongly agree*). Items included: "I never read sexy books or magazines" and "I don't gossip about other people's business" ($\alpha = .70$).

2.2.6. Enjoyment of the DVC

A single item assessed the extent to which participants enjoyed the DVC novel (1 = *not at all* to 6 = *very much*).

2.2.7. Biblical knowledge

Knowledge of statements in the Bible was assessed with 11 items written for the present study. Eight items used a True/False format and three used a sentence-completion format, and responses were scored as correct (1) or incorrect (0). Items included: "The Apostle John walked on water"; "Jesus cured the sight of a blind man by rubbing his eyes with mud and saliva"; "In one of his parables, Jesus compared the Kingdom of Heaven to the Garden of Eden"; and "Jesus spoke in ____ language." A principal components analysis with Oblimin rotation showed that all but two items loaded on a single factor, accounting for 27.12% of the variance. A mean score was computed after excluding these two items ($\alpha = .72$).

3. Results

Means, standard deviations, and intercorrelations are presented in Table 1. Belief in the DVC conspiracy at Time 1 was positively associated with death-related anxiety, New Age beliefs, and enjoyment of the novel, and negatively associated with religiosity, socially desirable responding, and Biblical knowledge. The correlation between Time 1 DVC conspiracy beliefs and New Age beliefs was moderate, $r(142) = .41, p < .001$, suggesting a good degree of discriminant validity. We conducted two series of main analyses, one examining predictors of DVC conspiracy beliefs based on Time 1 correlational data and another examining the resilience of DVC beliefs based on Time 2 experimental data.

3.1. Time 1 analyses

To examine the hypothesis that the relationship between death-related anxiety and DVC conspiracy beliefs would be mediated by New Age beliefs and religiosity, we conducted a hierarchical regression analysis. Socially desirable responding, enjoyment of the DVC novel, and Biblical knowledge were entered as control variables in the first step, death-related anxiety was entered in the second step, and New Age beliefs and religiosity were entered in the third step (see Table 2). All predictors were mean-centered. In the first step, enjoyment of the novel predicted DVC conspiracy beliefs marginally positively, whereas socially desirable responding and Biblical knowledge predicted DVC conspiracy beliefs negatively. Thus, as predicted, participants who enjoyed the DVC novel more, tended less toward socially desirable responding, and knew less about the Bible reported greater belief in the DVC conspiracy. These relationships remained significant in the final model.

Including death-related anxiety in the second step resulted in a significant increase in explained variance, $\Delta R^2 = .03, F_{\text{change}}(4, 137) = 7.91, p = .006$. Death-related anxiety was a positive predictor of DVC beliefs, $b = 3.28, SE = 1.17, p = .006$, supporting the prediction that individuals who were more anxious about death would report greater belief in the DVC conspiracy. Including New Age beliefs and religiosity in the final step also resulted in a significant increase in explained variance, $\Delta R^2 = .08, F_{\text{change}}(6, 135) = 12.81, p < .001$. New Age beliefs predicted DVC beliefs positively, $b = 6.40, SE = 1.44, p < .001$, whereas religiosity predicted DVC beliefs negatively, $b = -2.83, SE = 0.94, p = .003$. As predicted, participants scoring higher on a congruent belief system were more likely to believe in the DVC conspiracy, whereas participants scoring higher on a competing belief system were less likely to believe in the DVC conspiracy.

Importantly, the magnitude of the relationship between death-related anxiety and DVC beliefs was reduced when New Age beliefs and religiosity were entered in the model, suggestive of the predicted mediation. In order to test whether this reduction was statistically significant, we examined a multiple mediator model using bootstrapping (Preacher & Hayes, 2008). We entered death-related anxiety as the predictor, DVC conspiracy beliefs as the criterion variable, New Age beliefs and religiosity as mediators, and enjoyment of the DVC novel, socially desirable responding, and Biblical knowledge as covariates. Both New Age beliefs, $M = 1.53, SE = 0.60, 95\% \text{ bias-corrected and accelerated confidence interval } [0.59, 2.96]$, and religiosity, $M = -0.85, SE = 0.33, 95\% \text{ BCa CI } [-1.40, -0.04]$, significantly mediated the relationship between death-related anxiety and DVC conspiracy beliefs. In this mediation model, death-related anxiety positively predicted both New Age beliefs, $b = 0.24, SE = 0.07, p < .001$, and religiosity, $b = 0.19, SE = 0.10, p = .061$, which were, in turn, associated with DVC conspiracy beliefs in opposite directions, New Age spirituality with greater belief and religiosity with lesser belief.

Table 1
Means, standard deviations, and intercorrelations.

	M	SD	1.	2.	3.	4.	5.	6.	7.	8.
1. DVC beliefs at time 1	44.86	19.88	–	.35***	–.38***	–.65***	.24**	.41***	–.39***	.70***
2. Enjoyment of the DVC novel	4.53	1.28		–	–.08	–.36***	.15	.13	.03	.24
3. Socially desirable responding	2.99	0.72			–	.27**	.03	–.06	.29***	–.16
4. Biblical knowledge	5.20	2.32				–	–.10	–.21*	.43***	–.50***
5. Death-related anxiety	2.72	1.02					–	.32***	.13	.05
6. New age beliefs	2.39	0.82						–	.07	.23
7. Religiosity	3.19	1.36							–	–.49***
8. DVC beliefs at time 2	45.83	14.66								–

Note: DVC = *The Da Vinci Code*.

* $p < .05$.
** $p < .01$.
*** $p < .001$.

Table 2
Unstandardized regression coefficients (and standard errors) from a hierarchical regression model predicting belief in the *Da Vinci Code* conspiracy (at Time 1).

	Step 1	Step 2	Step 3
Enjoyment of the DVC novel	1.90 (1.02)*	1.57 (1.00)	2.12 (0.94)*
Socially desirable responding	–6.11 (1.73)**	–6.36 (1.69)***	–5.30 (1.60)**
Biblical knowledge	–4.62 (0.57)***	–4.51 (0.56)***	–3.37 (0.59)***
Death-related anxiety		3.28 (1.17)**	2.29 (1.14)*
New age beliefs			6.40 (1.44)***
Religiosity			–2.83 (0.94)**
R ²	.48***	.51***	.59***

Note: DVC = *The Da Vinci Code*.

* $p = .064$.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

3.2. Time 2 analyses

We next examined the effects of the experimental manipulation of counterevidence on reduction in DVC conspiracy beliefs. We conducted a linear regression analysis, with socially desirable responding, New Age beliefs, religiosity, experimental condition (0 = control condition, 1 = experimental condition), and interactions of experimental condition with New Age beliefs and religiosity as predictors. The difference between DVC conspiracy beliefs at Time 1 and Time 2 (Time 1 – Time 2) was the criterion variable, with higher scores reflecting greater reduction in DVC beliefs at Time 2. The model accounted for 29% of the variance in belief reduction. Experimental condition was a positive predictor of belief reduction, indicating that being exposed to counterevidence against the DVC conspiracy indeed resulted in reduced belief, $b = 8.90, SE = 3.32, p = .011$. New Age beliefs were marginally positively associated with belief reduction, $b = 5.13, SE = 2.87, p = .081$. Socially desirable responding and religiosity were not associated with belief reduction, $ps = .112$ and $.364$, respectively.

The effect of experimental condition was qualified by an interaction with religiosity, $b = 5.81, SE = 2.73, p = .039$. Simple slopes analyses indicated that the effect of experimental condition was nonsignificant for participants scoring low on religiosity (1 SD below the mean), $b = 0.97, SE = 4.49, p = .829$. In contrast, for participants scoring high on religiosity (1 SD above the mean), experimental condition was a positive predictor of belief reduction, $b = 16.82, SE = 5.44, p = .004$ (see Fig. 1). Alternatively, religiosity was not associated with reduction in DVC beliefs in the control

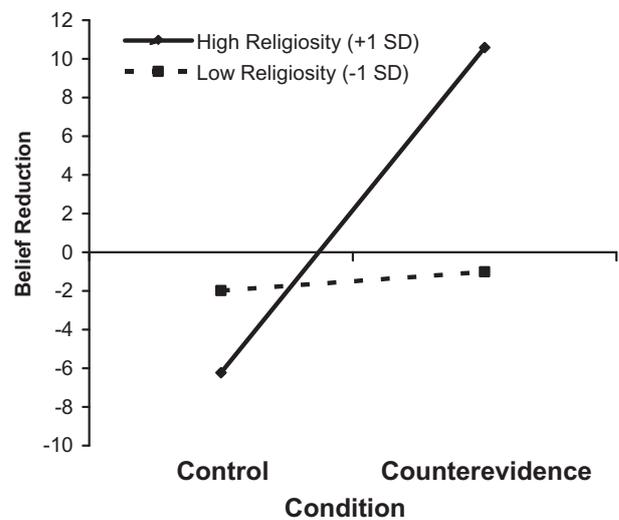


Fig. 1. The interactive effect of experimental condition and level of religiosity on reduction in *Da Vinci Code* (DVC) conspiracy beliefs. Belief Reduction = DVC belief at Time 1 – DVC belief at Time 2; values above zero indicate reduced DVC belief at Time 2.

condition, $b = -1.55, SE = 1.69, p = .364$. In contrast, in the experimental condition, religiosity was a positive predictor of reduction in DVC beliefs, $b = 4.25, SE = 2.10, p = .049$. Thus, as predicted, participants scoring higher on religiosity (a competing worldview) were more likely to report reduced belief in the DVC conspiracy as a result of being exposed to counterevidence. The prediction that stronger endorsement of New Age beliefs (a congruent worldview) would result in a lesser degree of belief reduction was not supported, experimental condition \times New Age beliefs $p = .238$.

4. Discussion

The present study showed that death-related anxiety, New Age spirituality, and Christian beliefs emerged as substantial predictors of belief in the DVC conspiracy. As predicted, death-related anxiety was positively associated with DVC beliefs, a relationship that was partially accounted for by New Age beliefs and religiosity. In other words, death-related anxiety was positively associated with the endorsement of both New Age and Christian beliefs. These two worldviews then had opposite associations with DVC conspiracy beliefs, the congruent New Age beliefs having a positive relationship and the competing Christian beliefs having a negative relationship. These findings align with previous research on the role of both secular and supernatural worldviews in alleviating

death-related anxiety (Greenberg et al., 1997; Vail et al., 2010) and suggest the possibility that people may be attracted to conspiracy theories in order to cope with existential anxiety.

The present findings also demonstrated that one's wider network of beliefs plays an important role in the endorsement of conspiracies. We found that counterevidence to the DVC conspiracy led to a significant reduction in DVC beliefs. However, this change occurred primarily among participants who held a stronger competing (Christian) belief system. The presence of a wider belief network that is incongruent with a conspiracy theory is likely to make it less resistant to counterevidence. The additional prediction that endorsing a congruent (New Age) belief system would make conspiracy beliefs more resistant to counterevidence was not supported. However, we suggest that this prediction requires further study, perhaps with a population in which New Age beliefs or other beliefs congruent with conspiracy theories are more strongly endorsed. Additionally, future work would benefit from examining the generalizability of the proposed framework by studying the relationships among other conspiracy theories and different congruent and competing belief systems.

The present study addressed a number of longstanding questions about factors sustaining conspiracy beliefs (Swami et al., 2009). Accounts emphasizing underlying motivations for conspiracy beliefs, whether depicting conspiracy believers as individuals with feelings of powerlessness and alienation (Abalakina-Paap et al., 1999) or in need to explain the world surrounding them (Swami & Coles, 2010), were supported by our results: DVC beliefs appeared to be particularly attractive to people who expressed greater levels of death-related anxiety. Conspiracy beliefs may function as a potential way of coping with death-related anxiety and the associated threat to meaning and control (Greenberg et al., 1997; Heine et al., 2006) by providing explanations for phenomena that are otherwise difficult to understand or to incorporate into one's wider belief system. This is a novel finding which requires extension and replication. Although the DVC conspiracy proposes a secular explanation of important historical events, it may have an added emotional component in the figure of Jesus, a component which social-political conspiracy theories typically lack.

Our findings add to Goertzel's (1994) model of conspiracy beliefs as a monological system – whereby belief in one conspiracy makes belief in other conspiracies more likely – by suggesting that wider networks of congruent and competing beliefs may also help explain when people may be particularly likely to believe in conspiracies. Our use of the concepts of congruent and competing belief systems had the intention of highlighting the contrasting influence of a wider network of beliefs in the endorsement of conspiracies. Thus, in addition to a dispositional tendency to believe in conspiracies (Goertzel, 1994), general belief consistency is another important factor to consider when investigating conspiracy beliefs.

Conspiracy beliefs can have a considerable impact on people's lives. The present research explored the psychological correlates of conspiracy beliefs popularized in a fictional novel. Although the actions of the gods have to a great extent been replaced by secular ideologies as explanations for societal events (Popper, 1945/2003), people remain interested in sacred themes and alternative secular interpretations. The present findings suggest that such themes and interpretations can in some contexts fulfill a substan-

tial psychological function by potentially allowing people to alleviate or cope with threats to their sense of meaning and control.

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