

Nostradamus's Clever 'Clairvoyance'

The Power of Ambiguous Specificity

How did a French astrologer, dead for over 400 years, become a premier commentator on world events in 2001? The authors' research shows that Nostradamus's dark prophecies are ambiguous enough to "work" for events selected at random and even when they are scrambled.

MAZIAR YAFEH and CHIP HEATH

Amidst the chaos and confusion after the September 11 terrorist attacks, anxious people flocked to the Internet for any information that would shed light on the horrific event and its implications. In the weeks after the attack, Google, the most widely used World Wide Web search engine, predictably reported sharp increases in searches for "Osama bin Laden" and "al Qaeda."

Yet Google also reported that in the two weeks following the attacks, searches for a sixteenth century astrologer surpassed those for bin Laden and his organization (Grossman 2001). In fact, "Nostradamus" became one of Google's top searches, surpassing even the perennial favorite topic of "sex"! (See figure 1 for converging results from the "Buzz

Index" on Yahoo, another popular search engine.) How did a French astrologer, dead for over 400 years, become a premier commentator on world events in 2001?

Michel Nostradamus was a sixteenth-century French physicist and astrologer who gained fame in the Renaissance for *Centuries*, his ten-volume collection of 942 four-line poetic prophecies, which he published in 1555. These prophecies have been eagerly studied for centuries.

In the tumult after tragic events, people over the last 400 years may have turned to Nostradamus to understand their world, just as modern citizens did right after the September 11 attacks. If so, then Nostradamus doesn't really have to predict events before they occur, he just has to look as though he predicted them *after* they have already occurred. That in itself is a pretty clever accomplishment: How could Nostradamus do it?

After spending a year researching his work and running controlled experiments, we suggest a combination of two factors: ambiguously specific prophecies that focus on dark, foreboding events.

Ambiguously Specific Prophecies

Anyone who has visited a card reader or psychic knows that the lifeblood of the fortune-telling trade is vagueness (such as "You will face an important decision soon"). In part, Nostradamus's prophecies seem to match this vagueness test. He used a famously cryptic, poetic style, interspersing his original French with selected Hebrew, Latin, and Spanish words and phrases, to create an aura of vagueness around each prophecy. Hence, each prophecy is difficult to attribute to an exact event.

But is vagueness enough? Clearly, it is not vagueness that drew Internet searchers to the following Nostradamus prophecy in the days after September 11:

At forty-five degrees the sky will burn,
Fire to approach the great new city,
In an instant a great scattered flame will leap up,
When one will want to demand proof of the Normans.

On the contrary, it is the prophecy's unnerving similarities to the attacks; it seems written specifically for our time.

Or was it? The art of Nostradamus, our research shows, is that what appears to be specific is in fact generalizable. Nostradamus's gift is that he writes poetry that is apparently

specific (at least when someone examines it with a specific historical event in mind), but that is in fact ambiguous—which we use in the dictionary sense of "allowing for multiple meanings." Indeed, it may be ambiguous enough that it could apply to many different tragic events.

In the tumult after tragic events, people over the last 400 years may have turned to Nostradamus to understand their world, just as modern citizens did right after the September 11 attacks.

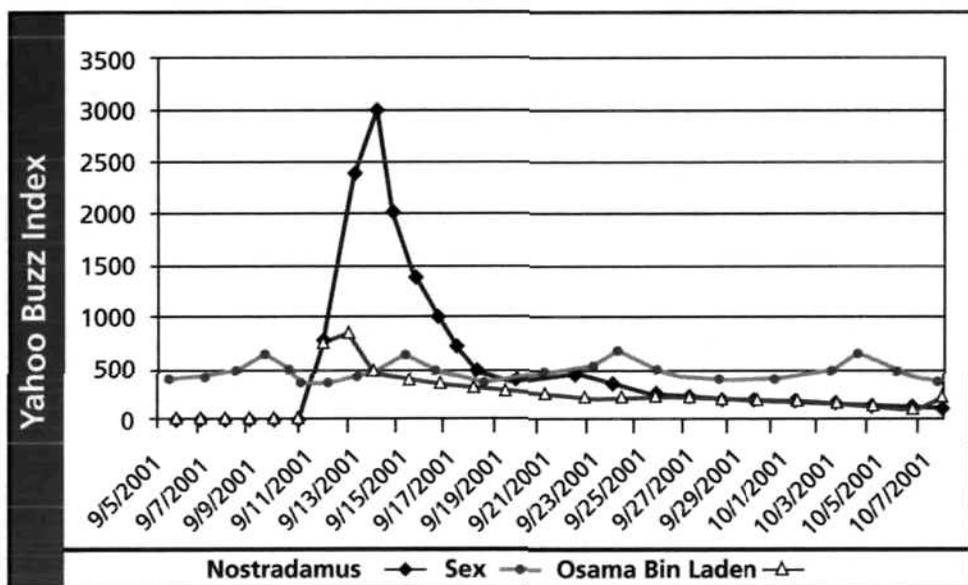


Figure 1. Popular searches on Yahoo in the days after September 11, 2001. (Note that "Nostradamus" beats out "Osama Bin Laden" and even perennial favorite "sex.")

But how could we test the hypothesis that this ambiguity contributes to Nostradamus's ability to appear prophetic? One way might be to choose two different events and see whether a particular prophecy could be equally well applied to each. If the same prophecy seems equally prophetic for two very different events, this indicates that Nostradamus is appealing at least in part because of his ambiguity.

With this test in mind, we chose two events for comparison: the September 11 attack on World Trade Center and the London Blitz (the fifty-seven consecutive nights during World War II in which Germany bombarded London). We selected

Maziar Yafeh is a senior at Stanford University majoring in economics and psychology, and Chip Heath is an associate professor of organizational behavior. This project began during a sophomore research seminar that Heath teaches on Urban Legends, Conspiracy Theories, and Other Distortions in the Marketplace of Ideas. Correspondence may be addressed to Heath at GSB-Stanford University, 518 Memorial Way, Stanford, CA 94305. E-mail: chip.heath@stanford.edu.



these two events because they both took place in a specific city and are characterized in pictures, videos, and people's minds by explosions and vivid images of fire.

We concentrated on the words *city* and *fire* because these were key words in the Nostradamus prophecy we mentioned previously that circulated widely on the Internet after the World Trade Center attacks. We found eleven prophecies that contained these key words, and randomly picked ten to use in our experiment. We presented these ten prophecies to two groups of participants; one group was asked to say whether each prophecy indicated that Nostradamus might have predicted the events of September 11, the other whether each prophecy predicted the London Blitz.

Our participants were eighty Stanford University undergraduates, who are typically quite skeptical of notions of prophecy, so any results we find might underestimate the actual success of the prophecies with a less skeptical audience. For each of the ten prophecies, we asked our participants whether the prophecy predicted either September 11 or the Blitz, and gave them three choices: yes, no, and maybe. The "yes" option was almost never used, and the "no" option was used frequently. However, across the ten prophecies, the "maybe" option was chosen a surprising amount. Participants who were asked to think about the September 11 attacks on average thought that 3.2 of the prophecies may have predicted the attacks, and participants asked to think about the Blitz thought that 2.8 may have predicted those attacks. This overall difference was not statistically significant, so our participants in

effect said that Nostradamus's prophecies were equally foresightful about (and relevant to) September 11 and the Blitz.

This level of "maybe" responses could suggest that Nostradamus was a pretty good prophet—about a third of his prophecies seemed at least somewhat prophetic about events that occurred 400 years after his death. However this interpretation is disputed by one key fact: participants in both groups were impressed by the *same* prophecies, regardless of whether they considered September 11 or the Blitz. For example, 68 percent of participants thought that the following prophecy might have predicted the September 11 attacks:

Earthshaking fire from the centre of the earth,
Will cause tremors around the new city,
Two great rocks will war for a long time,
Then arethusa will redden a new river.

Here, the "earthshaking fire" causing "tremors around the new city" might have seemed very applicable; the "new city" seems a good code word for "New York," and the "two great rocks" a good analogy for the twin towers.

However, 61 percent of our participants thought this same prophecy might also refer to the events of the Blitz; the "earthshaking fire" causing "tremors" seemed applicable to the Blitz as well. The word "new" seems to have been ignored since London is not one of Europe's newest cities, but in the case of the Blitz the "two great rocks" warring may have been seen as emblematic of the two strongest European armies—Germany and England—facing off across the English Channel. This "successful" prophecy is thus ambiguous enough that it seems almost equally applicable to two very different events, yet it contains enough specific detail that it looks as though Nostradamus is on to something.

Our results here are consistent with research in psychology on individual decision making. Research on "confirmation bias" and related topics has shown that individuals don't naturally consider alternative hypotheses for a particular pattern of data (see Klayman 1995; Nisbett and Ross 1980). Our participants, though smart and skeptical, fell into this same well-documented trap. Implicitly they were asking "Did Nostradamus predict the event I'm considering?" As they searched for evidence that confirmed or disconfirmed whether he did so, they probably weren't paying attention to the ambiguity of his prose, and they almost certainly weren't asking themselves whether the same prophecy could have predicted *other* events. Yet by neglecting competing hypotheses, our participants left themselves open to be fooled by the ambiguous predictions. Those participants thinking about the Blitz and its connection to the "two great rocks" probably did not consider that the same "evidence" would look equally prescient if they had been considering the New York City attacks instead.

In contrast to the ambiguity of the "successful" prophecies, the least successful prophecies contained imagery that was less ambiguous and offered concrete evidence that could be historically verified. Only 12 percent of our participants thought

the following prophecy might fit September 11 and 17 percent thought it fit the Blitz:

The great city will be thoroughly desolated,
Of the inhabitants not a single one will remain there,
Wall, sex, temple and virgin violated,
Through sword, fire, plague, cannon people will die.

This prophecy is partially applicable to both events because it evokes a "great city" where some people die by fire. However, it is less convincing than the first because it is more specific: New York and London were not "thoroughly" destroyed and neither event prominently featured sex, temples, virgins, or swords.

Across the ten different prophecies, we found a high correlation between the prophecies that supposedly predicted the two events—events that were separated by half a century, different geographies, and different political contexts. True, both events involved "fire" and a "city," but so did most other wars in the last 2,000 years. These results suggest that Nostradamus's true genius was his ability to write descriptions of crises that are sufficiently ambiguous that they could describe almost any crisis.

But how far could we push the ambiguity hypothesis? Nostradamus's prophecies frequently predict "war"—indeed, war is featured in a conspicuous 104 of his 942 prophecies. Are his prophecies ambiguous enough that any of those 104 prophecies could be applied to *any* war? We asked a group of Stanford undergrads to list all the wars they could think of, and we took the top thirteen mentions. Because our students were at an American university, there was an American bias to the wars they remembered, but that did not affect the test we wanted to run. We randomly selected thirteen from 104 war prophecies and assigned them at random to the thirteen different wars; then we asked seventy-four students to indicate whether the prophecy might have predicted the war.

Because we're assigning prophecies to wars at random, we might expect the overall success to be quite low: historical accounts of various wars could not be interchanged at random. If the prophecies had any (unambiguous) content, they shouldn't be interchangeable either.

However, the prophecies were ambiguous enough that on average 29 percent of our participants said any prophecy selected at random "may have" predicted a war selected at random. When the same prophecy can apply equally well to the French Revolution, World War II, and the war on terrorism, this makes Nostradamus a relatively imprecise prophet but a very clever wartime poet—able to capture the overall atmosphere of war in a seemingly specific way, yet speaking ambiguously enough that his prophecies are for the most part not limited in time or location.

To take the poet-versus-prophet test a step further, we thought about how to preserve the poetry while destroying any potential prophecy. Nostradamus's poetry is ambiguous enough that we thought it could be largely preserved even if we scrambled the lines from different prophecies. If Nostradamus had

Can you find the original Nostradamus prophecies?

Three of the prophecies in this table are from Nostradamus. The other three are versions we created by scrambling the lines of his original prophecies. Can you tell which is which?

- 1
Arms will be heard clashing in the sky,
That very same year the divine one's enemies,
They will want unjustly to discuss the holy laws,
Through lightning and war the complacent one put to death.
- 2
The two nephews brought up in diverse places,
He assembles the pardoned before the gods,
They will come to be elevated very high in making war,
Far away where their prince and rector will die.
- 3
The great younger son will make an end of the war,
Will have carried off the prize from one greater than he,
He holds a flowering branch in his beak,
Without armor he will be surprised suddenly.
- 4
Two royal brothers will wage war so fiercely,
That between them the war will be so mortal,
That both will occupy the strong places,
Their great quarrel will fill realm and life.
- 5
The two nephews brought up in diverse places,
Naval battle, land, fathers fallen,
They will come to be elevated very high in making war,
To avenge the injury, enemies succumbed.
- 6
Through long war all the army exhausted,
Too great a faith will betray the monarch,
Instead of gold or silver, they will come to coin leather,
To avenge the injury, enemies succumbed.

(#1, 4, 5 are original and 2, 3, 6 are our scrambled versions)

Prophecies taken from: www.ebooks3.com/ebooks/nostradamus_centuries.html.

The top thirteen wars recalled by our participants. We used these to test whether any of Nostradamus's "war" prophecies could be randomly assigned to any randomly selected war.

American Revolution
World War II
War on Terrorism
American Civil War
Vietnam War
World War I
French Revolution
Gulf War
Korean War
Spanish Civil War
French-Indian War
War of 1812
Thirty Years War

any prophetic ability, this scrambling procedure should destroy any coherent aspects of his prophecies—certainly reducing historical accounts or news stories to gibberish.

We randomly scrambled the lines of our thirteen prophecies, and matched one scrambled prophecy with each of the thirteen wars. Then we asked a second group of seventy-two participants to assess whether the prophecy predicted the war.

Nostradamus offers pronouncements of ambiguous doom—so ambiguous, in fact, that his war prophecies can apply to any war, and appear equally prophetic even when scrambled.

With the *original* prophecies, 29 percent had said maybe. With our *scrambled* prophecies, 34 percent said maybe. Thus, if anything, our scrambled prophecies impressed people as *more prophetic* than Nostradamus's originals. (The difference wasn't statistically significant.)

Dark Prophecies

While ambiguity is probably the most important feature of Nostradamus's prophecies, another notable feature is their dark, foreboding quality. People are more likely to discuss and try to

How Effectively Does the Following Prophecy Predict WWII?

For a long time a gray bird will be seen in the sky,
They will be thoroughly devastated by sea and by land,
Those (actions) started in France will end there,
Captured, dead, bound, pillaged without law of war.

58% of our participants thought that Nostradamus may have predicted WWII with this prophecy, but it's actually one of our scrambled versions.

explain negative events than positive ones. When we're upset or surprised in a negative way, we look for explanations; when we're satisfied or things are proceeding according to our expectations, we don't (Wong and Weiner 1981; for more general discussion, Weiner 1985; Taylor 1995). By writing many prophecies involving negative events, Nostradamus maximized the chances that someone confronted with a crisis might look for—and find—something in his prophecies that would remind them of their own current crisis.

To test how much Nostradamus focused on the negative, we randomly sampled 100 of his prophecies and asked a group of students to assess whether they concerned positive or negative events. More than three times as many prophecies discussed negative events as positive ones. We also asked a group of students to list words associated with events of good fortune and misfortune. The top examples of good fortune were *birth* and *discovery*, while *war* and *death* topped the misfortune list. Searching through all of Nostradamus's prophecies, we found that while less than five of them dealt with either *birth* or *discovery*, 104 mentioned *war* and ninety-four mentioned *death*. We're not sure that this focus on the negative makes Nostradamus a good prophet—after all, prophecies of great discoveries and the births of great people might come in handy. On the other hand, when people search for explanations after a tragic event, Nostradamus allows himself many opportunities to provide them with an “answer.”

Nostradamus, a clever poet, offers pronouncements of ambiguous doom—so ambiguous, in fact, that his war prophecies can apply to any war, and appear equally prophetic even when scrambled.

Our results show that there is about a 30 percent chance that any randomly selected war prophecy will remind some readers of any randomly selected war. But Nostradamus was sufficiently prolific that his readers don't have to stop with just one prophecy. Imagine someone who was sufficiently intrigued to read all 942 prophecies; wouldn't at least one of the 104 prophecies about “war” seemingly provide an even better match than one selected at random? By writing many prophecies, Nostradamus could take advantage of people's natural tendency to search longer and harder for explanations at times of crisis.

We offer a recipe for a modern prophet: Write a lot of prophecies, focusing on the negative. Take care to keep your prophecies as dark and ambiguous as possible—lots of doom and gloom, very few unambiguous specifics. And someday you too might be invoked as a commentator on world events.

Now if someone could only figure out how to collect royalties from beyond the grave. . . .

References

- Grossman, L. 2001. In search of . . . *Time*, October 29, 2001, p. 92.
- Klayman, J. 1995. Varieties of confirmation bias. *The Psychology of Learning and Motivation*, 32: 385–418.
- Nisbett, R., and L. Ross. 1980. *Human Inference: Strategies and Shortcomings of Social Judgment*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Taylor, S.E. 1991. Asymmetrical effects of positive and negative events: The mobilization/minimization hypothesis. *Psychological Bulletin* 110: 67–85.
- Weiner, B. 1985. “Spontaneous” causal thinking. *Psychological Bulletin* 97: 74–84.
- Wong, P.T., and B. Weiner. 1981. When people ask “Why” questions and the heuristics of attributional search. *Journal of Personality and Social Psychology* 40: 650–663. □