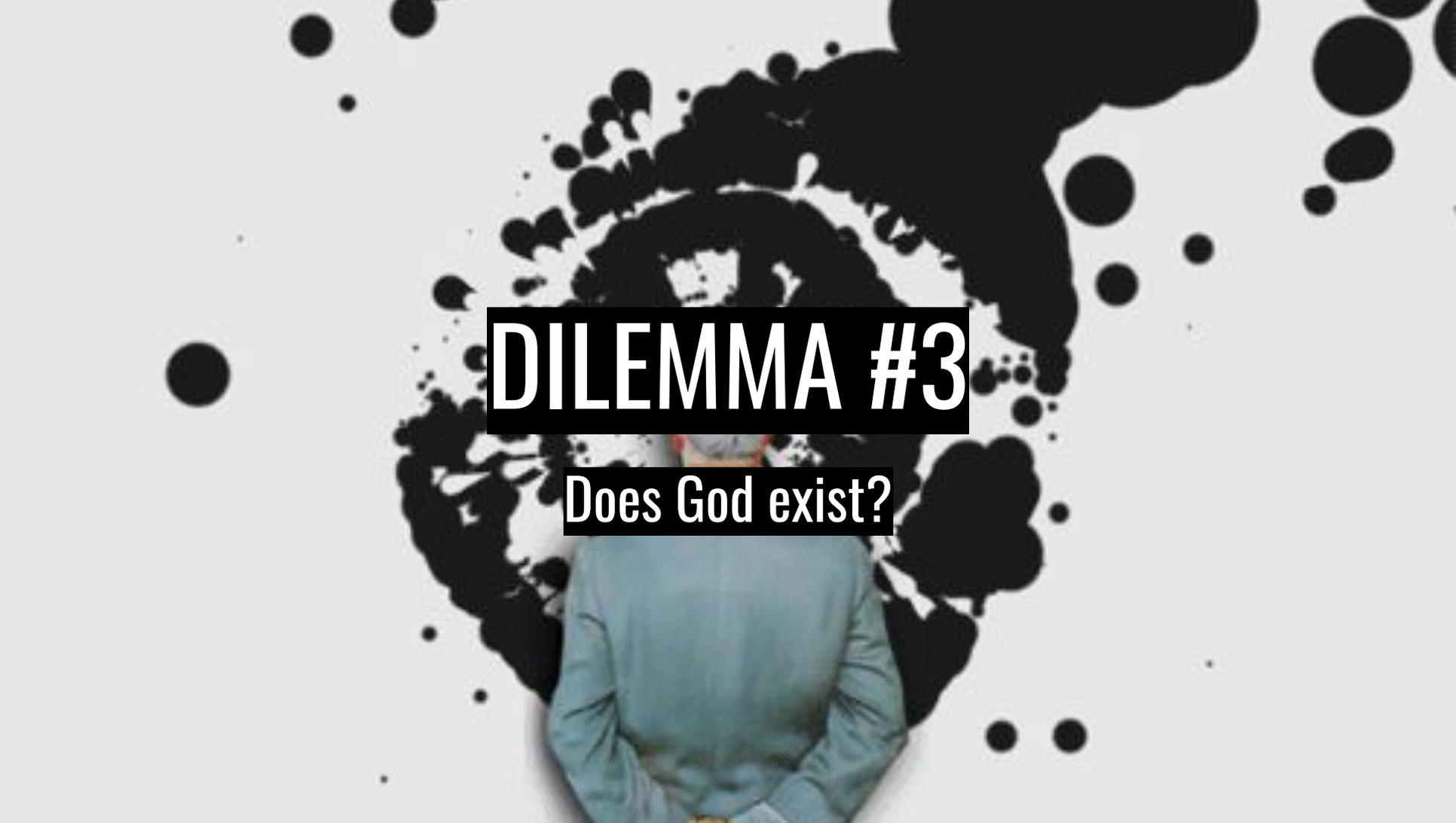




Pascal's Wager



DILEMMA #3

Does God exist?

Person of Interest: Blaise Pascal



Occupation:

Mathematician, theologian

Known for:

Contributions to probability theory and projective geometry
Pascal's Wager

Notable Work:

Pensées (1670)

Person of Interest: Alan Hájek



Occupation:

Philosopher, Mathematician

Affiliation:

Australian National University

Notable Contributions to:

Decision theory and the philosophical foundations of probability theory

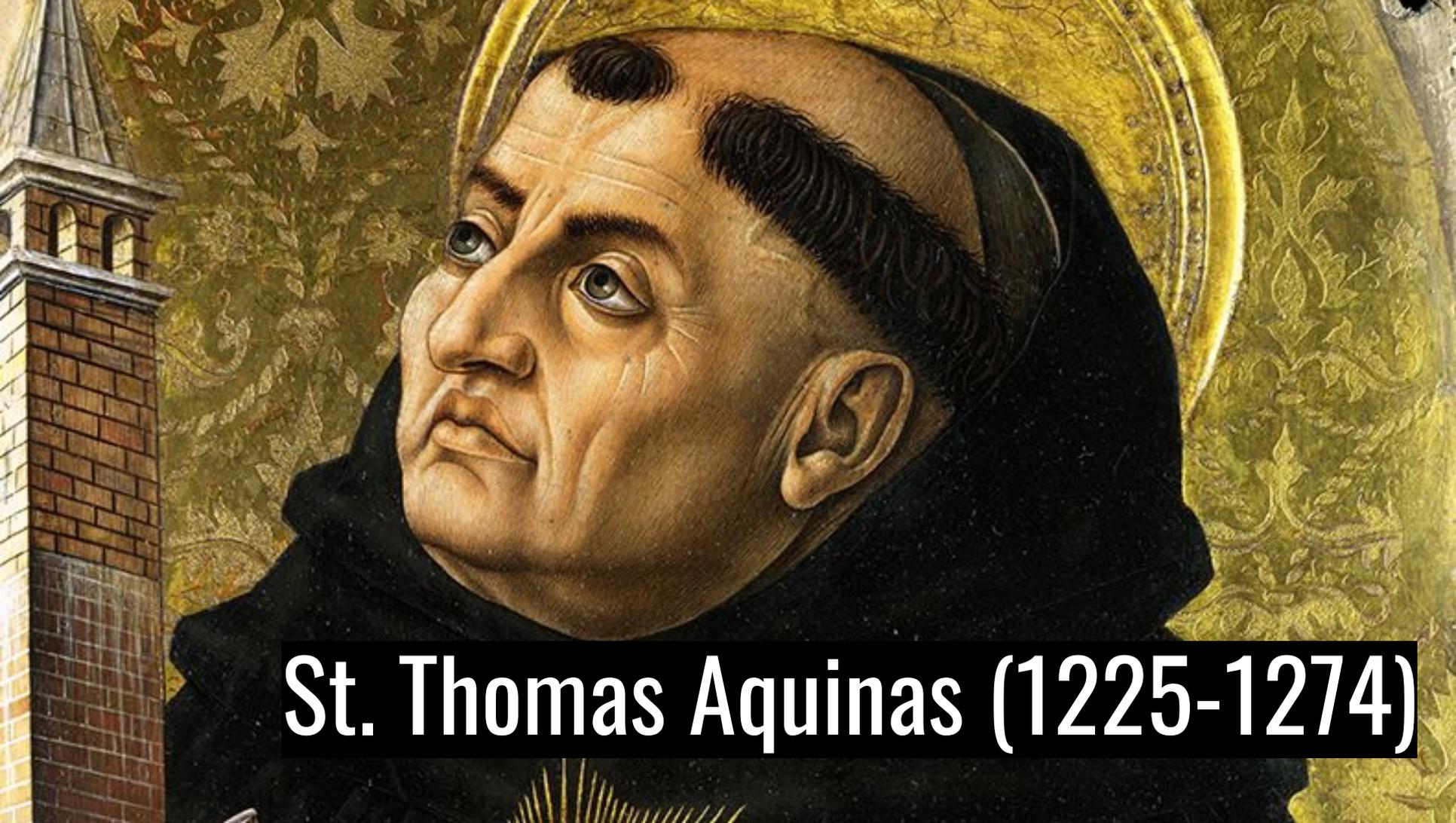
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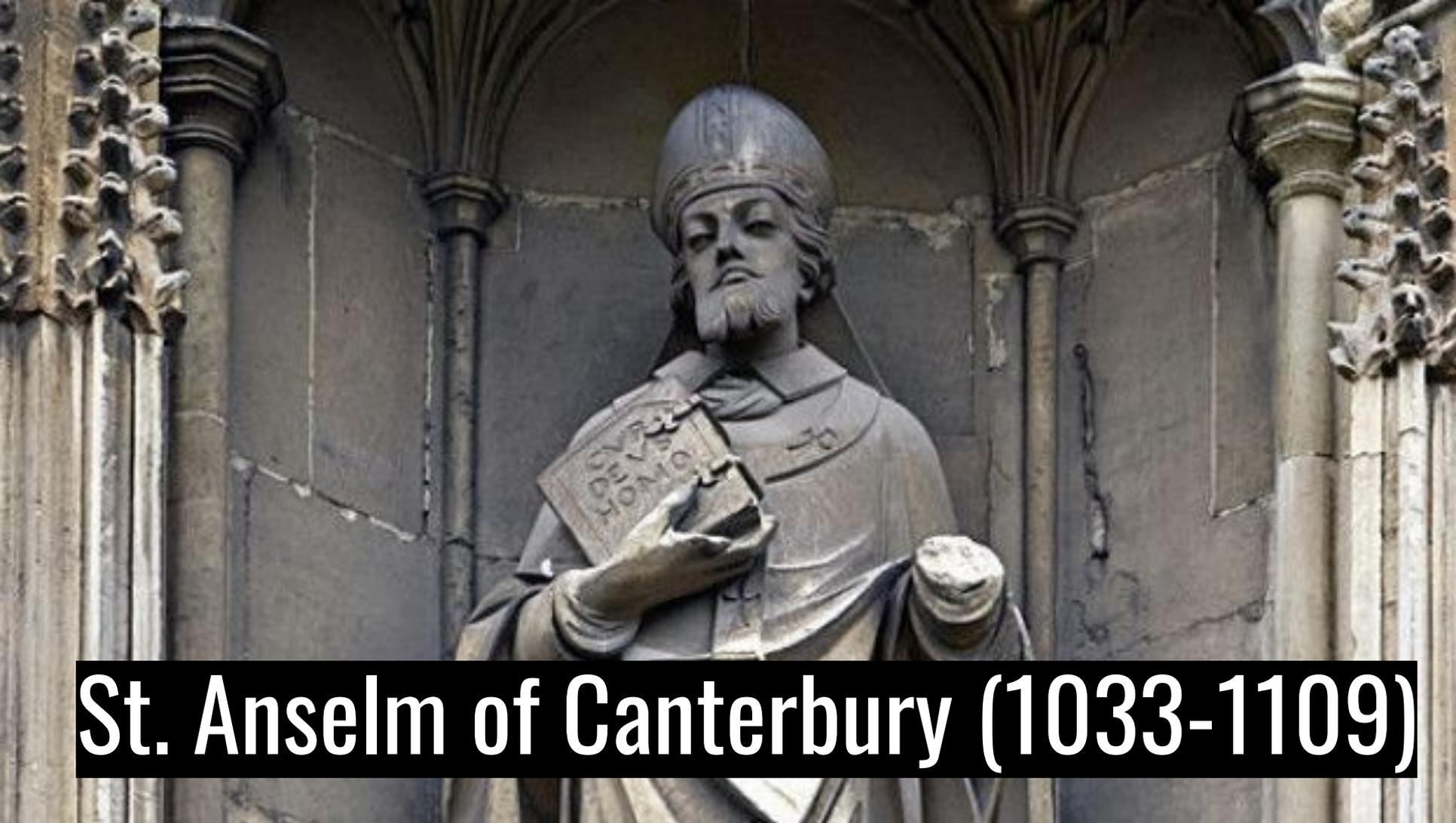
Blaise Pascal
(1623-1662)



René Descartes
(1596-1650)



St. Thomas Aquinas (1225-1274)



St. Anselm of Canterbury (1033-1109)

“Let us now speak according to natural lights.

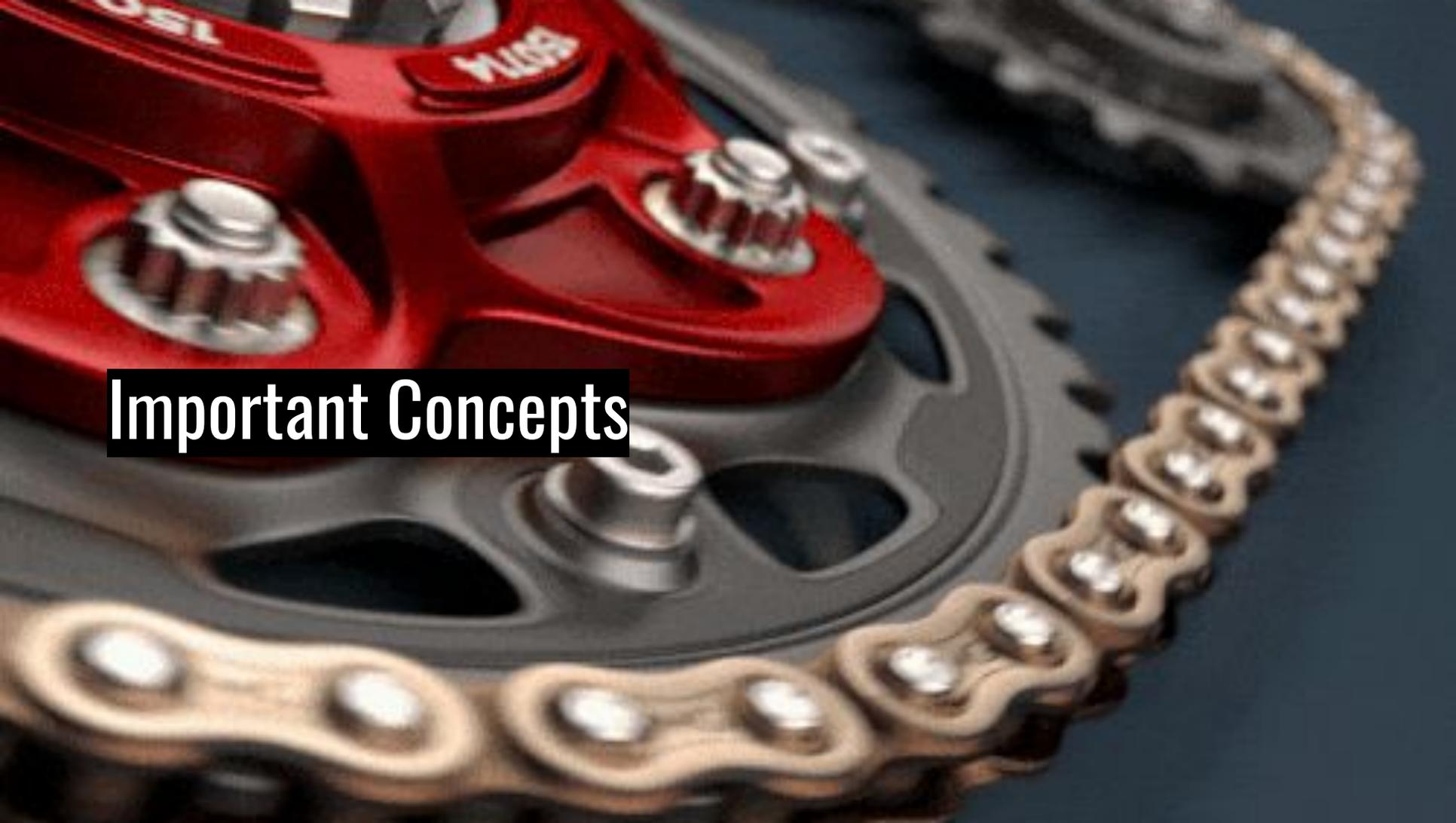
If there is a God, he is infinitely incomprehensible, since, having neither parts, nor limits [Ockham’s point], He has no affinity to us.

We are therefore incapable of knowing either what He is, or if He is....

Who then will blame Christians for not being able to give a reason for their belief, since they profess a religion for which they cannot give a reason?”

(Pascal quoted in Blackburn 1999: 186; interpolations are mine).





Important Concepts

Pascal's Wager is...

an argument stating that it is best to believe in God since the possibility of eternal punishment outweighs any possible disadvantage brought on by believing in God.

A **decision matrix**, in decision theory, is a table intended to help one discover the expected utility of a choice; the **rows** correspond to the possible actions and the **columns** correspond to the possible states of the world; each cell represents the expected utility of a choice given a state of the world.

The **utility** is the value of a given outcome from the decision matrix.

The **expected utility** can be derived by

- a. taking each utility and multiplying it by its probability, and then
- b. adding the numbers together.

E.g.,

A coin toss where a heads
wins you \$1 and tails loses
you \$2.

	Heads	Tails
Heads	\$1	-\$2
Tails	-\$2	-\$2

The expected utility x of not playing is 0.

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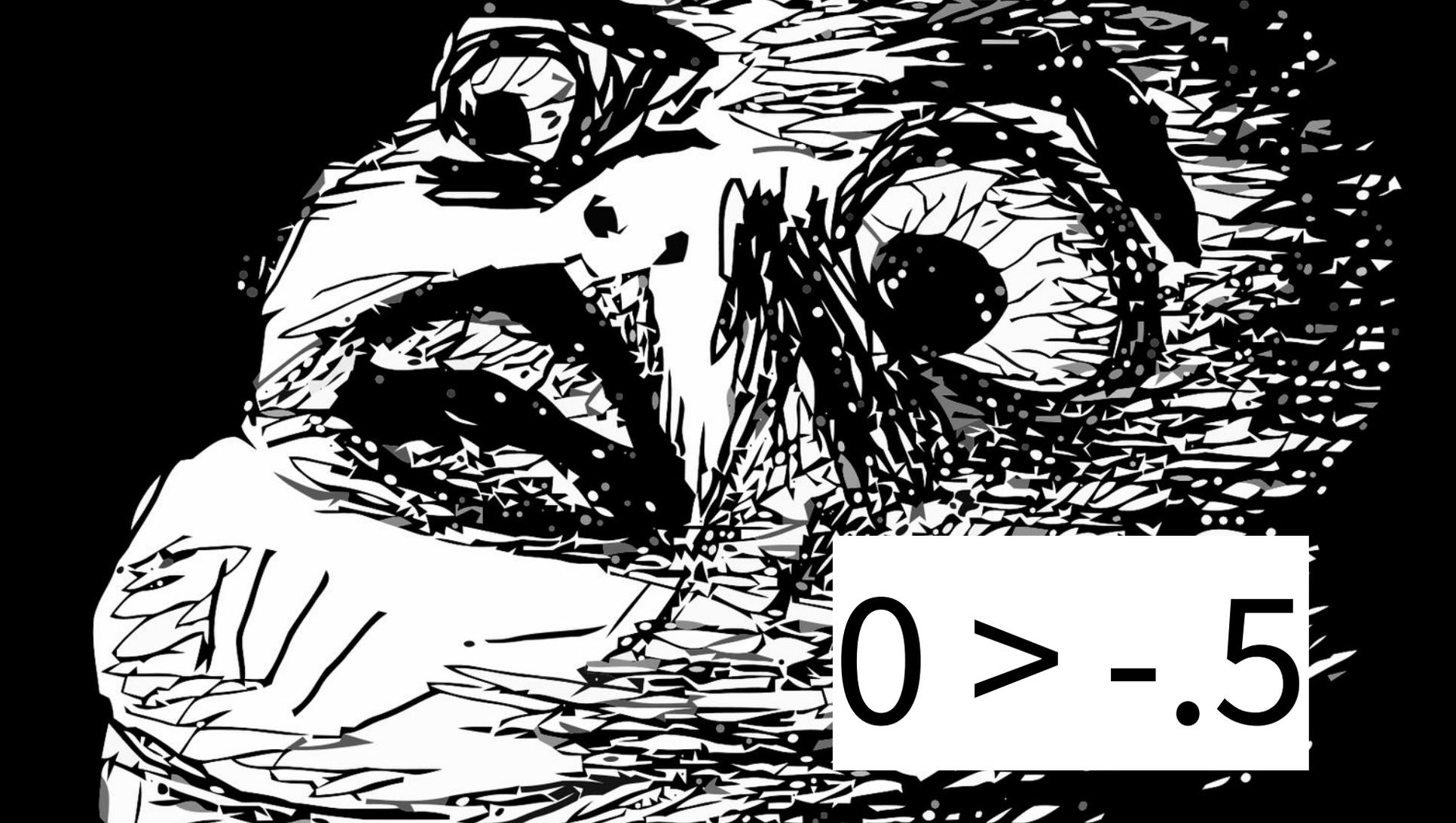
The expected utility y of playing is calculated as:

$$(.5 \times 1) + (.5 \times -2) = y$$

$$.5 + -1 = y$$

$$-.5 = y$$

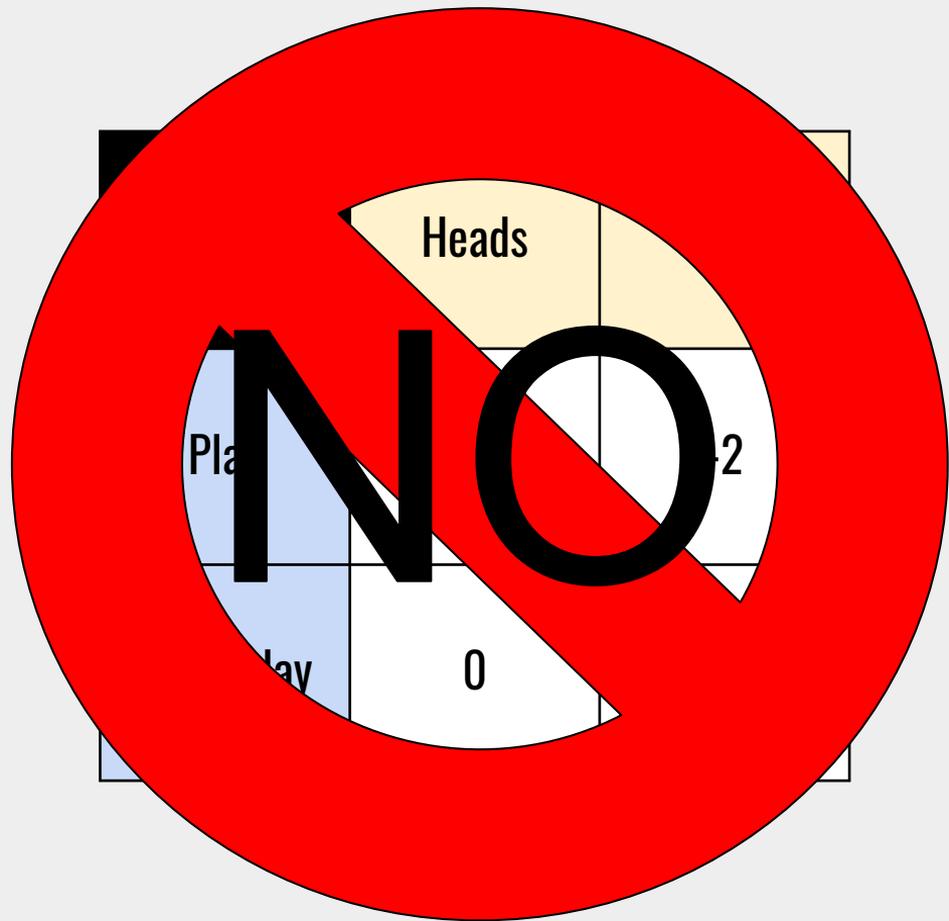
	Heads	Tails
Play	1	-2
Don't play	0	0



0 > .5

E.g.,

A coin toss where a heads
wins you \$1 and tails loses
you \$2.





Pascal's Third Argument

1. You should choose the action of maximal expected utility if there is one.
2. The probability p that God exists is positive.
3. The decision matrix is as follows, where f_1 , f_2 , and f_3 are finite utilities.

“In another landmark moment in this passage, he next presents a formulation of expected utility theory. When gambling, ‘every player stakes a certainty to gain an uncertainty, and yet he stakes a finite certainty to gain a finite uncertainty, without transgressing against reason.’”





“How much, then, should a player be prepared to stake without transgressing against reason?

Here is Pascal’s answer: ‘...the uncertainty of the gain is proportioned to the certainty of the stake according to the proportion of the chances of gain and loss...’”

It takes some work to show that this yields expected utility theory's answer exactly (sic), but it is work well worth doing for its historical importance" (Hájek 2018, Section 4).



4. Therefore, wagering for God has infinite expected utility.

This is since: $(\infty \times p) + (f1 \times [1 - p]) = \infty$.

5. Therefore, you should wager for God.

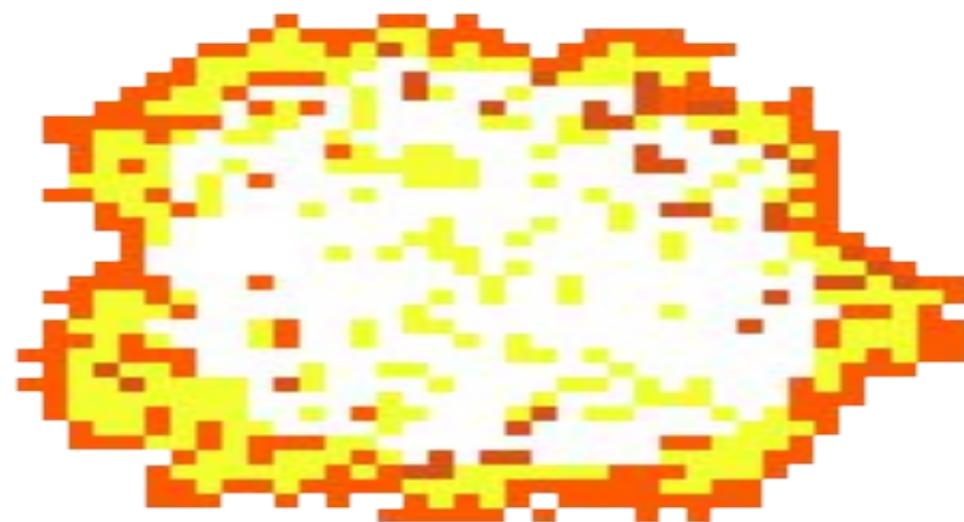


Objections

**Some might
object that
multiplication by
infinity is not
defined...**

But...

- 1. Pascal never finished the *Pensées*, but rather left them in the form of notes of various sizes pinned together; and**
- 2. Mathematical rules have been disputed throughout the history of the discipline.**



Through the history of their field, mathematicians have debated whether dividing by zero should be undefined (as Knopp believed), impossible (as Harnack believed), or equal to infinity (as Euler believed) (see Martinez 2012, ch. 6).

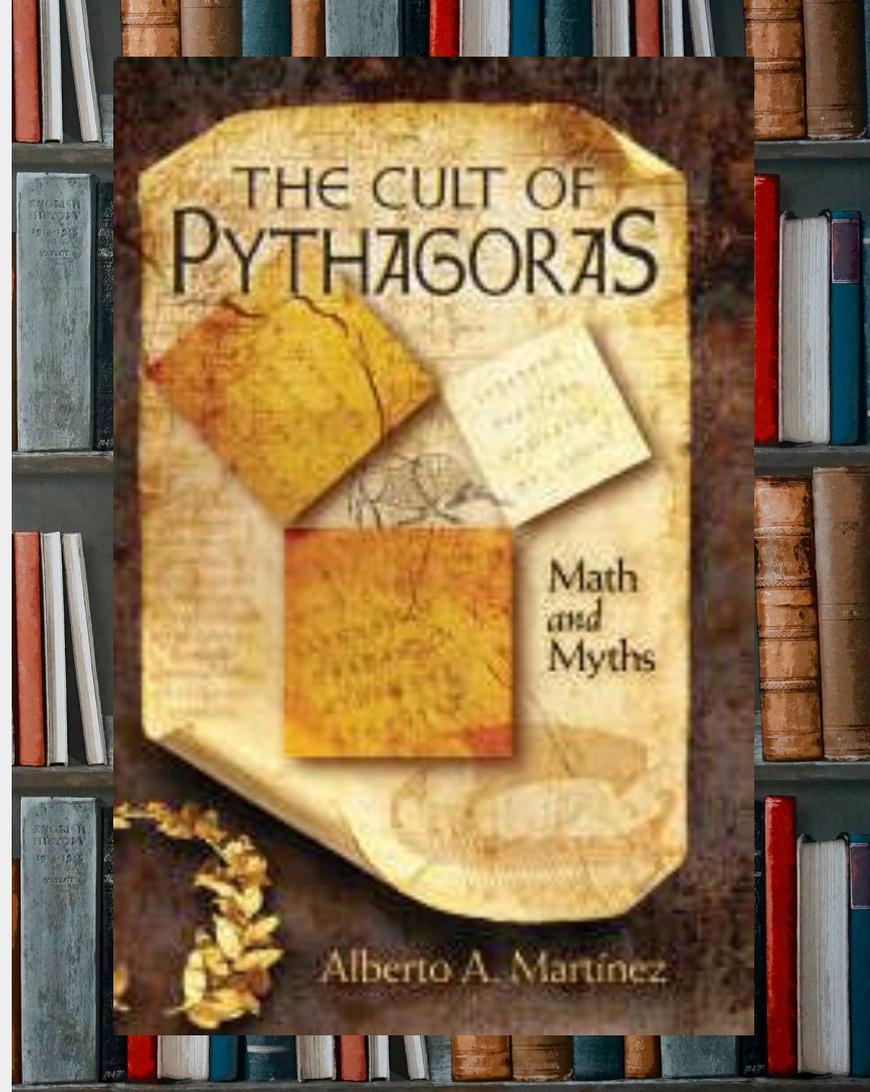


Table 7. Division by Zero, Selected Answers across Several Centuries: Old Confusions or Substantial Disagreements? (Martinez 2012: 93)

ca. 1150	Bhaskara	$1 \div 0 = \text{infinity}$
1656	John Wallis	$1 \div 0 = \text{infinity}$
1770	Leonhard Euler	$1 \div 0 = \text{infinity}$
1828	Martin Ohm	$1 \div 0$ is meaningless
1830	George Peacock	$1 \div 0 = \text{infinity}$
1881	Axel Harnack	$1 \div 0$ is impossible
1902	Arnold Emch	$1 \div 0 = \text{infinity}$
1928	Konrad Knopp	$1 \div 0$ is undefined, impossible, meaningless
2005	John Stillwell	$1 \div 0 = \text{infinity}$ (sometimes is useful

"In 1985, the Institute of Electrical and Electronics Engineers (IEEE), established a system of binary arithmetic known as the IEEE 754.

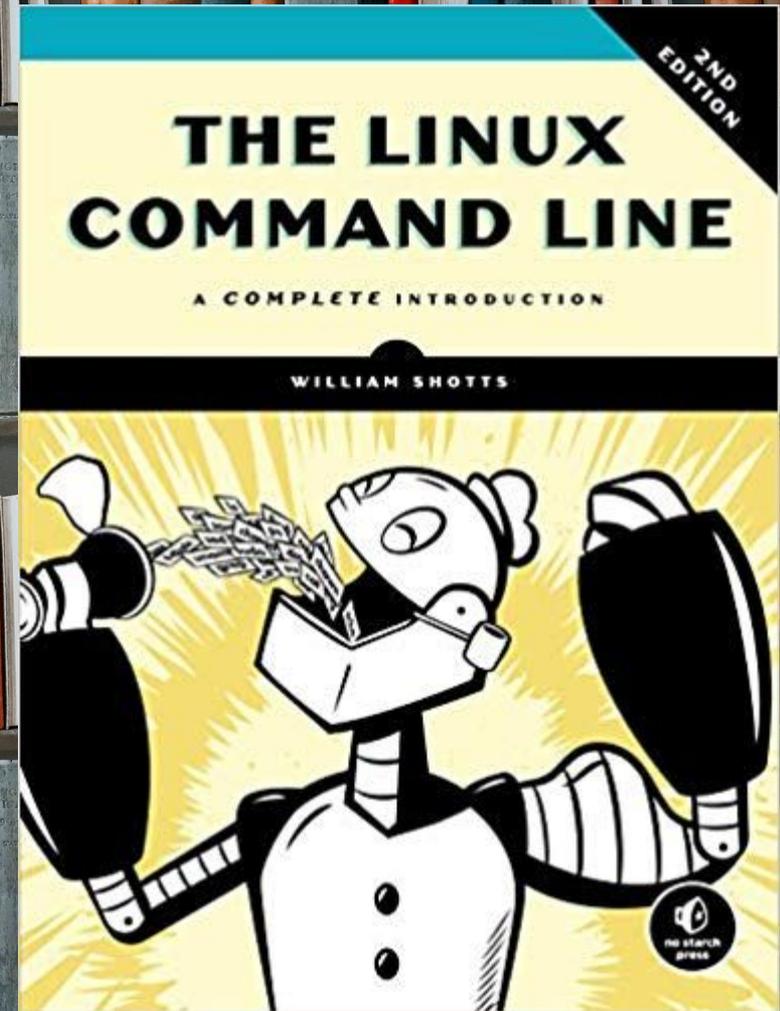
It includes values of infinity, negative infinity, negative zero, and NaN (Not a Number), and it defines division by zero.

The IEEE is a professional organization of engineers, incorporated in New York, that includes thirty-eight societies and seven technical councils and has roughly four hundred thousand members in more than 160 countries"

(Martinez 2012, 97).

During the 1980's, Unix was becoming very popular. However, many computer manufacturers were adding proprietary changes and extensions (to “lock in” customers), which limited the compatibility of the software.

So, in the mid-1980's, IEEE began developing a set of standards that would define how Unix (and Unix-like) systems would perform. These standards are formally known as IEEE 1003 (see Shotts 2019, ch. 19).



The Many Gods Objection

There are many other competing religions.

At least *some* of them are worthy of some probability in the decision matrix.

This would imply that there are multiple possible routes to infinite expected utility.

Choosing Christianity, then, would seem like an arbitrary choice.

	God exists	God does not exist
Wager for God	∞	$f1$
Wager Against God	$f2$	$f3$
	∞	
	∞	
	∞	
	∞	

Response to the Many Gods Objection

But nonetheless, barring satirical religions such as Pastafarianism and [Dudeism](#), monotheistic religions seem to be pointing at the same being.

In fact, even Hinduism's Brahman has some similarities with God conceived the way that Aquinas' conceived of him.

The Zero Probability Objection

The atheist might argue against premise 2;
i.e., she might claim that the probability of God existing is actually zero
(perhaps assuming the Problem of Evil is valid and sound).
In this case, the expected utility is 0, (since $\infty \times 0 = 0$).
It makes no sense to wager for God.

	God exists	God does not exist
Wager for God	∞	$f1$
Wager Against God	$f2$	$f3$
	∞	
	∞	
	∞	
	∞	



Response to the Zero Probability Objection

But the kind of atheist that allows for zero probability of God's existence is a dogmatic atheist.

They cannot use the Problem of Evil to establish zero probability because there are various responses to this problem...

Stay tuned.

Others objections?

1. You should choose the action of maximal expected utility if there is one.
2. The probability p that God exists is positive.
3. The decision matrix is as follows, where f_1 , f_2 , and f_3 are finite utilities.
4. Therefore, wagering for God has infinite expected utility.
This is since: $(\infty \times p) + (f_1 \times [1 - p]) = \infty$.
5. Therefore, you should wager for God.



Food for thought...

Even if atheists (or non-theists) are right,

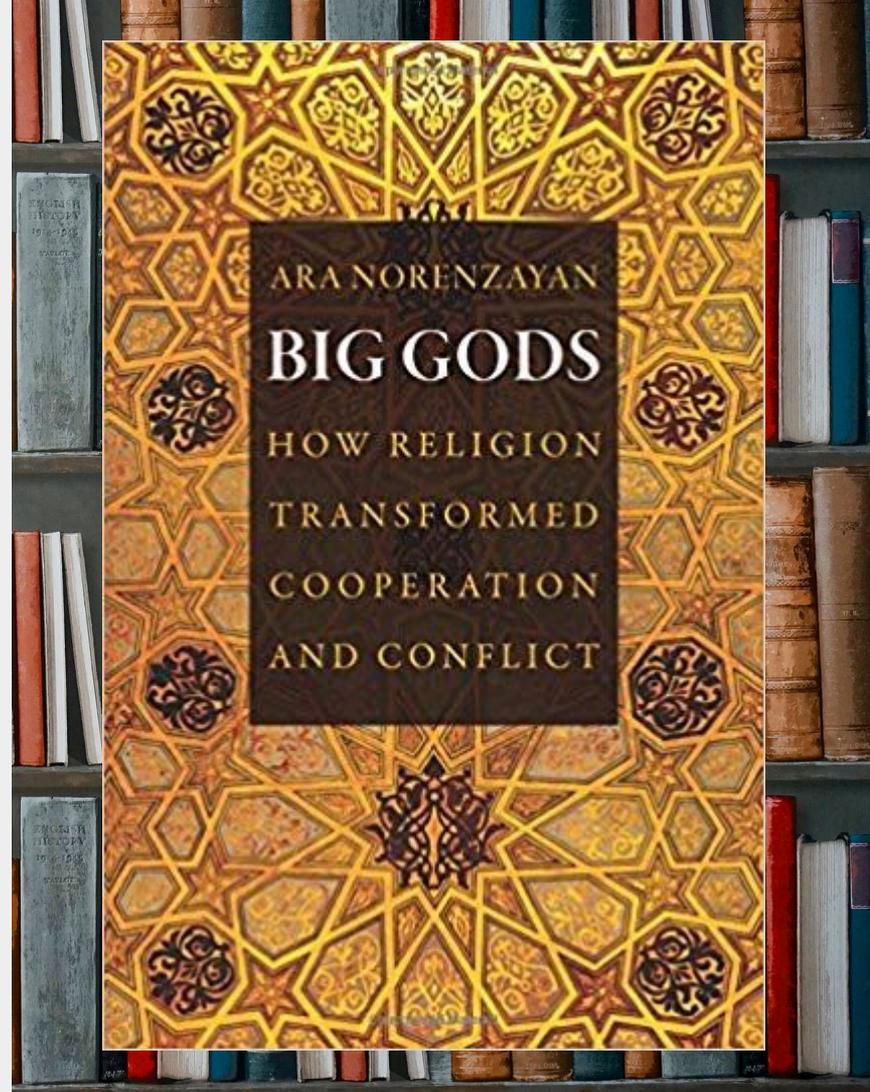
there's still a very perplexing issue at hand:

Why do people believe in God?

Some researchers argue that humans, with their ability to construct social realities through **cultural evolution**, eventually stumbled on the idea of big, powerful, supernatural deities that were morally concerned.

“Big Gods” were a necessary element in what enabled society to scale up to the present level of complexity.

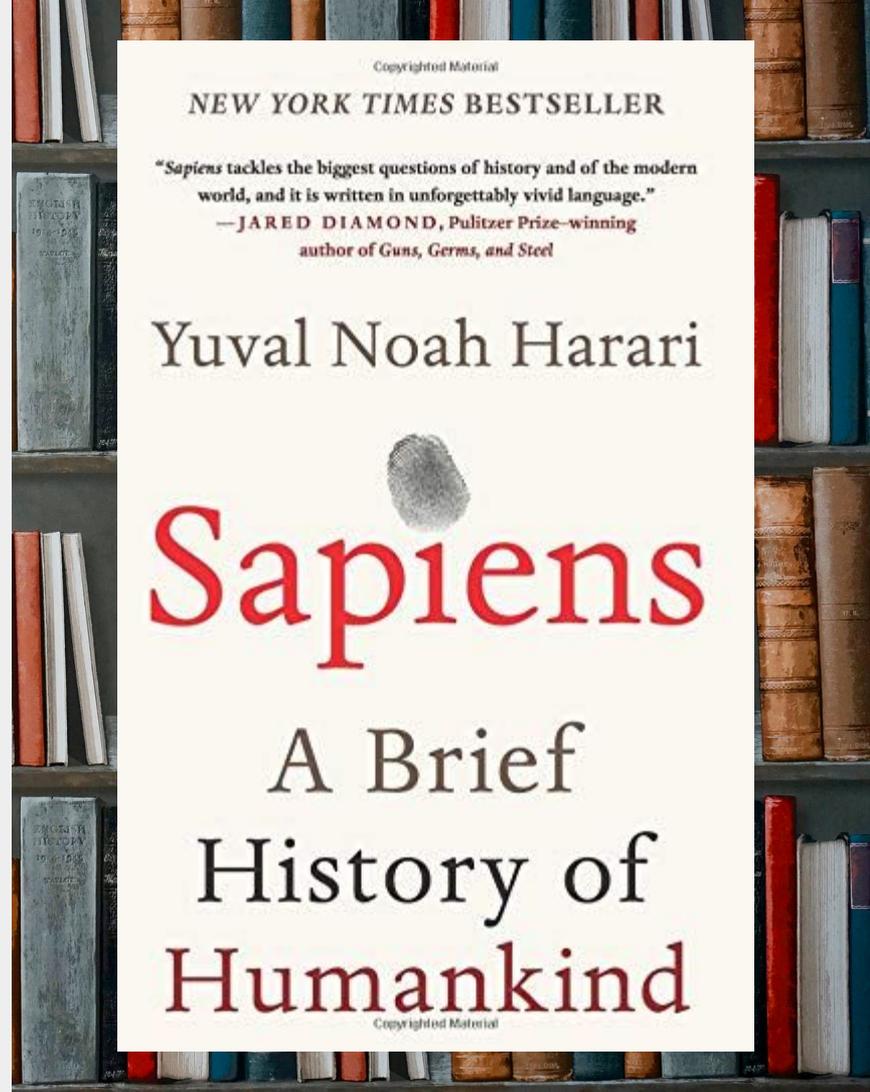
For criticism of this view, click [here](#).



Harari argues that “religion has been the third great unifier of humankind, alongside money and empires.

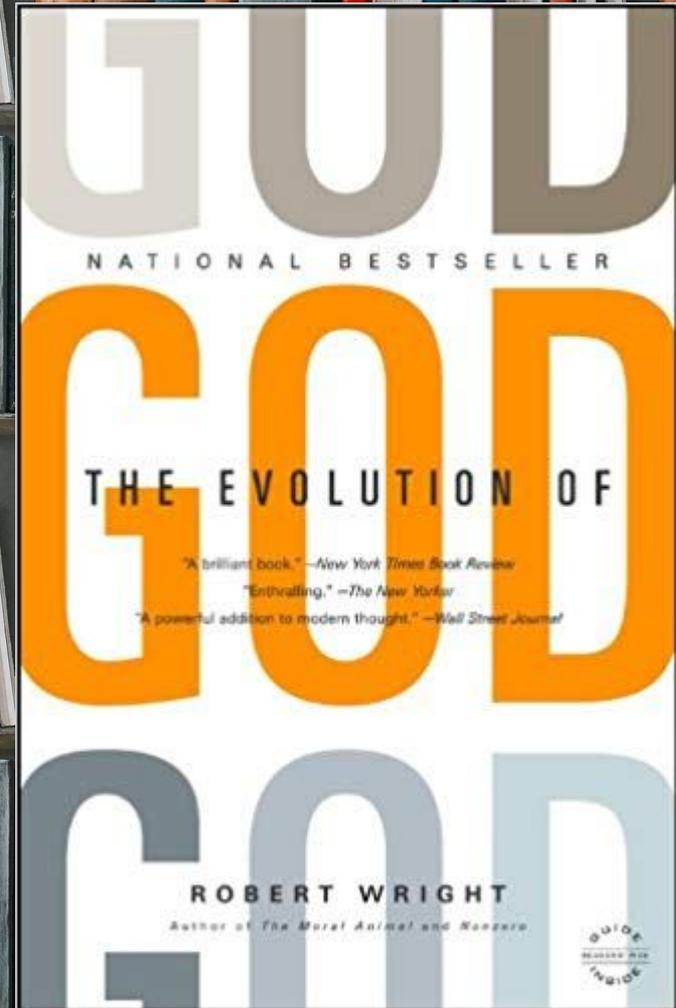
Since all social orders and hierarchies are imagined, they’re all fragile, and the larger the society, the more fragile it is.

The crucial historical role of religion has been to give superhuman legitimacy to these fragile structures” (Harari 2015, Ch. 12, see p. 210 for quote).



Others argue that, contrary to our intuition, the modern conception of historical religious leaders and gods are not at all the way they were first conceived of.

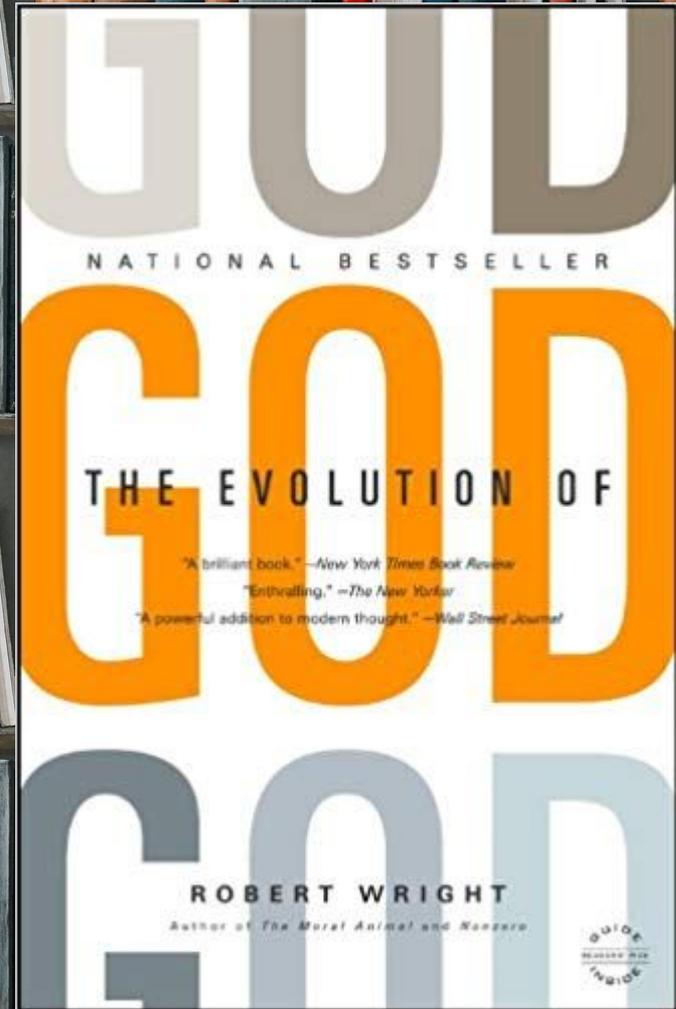
For example...



Wright (2009, Ch. 10) argues that the real historical Jesus was surprisingly traditional at least according to the earliest Gospel accounts, when compared to the later, embellished accounts.

He didn't preach universal love and he wasn't very divine. He was just another apocalyptic prophet.

As time passed and the people who might actually remember Jesus' time died, the accounts of his life became more moral and divine.

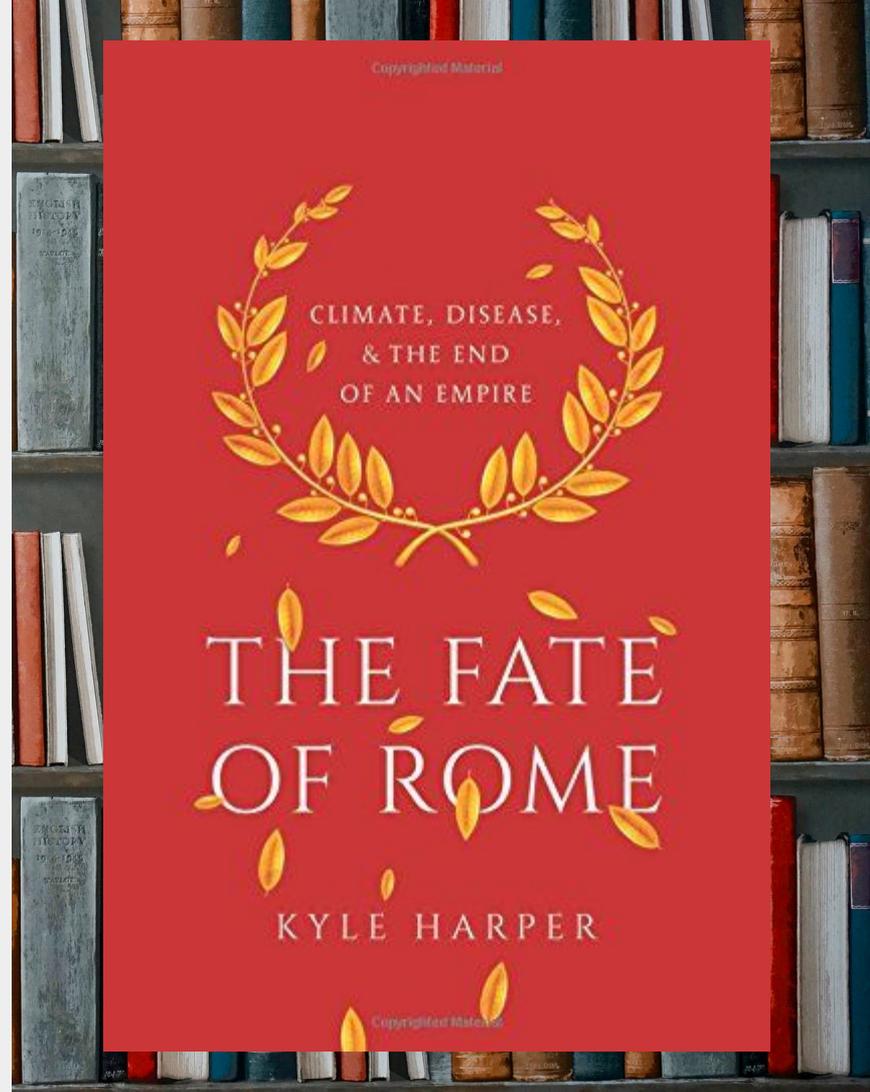


Lastly, some theorists believe that the success of some religions is more accidental.

Harper (2017, Ch. 8) discusses the role that epidemic disease played in the rise of Christianity and Islam. He reminds us that, although this is forgotten today, these are eschatological (apocalyptic) religions.

In the midst of a plague, it seemed like the end of times, so this added credibility to their religious claims.

Moreover, basic care (e.g. feeding and cleaning) made it more likely that an infected person would survive. This is, of course, exactly what Christian ethics prescribes that we do of others. So people would flock to the churches for this reason.



philosophy
of religion

an historical introduction



Linda Zagzebski (b. 1946)

Φ

rcgphi