

# Philosophical Logic

LECTURE TWO | MICHAELMAS 2017

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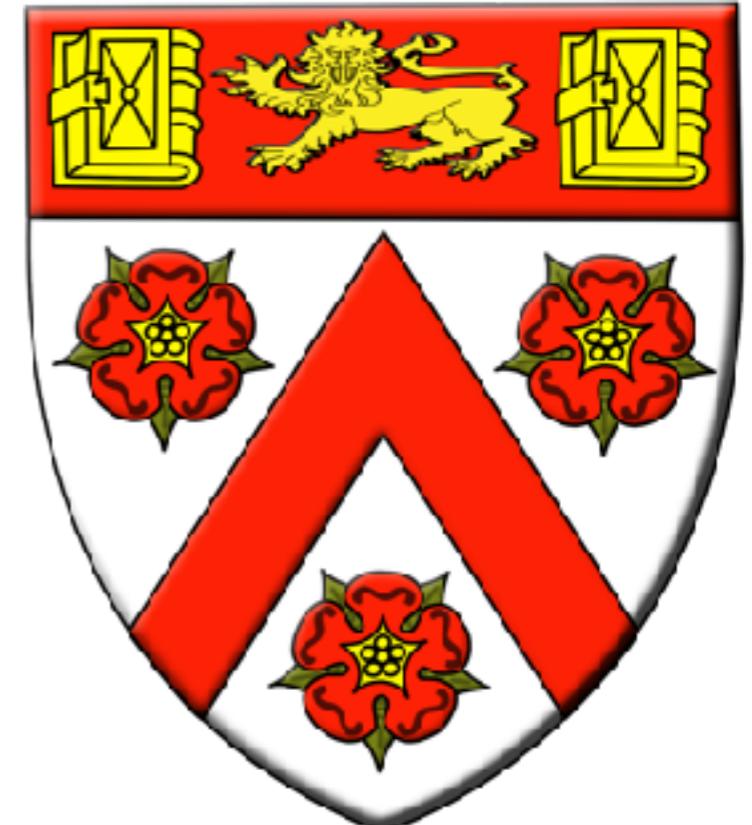


# Last Week

- Lecture 1: **Necessity, Analyticity, and the A Priori**
- Lecture 2: **Reference, Description, and Rigid Designation**
- Lecture 3: **What Could ‘Meaning’ Mean?**
- Lecture 4: **Natural Language**
- Lecture 5: **Formal Translations**
- Lecture 6: **Conditionals**
- Lecture 7: **Deeper into ‘the’**
- Lecture 8: **Quantification and Existence**

# Last Week

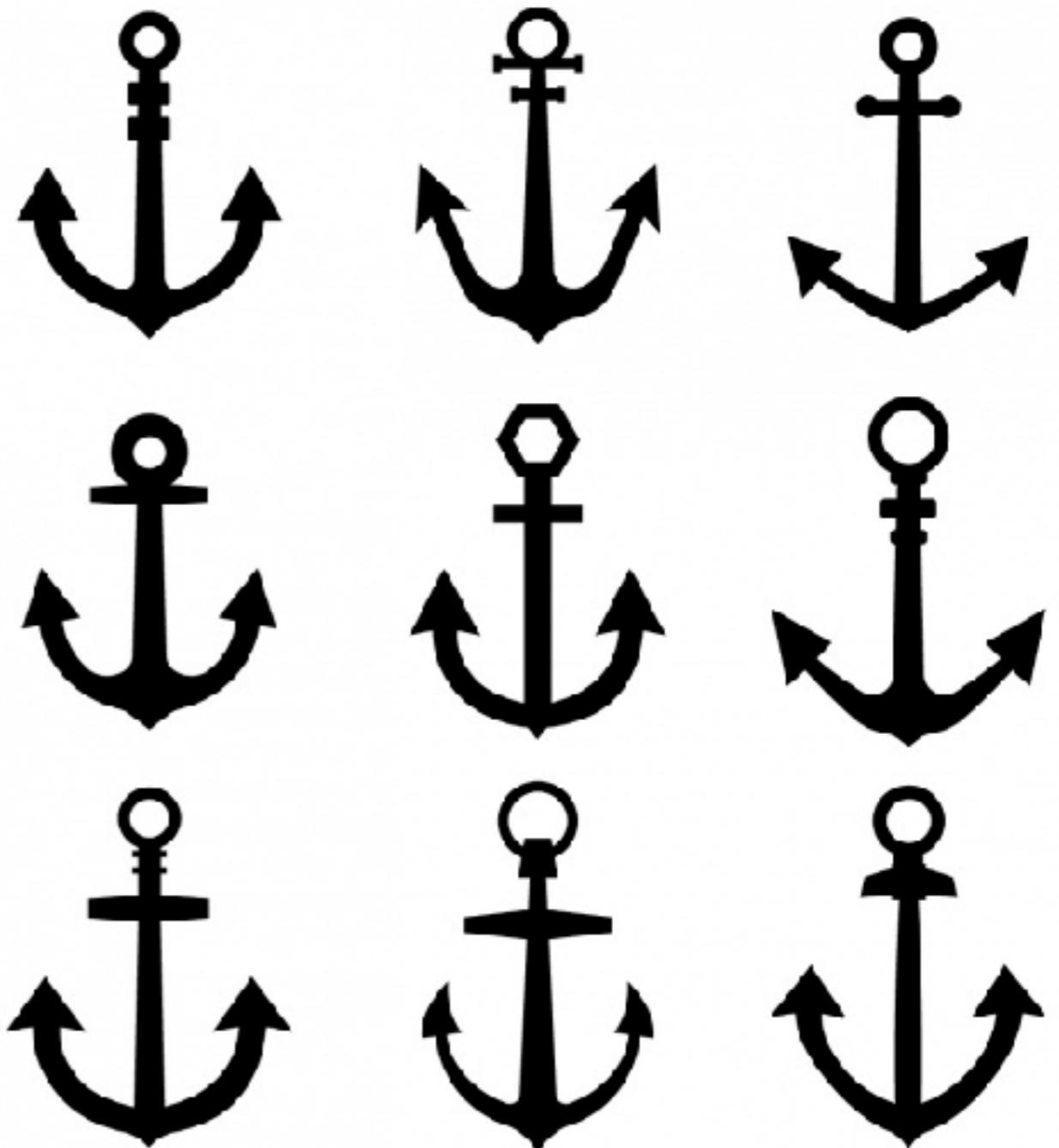
- *De re* necessity and *de dicto* necessity
- What is it for a statement to be necessarily true?:  
true in all *possible worlds*
- Allows us to define:
  - Necessary truths
  - Contingent truths
  - Possible truths
- What makes a statement necessarily true?  
Suggestion: Analytic truth (as opposed to synthetic)
- This makes necessary truths knowable ‘from the armchair’: a priori truths (as opposed to a posteriori)
- ‘Package deal’: Necessity | Analyticity | A priori



# Necessity, contingency, and possibility

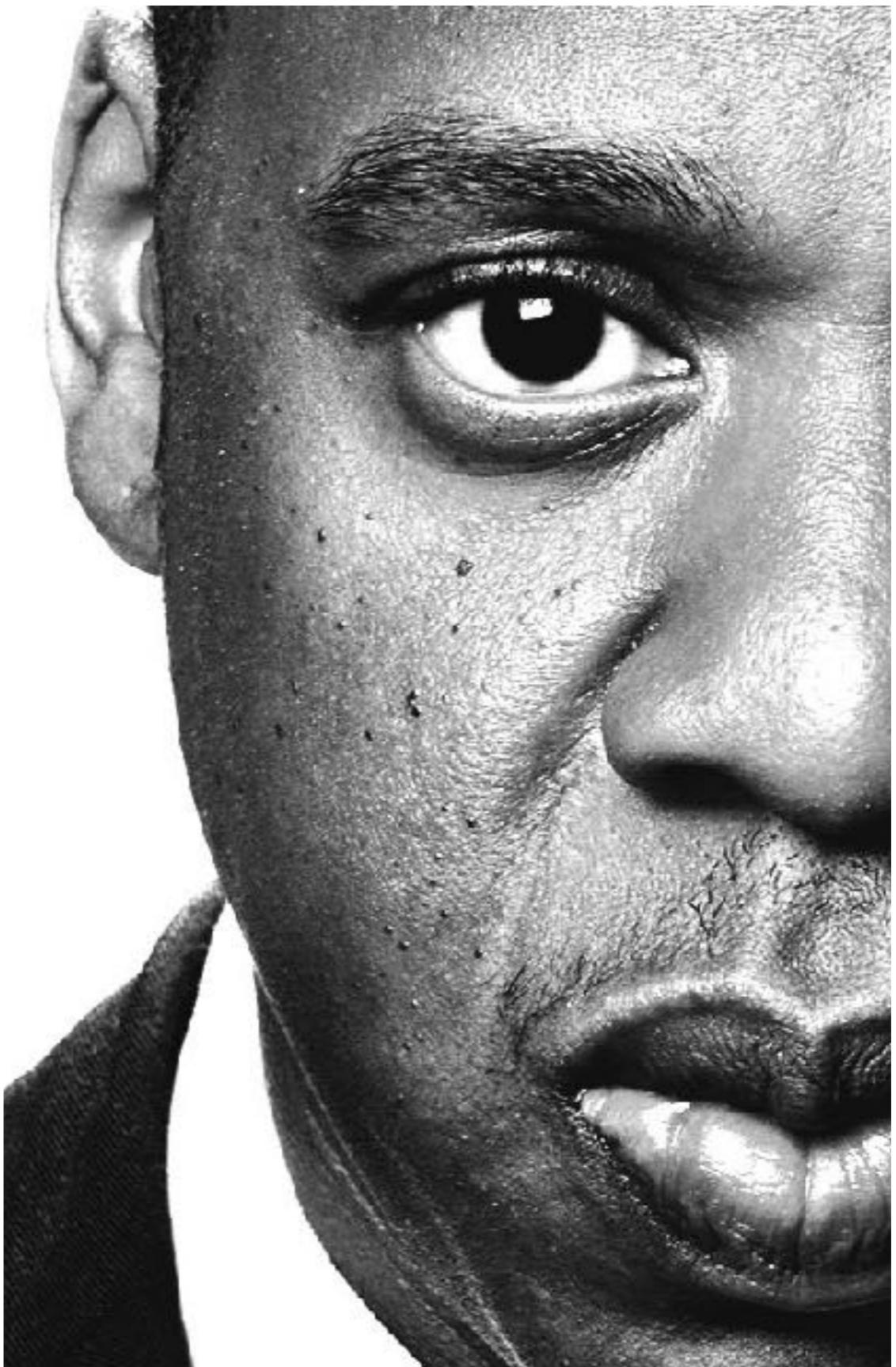
True...	...in all possible worlds	...in some possible worlds	...in the actual world
Necessary	YES	YES	YES
Contingent	NO	YES	YES
Possible	YES/NO	YES	YES/NO

# Reference, Description, and Rigid Designation



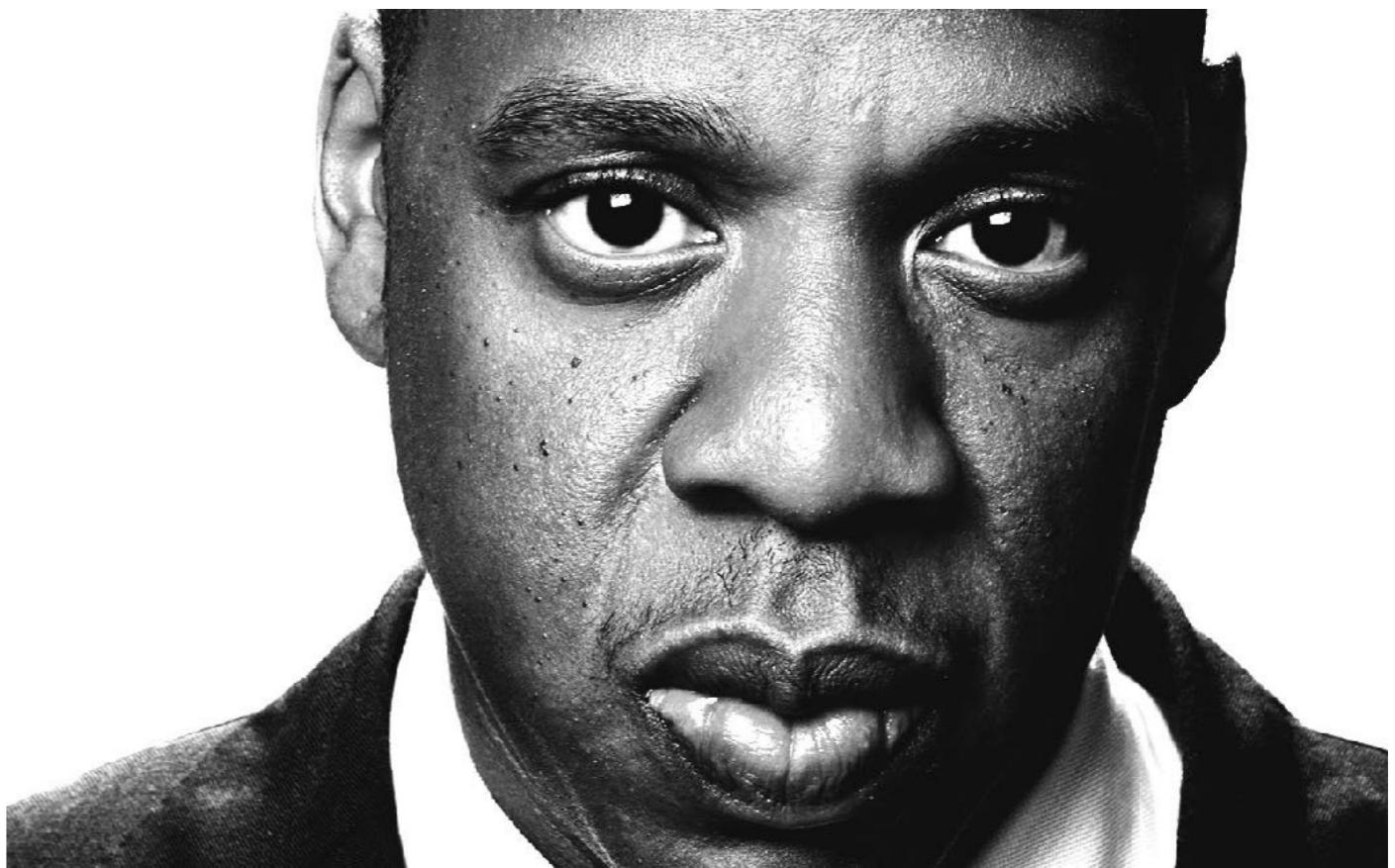
# A puzzle about identity

‘JAY-Z is Shawn Carter’



# Identity and Predication

- JAY-Z is Shawn Carter
- JAY-Z is rich
- ‘is’: identity or predication
- Basic identity statements are those where two names are conjoined by ‘is’ (which then has to be used as the ‘is’ of identity)



# Are identity statements, when they are true, necessarily true?

Argument for this claim:

- When you make a true identity statement, you pick out the same thing twice, and say that it is the same thing as itself
- But nothing can fail to meet that condition. Everything is identical to itself!
- So an identity statement, when true, is true necessarily

# Are identity statements, when they are true, necessarily true?

Argument **against** the claim:

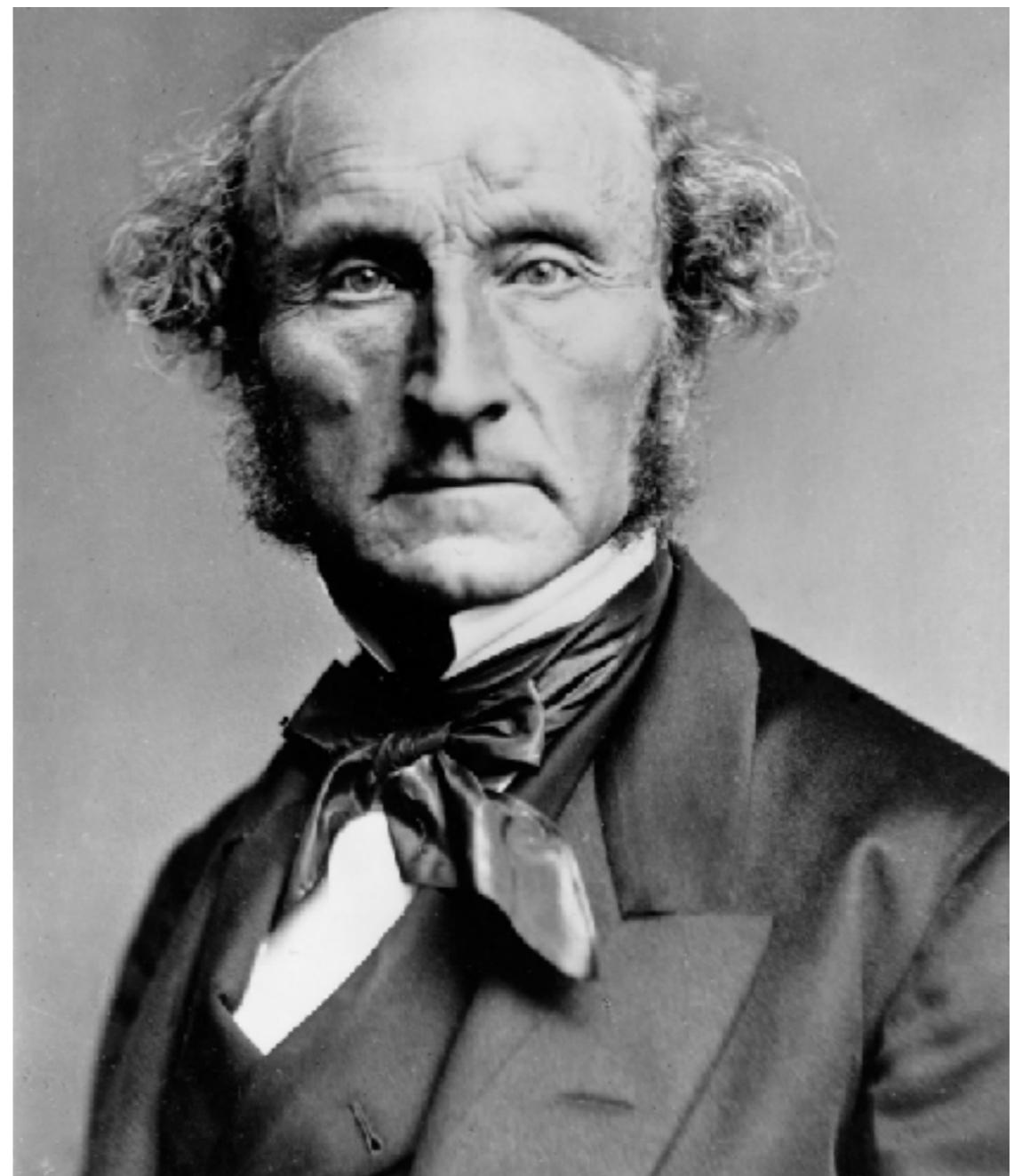
- S: 'JAY-Z is Shawn Carter' [True]
- JAY-Z is the second-richest hip hop artist in the U.S.
- S\*: 'The second-richest hip hop artist in the U.S is Shawn Carter' [True, but only contingently]
- S and S\* are semantically equivalent (i.e. both say of JAY-Z that he is Shawn Carter)
- So S is true only contingently

# Names



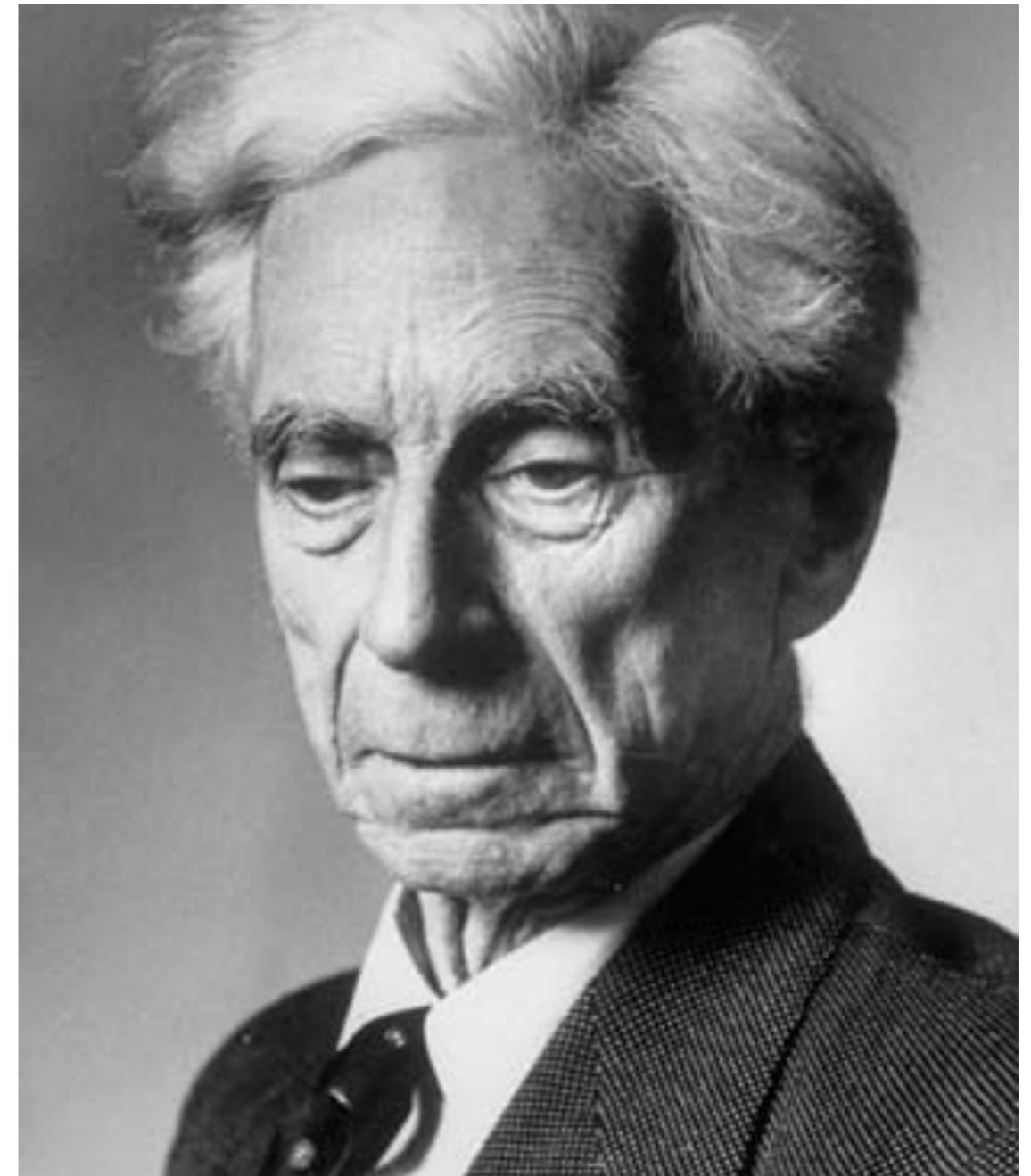
# Millianism

- Common-sense view: the semantic contribution of a name is its referent (and only its referent)
- ('semantic contribution' = contribution to the meaning of the statement in which the name is used)
- More complex names ('the teacher of Aristotle') may have additional baggage (connotation); not semantically relevant
- John Stuart Mill (1806–73), hence 'Millian' theory of names
- All identity statements seem either necessary or meaningless (when names are 'empty')



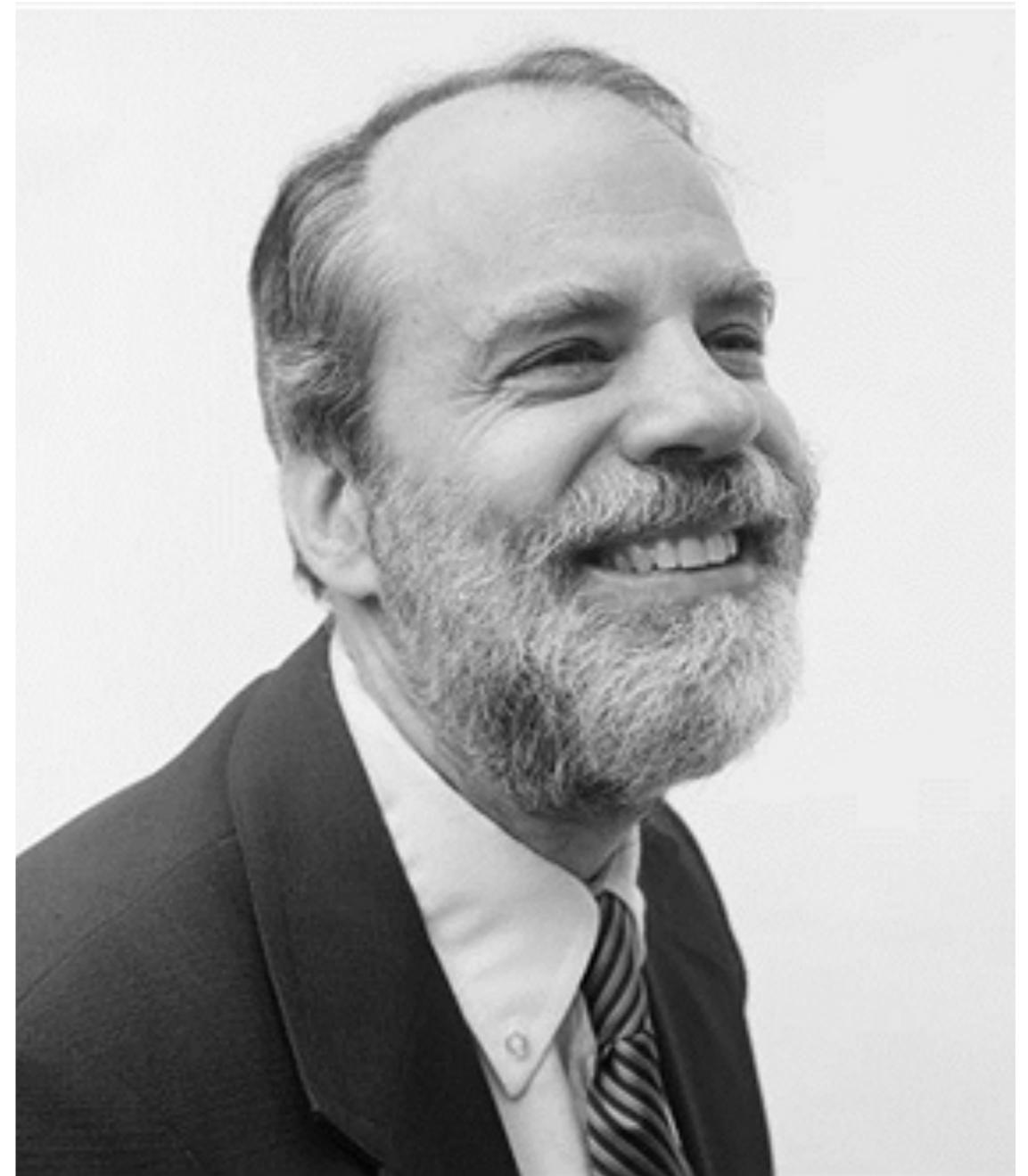
# Descriptivism

- Each name makes a semantic contribution that is equivalent to the semantic contribution of some descriptive phrase ('the F')
- In other words, for a name like 'Plato' we there is some description (e.g. 'the teacher of Aristotle') that makes its semantic contribution more explicit
- Bertrand Russell (1872-1970)
- All identity statements seem contingent (except for trivial ones, 'a is a')



# Comparison

- Mill and Russell agree: all names (simple and complex) contribute to semantics in the same way
- They disagree about what this contribution is: Mill thinks it's simple 'tagging'; Russell thinks its just descriptive identification
- Saul Kripke: Not all names make the same semantic contribution. Some names are *rigid designators*



# Rigid Designation

A name is a rigid designator if and only if it refers to the same object in all possible worlds

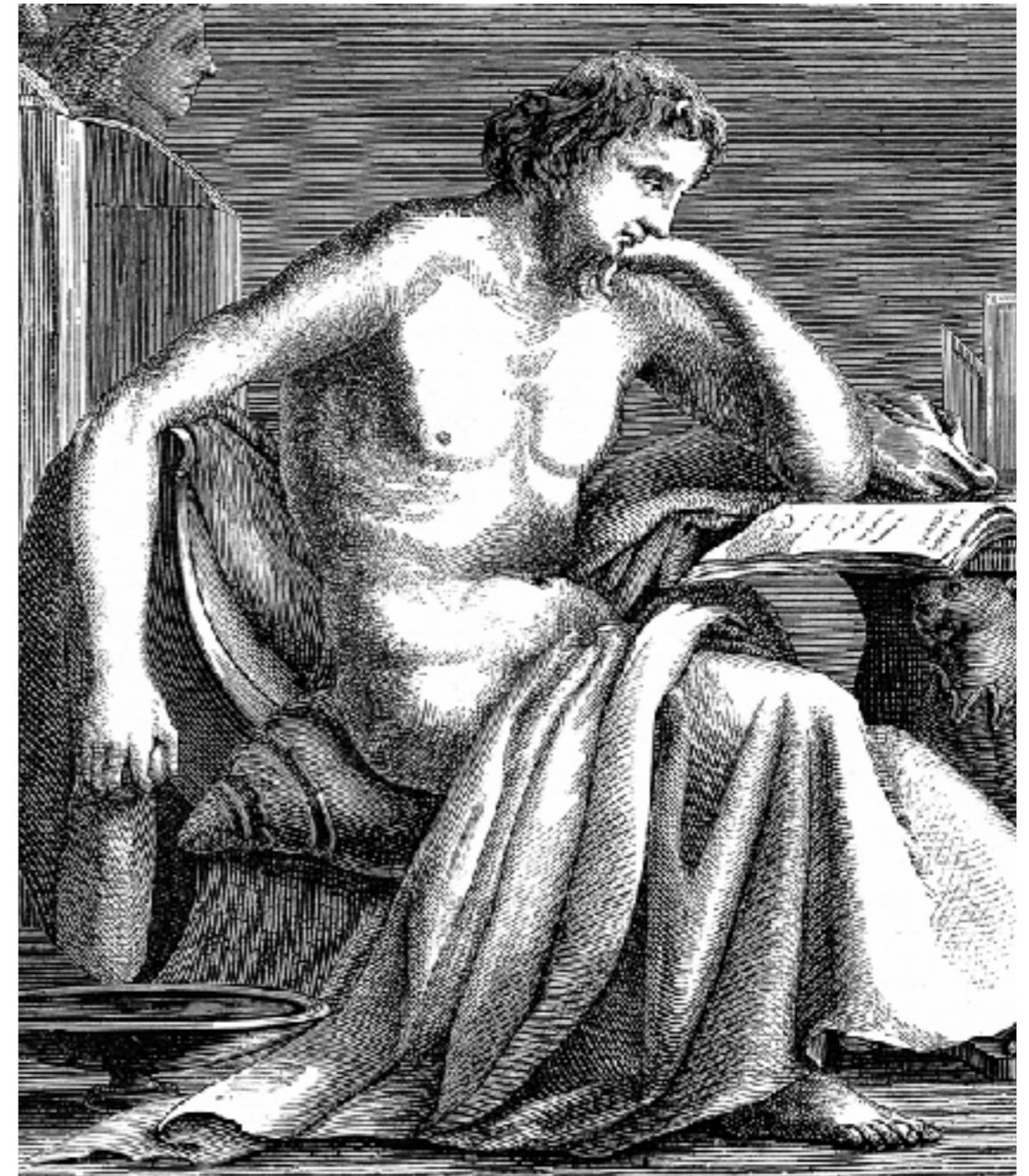
Kripke: 'Plato' refers to Plato in all possible worlds

But, 'the teacher of Aristotle' does not refer to Plato in all possible worlds



# Problem?

- What if Aristotle was self-taught and Plato never existed? (This seems a possible scenario)
- It is clear that ‘the teacher of Aristotle’ would not pick out anyone in that situation.
- But would ‘Plato’ still refer to Plato?
- Not obviously: it seems that reference requires existence
- So does this mean ‘Plato’ is not a rigid designator?



# Weak and Strong Rigidity

- **Strong Rigidity:** A referring expression is a *strongly* rigid designator if and only if it refers to the same object in all possible worlds
- **Weak Rigidity:** A referring expression is a *weakly* rigid designator if and only if it refers to the same object in all possible worlds in which that object exists
- ‘Plato’ is weakly rigid, because it refers to the same object in all worlds in which Plato exists



# Necessary a posteriori truths

Can we prove that  
identity statements with  
rigid designators are  
necessarily true?



# Proof for necessity

1. ‘JAY-Z is Shawn Carter’ is merely contingently true (Assumption, for *reductio*)
2. If ‘JAY-Z is Shawn Carter’ is contingently true, then ‘JAY-Z’ and ‘Shawn Carter’ must refer to the same thing in the actual world
3. Both 'JAY-Z' and 'Shawn Carter' are rigid designators
4. If a statement *s* is contingently true, then there is some world *w* in which *s* is false
5. If ‘JAY-Z is Shawn Carter’ is false, then ‘JAY-Z’ and ‘Shawn Carter’ refer to different things
6. So there is some world in which ‘JAY-Z’ and ‘Shawn Carter’ refer to different things
7. But then either ‘JAY-Z’ or ‘Shawn Carter’ (or both) do not refer to the same thing in every possible world
8. Not both 'JAY-Z' and 'Shawn Carter' are rigid designators
9. Contradiction

**“JAY-Z is Shawn Carter”**

*Necessary and A Posteriori truth*

# Science and identity

How do we recognise a rigid designator?



# Simple names

- Suggestion: Rigid designators are just the simple (proper) names
- This is not correct: ‘the sum of 1 and 2’ is a complex name for the number three. But it is a rigid designator.
- (Moreover, if the number three exists in all possible worlds it is strongly rigid.)



# Scientific terms

- Kripke thinks that many kind terms used by the sciences are rigid designators (e.g. ‘Water’, ‘the Higgs boson’ or ‘H<sub>2</sub>O’)
- At an early stage of scientific enquiry, people might not know exactly what water is, but they can still talk about it in their investigations. It's as if they say *that stuff*, ‘water’, pointing to some water.
- We use an expression as rigid if we use it as some kind of deferred demonstrative

# ‘Water = H<sub>2</sub>O’

- If ‘water’ and ‘H<sub>2</sub>O’ are both rigid designators (which they seem to be) then we have discovered the truth of ‘Water is H<sub>2</sub>O’
- ‘Water is H<sub>2</sub>O’:
  - Necessary
  - Synthetic
  - A posteriori



**What explains  
the necessity  
of identity  
statements?**



# Self-identity

- Don't forget, some identity statements are necessary truths just because of their logical form ('Shawn Carter is Shawn Carter').
- But if an a posteriori, synthetic identity statement is necessarily true, it is true because the names involved refer rigidly, and so pick out the same object in every possible world
- So there is something about that object that ultimately accounts for the necessity. And this is the simple fact that in every possible world everything is self-identical.
- (Distinguish between the necessity of *identity*, which is universal, and the necessity of *identity statements*, which is not universal.)

# Rigid Designation

A name is a rigid designator if and only if it refers to the same object in all possible worlds (where that object exists)



# Extra: Kant's synthetic *a priori*

- ‘ $7 + 5 = 12$ ’ is necessarily true
- Immanuel Kant (1724-1804): “no matter how long I analyze my concept of such a possible sum [of seven and five] I will still not find twelve in it” (*Critique of Pure Reason*, B-Introduction)
- If Kant is right, the number twelve it is not part of the meaning of ‘7’ ‘+’ or ‘5’. Hence, if the claim is true, it is not analytically true, but a synthetic truth
- Many people disagree (see e.g. Ayer’s discussion)



# Next week

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# Quiz!

Which of the following combinations are coherent options?



# Quiz

**Which of these are coherent options? Can you give examples?**

- Analytic: Necessary: A posteriori
- Analytic: Necessary: A priori
- Analytic: Contingent: A posteriori
- Analytic: Contingent: A priori
- Synthetic: Necessary: A posteriori
- Synthetic: Necessary: A priori
- Synthetic: Contingent: A posteriori
- Synthetic: Contingent: A priori