

Philosophical Logic

LECTURE SEVEN | MICHAELMAS 2017

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Last week

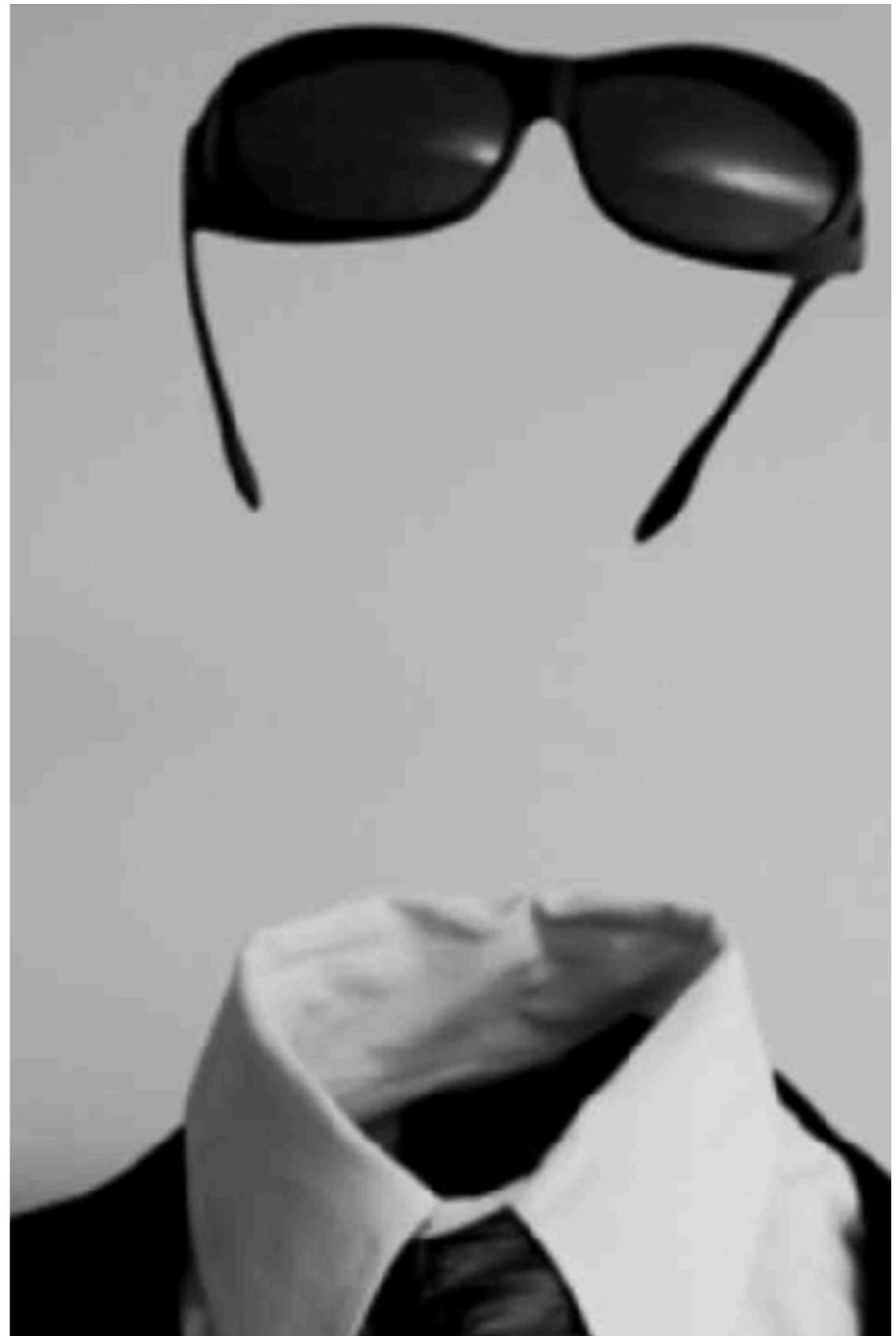
- Lecture 1: **Necessity, Analyticity, and the A Priori**
- Lecture 2: **Reference, Description, and Rigid Designation**
- Lecture 3: **What Could ‘Meaning’ Mean?**
- Lecture 4: **Natural Language**
- Lecture 5: **Formal Translations**
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- Lecture 7: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

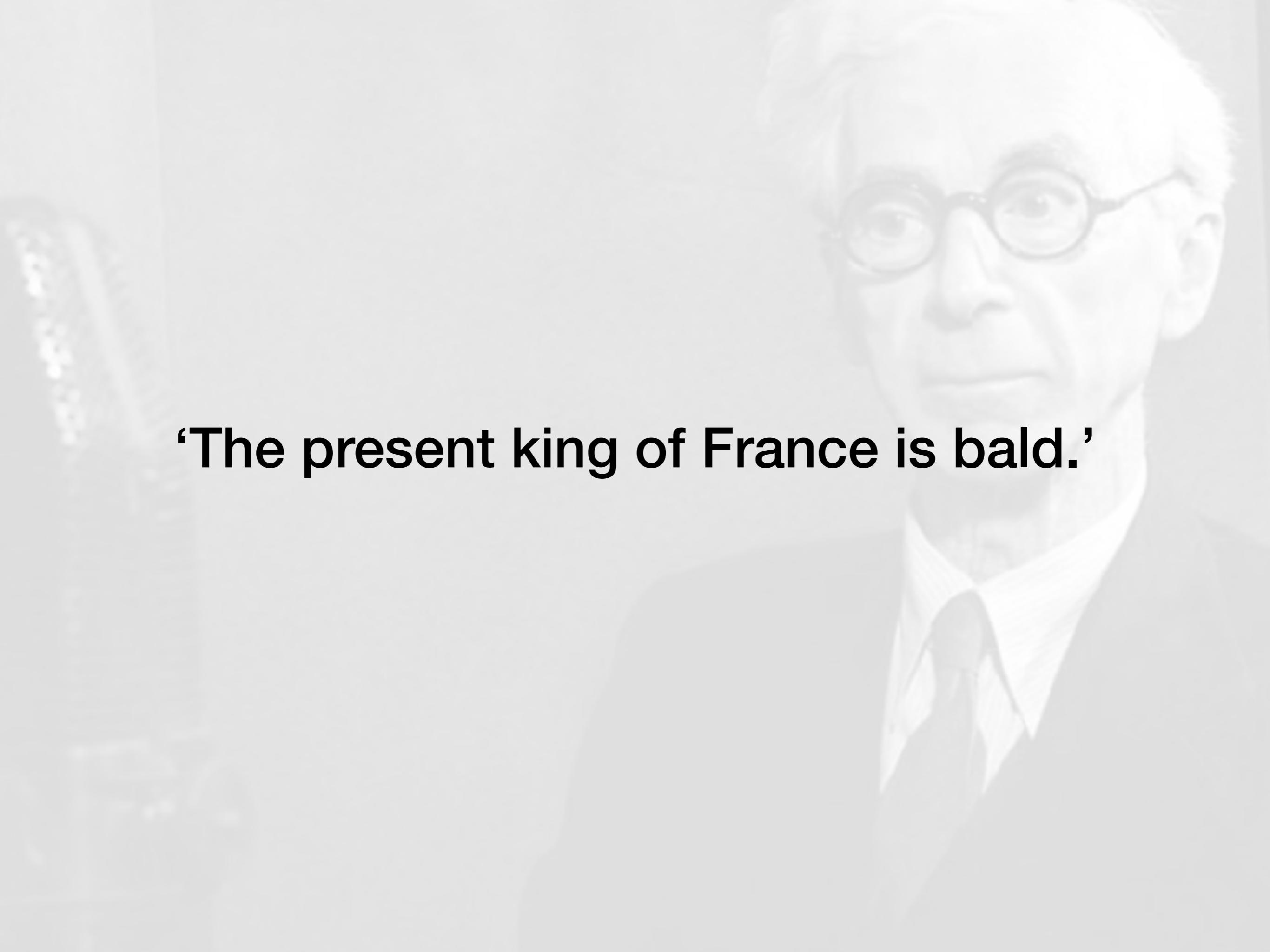
Today

1. The problem of non-existence
2. Denoting and referring
3. The logical form of ‘the’
4. Solving puzzles



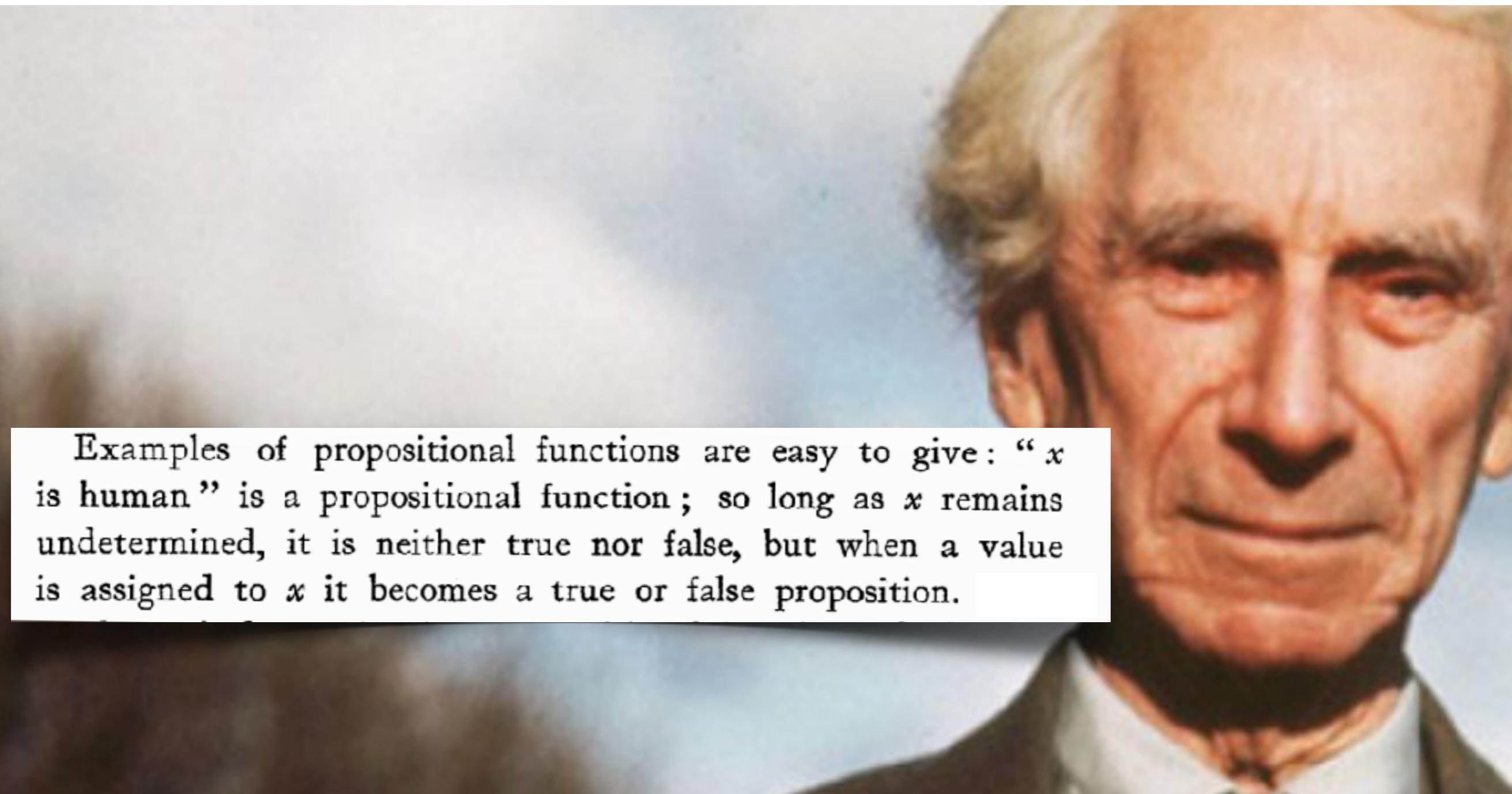
The problem of non- existence





‘The present king of France is bald.’

‘Propositional functions’



Examples of propositional functions are easy to give: “ x is human” is a propositional function; so long as x remains undetermined, it is neither true nor false, but when a value is assigned to x it becomes a true or false proposition.

Propositional functions



- Russell suggests that a phrase like ‘is bald’ on its own introduces a propositional function: Bx
- Bx is incomplete and not a meaningful statement.
- It contains undetermined values (the variable ‘ x ’ lacks a value)
- When values are assigned to these elements, the expression becomes a proposition
- $Bx + \text{以人为例}$ gives ‘Anna is bald’

Talking about nothing

- But given that there is no present king of France, we lack a value in ‘The present king of France is bald’
- ‘The present king of France is bald’ now seems a meaningless statement!
- The whole sentence is meaningless because part of it lacks meaning
- Consider also the seemingly true ‘The present king of France does not exist’



Can we really talk about nothing?

- Parmenides of Elea (5th C. BCE): "It is necessary to say and to think that what is is; for [only] what is is and nothing is not. These things I bid you ponder." (*Poem*, Fr. 6)
- Bertrand Russell (1872-1970): "if a word can be used significantly it must mean something, not nothing, and therefore what the word means must in some sense exist" (*A History of Western Philosophy*, 1945:50).



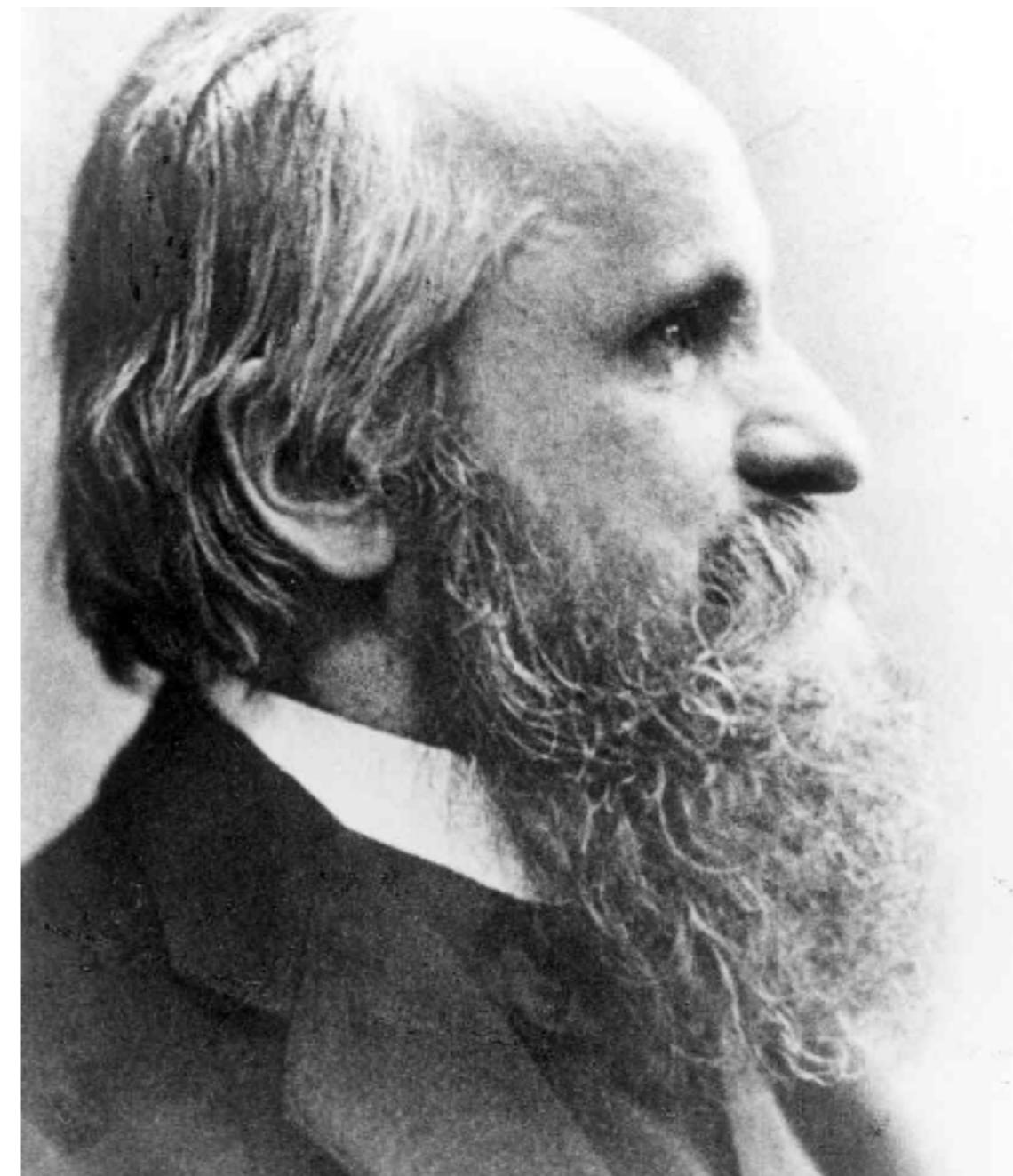
Three solutions

Metaphysical,
Metasemantic,
Semantic



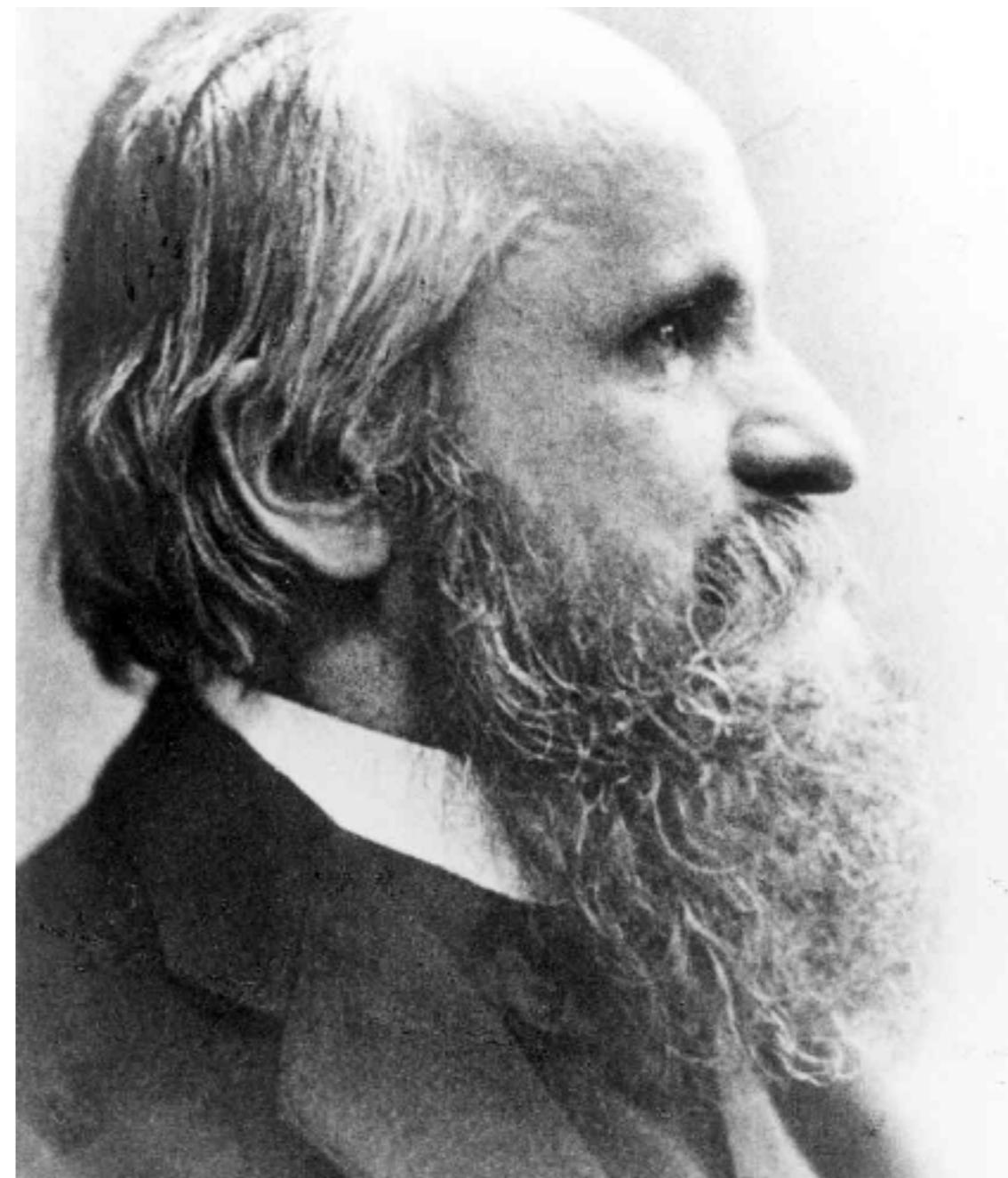
Metaphysical solution

- There is some *non-existing* object that the phrase ‘the present king of France’ refers to
- View attributed to Alexius Meinong (1853-1920), who contrasted *objects that have being* and *objects that do not have being*
- We can now say that the value of Bx can be something that lacks being, e.g. the present king of France



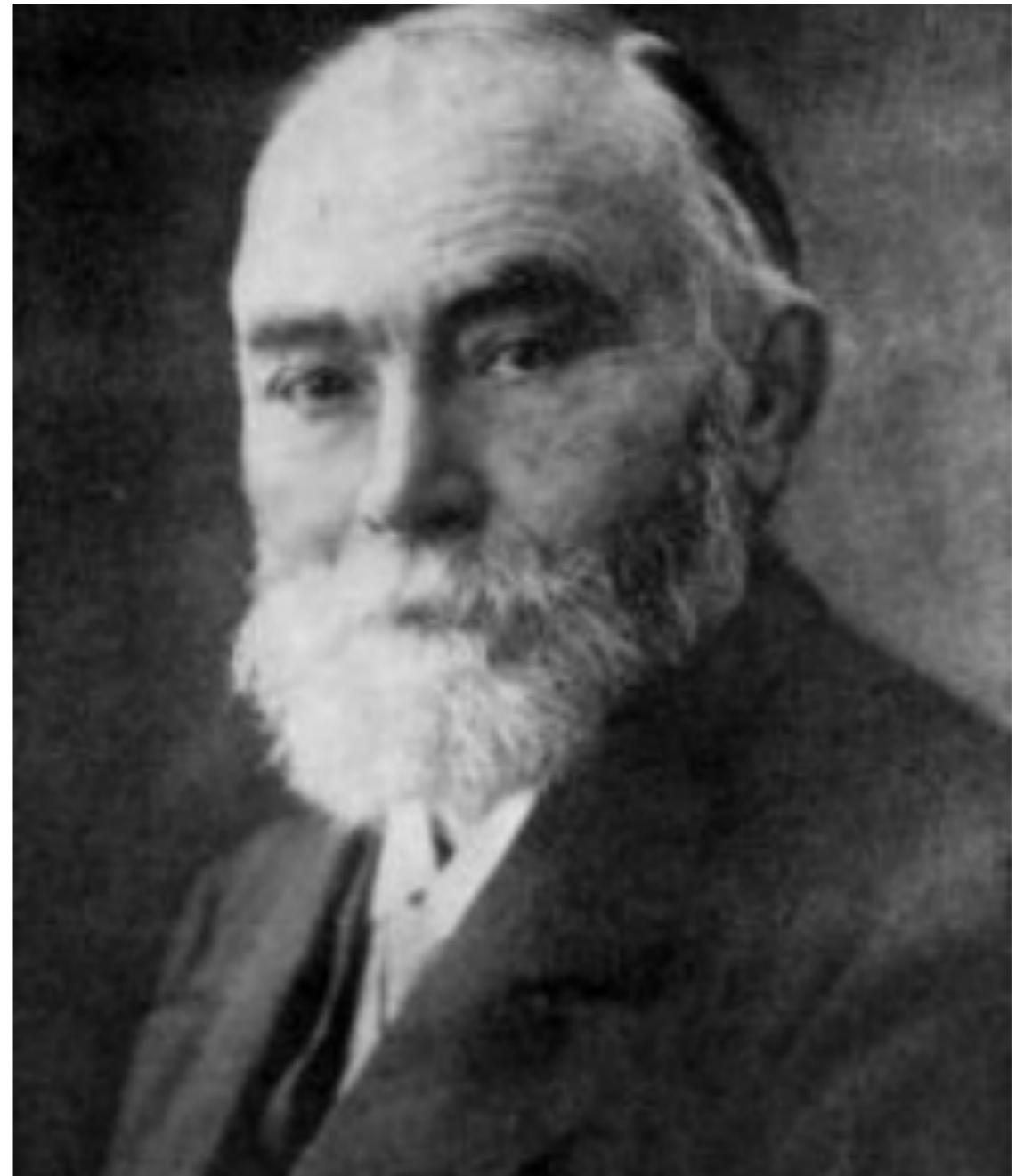
Metaphysical solution

- Problem for the metaphysical solution: allows us to prove contradictions
- If ‘the present King of France’ picks out some non-existent King, then ‘the existent present King of France’ must pick out some non-existent King as well
- But then the following statement must be true: ‘The existent present King of France does not exist’
- But that is a contradiction like ‘The barking dog does not bark’



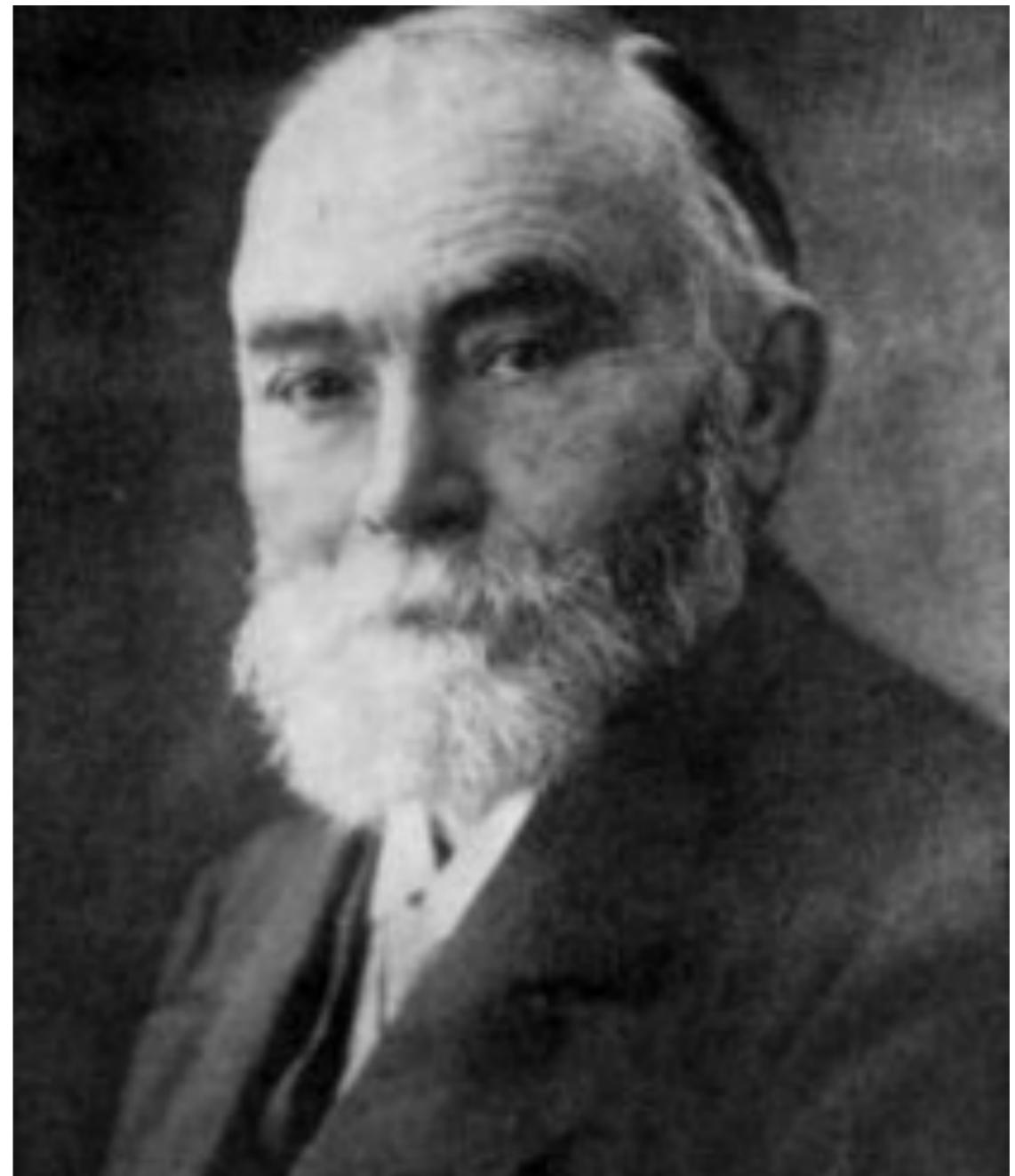
Metasemantic solution

- We can also assume that the meaning of a name is more than just its reference
- Gottlob Frege (1848-1925): every meaningful expression has a *sense* as well as a (possible) *reference*
- The sense of an expression is the mode of presentation of a referent
- So ‘the present King of France’ may lack a reference, it still has sense
- Therefore, all parts of ‘The present King of France is bald’ are meaningful; so the whole sentence can be meaningful



Metasemantic solution

- One problem with Frege's solution is that though meaningful, it implies the sentence lacks a truth value
- For a sentence to be true or false, all of its component variables must be assigned a referent; yet 'the present King of France' lacks a referent, also on Frege's picture
- Yet Russell thinks, not unreasonably, that 'The present king of France is bald' is not only meaningful, but also false



Denoting and Referring

Russell's semantic
solution



Denoting, not referring

- Both the metaphysical and the metasemantic solutions assumed that ‘the present king of France’ functions as a name or referring expression (like ‘Anna’ or ‘Amsterdam’).

‘The present King of France is bald’
‘Anna is bald’
- Russell gives up this assumption: ‘the present King of France’ is a *denoting* expression, not a *referring* expression

Denoting phrases

II.—ON DENOTING.

By BERTRAND RUSSELL.

By a "denoting phrase" I mean a phrase such as any one of the following: a man, some man, any man, every man, all men, the present King of England, the present King of France, the centre of mass of the Solar System at the first instant of the twentieth century, the revolution of the earth round the sun, the revolution of the sun round the earth. Thus a phrase is denoting solely in virtue of its *form*.

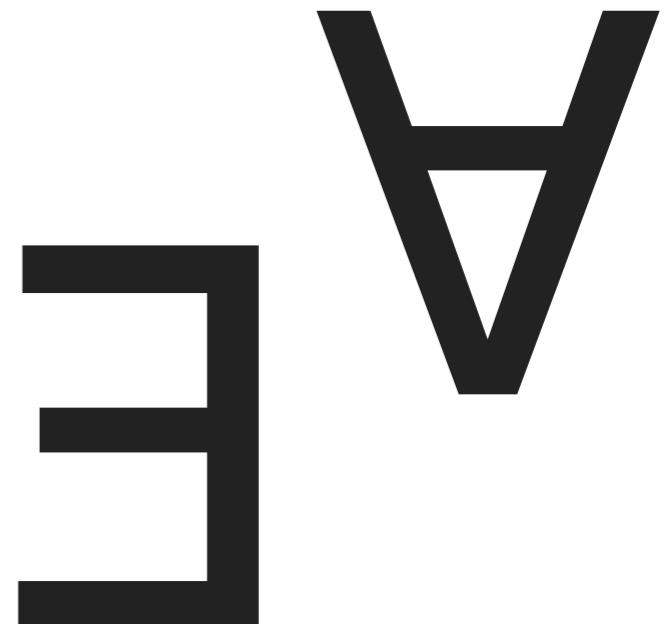
Denoting phrases

- Why think denoting expressions work differently? Argument from contradiction (*Introduction to Mathematical Philosophy* 1919, p. 167-8):

Imagine I met my colleague Tim Button yesterday, and I tell you ‘I met a colleague’
- If ‘a colleague’ is a referring expression, the phrase refers to Tim. What I say is (logically) equivalent to ‘I met Tim’.
- But then I should contradict myself if I said ‘I met a colleague, but it was not Tim’. Yet this sentence is not self-contradictory; it is merely false. (Contrast: ‘I met Tim but it was not Tim’)
- So ‘a colleague’ is here not a referring expression

What denoting phrases do

- Referring expressions introduce some object (e.g. 🧑) to complete a propositional function
- Denoting expressions do something else: they make a statement about in what way a propositional function is satisfied by objects (e.g. never, sometimes, always)



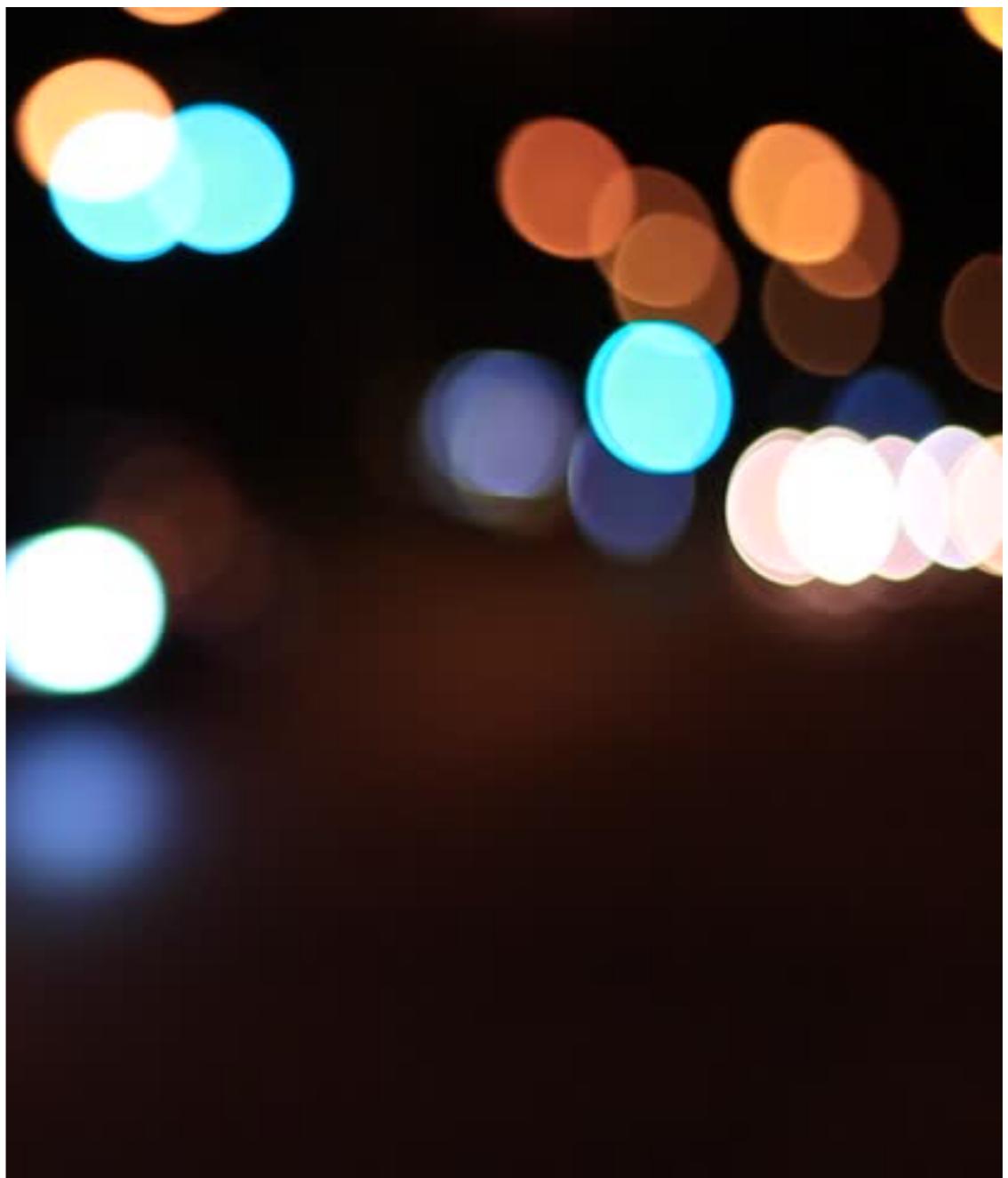
‘A philosopher’

- Example: ‘A philosopher thought hard’
- Is it a name? Gramatically, ‘a philosopher’ seems to function as a name, just as ‘Tim Button’ in ‘Tim Button thought hard’
- But no! Semantically, ‘a philosopher’ is not a meaningful (complete) expression. The contribution of ‘a philosopher’ can only be understood in light of the entire statement in which it occurs (in that respect, it’s like ‘ton though’ in ‘Tim Button thought hard’)
- ‘A philosopher thought hard’ means that the propositional function Tx (' x thought hard') is sometimes satisfied by something that satisfies the propositional function Px (' x is a philosopher')

Definite and indefinite

- We can distinguish definite and indefinite descriptions (definite and indefinite uses of denoting phrases). Compare:

'A philosopher thought hard'
'The philosopher thought hard'
- The first is true if there is some object that is both a philosopher and thought hard (indefinite)
- The second is true if *and only if* there is a unique thing that is both a philosopher and thought hard (definite)



The logical
form of ‘the’

THE

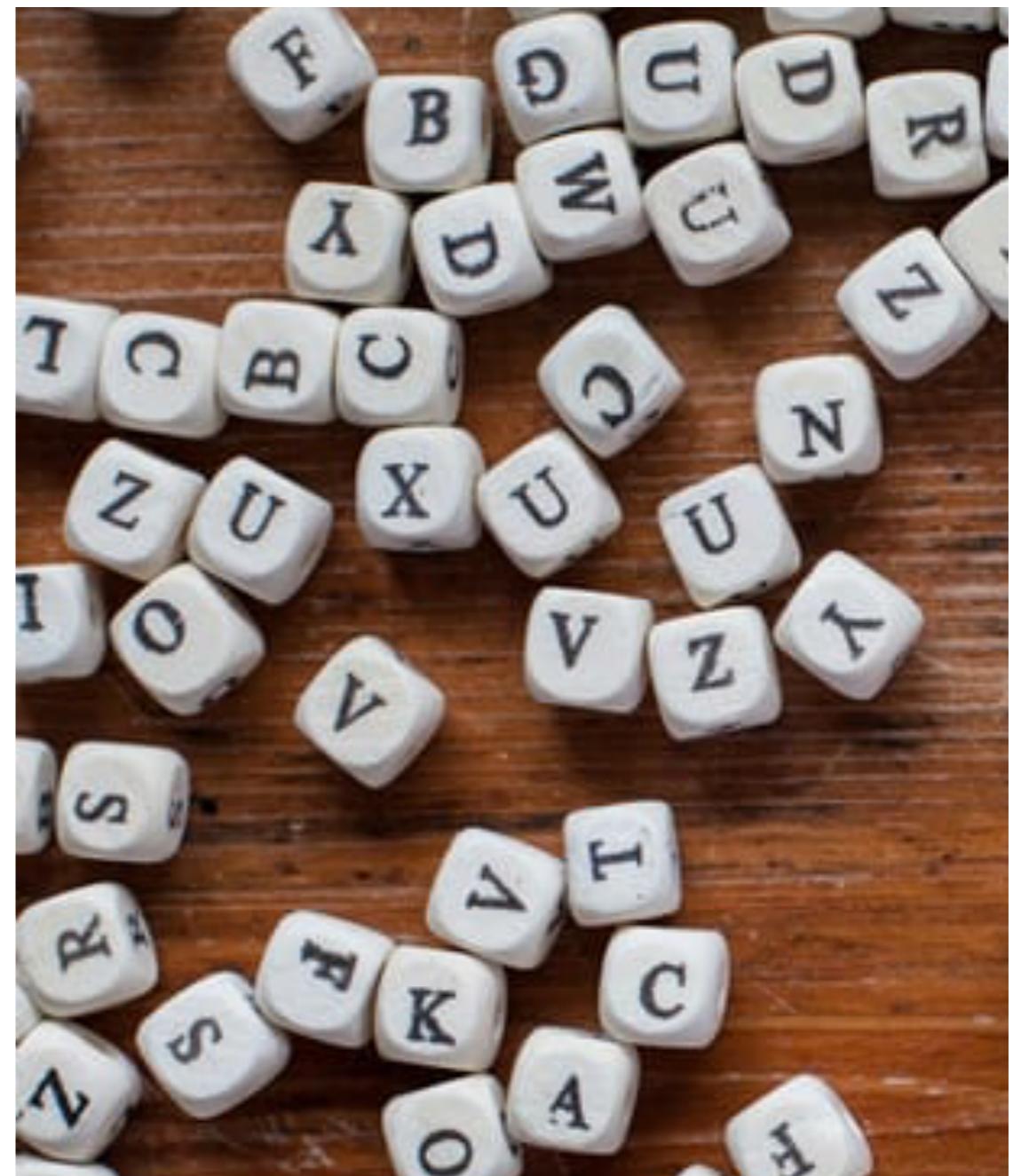
THE

THE

THE

Logical form

- All denoting phrases function *grammatically* in the same way as proper names.
- But sentences containing denoting phrases have a *logical form* that distinguishes them from sentences using only names and predicates.
- To represent their contribution to the meaning of a sentence, we can explicate that logical form (e.g. using FOL)



Logical form

‘Nothing is red’

- A. The function Rx is never satisfied
- B. $\neg \exists x Rx$

‘A philosopher thought hard’

- A. Tx is sometimes satisfied by something that satisfies Px
- B. $\exists x Px \wedge Tx$

Logical form

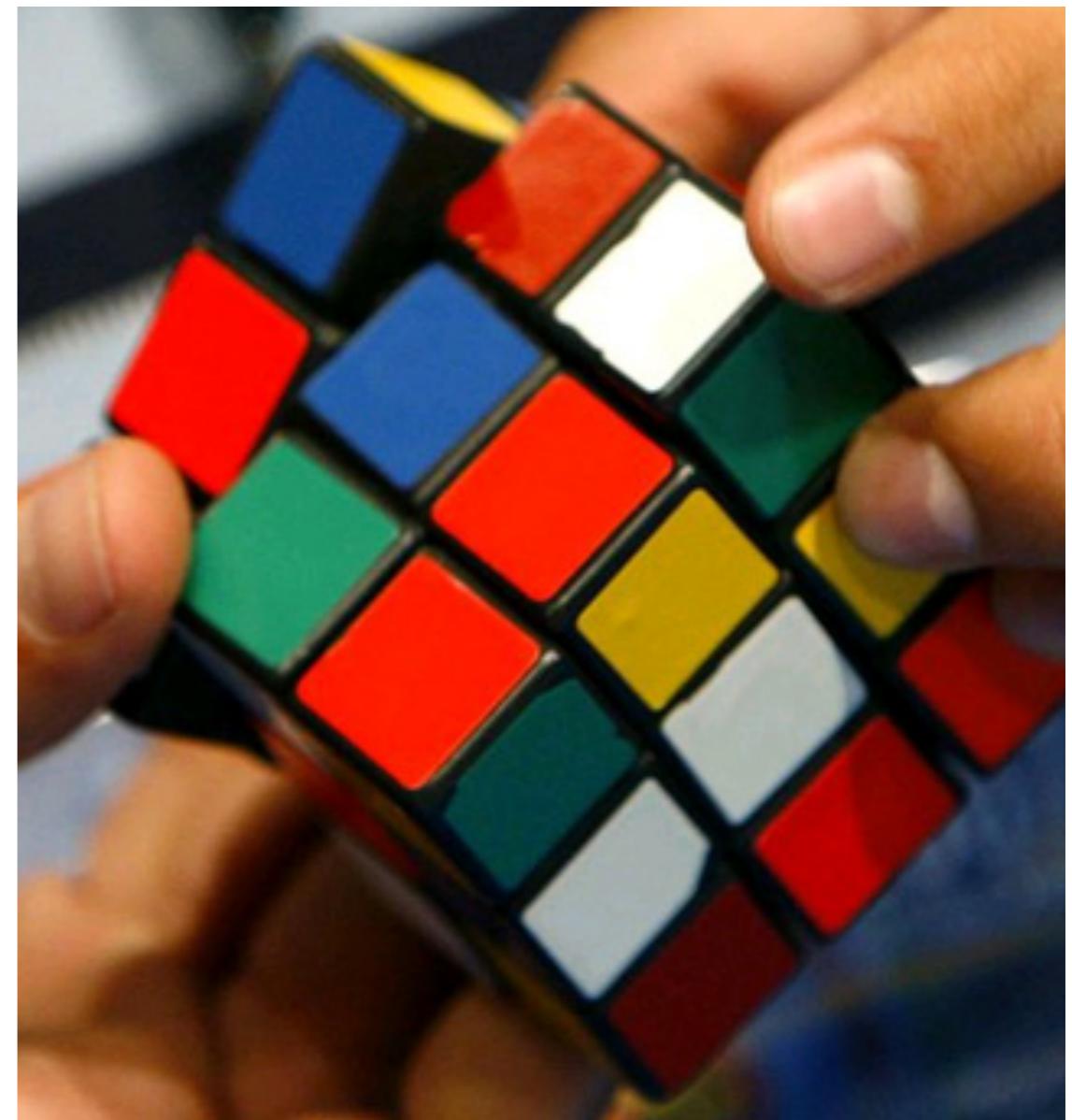
‘A philosopher thought hard’

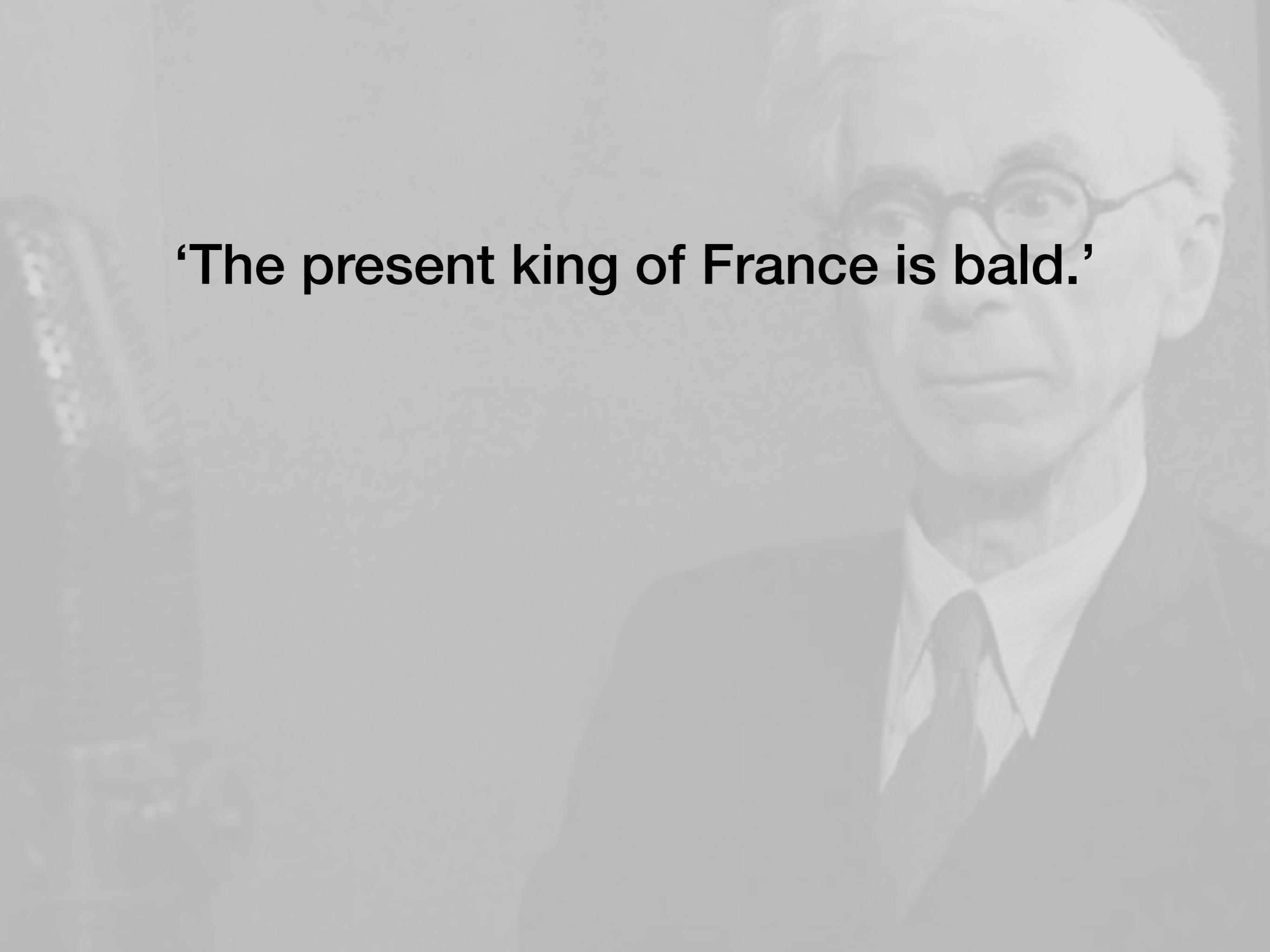
- A. Tx is sometimes satisfied by something that satisfies Px
- B. $\exists x Px \wedge Tx$

‘The philosopher thought hard’

- A. Px is uniquely satisfied by something that satisfies Tx
- B. $\exists x (Px \wedge \forall y (Py \rightarrow y = x) \wedge Tx)$

Solving puzzles





‘The present king of France is bald.’

‘The present king of France is bald.’

According to Russell’s semantic solution, this says that:

- A. Kx is uniquely satisfied by something that satisfies Bx
- B. $\exists x (Kx \wedge Bx \wedge \forall y \wedge (Ky \rightarrow y = x))$

It is (a) meaningful (though not about anything!) and (b) false

Another advantage

- Russell's theory also explains how 'The present King of France does not exist' can be true
- Because 'The present King of France' is a denoting phrase, we need not think that the sentence is made true by some present King of France
- Instead, the sentence simply says that nothing satisfies the function Kx
- $\neg \exists x Kx$

Yet another advantage

Russell's theory explains how knowledge by description is possible

The subject of denoting is of very great importance, not only in logic and mathematics, but also in theory of knowledge. For example, we know that the centre of mass of the Solar System at a definite instant is some definite point, and we can affirm a number of propositions about it; but we have no immediate *acquaintance* with this point, which is only known to us by description. The distinction between *acquaintance* and *knowledge about* is the distinction between the things we have presentations of, and the things we only reach by means of denoting phrases. It often happens that we know that a certain phrase denotes unambiguously, although we have no acquaintance with what it denotes; this occurs in the above case of the centre of mass.

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