The Philosophy of Language
Lecture Two

Frege's Sense/Reference Distinction

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Frege's Sense/Reference Distinction

Re-Cap: Two Naïve Theories of Meaning

- **The Name Theory**
  - A meaningful expression is meaningful because it **refers** to something in the world
  - When you tell me what an expression refers to, you tell me everything there is to know about what that expression means

- **The Idea Theory**
  - A meaningful expression is meaningful because it signifies an **idea**
  - Ideas are private mental items; you have your ideas, and I have mine

Problems for the Name Theory

- **Informative Identities**

    – If the Name Theory were true, 'Hesperus = Hesperus' and 'Hesperus = Phosophours' would mean the same thing; but they seem to mean different things

- **Empty Terms**

    – If the Name Theory were true, then empty terms like 'Vulcan' wouldn't be meaningless; but 'Vulcan' seems perfectly meaningful

Problems for the Name Theory

- **Logical Words**
  - If the Name Theory were true, logical words like 'not' and 'nothing' would refer to things in the world; but it is hard to imagine what they might refer to

- **The Unity of the Proposition**
  - If the Name Theory were true, then there would be no semantic difference between a sentence and a list of names; but there is clearly an important difference

Problems for the Idea Theory

- **Privacy**
  - If the Idea Theory were true, then our ability to communicate with each other would be mysterious

- **General Terms**
  - If the Idea Theory were true, then our ability to use general terms like 'dog' would be mysterious

Problems for the Idea Theory

- **Logical Words**
  - If the Idea Theory were true, logical words like 'not' and 'nothing' would signify ideas; but it is hard to imagine what ideas they might signify

- **The Unity of the Proposition**
  - If the Idea Theory were true, then there would be no semantic difference between a sentence and a list of ideas; but there is clearly an important difference

A Stalemate

- The Name Theory and the Idea Theory both face versions of the Problem of Logical Words and the Problem of the Unity of the Proposition

- But the other problems are unique to each theory
  - The Idea Theory has no problem with informative identities or empty terms
  - The Name Theory has no problem with privacy or general terms

- Where should we go from here!?

Frege's Sense/Reference Distinction

- Frege started off with a sophisticated version of the Name Theory

- He then introduced his theory of sense on top of his theory of reference

- We can think of this theory of sense as a sophisticated descendent of the Idea Theory

- So Frege tried to get the best of both worlds!

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Frege's views evolved over time. To keep things simple, I am not going to go through all of the twists and turns. If you want to see the details of how Frege's views changed, I would recommend you read the following texts:

(1) *Begriffsschrift* (1879)
(2) *Die Grundlagen der Arithmetik* (1884)
(3) 'Function and concept' (1891), 'On sense and reference' (1892) and 'Concept and object' (1892)
(4) 'Thought' (1918), 'Compound Thought' (1918) and 'Negation' (1918)

Alternatively, just come and ask me about it in one of my office hours

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Frege's Sense/Reference Distinction

Logic before Frege

- Aristotle invented a system of logic called **syllogistic logic**

- Syllogistic logic dealt primarily with simple quantified inferences, like:

  (1) All humans are mammals
  (2) All mammals are mortal
  (3) So all humans are mortal

- This kind of logic is great as far as it goes, but it doesn't go far. It can't even deal with inferences like this:

  (1) All donkeys are mammals
  (2) So every donkey's tail is a mammal's tail

Logic after Frege

- Frege was the first logician to develop a full working system for quantificational logic

- We still use Frege's logic today (it is the Predicate Logic you learned in *Reason & Argument*)

- Frege's big idea was to apply the notion of a **function** to the analysis of language

What is a Function?

- Functions are entities which take in **arguments** and spit out **values**

- Functions are most familiar from mathematics:

$x + 1$	
1	2
2	3
3	4

x^2	
1	1
2	4
3	9

$x \times 4$	
1	4
2	8
3	12

What is a Function?

- Functions are entities which take in **arguments** and spit out **values**

- But there are lots of non-mathematical functions too:

the mother of x	
Rob Trueman	Margaret Blood
Sharon Trueman	Jackie Tucker
Donald Trump	Mary Anne

Functions and Predicates

- Frege's insightful idea was that we can think of predicates, like 'x is a horse' and 'x is a human', as referring to functions

- At first, Frege wasn't entirely clear about what the values of these functions were, but in his mature writings, he is clear that they are **truth-values**

- According to Frege, 'x is a human' refers to a function which maps every human to True, and everything else to False

x is a human	
Sharon Trueman	True
Donald Trump	True

Functions and Predicates

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x is a human	
Sharon Trueman	True
Donald Trump	True
Munnery	False
Kitson	False

Functions and Concepts

- Frege said the same about every other predicate

    - 'x is a horse' refers to a function which maps every horse to True, and everything else to False

    - 'x is mortal' refers to a function which maps everything that is mortal to True, and everything else to False

    - 'x is blue' refers to a function which maps everything that is blue to True, and everything else to False

- Frege called functions which map objects to truth-values, **concepts**, but be warned, this terminology is very misleading!

    - A 'concept' sounds like something in your head, not a function from objects to truth-values!

- Some modern writers prefer to call Frege's concepts **properties**

A Version of the Name Theory

- So far, Frege's theory is a version of the Name Theory: the only kind of meaning that expressions have been given is *reference*

  - Singular terms refer to objects

  - Predicates refer to concepts (i.e. functions from objects to truth-values)

  - Sentences refer to truth-values (more on that later!)

- However, I should mention that Frege's terminology can obscure all this

  - Frege uses the German word 'Bedeutung' for reference

  - But in its ordinary usage, 'Bedeutung' just means *meaning*!

  - There is some controversy about how to translate 'Bedeutung', but most Frege scholars agree that Frege was using it in a special, technical sense, to mean *reference*

A *Sophisticated* Version of the Name Theory

- But Frege's version of the Name Theory was a *sophisticated* version

- The Name Theory faces four problems:
    - The Problem of Informative Identities
    - The Problem of Empty Terms
    - The Problem of Logical Words
    - The Problem of the Unity of the Proposition

- Frege had very good solutions for the second two of these problems

The Unity of the Proposition

- What is the difference between the sentence 'Socrates is mortal', and the mere list 'Socrates, Mortality'?

- Why is it that a sentence like 'Socrates is mortal' can be true or false, but a list cannot?

- **Frege's Answer:** Although singular terms and predicates are both referring expressions, they refer in *fundamentally different* ways

The Unity of the Proposition

- When we say that 'Socrates' refers to Socrates, we just mean that it stands for Socrates, it picks him out

- But when we say that 'x is mortal' refers to a function which maps mortal things to True and everything else to False (call that function f), we mean something roughly like this:

    - A sentence of the form 'a is mortal' will be true if f maps a to True, and it will be false if f maps a to False

- Clearly, these two different kinds of referring are built to work together, which is why a sentence differs from a list

An Example

- Consider the sentence 'Socrates is mortal'

- The singular term 'Socrates' refers to a particular person, Socrates

- The predicate 'x is mortal' refers to a function which maps every mortal thing to True, and everything else to False

- The whole sentence 'Socrates is mortal' is true iff this function maps Socrates to True

- Clearly, it does map Socrates to True, because Socrates is mortal

- So 'Socrates is mortal' is true

Another Example

- Consider the sentence 'Socrates is a horse'

- 'Socrates' refers to Socrates

- The predicate 'x is a horse' refers to a function which maps every horse to True, and everything else to False

- The whole sentence 'Socrates is a horse' is true iff this function maps Socrates to True

- Clearly, it maps Socrates to False, because Socrates is not a horse

- So 'Socrates is a horse' is false

The Problem of Logical Words

- According to the Name Theory, logical words like 'not' and 'nothing' refer to things in the world. What do they refer to?

- **Frege's answer:** functions!

- According to Frege, 'not' refers to a function from truth-values to truth-values

- 'not' refers to a function which maps False to True, and True to False

  - The truth-value of 'Socrates is mortal' is True, and so the truth-value of 'Not: Socrates is mortal' is False

  - The truth-value of 'Socrates is a horse' is False, and so the truth-value of 'Not: Socrates is a horse' is True

The Problem of Logical Words

- Frege said something similar about 'and', 'or' and 'if...then...',
  except now we are dealing with functions which map **pairs** of
  truth-values to truth-values:
  - 'and' refers to a function which maps the pair of truth-values
    ⟨True, True⟩ to True, and every other pair of truth-values to
    False
  - 'or' refers to a function which maps the pair of truth-values
    ⟨False, False⟩ to False, and every other pair of truth-values to
    True
  - 'if...then...' refers to a function which maps the pair of
    truth-values ⟨True, False⟩ to False, and every other pair of
    truth-values to True

The Problem of Quantifiers

- What about quantifiers, like 'everything', 'something' and 'nothing'?

- These are actually quite tricky, because grammatically, they look like singular terms

    - 'Something' seems to be in the same grammatical category as the proper name 'Donald Trump'

- If that were right, then the sentence 'Nothing is a unicorn' would be made by plugging the term 'nothing' into the predicate 'x is a unicorn'

- **But that is absurd!**

The Problem of Quantifiers

- If 'nothing' were a term in 'Nothing is a unicorn', then that sentence would be true just in case 'nothing' refers to an object which is mapped to True by the function referred to by 'x is a unicorn'

- But 'x is a unicorn' refers to a function which maps every unicorn to True and everything else to False

- So if that function mapped the mysterious object called 'nothing' to True, then that object would be a unicorn!

- So something would be a unicorn after all!

The Problem of Quantifiers

- Frege solved this problem by saying that, despite the grammatical appearances, quantifiers **are not** singular terms

$$
\begin{array}{rcl}
\text{Something} & \Rightarrow & \exists x(...x...) \\
\text{Everything} & \Rightarrow & \forall x(...x...) \\
\text{Nothing} & \Rightarrow & \neg\exists x(...x...)
\end{array}
$$

- Frege's idea was that 'Something is a horse' isn't made by plugging 'something' into 'x is a horse'

- It's made by plugging 'x is a horse' into '$\exists x(...x...)$', giving us: $\exists x(x$ is a horse$)$

The Problem of Quantifiers

- So what exactly do Frege's quantifiers refer to?

- Well, predicates refer to concepts, i.e. functions from objects to truth-values

- So the quantifiers need to refer to functions from **concepts** to truth-values!

  - '$\exists x(...x...)$' refers to a function which maps a concept f to True just in case f maps some object to True; otherwise, it maps f to False

  - '$\forall x(...x...)$' refers to a function which maps a concept f to True just in case f maps every object to True; otherwise, it maps f to False

An Example

- Consider the sentence 'Something is a horse'

- According to Frege, this is more perspicuously written as '$\exists x(x$ is a horse)'

- The predicate 'x is a horse' refers to a function (call it f) which maps every horse to True, and everything else to False

- The function that '$\exists x(...x...)$' refers to maps f to True just in case f maps some object to True

- So this function maps f to true iff something is a horse

- So '$\exists x(x$ is a horse)' is true iff something is a horse!

The Two Remaining Problems

- Frege's version of the Name Theory can deal with:
    - The Problem of Logical Words
    - The Problem of the Unity of the Proposition

- But it still needs to deal with
    - The Problem of Informative Identities
    - The Problem of Empty Terms

- Frege's early solution to the Problem of Empty Terms was just to bite the bullet: empty terms are just meaningless!

- But he had something more interesting to say about the Problem of Informative Identities (see *Begriffsschrift* §8)

Identity as a Relation between Terms

- In ordinary contexts, we use terms to **talk about** the things they refer to

    - When I say 'Hesperus is a planet', I am saying something about the object referred to by 'Hesperus'

- In accordance with the Name Theory, Frege said that if this is how terms work in identity sentences, like 'Hesperus = Phosphorus', then none of those sentences should be informative

- But, Frege insisted, that just means that terms do not work that way in identity sentences

    - 'Hesperus = Phosphorus' does **not** say something about the objects referred to by 'Hesperus' and 'Phosphorus'!

Identity as a Relation between Terms

- Frege said that in the sentence 'Hesperus = Phosphorus', we are saying something about the **terms** 'Hesperus' and 'Phosphorus' themselves!

- In particular, we are saying that 'Hesperus' and 'Phosphorus' co-refer

- Identity is not really a relation between an object and itself, but between co-referring terms

- Now we can see the difference between the trivial 'Hesperus = Hesperus' and the informative 'Hesperus = Phosphorus'

  - 'Hesperus = Hesperus' just tells us that the term 'Hesperus' co-refers with **itself**

  - 'Hesperus = Phosphorus' tells us that two **different** terms co-refer

Frege's Sense/Reference Distinction

Frege's Change of Mind

- Frege started his classic paper 'On sense and reference' by rejecting his old theory of identity

- **Objection 1**
  - The discovery that Hesperus is Phosphorus was an **astronomical** discovery, not a **linguistic** one

- **Objection 2**
  - When we found out that Hesperus is Phosphorus, that was a big discovery
  - But it is not a big discovery to find out that 'Hesperus' and 'Phosphorus' co-refer
  - We can use **any** name we like for **any** object we like; so by itself, the fact that we use 'Hesperus' and 'Phosphorus' as two names for one object is not all that exciting

Introducing Sense

- So Frege changed his mind: the sentence 'Hesperus = Phosphorus' is about Hesperus and Phosphorus themselves, not the terms 'Hesperus' and 'Phosphorus'

- But now how do we explain the difference between these two identities?

  (1) Hesperus = Hesperus
  (2) Hesperus = Phosphorus

- (1) is trivial, (2) is informative, but they both express the same relation between the same objects

- **Frege's answer:** there is more to the meaning of a term than it's reference; terms have *sense* as well as reference!

Introducing Sense

> *It is natural, now, to think of there being connected with a sign (name, combination of words, written mark), besides that which the sign designates, which may be called the reference of the sign, also what I should like to call the sense of the sign, wherein the mode of presentation is contained. In our example, [...] the reference of ['Hesperus'] would be the same as that of ['Phosphorus'], but not the sense.*

> *(Frege, 'On sense and reference', p.152)*

Modes of Presentation

- Frege here describes the sense of a term as its mode of presentation; the sense of a term is the **way** that it presents the object it refers to
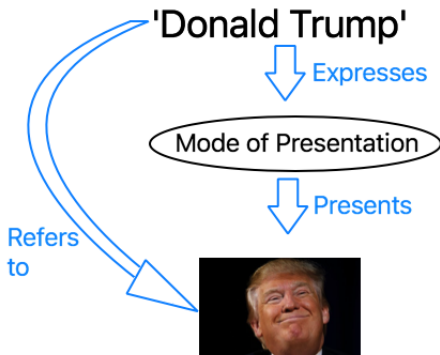
What More Can We Say About Sense?

- Frege is not very precise about what the sense of a term is meant to be

- In some places, Frege seems to be suggesting that the sense of a term can (at least sometimes) be expressed by a description:

  [The sense of 'Aristotle'] may be taken to be the following: the pupil of Plato and the teacher of Alexander the Great

- However, Frege does not put much weight on this idea — that quotation is from a footnote!

- For the most part, he sticks with loose talk about "modes of presentation"

  - *Sense determines reference, but reference doesn't determine sense*

What More Can We Say About Sense?

- Other philosophers have tried to say more about what sense is exactly, but we won't try to do that in this lecture

- Instead, we will look at the jobs that Frege wanted sense to play

- This is a good way of learning what the concept of *sense* is

  - Compare the fact that the best way to learn what the concept of *electron* is meant to be is to go and see what jobs it does in physics

Sense and Informative Identities

- First and foremost, differences in sense are supposed to explain the difference between informative identities and uninformative ones:

  (1) Hesperus = Hesperus
  (2) Hesperus = Phosphorus

- (2) is informative because 'Hesperus' and 'Phosphorus' have different senses

- To be clear though, (2) does not **say** that the sense of 'Hesperus' and the sense of 'Phosphorus' both present the same object

  - The discovery that Hesperus is Phosphorus was an **astronomical** discovery, not a discovery about **sense**

- (1) and (2) are both about Hesperus and Phosphorus themselves; they just present them in different ways

Senses are not Subjective

- From this we can straightaway infer that senses are not **subjective**, varying from person to person

  - For example, senses cannot be Lockean ideas that we associate with words

- We can **all** see the difference between 'Hesperus = Hesperus' and 'Hesperus = Phosphorus'; when we learn that 'Hesperus = Phosphorus', we **all** learn the same bit of information

- So the difference in sense between 'Hesperus' and 'Phosphorus' must be something that we can all recognise

Frege on the Objectivity of Sense

The reference of a proper name is the object itself which we designate by using it; the idea which we have in that case is wholly subjective; in between lies the sense, which is indeed no longer subjective like the idea, but is yet not the object itself. The following analogy will perhaps clarify these relationships.

Frege on the Objectivity of Sense

> *Somebody observes the Moon through a telescope. I
> compare the Moon itself to reference; it is the object of
> the observation, mediated by the real image projected by
> the object glass in the interior of the telescope, and by
> the retinal image of the observer. The former I compare
> to the sense, the latter is like the idea [...] The optical
> image in the telescope is indeed one-sided and dependent
> upon the standpoint of observation; but it is still
> objective, inasmuch as it can be used by several observers
> [...] But each [observer] would have his own retinal image*

(Frege, 'On sense and reference', p. 155)

Frege's Sense/Reference Distinction

Co-Referring Predicates

- Frege applied his sense/reference distinction to predicates as well as terms

- As we saw earlier, Frege thought that predicates refer to concepts, i.e. functions from objects to truth-values

- According to this view, if two predicates are true and false of exactly the same objects, then they refer to the same concept

  - Function f is identical to function g iff f and g map the same arguments to the same values

  - So if concept f maps the same objects to True as concept g, and if f also maps the same objects to False as g, then $f = g$

The Senses of Predicates

- Consider 'x is human' and 'x belongs to a species which has invented smartphones'

- These predicates are true and false of exactly the same objects, and so, Frege says, they refer to the same concept

- But they clearly do not mean the same thing!

- Even though 'x is human' and 'x belongs to a species which has invented smartphones' co-refer, they have different senses

The Senses of Predicates

- We might think of the sense of 'x is human' as a method for computing the function that 'x is human' refers to, and likewise for 'x belongs to a species which has invented smartphones'

- So 'x is human' and 'x belongs to a species which has invented smartphones' pick out the same function, but give us different methods for computing it

The References of Sentences

- Frege thought that sentences refer to truth-values

    - All true sentences refer to True
    - All false sentences refer to False

- This sounds undeniably strange, and Frege held a particularly strong version of the idea: he thought that sentences are literally **names** for truth-values

- But we don't need to think in such extreme terms

- The crucial point is that the relation between a sentence and its truth-value is somehow **analogous** to the relation between a term and what it refers to

The Senses of Sentences

- According to Frege, 'Grass is green' and 'Snow is white' co-refer, because they are both true (both refer to True)

- But clearly, they mean different things

- For Frege, that is because they have different **senses**

- We can think of the sense of a sentence as the **truth-condition** of that sentence, i.e. as how things have to be for the sentence to be true

  – 'Grass is green' and 'Snow is white' are both true, but they have different truth-conditions

Fregean Thoughts

- Frege often calls the senses of sentences **thoughts**, but importantly, he doesn't mean any mental act of thinking by 'thought'

- A Fregean thought is an objective entity which you can entertain by thinking

- We all have access to the same Fregean thoughts; our private acts of thinking put us in touch with a public stock of thoughts

- These Fregean thoughts are abstract objects: they are not physical, and they are not ideas; they belong in a 'third realm'

- To avoid any confusions, philosophers often call the senses of sentences **propositions**

The Compositionality of Fregean Thoughts

- Frege tells us one more important thing about thoughts

- According to Frege, the thought expressed by a sentence is in some way **built out of** the senses expressed by the parts of that sentence

- For example, the Fregean thought expressed by 'Socrates is mortal' is somehow built out of the sense of 'Socrates' and the sense of 'x is mortal'

- Unfortunately, Frege does not tell us too much about how thoughts are actually composed, and subsequent philosophers have had to work hard to try to fill in the details

Frege's Sense/Reference Distinction

The Problem of Empty Terms

- If the Name Theory were correct, then empty terms would not mean anything

- Back when Frege subscribed to a (sophisticated) version of the Name Theory, that is just what Frege thought

    - Empty terms, e.g. 'Vulcan', don't mean anything
    - Sentences containing empty terms, e.g. 'Vulcan orbits the Sun', also don't mean anything

- But now that Frege has a theory of sense, he is less extreme

Empty Terms still have a Sense!

- According to Frege, empty terms still have a sense, even though they do not mean anything

- So 'Vulcan' still expresses a sense, even though that sense does not present any object

- Frege also thinks that sentences containing empty terms have senses

Truth-Value Gaps

- However, Frege also thinks that sentences containing empty terms do not **refer** to anything

- For Frege, this means that they have no **truth-values**
  - 'Vulcan orbits the Sun' is neither true nor false

- It is hotly contested whether Frege is right about this
  - Does it make sense to say that a sentence is meaningful, but neither true nor false?
  - Even if that does make sense, is it the right thing to say about sentences like 'Vulcan orbits the Sun'?

A Deeper Challenge

- Some philosophers have been even more hostile to Frege's views about empty terms

- According to Evans, it is impossible for a term to have a sense but not a reference

- The sense of a term is meant to be the way it presents what it refers to

- So how can a term have a way of presenting something without actually presenting anything!?

  - For Evans' development of this objection, see Chapter 1 of his *The Varieties of Reference*
  - For a defence of the idea that empty terms can still have sense, see Sainsbury's *Reference without Referents*

Frege's Sense/Reference Distinction

Co-Reference and Intersubstitution

- Here is a natural thought about how language works:
    - If two expressions co-refer, then substituting one for the other should never turn a true sentence into a false sentence

- If 'Clark Kent' and 'Superman' co-refer, then 'Superman flies' and 'Clark Kent flies' are sentences about the very same person

- They both say of that person that he flies

- So if **one** of them is true, then the **other** must be true too

Indirect Contexts

- Within contexts starting '*X* believes that...', it seems that substituting co-referring terms **can** change truth-values:

  (1) Lois Lane believes that Superman flies

  (2) Lois Lane believes that Clark Kent flies

- We can create similar pairs of sentences by using contexts starting '*X* hopes that...', '*X* fears that...', '*X* wonders whether...', etc

- Frege calls contexts like these **indirect contexts**; all other contexts are called **direct**

A Reference-Shift

- Frege thought that he could use his theory of sense to explain what is going on here

- According to Frege, indirect contexts cause a **reference-shift**

- When we use an expression in an indirect context, that expression refers to the **sense** it has in direct contexts

  - In an indirect context, 'Clark Kent' does not refer to the man Clark Kent, but to the sense that 'Clark Kent' has in direct contexts

- Frege calls the sense and reference of an expression in direct contexts its **customary** sense and reference; he calls the sense and reference of an expression in indirect contexts its **indirect** sense and reference

  - Indirect reference = customary sense

Solving the Problem of Indirect Contexts

(1) Lois Lane believes that Superman flies

(2) Lois Lane believes that Clark Kent flies

- 'Superman' and 'Clark Kent' co-refer in **direct** contexts, but they do not co-refer in **indirect** contexts
  - The indirect reference of 'Superman' is the customary sense of 'Superman', something like: *superhero with a big 'S' on his chest*
  - The indirect reference of 'Clark Kent' is the customary sense of 'Clark Kent', something like: *nerdy reporter in glasses*
- 'Superman' and 'Clark Kent' both appear in indirect contexts in (1) and (2)
- So (2) isn't really the result of substituting one co-referring term for another in (1)!

Frege's Sense/Reference Distinction

A Quick Summary

- Frege started off with a sophisticated Name Theory

- Frege's sophisticated Name Theory could deal with these two old problems

  - The Problem of Logical Words

  - The Problem of the Unity of the Proposition

- However, he still had trouble with these two:

  - The Problem of Informative Identities

  - The Problem of Empty Terms

A Quick Summary

- Frege tried to solve these two problems by introducing a theory of sense

- The sense of an expression is the **way** in which it presents the thing it refers to

- **The Problem of Informative Identities**
  - 'Hesperus = Phosphorus' is informative because 'Hesperus' and 'Phosphorus' have different senses

- **The Problem of Empty Terms**
  - 'Vulcan' still has a sense, even though it doesn't refer to anything

Sense and the Idea Theory

- Frege's solution to these problems is structurally identical to the Idea Theory's solution

- The only difference is that Frege uses his senses instead of Lockean ideas

- This is an **important** difference
  - Senses are objective, public things which we all have access to
  - Lockean ideas are private mental phenomena; you have yours and I have mine

Sense and the Idea Theory

- Nonetheless, we can think of Frege's theory of sense as a sophisticated descendent of the Idea Theory

- In effect, Frege fixed the Idea Theory by replacing private ideas with public senses, and grafted it on to his theory of reference

- The result is a theory of meaning which has the best of both the Name Theory and the Idea Theory

- It promises to solve all four of these puzzles:
  - The Problem of Logical Words
  - The Problem of the Unity of the Proposition
  - The Problem of Informative Identities
  - The Problem of Empty Terms

The End?

- So, is that the end of the Philosophy of Language?

- Of course not!

- Even if you think Frege was on the right track, we still need to see a detailed, worked out theory of sense

- But lots of philosophers just thought that Frege's senses were too **weird** to take seriously

- Next week, we will look at Bertrand's Russell attempt to do without any of Frege's strange senses

Tomorrow's Seminar

- The reading for tomorrow's seminar is:
    - Frege, 'On sense and reference'
    - Evans, *The Varieties of Reference*, Chapter 1 §§1.1–1.7

- 'On sense and reference' was Frege's classic exposition of his theory of sense, and the sections from Evans develops some of those ideas, and also raises some problems about empty terms

- Access to both of these can be found on the VLE Reading List

Next Week's Lecture and Seminar

- For next week's lecture, read:
    - Kemp, *What is this thing called Philosophy of Language?*, Chapter 3

- For next week's seminar, read:
    - Russell, *Introduction to Mathematical Philosophy*, Chapter 16
    - Donnellan, 'Reference and definite descriptions'

- Access to both of these can be found on the VLE Reading List