Sense and Reference

“To understand a proposition means to know what is the case, if it is true. (One can therefore understand it without knowing whether it is true or not.) One understands it if one understands its constituent parts.”

(Wittgenstein, Tractatus Logico-Philosophicus, 4.024)

Literature

- Frege (1892): On Sense and Reference.
- Chapter 1 and 2 of Lycan (2000)
Background: Frege

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  - The notation of the Begriffsschrift doesn’t become very popular.
The Sense–Reference Triangle

One Version

expression \rightarrow \text{sense} \rightarrow \text{determines} \rightarrow \text{referent}
The Sense–Reference Triangle

One Version

expression ————> referent

sense

has

determines

Another Version

speaker ————> referent

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What Can Senses Do? (I)

Two different senses can pick out the same object.

\[ \text{sense}_1 \rightarrow \text{referent} \]

\[ \text{sense}_2 \]

But one sense cannot pick out two objects.

\[ \text{referent}_1 \]

\[ \text{referent}_2 \]
What Can Senses Do? (II)

Co-Referentiality

expression₁ → sense₁ → referent

expression₂ → sense₂

Synonymy

expression₁

sense → referent

expression₂
Empty Singular Terms

expression\(_1\) \(\rightarrow\) sense\(_1\)

expression\(_2\) \(\rightarrow\) sense\(_2\)

Indexicality? Ambiguity?

sense\(_1\) \(\rightarrow\) referent\(_1\)

sense\(_2\) \(\rightarrow\)

expression \(\rightarrow\) sense\(_3\) \(\rightarrow\) referent\(_2\)

sense\(_4\) \(\rightarrow\) referent\(_3\)

\ldots

sense\(_i\) \(\rightarrow\) referent\(_j\)
The Evening Star—Morning Star Example
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- Frege's View

Evening Star  \(=\)  Morning Star

\[\text{sense}_1 \neq \text{sense}_2\]
The Evening Star—Morning Star Example

- Frege’s View

\[
\text{Evening Star} \quad = \quad \text{Morning Star}
\]

\[
\text{sense}_1 \quad \neq \quad \text{sense}_2
\]

- Quotational View

\[
\text{⌜Evening Star⌝} \quad \neq \quad \text{⌜Morning Star⌝}
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Informativity

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**Informativity**

- The identity statement is informative because the singular terms have different senses.
- But the terms themselves are different from each other as well.
- Frege rejects to compare the terms themselves because the connection between sign and referent is arbitrary.
- That’s one reason for having senses.
Indirect Reference, Indirect Sense

(1) Peter is happy.
(2) 'Peter is happy' contains 12 letters of the alphabet.
(3) John believes that Peter is happy.
(4) The sense of 'Peter of happy' is not compatible with the sense of 'Peter is sad'.

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- The indirect reference of »Peter« is its customary sense, the indirect sense of »Peter« is a sense that uniquely determined the customary sense of »Peter«.

(5) John says that Peter is happy.
(6) John fears that Peter is happy.
Introduction to the Philosophy of Language
Frege’s Uses of the Sense–Reference Distinction

- Informativity of Singular Terms: \( a = b \) is informative because \( a \) and \( b \) have different senses (cognitive value).
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- (Partial) Explanation of Judgements: A judgement is the step from a thought to the reference of the sentence (True/False) in thinking.
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Frege on Belief

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- Analogous cases: »it seems that« really means »it seems to me that« or »I think that«
Attitudes With Special ‘Colouring’

(9) to be pleased
(10) to regret
(11) to approve
(12) to blame
(13) to hope
(14) to fear
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- Frege also discusses such mixed cases.
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- 12–14 are not factive, but Frege mentions them in the same line.
(15) Napoleon, who recognized the danger to his right flank, himself led his guards against the enemy position.

(16) Napoleon recognized the danger to his right flank.

(17) Napoleon himself led his guards against the enemy position.

(18) Knowledge of the danger to his right flank was reason why Napoleon led his guards against the enemy position.
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- Frege’s view on natural language is **holistic**.
- Frege admits certain cases in which the sense of a sentence is determined **non-compositional**.
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(20) Bebel believes that the return of Alsace-Lorraine would appease France’s desire for revenge.

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- In modern frameworks, compositionality may be maintained by dealing with presuppositions separately.
Deficiencies of Natural Language

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Introduction to the Philosophy of Language

Sense and Reference - p. 19/38
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- Expressions sometimes might express more than one sense at the same time in a non-compositional way. mixed cases of attitude ascriptions, some presuppositions (but not existence presuppositions!)
- In general it is appropriate to say that Frege considered all kinds of presuppositions as imperfections of natural language.
Definite Descriptions
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  - Public protests against teaching in City College, NY, result in the revocation of his teaching permission (1940)
  - Nobel Prize for literature (1950)
  - Russell-Einstein Manifesto against nuclear weapons (1955);
    founding president of the Campaign for Nuclear Disarmament (1958)
Analysis of Definite Descriptions

The \( F \) is \( G \) is analysed in 3 steps:

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Presupposition
Uniqueness
Condition

Main Assertion
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Proper Names and Definite Descriptions

- Many proper names in natural languages are definite descriptions in disguise.

Lycan calls this the ‘Name Claim’.
Example

The famous example from *On Denoting* (1905):

“The present King of France is bald.”
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**Semantic Definition of the Iota Operator**

\[
T_g(\iota x A) = \begin{cases} 
    h(x) & \text{if there is exactly one } x \text{-variant } h \text{ of } g \text{ such that } M, h \models A \\
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In the definition of truth in a model, this requires to deal with the case when \( T_g \) is undefined:

\[
M, g \models P(t_1, \ldots, t_n)
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(23)

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(24)

and \( \langle T_g(t_1), \ldots, T_g(t_n) \rangle \in I(P) \)  

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Syntactic Abbreviation of a Iota Quantifier

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- Our quantifier allows for even three distinctions: \( \neg \nu x G(x) F(x) \) versus \( \nu x G(x) \neg F(x) \) versus \( \nu x \neg G(x) F(x) \)
Interplay with Negation

Let's take a look at the three possible ways that one negation can occur in a iota quantifier term:
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   \[ \exists x (\neg Gx \land \forall y (\neg Gy \rightarrow x = y) \land Fx) \]
   
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<tbody>
<tr>
<td>1</td>
<td>$\neg \exists x G(x) \land F(x)$</td>
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| 3 | $\exists x (G(x) \land \forall y (G(y) \rightarrow x = y) \land \neg F(x))$ | "There is an $x$ that uniquely has property $G$, and this $x$ doesn't have property $F""
Examples

Here are more examples. Let \( M = \langle D, I \rangle \), where \( D = \{a, b, c\} \).
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\begin{array}{|c|c|c|c|c|}
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\hline
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Notes:
- $F$ denotes a predicate.
- $\forall$ denotes a universal quantifier.
- $\neg$ denotes negation.
Some Observations

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Possibilism vs. Actualism

Comparison of Russell and Frege
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- In Russell’s opinion, we cannot talk veridically about **non-existing entities (possibilia)**. If \( t \) doesn’t exist, \( A(t) \) can’t be true.
- It is possible to build a logic that allows talking veridically about non-existing entities and uses Russellian definite descriptions to do so. Russell’s definite descriptions themselves are neutral in respect to allowing or disallowing possibilia.
Possibilism vs. Actualism
Possibilism versus Actualism

- **Actualism** We can only make true assertions about objects that exist.
- **Possibilism** We can make true assertions both about objects that exist and about objects that don’t exist.

(1) The present king of France is bald.
(2) Unicorns have exactly one horn.
(3) The round square is round.

<table>
<thead>
<tr>
<th>Example</th>
<th>Actualist</th>
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<th>Meinongian</th>
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<tr>
<td>(1)</td>
<td>✔</td>
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<tr>
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- **Reductionism versus Ontological Neutrality of Logic** Logic is neutral in respect of the domain of objects to talk about, and anything that is in the domain exists.
Comparison of Russell and Frege
The Evening Star—Morning Star Example

- Frege’s View

Evening Star = Morning Star

\[ \text{sense}_1 \neq \text{sense}_2 \]

- Russell’s View

\[ \forall x (S(x) \land E(x)) = \forall x (S(x) \land M(x)) \]
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- Russell’s View
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  - \[ \forall x (S(x) \land E(x)) = \forall x (S(x) \land M(x)) \]
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- Reply: (a) In order to refer uniquely, the description must be unique. (b) We often don’t mention the limiting context that is implicit in conversation, but this context could and should be added to the definite description. (c) If a definite description doesn’t single out the referent uniquely in a given context, the hearer will ask questions.
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- **Reply:** (a) Deny the first claim. Not every statement \( \alpha = n \) is informative for any speaker. Each speaker has some definite description associated with a proper name. (b) The informativity of statements / assertions / utterances cannot be explained by the meaning of expressions alone, but the analysis must also include these expressions themselves. (metalinguistic view)