Introduction to the Philosophy of Language

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Sense and Reference

Background

Sense vs. Reference

What Can Senses Do? (I)

What Can Senses Do? (II)

What Can Senses Do? (III)

What Can Senses Do? (IV)

Example

Indirectly

Indirect Reference

Indirect Sense

Gottlob Frege (1848-1925): Background

Frege is primarily interested in the foundations of mathematics.

Frege often considers natural language imperfect.

He regards his Begriffsschrift as an ideal language.

In his late life, Frege becomes embittered.

Russell finds a famous paradox (Russell’s Paradox) in Frege’s foundation of mathematics just shortly before publication of the second volume (1903).

The intended 3rd and 4th volume of the Grundgesetze der Arithmetik are never published.

Frege is way ahead of his time. Only much later the significance of the sense—reference distinction will be recognized by philosophers and linguists (see e.g. Church, cf. Russell correspondence).

The notation of the Begriffsschrift doesn’t become very popular.

Literature

Frege (1892): On Sense and Reference.


Chapter 1 and 2 of Lycan (2000)

(Wittgenstein, Tractatus Logico-Philosophicus, 4.024)
The Evening Star—Morning Star Example

- Frege's View

\[
\text{Evening Star} \quad = \quad \text{Morning Star} \\
\downarrow \quad \neq \quad \downarrow \\
\text{sense}_1 \quad \neq \quad \text{sense}_2
\]

- Quotational View

\[
\text{‘Evening Star’} \quad \neq \quad \text{‘Morning Star’} \\
\uparrow \quad = \quad \uparrow \\
\text{Evening Star} \quad = \quad \text{Morning Star}
\]

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’.

Several uses of expressions of natural languages:

- Ordinary Use
- Non-Ordinary Use
- Quotational Use
- Indirect Use

Indirect Reference and Indirect Sense

Let's consider a singular term, say the proper name 「Peter」, and its sense (Sinn) and referent (Bedeutung).

- The customary reference of 「Peter」 is its referent Peter, whereas the customary sense of 「Peter」 is some sense uniquely determining Peter (or a unique epistemic way in which Peter is being given to someone).
- 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.
Illustration

<table>
<thead>
<tr>
<th>Frege on Belief</th>
</tr>
</thead>
<tbody>
<tr>
<td>(7) Copernicus believed that the planetary orbits are circles.</td>
</tr>
<tr>
<td>(8) Copernicus believed that the apparent motion of the sun is produced by the real motion of the Earth.</td>
</tr>
<tr>
<td>• The reference of the embedded sentence is indirect.</td>
</tr>
<tr>
<td>• So the embedded sentence refers to a sense, not to a truth value.</td>
</tr>
<tr>
<td>• The embedded sentence can be replaced by any other sentence that has the same customary sense.</td>
</tr>
<tr>
<td>• The truth value of the whole belief ascription does not depend on the truth value of the embedded sentence.</td>
</tr>
<tr>
<td>• That means that the relation between the two parts is not truth-functional.</td>
</tr>
<tr>
<td>• Analogous cases: «it seems that» really means «it seems to me that» or «I think that»</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attitudes With Special ‘Colouring’</th>
</tr>
</thead>
<tbody>
<tr>
<td>(9) to be pleased</td>
</tr>
<tr>
<td>(10) to regret</td>
</tr>
<tr>
<td>(11) to approve</td>
</tr>
<tr>
<td>(12) to blame</td>
</tr>
<tr>
<td>(13) to hope</td>
</tr>
<tr>
<td>(14) to fear</td>
</tr>
<tr>
<td>• The grasping of the senses of the embedded sentence is accompanied by some feeling.</td>
</tr>
<tr>
<td>• Exegetically unclear: Is the feeling a special mode of grasping the sense or is it a colouring of the idea associated with the sense (or is the second possibility the explanation of the first)?</td>
</tr>
<tr>
<td>• 9–11 are factive verbs. They presuppose truth of the embedded sentence or at least allow a reading that does so.</td>
</tr>
<tr>
<td>• Frege also discusses such mixed cases.</td>
</tr>
<tr>
<td>• 12–14 are not factive, but Frege mentions them in the same line.</td>
</tr>
</tbody>
</table>
Non-compositional Cases I

(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.

- According to Frege, there is not always a 1 to 1 connection between lexical items and the thought(s) expressed.
- Frege’s view on natural language is holistic.
- Frege admits certain cases in which the sense of a sentence is determined non-compositional.

Deficiencies of Natural Language

According to Frege:

- Expressions might sometimes have no customary reference. empty proper names: »Odysseus«
- One expression might have different senses but the same customary referent. proper names: Speakers may grasp different senses of definite descriptions for the same proper name.
- Expressions might have different senses depending on the context. ambiguity, indexicality
- 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.

Non-compositional Cases II

(19) Bebel fancies that the return of Alsace-Lorraine would appease France’s desire for revenge.
(20) Bebel believes that the return of Alsace-Lorraine would appease France’s desire for revenge.
(21) The return of Alsace-Lorraine would not appease France’s desire for revenge.

- Modern Frege interpretations and reformulations often tend to ignore Frege’s non-compositional examples.
- Frege almost certainly considered such mixed cases as deficiencies of natural languages. [exegetically unclear]
- In modern frameworks, compositionality may be maintained by dealing with presuppositions separately.
Background: Russell

Bertrand Russell (1872-1970): Background

- Russell mainly works on the foundations of mathematics:
  - Russell's paradox in set theory
  - Ramified Theory of Types
  - Russell & Whitehead: *Principia Mathematica*
  - a general defence of *logicism*

- Some important contributions to the philosophy of language:
  - Definite Descriptions
  - Theory of Knowledge by Acquaintance
  - Singular Propositions (aka Russellian Propositions)

- Russell is also a moral philosopher and a pioneer in anti-war movements.
  - dismissed from Trinity college, and later convicted and sentenced to 6 months in jail for anti-war activities a second time (1918)
  - 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:

1. There is an x such that F(x), and
2. for all y: if F(y), then x = y, and
3. G(x)

Proper Names and Definite Descriptions

- Many proper names in natural languages are definite descriptions in disguise.
  - Lycan calls this the ‘Name Claim’.

Iota Operator

Russell mainly used the *iota-operator* which he symbolized by \( \iota \) (a Greek iota letter rotated by 180 degree). Since it is not easy to typeset in \( \LaTeX \), many authors use a standard iota-symbol \( \epsilon \) nowadays. Here, \( \epsilon \) will be used for a *iota quantifier*, but this is non-standard notation.

Semantic Definition of the Iota Operator

\[
T_\iota(\forall x A) = \begin{cases} 
  h(x) & \text{if there is exactly one } x\text{-variant } h \text{ of } g \text{ such that } M, h \models A \\
  \text{undefined otherwise}
\end{cases}
\]

In the definition of truth in a model, this requires to deal with the case when \( T_\iota \) is undefined:

\[
M, g \models P(t_1, \ldots, t_n) \quad \text{if } T_\iota(t_1), \ldots, T_\iota(t_n) \text{ are defined}
\]

\[
\text{and } \langle T_\iota(t_1), \ldots, T_\iota(t_n) \rangle \in I(P)
\]
Syntactic Abbreviation of a Iota Quantifier

\[ \iota x A \! B := \exists x (A \land \forall y (A(x/y) \rightarrow x = y) \land B) \]  

where \( A(x/y) \) is the formula obtained from \( A \) by substituting all free occurrences of \( x \) with \( y \).

- The iota-operator refers to an object (or will be undefined) and syntactically behaves like a singular term: \( F(\iota x G(x)) \)
- A iota quantifier has a restriction and a quantification body and syntactically is a formula: \( \iota x G(x) F(x) \)
- Both of them implement Russell's suggestion, as long as a formula with a non-denoting definite description is always false.
- \( F(\iota x G(x)) \) and \( \neg F(\iota x G(x)) \) are both false, if \( \iota x G(x) \) doesn’t denote!
- There’s a potential ambiguity involving negation: \( F(\iota x \neg G(x)) \) versus \( \neg F(\iota x G(x)) \)
- Our quantifier allows for even three distinctions: \( \neg \iota x G(x) F(x) \) versus \( \iota x G(x) \neg F(x) \) versus \( \iota x \neg G(x) F(x) \)

Examples

Here are more examples. Let \( M = (D, I) \), where \( D = \{a, b, c\} \).

<table>
<thead>
<tr>
<th>( F(\iota x G(x)) )</th>
<th>( I(G) = {a} )</th>
<th>( I(G) = {a, b} )</th>
<th>( I(G) = {c} )</th>
<th>( I(G) = \emptyset )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( I(F) = {a} )</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>( \neg F(\iota x G(x)) )</td>
<td>( I(G) = {a} )</td>
<td>( I(G) = {a, b} )</td>
<td>( I(G) = {c} )</td>
<td>( I(G) = \emptyset )</td>
</tr>
<tr>
<td>( I(F) = {a} )</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>( F(\iota x \neg G(x)) )</td>
<td>( I(G) = {a} )</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Interplay with Negation

Let’s take a look at the three possible ways that one negation can occur in a iota quantifier term:

1. \( \neg \iota x G(x) F(x) \)
   - “There is no \( x \) that uniquely has property \( G \) and also has property \( F \)”

2. \( \iota x \neg G(x) F(x) \)
   - “There is exactly one \( x \) that doesn’t have property \( G \), and this \( x \) also has property \( F \)”

3. \( \iota x G(x) \neg F(x) \)
   - “There is an \( x \) that uniquely has property \( G \), and this \( x \) doesn’t have property \( F \)”

Some Observations

- A Iota operator or iota quantifier can be introduced purely syntactically into predicate logic by means of an abbreviation.
- Non-denoting definite descriptions will make the whole proposition false.
- Identity statements can be informative because the definite descriptions used in singling out objects might contain different predicates.
- Two claims have to be distinguished:
  - Russell’s Theory of Descriptions - Definite descriptions in natural language can be analysed in the Russellian way using a iota operator or quantifier.
  - Russell’s Analysis of Proper Names - Names often have to be analysed as definite descriptions in disguise.
- In Russell’s opinion, we cannot talk veridically about non-existing entities (possibilia). If \( \epsilon \) doesn’t exist, \( A(\epsilon) \) 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 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.

<table>
<thead>
<tr>
<th>Example</th>
<th>Actualist</th>
<th>Modest Possibilist</th>
<th>Meinongian</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>(2)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>(3)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

✓ can be true

**Arguments for Possibilism**

Here are a few slogans in favor of possibilism:

- **Existence versus Subsistence** A possibilist might claim that entities may subsist but not exist. In order to make a truthful statement about some entities, it is a necessary condition that they subsist, not that they exist.
- **Actuality versus Reality** Actuality (what is given by senses) is a smaller domain than reality (what can be talked about in a meaningful way).
- **Existence Presupposition versus Existence Assertion** Existence of referents of singular terms is only presupposed but not actually part of what is asserted by the whole utterance (Strawson 1950).
- **Fictional Entities versus Actual Entities** We can talk about fictional entities in a meaningful way, and not everything we say of them is false. (take e.g. “Superman is a fictional entity”)
- **Fictional Existence–Mathematical Existence–Empirical Existence** There are several notions of existence that cannot mean the same.
- **Reductionism versus Ontological Neutrality of Logic** It is not the purpose of logic to decide whether ontological monism holds or not, but presupposing one domain of quantification / one sort of quantifier does.

**Arguments for Actualism**

Here are a few slogans in favor of actualism:

- **Existence requires Consistency** Objects that have mutually contradictory properties cannot exist or subsist. So at least we know for sure that there are no round squares.
- **Existence versus Subsistence** We know that something exists when we bump against it, but what in the world is “subsistence” supposed to mean?
- **Lack of Identity Criteria** We can’t exactly say of possibilism what individuates them, we have no clear criteria for counting and distinguishing them from each other.
- **Fictional Entities versus Actual Entities** We talk about fictional entities as if they would exist, i.e. we change the domain and assume that they exist for the sake of fiction. There’s no need for several notions of existence.
- **Fictional Existence–Mathematical Existence–Empirical Existence** All of these notions mean the same, only the domain of objects in question might change. Of course, logic can’t decide whether something exists or not, so the exact extension of the domain is always a point of view / decided by practical considerations.
- **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

**Similarities**
- Informativity of Identity Statements *Hesperus = Phosphorus*
  - Frege: Two proper names can have different sense, but the same referent.
  - Russell: Two different descriptions can pick out the same referent.
- Empty Proper Names *Odysseus*
  - Frege: Empty proper names don’t name, but have a sense.
  - Russell: Empty proper names are definite descriptions that don’t denote.
- Epistemic Access to Particulars
  - Frege: We grasp a sense and that sense is the way a particular is being given (if it exists).
  - Russell: We test whether a particular satisfies a certain definite description or we refer to it directly and indexically (Knowledge by Acquaintance).
- Proper Names
  - Frege: proper name has sense determines object
  - Russell: proper name is analyzed as iota term determines object

**Differences**
- Ontological Differences
  - Frege: ontology of senses is strictly homogeneous; only senses can combine with senses.
  - Russell: ontologically heterogeneous entities are allowed: Russellian propositions (α, P)
  - Frege: particulars can’t be in our head, something universal like senses must mediate between out thinking and the world
  - Russell: senses don’t exist, can’t be well defined, are dubious entities
- Differences in Expressivity
  - Fregean Theory: one non-ambiguous expression can have different senses
  - Russellian Theory: one non-ambiguous expression should have one logical analysis
- Practical Differences
  - Theory of Descriptions formally worked out; definable in first-order logic
  - Sense–Reference distinction not reflected in Frege’s Begriffsschrift; it doesn’t deal with senses at all. (But nowadays intensional logics are available.)

**The Evening Star—Morning Star Example**

- Frege’s View
  - Evening Star = Morning Star
  - sense₁ ≠ sense₂

- Russell’s View
  - Evening Star = Morning Star
  - \( \tau x(S(x) \land E(x) \land E(x')) \) = \( \tau x(S(x) \land M(x) \land M(x')) \)
Objections Against Definite Descriptions

- Objection: Some natural language definite descriptions are used generically.
  (27) *ger* Der Wal ist das größte Meeressäugetier.
  "The whale is the largest mammal living in the sea."
- Reply: This is granted, but doesn’t affect the definite uses. Logical analysis yields a different formalization for generic uses.
- Objection: Not all uses of definite descriptions suggest that there is only one referent satisfying the description.
  (28) The man with the hat looks suspicious.
- 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.

Objections Against the ‘Name Claim’

- Objection: When we use a proper name, we don’t need to know a particular definite description that picks out the referent uniquely.
- Reply: (a) That’s granted, but in such a case we don’t really understand the proper name. (b) We don’t need to know the description, but there is one. (c) No, we do need to know a particular definite description.
- Objection: For any definite description χ and proper name χ1, the identity statement χ = χ1 is informative. If that’s right, then there can be no definite description that is the meaning or correct analysis of χ1.
  (29) Goethe is the author of Faust.
  (30) ? The author of Faust is the author of Faust.
- Reply: (a) Deny the first claim. Not every statement χ = χ1 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)