The linguistic instinct

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Notes on the philosophy of language for LIS531H – Information Retrieval

Note: This is a long discourse about the philosophy of language, offered as an optional reading, a courtesy to students who may want to read about the topic before or after our class lecture. Along the way cites, main points (in bullet points) and the occasional comment are introduced. These secondary items are in smaller print. As always, these are my personal notes, not monuments to editorial brilliance. The writing style is very much in keeping with the style used in the philosophy of language. The font used in the original .pdf is LeMondeLivre.

The use of speech seems to be the principle trait that distinguishes human beings from other animals: the majority of our activities are modeled by language and it would be difficult to imagine what our lives would be like if we should loose this instrument.

To avoid falling into extremely widespread confusions, it's useful to distinguish carefully the capacity for different natural languages from the means through which they are expressed. Natural language depends in effect on shared conventions in the core of a community. For example, the subject of a phrase comes before the verb in English and in French, but after in Japanese and in German, without any particular reason other than the conventions of the language. On the other hand, the *capacity* of speech does not rest on such conventions. Whether it be the culture or its environments, a young child comes to acquire language skills, through being sufficiently exposed to it for long enough. It is necessary for the child to master the results of considerable complexity in a relatively short amount of time. Thus, following Chomsky, it is believed that in general the capacity to produce and to interpret linguistic messages as an innate ability, similar to being able to see colors or to walk upright.

No other animal other than man seems to possess such a linguistic instinct, as Steven Pinker labels it. Of course, language seems to be viewed first as a system permitting the communication of information. Thus it is often viewed that language, and by extension communication, to be a device for the transmission of *information*.

Human language is distinguished clearly from other forms of communication, particularly the various forms of communication that one finds in the animal world. In the first place, the exchange of words are not entirely in the form determined by stimuli. A complete description of the sensorial environment of a person doesn't permit, in effect, the prediction of linguistic productions: words of a speaker are likely to pronounce, in given circumstances, are not reducible to a stereotypical set of responses. Consider the mode of communication of bees. When a bee returns to the hive after having detected a source of food, it communicates this info to its hive-mates in the form of a dance, shaped like a figure 8. The frequency of wriggling encodes the distance to the nectar, the inclination of the dance in light of the vertical direction in which it is found. One must underline the richness of this mode of communication. By varying these two parameters, a bee can produce an infinity of different messages. Nevertheless, it depends on an expression, which, contrary to human communication, is entirely visible. When one knows where the bee came from, one can predict the form of the dance, like the response that the hive-mates will be likely to adopt. On the other hand, a food source can cause an infinite variety of responses among humans, too. Think about the variety of linguistic reactions to a good meal!

In the second place, no intrinsic connection ties linguistic messages to the contents that they express. Thus one can talk about the arbitrary character of the linguistic sign. To understand this property of human language, let's suppose that I want to show a friend the

façade of the College Building. I lay out two things: show him a photo or a drawing of the building, or describe it for him, using words. An image of the edifice is building, becoming a rather precise image merely because they resemble the view of the building that one could get from a certain perspective. It's very different when using words. None the words that comprises the phrase resembles in effect, in some way that it is the object described. ["Well, the roof is pointed..." Is there anything about the token "pointed" that intrinsically *is* pointed?]

In the third place, the contents of linguistic message can be abstract. On the one hand, a shriek will always relate to an object or some particular event [someone stabbed me with a knife or jumped out of the shadows at me]. On the other hand, words can transmit *general* information. One can speak of "the man in general", an abstraction created of properties of each individual man, or, to use Locke's example, of a triangle in general, which is neither isosceles, scalene, nor rectangle. *Signs*, such as the images, do not have obviously this property: the image of *a* man is necessarily an image of a *particular* man.

Finally, Chomsky showed that human languages were *creative* symbol systems. That means there is no limit to the number of different messages that a speaker can produce or comprehend. According to Chomsky, a great number of phrases that we encounter daily are entirely new to us. You haven't certainly ever encountered previously a strange phrase, such as "A hurricane ravaged the dark side of the moon", but you have no trouble understanding it. That seems to mean that the signification of complex linguistic signs, such as sentences, depend on their constituent elements. These signs are not solid blocks that cannot be broken down; they possess an internal structure, which permits grasping the signification when they're new, or breaking them down and recombining them into something new.

Why philosophically question language?

In the contemporary perspective of cognitive science, started by Chomsky, questions about language are above all an interrogation into the individual's psychological capacity, which belongs to linguistics, psychology, and biology. What can these contributions contribute to scientific investigations into language?

It's hardly difficult to answer these questions. Linguistics, psychologists of language, as well as other scientific investigations into language, immediately encounter numerous philosophical problems. Language psychologists measure and study the performance of speakers in their tasks of comprehension, measuring, for example, reaction time. Linguists study the fashion in which linguistic symbols can be mixed with each other in order to produce phrases, endowed with meaning.

What does it mean to understand a linguistic message? What is the sense of a word or of a phrase? How does one grasp its meaning? Philosophers of language try to answer these questions, which empirical sciences sometimes try to avoid confronting[1]. Through Aristotle, we can begin to see how words are apprehended:

> "Sounds emitted by the voice are symbols of states of the soul, and the written words are symbols of words emitted by the voice. And moreover writing is not the same among all men, the spoken word is not always the same, while the states of the soul of which these are immediate signs are identical among everyone, as are identical all the things of which these states are images." [Aristotle, *On interpretation*, 1, 16a 3-10.]

This text establishes a relation among three elements, which one could represent as three points of a triangle: the sounds and the words; the states of soul and the things of the

[1] This is one of the concerns I have with information retrieval theory.

world. Simplifying things a bit, one could affirm that philosophers of language study the precise relationships between these three elements.

Thanks first off to language, a speaker can express his thoughts, "to mean" something; or as in other languages "to want to say" (e.g., *vouloir dire*; *quiero decir* [I mean]; see also *significar* [to make a sign of]). The classical theory of communication rests essentially on the power to reflect faithfully our thoughts that the words seem to possess. Does this not suggest we we return to a certain manner of coding our mental internal representations for an external medium, in order to share them with others? We can ask ourselves what are the links that unite thought and language. But, then, a speaker's sentences possess a strange property: they relate to things. Thanks to words, we can describe reality (make *assertions*), modify it (orders, threats, etc.), or even embellish upon it. Philosophers label this power to relate *intentionality*. We are so immersed in language that it doesn't surprise us. However, they don't remain any less enigmatic.

These two great questions indicate two different paths to the problem of signification. One can consider first off that the study of signification should not include the expressive function of language. Words have no other content than those of the ideas that they can communicate, and their power of representation derives entirely from those of the states of mind. But one can equally try to comprehend signification as a *direct relation among words and things*, ignoring the representational function of language. We begin by adopting the first of these two perspectives.

Language and Thought

> Aristotle. "Man by nature is a political animal."
> Ockham. "Written terms, spoken terms, and terms conceived"
> Descartes. La parole, signe de la pensée.
> Merleau-Ponty, La parole de l'orateur est sa pensée.
> Chomsky. The creative aspect of language use
> Fodor. On the symbolic nature of thought.

Conceiving of signification essentially as a relationship between words and thoughts that they express leads to a theory of language which dominated philosophical thought for centuries and which continues, in one form or another, to be influential. Hobbes formulated the idea in a few words: "The general use of the word is to transform our mental discourse into a verbal one, and the chain of our thoughts into a change of words" [*Leviathan*, I, 4]. The expression that Hobbes uses, mental discourse, merits attention. It affirms a clear priority afforded to the *mind*, to *mental representations*, over linguistic representations, or, if one prefers, over public discourse. To understand a phrase, according to classical theories of language, one must reinterpret the words in a new medium. Words do not possess in themselves the ability to signify: they are not equipped with such a power because they reflect only mental entities, the ideas, for which they stand in; they are thus just signs.

The classical theory of language, stated differently, rests on a theory of signs and on the theory of ideas.

For the classics, the notion of a *sign* leads largely to linguistic signification. It exists in effect according those national relations of signification. Thus, smoke is the natural sign for fire; the number of rings in a tree's trunk naturally indicate age. Besides natural signs the classics noted also institutional signs, whose signification rests not on natural relations, but on convention. In this way it isn't but a convention that the word "dog" designates certain

animals and not in virtue of some intrinsic link between that word and those animals.

We can define a general notion of the sign with the help of a relation of reference between two things; (a) the thing that sets the sign and (b) that which it signifies. The sign possess, then, two faces since it can be considered by itself among other things, or as a reference to another thing, however distance or fictional. Arnauld and Nicole describe this double aspect of the sign: "Quand on ne regarde un certain objet que comme en représentant un autre, l'idée qu'on en a est une idée de signe, & ce premier objet s'appelle signe. C'est ainsi qu'on regarde d'ordinaire les cartes & les tableaux. Ainsi le signe enferme deux idées: l'une de la chose qui représente; l'autre de la chose représentée; & sa nature consiste à exciter la seconde par la première" (*La Logique ou l'art de penser*, Ire partie, chap. IV; see also their *De la dualité du signe*.]

Consider a photo: one can observe its materiality (touch the paper, admire the shading of color, the contrast of light and shade…). One can equally consider the mind's eye as it views the represented scene: the remembrance of a wedding, the beautiful countryside, a friend's birthday. The philosophers of the Port-Royal noted that nothing is more natural than abstracting from a material thing in ways that let mind wonder towards the represented thing: "La même chose pouvant être en même temps & chose & signe, peut cacher comme chose, ce qu'elle découvre comme signe. Ainsi la cendre chaude cache le feu comme chose, & le découvre comme signe" (ibid).

If the notion of a sign dominated classical semantics, the notion of the idea traversed throughout their notion of epistemology, the study of knowledge. But this term that is lifted from the technical vocabulary of philosophy, introduced by Plato, also has been employed in an astounding number of ways, depending on the author. To some, the idea refers to the mental image, to *thought*, to conceptions, but equally to *sensations*. The signification of the notion varies so much that it isn't quite possible to give it a precise definition. [Notion of *sense data* as the foundation for empiricism; only that which can be *observed* has a claim to a truthful reflection of reality.]

We must content ourselves here to consider that only ideas, in the classical sense, are just signs, but they enjoy a singularly privileged stature. For classical philosophers, all knowledge passed through the mediation of ideas, which were in some sort of representations in us of which took place outside of us. Being directly accessible to the ego, an idea did not presuppose any other object but the ego itself: the world that Descartes discovered when weighing his thoughts, in trying to suppose thing before the fact that isn't absolutely indispensable to it, is peopled by ideas and only by ideas. [Descarte's own analysis of sensing himself and as a result knowing he existed lead to his "Cogito, ergo sum", "I think, therefore I am."]

The knowledge of the signification of words does not, in that epistemology, figure exceptionally. To know what a word means reflects on the knowledge of which it is a sign, the idea to which it is conventionally associated. In the same way, to know the signification of a group of words, for instance a sentence, is reduced to knowledge of the ideas of each of the words and the link by which they are associated.

The classics adopted a sort of reductionist path. The relations of signification between words and sentences, as well as the transmission of information made possible through language, are explicated by the relations between the ideas or through the relations of the ideas and the thinking subject. Some reductionists would say, for instance, that the idea of a triangle is known with no mediation. As with all reduction, one can predict a regressive argument. Let's suppose that words are not signs of things in the world but in virtue of a

relation between mental entities, ideas, which alone signify things directly and without mediation. How would we explain a new rapport of sign and the thing signified between the idea and the object of which it is an idea? Is it really simpler to explain a relation of signification between an idea and a thing, than a relationship seeming between a word and a thing?

Before going on too much, let's examine a possible response that was popular in the 18th and 19th centuries. Ideas represent directly the things because they are their images. That's because they resemble the things they represent. This response seems at first seductive. After all, in photos and paintings seem to be great examples of representations. The presence of an image in the mind of a speaker guaranties an intrinsic link between the representation and the object?

However, that's not adequate. Because it is not easy to associate ideas with all the words of a language. As the Anglo-Irish philosopher and bishop Berkeley notes, one cannot really see how an image, by any particular nature, could carry the signification of an abstract term. How much more difficult would it be to have an image for logical connectors "yes" and "and" and among the determinants "the", "a", "all the…". What image can we conceive of representing "and"?

If, as Davidson notes, "words are not a good medium of exchange for an image", one could recognize that images rarely can replace words.

Language and Thought

- Signs and ideas
    - Arnauld and Nicole. De la dualité du signe.
    - Locke. Words as the tangible (visible) marks of ideas
    - Berkeley. The controversy of abstract ideas.
    - Saussure, "Signe, signifié, significant"
- Mentalism – language of the mind
    - Fodor – current sciences presuppose in a sense a hypothesis of language of thought
- In order to manipulate information, a symbolic medium in which it can exist is needed – computers…

Priority:

- Language or mind (internal thoughts)
- Language presumes thought: Thought presupposes language and a vision of the world?
- Language dictates what is and isn't in the world?
- Metaphoric use of language?
- Confirmation?
- Truth?
- Anteriority of signification: it's first because we want to say something (to mean) that we use language; words just come out after as a mere conventional vehicle for transmission of this or that info.

Signification and Reference

Mill, Proper names are not connotative.
Frege. Sense and references.
Husserl. On the objectivity of signification.
Dummet. "A theory of signification is a theory of comprehension"
Kripke. What's causal about reference.
Putnam. Signs are not merely in the head.

We are interested here in how language can represent facts of which reality is composed; that is a language as much as a means of transmitting information about the world. Historically, this new approach to the problem of signification is often violently

opposed to those that were adopted later. The favorite of many philosophers-logicians, such as Frege and Husserl, was long and vigorously imposed, being in effect psychologisms - the thesis according to which logical laws are nothing more than descriptions of psychological regularities, generalities upon which individuals' thoughts are based [patterns in the mind]. Frege and Husserl held the opposite of objectivity and the universality of logical laws. Correlatively, they defended an approach of objective signification [Frege's *Sense and Reference*; Husserl's *On the objectivity of signification*]. It seems to them to be absurd that an image of the sense of words - by definition accessible to all competent speakers of a language - might be identified with subjective entities, such as ideas, and it can vary with the liking of the imagination of the subject.

It seems less evident today that these two approaches to signification may be incompatible. One could in effect consider the signification of words and phrases as an objective property, susceptible to the independent study of the speaker's psychological state, but at the same time, as Grice and Fodor suggest, these objective properties are the inheritors of semantic properties of the mental states of the speakers. Most people today consider the study of the function of linguistic representation as a natural complement to the study of its expressive function.

Information & Truth

- How to understand and verify mental language, if language is mere a signification of mental sentences?
- Can one phrase paraphrase an other while maintaining the same sense?: Cicero v. Marcus Tullius
    - Logical implication
    - Syllogisms: All men are moral; Aristotle is a man; therefore Aristotle is mortal. Fine, but what about "John and Jane are often together; Jane is absent; therefore John is also absent.
    - Referential connectives
        - Propositions: Tom plays tennis. John says 'Tom plays tennis'.
- Under what conditions is a proposition true? Can the conditions change? If so then doesn't truth become relative?
    - Idea of Propositional Content – the same concept despite the words
    - Frege's enigmas:
        - Cicero is a great speaker; Marcus Tullius is a great speaker; Peter thinks that Cicero is a great orator; Peter thinks that M.T. is a great orator.
        - But what if Peter doesn't know C = MT?
    - How to evaluate the truth condition of "non-existentials"? Santa Claus.

Other aspects of informational value?

- Mode of presentation (donation) of the referent
- Through the intermediary of sense of a term that the referent is saved for the hearer; and the hearer's role of the referent in his world is the truth value [wild idea]
- Referential opacity: in general, the sense of an expression is how the referent is presented [See Quine's opaque contexts] …

The two ideas – truth and information – seem to be the binding factor that permit one to communicate. The basis of this idea is that *people* inform, that they command, that they question; in short, to communicate one must produce a phrase in order to participate in the language game, whatever it may be, which may inform and which somehow underlying it all has truth as a reason for accepting what others say. Having glanced at signs, how to proceed constructing a theory of *phrasal* signification? It's very difficult to respond directly to this question. To return to the mental representations subjacent with the production of the sentences would be likely to carry out us to a vicious circle, since it would be necessary to, after the theory of a mental language, to study the significance of *mental phrases*. Also there is first the problem of indirect signification, trying to make a list of all the facts concerning the

signification of phrases and how those phrases could be acceptable to every speaker[2].

In the first place, a phrase permits paraphrasing another, provided it repeats the sense of the original. Two phrases are synonymous when they have the same signification. Thus, the phrases "Bush has a lot of height, but little hair" and "The actual size of the President of the USA is high, but his hairs are few" permit one to say the same thing [so the theory goes], that is, to communicate the same information, whatever the grammatical structure may be, and even if the words may be entirely different in the two phrases. Certain grammatical operations seem to permit the transformation of one phrase, while conserving the signification, into another phrase, synonymous to the first. That's the case of the passive voice. The following sentences have the same signification but different ways of saying it:

"The cat caught a mouse."

"The mouse was caught by the cat."

In the second place, phrases have, based on their signification, a logical relation of implication. These relations may come from the structure, or even from the words that compose the sentence. Consider the following:

"Peter did the dishes, and then fed the cat." (a)
"Peter fed the cat." (b)
"Peter did the dishes." (c)

The first example (a) implies both subsequent sentences (b, c). The first sentence (a) is composed of the conjunction of two propositions, which can kind of be detached and affirmed separately. Consider, on the other hand, these examples:

"Tom is a bishop." (d)
"Tom is an ecclesiastic." (e)
"Tom is not married." (f)

The relationship of these three examples seem due to their containing the word "bishop": every speaker who knows English knows that a bishop is an ecclesiastic and a bachelor.

Finally, the signification of phrases makes it possible *to relate to objects*, to which there are certain properties attributed to them. Different phrases can refer to the same object. Here's an example:

"Bix isn't like other cats. He eats lettuce." (g)

[In passing, note that this is true; my cat Bix eats all kinds of human food!]

It's clear that both sentences refer to the same subject, Bix, in the sense that they carry complementary information: these phrases are *referentially connected*, since they permit one to refer to the same object (the cat, Bix). In a similar way, the properties can be attributed to *different* objects:

"Peter has brown hair. So does Jim." (h)

Finally, a phrase can have *propositional content*, which a different speaker introduces into a conversation:

(A): "I believe Peter is going to marry Michèlle." (i)
(B): "That's just what I was thinking!" (j)

[Note: the sequence of phrases and the placement of dependent clauses in a single phrase often are used to *imply* a relationship that in considered separately do not hold. See Sanders,

[2] One of the sources of my concerns about the Semantic Web and the glorification of ontologies.

Journal of Pragmatics; will find the cite]

All these characteristics of signification are considered to be a *means of representing reality*. They are a natural starting point to understanding the function of language, what is called the *naïve theory of signification*. According to this theory, words function to *represent things*. Affirmative phrases can be viewed as the layout of words and they vary if the layout doesn't correspond to the arrangement of things to which they refer. To *understand* a phrase is to *know* the arrangement of things to which they correspond *when they're true*: these are called *truth conditions*.

Now let's reconsider semantic phenomena with the idea of the truth conditional. Thus one can say that synonymous phrases are truth if and only if they represent exactly the same conditions; that is, they *represent the same state of affairs (or things)*. Moreover, inferential relationships between phrases guarantee some truth when formulated in the vocabulary of truth conditionals. Inference then is the transforming of some kind of representation whose truth condition eventually will be conserved. Sophisms, or errors of reasoning, are just inferential practices that do not permit such a truth preservation. One can through sophisms, convert a true phrase into a false one. In short, a phrase *implies* another when the second is true in all conditions in which the first one is true.

Naïve Theory of Signification

- Language as a code for representation and transmission
- Frege and Husserl – worried about psychologism – thesis in which logical laws are nothing but descriptions of psychological regularities, generalities based on individual reason.
- They prefer the universality and objectivity of logical laws.

This theory is very popular and has been around since Antiquity. Three elements play a role in determining the signification of a sentence, that is, the truth conditions. These elements are the *referential element* (e.g., names), *predicates* (e.g., verbs or adjectives introduced by the verb "to be"), and finally the *grammatical structure* of the phrase.

The referential elements contribute to determining the truth conditions to which the individual elements correspond. Thus, the truth conditions in the phrase "Peter has blue eyes" and "Paul has blue eyes" differ only because of the individual being referred to (via the proper nouns, "Peter", and "Paul".)

The predicate elements reflect a property, a condition under which the individual in the utterance can satisfy the truth conditional [that is, the subject can do something to make this utterance true]. For example, here the verbs "to run" and "to walk" impose two kinds of conditions on the individual referred to by the proper noun:

"Peter walks." (k)
"Peter runs." (l)

Finally, an elemental phrase, more than just determining the referential elements, expresses a certain relationship or layout between elements which is reflected in its grammatical form. Thus the following examples contain the exact same referential elements and same predicates but they express contrary propositions because of their different grammatical forms:

"Paul's right and Peter's wrong." (m)
"Peter's right and Paul's wrong." (n)

Thus it is believed that to know the signification of a phrase means (a) to know the denotation of terms that compose it; (b) know the grammar of the language in order to know how to make combinations whose denotations correspond to words in the phrases, and (c) to

determine the truth conditions of the phrase.

Can one identify signification and denotation?

The naïve theory often is discussed with the representational vision of language: a phrase communicates "information" by somehow representing that information. However, what the phrase represents isn't in the first place a mental representation of the speaker, but rather some aspect of reality, in which something is completely objective. What's being represented is the *proposition* or *the propositional content*. Consider that what is being held in the phrase is independent of the actual human language being spoken. Thus it is possible to make phrases such as "It's raining", "Piove", "Es regnet" and so on. The same propositional content is preserved regardless of the surface level representation of the particular language.

What about proper nouns (names)? The function of such words in language reduce, somehow, to replacements for their referents. John Stuart Mill in the 19th century defended this theses: "a proper name is nothing but an insignificant mark that we play with in our mind about the idea of an object, so that whenever we see that object or the thought comes to our mind, we may think of that individual object." Stated differently, a proper name appears like a label: its contribution is exhausted completely through the introduction of the individual that it denotes in a discourse. This doctrine was seductive to many, but created many problems which were studied in the 20th century. These problems were principally the domain of Frege who wondered about puzzles and logical enigma.

Frege's enigmas

Contrary to the predictive meaning suggested by the naïve theory, Frege showed that certain identity statements were likely to bring information to the speakers who included/understood them. He underscored the contrast between "Cicero is no other than Cicero" and "Cicero is no other than Marcus Tullius."

These two phrases are manifestly different to those who understand them. The first is empty: it carries nothing new to any speaker or hearer. But the same is not true for the second. To whose who are ignorant that Marcus Tullius and Cicero are the same person, designated here in two different ways, certainly they learn something new. However, the naïve theory has no means to distinguish between the content of the first sentence and the second. For this theory, the two have exactly the same content; in particular the signification of two proper names is also identical but they permit the introduction of the same individual into the discourse.

The second puzzle is the generalization of the first. It is a question of using equivalence statements and their impact on co-referentials; that is, terms that denotate the same individual. In many cases, such phrases appear similar; replacing a term with another keeps the same referent, without modifying the truth of the utterance. This is nevertheless not always so. Compare these two phrases:

"Cicero is a great orator" (1)

"Marcus Tullius is a great orator" (2)

"Peter believes that Cicero is a great orator" (3)

"Peter believes that Marcus Tullius is a great orator" (4)

We might think that 1 implies 2 because the two phrases describe the same fact. However, the relations between 3 and 4 are not as clear. In certain situations, we can image

that 3 is true, but 4 is not; for instance, Peter never heard of Marcus Tullius and so cannot see the relation between the individual referred to by "Marcus Tullius" and that referred to by Cicero.

The third enigma was developed by Russell, although Frege suggested it. It is the question of non-existentials:

"The real king of France did not exist." (5)
"Santa Claus does not exist." (6)
"Gandalf does not exist." (7) [For Candy]

Most speakers can recognize what's true in these sentences. However, the naïve theory of signification produces a problem. These utterances are either false or at least nonsense. Because if the designated individual in each case the subject of the sentence didn't actually exist, then the phrase has *no* signification. Even if they exist, the phrase, then, still is false. [They exist, but the sentence says they don't; they do not exist but the subject never actually lived, so there's nothing being signified, thus the phrase is nonsense.]

Frege's distinction between sense and reference

To try to resolve these problems, Frege introduced a new idea, alongside reference, in his theory of signification. He terms it "sense" (or *der Sinn*). [Note, tho, this theory has been reworked considerably in the past few years.] The sense of an expression is what the speaker of the language grasps when he comprehends the expression, that is when he is capable of determining its contribution to the utterance's truth condition. Of course, Frege conserves a number of basic ideas of the naïve theory. He states that to know the signification of a phrase means to know the conditions under which it is true. Moreover, he identifies the reference of each term and its contribution to the overall truth condition. The concept of reference continues to play a role, but it becomes secondary. Frege upholds that a term does not refer to the sense of anything except through some intermediary or mediation. It's because we grasp the sense of a term that we're able to determine its contribution to the truth condition, and hence its reference.

This second view of reference explains Frege's choice of terminology because he speaks of sense of a term such as the *mode of presentation* (or *mode of denotation*) of the reference. It is through intermediaries of the sense of a term that the referent is given or presented to the hearer and only through this intermediary. It is impossible then to determine the referent of an expression, in a way that can help one know the contribution to the truth conditional of the phrase, if one doesn't know the *sense* of it.

Thanks to this distinction, Frege could resolve the enigmas that were laced throughout the naïve theory. Let's return to the first puzzle's issue about identity. We understand, based on this new spin on the theory, that the phrase "Cicero is none other than Marcus Tullius" may carry information. There's nothing preventing, in effect, the words "Cicero" and "Marcus Tullius" from sharing the same sense, since they have the same reference. According to Frege, the two expressions present differently the individual Cicero to the hearer. In the same way that it isn't necessary to have two views of some countryside to recognize it, so you don't have to have two views of the same person to recognize his or her identity. That is, it is not necessary to recognize the identity of an object presented through 2 distinct directions. This explains, to Frege, how a sentence can have informational value.

As for the second problem, Frege rejected the bases that were later called the *theory of referential opacity*. A general rule for his was the sense of an expression to be erased in order to

present the referent: it isn't but an intermediary, however indispensable, anyway. However, Frege emphasizes that in certain contexts, the sense is hidden to become themselves denotations of linguistic expressions. These are called, following Quine, *opaque contexts* of such linguistic contexts. Here are some examples:

"Peter believes that Cicero was a great orator"
"Carrot-top is called that because of the color of his hair"

It isn't possible, in general, to substitute for the names in these sentences with other names possessing the same reference, without modifying the truth value of the statements in question. For Frege, it is very simple that since these terms have taken a new indirect reference, they no longer denote a [specific] human individual, but instead reflect their usual sense.

Finally, an expression can possess sense without having as much as a referent. This is the case of descriptions, such as " the continuation which converges most quickly". We understand this, because we can grasp the sense of each term which compose the phrase; nevertheless, there is no referent. However, Frege did not resolve explicitly the problem of negative existentials.

Descriptivism and Mentalism

Frege is not too clear on what he names the *sense* of expressions. What exactly, for instance, is the sense of a proper name, such as "Cicero"? Under Russell's influence, the majority of analytical philosophers have identified the sense of the expressions with *concepts* which they carry, and so permit the unique identification of the referent. As a start, this analysis seems convincing enough for definitive descriptions. We could thus admit that descriptions such as "the biggest mountain in Japan" do not directly denote an individual object (Mt. Fuji), but furnishes rather to the hearer *a conceptual information*. For proper nouns, the analysis seems more forced. However, it is plausible that each proper noun we use may be associated with a kind of "informative folder" containing data about the name, which permits us, ultimately, to identify the referent[3]. Thus, a speaker of English may associate "Aristotle" with the following information in his folder: {student of Plato, a Greek philosopher}. Thus, one could extract a description which permits us to identify Aristotle in a unique manner. [Very database-like and so attractive to some.]

Descriptivism is often bound to a cartesian conception for the signification of words, called *internalism*. To grasp the sense of a word is in effect to possess a concept, or a mental representation, permitting one to apply the word correctly. Comprehension becomes then purely an internal, mental operation. For instance, a speaker comprehends the word "water" if he knows the conditions of applying the term, thus he possesses a sufficient description, to permit him to identify the extension of the term, for example, "a colorless liquid that extinguishes thirst."

Is signification all in the head?

In the 1960s and 70s, the descriptivist and mentalist attitudes were orthodox. They were attacked, tho, by a new generation of philosophers, of whom Donnellan, Kripke, and [my favorite] Putnam are the most famous.

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[3] Another problem with ontologies - just what goes in the folder and how big can that folder get to be a truthful representation of the object, let alone be usefully and efficiently processed by a computerized retrieval system.

The attack was started when Keith Donnellan published an article in 1966 saying that descriptive semantics do not conform to *all* uses of definitive descriptions, even if it appears to be very satisfying in certain cases. We must distinguish between different uses of definitive descriptions: an attribute use and a referential use. The interest in this distinction may be clearer through this example. Let's suppose that you participated in a murder trial, after the assassination of a guy named Smith. Two uses of the description "Smith's murderer" are possible. On the one hand, the description makes it possible to speak of the person who is found to have assassinated Smith, whoever that may be. This is a question of *attributive use*, since the information carried by the description is used in order to identify in a unique manner an individual whom one doesn't necessarily know, and could be anybody. Thus one could utter the phrase "Smith's murderer is crazy", without knowing the individual in question, perhaps based on your knowledge of the particularly horrible circumstances of the murder. But, on the other hand, the description could be used to *refer directly* to a particular individual, easily recognizable in the context of a conversation, even if, Donnellan notes, it is not a question in fact of the true assassin. [You point at Jones and claim he's the murderer, perhaps thinking Jones is Smith.] After all, this is what happens when we attribute wrongly a crime to an individual: every reference of the expression of the type of "X's murderer". The use is referential, since the individual is linked to the description, to a degree independently, of its descriptive content.

Kripke is credited for overthrowing the descriptivist program. He examined Locke's work on proper names. That theory rests on the notion of *rigid designator*. According to Kripke, a term is a rigid designator if it designates the same individual in all possible situations in which the individual could appear. Note that the definition calls upon a conceptual model, the concept of *possible circumstances* or of *possible worlds*. Kripke's notions of the possible world are today popular.

He underlines that proper names are rigid designators, contrarily to the definitive descriptions used in an attributive way. Thus one cannot identify the *sense* of a proper name with that of a description, which is one of the central tenets of descriptivism. Consider the example of "Aristotle" and admit for a moment that one could identify the signification of this name with the descriptive signification of an information folder, thus {student of Plato, teacher of Alexander}. Kripke holds that there are possible worlds in which Aristotle does not possess any of these characteristics. After all, couldn't one say in a way "If Aristotle hadn't been Plato's student nor Alexander's teacher, he wrote detective novels?" The name "Aristotle" seems thus to designate an individual, across different possible worlds, *independently of the descriptions of this individual that satisfy some condition in our world*. We could easily show that this characteristic distinguishes an infinite number of proper names. In effect, the description "the teacher of Alexander" applies to individuals who differ in different possible worlds; there are worlds, in particular, where one never encounters Aristotle, since Alexander couldn't have had Aristotle as his teacher.

Thus it is impossible to reduce the signification of a proper name to conceptual indications which, in any possible world, permit us to identify, uniquely, the referent. It's useless, too, to try to identify the sense of worlds such as proper names as purely mental objects.

During the 1980's and 90's, the naïve theory has been re-examined.

Language & Reality

We've seen that the view of signification of words depends upon their relations with

things. The study of language leads naturally to that of being, to ontologies; if signification of a phrase consists in true conditions, and if we conceive of truth as a form of correspondence, then we must conclude that language speaks of being, of reality. Truthfully, in the history of Western philosophy, ontological reflection has been tied to a reflection of language; the very first systematic work about ontologies was Aristotle's *Metaphysic* which is viewed by many as a treatise on the philosophy of language. The question of the relation between language and ontologies is pursued as particular question: that of *discourse about non-beings*.

The paradox of non-being

Words, if they permit one to class beings, to attribute properties to them, also can function as references to those beings. This suggests, as mentioned above, the idea of intentionality of language, of its ability to *relate to things*. We have seen at the same time that we suppose that the notion of reference is based on that of signification. The semantics of certain words, such as proper nouns, demonstratives, and pronouns, seem to reduce to a theory of reference.

Thus the discussion of non-existentials seems to relate not to what exists, but what isn't, and this has plagued philosophers for quite a while. There is a famous question offered by Parmenides. In his poem, in which it is emphasized that one cannot "speak or think" what isn't real, or "that which can be said or thought that must be". Let's suppose in effect that one could have a conversation about non-beings. That such a conversation could say something, we must relate to certain existing subject: the non-being. But, in this case, the non-being exists, hence a contradiction. Let's suppose to avoid this contradiction that are no non-existentials. In this case, then, discourse about non-beings does not relate truly to this object, because it doesn't exist, or the conversation really is nonsense.

One way to extract oneself from this dilemma is to consider that discourse about being is, in fact, ambiguous. In the first sense, that which *is* is identifiable to that which *exists*. But in another weaker sense, considering the verb "to be" means we would have to recognize that there are entities that do not exist, despite everything actually *are* in a certain way. In the 20th century, Quine made fun of this solution in calling it "Plato's beard." He wrote "It is the old Platonic riddle of the non-being. The non-being must, in a sense, *be*, because what can it be that it isn't? To this convoluted doctrine, we can give the nickname, Plato's beard; historically it proved hard to disentangle, blunting many time the blade of the Ockham's razor."

Now, let's consider *singular negative existential utterances.*

"Santa Claus does not exist" (a)
"Sherlock Holmes does not exist" (b)

These utterances are manifestly true. But, to *be true*, they must, in some way, be endowed with sense, and for the other part, the object on which they're based must not exist - and that seems to create a contradiction. Let's suppose that (b) is true. The name "Sherlock Holmes" has no reference, because Sherlock Holmes doesn't exist. But how can we explain that (b) is endowed with sense? One cannot really *say* that this is about a nothing and, in particular, we can't negate that it possesses an attribute, and so in occurring, it exists.

Other aspects of informational value?

- Mode of presentation (donation) of the referent
- Through the intermediary of sense of a term that the referent is saved for the hearer; and the hearer's role of the referent in his world is the truth value [wild idea]
- Referential opacity: in general, the sense of an expression is how the referent is presented [See Quine's opaque contexts] …

Plato's beard and Ockham's razor

Plato. Can one speak about what doesn't exist?
Plato. Philosophical and ontological grammar.
Russell. Descriptions
Carnap. Cadre linguistique et illusion métaphysique.
Quine. On the use of the paraphrase to shave Plato.

Despite everything, must we succumb to the doctrine of Plato's beard, and multiply the objects through which we recognize, in our ontology, a form of being? Quine opposed this tendency by two arguments. First, according to him, one must respect every time it is possible the principle of ontological economy, which is called Ockham's razor: never multiple entities when it isn't absolutely necessary (kind of like "KISS"). Before admitting exotic objects such as Gandalf or dragons in our ontology, it is necessary, according to Quine, to make sure that the statements that speak about these objects do not do so only seemingly. In addition, Quine shows that we do not have a criterion of identity which would enable us to specify the nature of the current entities, but non-existing: "Let's consider, for instance, the big possible man in the doorway, and also the bald possible man in that door way. Are they the same possible man, or really two different possible men? How do we decide? How many possible men are there in the doorway? Is there more thin people possible than fat ones? How many of them are the same? Unless the fact that they are similar makes that there is only one of them? Can two possible choices be the same? This returns to the idea that it is impossible for two things to be the same? But even, finally, is the concept of identity inapplicable to possible, but unachieved, states? [Quine, Using paraphrases to shave Plato; see also http://examinedlifejournal.com/articles/template.php?shorttitle=residuum2&authorid=14;

[I have to confess that I find Quine the most difficult to understand.]

One can thus wonder whether it is not possible, in order to avoid these pitfalls, to analyze the negative existential statements, with an aim of showing that they do not presuppose really the existence of objects.

Russell's descriptive theory (Descriptives; *Introduction to Mathematical Philosophy*, Ch. 16) was born of this concern. Also can one regard it as the model of the 20th century analytical philosophy of language, since Russell, thanks to a conceptual distinction and to logical analysis, manages to find a solution to a metaphysical problem. Russell operates in effect on a distinction between grammatical surface form of utterances, and their deep logical form. In order to understand these distinctions, let's consider the three following utterances:

"That cat likes lettuce." [1]
"A man walks in the park." [2]
"The lottery winner is a millionaire." [3]

These utterances, following Russell, seem to have the same structure. In each case, a group of words seem to denote an object: "that cat", "a man", or "the lottery winner" – to whom the rest of the sentences attributes some property. However, this structural identity appears completely illusionary. Because it is absolutely necessary to understand #1 the identity of the cat that the speaker references, but not so in nos. 2 and 3. These utterances are not based on a specific individual, despite appearances, but they use rather these tools of the general information which are the quantifiers.

Communication

Arnauld and Lancelot. La conception classique de la communication.
Austin. Performative/constative distinctions.
Grice. La notion de signification non naturelle.
Ducrot. L'implicite.
Grice. Les maximes de la conversation.
Sperber and Wilson. Against code models.

If language permits representing reality, to carry information about the world, one can suppose that it is essentially to permit people to communicate their thoughts. Many classical texts state quite plainly the idea according to which words may have as their principle function to make public the contents of our private states of minds. Thus, one reads, in the *Grammaire de Port-Royal*, that "one can define words, of distinct and articulated sounds, which men have made as signs to indicate (signal) their thoughts" ["…l'on peut définir les mots, des son distincts et articulés, dont les homes ont fait des signes pour signifier leurs pensées"]. But what does the study of communicates consist of?

The use of words; signification and context

Here we envision language in its usefulness and not only its essence; we study different situations in which people can use words. Philosophers do not discover until only recently the richness of this perspective. Historically, it is in reaction again the "logicist" approach to language, which dominated writings of the founding fathers of contemporary language studies, Frege and Russell, members of a school of thought called "ordinary language philosophy", which turned their attention to the phenomena of communication.

For philosophers nourished in the logical school, the fundamental linguistic unity is an affirmative phrase, which permits describing a fact, a vehicle of information, or even to express some knowledge. But, a sentence is an abstract object, susceptible to multitudes of realizations in time and space. Thus, the following sentence can have three realizations, or be one manifestation with three parts:

"Life's good! Life's good! Life's good!"

Consider the phrase as a fundamental unit carrying signification, thus it is at the same that the signification is a phenomenon independent of context, of concrete circumstances in which the words are used. Of course, ideal languages constructs for formal mathematical theories or to utter facts scientifically established including "eternal sentences" which permit asserting the same proposition which may be regardless of the circumstances of their use. However, natural languages are far from this idea. Consider this phrase:

"I am right and you are wrong."

As uttered by two speakers, John and Paul, in the middle of a conversation, the phrase expresses two contrary propositions. This contextual dependency of what is said by the phrase seems a characteristic trait of natural languages. It demonstrates a great economy of means: identical words ("here", "I" and "you") permit, when they're used in different contexts, the utterance of different propositions.

It is not just the the sentence, but the utterance of the sentence, anchored in a context, that must be considered as the fundamental unity endowed of meaning: signification is associated with the act which constitutes speaking the sentence, not to an abstract entity.

Descriptive illusion and the theory of language acts

However, from now on, the classical image of communication becomes more

complicated, in light of the view of effectuated actions in pronouncing phrases. Remember that according to the classical conception of language, the first function of words was to communicate some factual information, which concern, directly, the thoughts of the speaker, and, indirectly, the facts on which the thoughts are based. The essential property of communicated linguistic signs resemble their capacity to be true or false, to correspond or not to reality.

Ordinary language philosophers, especially Austin, are vigorously opposed to this doctrine, which according to them rests on a "descriptive illusion." They're attached to showing how are not unique vehicles of faculty information, reflecting states in the world, but equally informative about the *t*ype of act that they can effectuate. Consider these utterances:

I order you to leave the room [X1]
I promise to write to you. [X2]
Could you come by Thursday evening? [X3]

In each case, the utterance carries propositional content, but equally an indication of the act that it accomplishes: [X1] is seen as an order; [X2] looks like a promise; [X3] is a question.

Austin identified a vast class of utterance that he calls "performative" utterances and which, as well as affirmatives are not susceptible to truth values. These utterances can transform reality, not describe it: they're as much signification as they are internal streams of the roles of a defined social community. Thus, utterances "I declare the meeting over" [X4] and "I condemn you to capital punishment" [X5] makes possible certain peculiar action in circumstances defined by social norms.

The domain of the implicit

In this perspective, which leaves the act of speech and more uniquely that of the sentence, it becomes necessary to study no only encoded information by used phrases, but equally the way in which the use of any given phrase, in any given circumstance, permits the communication of a message. If words are equipped with sense, then it is effectively the same in the case of actions where we accomplish something through saying them. For instance, to say "What an honest man!" at the time of the burial of a savant, with a reputation for integrity, or at the time of a swindler, then the utterance clearly is not the same. The sense of words does not vary yet from one context to another; what varies is the implications of the act of saying them. In one case, this act means sincere homage; in the other irony.

In order to seize the importance of these remarks, compare the communication in a collective enterprise. Here there's the question of how many people use language and accept the language as a form of coordination of acts between participants. In such an enterprise, on the one hand, one must accept certain rules and on the other one must consider the thoughts and intentions of the others, in order to be able to anticipate their actions. Grice was the first to remark that conversations proceeding from shared principles [1957]. When one discusses with another, one must in effect respect certain rules in order that the conversation doesn't cease through some kind of communicative blockage. For example, it happens in a normal discussion that one can't affirm what one knows is false. That doesn't mean that the lie is impossible: every collective enterprise has its cheaters, but merely that if all the world lied, then most communication acts would lead to failure.

According to Grice, leaving the principle that exists in such rules permit comprehension, how might we interpret communication acts in general, but equally the second messages that they carry? We can in effect always presume that our discourse partners are going to respect the rules or in any case that they won't violate the rules in a gratuitous way. Let's

suppose that utterance "What an honest man!" could be produced in the context of the trial of some swindler. In such situations, the hearer we would have good reason to think that the speaker say what he did, and that he thus violated the rules of conversation. You could, based on this hypothesis, try to figure out the ironic subtext, through what was explicitly said.

The suppleness of natural language, used in communications, appears thus extraordinary. According to context, we can communicate an almost infinite variety of messages with the aid of the same words. Thus the sentence "The dragon again terrorized an innocent victim" can describe the evils of a legendary animal or metaphorically an acidic boss's treatment of a kind co-worker. And with a little imagination we can find contexts in which it could communicate another message. How to interpret these non-literary usages, in which words come to take signification that isn't in any dictionary? Some of these answers lay in the phenomenon of metaphor; some in communications theory; still others are evolving. How can we address these concerns when the universe of discourse is opened to include human-like machines and participates separated in time and space?

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Communications Theory and Philosophy of Language

Habermas

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