Language and Philosophy

Linguistics arose partly from the need to teach Greek to Egyptian children during the Hellenistic period in Alexandria. and partly from the philosophical analysis of the notion of truth by. mainly. Plato and Aristotle. The philosophical origin has been with the study of language ever since. In the twenty-first century. philosophy has renewed its interest in language in various ways (the 'linguistic turn'). Language has been seen as providing a way to break through the Kantian dilemma of the unknowability of bare reality. and as an instrument for the perceptible expression of thoughts. and thus as a key to the inner workings of the mind and the position of humans in the world. The philosophical concern with language is not always distinguishable from the study of meaning: semantics (with its logical leanings) and philosophy are still intimately connected.

1. The Paradox of Knowledge

The fact that whatever there is supposed to be 'out there' in the 'real' world cannot be known directly. without the intervention of human cognitive processing. and indeed that it cannot be proven that there is a world 'out there.' has been a main concern in philosophy since Descartes. Kant gave what seems to

be the final formulation: the thing in itself (*das Ding an sich*) cannot be proven to exist and cannot be known. Yet humans generally assume that there is a world 'out there,' and that they have reliable knowledge of it. Many philosophers have since tried to find a way out of this paradox.

Following Leibniz, Bertrand Russell developed the program of *logical atomism*, meant to reduce all thoughts and all sentences to logically atomic propositions and their truth-functional compositions—in fact, to expressions in his language of Predicate Calculus now used universally in mathematics and the sciences. By hypothesis, this systematic logical analysis would then be the closest humans can get to bare reality (the 'furniture of the world'). By 1930 Russell had given up this idea, considering it unrealistic. His student Wittgenstein pursued the same idea in his *Tractatus Logico-philosophicus* (1922), though in a somewhat different and not altogether coherent fashion, and also concluded around 1930 that it was unfounded. Even so, this program has been very influential in subsequent philosophy. For example, Russell's Theory of Descriptions (1905), which was part of his logical atomism, dominated the theory of reference throughout the twentieth century.

After 1930, Wittgenstein attempted a different approach to the paradox of knowledge. He took to reflecting about language in a nonformalist way, against the background of questions of knowledge and being. He taught that language had no rules, that linguistic interaction was a 'game,' and that word meanings were based on 'family resemblance.' These views (Wittgenstein 1953) have since been rejected as false or imprecise. Yet his influence has been considerable, especially among students of literature and art, and also in the Oxford-based Ordinary Language Philosophy (OLP).

OLP was another influential confrontation with the paradox of knowledge, dominating much of Anglo-Saxon philosophy between 1945 and 1970. Its program, partly inspired by Wittgenstein's teachings about language after 1930, consisted in exploring to what extent a meticulous analysis of the ways words are used in ordinary discourse will reveal the reality of things, and also whether philosophical questions about them are or are not vacuous. Both aims remained unfulfilled. The age-old philosophical questions proved resistant to this kind of linguistic analysis, and the reality of things did not come much closer.

By 1970 there was a consensus among Oxford philosophers that they should reorient themselves and widen their scope. The reasons for the failure were mainly the exclusive focus on English, neglecting the other thousands of languages in the world, the lack of formal theory, and the refractory character of the questions dealt with. Even so, OLP led to two developments that have proven to be of great importance.

The first was *presupposition theory*, initiated by Strawson (1950). For the first time in the history of philosophy, presuppositions were recognized as a special kind of entailment of sentences. Since 1950 presupposition theory has been an important part of either semantic or pragmatic theory (the matter is controversial; see, for example, Carston 1998, Seuren 2000).

The second was *speech act theory*, initiated by Austin (1962). Austin raised the question of the truth value of 'performative' sentences such as 'I hereby promise to marry you.' If they are true, they are so because they have been pronounced seriously: they make themselves true by being pronounced. It appears that they cannot be false. This led to many studies, mainly in pragmatics, of the socially committing character of seriously uttered sentences. An integration with semantics, however, has not so far taken place.

A specific and much publicized angle on the paradox of knowledge was taken by Quine in Chap. 2 of *Word and Object* (1960). Here he discussed the difficulty of explaining how a language learner can learn the precise meaning of a new word, for example *gavagai* said by an exotic native on the passing of a rabbit. No amount of repetition in different circumstances will ensure that the learner gets exactly the meaning intended by the speaker. Yet the precise meaning will be learnt after a while. Quine called this the problem of the 'indeterminacy of radical translation.' It appears that the *gavagai* problem is but an instance of the general and yet unsolved problem of the acquisition of adequate knowledge of what is in 'other minds,' and indeed of adequate knowledge of anything.

2. Intensional Contexts

For Aristotle, truth consists in a correspondence of what is said (or thought) and what is the case. This implies that the choice of a word makes no difference for the truth value of a sentence, as long as it refers to the entity intended. This is the principle of Substitution Salva Veritate (SSV), formulated by Leibniz as (roughly) 'Things referred to by words that can stand in for each other without change in truth value are identical.'

Frege (1892) found that SSV does not work for referring expressions in *intensional contexts*, i.e., in clauses embedded under a verb reporting a third party's thoughts, such as 'John believes that the Morning Star is inhabited.' Since the Morning Star is identical with the Evening Star, both being the planet Venus, if the sentence given is true, the sentence 'John believes that the Evening Star is inhabited' should automatically also be true. This, however, is not so, since John may think that the two are not identical, and he may think that the one is inhabited but the other is not.

Frege solved this by positing that clauses embedded under verbs of thought refer not to their truth or falsity in the real world but to the thought expressed, and by observing that 'the Morning Star is inhabited' is a different thought from 'the Evening Star is inhabited,' which blocks SSV. Subsequent philosophers of language, being more of a positivist mind, rejected Frege's appeal to thoughts and sought alternative ways of solving the problem of intensional contexts, which thus became the starting point for the development of formal semantics in the twentieth century.

3. Formal Semantics

Since Aristotle, philosophers and linguists have striven to define the logical structure of sentences, i.e., the translation of sentences into some logically analytical language. In modern times this has been the Language of Predicate Calculus (LPC) devised by Russell, with its quantifiers and variables. These efforts are motivated by the wish to specify as exactly as possible under which conditions the propositions expressed by sentences are true or false. Logic is taken to provide such a specification; language is not; hence the desire to relate the latter to the former by translation.

The most explicit way of achieving this is formal or model-theoretic semantics, which defines how linguistic elements are to be translated into LPC, and how, for any given 'world,' LPC expressions are to be valued true or false. By generalizing over all possible 'worlds,' the truth conditions of sentences should, in principle, be statable, including those that involve intensional contexts. Clauses under verbs of thought are now taken to refer not to thoughts but to the sets of those possible worlds in which they are true. Sophisticated formal machineries should then account for the phenomena.

This program was initiated by Montague (1973). Although it seemed very promising during its first years, it has met with serious difficulties. It seems in principle unable to grasp certain cognitively determined aspects of lexical meaning (e.g., why can a speed bump be called *Schwelle* in German, but not 'threshold' in English?). More seriously, it fails to solve the problem of intensional contexts. Since a clause *C* containing a contradiction is false in all possible worlds, it should be synonymous with any other contradictory clause *D*. Yet 'John believes that not all circles are round' is not synonymous with 'John believes that not all bachelors are unmarried,' even though both embedded clauses are necessarily false and hence refer to the empty set of possible worlds; likewise for necessarily true clauses, which refer to the set of all possible worlds. This problem has so far proved unsolvable in the context of model-theoretic semantics (Dowty et al. 1981, pp. 170–5), for which reason many semanticists are now looking for a more cognitively oriented semantic theory.

4. Thoughts and Propositions

Talk about 'thoughts' is hazardous. There is not only the difficulty of grasping deep cognitive processes but also the fact that what we call thoughts occur at different levels of explicitness and consciousness. Here, a thought is taken to be (the result of) a mental process whereby the subject assigns a property to one or more entities, creating a representation of a possible situation. A thought that is ready for conversion into a sentence is a *proposition*. The property is expressed by the *predicate* of the proposition, the entities by *terms*. Propositions are always in the scope of a speech act operator SAO defining the speaker's social commitment with regard to it. [SAO + proposition] is converted into a sentence by the lexicon and grammar of the language in question.

5. The Semantics of Predicates

Predicates signify a property of one or more elements belonging to a certain class. For each predicate P there is a set of conditions to be fulfilled by any entity e for it to deserve P. These are the *satisfaction conditions* of P. In forming a proposition, the speaker considers one or more entities e as having the property signified by the predicate, thus forming a mental representation of a possible situation. Propositions are normally written as 'P(a),' where P stands for (refers to) the property and a refers to the element(s) e. If e actually has the property signified by P, the proposition is true; if not, it is false.

Some predicates are applicable only to sets of individuals. Predicates such as 'congregate,' 'disperse,' 'be numerous,' etc. require subject terms referring to groups, not individuals. Likewise, a predicate such as 'collect' requires an object term referring to a group, as one cannot collect an individual stamp, but one can collect stamps. Such predicates are higher-order predicates with regard to one or more of their terms.

It is the lexicographer's daily business to define satisfaction conditions of predicates, and the lexicographer's daily experience to find that this is extremely difficult. Often an appeal is required to what is *prototypical* in a community. Thus, the predicate 'bald' requires the (relative) absence of hair in prototypical places of the body (the top of the head for humans). Often conditions are approximative, as for the predicate 'flat,' which expresses an approximation to two-dimensionality. More often, conditions are vague, as with predicates such as 'good,' 'bad,' 'please,' 'love.' Subjective evaluations often play a central role, as with 'pleasant' or 'beautiful.' Whether this is also the case with predicates such as 'good' or 'true,' or whether these predicates are satisfied exclusively by the ontological properties of the subject term's referent is a much debated philosophical issue.

It seems useful to divide satisfaction conditions into two classes: first, the preconditions, which define the

right category of entities; then the update conditions, which define the entities that fall under the predicate. Thus, the predicate 'married' requires preconditionally that *e* be a person of marriageable age; then requires as an update condition that *e* be bound by legal marriage to another person, with all that this entails. 'Divorced' requires preconditionally that *e* has been married before and states that this is no longer so.

When *e* is semantically not of the right kind, as in 'The river Thames is divorced,' we speak of a *category mistake*. Lexical opposites, such as 'polite' and 'impolite,' generally stay within the same category ('rational being').

The preconditions play an important role in the *interpretability* of the resulting proposition. Whether the preconditions are actually satisfied in the world is irrelevant for mere interpretation: actual truth values are immaterial for comprehension. What counts is that the preconditions are fulfilled in the cognitive context preceding the utterance in question. The conditions to be fulfilled by (preceding) discourse for an uttered sentence *S* to be interpretable are the presuppositions of *S* (Seuren 1994). Presuppositions result from the preconditions of predicates.

Some predicates, in particular those of the possessive complex, such as 'have,' 'with,' or 'of,' need an appeal to common knowledge for their satisfaction. Compare the following sentences with the predicate 'have':

(1a) Each room in our hotel has a shower.

(1b) Each student in our faculty has a supervisor.

(1a) requires a one-to-one correspondence of rooms and showers for truth, whereas for (1b), a one-to many relation between students and supervisors suffices. It does not seem feasible to record such differences in the lexicon, since the decisive criterion is found not in the linguistic description of 'have,' but in general world knowledge: one has to know how things work in hotels and faculties to decide on the truth or falsity of sentences such as (1a,b).

Lexical meanings are, moreover, inherently dynamic: they are naturally extended, restricted, shifted, and even misapplied in ways that are nevertheless perfectly understood and often even become conventionalized to the point of becoming part of the lexicon. 'Sad,' for example, can be used intransitively, as in 'a sad mood,' but also causatively, as in 'a sad story.' Yet this process is not freely productive; 'nervous' can only be used intransitively, as in 'a nervous person,' but not causatively, as in 'a nervous story.'

Other forms of dynamic use are known as figures of speech or 'tropes,' mainly metonymy and metaphor. Metonymy is the use of a noun for something which is closely related to that for which the noun is normally used: 'crown' for 'monarch,' or 'grave' for 'death.' Metaphor is a much more complex trope, perhaps best defined as an implicit comparison. Deliberate category mistakes often lead to metaphor, as in 'The train was

waltzing at sunset round the walls of Verona' (E. M. Forster 1975). Although 'waltz' requires a subject referent that is capable of dancing, a condition not fulfilled by trains, the choice of this predicate forces the reader momentarily to consider the train referred to as such a being, which provokes the artistic effect intended. Other metaphors arise as a result of applying an incorrect predicate to an entity referred to, as when someone asks you where you left your 'horse,' meaning your car. Tropes often become conventionalized ('dead metaphors'), and may enter the lexicon of the language. Conventionalization of tropes is a principal source of lexical enrichment.

The most important philosophical point about lexical meaning is the necessity to appeal to cognition. Satisfaction conditions cannot be defined purely in terms of 'objective' properties of the entities concerned. The cognitive aspect is particularly important with regard to the discourse dependency of lexical meanings, a lexical reflex of the general fact that thoughts do not occur in isolation but always in a wider context. This is bad news for model-theoretic formal semantics, which assumes that meanings are fully determined by conditions of truth and satisfaction in models containing no minds, but only a language, worlds, and an interpretation function from elements in the language to elements in the world(s).

6. Reference

Reference is the relation between definite argument terms of a predicate and things in the world. The reference relation is *intended* by the speaker and *comprehended* by the listener. Reference is a necessary condition for the proposition to have a truth value. A host of problems has arisen in connection with the reference relation. We shall make global mention of the main problem areas. Detailed analyses are to be found in the specialized literature.

6.1 The Identification Problem

The first problem is how speakers and listeners fix upon the intended entities by the use of definite terms. A term such as 'the dog' is naturally rendered as 'the *x* such that *x* is a dog' (Bach 1968). The problem is how the determiner 'the *x*' can pick out, from the set of dogs, the one particular dog intended by the speaker. The answer is trivial when the set contains just one element, but human speakers refer successfully even when the sets in question contain many elements.

This problem has occupied countless philosophers, most of whom recognized that contextual and cognitive factors must play a role. Russell (1905) proposed to eliminate definite terms by reinterpreting them as instances of existential quantification. This Theory of Descriptions should not only solve the identification

problem, but also the problems of reference to nonexisting entities and of reification (see below). Russell's famous example is (2a), rendered by him in logico-semantic terms as (2b):

(2a) The present king of France is bald.

(2b) $\exists x [Now[KoF(x)] \land Bald(x) \land \forall y[KoF(y) x = y]]$
(there is an x such that x is now king of France and x is bald and such that for all y, if y is king of France, x is identical with y)

The definite term 'the present king of France' has been replaced by an analysis in terms of the existential quantifier and a 'uniqueness clause' saying that for all y, if y is king of France, x is identical with y, which means that there is exactly one king of France.

Russell's analysis, though widely accepted for a long time, is inadequate for semantic analysis. This appears from embedding in emotive-intensional contexts. A sentence such as (3a) does not mean what (3b) means:

(3a) Nora was disappointed to find that the king was bald.

(3b) Nora was disappointed to find that there was a person who was both king and bald and that there was no other king.

The recognition that the Russellian reduction program does not work for language, and that definite terms must be reinstated is gaining ground. The identification problem has thereby returned in full force.

Further problems to do with the identification of reference objects are Quine's distinction between opaque and transparent reference, and Donnellan's between referential and attributive use of a definite term. The former, first presented in Quine (1953, pp. 139–59), has to do with the choice of the predicate P in a definite description. When P is selected by the speaker, so as to facilitate identification by the listener, there is *transparent reference*. It is, however, also possible for P to be selected by a person whose thoughts are spoken about, in which case the reference is *opaque*. For example,

(4) Sarah is convinced that the stupidest boy will get the scholarship

is ambiguous. On the transparent reading, the boy referred to is considered stupid by the speaker, but not by Sarah, while on the opaque reading Sarah takes a dim view of the award committee.

In line with Russell's Theory of Descriptions the difference has been analyzed as one of scope. The two readings of (4) would thus be (leaving out the uniqueness clause; 'SB': 'stupidest boy'):

(5a) $\exists x [SB(x) \land Convinced(Sarah, [Get(x, the scholarship)])]$

(5b) $Convinced(Sarah, [\exists x [SB(x) \land Get(x, the scholarship)]])$

The problem with this solution, however, is that the negation of (4):

(6) Sarah is not convinced that the stupidest boy will get the scholarship

still has the transparent-opaque ambiguity, whereas the negations of (5a,b), respectively, lead to a different result: (7a) means that there is no stupidest boy of whom Sarah is convinced that he will win the scholarship, which is not what (6) means; only the presumed opaque (7b) seems viable:

(7a) $\neg\exists x [SB(x) \land Convinced(Sarah, [Get(x, the scholarship)])]$

(7b) $\neg Convinced(Sarah, [\exists x [SB(x) \land Get(x, the scholarship)]])$

Be that as it may, after the 1970s the issue more or less disappeared from the literature.

The second distinction (Donnellan 1966) is that between attributive and referential uses of definite terms. In what Donnellan calls *referential use*, the predicate P of the definite term merely serves to identify a given entity. When, at a party, one uses the expression 'the man holding a martini' and there is only one person who can possibly be intended, the reference is successful, even if it turns out that what the man was holding was in fact a glass of water. In *attributive use*, on the other hand, P is used to refer to whatever unknown entity will satisfy P, as when I say 'Smith's murderer is unknown.' 'Smith's murderer' is used here as a parameter expression (like 'temperature,' 'name,' 'phone number'), whose value is still to be identified. Now P cannot turn out to be false or mistaken while the reference is still successful.

Donnellan recognized that Russell's analysis of definite terms does not account for attributive uses, but he failed to provide an alternative analysis that does. The subsequent philosophical literature, where Donnellan's distinction is often mentioned but never accounted for, likewise fails to provide a solution.

6.2 Reference and Ontology

A second cluster of reference problems is to do with the ontological status of the entities referred to, in particular reifications and nonexisting reference objects.

There is reification when speakers know that a definite description does not refer to an actually existing entity but to whatever is captured by a mental construction, as in 'the average London cabdriver,' 'the military-industrial complex,' or 'the difference between A and B.' In such cases, the (usually complex) predicate P of the definite description does not denote a set of entities considered to be ontologically real, but requires a (vague or precise) formula of interpretation that will reduce the satisfaction conditions of P to what may be considered ontologically bare entities in certain relations to each other.

Russell (1905) presents his Theory of Descriptions as a solution to the reifications problem as well, but he fails to show how it works. The subsequent literature has, accordingly, neglected this aspect of Russell, as it has neglected reifications in general.

Quine (1960) speaks of 'ontological commitment' to the entities referred to in the use of a natural or formal language. However, whatever 'ontological commitment' speakers of natural languages have with regard to the things they talk about is entirely a matter of language-independent belief. Speakers using reifications know that the world contains no 'entities' of the kind suggested by the reifying terms. Yet they use them as if they really were referring terms.

Reification resembles what in computer science is called 'object-oriented' programming, i.e., a method whereby complex descriptions are bundled together under a formal definition and treated as if they were terms referring to objects in the model, whereas their definition says that they are not. Object-oriented programming has turned out very efficient, because it enables the user to handle complex relations as if they were single objects. It looks as if Nature made the same discovery when it was working at the development of human language. Exactly *how* Nature *implemented its version of object-orientedness is a matter for future research.*

A second central problem is that of nonexisting reference objects, Russell's main concern in his Theory of Descriptions. In (2a), the definite description 'the present king of France' does not refer to an existing entity susceptible to baldness. Does it, then, refer to a nonexisting entity? Russell, like Quine, rejected the *notion of nonexisting entities* on the grounds that they might be said to both have and not have any given property, which would make them unfit for rational analysis. In Russell's view, which is considered standard, the being asserted by the existential quantifier is actual, real existence, and not some form of virtual being.

While Russell's analysis might seem to solve the problem of nonexisting entities for extensional sentences such as (2a), it fails for cases such as:

(8) Jones always talks about the present king of France

which may well be true even if there does not now exist a king of France. Formal semantics stipulates that a predicate such as 'talk about' may take an 'intensional' object term referring to possible entities in possible worlds, but here the problem of intensional contexts repeats itself: talk about a square circle is not the same as talk about a living corpse, yet they are both *uninstantiated in any possible world.* The problem of nonexisting reference objects has not so far been solved.

6.3 *Donkey Sentences*

Since Geach (1962) the problem of so-called *donkey* sentences, such as (9a,b), has dogged the theory of reference:

(9a) Every farmer who owns a donkey feeds *it*.

(9b) If a farmer owns a donkey *he* feeds *it*.

The name 'donkey sentences' derives from the relevant examples in Geach (1962, p. 116ff.), their modern source, which all involve donkeys. Geach, however, copied Walter Burleigh (1988, p. 92), who introduced donkey sentences around 1328 in the context of his theory of reference (*suppositio*): *Omnis homo habens asinum videt illum* (every man who has a donkey sees it).

The problem is that donkey sentences cannot be translated into standard LPC, which has only two kinds of terms: constants (definite referring terms) and variables. 'It' in (9a,b) and 'he' in (9b) cannot be constants, since they need not refer for the sentences to be true. So they must be variables. But variables must be bound by quantifiers, and this is impossible, due to scope problems. The LPC translations of (9a,b) should be (10a,b), respectively:

(10a) ∀x[Farmer(x) ∧∃y[Donkey(y) ∧ Own(x,y)]
Feed(**x**,**y**)]

(10b) ∃x[Farmer(x) ∧∃y[Donkey(y) ∧ Own(x,y)]]
Feed(**x**,**y**)

The bold-faced variables are unbound, which makes (10a,b) uninterpretable. Attempts at binding the variables under wide-scope universal quantification ('for all farmers *x* and for all donkeys *y*, if *x* owns *y*, then *x* feeds *y*' for (9a,b) alike) founder not only because they violate the principle of 'parity of form' (Russell 1905: 483), but also because they fail to work when intensional operators are inserted, as in:

(11a) Every farmer who is glad he owns a donkey is sad he has to feed *it*.

(11b) If a farmer is glad he owns a donkey, *he* is sad he has to feed *it*.

Due to scope problems, there is no way in which (11a,b) can be adequately analyzed, either analogously to (10a,b) or under wide-scope universal quantification.

Any solution will require an extension of standard LPC with referring pronouns that are not bound variables. In fact, a simple test shows that the problematic pronouns in (9a,b) are not bound variables at all, but referring terms. In general, referring pronouns can be replaced with an *epithet*, i.e., an unaccented descriptive noun phrase expressing some evaluative judgment. Bound variable pronouns or reflexive (logophoric) pronouns do not allow for such a replacement: in (12) the epithet cannot function as a bound variable:

(12) No man expects his friend to betray *him*
(!*the poor devil*).

Yet epithet replacement functions perfectly well for (9a,b):

(13a) Every farmer who owns a donkey feeds *the wretched animal.*

(13b) If a farmer owns a donkey, *the man* feeds *the wretched animal.*

The problem for LPC and standard semantics is, however, that if the pronouns in question are referring terms, interpretation of (9a,b) is blocked when there

are no farmers or no donkeys. Yet these sentences are considered true in such cases. This constitutes a serious dilemma.

6.4 The Cognitive Turn

The main affliction of twentieth-century philosophy of language and semantics is the inability to come to terms with the cognitive factor in language and language use. Sentences and terms do not physically sit on situations and reference objects, respectively. The relation between the former and the latter is mediated by cognizing humans. Yet philosophers and semanticists have pretended that the mind was not there. We are faced today with the effects of this aberration. Now that the view of the mind-brain as a massive computation plant has opened new perspectives, solutions come in sight for many of the problems enumerated above. It would be premature, however, to try and specify in what ways a cognitive account of meaning and language use can be of help in solving the extant problems.

See also: Communication: Philosophical Aspects; Language, Continental Philosophy of; Linguistics: Overview; Meaning and Rule-following: Philosophical Aspects; Pragmatics: Linguistic; Reference and Representation: Philosophical Aspects; Semantics

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P. A. M. Seuren