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Some cognitive scientists try to bridge concept empiricism and semantic empiricism by collecting evidence that people spontaneously use perceptual representations when understanding words and phrases (see, e.g., Barsalou, 1999). A related synthesis can be found in the work of some cognitive grammarians. They argue that some meanings are based on conceptual knowledge and that some concepts are partially constituted by image schemas. Image schemas are schematic (i.e., nonmetric) representations of spatial relations that are used in perceiving the world. George Lakoff (1987) has argued that highly abstract concepts, which are believed to pose a challenge for empiricists, are understood by means of metaphorical extension from perceivable spatial relations. The concept of ownership, for example, is understood with reference to the relation of spatial containment.

Some concept empiricists explain our mastery of abstract concepts in a different way. They argue that public language can be used as vehicles of thought. Sentences are observable. If concepts are stored records of experiences, they can be stored records of experiences with public linguistic items. To understand an abstract concept, on this approach, is to master a set of verbal entailments. Benjamin Whorf and Edward Sapir may have been led to their hypothesis of linguistic relativity in virtue of accepting a picture like this.

Another topic of concern to empiricists is language acquisition. Because empiricists traditionally reject innate ideas, some have argued that language can be acquired using general-purpose perceptual learning rules (such as pattern recognition, association, and conditioning). This view is highly controversial. Noam Chomsky and his followers have developed

powerful arguments for the conclusion that language acquisition requires innate learning mechanisms that are specifically designed for language. Chomsky is a self-proclaimed rationalist, and some empiricists hope to prove that his arguments are mistaken.

In sum, empiricism is a family of doctrines united by the central role they afford to experience. These doctrines often have been defended by the same authors, but they are actually independent. Each has several forms, each faces different challenges, and each has implications for the nature of language.

See also: Associationism and Connectionism; Behaviorism: Varieties.

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Empty Names

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Most names refer. For example, the name 'Uma Thurman' refers to Uma Thurman. But some names don't refer. For example, suppose that Keanu Reeves introduces the name 'Sparkie' to refer to the lighter in his pocket, if there is one, and to nothing otherwise. If it turns out that Keanu's pockets are empty, then 'Sparkie' doesn't refer. In that case, 'Sparkie' is an empty name. Usually, an empty name is empty because there is no object for it to refer to. This is the case with 'Sparkie': 'Sparkie' is empty because Keanu's pockets are empty. But sometimes an empty name is empty not because there is no object for it to refer to but rather because of something else: the speaker's intentions, say. For example, some philosophers think that although fictional characters exist, names from fiction are empty when they are used with the intention of telling a story. On this view, there is a fictional character that we can use the name 'Sherlock Holmes' to refer to when we intend to talk about Sir Arthur Conan Doyle's work, but when Conan Doyle uses that name to tell a story, it's empty.

The term 'empty name' goes back at least to the German mathematician and philosopher Gottlob Frege (1848–1925), who called expressions that don't refer 'empty' (or, in German, 'leer'). The problems that empty names pose go back much further, at least to the Greek philosopher Parmenides (5th century B.C.E.), who argued that you cannot say of what does not exist that it does not exist. Empty names have been giving philosophers headaches ever since.

The Problem of Negative Existentials

Consider a subject-predicate sentence of the form $\alpha \varphi$, where α is the subject and φ is the predicate. $|\alpha \varphi|$ says, of the object that α refers to, that it has the property that φ refers to. And α φ is true if and only if what it says is the case: that is, if and only if that object has that property. For example, (1) says, of the object (or, in this case, person) that 'Uma' refers to, that it has the property that 'is a movie star' refers

(1) Uma is a movie star.

'Uma' refers to Uma, and 'is a movie star' refers to the property being a movie star. So (1) says, of Uma, that she has the property being a movie star. Since Uma has that property, (1) is true. Now consider (2), which says, of the object that 'Sparkie' refers to, that it has the property that 'doesn't exist' refers to.

(2) Sparkie doesn't exist.

The predicate 'doesn't exist' refers to the property *not* existing (or being nonexistent). (2) is a negative existential, since it appears to say of some object that it doesn't exist. The trouble with negative existentials is that some of them seem true; but it's hard to see how any of them could be. For example, (2) seems true. But since 'Sparkie' is empty, there is no object that it refers to; so there is no object for (2) to say, of it, that it has the property not existing. As a result, it is hard to see what, if anything, (2) says. And if (2) doesn't say anything, then it is hard to see how it could be true.

More generally, negative existentials are a problem for anyone who thinks that (a) the truth value of a sentence is determined, compositionally, on the basis of some semantic feature or features of its parts, and (b) the relevant semantic feature of a name is its referent. (And many philosophers share these assumptions: for example, Fregeans, Millians, and Davidsonians all can accept [a] and [b].) Since an empty name has no referent, it seems to follow that negative existentials that contain empty names have no truth value. This is a problem, because such negative existentials seem true.

Millianism

Empty names pose a number of problems in particular for Millianism, According to Millianism, sentences express propositions. These are abstract objects that are the primary bearers of truth values. They are also the objects of attitudes, such as believing and asserting. According to Millianism, propositions are *structured*. This means that the proposition expressed by (1), for example, can be represented as the ordered pair < U, being a movie star>, where U is something that corresponds to 'Uma.' (In what follows, complications about what goes in the non-U slot are glossed over; it is assumed that what goes in that slot is a property.) And, according to Millianism, sentences that contain names express singular propositions if they express any propositions at all. This means that, in the proposition expressed by (1), U is Uma herself. The proposition expressed by (1) can then be represented as <Uma, being a movie

The source of the problems that empty names pose for Millianism is that it seems that Millianism entails that a sentence that contains an empty name doesn't express any proposition at all. According to Millianism, propositions are structured; so, if (2) expresses a proposition, then that proposition can be represented as <S, not existing>, where S is something that corresponds to 'Sparkie.' And, according to Millianism, sentences that contain names express singular propositions, if they express any propositions at all; so, if (2) expresses a proposition that can be represented as <S, not existing>, then S is the object that 'Sparkie' refers to. But, since 'Sparkie' is empty, there is no object that it refers to. So there is no object in the S slot in <S, not existing>. As a result, it seems that there is no singular proposition for (2) to express and hence that, according to Millianism, (2) doesn't express any proposition at all. The view that sentences that contain empty names don't express any proposition at all is called the No Proposition View.

The No Proposition View apparently has a number of consequences that are apparently counterintuitive. For example, you might think that a sentence is meaningful only if it expresses a proposition. If that's right, then the No Proposition View entails that (2), for example, is meaningless. But (2) doesn't seem meaningless. This problem is called the Problem of Meaningfulness. Or you might think that a sentence inherits its truth value from the proposition it expresses. If that's right, then the No Proposition View entails that, for example, (2) and (3) have no truth

(3) Keanu believes that Sparkie doesn't exist.

But (2) and (3) seem true. This problem is called the *Problem of Truth Value*. Or you might think that a person can sincerely and assertively utter a sentence only if she believes the proposition that it expresses. If that's right, then the No Proposition View entails that no one can sincerely and assertively utter (2), for example. But it seems that someone could sincerely and assertively utter (2). This problem is called the *Problem of Belief and Sincere Assertive Utterance*. Because of these problems (and others that have to do with the substitution of coreferential names in various linguistic contexts), many philosophers have concluded that Millianism should be rejected in favor of its rival, Fregeanism.

Fregeanism

Fregeanism can solve many of the problems that empty names pose for Millianism. Fregeanism agrees with Millianism that sentences express structured propositions. According to Fregeanism and Millianism alike, the proposition expressed by (1) can be represented as <U, being a movie star> (again, glossing over what goes in the non-U slot). But Fregeanism denies that sentences that contain names express singular propositions. According to Fregeanism, in the proposition expressed by (1), U is not Uma herself. Rather, U is a mode of presentation of Uma, MP_{'Uma'}, something that is a way of thinking about Uma or that captures an agent's perspective on Uma. Perhaps MP_{'Uma'} is something that picks Uma out by describing her as having certain properties: being the lead in Kill Bill Vol. 1, say. Or perhaps MP_{'Uma'} is some other kind of entity. Where Millians say that the proposition represented as <Uma, being a movie star> is true if and only if Uma has the property being a movie star, Fregeans say that the proposition represented as <MP_{'Uma'}, being a movie star> is true if and only if the object that MP_{'Uma'} presents has the property being a movie star. Since MP_{'Uma'} presents Uma, Fregeans agree with Millians that the proposition that (1) expresses is true if and only if Uma has the property being a movie star.

Fregeans can reject the No Proposition View. According to Fregeanism, the proposition expressed by (2) can be represented as <S, *not existing*>. But, according to Fregeanism, S isn't the object that 'Sparkie' refers to; rather, S is a mode of presentation, MP_{'Sparkie'}, that corresponds to 'Sparkie.' (If there is such a mode of presentation, then there can be empty modes of presentation: that is, modes of presentation that don't actually present anything. But *see* Object-Dependent Thoughts.) Perhaps MP_{'Sparkie'} has something to do with the property *being a lighter in*

Keanu's pocket and would pick out the unique object that has that property, if there were such an object. Or perhaps MP_{'Sparkie'} is some other kind of entity.

Fregeans can solve the Problem of Meaningfulness: (2) is meaningful because it expresses the proposition represented as <MP'Sparkie', not existing>. Fregeans can also solve the Problem of Truth Value, at least for belief ascriptions like (3). (3) can be true because Keanu can believe the proposition represented as <MP_{'Sparkie'}, not existing>. (How the truth of [3] can be compatible with the assumptions [a] and [b] mentioned earlier is complicated. Perhaps in [3] 'Sparkie' isn't really empty: perhaps in [3] Sparkie refers to MP'Sparkie'. Or perhaps in [3] 'that' refers to the proposition that [2] expresses.) And Fregeans can solve the Problem of Belief and Sincere Assertive Utterance: speakers can sincerely and assertively utter (2) because they can believe the proposition represented as <MP_{'Sparkie'}, not existing>.

But Fregeanism doesn't straightforwardly solve the Problem of Truth Value for sentences like (2). For (2) is true if and only if the proposition that it expresses, the proposition represented as <MP_{'Sparkie'}, not existing>, is true; and that proposition is true if and only if the object that MP_{'Sparkie'} presents has the property not existing. But there is no object that MP_{'Sparkie'} presents, and hence it is not the case that the object that MP_{'Sparkie'} presents has the property not existing. So (2) isn't true. Still, many philosophers think that overall Fregeanism fares better than Millianism in handling the problems that empty names pose.

More Millianism: The Gappy Proposition View

Some Millians reject the No Proposition View in favor of the Gappy Proposition View, according to which (2) expresses a gappy proposition that can be represented as <____, not existing>. (That proposition is gappy because it is just like a singular proposition except that it contains no object where a singular proposition would.) The Gappy Proposition View can solve the Problem of Meaningfulness: (2) is meaningful because it expresses the gappy proposition represented as <____, not existing>. The Gappy Proposition View can also solve the Problem of Truth Value, at least for belief ascriptions like (3). (3) can be true because Keanu can believe the proposition represented as <____, not existing>. And the Gappy Proposition View can solve the Problem of Belief and Sincere Assertive Utterance: speakers can sincerely and assertively utter (2) because they can believe the proposition represented as < , not existing>.

But the Gappy Proposition View can't solve the Problem of Truth Value in general. Suppose that Uma introduces 'Markie' to refer to the pen in her pocket, if there is one, and to nothing otherwise. If it turns out that Uma's pockets are empty, too, then 'Markie' doesn't refer either. On the Gappy Proposition View, (4) and (5) express the same gappy proposition, which is a conditional whose antecedent can be represented as < , *existing*>.

- (4) If Sparkie exists, then there is a lighter in Keanu's
- (5) If Markie exists, then there is a lighter in Keanu's pocket.

But (4) and (5) seems to differ in truth value: (4) seems true, whereas (5) doesn't.

Millians could co-opt some of the resources of Fregeanism and say that agents believe propositions via modes of presentation. (4) and (5) express the same gappy proposition; but there are different modes of presentation associated with (4) and (5). The mode of presentation associated with (4) has something to do with MP_{'Sparkie'}, whereas the mode of presentation associated with (5) has something to do with MP'Markie'. On this view, (4) seems true, because agents believe, via the mode of presentation associated with (4), the gappy proposition expressed by (4) and (5); but (5) doesn't seem true, because agents don't believe that proposition via the mode of presentation associated with (5). Let's call a Millian view that co-opts Fregean resources in some way Neo-Millian.

Still More Millianism: The Communicated **Proposition View**

Once Millians co-opt Fregean resources and become Neo-Millians, they no longer have to appeal to gappy propositions. Neo-Millians can say that sentences that contain empty names don't *express* propositions; but when they use those sentences, speakers can communicate propositions and in fact speakers can communicate the very propositions that Fregeans say are expressed by the sentences that speakers use. Let's call this view the Communicated Proposition View. The Communicated Proposition View can solve the Problem of Meaningfulness: (2) is meaningful because speakers can use it to communicate the proposition represented as <MP'Sparkie', not existing>. The Communicated Proposition View can also solve the Problem of Truth Value: (2) seems true because speakers use it to communicate the proposition represented as <MP_{'Sparkie'}, not existing>; and (3) seems true because speakers use it to

communicate that Keanu believes that proposition. And the Communicated Proposition View can solve the Problem of Belief and Sincere Assertive Utterance: speakers can sincerely and assertively utter (2) because they can believe the proposition represented as <MP'Sparkie', not existing>.

The possibility of Neo-Millianism suggests that the debate between Millians (including Neo-Millians) and Fregeans should be understood not as a debate about whether there are modes of presentations like MP'Sparkie' but rather as a debate about where there are such modes of presentation. Fregeans says that such modes of presentation are constituents of the propositions expressed by sentences that contain names. Millians, by contrast, say that they're not, although they might mediate agents' cognitive relations to propositions (as on the Neo-Millian version of the Gappy Proposition View) or they might be constituents of propositions that speakers communicate (as on the Communicated Proposition View).

See also: Assertion; Causal Theories of Reference and Meaning; Communication, Understanding, and Interpretation: Philosophical Aspects; Compositionality: Philosophical Aspects; Direct Reference; Existence; Fictional Discourse: Philosophical Aspects; Object-Dependent Thoughts; Proper Names: Philosophical Aspects; Propositional Attitude Ascription: Philosophical Aspects; Propositions; Reference: Philosophical Theories; Rigid Designation; Semantic Value; Semantics-Pragmatics Boundary; Sense and Reference: Philosophical Aspects; Truth: Primary Bearers.

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Encyclopédie

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This work of 20 million words is both the greaest summa of the French Enlightenment and its greatest manifesto. It symbolizes the 18th century's crusade against superstition, fanaticism, and tyranny, and its belief in human progress, happiness, and freedom. The articles and accompanying plates also constitute an unrivaled source of information about the scientific and technological knowledge of the period.

The History of the Work

An initial project to translate Chambers' two-volume Cyclopaedia (1728) grew into the much more ambitious Encyclopédie ou Dictionnaire raisonné des Sciences, des Arts et des Mêtiers, par une société de gens de lettres. The work appeared between 1751 and 1772, in 28 folio volumes, 17 of text and 11 of plates, during which time the two editors D'Alembert and Diderot (see Diderot, Denis (1713–84)) – Diderot alone, after the defection of D'Alembert in 1757 – endured continual struggles with the authorities. The 71 818 articles are written by more than 200 different authors, ranging from Voltaire and Rousseau to the unknown and the anonymous.

The work's influence was widespread and enduring. The first edition of 4225 copies quickly sold out, and several further editions followed, some published outside France, some in smaller formats. By the end of the 18th century there were some 24 000 copies of the *Encyclopédie* in circulation, over half of them outside France.

The Range of the Work

The sheer size of the *Encyclopédie* makes it difficult for the reader to form a balanced overall impression of the work. The selections of essays by which modern readers generally know the *Encyclopèdie* give a distorted view by concentrating on articles concerned with religion and politics. These were certainly among the most controversial contributions, but

they are neither the most typical nor, necessarily, the

One of the most original aspects of the *Encyclopédie* is the considerable emphasis given to manufacture and technology: Diderot himself opted to write the article *Bas* on the manufacture of stockings. The unsigned article *Christianisme* (Christianity) is subversive not so much because it expresses unorthodox views (although it does), as because under the letter 'C' it is equated with, and outnumbered by, such other articles as *Chaise* (Chair), *Chandelle* (Candle), *Chanvre* (Hemp), *Chapeau* (Hat), and *Charbon* (Coal).

Another important and highly original feature is the emphasis accorded to the image. The 2900 engraved plates, magnificent documents in their own right, are conceived as an essential complement to the articles. The plates accompanying the technological articles are also of linguistic importance, for they record, often for the first time, the terms employed by artisans to describe tools and machineparts.

Language and grammar are accorded an important place, and there are articles on such questions as grammatical terminology, the origin of language, and spelling reform. The grammatical articles of Dumarsais were particularly praised, and after his death in 1756, major articles were contributed by Douchet, author of Grammaire (Grammar), and Beauzée, author of the long article Langue (Language). Many articles (including some by Diderot) are devoted to the definition of synonymous or nearsynonymous terms. The Cartesian emphasis (see Descartes, René (1596–1650)) on clarity of language as a first step towards clarity of thought is central to the encyclopedists' project: "It is still not understood," writes Diderot (in the article Encyclopédie, 'Encyclopedia'), "to what extent language is a rigorous and faithful image of the exercise of reason."

The Personality of the Work

Notwithstanding their concern with clarity of expression, the encyclopedists were obliged for political reasons to resort to various strategies of concealment. The brief and apparently innocuous grammatical