Denmark in 1917 and renamed them the 'U.S. Virgin Islands.' The 1967 constitution gave the islands internal self-government.

The population is 22 187 (July 2004 estimate); 83% are related to the slaves brought from Africa. The rest of the population are of European, Indian, and Asian origin. The official language is English.

Other languages spoken are Virgin Islands Creole English, Papiamentu, and Spanish. The literacy rate is 97.8%, according to a 1991 estimate.

See also: Pidgins and Creoles: Overview.

Virgin Islands, U.S.: Language Situation

Editorial Team

The U.S. Virgin Islands are an unincorporated territory of the United States in the Caribbean, West Indies. They comprise the three largest U.S. islands (St John, St Croix, and St Thomas) and 50 small islands next to them. The islands were first spotted by Europeans in the second voyage of Christopher Columbus. The Carib Indians, who were local inhabitants there, resisted the presence of Europeans and as a result were massively killed in the 17th century. Ownership of the islands during that time shifted between Spain, England, France, Holland, and Denmark. The islands' economy was mainly based on sugar and cotton plantations, maintained by slave labor. During the 17th century, the islands were divided between the English and the Danish. The Danes established a permanent colony (Danish West Indies) on St Thomas in the 17th century and on St John in the early 18th century. They later purchased St Croix from the French. By the mid-19th century, slavery was abolished, and the island's economy suffered a serious recession. Danish control of the major islands continued (except for two brief periods of British occupation) until after the first World War, when the United States bought the territory in 1917 for the highest sum of money they had ever paid for land.

The population of the islands is 108 775 (July 2004 estimate). The majority of the population is West Indian (81%), while the rest of the population is mainly from the U.S. mainland (13%) or from Puerto Rico (4%). The official language is English. Virgin Island Creole English, Papiamentu, and Spanish are also used. Dutch Creole (Negerhollands), which flourished at the end of the 18th century is by now extinct.

See also: Pidgins and Creoles: Overview.

Virtual Objects

P A M Seuren, Max Planck Institute for Psycholinguistics, Nijmegen, The Netherlands

The question of virtual objects is basically of an ontological nature, but it has direct consequences for the theory of truth and, hence, for the semantics of natural language. Around 1900, a discussion arose about the nature of 'reality' or, in other words, about the question of 'what there is.' Two schools of thought developed, extensionalism and intensionalism. The extensionalists hold that reality and actual existence are the same: Whatever is, exists; there is no being outside existence. For an entity e to be said to 'exist,' a few criteria must be satisfied, the most important of which are the following:

1. e is subject to the physical laws of causality.
2. e is fully defined, in the sense that it has all the properties an entity of that nature is supposed to have – even if not all the values of those properties are known.
3. e has a well-defined identity, in that at any time t it is identical with itself and distinct from all other entities.
4. e cannot both have and lack a given property.

Criterion 1 seems self-evident. As regards criterion 2, consider the example of an actually existing man. He was born at a specific time; has breathed a specific number of times since his birth; has a specific weight, blood pressure, shoe size, and so on, even if that information is not always available to everyone. The criteria 2 and 3 are due to the American philosopher Willard V. O. Quine (Quine, 1953). Criterion 4 is known as the Principle of Contradiction and is due to Aristotle: "It is not possible for the same property to adhere and not to adhere to the same entity at the same time and in the same respect" (*Metaphysics* IV, 3, 1005b19).

The intensionalists do not deny the extensionalist's notion of existence, but they maintain that the universe contains more than just existing entities. They differ from the extensionalists mainly in that they accept the reality, but not the existence, of so-called virtual objects. Virtual objects have been thought up by a thinking individual. And, because thinking includes not only the strictly disciplined forms of imagining states of affairs normally found in hypotheses produced in science or by the police, but also all kinds of fantasizing, dreaming, and artistic imagination, virtual objects may fail to satisfy the criteria 1, 3, and 4, and will in any case fail to satisfy criterion 2 because they have only those properties (in virtual form) with which they have been fitted out by the imagination. They lack actual existence, although it may turn out that what has been thought up, perhaps as part of a hypothesis, actually exists – in which case we say that they are *matched* by real-world objects.

The most prominent representative of this philosophy is the German–Austrian philosopher Alexius Meinong (1853–1920). Meinong accepted not only virtual entities, but also 'objects of a higher order' (mostly relational objects such as 'the difference between A and B') and also what are normally called reifications or abstractions, such as 'the prime minister's popularity with the voters' or 'the triangle in general.' Such objects do not exist but they 'subsist' in the sense that they owe their being to the entities that do exist.

Among the virtual objects Meinong distinguished those that happen not to exist although they could have from those that cannot possibly exist, such as a round square. Virtual objects are automatically created by the thinking mind, no matter what properties are mentally assigned to them. Their identity is fixed by the mind. When I think up one man who is both bald and rich, there is one virtual man; but when I think up two men, one bald and one rich, there are two virtual men.

Thinking is by definition the setting up of a virtual world, and so is speaking, in so far as speaking is an expression of thought. Thus, by the very fact that I now say:

(1) I spoke to a man who was dead and alive at the same time.

I have created a virtual yet impossible entity *e* such that *e* is a man, is dead, and is alive, all at the same time.

Extensionalism has reigned supreme during the whole of the 20th century. The key figures are Bertrand Russell (1872–1970) and Willard V. O. Quine (1908–2000). Russell (1903: 450) shows him still an intensionalist, closely following Meinong. Commenting on extensionalism, Russell says:

> The theory seems, in fact, to have arisen from neglect of the distinction between existence and being. Yet this distinction is essential, if we are ever to deny the existence of anything. For what does not exist must be something, or it would be meaningless to deny its existence; and hence we need the concept of being, as that which belongs even to the non-existent.

But in Russell (1905: 482–483) he has switched sides and has become an ardent extensionalist, which he will remain during the rest of his life. Commenting on Meinong's ontology, he says:

> [Meinong's] theory regards any grammatically correct denoting phrase as standing for an *object*. Thus, "the present King of France," "the round square," etc., are supposed to be genuine objects. It is admitted that such objects do not *subsist*, but nevertheless they are supposed to be objects. This is in itself a difficult view; but the chief objection is that such objects, admittedly, are apt to infringe the law of contradiction. It is contended, for example, that the existent present King of France exists, and also does not exist; that the round square is round, and also not round; etc. But this is intolerable; and if any theory can be found to avoid this result, it is surely to be preferred.

Many commentators have observed that in this passage Russell does not do justice to Meinong's views. His objection, moreover, to the effect that Meinong violates the first principle of ontology and logic – the Aristotelian principle of contradiction – does not hold water because Meinong never said or implied that, for example, the golden mountain is really made of gold, only that the property of being made of gold is mentally assigned to it so that the virtual object 'the golden mountain' has the property of being made of gold in the virtual world it is part of.

A different criticism was voiced by Quine (1953) in his essay 'On what there is.' Here Quine accuses Meinong and similar philosophers of multiplying

entities beyond any controllable limits, and thus polluting any sound ontology (Quine, 1953: 4):

> Take, for instance, the possible fat man in that doorway; and, again, the possible bald man in that doorway. Are they the same possible man, or two possible men? How do we decide? How many possible men are there in that doorway? Are there more possible thin ones than fat ones? How many of them are alike? Or would their being alike make them one? Are no two possible things alike? Is this the same as saying that it is impossible for two things to be alike? Or, finally, is the concept of identity simply inapplicable to unactualized possibles? But what sense can be found in talking of entities which cannot meaningfully be said to be identical with themselves and distinct from one another? These elements are well-nigh incorrigible.

Yet, despite the wide acclaim this argument has had since 1953, it is based on the fallacy of using criteria of extensional entities and applying them to virtual entities.

The intensionalists' defense consists in saying that sentences such as those in (2) are clearly true.

(2a) The god Apollo was worshipped in the island of Delos.
(2b) Two gods were worshipped in the temple of the Dioskouroi.

In (2a), in the extensionalist view, a property is assigned to nothing because the god Apollo does not exist and therefore lacks any form of being. Russell's theory of Descriptions, presented in Russell (1905), offers no solution since the analysis it assigns to (2a) entails that Apollo exists. Therefore, to account for the fact that (2a) is true, it is necessary to assume that there somehow 'is' an entity 'Apollo.' This entity must have some identity because sentence (3) is false, despite the fact that Poseidon is as nonexistent as Apollo:

(3) The god Poseidon was worshipped in the island of Delos.

Similarly for (2b), which, in terms of modern predicate calculus should entail that there are two really existing gods who were worshipped in the temple mentioned. It seems that modern predicate calculus can be saved for natural language only if it is assumed that the existential quantifier does not require actual existence for truth but only 'being.'

Richard Montague (1972: 221–242) thought of a remedy in terms of possible world semantics. His *program of extensionalization of intensions* saw virtual entities such as Apollo as real in a class of possible worlds not containing the actual world and allowed certain predicates, such as *worship*, to yield truth with regard to entities that have reality in a class of possible worlds, even if this class does not contain the actual world. This program, however, foundered on the *problem of propositional attitude sentences*, which stands out most clearly when we consider the embedding under an intensional operator of necessarily true sentences, which are true in all possible worlds, or necessarily false sentences, which are true in no possible world. In Montague's analysis, all necessarily true sentences are substitutable *salva veritate* under intensional operators and so are all necessarily false sentences. But this means that, if Thomas holds the necessarily false belief that the number of prime numbers is finite, he must also hold the necessarily false belief that all bachelors are married, even if he himself – the best judge of his own beliefs – insists that he believes the former but rejects the latter. This theory thus has unacceptable consequences for natural language. This fact is now widely recognized.

Reference and quantification processes in natural language do not distinguish between existent and nonexistent entities. Likewise, truth is equally possible with regard to existent and nonexistent entities. When we assert (2a), we do not imply that Apollo really does or did exist. This is made possible by a distinction between extensional and intensional predicate positions. Predicates such as *bald* or *be made of gold* require the actual existence of the subject-term referents for literal truth, although they can be applied to fictitious characters under an intensional operator (which often remains tacit). But *be famous* or *be the talk of the town* or *have a website* can be truthfully said of existent and nonexistent entities alike. These latter predicates are intensional with regard to their subject-term position. The transitive predicate *worship*, for example, is extensional with regard to its subject term because one has to exist before one can worship anything, but it is intensional with regard to its object term because one can perfectly well worship specific nonexistent beings with a well-defined identity. By contrast, the transitive predicate *frighten* is intensional with regard to its subject term because something may frighten us even if it does not exist, but it is extensional with regard to its object term because one has to exist before one can be frightened.

An adequate semantics of natural language thus seems to require the assumption of virtual, thought-created, objects.

See also: Discourse Semantics; Extensionality and Intensionality; Lexical Conditions; Presupposition.

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Visual Semiotics

M Danesi, Victoria College, University of Toronto, Toronto, Canada

Introduction

The study of visual signs and their representational functions became a major branch of semiotics after the publication of two influential books: Rudolf Arnheim's *Visual thinking* (1969) and Jonathan Berger's *Ways of seeing* (1972). Visual signs are defined, simply, as signs that are constructed with a visual signifier (form), i.e., with a signifier that can be seen, rather than heard, touched, tasted, or smelled. Visual semiotics is a growing and robust area of inquiry, which includes the study of art forms, logos in advertising, maps, diagrams, pictographs, alphabet characters, and other visual artifacts and symbols. Among the relevant works in this field are those by Barthes (1977), Sonesson (1987, 1994), Saint-Martin (1991), and Sebeok and Umiker-Sebeok (1994). A convenient classificatory framework of visual signs can be found in Santaella-Braga (1988).

Mental Imagery

The semiotic study of visual signs overlaps considerably with the study of mental imagery within psychology. An image is defined simply as a mental picture of objects, events, feelings, actions, situations, and ideas (real or otherwise). Images allow us to recall events, refer to them in various ways, and to generate hypothetical scenarios of situations or conditions that we may not even have actually experienced. Mental images are substitutes for real things, allowing people to recall, plan for, and predict things (Kosslyn, 1983, 1994). But these are not monolithic. Individuals differ widely in their abilities to construct images and use different aspects of imagery. For example, some people are better than others at moving objects around in their heads. They can visualize, say, the letter N changing into a Z when rotated to a certain point. Others have great difficulty in carrying out such imaginary rotations. People imagine faces and voices, locate imaginary places, scan game boards (like a checker board) in their minds, arrange furniture in a room, design a blueprint, and so on in similar, but significantly differentiated ways (Kosslyn, 1983, 1994).

Psychological studies have shown that images also vary along cultural lines. When asked to visualize a triangle or a cat, people living in the same culture will come up with very similar mental pictures of the two referents. These isomorphic images are known as 'cultural prototypes' (for the concept of 'prototype' in psychology, see Rosch, 1973, 1975, 1981, Rosch and Mervis, 1975, Taylor, 1995). The triangle that people living in Western culture typically imagine is an equilateral one, because it is the type of triangle that is perceived as the prototypical or basic form. It is the one that is perceived to be exemplary or representative of all triangles. Obtuse-angled, right-angled, and acute-angled triangles are perceived to be subtypes of the equilateral triangle. Similarly, the image of the cat that comes to the mind of subjects living in Western culture is that of a household cat, because it is the most typical in that culture.

Images are not generated only by visual perception. They can be elicited through other sensory and affective modalities. These modalities can be easily experienced by imagining such things as: (1) the sound of thunder, (2) the feel of wet grass, (3) the smell of fish, (4) the taste of toothpaste, (5) the sensation of being uncomfortably cold, (6) the sensation of extreme happiness. The image that comes to mind in the case of (1) has an auditory quality to it, (2) a tactile one, (3) an olfactory one, (4) a gustatory one, (5) a bodily one, (6) an emotional one. Moreover, images are not elicited solely by sensory modalities; they can be abstract, fictitious, or narrative. As an example of an abstract image, think of *love*. The image that this concept evokes is tied to some personal experience, such as the expression of a face in love. A fictitious image is something that can be made up in the imagination. An example of a fictitious image is a 'winged