

## DEFINING OUR TERMS

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In order to clarify our thought and to come to some agreement with those with whom we are speaking, it is clarify our terms. We do this by defining our terms. Now the word, or phrase, that is to be defined is know as the "definiendum" while that part of the definition that actually does the defining is know as the "definiens."

Definitions are often given by genus and species. Such definitions are also known as analytical definitions. A definition by genus and species gives the intensional meaning of a term by (1) specifying the type of thing being defined and (2) by listing those properties which distinguish that thing from other things of the same type.

To grasp this type of definition visualize classes, or group, of things can be arranged in different ways -- like boxes within boxes. The collection of all whales has a part of it the class of all killer whales. On the other hand the class of all whales is, itself, part of the larger group of all mammals. And the class of all mammals, in turn, is a part of the collection of all animals. We shall call any class of things which is a part of another group a subclass of that group. Now there are all sorts of things besides whales that belong to the collection of mammals. Humans are an example as are birds. This being the case we need to be able to differentiate whales from humans, and any other group of things that are mammals but not whales. So there are collections, or classes, which might be made up of small collections, but also might be parts of larger groups. Grasping this view of groups, how they might be related and the need to differentiate various groups from one another is the first step in coming to understand definitions by genus and species.

The word 'genus' is used to designate the larger of two or more classes of which any smaller class belonging to it is called a 'species' of the genus. Thus mammal is the genus in relation to both whale and human. But mammal is considered a species, along with reptile, in relation to animal. No class is absolutely a genus or species, but only in relation to some other class. So what is a genus and a species is relative to the context of the definition, and the purposes for which the definition is being used. The genus, then, is the class in question while any species is a subclass of that genus.

Definitions by genus and species concentrate on the properties that anything must have to belong to a certain group. That is a genus is related to some species just in case all the intensional properties forming the species are included in those properties forming the genus but all the properties forming the genus are not included in the properties of the species. Thus all the properties of being a whale are included in the class of all those properties anything must have to be a mammal, but all properties formulating the class of mammals are not included in the class of all whale properties. On the other hand the class of all those things which are mammals is itself included in the class of all those things which are animals, but not all animals are included in the class of those things which are mammals. This is why mammal is the genus in relation to whale but a species in relation to animal.

Not only are 'genus' and 'species' relative terms, any collection viewed as a genus might be made up of various species. Whales, humans and birds are all different even though they all are mammals. In what do these differences consist? We need something to distinguish various species, subclasses, belonging to one genus. These differentiating properties are the differentia. We might want to define 'whale' by genus and species. To do this we would determine the genus

to which whales, the species to be defined, belong and those properties which differentiate whales from other species, say humans, of the same genus. We might start by saying

By 'whale' we mean an aquatic mammal.

This definition of 'whale' places whales in the genus, mammal, and distinguishes them from other mammals that are non-aquatic. Here is another example. Define 'wife' genus and species. Anything which is a wife, the species, is also a female, the genus. But many things other than wives are females. Daughters, for example, are also females. So, for a definition of 'wife' to be successful, some property or properties must be found to differentiate wives from daughters. Being married is one property differentiating being a wife from being a daughter. Hence, 'wife' can be partially defined by genus and species in this way:

By 'wife' we mean a married female.

where 'female' indicates the genus and 'married' the differentia.

What is accepted as a clear definition is, in part, determined by the particular context in which a definition is used. This is no less the case with definitions by genus and species. In discussing whales and fish, it might be sufficient to say 'whale' means an air-breathing animal. In this definition 'animal' denotes the genus, 'whale' the species and 'air-breathing' the differentia distinguishing whales from fish. However, humans, horses, cats, and dogs are also air-breathing animals. Thus, in certain contexts, 'whale' might be defined as an aquatic air-breathing animal. But what of porpoises and dolphins? While they are not whales, they are aquatic air-breathing animals. A definition by genus and species can continue as long as there is need for more clarification within a context of discussion.

### Constructing Definitions

Certainly there is one sense in which anyone might define any word in anyway he wants. There are at least two problems with this rather soporific view. First, suppose that I were to define "fighter plane" in the way that everyone else spoke of a hearse. Then suppose that I persuaded the government to purchase from my fighter planes. When my fighter planes were delivered, the government would be furious and the nation might be at great risk if at war and dependent on real fighter planes and not hearses. So, the first problem with the notion of "I can define a word anyway I like" is that it leads to both confusion and possible danger. But, second, suppose someone gives a definition that sound reasonable enough to many people. Suppose someone defines " 'university' = def. a place of higher learning." We might now ask is this an acceptable definition. For many people can, and do, use words in such ways that the definitions they are supposing to be acceptable are not. What then makes a definition acceptable? This cannot be solely that a great number of people use a word in a certain way, for a great number of people might be wrong.

In constructing a definition by genus and species, we must take care to give differentia which clearly distinguish one species from another in the same genus. Acknowledging this recommendation, there are important considerations guiding the construction of definitions.

First, no definition should be either too broad or too narrow. A definition is too broad if it permits including things in its referent which ought not to be included. A definition is too narrow if it omits things from its referent which ought to be included. Suppose 'university' is defined as an institution from which one can receive instruction and training in particular fields of expertise. This definition is too broad because it includes in the referent of 'university' not only universities, but secondary schools, trade schools and vocational schools. Next, imagine someone defining 'chair' as anything having legs and a back on which a person is intended to sit'. This definition is too narrow because it excludes chairs having arms. A definition can be both too broad and too narrow. Suppose someone defines 'love' to mean an emotion evoked in one human by another human. This definition is too narrow because love can be evoked in a human by all sorts of things besides another human. A pet dog, for instance, can invoke love in a human. The definition is too broad because there are many emotions evoked in one human by another human which are not love. Hate and envy are examples.

An important way to determine whether a term is defined too narrowly, too broadly, or perhaps both, is to seek a counterexample for the proposed definition. A counterexample for a definition which is too narrow is an instance of something which should be included in the referent of a term but is excluded because of the proposed definition. A definition is too broad when there is an instance of something which should not be included in the referent of a term but is included because of the proposed definition. Counterexamples are used in the above paragraph to show the proposed definition of 'university' is too broad, the definition of 'chair' is too narrow, and the definition of 'love' is both too broad and too narrow. Counterexamples are powerful tools to use when attempting to show a definition is not acceptable and why it is not. Learn to use counterexamples to check the acceptability of your own definitions as well as those of others.

Second, a definition should not be viciously circular. It is not unusual to find this restriction in discussions of definitions: The word being defined, some other grammatical form of it, or a synonym, cannot occur in the definiens. However this restriction is not acceptable. For example, we might say 'sooty' means of, relating to, or producing soot. This definition is circular in the sense that the noun, 'soot', appears in the definiens. Yet the definition is acceptable if 'soot' is not in turn defined in terms of 'sooty'. In constructing definitions, viciously circular definitions are to be avoided.

A viciously circular definition is one in which the word defined, or a synonym of that word, is found in some form in the definiens AND that word in the definiens is itself defined by referring back to the definiendum. Thus if 'owner' is defined as a person who possesses something and in turn 'a person who possesses something' is defined as an owner, the definitions would be viciously circular. If we do not already know how to use 'owner', the above viciously circular definition is not helpful in grasping the correct use. A viciously circular definition tells us nothing about how a word is used or how it is related to other words. Nor does a viciously circular definition clarify any meaning a word might have.

Third, an acceptable definiens should use positive words, and not negative ones, when possible. In general to know what is not the referent of a word is not to know what is its referent. To use an extreme example, suppose someone says 'car' means something that is not a tree, house, or book. This would tell anyone ignorant of the meaning of 'car' very little. A more useful attempt at defining 'car' would be to say that 'car' means a motorized vehicle, the primary purpose of which is to transport one or more persons over land from one place to another. Note, this definition is itself too broad because it includes such things as motorcycles and trains in its

extension. Even so, it is more useful than a negative definition.

Some definitions, however, are best presented using negative words. Indeed some words seem to require a negative definiens. A definiens for 'bachelor' is 'any unmarried male human over the age of consent'. While 'unmarried' is a negative word, it is appropriate in this definition. There are no unbending rules determining when it is proper to introduce a negative definiens. There is this guideline, however. Always define the definiendum in the way which gives the maximum information about its appropriate use. In most cases, a positive definition will more likely satisfy this guideline.

Fourth, a definition should avoid vague, ambiguous, obscure, or figurative language. This requirement extends to the use of correct grammar in a definition. To determine what is to count as obscure, vague, ambiguous, or figurative we must consider the context in which a word is to be used. For instance, a botanist would not find obscure the definition of 'protonema' as the filamentous thalloid stage of the gametophyte in mosses and in some liverworts comparable to the prothallium in ferns. Nor could we offer a less technical definition as accurate and useful as this one. What if, however, someone defines 'pencil' as an elongated cylinder originally constructed of organic materials having a core of graphite and found useful in written communications? This definition ignores the guideline of avoiding obscurity. Nor should a definition be figurative. If someone defines 'happiness' as a warm, fuzzy teddy bear, this would be of little help in coming to a clear understanding of the meaning of 'happiness'.

Fifth, the language of a definition should be as emotionally neutral as possible. Someone could say 'communism' means a government run by perverts and godless people in pursuit of the destruction of individual rights while glorifying the state. However this definition is too emotional to be useful in clarifying the concept communism. Such attempts at definitions might be effective in persuading us to believe certain things and even motivating us to act on these beliefs. Even so the primary purpose of a definition in thinking critically is not to persuade but to establish or clarify linguistic expressions.

Sixth, a definition should indicate the appropriate context in which the definiens is used if there is likelihood of confusion concerning that context. This requirement is necessary to avoid possible ambiguity. Suppose, for example, a definition for 'love' is required. The word 'love' has various meanings in different contexts. For instance, there are those meanings of 'love' in the context of human emotions. But there is also the meaning of 'love' in the context of tennis. A good definition of 'love' will clearly distinguish these contexts, and any others, in which 'love' is used.