Kinds of Definitions

The most common way of preventing or eliminating differences in the use of languages is by agreeing on the [definition](http://www.philosophypages.com/dy/d2.htm#def) of our terms. Since these explicit accounts of the meaning of a word or phrase can be offered in distinct contexts and employed in the service of different goals, it's useful to distinguish definitions of several kinds:

A [lexical definition](http://www.philosophypages.com/dy/l5.htm#lexi) simply reports the way in which a term is already used within a language community. The goal here is to inform someone else of the accepted meaning of the term, so the definition is more or less correct depending upon the accuracy with which it captures that usage. In these pages, my definitions of technical terms of logic are lexical because they are intended to inform you about the way in which these terms are actually employed within the discipline of logic

a [stipulative definition](http://www.philosophypages.com/dy/s9.htm#stip) freely assigns meaning to a completely new term, creating a usage that had never previously existed. Since the goal in this case is to propose the adoption of shared use of a novel term, there are no existing standards against which to compare it, and the definition is always correct (though it might fail to win acceptance if it turns out to be inapt or useless). If I now decree that we will henceforth refer to Presidential speeches delivered in French as "glorsherfs," I have made a (probably pointless) stipulative definition.

Combining these two techniques is often an effective way to reduce the [vagueness](http://www.philosophypages.com/dy/v.htm#vag) of a word or phrase. These [precising definitions](http://www.philosophypages.com/dy/p7.htm#prec) begin with the lexical definition of a term but then propose to sharpen it by stipulating more narrow limits on its use. Here, the lexical part must be correct and the stipulative portion should appropriately reduce the troublesome vagueness. If the USPS announces that "proper notification of a change of address" means that an official form containing the relevant information must be received by the local post office no later than four days prior to the effective date of the change, it has offered a (possibly useful) precising definition.

[Theoretical definitions](http://www.philosophypages.com/dy/t.htm#theoretical) are special cases of stipulative or precising definition, distinguished by their attempt to establish the use of this term within the context of a broader intellectual framework. Since the adoption of any theoretical definition commits us to the acceptance of the theory of which it is an integral part, we are rightly cautious in agreeing to it. [Newton's](http://www.philosophypages.com/dy/n.htm#newt) definition of the terms "mass" and "inertia" carried with them a commitment to (at least part of) his theories about the conditions in which physical objects move.

Finally, what some logicians call a [persuasive definition](http://www.philosophypages.com/dy/p2.htm#perv) is an attempt to attach [emotive meaning](http://www.philosophypages.com/lg/e04.htm#mean) to the use of a term. Since th

Intention and extention

An [intensional definition](http://en.wikipedia.org/wiki/Intensional_definition), also called a *coactive* definition, specifies the [necessary and sufficient conditions](http://en.wikipedia.org/wiki/Necessary_and_sufficient_conditions) for a thing being a member of a specific [set](http://en.wikipedia.org/wiki/Set_%28mathematics%29). Any definition that attempts to set out the essence of something, such as that by [genus and differentia](http://en.wikipedia.org/wiki/Genus-differentia_definition), is an intensional definition.

An [*extensional definition*](http://en.wikipedia.org/wiki/Extensional_definition), also called a *denotative* definition, of a concept or term specifies its [*extension*](http://en.wikipedia.org/wiki/Extension_%28semantics%29). It is a list naming every [object](http://en.wikipedia.org/wiki/Object_%28philosophy%29) that is a member of a specific [set](http://en.wikipedia.org/wiki/Set_%28mathematics%29).

So, for example, an intensional definition of '[Prime Minister](http://en.wikipedia.org/wiki/Prime_Minister)' might be *the most senior minister of a cabinet in the executive branch of government in a parliamentary system*. An extensional definition would be a [list of all past, present](http://en.wikipedia.org/wiki/Prime_minister#Lists_of_prime_ministers) *and future* [prime ministers](http://en.wikipedia.org/wiki/Prime_minister).

One important form of the extensional definition is [*ostensive definition*](http://en.wikipedia.org/wiki/Ostensive_definition). This gives the meaning of a term by pointing, in the case of an individual, to the thing itself, or in the case of a class, to examples of the right kind. So you can explain who *Alice* (an individual) is by pointing her out to me; or what a *rabbit* (a class) is by pointing at several and expecting me to 'catch on'. The process of ostensive definition itself was critically appraised by [Ludwig Wittgenstein](http://en.wikipedia.org/wiki/Ludwig_Wittgenstein).[[3]](http://en.wikipedia.org/wiki/Definition#cite_note-2)

An [*enumerative definition*](http://en.wikipedia.org/wiki/Enumerative_definition) of a concept or term is an [*extensional definition*](http://en.wikipedia.org/wiki/Extensional_definition) that gives an explicit and exhaustive listing of all the [objects](http://en.wikipedia.org/wiki/Object_%28philosophy%29) that fall under the concept or term in question. Enumerative definitions are only possible for finite sets and only practical for relatively small sets.[*[citation needed](http://en.wikipedia.org/wiki/Wikipedia%3ACitation_needed%22%20%5Co%20%22Wikipedia%3ACitation%20needed)*]

**[**[**edit**](http://en.wikipedia.org/w/index.php?title=Definition&action=edit&section=2)**] *Divisio* and *partitio***

*Divisio* and *partitio* are [classical](http://en.wikipedia.org/wiki/Classics) terms for definitions. A *partitio* is simply an intensional definition. A *divisio* is not an extensional definition. *Divisio* is an exhaustive list of [subsets](http://en.wikipedia.org/wiki/Subset) of a set, in the sense that every member of the "divided" set is a member of one of the subsets. An extreme form of *divisio* lists all sets whose only member is a member of the "divided" set. The difference between this and an extensional definition is that extensional definitions list *members*, and not sets.[[4]](http://en.wikipedia.org/wiki/Definition#cite_note-3)

Rules for Definitions and By Genus and Difference

Main article: [Genus–differentia definition](http://en.wikipedia.org/wiki/Genus%E2%80%93differentia_definition)

A **genus–differentia definition** is a type of [intensional definition](http://en.wikipedia.org/wiki/Intensional_definition), and it is composed by two parts:

1. **a** [**genus**](http://en.wikipedia.org/wiki/Genus) (or family): An existing definition that serves as a portion of the new definition; all definitions with the same genus are considered members of that genus.
2. **the differentia**: The portion of the new definition that is not provided by the genera.

For example, consider these two definitions:

* *a* [*triangle*](http://en.wikipedia.org/wiki/Triangle): A plane figure that has 3 straight bounding sides.
* *a* [*quadrilateral*](http://en.wikipedia.org/wiki/Quadrilateral): A plane figure that has 4 straight bounding sides.

Those definitions can be expressed as a genus and 2 **differentiae**:

1. *a genus*: A plane figure.
2. *2 differentiae*:
	* *the differentia for a triangle*: that has 3 straight bounding sides.
	* *the differentia for a quadrilateral*: that has 4 straight bounding sides.

When multiple definitions could serve equally well, then all such definitions apply simultaneously. For instance, given the following:

* *a* [*rectangle*](http://en.wikipedia.org/wiki/Rectangle): a quadrilateral that has interior angles which are all right angles.
* *a* [*rhombus*](http://en.wikipedia.org/wiki/Rhombus): a quadrilateral that has bounding sides which all have the same length.

both of these definitions of 'square' are equally acceptable:

* *a square*: a rectangle that is a rhombus.
* *a square*: a rhombus that is a rectangle.

Thus, a 'square' is a member of both the genus 'rectangle' and the genus 'rhombus'. In such a case, it is notationally convenient to consolidate the definitions into one definition that is expressed with multiple genera (and possibly no differentia, as in the following):

* *a square*: a rectangle and a rhombus.

or completely equivalently:

* *a square*: a rhombus and a rectangle.

**Rules for definition by genus and differentia**

Certain rules have traditionally been given for this particular type of definition.[[5]](http://en.wikipedia.org/wiki/Definition#cite_note-4)[[6]](http://en.wikipedia.org/wiki/Definition#cite_note-Joyce.2C_Ch._X-5)[[7]](http://en.wikipedia.org/wiki/Definition#cite_note-6)

1. A definition must set out the essential attributes of the thing defined.
2. Definitions should avoid circularity. To define a horse as 'a member of the species *equus'* would convey no information whatsoever. For this reason, Locking[[*specify*](http://en.wikipedia.org/wiki/Wikipedia%3ACiting_sources)] adds that a definition of a term must not comprise of terms which are synonymous with it. This would be a circular definition, a *circulus in definiendo*. Note, however, that it is acceptable to define two relative terms in respect of each other. Clearly, we cannot define 'antecedent' without using the term 'consequent', nor conversely.
3. The definition must not be too wide or too narrow. It must be applicable to everything to which the defined term applies (i.e. not miss anything out), and to nothing else (i.e. not include any things to which the defined term would not truly apply).
4. The definition must not be obscure. The purpose of a definition is to explain the meaning of a term which may be obscure or difficult, by the use of terms that are commonly understood and whose meaning is clear. The violation of this rule is known by the Latin term *obscurum per obscurius*. However, sometimes scientific and philosophical terms are difficult to define without obscurity. (See the definition of [Free will](http://en.wikipedia.org/wiki/Free_will) in Wikipedia, for instance).
5. A definition should not be negative where it can be positive. We should not define 'wisdom' as the absence of folly, or a healthy thing as whatever is not sick. Sometimes this is unavoidable, however. We cannot define a point except as 'something with no parts', nor blindness except as 'the absence of sight in a creature that is normally sighted'.