

Definitions, Uses and Varieties of

1. Uses

Definition is the activity of explaining to an audience the meaning of an expression. *A definition* is a product of that activity: a sentence the understanding of parts of which (the *definiens*) can underwrite an audience's understanding of the rest (the *definiendum*). For example, understanding 'is the activity of explaining the meaning of an expression' (*definiens*) might enable one to understand a meaning of 'definition' (*definiendum*). Notice that *definition* needn't proceed via *definitions*. Plausibly, the first few explanations of meaning a child is offered don't go via sentences.

Beside the immediate purpose of underwriting explanations of meaning, a definition can serve countless others. One may *stipulate* that an expression is to enjoy a meaning—deploying a *stipulative definition*. E.g., for purposes of this entry, let x be a *definition* iff x is a sentence used to explain meaning. (Here and throughout, initial universal quantification is suppressed and use/mention distinctions ignored.) Less immediate purposes of stipulation include abbreviation—hence, *abbreviative definition*—itself at the service of tractability and comprehensibility. Another purpose is marking out the *definiens* as of special interest, perhaps as carving at an important joint. (Whitehead and Russell, 1910.)

An alternative purpose is to *describe* the meaning an expression carries with respect to some language or population—a *descriptive* or *lexical definition*. Thus: in English, x is a *definition* iff x is a sentence used to explain meaning. Less immediate purposes here include illuminating a less well understood *definiendum* by appeal to a

better understood *definiens*, revealing the basis of one's understanding of the *definiendum*, or establishing dependence of the *definiendum* on the *definiens*. But the basic purpose of descriptive definition—explaining the meaning of the *definiendum*—is independent of the viability of these other purposes. This is good, since it would be surprising if many expressions in use were redundant.

A third purpose is *explication* or *explicative definition*. Here one stipulates with the aim of approximating to the meaning of an ordinary expression. The aim of explication is to balance two requirements: first, the new expression should be fit to do duty for the old, at least for some purposes; second, the new expression should improve upon the ordinary along some valued dimension, perhaps clarity or consistency. (Carnap, 1928, 1947.) Explication is inherently risky, since it is in general impossible to specify in advance the range of important duties an expression is required to perform. The definitions recently presented are suitably vague and ambiguous to meet the former requirement, if not the latter.

Whatever one's purposes, the capacity of a definition to serve them is relative to the *context* (circumstances) in which the definition is offered. In particular, it is relative to the needs of one's audience and to their capacities and informational situation.

Consider the requirement that a definition sustain *eliminability*—crudely, that the definition, together with other elements of the circumstance in which the definition is offered, sustains function preserving (e.g., meaning preserving) replacement of any sentence in which the *definiendum* occurs by a sentence in which it does not. (Though beyond the scope of this entry, an appreciation of formal constraints of this sort is crucial to a proper understanding of definition. See Suppes, 1957: 151-73; Belnap, 1993.) This requirement is imposed because, as Nuel Belnap

puts it, ‘...a definition of a word should explain *all* the meaning that a word has’ (Belnap, 1993: 119). Sometimes the functions that need to be preserved are those imposed within an extensional logical system. A definition will preserve them to the extent that the *definiens* determines the extension of the *definiendum*. But if we try to require complete preservation of function, the eliminability requirement extends globally. Reflection on contexts like (1) suggests the latter requirement not to be satisfiable.

- (1) Some philosophers think that someone can believe that something is a definition while the person fails to believe that the thing can serve to explain meaning. (Mates, 1950)

The role of audience capacities and collateral information is difficult to articulate in detail, but the following will serve. Someone who lacks the capacities needed to understand ‘explain’ will not gain understanding of ‘definition’ from the definition offered above; neither will someone who, as a matter of fact, doesn’t understand ‘explain’. Moreover, it’s plausible that, since true synonymy is rare, dictionary definitions rely heavily on audiences’ knowledge and abilities, often supplying little more than hints from which the intellectually privileged are able to derive understanding of novel meanings.

Mention of contextual features is often suppressed, especially in logic. Suppression is motivated by aims, such as balancing maximal generality against formal tractability. Aiming for generality induces logicians to articulate assumptions and rely only on capacities widely possessed amongst thinkers. Aiming for formal tractability induces restrictions on eliminability. So, logicians typically require

definitions to convey meaning to anyone competent with the logical apparatus and language of her logical theory, without relying on special capacities or features of the circumstances in which the definition is offered. It doesn't follow that definitions offered by logicians are more than comparatively context-free. Neither does it follow that explanations of meaning outside of logic are required to attain a similar level of freedom from context.

2. Varieties

There are as many forms of definition as there are ways of explaining to someone the meaning of an expression. Some of the more common are listed below.

2.1. Comparatively context-free forms of definition

Explicit definition involves assuming an audience to understand the *definiens* in advance, and presenting the *definiendum* as something that can replace the *definiens* for current purposes. So, for example,

(4) A *brother* is a male sibling

Here, an audience is informed that 'brother' can be used wherever 'male sibling' is used. An explicit definition turns this trick by associating with the *definiendum* an expression that can serve in function-preserving replacements for that expression, perhaps through *synonymy* (sameness of meaning) or some weaker equivalence.

An interesting form of quasi-explicit definition is *recursive* or *inductive definition*. (Quasi-explicit since it fails to sustain eliminability.) A recursive process is one that takes its own outputs as inputs, so generating new outputs which can serve as inputs, and so forth. Use of recursive definitions enables us to characterise the meaning—e.g., extension—of expressions when that meaning can, or can only, be generated by a recursive process. For example:

(7) x is a *direct ancestor* of y iff x is a parent of y or x is a parent of a direct ancestor of y

Here, the *definiendum* appears in the *definiens* so that the extension of the *definiens* cannot be determined in advance of partial determination of the extension of the *definiendum*, which in turn cannot be determined in advance of partial determination of the extension of the *definiens*. This is apt to seem viciously circular, but isn't.

Vicious circularity is avoided because the *basis clause*, ' x is a parent of y ', affords a means to start the recursive process independently of grasp of the meaning of ' x is a direct ancestor of y '. The *inductive step*—' x is a parent of a direct ancestor of y '—can then make use of the output of the basis clause to generate a new, and so forth.

Another example is the following definition of natural number:

(8) x is a *natural number* iff x is zero or x is some natural number's successor.

Explicit definition is unhelpful when the framework in which it is given deploys the expression to be defined or when an audience lacks other expressions able to sustain elimination. So, for example, explicit definition appears unsuitable for

initial explanation of the meanings of logical constants. In such cases, one might deploy *implicit* (or *contextual*) *definition*. An implicit definition explains an expression's meaning through appeal to other elements in the definition no combination of which serve, without supplementary explanation, as replacement for the *definiendum*. (It is a theorem of first-order logic—*Beth's Theorem*—that, if an expression is implicitly definable, explicit definition is possible. (Beth, 1953.) But even there appeal to implicit definition may serve distinctive explanatory purposes.) Implicit definition involves stipulating the truth of sentences involving the expression to be defined in a way that fixes the meaning of the *definiendum* as the unique meaning able to sustain the truth of the sentences so stipulated.

One example is Bertrand Russell's account of *definite descriptions*, sentences of the form 'The *F* is *G*' like 'The King of France is bald'. On Russell's account, rather than presenting an explicit definition of 'The' or 'The *F*', one explicitly defines the whole sentence in which these expressions occur, and thereby implicitly defines the expressions themselves, via the following:

(DD) *The F is G* iff $(\exists x) (Fx \ \& \ ((\forall y) Fy \supset x = y) \ \& \ Gy)$

In words, the right hand side reads: there is at least one *F* and every *F* is identical to the first (so there is a unique *F*), and it is *G*. (Russell, 1905.)

A second example involves the use of a definite description to provide a proper name with a reference. The name 'Jack the Ripper' might be provided a reference through stipulation of the following sentence:

(9) Let *Jack the Ripper* name the perpetrator of such-and-such murders

Although (9) can be used to explain the meaning of ‘Jack the Ripper’, it does so without identifying it with the meaning of the descriptive phrase ‘the perpetrator of such-and-such murders’. Proper names—unlike descriptive phrases—are *rigid designators*. Crudely, they refer to the same object in every possible world. So, while ‘the perpetrator of such-and-such murders’ denotes different individuals in different possible worlds—depending on who in those worlds committed the crimes—‘Jack the Ripper’ refers to the same person in each world: whoever committed the crimes in the actual world. It follows that (9) is only *contingently* true (might have been false). But, arguably, since (9) is stipulated, it is knowable *a priori*. (Kripke, 1980; Evans, 1979; Soames, 2003:397-422.) Plausibly, this effect is mediated by the audience’s standing competence with the category of proper name. So this feature of context plays a rôle in mediating the transition from what is presented in a definition to the understanding conveyed.

It is plausible that theoretical terms derive their meanings from their rôles within scientific theories. One development of this thought involves holding that theories serve to implicitly define their terms. The proposal would be that the meanings of theoretical terms are established through holding their theory true. But it’s a commonplace that we may discover that a theory is false. On standard views of implicit definition, if we didn’t hold a theory true, the terms it embeds would be undefined. How, given that truth-value depends on meaning, could a theory essentially involving those terms have been discovered not to be true? The proposal seems incoherent.

A response is available. Rather than stipulating the truth of the theory itself, we might stipulate a *conditional*. That is, we might stipulate that *if* something plays

the theoretical role imposed by the theory, that thing is [insert theoretical term to be defined]. We begin construction by providing the *Ramsey sentence* of the theory, derived by replacing each instance of a theoretical term with a free variable (distinct variables for distinct terms) and then existentially quantifying the result. The Ramsey sentence supplies the antecedent of a conditional definition, with the initial theory— theoretical terms reinstated—as consequent. The conditional definition is known as a *Carnap conditional* or *Carnap sentence*. For a toy example, consider the following theory (ET), with F as a placeholder for the theory of electrons:

(ET) Electrons are F

We begin construction by providing the Ramsey sentence of (ET), thus:

(RET) $(\exists x) xs$ are F

Finally, we construct the Carnap conditional for (ET):

(CET) $(\exists x) (xs \text{ are } F) \supset \text{electrons are } F$ (Russell, 1927; Ramsay, 1931; Carnap, 1928; Lewis, 1970.)

Although this account avoids the initial difficulty, it is controversial. A worry deriving from the role of context in enabling a theoretical definition to establish meaning should be mentioned. While the account enables theoretical terms to retain meaning when their embedding theory is falsified, it fails to allow that theoretical terms might preserve their meanings across *changes* in the theory, say from (ET) to some successor theory (putatively) of electrons. On the canvassed account retention

of a single theoretical term across theory change would be a mere courtesy. That may be the right result. But the role of features of context external to the definition in sustaining meaning supports the possibility of different views, more in keeping with usual epistemic practice. A variety of features of context, including samples, other theories, and general methodological principles, participate in establishing the meanings of theoretical terms. While consideration of a Carnap conditional may facilitate understanding of theoretical terms, it doesn't follow that the meaning of those terms is fully determined by the content of the conditional. (See, e.g., Putnam, 1975b; Suppe, 1977.)

3.2. Comparatively context-dependent definitions

More obviously context-dependent forms of definition involve appeal to examples, and to the classificatory abilities of one's audience.

Ordinary explanations of meaning often employ *ostension*—crudely, pointing. Thus, one may point to Hilary Putnam and utter (10):

(10) *That* is Hilary Putnam

thereby explaining to one's audience the meaning of 'Hilary Putnam'. This is an *ostensive definition*.

An *enumerative definition* serves to explain the meaning of an expression by listing at least some elements in the expression's extension. So, for example, (11):

(11) A *Beatle* is Ringo or John or Paul or George

Often, ostension is used in order to facilitate listing:

(12) *This* (pointing to Ringo) and *that* (pointing to Paul) are *living Beatles*

Often, enumerative definitions give only partial lists, and include an explicit or implicit ‘and so forth’ clause. Thus,

(13) *A philosopher* is Hilary Putnam, or W. V. Quine, or Rudolf Carnap, or other things relevantly like those

In (13), since there are indefinitely many ways of continuing the list, we rely on our audience’s capacities, in particular the kinds of similarities they find salient.

Sometimes, in order to reduce reliance, we give additional information concerning the similarities we expect our audience to track, thus:

(14) *A philosopher* is Hilary Putnam, or W. V. Quine, or Rudolf Carnap, or other things similar to those with respect to academic expertise

An important range of cases involves ostensive enumeration and direction. So, for example,

(15) A sample is *water* iff it is the same liquid as that (pointing to a sample)

According to (15), whether a novel sample counts as water depends on the general requirements on sameness of liquid and on the nature of the original sample. As Hilary Putnam argues, both ‘...may take an indeterminate amount of scientific investigation to determine’ (Putnam, 1975c: 225). So, if (15) models the proper explanation of the meaning of ‘water’, the facts so explained may depend on currently unknown facts. Arguably, something close is true of definitions of many ordinary expressions, especially those that employ examples. In such cases, development of definitions that are less reliant on context for their functioning than ordinary definitions may be developed, but only through investigating the context of the initial definition.

3. Uses again

The utility of definition depends in part on how widely it is applicable. There are grounds for pessimism. One negative argument is that, in order for a definition to secure uptake, the *definiens* must be understood. Hence, some basic range of expressions must be understood in advance of any definition and will therefore be indefinable. If some expressions can be so understood, it becomes pressing to warrant the claim that others cannot. Another negative line is that the role of context in the explanation of meaning establishes that exposure to definitions is, in general, not necessary or sufficient to secure audience understanding. Exposure to definitions is insufficient, not only because of the role of context in enabling an audience to utilise a definition to fix on a meaning, but also because elements in the context can play a role in fixing a meaning incompatible with the explicit dictates of the definition. Crudely, the role of context makes definitions only defeasible guides to meaning.

Plausibly, the use of examples above in explaining the varieties of definition makes possible the development—or defeat—of the proffered general characterisations of that variety. Exposure to definitions is unnecessary for a closely related reason: just as contextual elements can defeat definitions, so they can enable understanding in the absence of definitions.

From the current perspective, these points do not apply to the activity of definition. Since we acquire knowledge of the meanings of many (if not all) of our expressions on the basis of other's explanations, many expressions with which we are competent are thereby definable. Moreover, the points seem inapplicable to definitions as understood here. At most, they support the claim that meaning can fail to *supervene* on information acquired just through understanding the *definiens*. (Supervenience of a set of properties *Q* on a set of properties *P* requires that no two possible worlds (or portions of a possible world) can differ in the distribution of *Q*-properties without differing in the distribution of *P*-properties.) But failure of meaning to supervene on the information carried by definitions is perfectly compatible with that information playing a role in sustaining knowledge of meaning. So the two lines of argument canvassed above indicate—at most—that not every ordinary definition will exhibit the degree of freedom from context shown by definitions in logic. The importance of this (potential) result derives from the extent to which philosophers have aimed to offer definitions of key terms—e.g., knowledge, causation, or truth—in a (comparatively) context-free way. One of the major themes of late twentieth century Philosophy has been that the aim is inappropriate. (Burge, 1993; Putnam, 1975a, 1975b, 1975c. Closely related issues arise from Quine's influential critique of the view that definitions have distinctive epistemic status, 1936, 1951, 1963.)

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