

Critical thinking

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Definition 1. *Retrograde analysis: Reasoning that seeks to explain how things must have developed from things that have happened before.*

o.1 Definitions

Definition 2. *Definiendum: The word or symbol being defined*

Definition 3. *Definiens: A symbol or group of symbols that have the same definition as the Definiendum*

Definition 4. *Ambiguity: A term is ambiguous **in a given context** when it has more than one distinct meaning, and the context does not make clear what is intended.*

Definition 5. *Vagueness: A term is vague, when there are borderline cases where the term may or may not apply.*

- **Stipulative definition:** A new definition where some meaning is arbitrarily defined. Such a definition cannot be correct or incorrect. Eg. Zetta has been stipulatively defined to mean 10^{12} .
- **Lexical definition:** Reports the meaning that the Definiendum already has. The report maybe correct or incorrect, so such a definition maybe true or false.
- **Precising definition:** A definition used to eliminate vagueness or ambiguity.
It reports on a word that already exists, but it makes the known meaning more precise. It could increase the precision by stipulating, but the purpose of this stipulation is to *improve a pre-existing* meaning.
- **Theoretical definition:** A definition that encapsulates an understanding of the theory in which the term is a key element.
- **Persuasive definition:** A definition used to resolve disputes by influencing attitudes and stirring emotion. Often uses emotive language.

0.2 Intention and extension

Definition 6. *Extension: The set of all objects to which a term may be applied.*

$$\text{extention}(\mathbf{P}) \equiv \{x \mid \forall x \in \text{universe}, \mathbf{P}(x)\}$$

Definition 7. *Intension: The attributes shared by all and only the objects in the class the term denotes. Or, the connotation of the term.*

$$\text{intension}(\mathbf{P}) \equiv \bigcap_{\forall x \in \text{extension}(\mathbf{P})} \text{attrs}(x)$$