Goedelian sentence[1]

1. An expression in a language and the name[2] of that expression

   For example, if Charles is a man, 'Charles' will be his name.

2. A statement and a statement-form

   - A statement-form is an expression containing variables such as 'X', 'Y', etc., which gives rise to statements when expressions with a constant meaning are substituted for those variables.

   - 'X is long' is a statement-form: it will give rise to a statement if the constant symbol 'Art' is substituted for the variable 'X'.

3. A complete and an incomplete description

   - An incomplete description is a form of words involving variables which give rise to a description if expressions with a constant meaning are substituted for those variables.

   - 'The man who married X' is an incomplete description of a certain person, which gives rise to a complete description if 'Xanthippe' is substituted for 'X'.

4. Goedelian sentence called G:

   We cannot prove the statement which is arrived at by substituting for the variable in the statement-form 'We cannot prove the statement which is arrived at by substituting for the variable in the statement-form Y the name of the statement-form in question' the name of the statement-form in question

   Now G says that

   (a) a certain statement cannot be proved, and

   (b) it describes that statement by saying of it that it is the statement arrived at by replacing the variable in a certain statement-form, which is quoted in full, by the name of this statement-form.

   To figure out what statement is said by G to be indemonstrable

   (a) replace 'Y', the variable in the statement-form quoted in G, by that same statement-form enclosed in quotation marks

   The statement arrived at by carrying out the operation prescribed by G is simply G itself!

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[1]from Goedelian sentences: A non-numerical approach, J.N.Findlay, Mind Vol 51, 1942
[2]Each expression has a unique name.