

HOW TO PROVE IT*

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proof by example:

The author gives only the case $n = 2$ and suggests that it contains most of the ideas of the general proof.

proof by intimidation:

'Trivial.'

proof by vigorous handwaving:

Works well in a classroom or seminar setting.

proof by cumbersome notation:

Best done with access to at least four alphabets and special symbols.

proof by exhaustion:

An issue or two of a journal devoted to your proof is useful.

proof by omission:

'The reader may easily supply the details.'

'The other 253 cases are analogous.'

'...'

proof by obfuscation:

A long plotless sequence of true and/or meaningless syntactically related statements.

proof by wishful citation:

The author cites the negation, converse, or generalization of a theorem from the literature to support his claims.

proof by funding:

How could three different government agencies be wrong?

proof by eminent authority:

'I saw Karp in the elevator and he said it was probably NP-complete.'

proof by personal communication:

'Eight-dimensional colored cycle stripping is NP-complete [Karp, personal communication].'

*with apologies to G. Polya and contributions from the Yale Computer Science Department.

proof by reduction to the wrong problem:

'To see that infinite-dimensional colored cycle stripping is decidable, we reduce it to the halting problem.'

proof by reference to inaccessible literature:

The author cites a simple corollary of a theorem to be found in a privately circulated memoir of the Slovenian Philological Society, 1883.

proof by importance:

A large body of useful consequences all follow from the proposition in question.

proof by accumulated evidence:

Long and diligent search has not revealed a counterexample.

proof by cosmology:

The negation of the proposition is unimaginable or meaningless. Popular for proofs of the existence of God.

proof by mutual reference:

In reference A, Theorem 5 is said to follow from Theorem 3 in reference B, which is shown to follow from Corollary 6.2 in reference C, which is an easy consequence of Theorem 5 in reference A.

proof by metaproof:

A method is given to construct the desired proof. The correctness of the method is proved by any of these techniques.

proof by picture

A more convincing form of proof by example. Combines well with proof by omission.

proof by vehement assertion:

It is useful to have some kind of authority relation to the audience.

proof by ghost reference:

Nothing even remotely resembling the cited theorem appears in the reference given.

proof by forward reference:

Reference is usually to a forthcoming paper of the author, which is often not as forthcoming as at first.

proof by semantic shift:

Some standard but inconvenient definitions are changed for the statement of the result.

proof by appeal to intuition:

Cloud-shaped drawings frequently help here.