

# The Barber Paradox

Naproche formalization:

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The *Barber Paradox* is a puzzle illustrating Russell's Paradox, formulated by Bertrand Russell in 1919 [Russell1919]:

You can define the barber as “one who shaves all those, and those only, who do not shave themselves”. The question is, does the barber shave himself?

In Naproche we can formalize this paradox as follows.

**Signature.** The barber is a man such that for any man  $M$  the barber shaves  $M$  iff  $M$  does not shave himself.

**Theorem (Barber Paradox).** The barber shaves himself iff the barber does not shave himself.

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