

GORDON MONRO THE NECESSARY AND THE POSSIBLE: A LOGICAL FOUND OBJECT

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The Necessary and the Possible: A Logical Found Object

This work displays the fourteen possibilities for ways of being true or false ("modalities") that occur in the logical system known as the modal logic S4.

Here, p stands for some proposition that could be true or could be false, for example: "Homo sapiens will eventually split into at least two different species".

In the diagrams the possible worlds radiate out to infinity.

p	p is true in this world.
$\sim p$	p is false in this world (but may be true in other possible worlds).
$\Box p$	p is necessarily true: p is true in every possible world.
$\square \sim p$	p is necessarily false: p is false in every possible world.
$\Diamond p$	p is possibly true: p is true in some possible world.
$\Diamond \sim p$	p is possibly false: p is false in some possible world.
$\Box\Diamond p$	it is necessary that p is possibly true: for every possible world there is anothe world reachable from that world such that p is true in this other world.
$\Box \Diamond \sim p$	it is necessary that p is possibly false: for every possible world there is anothe world reachable from that world such that p is false in this other world.
$\Diamond\Box p$	it is possible that p is necessarily true: there is a possible world such that p is true in every world reachable from that world.
$\Diamond \Box \sim p$	it is possible that p is necessarily false: there is a possible world such that p is false in every world reachable from that world.
$\Box\Diamond\Box p$	it is necessary that it is possible that p is necessarily true: for every possible world there is a possible world reachable from that world such that for every world reachable from that world, p is true.
$\Box\Diamond\Box\sim p$	it is necessary that it is possible that p is necessarily false: for every possible world there is a possible world reachable from that world such that for every world reachable from that world, p is false.
\$□\$p	it is possible that it is necessary that p is possibly true: there is a possible world such that for every possible world reachable from that world, there is a world reachable from that world in which p is true.
\$□\$~p	it is possible that it is necessary that p is possibly false: there is a possible world such that for every possible world reachable from that world, there is a world reachable from that world in which p is false.



























