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0.1 Compact spaces

A space X is compact if each open cover has a finite subcover.

If we can define a cover which does not have a finite subcover, then the space is not compact.

For example an infinite cover could be tend towards $(0, 1)$, eg as $\frac{1}{n}, 1 - \frac{1}{n}$

This covers $(0, 1)$, but there is no finite subcover. As a result $(0, 1)$ is not compact.