

## 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.