

Let \mathcal{T} and \mathcal{T}' be two topologies on X . If $\mathcal{T}' \supset \mathcal{T}$ what does connectedness in one topology imply about connectedness in the other?

if X has a separation in \mathcal{T} it also has one in \mathcal{T}' , i.e. X is not connected in $\mathcal{T} \rightarrow X$ is not connected in \mathcal{T}' .

[X does not have a separation in \mathcal{T}' then it does not in \mathcal{T} so connected in $\mathcal{T}' \rightarrow$ connected in \mathcal{T} .

We could have that X has a separation in \mathcal{T}' but not in \mathcal{T} .