



l_1, l_2 are two "points" of \mathbb{RP}^2

but if we consider $l_1 \cup l_2$ as a subset of \mathbb{R}^3 it is not open!

So taking all unions of l_1, l_2, \dots (points in \mathbb{RP}^2) as open does not lead to open sets in \mathbb{R}^3 ???
or $\mathbb{R}^3 - \{0\}$. (I cannot see, by the way, why 0 is a special problem)