

UPDATED GENERAL INFORMATION — JANUARY 13, 2014

Topics in point set topology

Since there will be no class meeting on Friday, January 17, there will be reading assignment instead, and it will cover some topics in point set topology that were only touched upon very briefly last quarter. This assignment is to read Sections VI.1, VI.3, and the material under the subheading *General metrization theorems* on pages 113 – 115 of `gentop-notes.pdf` in the course directory (but there is no need to follow up on the references for proofs of the theorems stated in the final piece of the readings).

Attempting some exercises on this material is also recommended. The highest priority should be the exercises listed for Section VI.1 in `gentop-problems.pdf`; solutions are given in the file `gentop-solutions.pdf`.

Finally, here is one example to contemplate in connection with Section VI.1. It is not difficult to see that the open unit disk in the plane is not the union of finitely many rectangular open subsets of the form $U \times V$ where U and V are open in the real line; see the file

<http://math.ucr.edu/~res/math145A-2014/intro2topA-10.pdf>

for more on this. On the other hand, if for each point (u, v) such that $u, v > 0$ and $u^2 + v^2 = 1$ the open set $W(u, v)$ is given by $(-u, u) \times (-v, v)$, then one can prove that the open unit disk is a union of countably many such open subsets. Although the drawing in the cited file may suggest otherwise, you should be able to prove that this open disk is given by a countable union of such rectangular open subsets.