Hand in exercise 1
(February 16, to be handed in on March 2nd, at the start of the lecture)

EXERCISE 0.1. Show that $\mathbb{P}^2$ can be obtained by starting from a Moebius band and a disk and gluing them along the boundary circle. For the gluings you make, describe the equivalence relation and the abstract quotient (in the sense of Definition 1.3) underlying your picture (hence, whenever you say that "this picture is the result of the gluing" show that it does agree with the abstract definition of quotient).