

Homework 5, QFT, 276, Fall 2007

1. Let X_i be two Hausdorff spaces and $j_i : U \hookrightarrow X_i$ open embeddings such that

$$j_1 \times j_2 : U \rightarrow X_1 \times X_2$$

is proper. Show that the pushout $X := X_1 \cup_U X_2$ is Hausdorff.

2. Consider an object Y in the bordism category RB_d (defined without using germs). Let $Y_0 \subset Y$ be an open subset such that the inclusion map induces a homeomorphism on the permanent boundary. Show that Y_0 and Y are isomorphic objects in RB_d .

Conclude that the two versions of RB_d given in class, one with and one without using germs, are equivalent categories.

PLEASE RETURN IN CLASS ON TUESDAY, NOV. 20.