Mathematical Semantics of Computer Systems, *MSCS* (4810-1168)
Handout for Lecture 5 (2014/11/17)

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We continue using the handout from the last lecture.

Report Assignments

Deadline: at the beginning of the next lecture.

1. Let (E, e) be an equalizer in the situation $E \xrightarrow{e} X \underset{g}{\overset{f}{\rightrightarrows}} Y$. Prove that the arrow e is necessarily a mono.
2. Let $X \times Y$ denote a product of X and Y; and 1 be a terminal object. Prove that there exist the following canonical isomorphisms.
   (a) $(X \times Y) \times Z \cong X \times (Y \times Z)$
   (b) $1 \times X \cong X$
3. Let $D \colon \mathbb{I} \to \mathbb{C}$ be a diagram. Prove that a limit of D is unique up-to a canonical isomorphism.