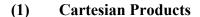
Ling 510: Lab 2 Practice Ordered Pairs, Relations, and Functions Sept. 16, 2013

For all of the following exercises, assume that $A = \{Lucy, Nick, Emma\}$ and $B = \{Linguistics, Philosophy\}.$



Specify the following sets by listing their members.

- a. $A \times B$
- b. $B \times A$
- $c. A \times A$
- $d. B \times B$

Relations and Functions

- Which of the following sets are relations from A to B? Which are functions from A to B? If they are functions, are they total or partial?
 - a. { <Lucy, Linguistics> }
 - b. {Lucy, Linguistics}
 - c. { <Linguistics, Lucy> }
 - d. { <Lucy, Linguistics>, <Nick, Philosophy> }
 - e. { <Lucy, Philosophy>, <Emma, Philosophy>, <Nick, Philosophy> }
 - f. { <Lucy, Linguistics>, <Lucy, Philosophy>, <Nick, Linguistics> }

- (3) By listing its members, specify 1 further relation from A to B that is not a function from A to B.
- (4) By listing its members, specify 1 further relation from A to B that *is* a function from A to B.
- (5) For the following functions, tell me if they are partial, total, one-to-one, and/or functions *onto* the range.

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a. F = { <Lucy, Linguistics>, <Nick, Linguistics>, <Emma, Philosophy>}
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b. G = { <Lucy, Philosophy>, <Nick, Linguistics>}