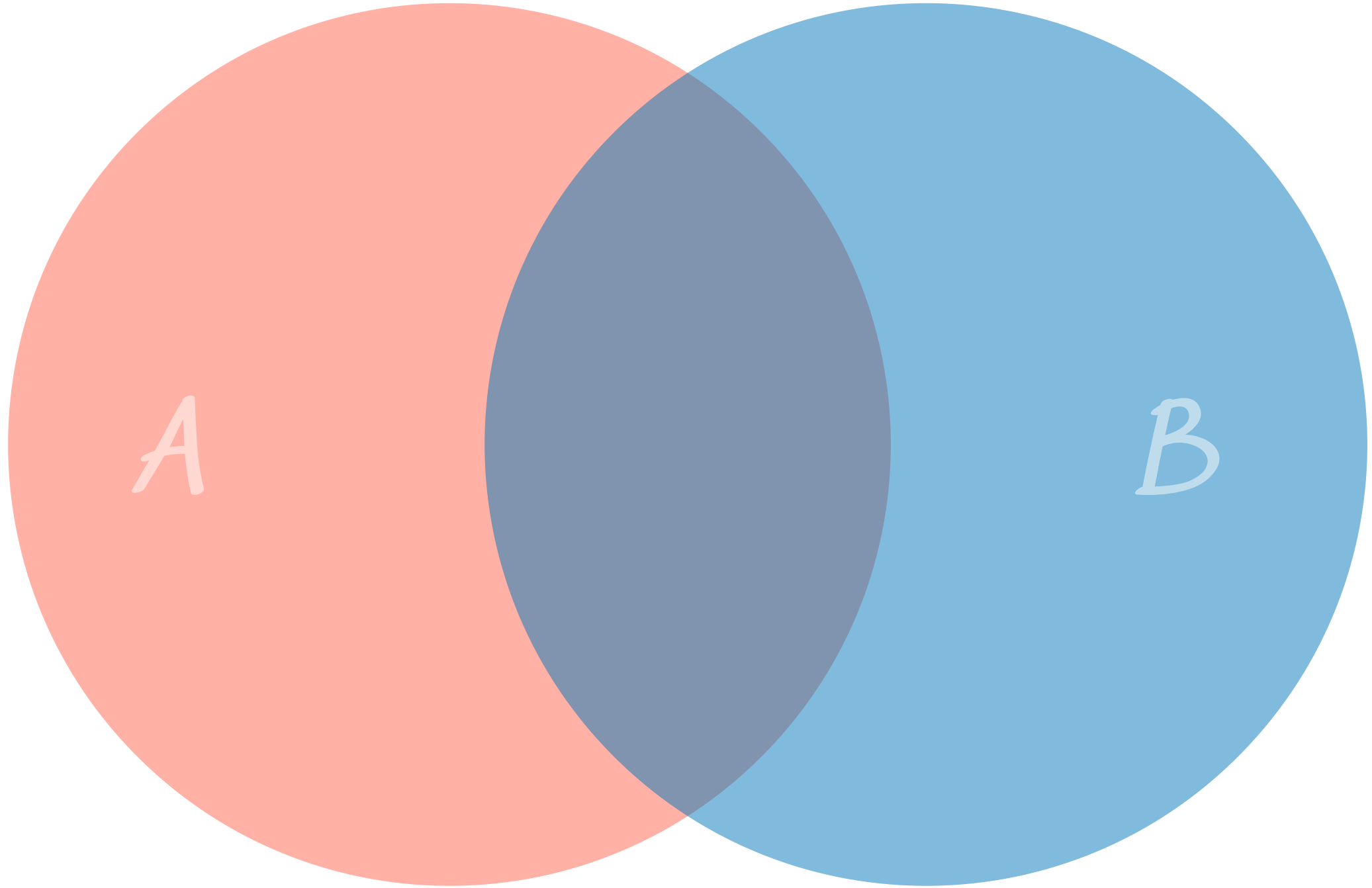




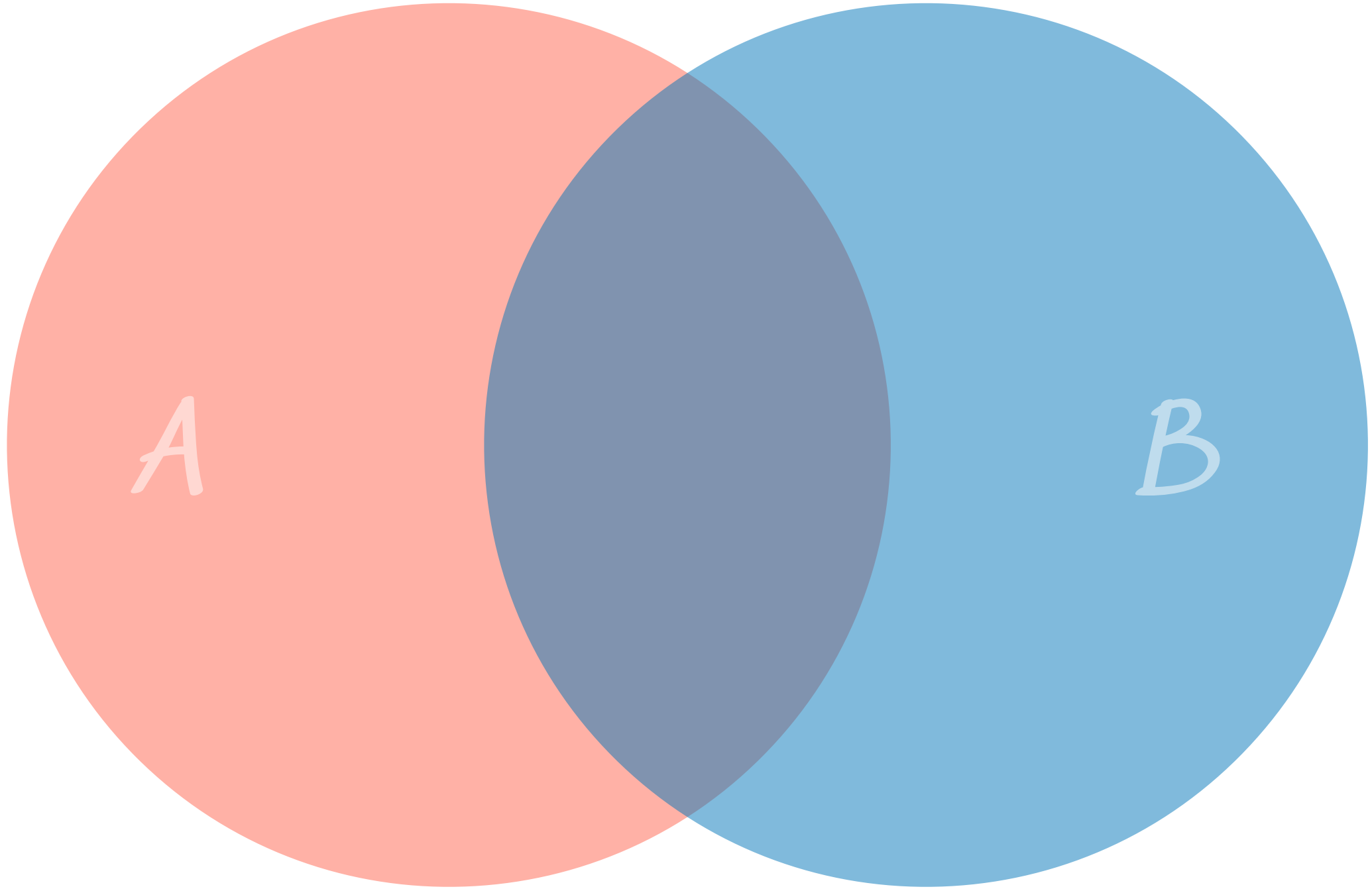
set apart with ven diagrams





A Venn diagram consisting of two overlapping circles. The entire area covered by both circles is filled with a solid red color. The text  $A \cup B$  is written in white, italicized font within the left circle.

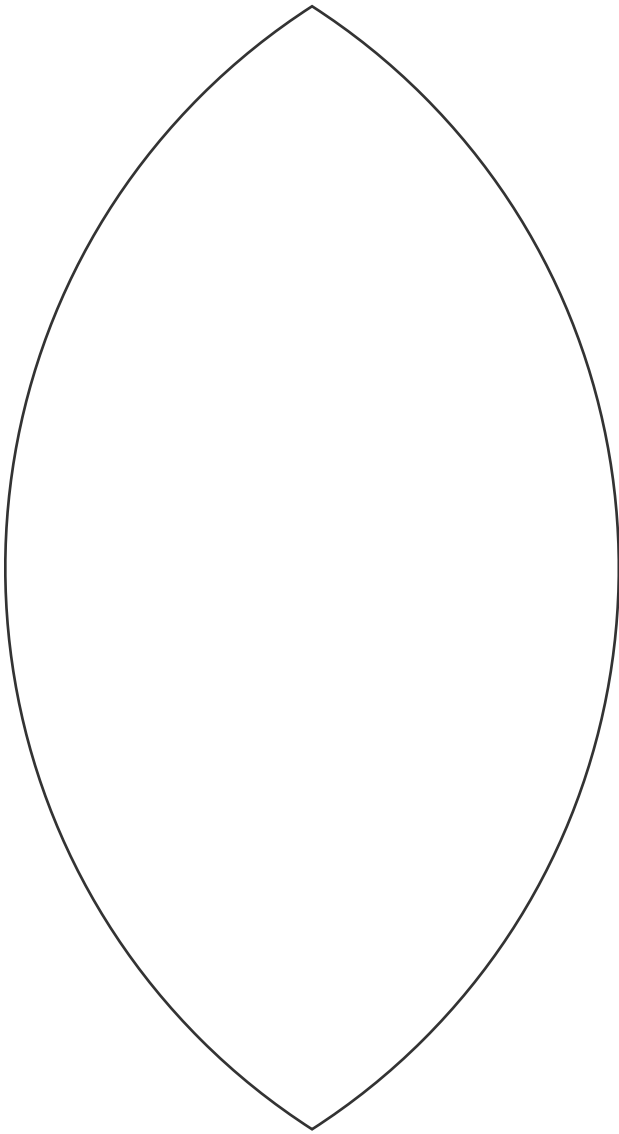
$A \cup B$





$A \cap B$







# set operators with Venn diagrams



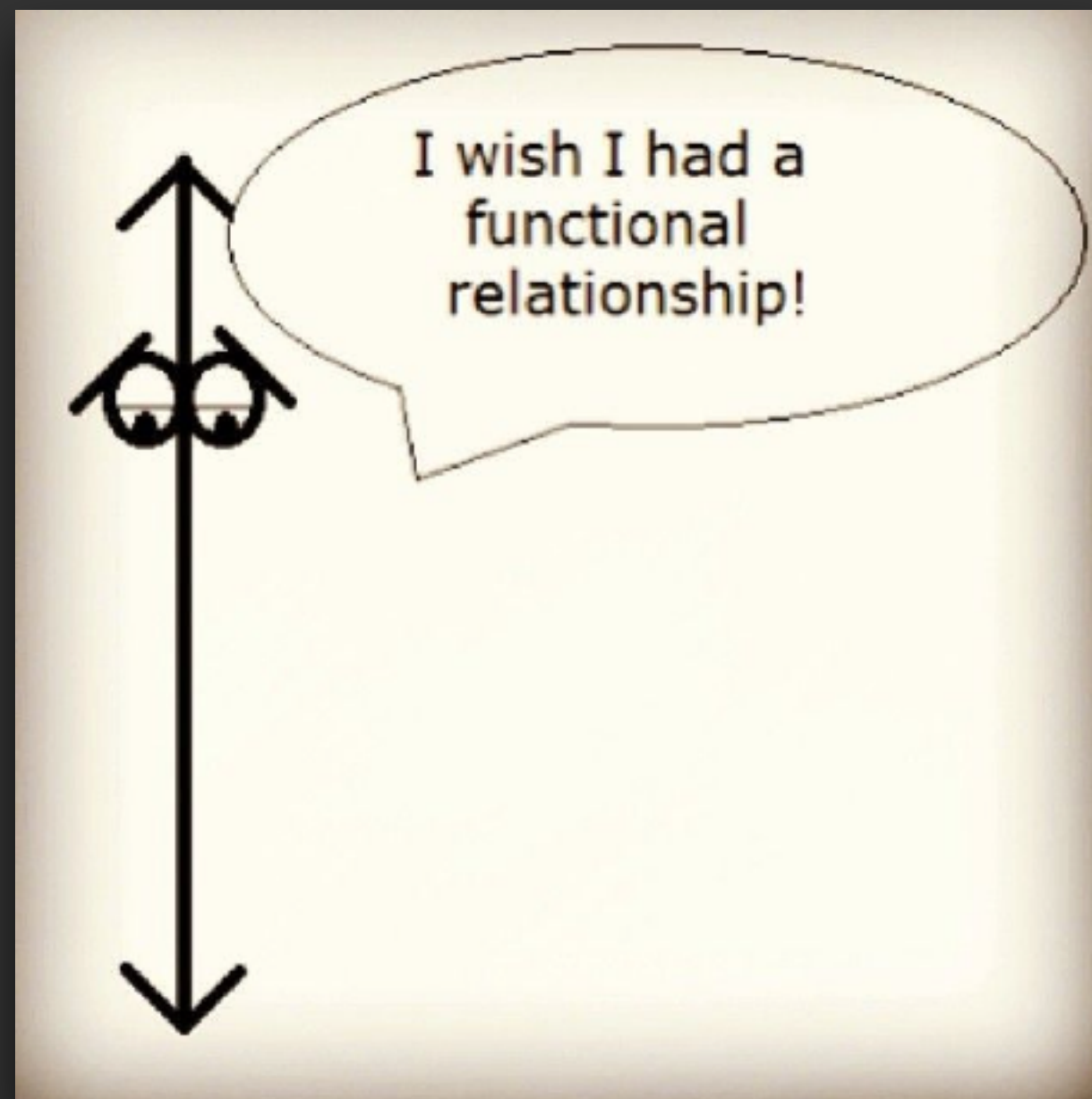
cardinality of the set union

$$|A \cup B| = |A| + |B| - |A \cap B|$$

# relations and functions

used to compare concepts and uncover relationships between them

- a relation is a relationship between sets of information
- a function is a well-behaved relation



*more on this in lecture 3...*