

Review

The document <http://jamespropp.org/2190/words.pdf> (“Some words about words”) contains information about math-language that I find it helpful to tell my Discrete Structures I students at the start of the semester. You might want to review that material at the start of the term.

If later in the semester you trip across any examples of misleading or obscure math-language that the book doesn’t explain well, and you wish that this document had discussed them, let me know, and I’ll include them in future versions of this document.

Here is some information from Discrete Structures I that you might want to be reminded about. If later in the term you find that there are gaps in your recollection that you wish this document had filled, please let me know.

1. Functions

Other words for functions are *map* and *mapping*. When f is a function (which we also call a mapping or a map) from a set A to a set B , with a in A and b in B satisfying $f(a) = b$, we often say that f “sends” a to b , or “carries” a to b , or “maps” a to b .

2. Kinds of functions

Suppose f is a function from the set A to the set B .

If for every b in B there is *at least one* a in A such that $f(a) = b$, we say f is onto, or surjective.

If for every b in B there is *at most one* a in A such that $f(a) = b$, we say f is one-to-one, or injective.

A function that is both surjective and injective is bijective.

3. Propositions and sets

A major theme of Discrete Structures I is the correspondence between set theory and propositional logic. Under the correspondence between propositions on a universe and subsets of that universe, minterms correspond to minsets.

4. Partitions

The concept of partitions (from section 2.3) plays a role in many places in Discrete II, including the discussion of connected components in Chapter 9.

5. Posets

The concept of partially ordered sets (from section 6.3) gets revisited in a big way in Discrete II when we study lattices and Boolean algebras in chapter 13.