"Connect the Logic Arrows!" Revisions

Sunday, October 18th, 2009, Math Circle Group A

$A \longrightarrow B$ means "anything that is A is also B," and $A \overset{s}{\longrightarrow} B$ means "some things that are A are also B, but not all."

1. Some math students like word problems. Carey is a not a math student.

   (a) How would you draw the logic arrows? Let "MS" mean math student, "WP" mean like word problems, and "C" mean Carey.
   (b) Can you connect the arrows? Does Carey like word problems?

2. Some algebra students like cookies. Some people who like cookies like chocolate chip cookies.

   (a) How would you draw the logic arrows? Let "AS" mean algebra student, "LC" mean the person likes cookies, and "LCCC" mean the person likes chocolate chip cookies.
   (b) Can you connect the arrows? Do all algebra students like chocolate chip cookies? Do some algebra students like chocolate chip cookies?

3. Some aliens from planet Blork have two antennas. If an alien has three antennas, it has good hearing. Some aliens from planet Blork have good vision.

   (a) How would you draw the logic arrows? Let "APB" mean aliens from planet Blork, "H3A" mean have three antennas, "GH" mean good hearing, and "GV" mean good vision.
   (b) Can you connect the arrows? What is true of some aliens from planet Blork?

4. Some children are cuckoo for Cocoa Puffs. Some children like Lucky Charms. If a child likes Lucky Charms, the child does not like Cocoa Puffs. If a child is cuckoo for Cocoa Puffs, the child does not like Lucky Charms.

   (a) How would you draw the logic arrows?
   (b) Are there children who like both Cocoa Puffs and Lucky Charms?

5. All red things are blue things. Some red things are yellow things. If something is green, then it is both blue and yellow.

   (a) How would you draw the logic arrows?
   (b) Are some green things red?