7.3.s. Summary

7.3.1. The quantifier phrases *not every* and *not only* can be taken to mark negations of generalizations stated with *every* and *only*; they therefore cite the existence of counterexamples. Similarly, though less naturally, words like *some* and *a* can be taken to mark the negations of generalizations stated with *no* (although *a* may sometimes be used to the same effect as *every*).

7.3.2. Although some sentences containing both quantifier phrases and words marking connectives cannot be analyzed as truth-functional compounds, many can. It is clear how to do this when the sign for a connective is used to combine separate generalizations, but the analysis may be more problematic in other cases. For example, *every* X *and* Y can be understood to indicate a conjunction of generalizations but so does *no* X *or* Y. A claim of either sort can be analyzed as a single generalization, but its restricting predicate must use disjunction (i.e., it amounts to the quantifier phrase *everything that is* X *or* Y). This recalls, and can be traced to, the properties of conjoined conditionals with a common consequent. Something similar happens when *or* appears in the quantified predicate of a negative generalization.

7.3.3. In sentences where *any* and *every* are alternatives that convey different meanings, the use of *any* can be understood to indicate a generalization whose scope is wider than some other operation, and the use of *every* will indicate a generalization whose scope is narrower than that same operation.

7.3.x. Exercise questions

1. Analyze the following in as much detail as possible:

a. *Not everyone was enthusiastic but no one was disappointed*.

b. *Any defective unit will be repaired or replaced*.

c. *The bill will pass quickly if every member of the committee supports it*.

d. *Nothing suited both Ann and Bill*.

e. *Tom didn't sign up anyone; however, he didn't contact everyone*.

f. *If a bill arrives, it will be forwarded to you*.

g. *If the prize isn't won by anyone, it will be added to the next drawing*.

h. *Ralph looked in every closet and cabinet*.

i. *The alarm will sound if anyone who doesn't have the combination tries to open the door*.

2. Synthesize idiomatic English sentences that express the propositions that are associated with the logical forms below by the intensional interpretations that follow them. In some cases, you will have a choice between carrying connectives into the final English sentence and capturing them by the type of generalization you use. Do the former when possible, but answers of both sorts will be given.

a. ¬ (∀x: Lx) Gx
[G: λx (x *is gold*); L: λx (x *glitters*)]

b. (∀x: Dx ∧ Nxc) Bx ∧ (∀x: Dx ∧ Nxc) Wx
[B: λx (x *barked*); D: λx (x *is a dog*); N: λxy (x *was in* y); W: λx (x *wagged* x *'s tail*); c: *the cage*]

c. ∀x ¬ Ltxt
[L: λxyz (x *let* y *stop* z); t: *Tom*]

d. (∀x: Px ∧ ¬ Rx) ¬ Fx
[F: λx (x *is finished*); P: λx (x *is a federal project*); R: λx (x *is a road*)]

e. ∀x (Oxr → Gx)
[G: λx (x *is gone for good*); O: λxy (x *was left on* y); r: *the roof*]

f. (∀x: Px ∧ Mtx) (Ktx ∨ Kxt)
[K: λxy (x *knew* y); M: λxy (x *met* y); P: λx (x *is a person*); t: *Tom*]

Homework assigned Fri 11/4 and due Mon 11/7

(i) Analyze and restate the result using unrestricted quantifiers:

Ken looked in every nook and cranny, but he didn't find any coins

(ii) Synthesize an English sentence that has the following analysis:

(∀x: Pxn) (Mx → ¬ Fn)

[F: λx (x *functioned properly*); M: λx (x *was missing*); P: λxy (x *is a part of* y); n: *the unit*].