8.2.s. Summary

8.2.1. English sentences that involve both generalization and claims of exemplification are often ambiguous, and the differences between interpretations can be expressed in analyses of them by the relative scope of universal and existential quantifiers. We will refer to a sentence that mixes generalization and with a claim of exemplification as a claim of general exemplification. One in which the existential has wider scope than the universal can be thought of as a claim of uniformly general exemplification because it asserts that a single example can be given that suffices for all instances of the generalization.

8.2.2. When more than two quantifier phrases are present, an existential may be classified as making or not making a claim of uniformity with respect to each universal, giving rise to a variety of uniformity claims that a sentence may be understood to make. The issue of quantifier scope can thus be addressed by asking, for each of the dimensions of generality with which a claim of exemplification is asserted, whether the exemplification is claimed to uniform in that dimension; this settles the relative scope of each existential with respect to each universal, and the relative scope of contiguous universals and contiguous existentials does not matter.

8.2.3. The ambiguity in sentences involving both existentials and universals is hard to eliminate, but syntax and word choice can help. The first quantifier phrase is usually understood to have widest scope, and a quantifier phrase in a relative clause usually has its scope limited to that clause (a fact that makes the *there-is* form useful). The choice of quantifier words can counteract the effect of word order to some extent, and the use of the special quantifier phrases *a certain* X and *some* X *or other* will strongly tend, respectively, to advance or to renounce a claim of uniformity.

8.2.x. Exercise questions

1. Analyze the following in as much detail as possible. Since it is difficult to completely avoid ambiguity in English sentences that both generalize and make existential claims, alternative non-equivalent analyses are possible in some cases. You should choose an analysis that captures the most likely interpretation (or one of the most likely ones). The answers will represent my own judgment about this.

- **a.** *Everyone has seen a bear*.
- **b.** *Everyone was talking about a certain movie*.
- **c.** *A capital was chosen by each state*.
- **d.** *There is a capital that was chosen by each state*.
- **e.** *Someone who no reporter knew leaked the information*.
- **f.** *A head of a horse is the head of a mammal*.
- **g.** *Everyone who has seen a rainbow has seen a rainstorm*.
- **h.** *Every child was given a toy by each Santa*.
- **i.** *There is a toy that was given to every child by each Santa*.

2. Synthesize idiomatic English sentences that express the propositions associated with the logical forms below by the intensional interpretations that are provided for each group.

a.	∀x ∃y Dxy	[D: λxy (x *depends on* y)]
b.	∃x ∀y Dxy	
c.	∀x ∃y Dyx	
d.	∃x ∀y Dyx	
e.	(∀x: Px ∧ Hx) (∃y: Py) Axy	[A: λxy (x *admires* y);
f.	(∃y: Py) (∀x: Px ∧ Hx) Axy	H: λx (x *is humble*); P: λx
g.	¬ (∀x: Px ∧ (∃y: Py) Axy) Hx	(x *is a person*)]
h.	¬ (∃x: Px) (∀y: Py ∧ Syx) Sxy	[P: λx (x *is a person*); S: λxy (x *has seen* y)]
i.	¬ (∃x: Px ∧ (∀y: ¬ (Py ∧ Syx)) ¬ Sxy) Ex	[E: λx (x *is an extrovert*); P: λx (x *is a person*); S: λxy (x *has spoken to* y)]

Homework assigned Wed 11/30 and due Fri 12/2

Analyze the following in two non-equivalent ways and describe a counterexample to their equivalence (i.e., describe a possible world in which the two analyses of the sen-tence have different truth values):

Someone called each client