**7.8.s. Summary**

7.8.1. Our system is not decisive in part because we always look to new parameters as possible counterexamples to a generalization and assume that terms are not co-aliases unless our resources tell us otherwise. But, while we must consider new terms as possible counterexamples and we must allow for the possibility that terms not made co-aliases refer to different things, we may also consider alternatives that point toward smaller structures. The rules
Supplemented Universal Generalization (UG+)
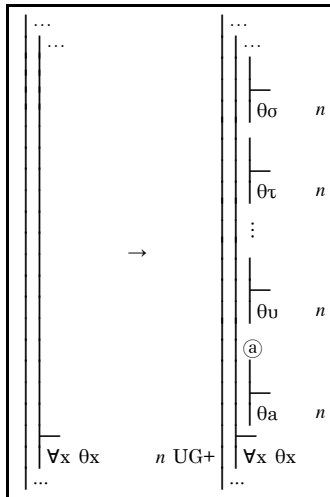
and Supplemented Restricted Universal Generalization (RUG+) leads us to consider instances for old terms (σ, τ, ..., υ in the diagram) as well as new terms when planning for a generalization.And we can secure a new compound term μ as a co-alias of a unanalyzed term by using the rule Securing a Term (ST) .

7.8.2. Even with these rules, we cannot always reach dead-end gaps when derivations fail because dead-end gaps describe finite structures, and invalid arguments are not always divided by finite structures. There are some sets of sentences whose members can be made all true only with an infinite range of reference values. One example consists of sentences saying that a predicate R expresses a relation that is irreflexive and transitive and is such that each reference value stands in this relation to some reference value. No system like ours could drive a gap to a dead end in such cases and, while a very different system might do better in some of them, it has been shown that no system could do so in all such cases.

7.8.x. Exercise questions

Use the system of derivations to find structures dividing premises from conclusions in the cases below. You will need to use the rule UG+.

1. ∀x ¬ ∀y ¬ Rxy / ∀x ¬ Rxx
2. ∀x ¬ ∀y Rxy / ¬ ∀x Rxa
3. ∀x ¬ ∀y Rxy / ∀x ¬ Rax

Topics for test 4

The following are the topics to be covered. The proportion of the test covering each will approximate the proportion of the classes so far that have been devoted to that topic. Your homework and the collection of old tests will provide specific examples of the kinds of questions I might ask.

- *Analysis.* Be ready to handle any of the key issues discussed in class--for example, the proper analysis of *every*, *no*, and *only* (§7.2), how to incorporate bounds and exceptions (§7.2), ways of handling compound quantifier phrases (such as *only cats and dogs*, §7.3), the distinction between *every* and *any* (§§7.3 and 7.4), how to represent multiple quantifier phrases with overlapping scope (§7.4). Be able restate you analysis using unrestricted quantifiers, but you will not need to present it in English notation.
- *Synthesis.* You may be given a symbolic form and an interpretation of its non-logical vocabulary and asked to express the sentence in English. (This sort of question is less likely to appear than a question about analysis and there would certainly be substantially fewer such questions.)
- *Derivations.* Be able to construct derivations to show that entailments hold and to show that they fail (derivations that hold are more likely). I may tell you in advance whether an entailment holds or leave it to you to check that using derivations. If a derivation fails, you *may* be asked to present a counterexample, which will involve describing a structure (by either tables or a diagram). In derivations involving restricted universals you will have the option using the rules RUG, SB, SC, and MRC or instead using RUP and RUC along with rules for unrestricted universals and conditionals. You will *not* be responsible for the rules introduced in §7.8.