Solutions to Exercises For Atomic Sentences Without Functions or Identity

January 12, 2005

1 Exercises 1-1

a) Cid is taller than Eve.
b) Cid loves Eve.
c) Cid is not taller than himself.
d) Cid is blond.
e) If Cid is taller than Eve, then he loves her.
f) Cid loves either Eve or himself.
g) Cid does not love both Eve and Adam.
h) Cid is blond if and only if he loves either Eve or himself.

2 Exercises 1-2

a) Cc
b) Tca
c) Cc $\vee$ Tca
d) Tce $\supset$ Lce
e) Tce $\supset$ Lce
f) Lea & Lec
g) Lea $\vee$ Lec
h) (Lae $\vee$ Lea) & (Lac & Lec)
i) Lec $\supset$ Cc
j) Tec & $\sim$ Lec

3 Exercises 1-3, a) - d)

a) Sentence
b) Sentence
c) Not a sentence
d) Sentence

4 Exercises 1-4, a) - d)

a) Adam does not love himself.
b) If Adam loves himself, then he is not taller than himself.
c) Cid is not blond, nor does he love Eve.
d) Adam is a cat if and only if either he is blond or he loves Eve.

5 Exercises 2-1, a) - c)

(Sample answers only)
a) D = {a,b}, Laa & ∼Lab & ∼Lba & Lbb
b) D = {a,b}, Ta & ∼Tb & Laa & ∼Lab & Lba & ∼Lbb
c) D = {a,b}, ∼Laa & Lab & ∼Lba & Lbb

(Corresponding answers using Tarski semantics)
a) D = {Pierre, Francine}, designation of 'a': Adam, designation of 'e': Eve, extension of 'L': {⟨Pierre, Pierre⟩, ⟨Francine, Francine⟩}
b) D = {Pierre, Francine}, designation of 'a': Adam, designation of 'e': Eve, extension of 'T', {⟨Pierre⟩}, extension of 'L': {⟨Pierre, Pierre⟩, ⟨Francine, Pierre⟩}
c) D = {Pierre, Francine}, designation of 'a': Adam, designation of 'e': Eve, extension of 'L': {⟨Pierre, Francine⟩, ⟨Francine, Francine⟩}

6 Exercises 10-1

a) Used as part of metalanguage
b) Mentioned as part of object language
c) Used as part of metalanguage
d) Mentioned as part of metalanguage

7 Exercises 10-2

a) Semantic (regardless of what the symbols mean)
b) Syntactic
c) Syntactic
d) Semantic
e) Syntactic
f) Semantic
g) Semantic
h) Syntactic