

Exercise 3 in *Natural Logic*, on p.185.

No fat person is bald

John is no fat person

John is bald

Is this argument a counterexample to the law of substitutivity of identicals?

If not, what is its logical form?

Is it valid?

The argument is *not* a counterexample to the law of substitutivity of identicals. That law has the form

$$\frac{P(t) \quad t=u}{P(u)}$$

in which both t and u are *singular terms*. In order for the premise ‘John is no fat person’ to be playing the role of the identity statement $t=u$, the phrase ‘no fat person’ would have to be a singular term. But it is not a singular term. It’s a *quantifying phrase*, whose logical form is not that of a singular term. The premise ‘John is no fat person’ should be read as ‘There is no fat person identical to John’.

The logical form of the argument is

$$\frac{\neg \exists x((Fx \wedge Px) \wedge Bx) \quad \neg \exists x((Fx \wedge Px) \wedge x=j)}{Bj}$$

The argument is *not valid*. Here is a counterexample:

