Definite Descriptions and Indeterminate Identity

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Terence Parsons [1] builds upon a quantified version of Jan Łukasiewicz's three-valued logic by adding two logical connectives: the determinacy connective ! and the indeterminacy connective ∇. The semantics for ! are as follows: '!S' says that the statement S is determinately true; '!¬S' says that ¬S is determinately true; '¬!S' says that S is not determinately true; and '¬!¬S' says that ¬S is not determinately true. The indeterminacy connective ∇ is defined in terms of ! as such:

$$\nabla S =_{Df.} \neg !S \bullet \neg !\neg S$$

One of Parsons' motivations for adding to Łukasiewicz's logic is so that he may express and defend what I shall dub the *indeterminacy stance* (IS)— the thesis that there is some x and some y such that it is indeterminate whether $x = y$. In symbols:

$$(\exists x)(\exists y)\nabla(x = y) \tag{IS}$$

I argue that, if the domain of quantification in (IS) is restricted to individuals with a certain kind of definite description, (IS) is false. The certain kind of definite description in question is one which is such that, for any x, either it's determinately true that x has it or it's determinately true that x fails to have it. For instance, consider W.V. Quine's being the only thing which is the author of *Word and Object*. It seems that, for anything, either it's determinately true that it is the author of *Word and Object* or it's determinately true that it's not the author of *Word and Object*. Abbreviating W.V. Quine's last name and 'author of *Word and Object*' as 'q' and 'A', respectively, we may express the fact that W.V. Quine is the only thing which is the author of *Word and Object* as such:

$$(x)(\mathrm{A}x \Leftrightarrow x = \mathrm{q}) \tag{1}$$

Using the determinacy connective !, we may express the putative fact that, for anything, it's determinately true whether it is the author of *Word and Object* like so:

$$(x)(!\mathrm{A}x \vee !\neg \mathrm{A}x) \tag{2}$$

By using inference rules which are valid in Parsons' own version of Łukasiewicz's logic (ŁP), I prove that from (1) and (2) it follows that

$$(x)\neg\nabla(x = \mathrm{q}) \tag{$\therefore$}$$

viz.— that it's not indeterminate whether anything is identical to Quine.

If my proof is valid, then the following inference schema is (ŁP)-valid:

NOT-INDETERMINATE IDENTITY:
¬∇id

$$\frac{\begin{array}{c} Fa \Leftrightarrow a = b \\ !Fa \vee !\neg Fa \end{array}}{\neg\nabla(a = b)}$$

where '*a*' and '*b*' are constants and '*F*' is a one-place predicate.

The validity of $\neg\nabla$id has two interesting consequences. First, since the majority of the individuals of our acquaintance seem to have at least one definite description which is such that it's determinate whether anything has it, if the domain of quantification in (IS) is restricted to them, it follows from $\neg\nabla$id that (IS) is false.

Second, given $\neg\nabla$id, each substitutional instance of the formula

$$(x)(y)(F)(((Fx \Leftrightarrow x = y) \bullet (!Fx \vee !\neg Fx)) \Rightarrow \neg\nabla(x = y)) \tag{3}$$

is true. Consequently, (IS) is true only if

$$(x)(y)\neg(\exists F)((Fx \Leftrightarrow x = y) \bullet (!Fx \vee !\neg Fx)) \tag{4}$$

is true—viz. that for any x and any y, there is *not* some property (or other) such that x has that property iff x is y and either it's determinately true that x has that property or it's determinately true that x fails to have that property. Thus, the unrestricted form of the indeterminacy stance comes with the evidential baggage of having to affirm a universal negative.

References

1. Parsons T. *Indeterminate Identity*. New York: Oxford University Press, 2000