

Refutation of the paradox of the concept of an analysis as both correct and informative

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We assume the method and apparatus of Meth8/VL4 where T is the designated *proof* value, F is contradiction, N is truthity (non-contingency), and C is falsity (contingency). The 16-valued truth table fragment) is row-major and horizontal.

From: en.wikipedia.org/wiki/Paradox_of_analysis, as how analysis is to be correct and informative.

LET p, r, s : member, brother, male-sibling

"For all x (any given member of a class or set), x is a brother if and only if x is a male sibling." (1.1.1)
 $\#p \& ((p=r) > (p=s)) ;$ FNFN FFFF FNFN FNFN (1.1.2)

"One can say that (1.1.1) is correct because the expression "brother" represents the same concept as the expression "male sibling".

This is mistaken because Eq. 1.1.2 as rendered is *not* tautologous.

"and (1.1.1) seems to be informative because the two expressions are not identical."

The informative status of Eq. 1.1.2 is *not* a theorem.

If brother is equivalent to male sibling, then Eq. 1.1.1 is true. (1.2.1)
 $((r=s) > (\#p \& ((p=r) > (p=s)))) = (p=p) ;$ FNFN TTTT TTTT FNFN (1.2.2)

Eq. 1.2.2 is *not* tautologous.

If Eq. 1.1.1 is truly correct, then brother is equivalent to male sibling. (1.3.1)
 $((\#p \& ((p=r) > (p=s))) = (p=p)) > (r=s) ;$ TTTT TTTT TCTC TTTT (1.3.2)

Eq. 1.3.2 is *not* tautologous.

For all x , x is a brother if and only if x is a brother. (2.1)
 $\#p \& ((p=r) > (p=r)) ;$ FNFN FNFN FNFN FNFN (2.2)

Eq. 2.2 is *not* tautologous.

"Yet it is obvious that (2.1) is not informative, so either (1.1) is not informative, or the two expressions used in (1.1) are not interchangeable (because they change an informative analysis into an uninformative one) so (1.1) is not actually correct. In other words, if the analysis is correct and informative, then (1.1) and (2.1) must be essentially equal, but this is not true because (2.1) is not informative. Therefore, it seems an analysis cannot be both correct and informative at the same time."

None of the above follows because Eq. 1.1.1 is *not* tautologous.

Hence the concept of analysis is *not* a paradox, and analysis is potentially both correct and informative.