

Refutation of the prisoner paradox

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

LET p, q, r, s : prisoner A; prisoner B; incarceration; prison term;
& And; + Or; - Not Or; = Equivalent;
> Imply, greater than, betrays; < Not Imply, less than, does not betray;
% possibility, for one or some; # necessity, for all;
(%p>#p) 1 year or lesser charge; (%p<#p) = 2 year

From: en.wikipedia.org/wiki/Prisoner's_dilemma

If A and B each betray the other, each of them serves 2 years in prison (1.1)

$((p>q)\&(q>p))>((p\&q)=(r\&(\%p<\#p)))$; T T T F N T T C T T T F N T T C (1.2)

If A betrays B but B remains silent, A will be set free and B will serve 3 years in prison (and vice versa) (2.1)

$((p>q)\&(q<p))>((p=\sim r)\&(q=(r\&((\%p<\#p)+(\%p>\#p))))$; T T F T T T T T T T F T T T T T (2.2)

If A and B both remain silent, both of them will only serve 1 year in prison (on the lesser charge) (3.1)

$((p<q)\&(q<p))>(p\&q)=(r\&(\%p>\#p))$; T T T T T T T T T T T T T T T T (3.2)

Eqs. 1.2 and 2.2 as rendered are *not* tautologous, but also are *not* contradictory. Eq. 3.2 is tautologous, and *not* contradictory. In other words, Eqs.1.2, 2.2, and 3.2 are *not* contradictory, and hence the prisoner paradox is *not* a paradox.