

Bell's theorem refuted

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Introduction: <http://www.physicsforums.com/showthread.php?t=475076>**Analysis:**

Eqn	Bell-table: Sakurai**		Probabilities: see Introduction for terms.
W1	+++	---	$P1 = [\text{Cab.Cac} + \text{Cab.Cbc} + \text{Cac.Cbc}]/6$
W2	++-	--+	$P2 = [\text{Cab.Sac} + \text{Cab.Sbc} + \text{Sac.Sbc}]/6$
W3	+ - +	- + -	$P3 = [\text{Sab.Cac} + \text{Sab.Sbc} + \text{Cac.Sbc}]/6$
W4	+ --	- ++	$P4 = [\text{Sab.Sac} + \text{Sab.Cbc} + \text{Sac.Cbc}]/6$
W5	- ++	+ --	$P5 = [\text{Sab.Sac} + \text{Sab.Cbc} + \text{Sac.Cbc}]/6$
W6	- + -	+ - +	$P6 = [\text{Sab.Cac} + \text{Sab.Sbc} + \text{Cac.Sbc}]/6$
W7	--+	++-	$P7 = [\text{Cab.Sac} + \text{Cab.Sbc} + \text{Sac.Sbc}]/6$
W8	---	+++	$P8 = [\text{Cab.Cac} + \text{Cab.Cbc} + \text{Cac.Cbc}]/6$

$$(1) P_{ab++} = P3 + P4 = [\text{Sab.Cac} + \text{Sab.Sbc} + \text{Cac.Sbc} + \text{Sab.Sac} + \text{Sab.Cbc} + \text{Sac.Cbc}]/6 \\ = [2.\text{Sab} + \text{Cac.Sbc} + \text{Sac.Cbc}]/6 = [2.\text{Sab} + 2.P_{ab++}]/6 = \text{Sab}/2.$$

$$(2) P_{ab+-} = P1 + P2 = [\text{Cab.Cac} + \text{Cab.Cbc} + \text{Cac.Cbc} + \text{Cab.Sac} + \text{Cab.Sbc} + \text{Sac.Sbc}]/6 \\ = [2.\text{Cab} + \text{Cac.Cbc} + \text{Sac.Sbc}]/6 = [2.\text{Cab} + 2.P_{ab+-}]/6 = \text{Cab}/2.$$

$$(3) P_{ab-+} = P7 + P8 = [\text{Cab.Sac} + \text{Cab.Sbc} + \text{Sac.Sbc} + \text{Cab.Cac} + \text{Cab.Cbc} + \text{Cac.Cbc}]/6 \\ = [2.\text{Cab} + \text{Sac.Sbc} + \text{Cac.Cbc}]/6 = [2.\text{Cab} + 2.P_{ab-+}]/6 = \text{Cab}/2.$$

$$(4) P_{ab--} = P5 + P6 = [\text{Sab.Sac} + \text{Sab.Cbc} + \text{Sac.Cbc} + \text{Sab.Cac} + \text{Sab.Sbc} + \text{Cac.Sbc}]/6 \\ = [2.\text{Sab} + \text{Sac.Cbc} + \text{Cac.Sbc}]/6 = [2.\text{Sab} + 2.P_{ab--}]/6 = \text{Sab}/2. \text{ And so on.}$$

QED. All results, wholly derived from local-realistic principles, fully accord with quantum mechanics. They are, however, contrary to established views on Bell's theorem.

Conclusion: Bell's theorem refuted. (Again.***)

Acknowledgments: Forthcoming.

References:

* <http://www.physicsforums.com/member.php?u=74950>

** http://en.wikipedia.org/wiki/Sakurai%27s_Bell_inequality

*** Gordon Watson, Bell's theorem refuted: Real physics & philosophy for quantum mechanics. *Physics Essays* **11** (3) 413-421 (1998). Partial erratum *Physics Essays* **12** (1) 191 (1999).