terministic prejudices. Einstein's position was based, not on his commitment to determinism, but on a strong distaste for the "spooky actions at a distance" suggested by the quantum doctrine that $s_2(a)$ acquires its value only as a result of the faraway measurement made on particle 1.

What is remarkable about J. S. Bell's analysis, and what the experiments of A. Aspect *et al.* confirm, is that Einstein's view not only is at odds with the ontological precepts of the Copenhagen interpretation but is also numerically incompatible with the results of other spin correlation experiments. It is worse than a breach of quantum metaphysics to assign a value to $s_2(a)$ before the faraway measurement on particle 1—it is demonstrably inconsistent with the observed facts.

It is tempting to say that the only property of particle 2 changed by the measurement of particle 1 is what we know about particle 2, as in Rohrlich's example of the tossed coin. But the suggestion that the major difference between the classical and quantum examples lies in the presence or absence of a detailed dynamics insufficiently emphasizes what is most peculiar about the quantum case. The state of the coin is heads or tails, whether or not we know it. Particle 2, on the other hand, does not possess a value of $s_2(a)$ until we carry out a distant measurement of $s_1(a)$. After that it does. It is this state of affairs that has given rise to some of the bizarre philosophical positions Rohrlich mentions. I share his distaste, but it should be stressed that many of those positions are hardly more peculiar than the unadorned facts.

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I am grateful to Mermin for pointing out that I have not been sufficiently explicit about at least one point in my article. He refers to the case when the directions a and b are the same, that is, when the two spinning particles have their spins measured along the same direction.

In this case one must distinguish two separate matters. One is the law of conservation of angular momentum, which guarantees that the spins of the two particles are always in opposite directions (no matter what direction is chosen), because the total spin of the system has been zero before the breakup into two particles. It means that no matter what the outcome of the spin measurement of the particle that is measured first, $s_1(a)$, the spin measurement of the other particle will give the opposite result, $s_2(a) = -s_1(a)$. No action-at-a-distance scenario need be invoked here. This is simply a matter of satisfying a conservation law.

The other matter deals with the prediction of the outcome of the spin measurement $s_1(a)$. It can be one of two values, and therefore $s_2(a)$ will be one of two values. Which one it will be is just as probabilistic as $s_1(a)$. But because of the conservation law, $s_2(a)$ is determined uniquely once $s_1(a)$ is known, whether $s_2(a)$ is measured later or at the same time. In that respect the situation is the same as the toss of a coin.

The difference between the coin toss (classical mechanics) and the breakup into two spinning particles (quantum mechanics) is (i) that the coin toss has a detailed dynamics which in principle can be known and then permits one to predict the outcome from the initial conditions, while the breakup does not have such a dynamics (no hidden variables that make the outcome deterministic); and (ii) that the quantum mechanical prediction involves probability *amplitudes* while the classical prediction (when the detailed dynamics is not known) involves probabilities. It is the latter difference that is responsible for the difference between quantum mechanical and classical correlations.

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Digit Counting

I congratulate *Science* on printing 23-digit and 29-digit numbers without typographical error in the item "What does it mean to factor?" by Gina Kolata (Research News, 2 Dec., p. 1000). I infrequently encounter an error of any sort in *Science*; however, I find it difficult to reconcile the claim that 2 to the 193rd minus 1 is a 58-digit number with its decimal representation 12,554,203,470, 773,361,527,671,578,846,415,332,832, 204,710,888,928,069,025,791. Perhaps 12 is considered indistinguishable from a single digit in this transcendent realm?

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Erratum: The review of *Temperature* in the issue of 6 January (p. 44) was written by Robert J. Soulen, Jr.