References and Notes

1. M. H. Polymeropoulos *et al.*, *Science* **276**, 2045 (1997).
2. ———, *ibid.* **274**, 1197 (1996).
3. L. I. Golbe *et al.*, *Ann. Neurol.* **40**, 767 (1996).
4. W. K. Scott *et al.*, *Science* **277**, 387 (1997); T. Gasser *et al.*, *ibid.*, p. 388; T. Lynch *et al.*, *ibid.* **278**, 1212 (1997), with co-authors listed in *ibid.*, p. 1696.
5. D. Campion *et al.*, *Genomics* **26**, 254 (1995).
6. J. R. Vaughan *et al.*, *Ann. Neurol.*, in press.
7. The French Parkinson's Disease Genetics Study Group: Johann Tassin, Alexandra Dürr, Nacer Abbas, Anne-Marie Bonnet, Marie Vidailhet, Soraya Medjbeur, Christiane Penet, Yves Agid, and Alexis Brice, INSERM U289 and Fédération de Neurologie, Hôpital de la Salpêtrière, 75651 Paris Cedex 13, France; Michel Borg, Hôpital Pasteur, 06006 Nice Cedex, France; Emmanuel Broussolle, Hôpital Neurologique, 69003 Lyon, France; Alain Destée, Centre Hospitalier Régional (CHR), 59034 Lille Cedex, France; Frank Durif, Hôpital Fontmaure, Chamalières, France; Josué Feingold, INSERM U155, 75005 Paris; Gilles Fénelon, Hôpital Tenon, Paris; Jean-René Fève, Hôpital Laënnec, 4035 Nantes Cedex, France; Maria Martinez, INSERM U358, 75475 Paris; Pierre Pollak, Centre Hospitalier Universitare (CHU), 38043 Grenoble Cedex 9, Switzerland; Olivier Rascol, Hôpital Purpan, 31073 Toulouse Cedex, France; François Tison, Hôpital Pellegrin-Tripode, 33076 Bordeaux Cedex, France; Christine Tranchant and Jean-Marie Warter, CHR, 67000 Strasbourg, France; Marc Vérin, Hôpital de Pontchaillou, 35033 Rennes Cedex, France; Francois Viallet, CHU, 13616 Aix-en-Provence Cedex, France.
8. We thank T. Frébourg and M. Ruberg for helpful discussions and the Association France Parkinson, the Assistance Publique-Hôpitaux de Paris, and the European Community Biomed 2 (BMH4CT960664) for financial support.

■

Universal Quantum Simulators: Correction

Several readers have pointed out an error in my Research Article "Universal quantum simulators" (23 Aug. 1996, p. 1073) (*1*). On page 1076, after equation (2), I incorrectly cited K. Kraus as showing that it is always possible to mimic the effect of an environment for an *N*-qubit quantum system by using a simulated environment consisting of *N* qubits (*2*, which is reference 39 in the article). In fact, the implication of Kraus's work (*2*) is that it is always possible to simulate such an environment using a simulated environment with 2*N* qubits, not *N*. An *N*-qubit simulated environment clearly suffices in some cases: that it always suffices should be considered to be a conjecture that the set of equations given by equation (2) always possesses a solution. However, the minimum size of a simulated environment sufficient to model any environmental interaction is not currently known The conclusion of my article, that a quantum computer can efficiently simulate any quantum system that evolves according to local interactions, remains unchanged.

Seth Lloyd
Department of Mechanical Engineering,
Massachusetts Institute of Technology,
Cambridge, MA 02139-4307, USA

References

1. S. Lloyd, *Science* **273**, 1073 (1996).
2. K. Kraus, *States, Effects, and Operations: Fundamental Notions of Quantum Theory* (Spring-Verlag, Berlin, 1983).
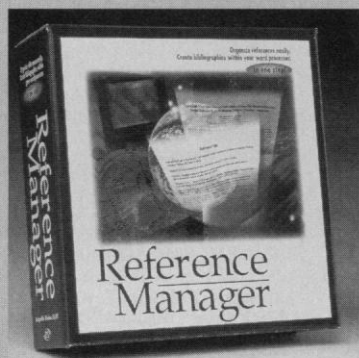
Letters to the Editor

Letters may be submitted by e-mail (at science_letters@aaas.org), fax (202-789-4669), or regular mail (*Science*, 1200 New York Avenue, NW, Washington, DC 20005, USA). Letters are not routinely acknowledged. Full addresses, signatures, and daytime phone numbers should be included. Letters should be brief (300 words or less) and may be edited for reasons of clarity or space. They may appear in print and/or on the World Wide Web. Letter writers are not consulted before publication.