I am Sorry, Richard Ehrenborg and Margie Readdy, About Your Two Conjectures, But One is FAMOUS, While the Other is FALSE

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It is always nice to have lunch with brilliant (and nice) people, but there are also some dangers involved. They may get you hooked on a beautiful conjecture, and distract you from your main project of proving RH or Goldbach. That's what happened to me on June 11, 2002, when I had lunch with Richard Ehrenborg, Margie Readdy, and their adorable one-year-old son, Theodore. Margie and Richard told me that they discovered, empirically, that the number of Down-Up Involutions of length 2k equals k!, for k=1,2,3,4,5, and conjectured that it holds in general.

After wasting one week trying to prove this, in vain, I started doubting it. It took some effort to program it, since the brute-force program runs out of time and memory for k=6. But a more clever recursive program (see the procdeure nDUI in the accompanying Maple package EHRENBORG), easily showed that the conjecture is false for k=6 (and beyond). Hence Richard and Margie were victims of the pernicious "Law of Small Numbers".

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IMPORTANT: This article is accompanied by the Maple package EHRENBORG, mentioned above.

Added Jan. 3, 2006: Read the very interesting message from Richard Stanley

Added March 20, 2006: The above result is now one small part of Richard Stanley's very interesting paper Alternating Permutations and Symmetric Functions

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