

Dreidel Rotation: Statistical Evidence That God Is Left-Handed

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**The outcome
of an
unbalanced
dreidel is
affected by
the direction
in which the
dreidel is spun**

"I have a little dreidel.
I made it out of wood.
And 'cause I know how it behaves
I make out pretty good."

During Chanukah, the game of dreidel is a popular pastime in Jewish households. A dreidel is a four-sided top. Each side contains one of the Hebrew letters *gimel*, *he*, *nun*, and *shin*. Players ante up money for a pot and then take turns spinning the dreidel until the pot is exhausted. A *gimel* takes the entire pot. A *he* takes half the pot. A *nun* earns nothing. A player spinning a *shin* antes either a fixed amount or an amount equal to half the pot, depending on local rules. Dreidel is usually played by younger children for candy, but it is not unknown for older children and even some adults to play for small sums of money.

It takes only a little thought to suggest



that, at four for a dollar, dreidels are not manufactured to the high degree of tolerance one would expect for a gaming device. An unbalanced dreidel might seem no cause for alarm, since everyone playing the game uses the same dreidel. However, after observing a game in which right-handed and left-handed dreidel players experienced vastly different fortunes, we hypothesized that the outcome of an unbalanced dreidel is affected by the direction in which the dreidel is spun.

The Experiment

Materials: To simulate real-life play, we used the first three wooden dreidels we found lying around our homes and, for comparison, a solid plastic dreidel (manufacturer unknown, like all garden-variety dreidels). We believe these dreidels are a representative sample of dreidels lying around homes.

Experimental methods: Each dreidel was spun 40 times right-handed and again 40 times left-handed on a flat wooden table (Eastern Butcher Block, Boston, MA). The dreidels were allowed to spin and fall without interference.

Statistical methods: Because of the potential sociological, anthropological, and theological implications of this research, asymptotic methods were avoided. The data were analyzed by using Fisher's exact test for two-dimensional contingency tables, as implemented in StatXact, version 2.0 (Cytel Corporation, Cambridge, MA). For each dreidel, we tested the hypothesis that the distribution of outcomes was the same for both directions of spin.

Results

All four dreidels favored different faces depending on the direction of spin (Fisher's exact *P*-value for the four dreidels: 0.0001, 0.0000, 0.0120, 0.0000). Two dreidels (numbers 2 and 4) gave results that we would have lacked the nerve to invent had we made up the data rather than performed the experiment. See Table 1.

Clearly, it is easy to find a dreidel like our dreidels 1 and 2. Both are a hustler's dream against right-handed opponents. Left-handed spinning generates mostly *gimels* (taking the entire pot), but right-handed spinning generates mostly *hes* (taking only half the pot) and *shins* (adding to the pot).

Researchers who lack sufficient time and materials to work with dreidels directly may now incorporate our findings in their own meta-analyses of dreidel behavior.



Table 1

Dreidel	Spin	<i>gimel</i>	<i>he</i>	<i>nun</i>	<i>shin</i>
1 (wood)	Right-handed	6	18	3	13
	Left-handed	23	11	4	2
Fisher's exact <i>P</i> -value: 0.0001					
2 (wood)	Right-handed	2	27	1	10
	Left-handed	30	3	6	1
Fisher's exact <i>P</i> -value: 0.0000					
3 (wood)	Right-handed	8	5	12	15
	Left-handed	10	16	4	10
Fisher's exact <i>P</i> -value: 0.0120					
4 (plastic)	Right-handed	0	30	9	1
	Left-handed	26	1	3	10
Fisher's exact <i>P</i> -value: 0.0000					

There Versus Here

Sir:

How could you possibly accept so methodologically flawed an article as "Dreidel Rotation:

Statistical Evidence That God Is Left-Handed" (JIR 37:6)?

Since symmetry must be conserved — everybody knows that — the obvious control is a dreidel with different letters on it! Fortunately, just such a dreidel exists. In Israel the letters are *nun*, *gimmel*, *he* and *pe*.

The difference arises because the *shin* of the dreidel that Dallal and Must used stands for "there," as in "A great miracle happened there."

In Israel the appropriate word is here" hence the *pe*.

It should be obvious to the meanest intelligence that the appropriate control would be to SEND ME to Israel to repeat the experiment with an Israeli dreidel. I look forward to your support on my proposal to the NSF.

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Sinister Cochlear Difficulty

To the editor:

Regarding the article titled "Dreidel Rotation: Statistical Evidence That God Is Left-Handed (JIR 37:6): Although we were actually able to replicate the advantage from left-handed spinning using both wooden and plastic tops, we fail to see the connection between those proportions and God's left-handedness. We suggest instead that the direction of the earth's rotation provides far better evidence. This merely requires the widely held view that North is up plus the assumption that God grasped our planet from above when setting it into rotation.

The 23.5° tilt of the earth's axis leads to the further suspicion that God has an inner-ear problem. This suggestion, in turn, is supported by common beliefs and observations concerning prayer: that God is always listening but often seems to fail to hear.

Lou and David Lippman
Bellingham, Washington.