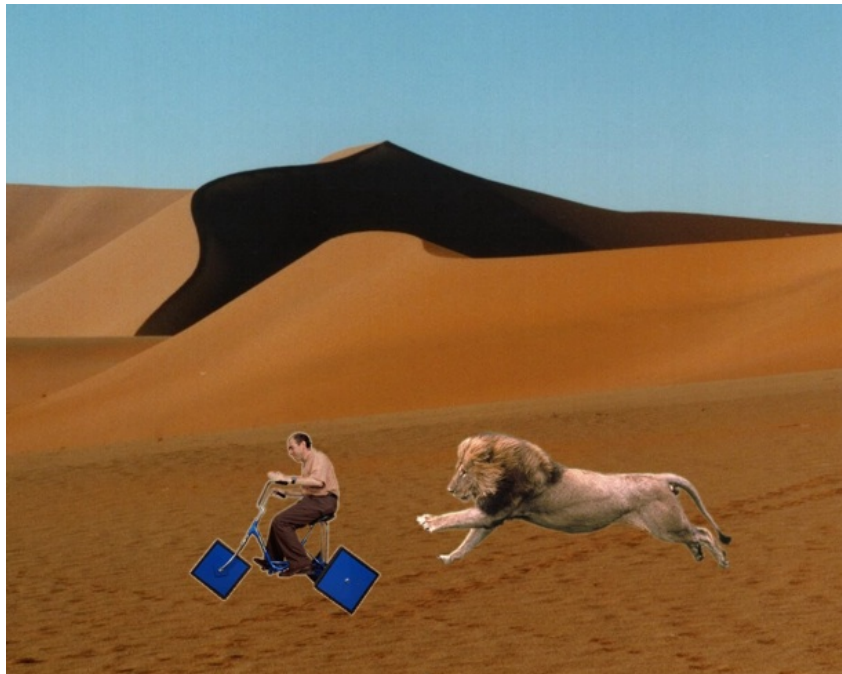


Fourteen ways
to feed Stan Wagon [1]
to a Lion in the Sahara Desert:
A contribution to the mathematical Theory
of Big Game Hunting

There is a large body of research devoted to hunting lions in the Sahara Desert [2]. In none of these, however, is any concern given to feeding the lion once it is captured. In this note, we propose feeding Stan Wagon to the lion.



1 Banach-Tarski Paradox [3]

Place an orange in the middle of the Sahara Desert. Cut it up into a finite number of pieces and rearrange the pieces to form the Sun. The gravity of the Sun will then attract both Stan Wagon and the lion, and the lion will feed.

2 Collatz Problem [4]

Randomly drop the positive integers throughout the Sahara desert with paths connected via the Collatz algorithm. Place Stan Wagon in a cage at 1. After a

finite number of steps the lion will reach 1, enter the cage and feed.

3 Venn Diagrams [5]

Consider the set of all mammals. This clearly contains Stan Wagon and the lion. By drawing enough appropriate Venn diagrams over the Sahara desert we obtain an intersection containing only the lion and Stan Wagon. Since there is nothing else for the lion to eat.....

4 Riemann Zeta Function [6]

If they can find one and one-half billion zeros of the Riemann zeta function on the line $\text{Re}(x) = \frac{1}{2}$, they can certainly find one lion in the Sahara desert. So, feed it.

5 The Gaussian Zoo [7]

Hey, its a zoo. It already has a lion in it.

6 Logic [8]

The question isn't whether or not the lion eats Stan Wagon, the question is if a lion eating Stan Wagon in the Sahara desert is definable in first order logic. Consider the statement (climbs mountains) and (makes ice sculptures). Although there may be many solutions in the world as a whole, as there are no mountains in the desert and ice melts, Stan Wagon is the only solution in the Sahara desert. Clearly, this is so simple, even a lion could do it (we take it as an axiom that there exists a lion in the Sahara desert as there would be no reason to hunt it if there weren't). As it is patently obvious that anything a lion can define a lion can eat, the result follows.

7 Normality of π [9]

After dinner it's perfectly normal to have dessert.

Sing a song of sixpence a pocket full of rye.
Stanley and his wagon baked in a pie.
When the pie was opened Stan gave out a shout
"The frequency of digits is what I like to count."

8 Circle Squaring [10]

The circle has not been squared, but Stan Wagon on a circular plate is certainly a square meal for a lion.

9 Spigot Algorithms[11]

Spigot algorithms typically spew out the digits of a number (such as π) one at time. The same method is easily implemented on Stan Wagon. As Stan is well known to be rational, the process will terminate in a finite number of steps allowing even an elderly lion a healthy meal.

10 Carmichael's 'Theorem' [12]

Do lion's eat hoagys? How about the heart and soul of Stan Wagon on a long crusty roll split lengthwise at night in the desert sprinkled with stardust. That certainly puts Georgia on my mind.

11 Primality Testing [13]

What better way is there to test the primality of a lion then feeding it Stan Wagon?

12 Fair Allocation of a Pizza [14]

Suppose there are two lions sharing a Stan Wagon pizza (we, of course, assume that Stan Wagon is uniformly distributed). The two lions cross the pizza in an arbitrary point. Starting from the intersection the pizza is cut into eight pieces and the slices served alternately to the two lions, thus assuring that each receives a fair portion of Stan Wagon.

13 Saturation of a Product of Ideals[15]

According to Deborah Gardner, a Julia Child aficionado, "It's ideal to eat unrefined, saturated animal fats from animals raised organically and on pasture." I need to contact Stan Wagon and find out if he was raised organically.

14 Roads and Wheels and Tricycle Riding [16]

Fair is fair. Give Stan Wagon his tricycle and let him try to get away.

References

- [1] Stan Wagon, *Fourteen proofs of a result about tiling a rectangle*, Amer. Math. Monthly **94** (1987), no. 7, 601–617. MR **935845** (**89h**:52018)
- [2] Jr. Boas Ralph P., *Lion hunting & other mathematical pursuits*, The Dolciani Mathematical Expositions, vol. 15, Mathematical Association of America, Washington, DC, 1995. A collection of mathematics, verse and stories, Edited and with an introduction by Gerald L. Alexanderson and Dale H. Mugler.
- [3] Stan Wagon, *The Banach-Tarski paradox*, Cambridge University Press, Cambridge, 1993. With a foreword by Jan Mycielski; Corrected reprint of the 1985 original. MR **1251963** (**94g**:04005)
- [4] ———, *The Collatz problem*, Math. Intelligencer **7** (1985), no. 1, 72–76. MR **769812** (**86d**:11103)
- [5] Stan Wagon, Frank Ruskey, and Carla D. Savage, *The search for simple symmetric Venn diagrams*, Notices Amer. Math. Soc. **53** (2006), no. 11, 1304–1312. MR **2268388** (**2007h**:05047)
- [6] Stan Wagon, *Where are the zeros of zeta of s ?*, Math. Intelligencer **8** (1986), no. 4, 57–62. MR **858299** (**87j**:11084)
- [7] Stan Wagon, John Renze, and Brian Wick, *The Gaussian zoo*, Experiment. Math. **10** (2001), no. 2, 161–173. MR **1837668** (**2002g**:11110)
- [8] Stan Wagon and Dan Flath, *How to pick out the integers in the rationals: an application of number theory to logic*, Amer. Math. Monthly **98** (1991), no. 9, 812–823. MR **1132996** (**93b**:03076)
- [9] Stan Wagon, *Is π normal?*, Math. Intelligencer **7** (1985), no. 3, 65–67.
- [10] Stan Wagon and Richard J. Gardner, *At long last, the circle has been squared*, Notices Amer. Math. Soc. **36** (1989), no. 10, 1338–1343. MR **1026391** (**90j**:51023)
- [11] Stan Wagon and Stanley Rabinowitz, *A spigot algorithm for the digits of π* , Amer. Math. Monthly **102** (1995), no. 3, 195–203. MR **1317842** (**96a**:11152)
- [12] Stan Wagon, *Carmichael’s “empirical theorem”*, Math. Intelligencer **8** (1986), no. 2, 61–63. MR **832597** (**87d**:11012)
- [13] ———, *Primality testing*, Math. Intelligencer **8** (1986), no. 3, 58–61. MR **846996** (**87m**:11124)
- [14] Stan Wagon and Larry Carter, *Proof without Words: Fair Allocation of a Pizza*, Math. Mag. **67** (1994), no. 4, 267. MR 1573034
- [15] Stanley Wagon, *The saturation of a product of ideals*, Canad. J. Math. **32** (1980), no. 1, 70–75. MR **559787** (**81b**:03058)
- [16] Stan Wagon and Leon Hall, *Roads and wheels*, Math. Mag. **65** (1992), no. 5, 283–301. MR **1191272** (**94e**:26020)