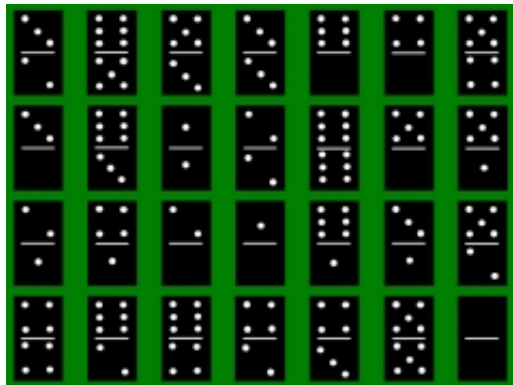


## The Domino Effect (An Elementary Look at the Kruskal Count)

Jim Wilder

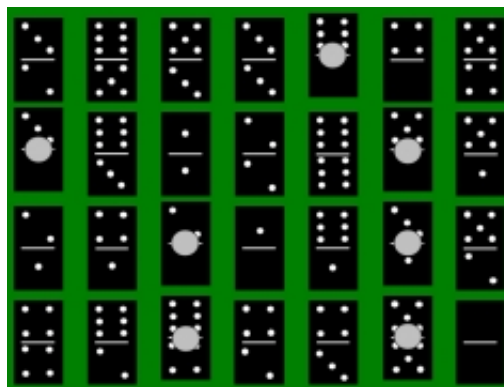


Pictured here is a random layout of dominoes (28 in all). Choose any domino from the top row. For example, if you take the first domino (3-2), you have an added value of 5. Starting at the next domino (6-5), spell out the number 5 (F-I-V-E), moving one time per each letter, and you will arrive at the 6-0 domino (not the 3-3). Like before, spell out 6 (S-I-X), counting and proceeding the way you read words on a page. You will next arrive at the 3 (T-H-R-E-E). Again, spell out the number value where you arrive. Do this until you arrive to the bottom row and can no longer move without

moving off the end of the row. When you arrive to your final domino, take note of where you arrived. Start the process again, but this time, start on another domino in the top row. Again, take note of where you arrive. Continue to repeat the process, each time choosing a different domino. What do you notice? On which domino did you arrive on the first trial? What about the next few trials?

This idea came from various ideas related to the Kruskal Count. Three of my favorite ideas related to this are by Martin Gardner, James Grime, and James Tanton.

This is a diagram of what the "path" should look like if you choose the first domino in the top row of the original layout. Taking coins and laying them at each domino where you arrive might help you to notice a pattern and how you arrive at your final destination each time.



Now, take a regular set of dominoes, and randomly arrange them in a 7 X 4 array. See if your results are similar to what you have found here. What happens if you lay out the dominoes in a 4 X 7 array? What happens if you count the value of the domino instead of spell it? How is the outcome similar or different if you use a deck of cards, or a page from a book?

References:

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