Cognitive Shuffling: How a Sleep Trick Reveals the Logic of AI and Human Creativity
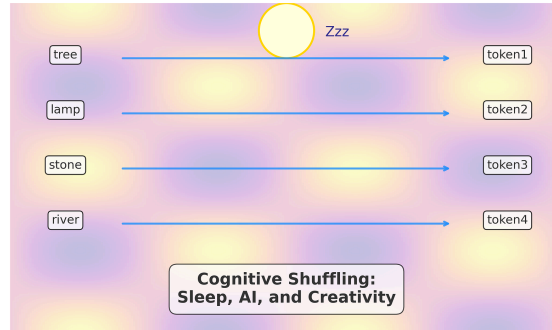

Cognitive shuffling visualized—a fusion of human word play and AI token flows.

Have you ever gone to bed with your mind racing, unable to turn off the noise?
Your brain won't stop. You replay conversations, plan tomorrow, rethink decisions—and sleep slips further away. Recently, *The New York Times* highlighted a technique called **cognitive shuffling** as a surprisingly effective way to quiet that chatter.

The idea is simple: instead of counting sheep, you shuffle through random, unrelated words or images. Think *apple,* then *bridge,* then *telescope*—switching every few seconds so your brain can't settle into worrying or planning. It mimics the dreamlike jumble of thoughts that naturally precedes sleep.

But for me, cognitive shuffling isn't new. Years ago, I played very similar games with my professor, Dr. Oscar Moreno, in the Gauss Research Lab. And those games led me into some of the deepest areas of information theory.

Tribute: This article is dedicated to the memory and mentorship of Dr. Oscar Moreno. His guidance in the Gauss Research Lab opened doors into Costas arrays, finite fields, and information theory, and his playful spirit continues to inspire both research and creativity.

From Word Games to Mathematics

In the lab, Dr. Moreno and I would sit and toss words back and forth. Sometimes we'd constrain ourselves: each word had to begin with a letter from the last. Other times we'd go free-form, saying whatever popped into mind.

At the time it felt like play. But this playful randomness had purpose: it loosened our thinking, disrupted linear patterns, and created openings for insight. From those sessions I followed him into research on **Costas arrays, sonar sequences, CDMA codes, microarrays, and finite fields**—highly structured domains where randomness and order are delicately balanced.

What struck me later is how close those word games were to the "cognitive shuffle" now being discussed as a sleep hack. The method I used for creative exploration in a math lab is the same one sleep researchers are now validating for calming the mind at night.

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What Cognitive Shuffling Is

In sleep science, cognitive shuffling (or **Serial Diverse Imagining**) is a deliberate way of thinking random, neutral thoughts to derail insomnia. Instead of replaying worries ("Did I send that email?"), you deliberately picture or name unrelated things: "teacup... ladder... sunflower... violin."

- **Why it works:** It interferes with "insomnolent" thought processes (rumination, problem-solving) and nudges the brain into "pro-somnolent" processes (dreamlike, disorganized imagery).

- **How to do it:** Pick a seed word (like *DREAM*), think of words starting with each letter, visualize them briefly, and then move on. Or simply imagine a stream of random objects for a few seconds each.

- **What research shows:** Early studies suggest it reduces pre-sleep arousal and helps people fall asleep faster. It isn't a cure-all, but it's low-cost, easy, and safe to try.

Cognitive Shuffling: Word Flow

apple   bridge   telescope   sand   cloud   ladder

A simple word shuffle: moving from "apple" to "bridge" to "telescope" and onward. The randomness disrupts worry loops and mimics the dreamlike state before sleep.

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The AI Connection: Tokens and Shuffling

Here's where it gets even more interesting.

Large language models (LLMs) like ChatGPT work by shuffling **tokens**—tiny units of language—according to probabilities. Each new token is chosen much like in a cognitive shuffle: constrained by rules, but with a degree of randomness to prevent repetitive loops.

- When you or I pick a random word during a shuffle, it's like an LLM sampling a token at non-zero temperature.

- When we add a constraint (like "start with the letter T"), it's like setting decoding rules (top-k, nucleus sampling).

- Both processes balance **structure and randomness:** too much order and you get stuck, too much randomness and it's noise.

This is why I believe cognitive shuffling is more than a sleep trick— it's a window into how minds, both human and artificial, generate meaning.

Human vs LLM Cognitive Shuffling

token1   token2   token3

tree   lamp   stone
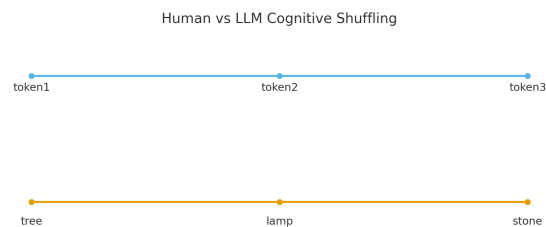
Humans shuffle words, while LLMs shuffle tokens. Both processes balance rules and randomness to generate meaning.

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Try It Yourself: Three Exercises

1. **Sleep Shuffle**
   Tonight, pick a neutral word like *STONE*. For S, think of "sun, sock, sail." Then move to T: "tree, tunnel, tiger." Go through the letters one by one. Don't build a story—just shuffle.

2. **Creativity Shuffle**
   Alternate between technical and everyday words. Example: "entropy… apple… algorithm… chair… array… lamp." See if unexpected metaphors or insights emerge.

3. **AI Shuffle**
   Ask an AI model: "Give me 10 random words from the word *dream*." Then try to connect them with your own free associations. Notice how the AI's shuffle sparks your own.

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Why This Matters

Cognitive shuffling sits at a fascinating intersection:

- For **sleep**, it quiets the restless mind.

- For **creativity**, it disrupts rigid patterns and invites novelty.

- For **AI**, it parallels the mechanics of token sampling and generative diversity.

I've seen it work in all three: drifting off at night, unlocking insights in the lab, and understanding how machines "think."
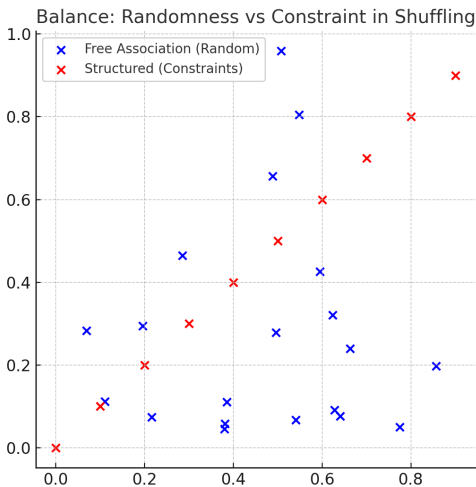
Cognitive shuffling sits at the edge of order and chaos. Too much randomness is noise; too much constraint is rigidity. Creativity thrives in the balance.

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Closing

When Dr. Moreno and I played those games years ago, I didn't realize they were training me to think across boundaries: between play and research, randomness and structure, language and mathematics.

Today, cognitive shuffling is being rediscovered as a tool for sleep. But I believe it's more than that. It's a simple, powerful glimpse into the logic of thought itself—human and artificial.

Try it tonight. Shuffle words, shuffle images. You may fall asleep faster. You may also wake up with new ideas.

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✍️ This is Part I of a series. In the next article, I'll explore how cognitive shuffling connects to mathematical structures like Costas arrays and finite fields—and why that matters for the future of AI.