

Introduction: *Serpentes*, the Fruit of Knowledge

I think *Serpentes*, a game by Benjamin Soulé, is beautiful, and I want to tell you why.¹

Serpentes is a variant of the classic computer game Snake. It is Snake “with stuff.” The stuff in this case is ten different kinds of fruit. Each fruit is worth a different amount of points and also causes different things to happen, some good, some bad: adding or removing segments to your snake, adding obstacles and enemies to the playfield, giving you temporary abilities, extra time, bonus points, etc. Every time you eat a type of fruit it reveals one more of its qualities, so that by the end of the game every fruit you grab triggers multiple effects.

But here’s the important thing—every time you play *Serpentes*, the attributes for each fruit are randomly distributed. In one game the banana might be worth 100 points, make you grow one segment, spawn an enemy, and give you a temporary shield. The next game the banana might be worth 10 points, make you grow two segments, give you a burst of speed, and add five seconds to the clock. It’s sort of like procedural generation,

where what's being generated is not the world, or the levels, but the fundamental rules of the game itself.

What makes this amazing is the way it illuminates how your brain works when you play a game. Most action games involve a process where, over time, you internalize the behavior of the game's objects, how they move and interact. It's like you are learning a language, learning to associate the game's visual iconography with the underlying properties of the objects that make up the game's world. Guns do damage, keys open doors, skeletons are weak to magic, cassette tapes contain story fragments. Playing a game means learning this language, the game's semiotic system, and then using it to assemble larger ideas and meanings.

In *Serpentes* this process is short-circuited. Instead of the solid, one-to-one relationship between symbol and meaning that we are used to, we have a chaotic system that circulates between a handful of symbols and a collection of properties that are endlessly re-assembled into new clusters. Instead of the familiar experience of repeated play in which the gameworld's grammar is burned deeper and deeper into our neural pathways, we find ourselves perpetually occupying the beginner's mind, thrown into a brand-new world and struggling to learn its logic.

To someone like me, raised on the linguistics-obsessed ideas of the post-structuralists, this is sweet music—the fixed logic of signifier and signified shattered into a carnivalesque assemblage, ideas re-arranging themselves

into novel constellations and swapping identities like debauched aristocrats exchanging partners and costumes at an out-of-control masquerade ball.

But what I love is not just the idea of this on a conceptual level, I love the way it feels in my brain. Every time I start a game of *Serpentes*, I have to deliberately flush out the registers of my short-term memory. This is a game in which forgetting is a key skill. Then, during play, as I discover the new properties of the different fruits, I must actively re-wire the connections between image and meaning. Because this is happening while my focus is on the task of navigating the playfield, picking up fruit and avoiding obstacles, it entails massive cognitive overload. As I pick and choose what things to remember I can hear my inner voice chanting nursery rhymes to itself like a child learning to speak: "Each peach, pear, plum. Grape escape. Take it down to bananatown."

By turning this process of low-level, sensory-map, memory-creation into a fast-paced, deliberate, conscious, active skill, *Serpentes* reveals an aspect of our minds that is usually hidden from us. Like an exercise in homebrew neuroscience, the game shines a dim light into the normally invisible machinery of my brain. I can feel the weight of images and ideas as if they were little objects to be lifted and moved, turned over and observed, sorted, discarded, or snapped together and placed on a shelf. It's a wonderful and slightly scary thing to observe the low-level engineering of your own mind. This is the basement of the skyscraper, unfamiliar

to us because we spend most of our time swanning around the penthouse suite. This is the boiler room where the messy work of overcoming Cartesian dualism is done, where photon meets neuron and the two are fused together by the fires of desire and fear. Banana good. Lime bad.

Another thing I find beautiful about *Serpentes* is the way it explores the tension between skill and knowledge. The screen in *Serpentes* is split between the grid where the action happens and the display where the attributes are shown, once you discover them. Your attention constantly flickers back and forth between watching the action and reading the display. Because this is a fast-paced game where the slightest lapse of attention can result in failure, you are made hyperaware of your attention as a precious resource which you must consciously manage.

This reflects in microcosm a quality of many games, those which combine a core skill or set of skills with a large body of information to internalize. In a collectible card game like *Magic: The Gathering* or *Hearthstone*, the core skill is the calculus of mana cost, attack, and defense that determines how you should play your cards and distribute your damage; the knowledge is the universe of cards you are likely to encounter in your opponents' decks. In *Scrabble* the core skill is anagramming—finding all the possible words that can be made with the tiles in your rack—and the knowledge is the contents of the *Scrabble* dictionary. In *League of Legends* the core

skills of timing, aiming, and movement are wrapped in a voluminous cloak of knowledge—the vast codex of champions and items, every detail of which can have its own critical impact on the game. I think of this emphasis on encyclopedic knowledge as the “*Pokémon* effect.” It is such a common feature of modern-day competitive games that when a game without it comes along, like *Rocket League*, its absence is remarkable.

In the *Serpentes* screen these two domains are splayed before us like two halves of a dissected brain. On the left, the grid: skill, execution, performance. On the right, the display: information, data, knowledge. Should I focus on picking up fruit more quickly (action) or should I focus on which fruit to pick up (decision)?

Of course, it isn't that simple (it never is with games) because in *Serpentes*, knowledge *is* a skill. You don't get to internalize the game's information in between games or over the course of many games; you have to do it every time, during the game, as an active part of the play. The skill of knowledge-acquisition in *Serpentes*, this specific process of forgetting and remembering, the ability to flexibly re-map your cognitive wiring, is a skill you can work to improve.

And conversely, skill in *Serpentes* (and every game, really) *is* knowledge. Getting good at the action-game part, grabbing fruit quickly and not crashing, involves gradually internalizing the relationship between button presses and game actions. These are the fundamental physical laws of the game's world that don't change

from session to session and over time we burn them into our subconscious. This slower, more gradual process is also a kind of knowledge acquisition, a re-wiring of our circuits to build a primal snake brain somewhere deep within us. This is the familiar territory of traditional game fluency, but in *Serpentes*, juxtaposed with the game's strange, fluency-defying right half, it feels alien and fresh again.

I love *Serpentes*. Why do we love a thing? Because we choose to? Because we must? Because of physics, the profound and ridiculous reason for everything? I love *Serpentes* because of its brilliant candy rainbow colors, the chunky electric buzz of its slot-machine sound effects, the slippery feeling of sliding between two obstacles without thinking, operating on pure instinct, and the slippery feeling of sliding between two instincts and deliberately choosing between them using the power of conscious thought. I love *Serpentes* because I have good taste, because it's the kind of game the kind of person I want to be loves. This game is juicy and full of seeds. Trussts me.