Four Kinds of Artificial Things: A Simple Guide to Reproducibility, Uniqueness, and What We Make

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Introduction

We live in a world filled with things humans create—chairs, novels, money, computer files, artworks, electricity, digital tokens, and more. These objects differ wildly, yet we often talk about them as if they all belonged to the same broad category of "stuff." But if we look more closely, we can sort artificial objects into natural classes based on two simple ideas:

1. How hard is it to reproduce the object?
2. Are individual instances distinguishable from one another?

This pairing leads to a surprisingly elegant four-class system that helps explain how physical goods, energy, money, and information behave, and why modern digital artifacts do not fit traditional categories.

Class 1: Hard to Reproduce and Individually Distinguishable

Examples: a chair, a sculpture, a physical book, a house.

These are the familiar material objects around us. If you want a second chair just like the first one, you must build it again—there is no shortcut. And each chair is a unique individual: the one in your living room is not the one at the store.

Economists call these *rival goods*: only one person can own or use a given instance.

Class 2: Hard to Reproduce but Indistinguishable

Examples: kilowatt-hours of electricity, dollars in a bank account, liters of gasoline.

Here the *quantity* matters, not the individual units. One kilowatt-hour is the same as any other. One dollar is the same as any other dollar. You still have to produce them—electricity requires generation, money requires economic activity—but once produced, no one cares which particular unit you have.

Economists call these *fungible goods*. They are interchangeable by design.

Class 3: Easy to Reproduce and Indistinguishable

Examples: novels, software, digital music, scientific formulas.

A novel might take years to write, but once written, every copy contains the same story. Producing the first copy is expensive; producing the second one costs nearly nothing. This is why copyright exists: without some artificial protection, creators could not recoup the cost of the initial work.

These are *information goods*: they can be copied endlessly, and each copy is as good as the original.

Class 4: Easy to Reproduce but Individually Distinguishable

Examples: cryptographic keys, UUIDs, blockchain addresses, individually numbered prints.

This class is less intuitive, but it definitely exists in the digital world.

A computer can generate millions of unique cryptographic keys in seconds. Each key is easy

to make, yet each is unique and cannot be interchanged with another. The value comes from the individuality, not from physical substance.

Some art fits here as well: when an artist produces 50 "signed and numbered" prints, the prints may be physically identical, but Print #17 is still not Print #3. Their individuality is socially assigned.

Class 4 is increasingly important in modern technology—digital authentication, blockchain, distributed systems, and online identity.

Why This Classification Matters

This four-class view clarifies a number of modern puzzles:

- **Why do physical goods require property law?** Because Class 1 goods are unique and hard to reproduce.
- **Why can't you copyright energy or money?** Class 2 goods are indistinguishable; there is no "instance" to protect.
- **Why does copying digital information cause legal complications?** Class 3 goods are naturally non-scarce, so the law must artificially impose scarcity.
- **Why are NFTs and cryptographic keys hard to explain?** Because they belong to Class 4: trivially reproducible yet meaningful only if treated as unique.

This classification helps us understand where notions of ownership, value, identity, and scarcity come from—and why digital technology forces us to rethink them.

Open Questions

A few natural follow-up questions emerge:

1. Where does the "identity" of a digital object come from?
2. Should information be treated as property at all?
3. Are NFTs genuinely "unique," or only declared to be unique?

4. How does this system change as AI reduces the cost of creation itself?

These questions sit at the intersection of philosophy, economics, and technology.

Conclusion

With only two simple ideas—reproducibility and distinguishability—we can divide artificial objects into four natural kinds. This makes clear why chairs, money, energy, novels, cryptographic keys, and NFTs all behave so differently, even though they all ultimately come from human ingenuity.

As digital technology advances, Class 4 in particular will play a growing role in how we understand value and uniqueness in a world where copying has virtually no cost.