

日本語原本→chatGPT翻訳↓

English Translation:

I apologize for my high school-level understanding,
but I got tired of writing a formal paper,
so I decided to summarize the reasoning behind my previous pseudo-paper here.

The reason I started thinking about this was during my student days,
when I struggled with the interpretation of 0 in different contexts,
such as speed and comparison.
I kept wondering, *"Is 0 a number? Or is it a concept?"*
That was the starting point of my thought process.

There's no particularly deep reason behind this idea.

About a month ago, I was thinking about the concept of evolution,
and a Japanese university professor told me about the **Baldwin Effect**.

The Baldwin Effect, in simple terms,
is the process of **trial and error** → **adaptation** → **application**,
without considering genetics or molecular evolution, but only focusing on the
environment.

Let's take an example of early humans—let's say there are three individuals.
In front of them is a wooden stick, about **1 meter long**.

First stage: Thought process

- **Person 1** looks at the stick and thinks, *"Could this be used for hunting?"*
- **Person 2** looks at the stick and thinks, *"If I hit the ground with it, it makes a sound!"*
- **Person 3** looks at the stick and thinks, *"If we gather more of these, we can keep track of our group!"*

Second stage: Trial and error

- **Person 1** tries breaking the stick, sharpening it, and testing different ways to capture prey.
- **Person 2** experiments with different lengths to see how they affect the sound produced.
- **Person 3** tests arranging sticks in different ways to evaluate their usefulness in tracking individuals.

Third stage: Adaptation

- **Person 1** concludes, *"Sharpening the stick makes hunting easier!"*

- **Person 2** concludes, *"Different lengths produce different sounds—let's assign meanings to them!"*
- **Person 3** concludes, *"Arranging the sticks like this allows everyone to understand the group's size!"*

The results of their conclusions spread to the group.

Fourth stage: Application

- **Person 1** wonders, *"What if I used stone instead?"*
- **Person 2** wonders, *"What if I could make sound using water instead of the ground?"*
- **Person 3** wonders, *"If I draw lines in the dirt with a stick, I can track numbers! But what if no one is around?"*

At this point, it's easy to see that:

- **Person 1** develops **weapons (physical power)**.
- **Person 2** develops **language (communication)**.
- **Person 3** develops **numerical systems**.

The problem with numbers today

In today's world, **weapons** and **language** have become largely standardized through **trade, translation, and globalization**.

However, **numbers** are still struggling with **inconsistencies**—

sometimes they're treated as **natural numbers**, other times as **abstract concepts**.

This inconsistency causes difficulties in applying numerical systems across different fields.

So, what can we do?

By redefining 0 as a conceptual framework, we can standardize its interpretation.

Q: What are the benefits of redefining 0 as a concept?

(A summarized explanation from a Reddit discussion)

Comparison-based Zero → C0 (Comparison 0)

Physics:

- When no external forces are acting (**Net force = 0**)
- Zero is determined relatively based on other values
- → **C0 (Comparison-based Zero)**

Logic:

- **C0 can be applied to logic as well.**
 - By introducing **C0**,
 - **Truth tables can accommodate intermediate values** instead of just 0 (false) and 1 (true).
 - (e.g., 0.8 is "mostly true", 0.2 is "not entirely false")
 - **Schrödinger's cat paradox can be resolved** by defining the unobserved state as **C0**.
 - **C0 makes logical comparisons and contradiction resolution more intuitive.**
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Baseline Zero → B0 (Basis 0)

Physics:

- **When forces are perfectly balanced (Net force = 0)**
- **This is the absolute baseline**
- **→ B0 (Baseline Zero)**
- (Velocity 0 could also fit into **B0** as a conceptual framework)

Logic:

- **When 0 and 1 are strictly defined in propositional logic,**
 - **Using B0 allows for flexible logical design.**

Statistics:

- **Crime rate = 0% → Baseline scenario where no crime occurs → B0**
 - **Unemployment rate = 0% → Baseline scenario with no unemployed individuals → B0**
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Why redefine 0 in this way?

1. **Makes mathematics and other fields more intuitively organized.**
2. **Clarifies how 0 should be treated within different disciplines.**
3. **Allows for future adaptability—if humanity develops new uses for 0, they can be easily integrated (English + 0).**
4. **Improves educational clarity by teaching students how 0 functions in different contexts.**

This is **only a conceptual redefinition—mathematical formulas remain unchanged.**

By structuring 0 as a concept, confusion can be reduced, and the **foundations of existing academic disciplines remain intact.**

Reference materials:

 Hakodate National College of Technology (Physics) / Laws of Motion

→ https://www.hakodate-ct.ac.jp/~nagasawa/Mechanics_2.pdf

 Tohoku University (Mathematics) / Propositional Logic

→ https://www.math.is.tohoku.ac.jp/~obata/student/subject/file/2018-1_meidaironri.pdf

 Okinawa Institute of Science and Technology / Schrödinger's Cat

→ <https://www.oist.jp/ja/image/schrodingers-cat>

Final proposal:

If we express concepts as **[English word] + 0**,
it becomes easier to standardize across different academic fields.

Since **English is the global language**,
using English + 0 makes it intuitive and useful for education.

Suggested notation:

- **Comparison (comparison) + 0 → C0**
- **Baseline (basis) + 0 → B0**
- **Mark (mark) + 0 → M0** (*Would this be useful?*)

By structuring it this way, it becomes clear that "**X0 represents a concept**,"
making interpretation across different fields **much easier**.
