Copilot

Sure, let's break it down step by step in simpler terms.

What Does the Line Mean?

"Using a threshold of 0.00001 means we would only get a False Positive once every 100,000 experiments."

1. **Threshold of 0.00001**:
    - This is a very small number used in hypothesis testing, called the **significance level** or **p-value**.
    - It represents the probability of making a mistake by saying there is an effect or difference when there actually isn't.
2. **False Positive**:
    - This is a mistake where you think something is true when it is not.
    - For example, a medical test saying you have a disease when you actually don't.
3. **Once every 100,000 experiments**:
    - If you repeat an experiment 100,000 times, you would expect to make this mistake (False Positive) only once, given the threshold of 0.00001.

What is a False Positive?

A **False Positive** (Type I error) happens when a test incorrectly shows a positive result. Here are some examples:

- **Medical Test**: A test shows you have a disease, but you are actually healthy.
- **Hypothesis Testing**: You conclude that a new drug works, but it actually doesn't.

Putting It All Together

When you set a very strict threshold (like 0.00001), you are being very cautious. You are saying that you only want to risk making a mistake (False Positive) once in 100,000 times. This makes your test very reliable, but also very strict.

Example

Imagine you are testing a new drug:

- **Null Hypothesis (H0)**: The drug has no effect.
- **Alternative Hypothesis (H1)**: The drug has an effect.

If you set your threshold at 0.00001, you are saying that you will only claim the drug works if the chance of being wrong is less than 0.00001. This means you are very confident in your result if you do claim the drug works.

Does this help clarify things? Feel free to ask more questions if you need further explanation!