

Class 12 Biology | NEET Study Guide

Menstrual Cycle: Hormones, Ovulation & Uterine Changes

Defining the Cycle



Menstrual Cycle

The reproductive cycle found exclusively in female primates (monkeys, apes, and human beings).



Menarche

The very first menstruation that begins at puberty, marking the start of reproductive life.



Menopause

The cessation of menstrual cycles, typically occurring in human beings around 50 years of age.

The Biological Clock: Cycle Duration

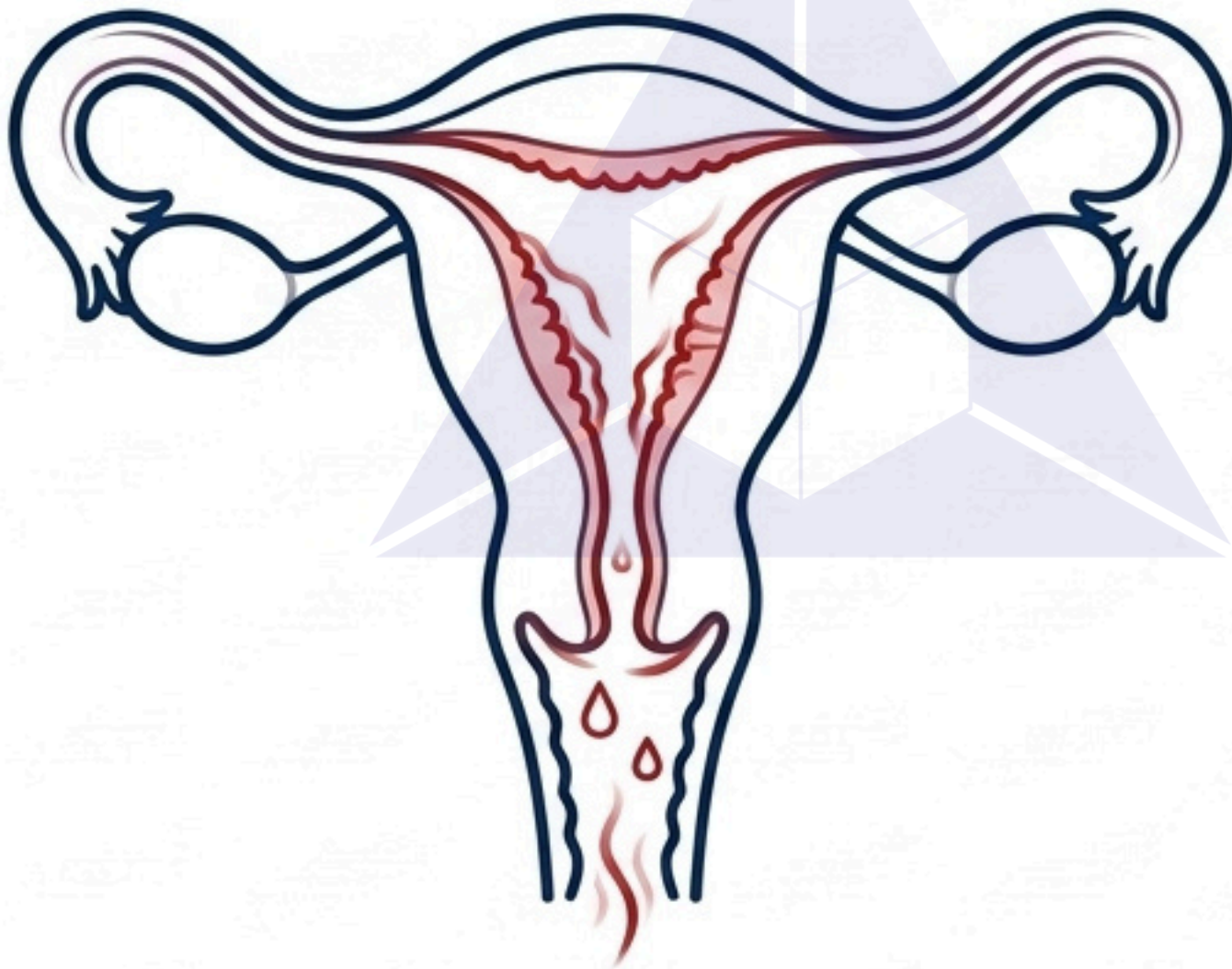
The cycle of events starting from one menstruation till the next lasts an average of 28/29 days.



One ovum is released (ovulation) during the middle of each cycle.

Menstrual Phase (Days 1–5)

Days 1–5



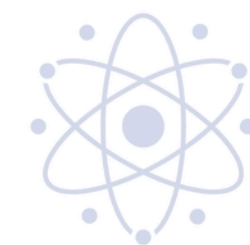
Menstrual flow occurs due to the breakdown of the endometrial lining of the uterus and its blood vessels, forming liquid that exits through the vagina.

⚠ Clinical Note: While lack of menstruation is often indicative of pregnancy, it can also be caused by stress, poor health, or other underlying causes.



You've Learned the Theory. Let's Test Them Now.

$$E=mc^2$$



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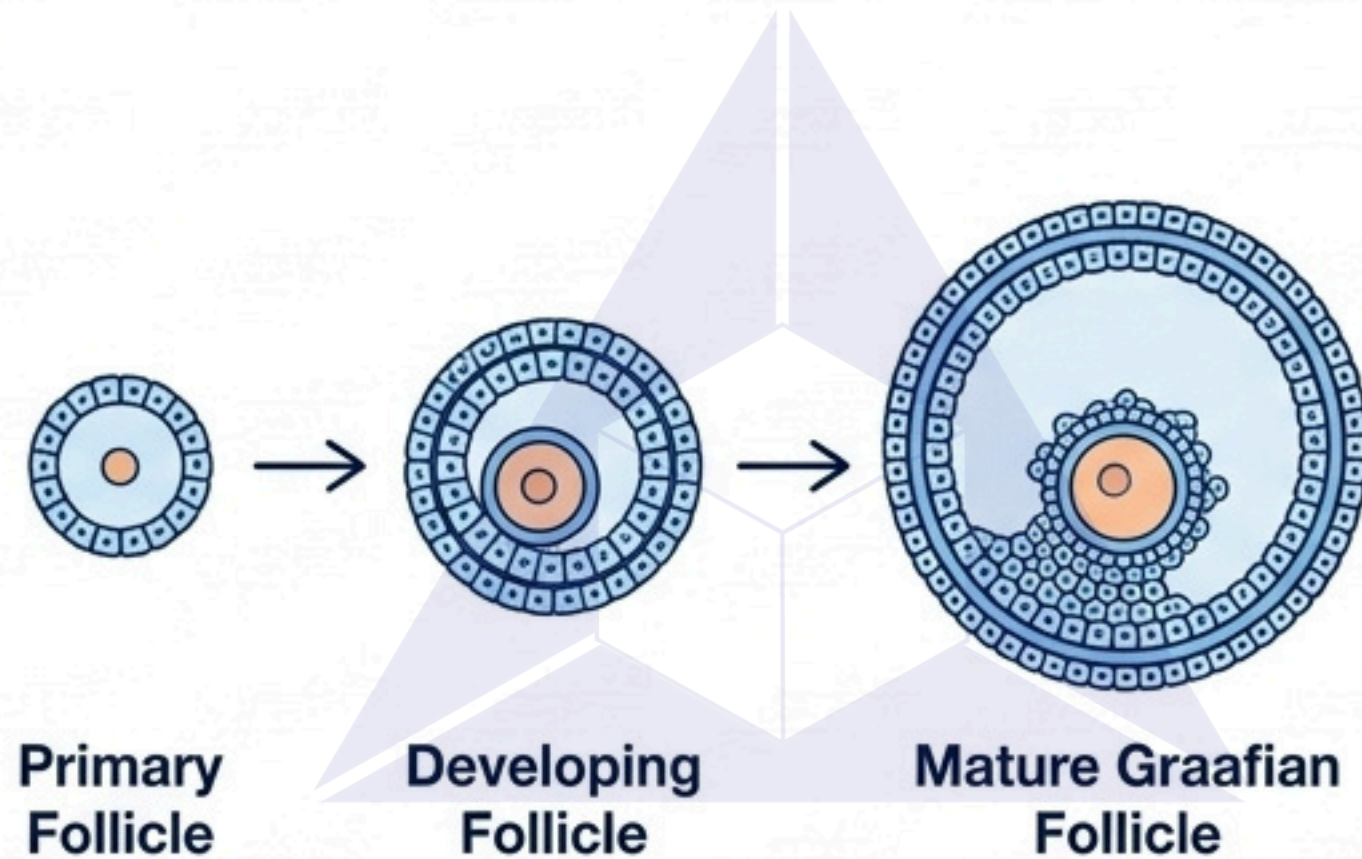
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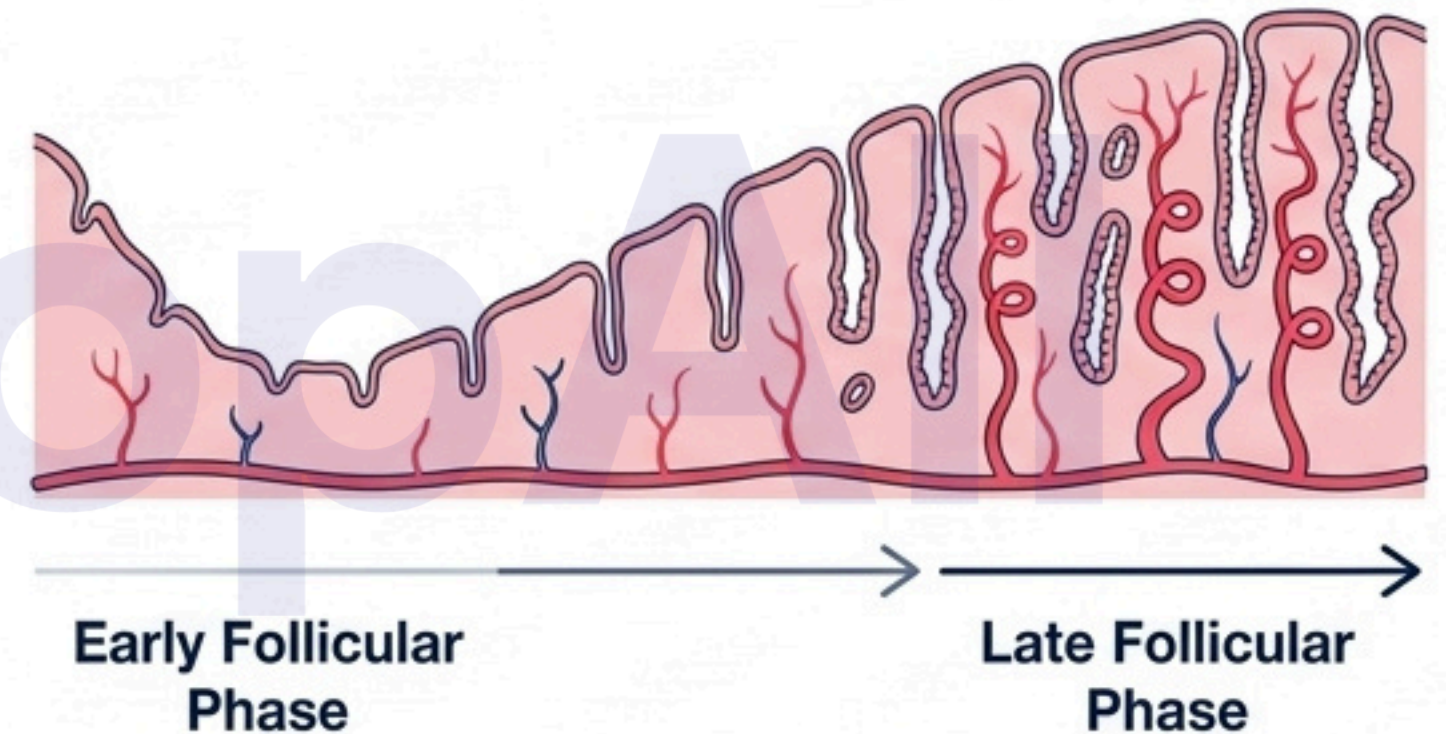
Follicular Phase (Post-Menstruation)

What happens in the Ovary



Primary follicles grow to become a fully mature Graafian follicle.

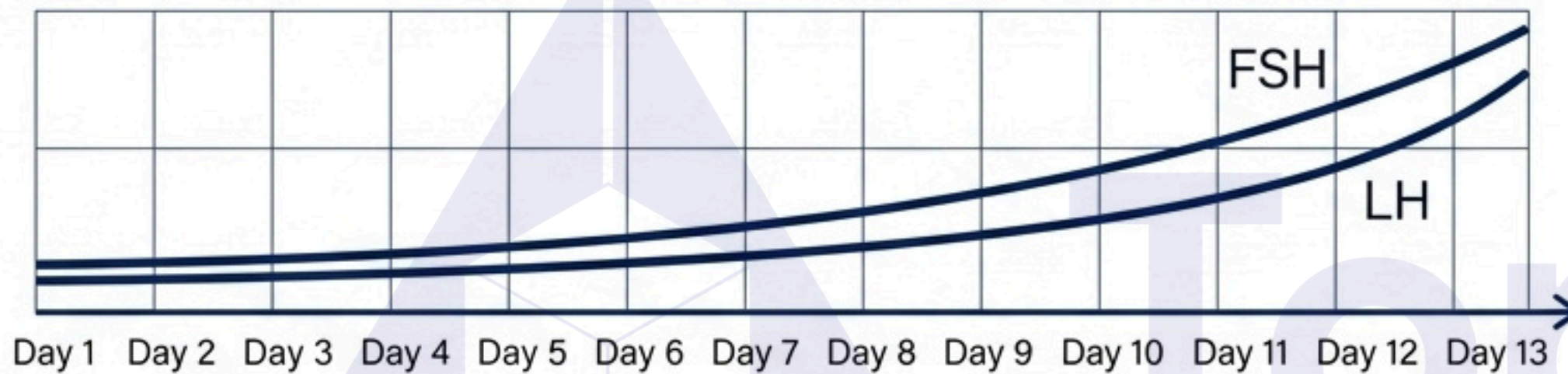
What happens in the Uterus



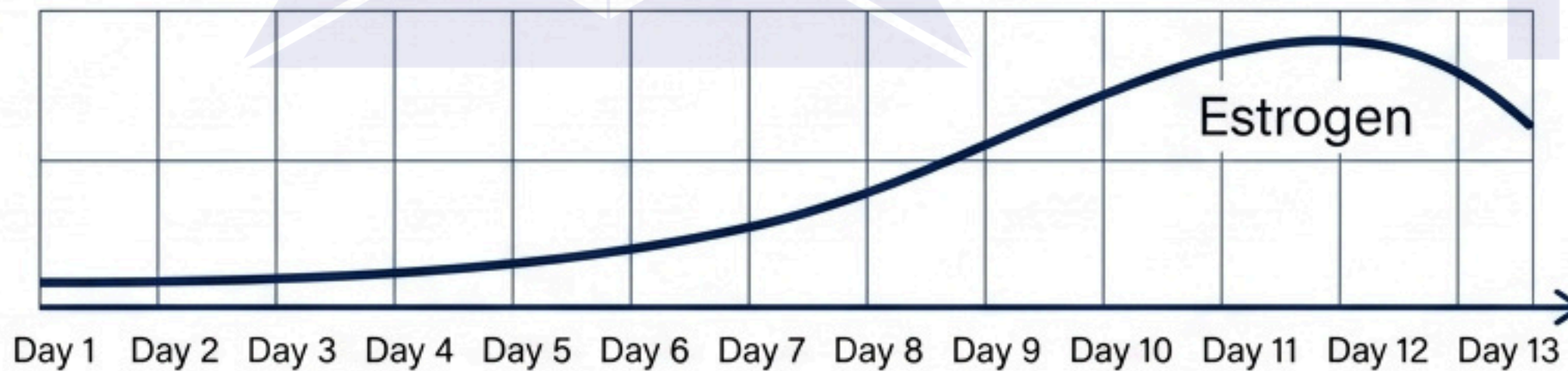
Simultaneously, the endometrium of the uterus regenerates through cellular proliferation.

Hormonal Drivers of the Follicular Phase

Pituitary Hormone Levels

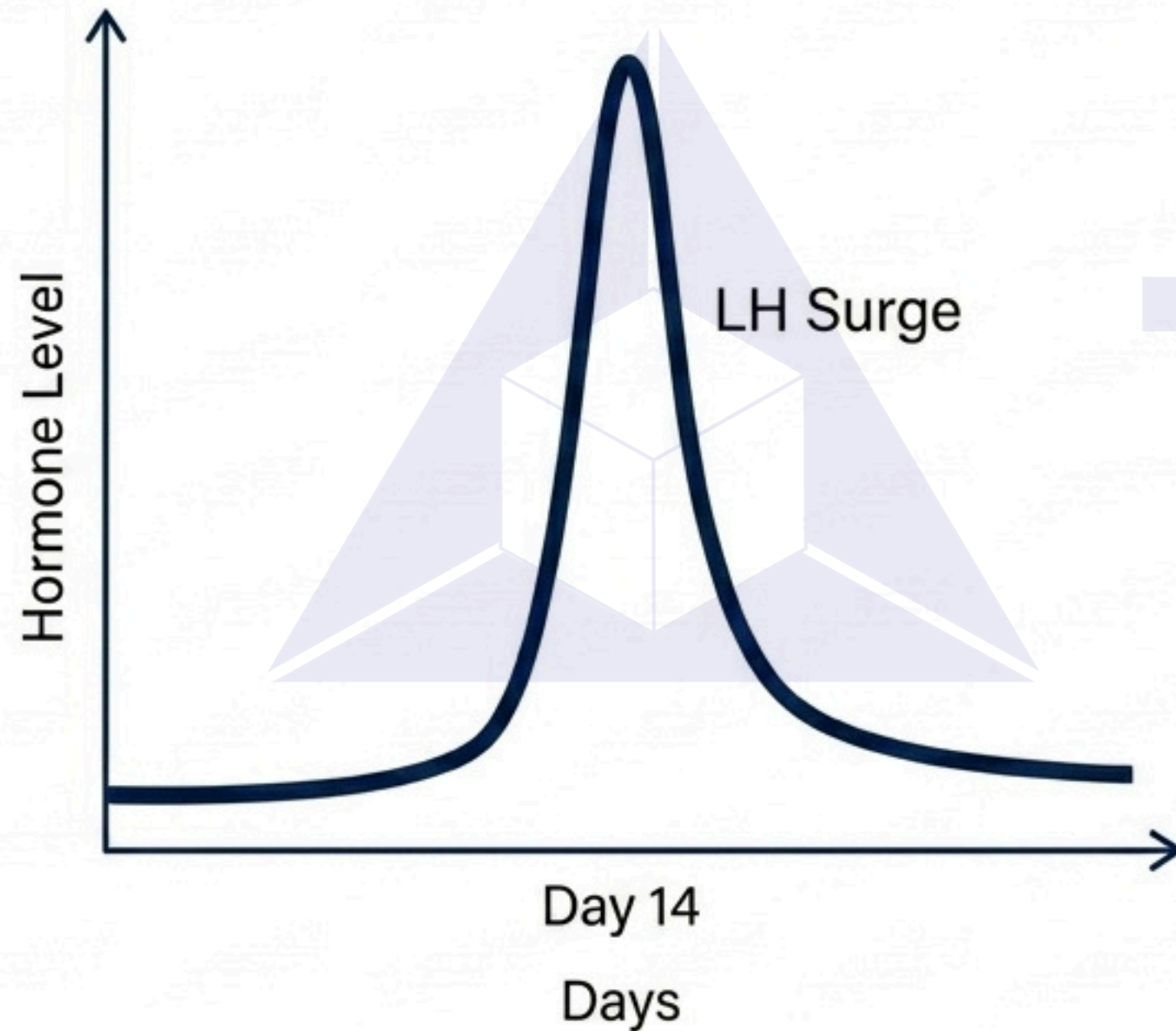


Ovarian Hormone Levels



Gonadotropins (LH and FSH) increase gradually, stimulating follicular development and the secretion of estrogens by the growing follicles.

The Mid-Cycle Climax: Ovulation (~Day 14)



1. LH Surge

Rapid secretion of LH attains its peak level.



2. Rupture

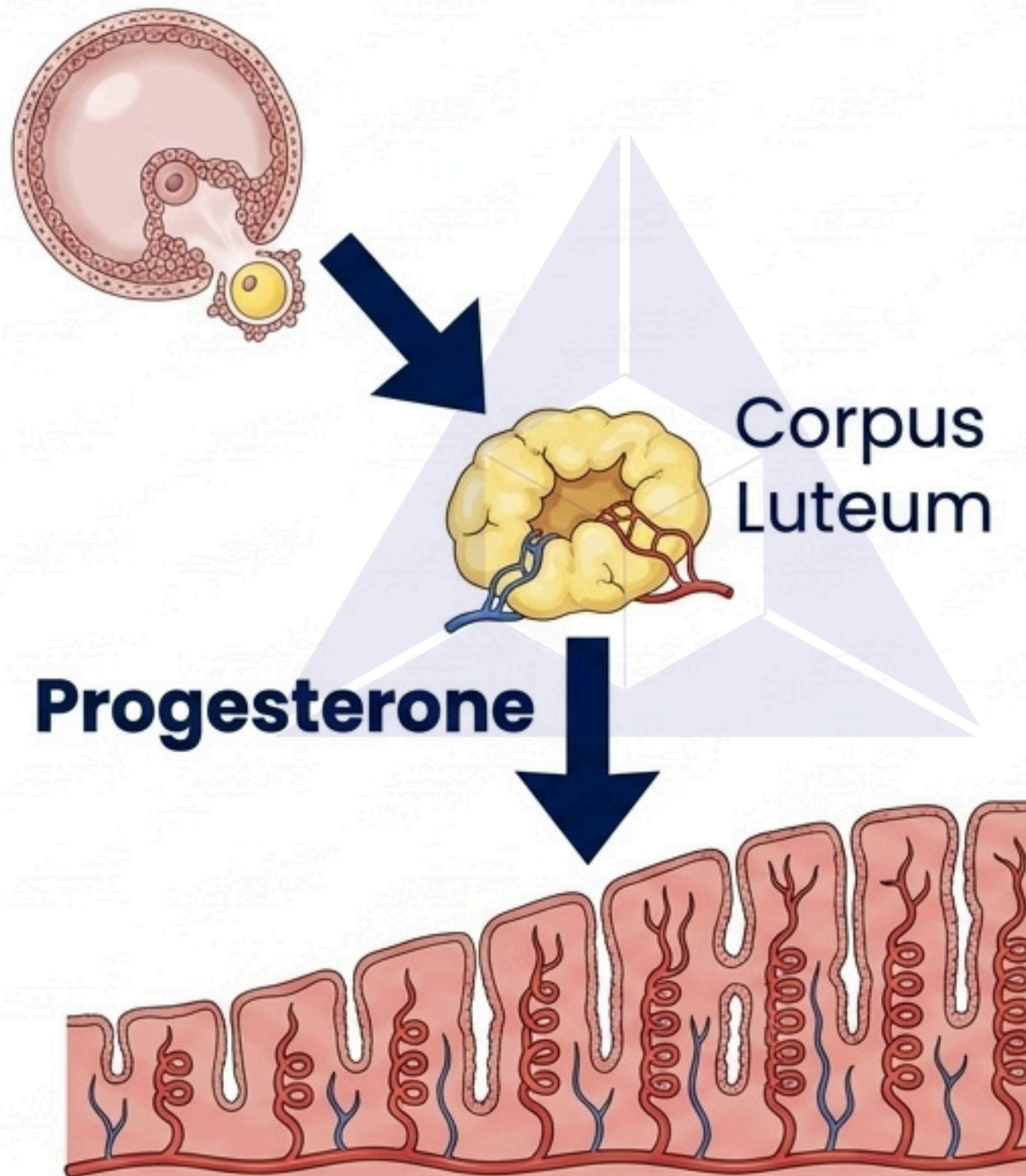
Induces rupture of the mature Graafian follicle.



3. Ovulation

The ovum is successfully released from the ovary.

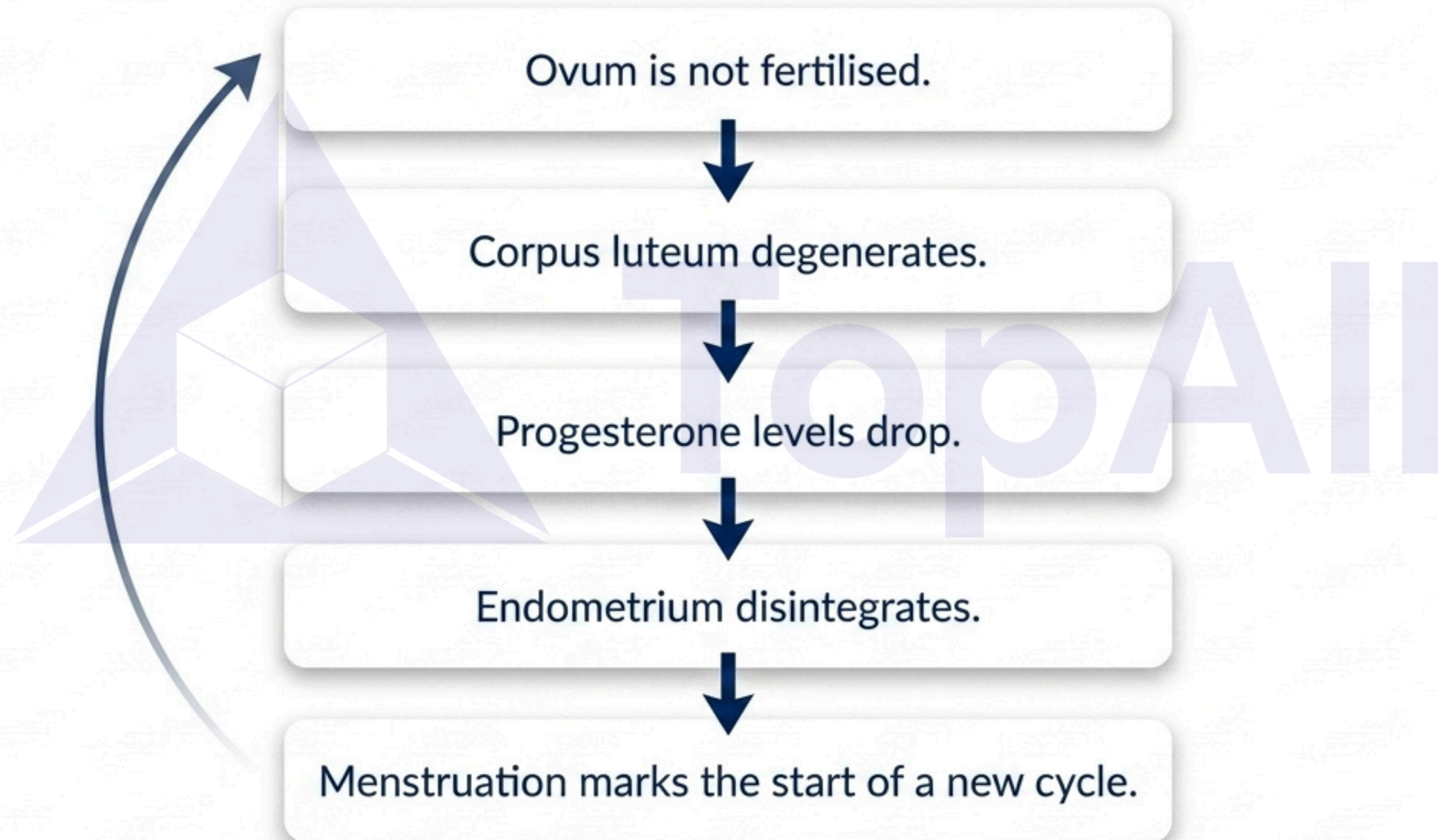
Luteal Phase



The remaining parts of the Graafian follicle transform into the Corpus Luteum.

The Corpus Luteum secretes large amounts of Progesterone, which is absolutely essential for maintaining the endometrium for potential implantation.

If No Fertilisation Occurs



NEET High-Yield Takeaways

- LH surge directly causes ovulation at mid-cycle (~Day 14).
- The Corpus Luteum is responsible for secreting Progesterone.
- Progesterone is the required hormone to maintain the endometrium.
- Menstruation occurs primarily because fertilisation does not happen, leading to corpus luteum degeneration.
- The cycle is unique to female primates (monkeys, apes, humans).



You've Learned the Theory.

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