WISDOM'S GOLDENROD, ALAN BERKOWITZ CLASS NOTES (TYPED)
JANUARY 22, 1982
SCIENCE; MATHEMATICAL LOGIC

TOPIC: Science
SUBJECT: Mathematical Logic

SUBSUBJECTS: Gödel, Leibniz, Proof

TYPED AND REFORMATTED by IT 2023

NOTES:

- **RETYPED HANDWRITTEN NOTES (hence V08).** From Classnotes AB 1982 0101 to 1982 0207.PDF.
- This event is among those in later 1981/early 1982 when Anthony was exploring Astrology/the Zodiacs, Cosmology, Physics, Logic, Astronomy, Soul, Nature, and The Grid: Gnostic and Fabricative.
- All spelling, capitalization, and punctuation corrected, abbreviations spelled out.

1982 01/22 at Wisdom's Goldenrod
Science; Mathematical Logic

[Classnotes AB 1982 0122 Begin]

1/22/82

Gödel's Theorem is a theory about proofs (theorems) -- mathematical logic.

A proof: premise → transformations → conclusions.

The concept of a proof was developed by the Greeks.

Question -- how would you have and use a theorem without having a proof for it?

Example: Greeks knew the volume of a truncated pyramid was $1/3 \times h \times (a^2 + b^2 + ab)$.

If your formula works for all observable cases, it is functional without having "proved it".

Can proofs be made without geometry? At first it was, but more sophisticated types don't.

In math you assume that a statement is true or false.

However, there are some statements that cannot be proved true or false.

(There are an infinite number of twin primes.)

Truth and proof are not co-extensive.

There are true things that are not provable.

Gödel constructed axioms on what kinds of proof there are.

Most people believe that you can prove any well put question or problem. If you can conceive of a question, it must be answerable.

This is true if you stay within certain limits, but if you go outside those limits, it isn't.

The limit that Gödel finds is the limit of discursive mathematical thought -- i.e., that there are some things that *can't* be proven.

Leibniz: a) wanted a language in which meaning was explicit or self-evident (to avoid argument between people due to unclear terms) -- i.e., really everyone would agree if terms were clear. Such a language would have to be: completely formal, precise semantics, symbolic. It would also be artificial. Was the beginning of symbolic logic -- 17th century -- developed a language of mathematics.
b) was amazed that imaginary numbers (purely symbolic) were efficacious or had power.

With this language you could prove the truth or falsity of any statement.

Gödel proved that Leibniz was wrong -- any rule or logic will still have a true sentence which it cannot confirm or deny.

[Classnotes AB 1982 0122 End]