Refutation of affine varieties in Zariski topology and denial of Grothendieck's scheme theory

Abstract: From the affine varieties of Zariski topology, we evaluate two definitions. Neither is tautologous. In fact, the two definitions are equivalents. This refutes the conjecture of affine varieties in Zariski topology. Therefore the affine varieties of Zariski topology are *non* tautologous fragments of the universal logic VŁ4. What follows is that the scheme theory of Grothendieck is *non* tautologous.

We assume the method and apparatus of Meth8/VŁ4 with Tautology as the designated proof value, **F** as contradiction, N as truthity (non-contingency), and C as falsity (contingency). The 16-valued truth table is row-major and horizontal, or repeating fragments of 128-tables, sometimes with table counts, for more variables. (See ersatz-systems.com.)

LET ~ Not, ¬ ; + Or, ∨, ∪ ; - Not Or; & And, ∧, ∩, · ; \ Not And;
> Imply, greater than, →, ⇒, ↦, ≻, ⊃, ↠ ;
< Not Imply, less than, ∈, ≺, ⊂, ⊬, ⊭, ↞, ≲;
= Equivalent, ≡, :=, ⟺, ↔, ≜, ≈, ≃; @ Not Equivalent, ≠, ⊔;
% possibility, for one or some, ∃, ◊, M; # necessity, for every or all, ∀, □, L;
(z=z) T as tautology, ⊤, ordinal 3; (z@z) **F** as contradiction, ∅, Null, ⊥, zero;
(%z>#z) N as non-contingency, Δ, ordinal 1;
(%z<#z) C as contingency, ∇, ordinal 2;
~(y < x) (x ≤ y), (x ⊆y); (A=B) (A~B); (B>A) (A⊢B); (B>A) (A⊨B).
Note for clarity, we usually distribute quantifiers onto each designated variable.

From : en.wikipedia.org/wiki/Zariski_topology

Zariski topology of varieties

In classical algebraic geometry (that is, the part of algebraic geometry in which one does not use schemes, which were introduced by Grothendieck around 1960), the Zariski topology is defined on algebraic varieties. The Zariski topology, defined on the points of the variety, is the topology such that the closed sets are the algebraic subsets of the variety. As the most elementary algebraic varieties are affine and projective varieties, it is useful to make this definition more explicit in both cases. We assume that we are working over a fixed, algebraically closed field *k* (in classical geometry *k* is almost always the complex numbers).

Affine varieties

First we define the topology on affine spaces A n , which as sets are just *n*-dimensional vector spaces over *k*. The topology is defined by specifying its closed sets, rather than its open sets, and these are taken simply to be all the algebraic sets in A n . That is, the closed sets are those of the form $V(S) = \{ x \in A^n \mid f(x) = 0, \forall f \in S \}$ where *S* is any set of polynomials in *n* variables over *k*. It is a straightforward verification to show that: V(S) = V((S)), where (S) is the ideal generated by the elements of S; For any two ideals of polynomials I, J, we have

$V(I) \cup V(J) = V(IJ)$; (1.1)

LET p, q, r, s: I, J, V

((r&p)+(r&q))=(r&(p&q)) ; `TTTT T`**`FF`**`T TTTT T`**`FF`**`T` (1.2)

$V(I) \cap V(J) = V(I+J)$. (2.1)

((r&p)&(r&q))=(r&(p+q)) ; `TTTT T`**`FF`**`T TTTT T`**`FF`**`T` (2.2)

Remark 1.-2.: Eqs. 1.2 and 2.2 as rendered are *not* tautologous, but are equivalent.

This refutes the conjecture of Zariski topology of affine varieties, thereby denying Grothendieck's scheme theory.