**Propositional Stability**

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1. **Introduction**

This short article adumbrates a new and useful notion relevant to so-called combined modal logics, Markov Logic Networks, and Transactional Logic (forthcoming). Specifically, we seek to define and identify the conditions under which truth-values remain stable when interacted with by **more than one logic**.

“Under what conditions”, we might ask, “do propositions remain unchanged in their truth-determinations?”

Further, “how might we proceed to calculate that and track such changes?”

1. **Overview and Motivation**

Post-truth, subjectivism, post-modernity, anti-rationalism, anti-intellectualism, memetics, black-boxed artificial intelligence, iterative logics (logics fail to exhibit eternalism), hyper-dimensional logics (forth-coming), logical pluralism, substructural logics, logics of contradiction and paradox, declassified UFO’s, and constructive mathematics.

Formally, Propositional Stability ensures that when a proposition is transacted between two logics (more on this later) - it never acquires a new truth-value beyond those it could have already acquired under the first logic under which it is evaluated.

1. **Conventions**

Where ⊶ ∈ ℕ   
Where ⋇ ∈ {a, ..., z, ...} | {a, ..., z, ...} = ℕ 

We write *ML*⊶⋇ to denote a semantics (model or truth-assignment *M*) for a language *L*⊶ with ⋇-many truth values.   
  
We write *VML*⊶⋇(p) to denote a truth-evaluation of *p* under semantics (model or truth-assignment *M*) for a language *L*⊶ with ⋇-many truth values.   
  
We write *VML1aVML2b*(p)\* to denote any possible truth-evaluation of p to a truth-value t in semantics *ML2b* such that: *t* ∈ *ML2b* and *t* ∉ *ML1a*.

**3.0 Definitions**  
  
An **instruction set** is a finite procedure or algorithm mapping one input to one output.   
  
**Propositional stability**: a proposition or sentence p evaluated under semantics *ML1a* will preserve its truth-value under semantics *ML2b* whenever *a* ⊆ *b* and no instruction set exists to map *VML1a*(p) to any *VML1aVML2b*(p)\*.   
  
**4.0 Initial Results**   
  
**Remark 1.** Any proposition under a Boolean logic will exhibit propositional stability against a (standard - thus far axiomatized) Kleene 3-Value Algebra.

**Proof:** Obvious. No single proposition already assigned a truth-value of 'true' or 'false' can receive a truth-value of 'indeterminate' or 'true and false'. ∎

**Remark 2.**

**5.0 Conclusion**

Here and elsewhere, I have asserted that the fundamental concepts currently in wide-spread use throughout mathematics, philosophy, science, finance, ethics, law, and so on all largely rely on *ontological dogmas* including truth-monism, classicality, the T-Schema, and objecthood.

**6.0 Appendix**

Originally Posted at: <http://www.postlib.com/propositional-stability/>

1. **Revision 0.0.2** – **3.18.18** - <https://www.linkedin.com/in/adamintaegerard/> [↑](#footnote-ref-1)