Propositional Stability

Adam InTae Gerard[1]

0.0 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?"

1.0 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*.

2.0 Conventions

Where $\multimap\bullet \in \mathbb{N}$
Where $\divideontimes \in \{a, ..., z, ...\} \mid \{a, ..., z, ...\} = \mathbb{N}$

We write $ML\multimap\bullet\divideontimes$ to denote a semantics (model or truth-assignment M) for a language $L\multimap\bullet$ with $\divideontimes$-many truth values.

We write $VML\multimap\bullet\divideontimes(p)$ to denote a truth-evaluation of p under semantics (model or truth-assignment M) for a language $L\multimap\bullet$ with $\divideontimes$-many truth values.

[1] **Revision 0.0.2 – 3.18.18** - https://www.linkedin.com/in/adamintaegerard/

We write $VML_{1a}VML_{2b}(p)^*$ to denote any possible truth-evaluation of p to a truth-value t in semantics ML_{2b} such that: $t \in ML_{2b}$ and $t \notin ML_{1a}$.

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 ML_{1a} will preserve its truth-value under semantics ML_{2b} whenever $a \subseteq b$ and no *instruction set* exists to map $VML_{1a}(p)$ to any $VML_{1a}VML_{2b}(p)^*$.

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/