**Transactional Logic**

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1. **Introduction**

I talked about my original idea called *propositional stability*- roughly, when a truth-value for a proposition or sentence remains bound by the same range of truth-values after being *transacted* between two logics regardless of the range of truth-values available within the second logic.  
  
So, no proposition or sentence assigned *true* or *false* under a classical logic can be assigned say *both true and false* within say a Kleene 3-valued so-called *logic of contradiction*(Priest's *logic of paradox* where a third-truth value is understood as standing for *both true and false* rather than as *indeterminate* which was proposed as a solution to Alethic paradox).  
  
I'd like to take some time to elaborate that concept, discuss two related concepts, and then talk briefly about [combined modal logics](https://plato.stanford.edu/entries/logic-combining) which have just begun to be studied.  
  
Again, importantly, a lot of this discussion fits within the larger [logical pluralism](https://plato.stanford.edu/entries/logical-pluralism/) debate which regards the feasibility of at least one of the following three theses:   
  
(1) There is no one, sole and universal, logic that structures, limits, defines, or describes

all of reality.   
(2) There are either multiple truth-predicates/operators, conceptions of truth, and/or

alethic inferences underpinning truth-predicates/operators.   
(3) There are multiple truth-properties.   
  
That thesis is not as radical as it might at first seem -*abductive* reasoning is common in law, medicine, and science and requires something like a non-monotonic logical framework to truly represent and understand the types of valid inference patterns allowed. Classical logic (Boolean Algebra), however, is *monotonic*.   
  
**1.0 Definitions**   
  
***Meta-language***: (following [Tarski](https://scholar.google.com/scholar?num=100&um=1&ie=UTF-8&lr&cites=69578327874717826)) a language *L* sufficient for First-Order Logic within which object languages are constructed.  
  
***Object-language***: a language *O* constructed within a meta-language *L* - the target language to be specified or built.  
  
***Cross Logics***: two object languages O1 and O2 so-constructed in a meta-language *L* such that they comprise a *transactional logic* are each referred to as the *cross logic* of the other.  
  
***Logical Transaction:*** a time-based mechanism or procedure by which a proposition *P* in a meta-language *L* also residing in an object language *O* in *L* is assigned a new truth-value within the *cross logic* of *L*.  
  
***Transactional Logic***: a meta-language L implements a *transactional logic if-and-only-if L* contains languages *O*1, ... that are *cross logics* of each other supporting *logical transactions* between them.

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