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A NOTE ON CONTRARIETY

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In "Contrariety" Storrs McCall introduces the concept of contrariety as a one-place propositional function using Lewis modal systems as calculi models for a propositional calculus with contrariety.[1] An elementary law in this calculus is

1 *CRpNp*

(where *Rp* is the strong contrary of *p*).[2] He goes on to claim that an indefinitely large number of derivative laws can be obtained from 1 by substitution, transportation and double negation. Thus we get, for example,

2 *CpNRp*

Also, substitution and double negation yield

3 *CRNpp*

But how are we to understand the contrary of a negation? Consider an instance of 1;

1a *If x is not-red then it is not the case that x is red.*

Now the move from 1 to 3 must give us

3a *If not-(it is not the case that x is red) then x is red.*

Notice that in 1a the contrary function in the antecedent is not a propositional function at all! It is a predicate function. That is why 3a strikes us as so odd; it tries to make a propositional function out of the contrary operator ("not-"). Note also that in 3a "not-" and "it is not the case that" do not cancel each other out because they are different kinds of negation. The first is a predicate operator, the second a proposition operator.

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1. *Notre Dame Journal of Formal Logic*, vol. VIII (1967), pp. 121-132.

2. While "*x* is red" and "*x* is blue" are (weak) contraries, "*x* is red" and "*x* is not-red" are strong contraries.

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What McCall has not realized clearly is that while it is most certainly the case that propositions have contraries ("*x* is red" and "*x* is not-red" are contrary propositions), the contrariety between two propositions derives from the contrariety (incompatibility) between their predicates. We form the contrary of "*x* is red" by applying a contrariety function not to the entire proposition but to the predicate alone. In other words, two propositions are contraries if and only if they are exactly alike except that their predicates are contraries.

McCall has offered us a propositional logic of unanalyzed propositions. But once we see, as Aristotle did, that contrariety is a relation initially between terms, we will understand that a logic of contrariety must be a logic of *analyzed* propositions, i.e., a term logic.[3]

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3. For an excellent example of such a logic see F. Sommers, "The calculus of terms," *Mind*, vol. 79 (1970), pp. 1-39.

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