

## Partially defined Boolean functions in TRIZ

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**Abstract.** The most recognized area where Boolean functions are used in TRIZ is, presumably, the cause-effect analysis, with logical operators indicating how causes trigger the effects. An AND operator denotes logical conjunction, while an OR operator denotes logical disjunction, and both are fully defined functions, i.e., an explicit output value is specified for each combination of the arguments. This paper focuses on partially defined Boolean functions incurring uncertainty due to some output values indicated as unspecified or unknown. It discusses the opportunities and threats of using such functions to describe project requirements and relations between the causes in cause-effect models. The approaches to tackling the uncertainty resulting from such function definitions are also presented, which is deemed to be instrumental for TRIZ researchers and practitioners.

**Keywords:** TRIZ, Cause-Effect Chains Analysis, Root Conflict Analysis, CECA, RCA+, Boolean logic, partially defined function, requirements analysis.