

Ideal Quaternary Semantics of Attack Trees

Truth tables over propositional variables:

$$A, B \in \{0, \frac{1}{4}, \frac{1}{2}, 1\}$$

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Choice:

$$A \sqcup_I B = \max(A, B)$$

Sequence:

$$0 \triangleright_I B = 0$$

$$A \triangleright_I 0 = 0$$

$$A \triangleright_I B = \frac{1}{2}, \text{ when } A \in \{\frac{1}{2}, 1\}$$

Parallel:

$$0 \odot_I B = 0$$

$$A \odot_I 0 = 0$$

$$A \odot_I B = 1$$