

## Axioms

### Closure

$$\begin{aligned} a + b &\text{ is in } \mathbb{B} \\ a \bullet b &\text{ is in } \mathbb{B} \end{aligned}$$

### Commutativity

$$\begin{aligned} a + b &= b + a \\ a \bullet b &= b \bullet a \end{aligned}$$

### Associativity

$$\begin{aligned} a + (b + c) &= (a + b) + c \\ a \bullet (b \bullet c) &= (a \bullet b) \bullet c \end{aligned}$$

### Identity

$$\begin{aligned} a + 0 &= a \\ a \bullet 1 &= a \end{aligned}$$

### Distributivity

$$\begin{aligned} a + (b \bullet c) &= (a + b) \bullet (a + c) \\ a \bullet (b + c) &= (a \bullet b) + (a \bullet c) \end{aligned}$$

### Complementarity

$$\begin{aligned} a + a' &= 1 \\ a \bullet a' &= 0 \end{aligned}$$

## Theorems

### Null

$$\begin{aligned} X + 1 &= 1 \\ X \bullet 0 &= 0 \end{aligned}$$

### Idempotency

$$\begin{aligned} X + X &= X \\ X \bullet X &= X \end{aligned}$$

### Involution

$$(X')' = X$$

### Uniting

$$\begin{aligned} X \bullet Y + X \bullet Y' &= X \\ (X + Y) \bullet (X + Y') &= X \end{aligned}$$

### Absorbtion

$$\begin{aligned} X + X \bullet Y &= X \\ (X + Y') \bullet Y &= X \bullet Y \\ X \bullet (X + Y) &= X \\ (X \bullet Y') + Y &= X + Y \end{aligned}$$

### DeMorgan

$$\begin{aligned} (X + Y + \dots)' &= X' \bullet Y' \bullet \dots \\ (X \bullet Y \bullet \dots)' &= X' + Y' + \dots \end{aligned}$$

### Consensus

$$\begin{aligned} (X \bullet Y) + (Y \bullet Z) + (X' \bullet Z) &= X \bullet Y + X' \bullet Z \\ (X + Y) \bullet (Y + Z) \bullet (X' + Z) &= (X + Y) \bullet (X' + Z) \end{aligned}$$

### Factoring

$$\begin{aligned} (X + Y) \bullet (X' + Z) &= X \bullet Z + X' \bullet Y \\ X \bullet Y + X' \bullet Z &= (X + Z) \bullet (X' + Y) \end{aligned}$$