**role** — **type** / **bool2** · **bool3** · **codomain** · ∃f · **\true** · 2020 **B ∞ L E A N**

**A L G E B R A**
Cheat Sheet
by Sven N

| role | type | |
|---|---|---|
| role | bool | type |
| type | false | bool |
| value | true | bool |
| codomain | type2 | type |
| domain | bool2 | type2 |
| **self** | bool3 | type3 |

| **value** | **false** | **true** |
|---|---|---|
| \false | false | false |
| not | true | false |
| id | false | true |
| \true | true | true |
| and | \false | id |
| or | id | \true |
| nand | \true | not |
| nor | not | \false |
| xor | id | not |
| eq | not | id |

| **bool2** | **bool3** |
|---|---|
| \false | and |
| not | or |
| id | nand |
| \true | nor |
| Advanced | xor |
| Research | eq |

| **codomain** | | ∃f | **\true** |
|---|---|---|---|
| \false | | not | and |
| not | | \true | or |
| id | | \true | nand |
| \true | | id | nor |
| *modeled* | *unique* | *univeral* | xor |
| *using* | *binary* | *relations* | eq |

*modeled using unique binary univeral relations*

and(not, id) = \false
or(not, id) = \true

| **[domain]** | | **\false** | **not** | **id** | **\true** | **true** |
|---|---|---|---|---|---|---|
| **false** | ∀f | \true | id | not | \false | self |
| | **and** | **or** | nand | nor | xor | eq |
| **and** | nand | \true | \true | eq | or | eq |
| **or** | and | nor | \true | \true | or | \true |
| **nand** | \false | xor | nand | nand | nand | \true |
| **nor** | \false | \false | \false | or | nand | eq |
| **xor** | \false | xor | xor | \false | eq | \true |
| **eq** | and | and | nor | nor | \false | xor |