Cheat Sheet – Logical Operators

AND

The legal consequence is triggered only where all constituent conditions are satisfied.

Example: Federal Election – Right to Vote (§ 12 (1) Federal Elections Act (BWahlG) in conjunction with Article 116 (1) Basic Law (GG)):

- A person is entitled to vote if (A) they have reached the age of 18 and (B) hold German citizenship.
- Signal words: and, only if, as well as, both … and …

A	B	AND
0	0	0
0	1	0
1	0	0
1	1	1

OR

The legal consequence is triggered once at least one of the constituent conditions is satisfied.

Example: Tenancy law – termination for cause without notice (§ 543 (1) German Civil Code (BGB)):

- The tenant is entitled to terminate the lease without notice if (A) the leased property suffers from substantial defects, or (B) the landlord has materially breached their obligations under the lease.
- Signal words: or, and/or, alternatively, in the alternative

A	B	OR
0	0	0
0	1	1
1	0	1
1	1	1

EXCLUSIVE-OR

The legal consequence is triggered only where precisely one of the constituent conditions is met, and not more than one concurrently.

Example: Sale of goods – buyer's right of choice (§ 439 (1) German Civil Code (BGB)):

- The buyer may, at their choice, demand that (A) the defect be remedied or that (B) a thing free of defects be supplied.
- Signal words: either … or, alternatively, in the alternative

A	B	XOR
0	0	0
0	1	1
1	0	1
1	1	0

NOT-AND

The legal consequence is triggered only where not all of the constituent conditions are fulfilled concurrently.

<u>Example:</u> Incompatibility of membership in the management board and in the supervisory board (§ 105 (1) Stock Corporation Act (AktG)):

- A person may not, at the same time, be (A) a member of the supervisory board and (B) a member of the management board of the same company.
- Signal words: not simultaneously, not concurrently, not also

A	B	N-AND
0	0	1
0	1	1
1	0	1
1	1	0

NOT-OR

The legal consequence is triggered only where none of the constituent conditions are satisfied.

<u>Example:</u> Definition of consumer (§ 13 German Civil Code (BGB)):

- A consumer means every natural person who enters into a legal transaction for purposes that are predominantly outside their (A) trade or business and (B) profession.
- Signal words: neither … nor, no … or …

A	B	N-OR
0	0	1
0	1	0
1	0	0
1	1	0

NOT-EXCLUSIVE-OR

The legal consequence is triggered exclusively where all constituent conditions exhibit the same truth value — either all true or all false.

<u>Example:</u> Record retention and storage limitation (Sec. 257 HGB; Sec. 147 AO in conjunction with GDPR Art. 5(1)(e)):

- Compliance is ensured only where (A) a statutory retention obligation exists under Sec. 257 HGB or Sec. 147 AO and (B) the records are retained accordingly; or where (¬A) no such retention obligation exists and (¬B) personal data are not kept longer than is necessary pursuant to Art. 5(1)(e) GDPR.
- Indicator: Typically, not marked linguistically in statutes; discernible where the legal effect depends on uniform truth values among all conditions.

A	B	N-XOR
0	0	1
0	1	0
1	0	0
1	1	1

In the truth tables, 0 denotes a condition that is not fulfilled (false), and 1 denotes a condition that is fulfilled (true).