

4.1.x. Exercise questions

1. Analyze each of the following sentences in as much detail as possible.
 - a. *Either Tommy ate his vegetables or he didn't get any dessert.*
 - b. *Mike heard neither the phone nor the doorbell.*
 - c. *Either Mike wasn't home or he wasn't answering the phone.*
 - d. *The package was sent, but either it's still on its way or it's been lost in the mail.*
 - e. *Neither the House nor the Senate had acted on the bill, but the White House expressed confidence that it would pass.*
 - f. *Sam won't pass through without either stopping by or calling.*
 - g. *Either Davis or Edwards will take you or give you directions.*
 - h. *We'll have either a can without an opener or an opener without a can.*
 - i. *Neither Jan nor Ken had matches or a lighter.*
 - j. *Both Ann and Bill were in town but neither knew the other was.*
 - k. *Either Tom, Dick, or Harry will handle both the scheduling and the publicity.*
 - l. *The scheduling will be handled by either Tom, Dick, or Harry-as will the publicity.*
2. Restate each of the following forms, putting English notation into symbols and vice versa. Indicate the scope of connectives in the result by underlining.
 - a. $A \wedge (B \vee C)$
 - b. $(A \wedge B) \vee C$
 - c. not either A or not B
 - d. both either A or B and either A or C

3. Synthesize idiomatic English sentences that express the propositions associated with the logical forms below by the intensional interpretations that follow them.
- a. $B \vee N$
[B: *it was the butler*; N: *it was the nephew*]
 - b. $\neg (A \vee S)$
[A: *the alarm worked*; S: *the sprinkler worked*]
 - c. $\neg A \vee \neg P$
[A: *the part arrived*; P: *the part was the problem*]
 - d. $A \vee \neg (B \wedge C)$
[A: *Ann has a large car*; B: *Bill will ride with us*; C: *Carol will ride with us*]
 - e. $(R \vee D) \wedge W$
[D: *there was a heavy dew*; R: *it rained over night*; W: *it is wet*]
 - f. $(A \wedge Z) \vee (F \wedge \neg (A \vee Z))$
[A: *AAA & Co. will profit from the deal*; F: *the deal will fall through*; Z: *ZZZ Inc. will profit from the deal*]