Exercises for 1.5

1. Produce the tables of the remaining five possible truth conditions that make $A \otimes B$ come out true on exactly two interpretations.

Answer Key

A	B	$A \otimes B$
T	T	T
F	T	T
T	F	F
F	F	F

A	B	$A \otimes B$
T	T	T
F	T	F
T	F	T
F	F	F

A	B	$A \otimes B$
T	T	F
F	T	T
T	F	T
F	F	F

A	B	$A \otimes B$
T	T	F
F	T	T
T	F	F
F	F	T

A	B	$A \otimes B$
T	T	F
F	T	F
T	F	T
F	F	T

2. Give an example of a compound sentence in English that is true on all interpretations.

Answer Key

⟨The butler is the culprit⟩ or the ⟨butler is not the culprit⟩.

3. Give an example of a compound sentence in English that is false on all interpretations.

Answer Key ⟨The patron saint of modesty blesses himself⟩ and ⟨the patron saint of modesty does not bless himself⟩

4. Give an example of a compound sentence in English that is true on exactly one interpretation but is not of the form ⟨A and B⟩.

Answer Key

It is not the case that ⟨the Holy Roman Empire was Roman⟩ and it is not the case that ⟨the Holy Roman Empire was holy⟩.

Note 1:

The following would not be a correct answer:

⟨It is not the case that the Holy Roman Empire was Roman⟩ and ⟨it is not the case that the Holy Roman Empire was holy⟩.

Which sentences we regard as atomic matters.

Note 2:

There are plenty of other possibilities (in fact, infinitely many). E.g.

- it is not the case that ⟨A or B⟩.
- Neither A nor B.

5. Can you think of a way of saying the same thing as ⟨A and B⟩ without using the connective 'and'?

Answer Key E.g.,

it is not the case that ⟨⟨it is not the case that A⟩ or ⟨it is not the case that B⟩⟩