Some “Classic” Shots @ R

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Are Humans Rational?
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With deep gratitude to P. Johnson-Laird.
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Attack on $\mathcal{R}$
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If humans are as described in this thesis, then they can solve the forthcoming problems.
Attack on $R$

If humans are as described in this thesis, then they can solve the forthcoming problems.

But humans can’t solve the problems in question.
If humans are as described in this thesis, then they can solve the forthcoming problems.

But humans *can’t* solve the problems in question.

Therefore:
Attack on $\mathcal{R}$

If humans are as described in this thesis, then they can solve the forthcoming problems.

But humans can’t solve the problems in question.

Therefore:

Sorry Selmer & company, your thesis $\mathcal{R}$ is false.
Suppose I claim that the following rule is true.

If a card has a vowel on one side, it has an even number on the other side.

Which card or cards should you turn over in order to try to decide whether the rule is true or false?
Suppose I claim that the following rule is true.

If a card has a vowel on one side, it has an even number on the other side.

Which card or cards should you turn over in order to try to decide whether the rule is true or false?
Suppose I claim that the following rule is true.

If a card has a vowel on one side, it has an even number on the other side.

Which card or cards should you turn over in order to try to decide whether the rule is true or false?
Given the statements

\( \neg a \lor \neg b \)

\( b \)

\( c \rightarrow a \)

which one of the following statements must also be true?

\( c \)

\( \neg b \)

\( \neg c \)

\( h \)

\( a \)

none of the above
Given the statements

\[ \neg a \lor \neg b \]
\[ b \]
\[ c \rightarrow a \]

which one of the following statements must also be true?

\[ c \]
\[ \neg b \]
\[ \neg c \]
\[ h \]
\[ a \]

none of the above
Which one of the following statements is logically equivalent to the following statement: “If you are not part of the solution, then you are part of the problem.”

If you are part of the solution, then you are not part of the problem.

If you are not part of the problem, then you are part of the solution.

If you are part of the problem, then you are not part of the solution.

If you are not part of the problem, then you are not part of the solution.
Which one of the following statements is logically equivalent to the following statement: “If you are not part of the solution, then you are part of the problem.”

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If you are not part of the problem, then you are part of the solution.

If you are part of the problem, then you are not part of the solution.

If you are not part of the problem, then you are not part of the solution.
Given the statements
\(-\neg c\)
\(c \rightarrow a\)
\(\neg a \vee b\)
\(b \rightarrow d\)
\(\neg (d \vee e)\)

which one of the following statements must also be true?

\(-c\)
e
h
\(-a\)
all of the above
Given the statements
\[ \neg\neg c \]
\[ c \rightarrow a \]
\[ \neg a \lor b \]
\[ b \rightarrow d \]
\[ \neg(d \lor e) \]

which one of the following statements must also be true?

\[ \neg c \]
\[ e \]
\[ h \]
\[ \neg a \]

all of the above
The Original King-Ace

Suppose that the following premise is true:

If there is a king in the hand, then there is an ace in the hand, or else if there isn’t a king in the hand, then there is an ace.

What can you infer from this premise?
The Original King-Ace

Suppose that the following premise is true:

If there is a king in the hand, then there is an ace in the hand, or else if there isn’t a king in the hand, then there is an ace.

What can you infer from this premise?

There is an ace in the hand.
The Original King-Ace

Suppose that the following premise is true:

If there is a king in the hand, then there is an ace in the hand, or else if there isn’t a king in the hand, then there is an ace.

What can you infer from this premise?

There is an ace in the hand.
Suppose that the following premise is true:

If there is a king in the hand, then there is an ace in the hand, or else if there isn’t a king in the hand, then there is an ace.

What can you infer from this premise?

NO! There is an ace in the hand.
The Original King-Ace

Suppose that the following premise is true:

If there is a king in the hand, then there is an ace in the hand, or else if there isn’t a king in the hand, then there is an ace.

What can you infer from this premise?

NO! There is an ace in the hand. NO!
The Original King-Ace

Suppose that the following premise is true:

If there is a king in the hand, then there is an ace in the hand, or else if there isn’t a king in the hand, then there is an ace.

What can you infer from this premise?

NO! There is an ace in the hand. NO!

In fact, what you can infer is that there isn’t an ace in the hand!
Suppose that the following premise is true:

If there is a king in the hand, then there is an ace in the hand; or if there isn’t a king in the hand, then there is an ace; but not both of these if-then statements are true.

What can you infer from this premise?
Suppose that the following premise is true:

*If there is a king in the hand, then there is an ace in the hand; or if there isn’t a king in the hand, then there is an ace; but not both of these if-then statements are true.*

What can you infer from this premise?

There is an ace in the hand.
Suppose that the following premise is true:

*If there is a king in the hand, then there is an ace in the hand; or if there isn’t a king in the hand, then there is an ace; but not both of these if-then statements are true.*

What can you infer from this premise?

*There is an ace in the hand.*
Suppose that the following premise is true:

*If there is a king in the hand, then there is an ace in the hand; or if there isn’t a king in the hand, then there is an ace; but not both of these if-then statements are true.*

What can you infer from this premise?

**NO! There is an ace in the hand.**
Suppose that the following premise is true:

If there is a king in the hand, then there is an ace in the hand; or if there isn’t a king in the hand, then there is an ace; but not both of these if-then statements are true.

What can you infer from this premise?

NO! There is an ace in the hand. NO!
Suppose that the following premise is true:

*If there is a king in the hand, then there is an ace in the hand; or if there isn’t a king in the hand, then there is an ace; but not both of these if-then statements are true.*

What can you infer from this premise?

**NO!** There is an ace in the hand. **NO!**

In fact, what you *can* infer is that there *isn’t* an ace in the hand!
Refutation of: Attack on $R$

If humans are as described in this thesis, then they can solve the forthcoming problems.

But humans *can’t* solve the problems in question.

Therefore:

Sorry Selmer & company, your thesis $R$ is false.
Refutation of: Attack on $\mathcal{R}$

If humans are as described in this thesis, then they can solve the forthcoming problems.

But humans can’t solve the problems in question.

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Sorry Selmer & company, your thesis $\mathcal{R}$ is false.
Refutation of: Attack on $R$

If humans are as described in this thesis, then they can solve the forthcoming problems.  

But humans can’t solve the problems in question.

Therefore:
Sorry Selmer & company, your thesis $R$ is false.
Refutation of: Attack on $R$

If humans are as described in this thesis, then they *FALSE* can solve the forthcoming problems.

If humans are as described in $R$, then humans can (given sufficient training, etc) eventually solve the problems in question.

But humans *can’t* solve the problems in question.

Therefore:
Sorry Selmer & company, your thesis $R$ is false.
Refutation of: Attack on \( R \)

If humans are as described in this thesis, then they \( \text{FALSE} \) can solve the forthcoming problems.

If humans are as described in \( R \), then humans can (given sufficient training, etc) eventually solve the problems in question.

But humans \( \text{can’t} \) solve the problems in question. \( \text{FALSE} \)

Therefore:
Sorry Selmer & company, your thesis \( R \) is false.
Refutation of: Attack on $R$

If humans are as described in this thesis, then they can solve the forthcoming problems. **FALSE**

If humans are as described in $R$, then humans can (given sufficient training, etc) eventually solve the problems in question.

But humans can’t solve the problems in question. **FALSE**

Some humans can’t, at present, solve the problems in question.

Therefore:

Sorry Selmer & company, your thesis $R$ is false.