Propositions

Consider the sentences:

\( P \) : "There are more than 3 false statements in this book and this statement is one of them"

and

\( Q \) : "There are more than 3 false statements in this book and this statement is not one of them"

This leads us to define the proposition:

\( R \) : "There are more than 3 false statements in this book"

We may then write that:

\[ P \equiv R \land \neg P \]

and

\[ Q \equiv R \land Q \]

Suppose that \( R \) is a true statement.

We then have \( P \equiv \neg P \), which is a paradox.

We also have \( Q \equiv Q \), which is correct, no matter the value of \( Q \).

On the other hand, suppose that \( R \) is a false statement.

We then have \( P \equiv F \) and \( Q \equiv F \).

Compare these to the sentences:

\( S \) : "This sentence is false",

which is a paradox,

and

\( U \) : "This sentence is true",

which can be assigned the either truth value.