Qualia Logic

Let \( p \) be a statement of classical propositional calculus. We want to add cases for which \( p \) is a statement about qualia. Classically, if \( p \) is a statement it can have truth values \( T \) or \( F \). But if \( p \) contains qualia it contains ineffable information. One way to allow for this is to let \( p \) take on the truth values \((T, i)\), \((F, i)\), \((T, i)\) or \((F, i)\) for 'true', 'false', 'true and ineffable' or 'false and ineffable' [2]. For example I would give the sentence

'one way that green appears to me is' the truth-value \((T, i)\).

If \( p \) is true and \( q \) is true then \( p \land q \) is true. Some reflection shows that if \( p \) is true and \( q \) is true and ineffable, then the proposition \( p \land q \) is ineffable... One can go through the truth value alternatives for \( p \land q \) systematically and construct a truth table for \( p \land q \):

Truth Table (matrix) for \( p \land q \)

\[
\begin{array}{|c|c|c|c|c|}
\hline
p & q & (T) & (F) & (T, i) \\
\hline
(T) & (T) & (F) & (T, i) & (F, i) \\
(F) & (F) & (F) & (F, i) & (F, i) \\
(T, i) & (T, i) & (F, i) & (T, i) & (F, i) \\
(F, i) & (F, i) & (F, i) & (F, i) & (F, i) \\
\hline
\end{array}
\]

If \( p \) has truth value \((T, i)\), then \( \neg p \) could have either truth value \((F, i)\) or \((F)\). The first case happens when, for example, I assert that I'm seeing green when I'm really seeing purple. The second happens if I'm a zombie. In that case I would not be experiencing color at all, so \( \neg p \) gets the value \((F)\).

A first attempt at a truth table for \( p \lor q \) is

\[
\begin{array}{|c|c|c|c|c|}
\hline
p & q & (T) & (F) & (T, i) \\
\hline
(T) & (T) & (T) & (T, i) & (T) \\
(F) & (T) & (F) & (T, i) & (F, i) \\
(T, i) & (T, i) & (T, i) & (T, i) & (T, i) \\
(F, i) & (T) & (F, i) & (T, i) & (F, i) \\
\hline
\end{array}
\]

Apparently truth tables could be given for other operators too. These give a 4-valued logic that one might call Qualia Logic (QL). Notice in the above tables the and-over-or distributive law fails.

A first guess at a truth table for \( p \rightarrow q \) is

\[
\begin{array}{|c|c|c|c|c|}
\hline
p & q & (T) & (F) & (T, i) \\
\hline
(T) & (T) & (T) & (T, i) & (T) \\
(F) & (T) & (F) & (T, i) & (F, i) \\
(T, i) & (T, i) & (T, i) & (T, i) & (T, i) \\
(F, i) & (T) & (F, i) & (T, i) & (F, i) \\
\hline
\end{array}
\]
Notice that if $p$ is going to answer the Hard Problem(s) (how and why qualia?), it must imply some proposition $q$ that has a truth value $(T, i)$. But in the (tentative) truth table above, this is not possible if $p$ has truth value $(T)$. Therefore the truth value of $p$ must be $(T, i)$. Therefore the answer to the Hard Problem will itself be constituted at least partially by ineffable qualia.

Questions: What's the difference in the logic (metaphysical or epistemic) of a zombie and the logic of those of us who do experience (or have) qualia? (I suppose a zombie cannot assign a truth value $(T, i)$ metaphysically...) If we consider our experiences related to time as the 'input' qualia, can we applyQL and derive a temporal logic? Can QL be construed as an enlargement of the scope of the logic of physical laws?

References