"In any case, his approach was that he maps vbraids onto the symmetric group thus decomposing v-braid into a semi-direct product of it and another group, BUT not by the usual onto map: he maps the real crossing to 1, and the virtual crossing to the transposition. It is well-defined, and the kernel of this map is an Artin group, and they can apply the general theory of Artin group to it to solve the word problem and more."

The only thing that needs checking is the mixed move

\[ \begin{align*} 
&\begin{array}{c} \text{X} \\ \text{X} \end{array} \\
\end{align*} \rightarrow \begin{align*} 
&\begin{array}{c} \text{X} \\ \text{X} \end{array}
\end{align*} \]

yet this seems to sort to really be the key point.

Note that this does not work for cyclic R-moves:

\[ \begin{align*} 
&\begin{array}{c} \text{X} \\ \text{X} \end{array} \\
\end{align*} \rightarrow \begin{align*} 
&\begin{array}{c} \text{X} \\ \text{X} \end{array}
\end{align*} \neq \begin{align*} 
&\begin{array}{c} \text{X} \\ \text{X} \end{array}
\end{align*} \]

Question: Is there a well-defined "genus" for v/b- knots? (v/b = virtual mod braid-like moves)

For v/b knots, the Paris map is a generalization of "the braid index".

By Karene -