Is there a difference between those two cases?

\number'\^^A
\number'\^^A

And how about this?

\number'\^^@
\number'\^^@

In the case of \^^A (character code 1), both lines yield the number 1, the backslash character’s presence before the double-circumflex doesn’t influence the result. In the second case, the first line yields 0, while the second results in \texttt{32}. The reason is that the character of the code 0 (\^^@) has the associated category code ‘ignored’ (9). Any character of the category 9 will simply be omitted, except when there is a backslash immediately before it. If there is no backslash, the very next character is considered, which is a code 32... Well, actually its end-line character, which is replaced by the character of the code being a current value of \texttt{\endlinechar}, which is 13 by default, and character 13 has a default category code 5, which is finally converted to the character 32.