The \texttt{captdef} package

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\section{Why this package?}
\LaTeX{} provides a command (\texttt{\caption}) for adding a caption to a float environment (that is to say, a \texttt{figure} or a \texttt{table}, “out of the box”).

The command is a good one, and many users want to use it. Often, they end up using a float environment, in a case where it’s not strictly necessary, and get entangled in the positioning problems that floats pose for the innocent user. Using this package, the user can have standard-looking captions without the need of a float environment.

This package defines a means of defining caption commands, which creates things that look as if they were created by \texttt{\caption}, and which work outside of a float.

The \texttt{float} package provides an alternative to \texttt{\captdef}-defined commands, in the float \texttt{[H]} option (“place the environment \texttt{here} without doing any of this floating stuff”). So why use \texttt{captdef}? — its great advantage is simplicity; you load it, and it defines just three macros, while \texttt{float} defines lots and lots. (Of course, if you need others of \texttt{float}’s capabilities, \texttt{captdef} loses its advantage...).

\section{How the package works}

The package defines a command

\begin{verbatim}
\DeclareCaption{command}{counter}
\end{verbatim}

which creates a ‘caption’-like command, which uses \texttt{counter} for its numbering.

The package then goes on to declare the commonly-needed caption commands \texttt{\figcaption} and \texttt{\tabcaption}:

\begin{verbatim}
\captdef{\figcaption}{figure}
\captdef{\tabcaption}{table}
\end{verbatim}

\section{The potential problem}

Commands defined by \texttt{\captdef} place a caption in text, and also step the \texttt{figure} (or \texttt{table} or whatever) counter. The float environments do the same.

Now, consider the sequence:

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and suppose the figure environment doesn’t fit anywhere between where it’s specified and the inline figure (so that it will float to somewhere later). We will then see a document with

\begin{figure}
    \begin{figure stuff}
    \caption{...}
\end{figure}
\end{figure}

\begin{figure}
    \begin{inline figure stuff}
    \figcaption{...}
\end{inline figure stuff}
\end{figure}

That is, the figure numbers have got out of order, because the floating figure was specified before the inline figure. \LaTeX{} won’t do this when everything is specified as a float: it keeps floats of the same type in order (which is why floats stack up if a single one won’t fit).

The moral of that little tale is to say: don’t use \texttt{\captdef}-defined commands with floats of the same type in the same document. (Or be extra-specially careful about what’s happening if you must.)