

Relative inverse path calculation

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`inversepath` is a simple package to calculate inverse relative paths. For example, when writing to an auxiliary file in a subdirectory (or a series of nested subdirectories), it can be useful to know how to get back to the original file.

If the absolute path of the original file is specified, this package can also calculate the relative path of a file in parent or sibling directories.

`\inversepath{<path>}`—expands to the inverse of `<path>`.

`\absolutepath{<abs. path>}`—specifies the absolute path for calculating parent/sibling relative paths.

Regular usage:

<code>../..../</code>	<code>\inversepath{one/two/three/four.tex}\par</code>
<code>four.tex</code>	<code>\ip@lastelement\par</code>
<code>one/two/three/</code>	<code>\ip@directpath</code>

Expands to `<empty>` if the relative path is the same directory:

<code>[]</code>	<code>[\inversepath{one.tex}]\par</code>
<code>one.tex</code>	<code>\ip@lastelement\par</code>
<code>[]</code>	<code>[\ip@directpath]</code>

For ‘back-relative’ paths, the absolute path needs to be specified:

<code>../..../there/everywhere/</code>	<code>\absolutepath{/xyz/here/there/everywhere/}</code>
<code>three.tex</code>	<code>\inversepath{../..../one/two/three.tex}\par</code>
<code>../..../one/two/</code>	<code>\ip@lastelement\par</code>
	<code>\ip@directpath</code>

That’s it!

File I

inversepath implementation

This is the package.

```
1 \ProvidesPackage{inversepath}
2 [26/04/2007 v0.1 Inverse relative paths]
```

`\inversepath` #1 : Path to invert

```
3 \newcommand\inversepath[1]{%
```

`\ip@jobpath` is preserved to restore after truncation for back-relative paths.

```
4 \let\ip@origjobpath\ip@jobpath
5 \let\ip@directpath\@empty
6 \let\ip@inversepath\@empty
7 \ip@strippath#1/\@nil/%
8 \let\ip@jobpath\ip@origjobpath
9 \ip@inversepath}
```

`\absolutepath` #1 : Absolute path used for calculating parent/sibling relative paths.

```
10 % macro to define the absolute path of where we are:
11 \newcommand\absolutepath[1]{\def\ip@jobpath{#1}}
```

For `\ifx` comparisons for relative back-paths:

```
12 \def\ip@literalddot{..}
```

`\ip@strippath` This is the macro that does all the work. It takes input like `a/b/c/...x/y/z/\@nil/` and expands to `\ip@inversepath`, the inverse path of `(a/b/.../y/)`.

```
13 \def\ip@strippath#1/#2/{%
14 \ifx\@nil#2\relax
```

If input is `z/\@nil/` then we've reached the end:

```
15 \def\ip@lastelement{#1}%
16 \else
```

If we're in the middle of the slash-separated list; build up `\ip@directpath`:

```
17 \edef\ip@directpath{\ip@directpath#1/}
18 \def\@tempa{#1}%
19 \ifx\@tempa\ip@literalddot
20 \unless\ifdefined\ip@jobpath
21 \PackageError{inversepath}
22 {No absolute path specified}
23 {You must declare the file path of the main
24 file with \protect\absolutepath{} to be able to
25 resolve back-relative paths}%
26 \fi
```

If the path is a back-relative path, things are more complex. to get the inverse of ../, we need the absolute file path. this requires using \ip@strippath on \ip@jobpath itself, so save out our current definitions of \ip@directpath/\ip@inversepath and (re-)initialise them:

```

27      \let\ip@olddirectpath\ip@directpath
28      \let\ip@oldinversepath\ip@inversepath
29      \let\ip@directpath\@empty
30      \let\ip@inversepath\@empty

```

\ip@strippath on \ip@jobpath gives us the topmost directory in \ip@lastelement:

```

31      \expandafter\ip@strippath\ip@jobpath\@nil/
32      \let\@tempa\ip@lastelement

```

\ip@jobpath is now truncated so \ip@lastelement in the next iteration is one folder up the hierarchy.

```

33      \let\ip@jobpath\ip@directpath

```

Now we restore everything to how it was: (this would be better with grouping, but I don't want to use \global)

```

34      \let\ip@directpath\ip@olddirectpath
35      \let\ip@inversepath\ip@oldinversepath

```

Build up the inverse path:

```

36      \ifx\@tempa\@empty
37          \PackageError{inversepath}
38              {Absolute path too shallow to resolve
39              such a deep relative path}
40              {You're trying to go back more directories than you have!}
41      \fi
42      \edef\ip@inversepath{\@tempa/\ip@inversepath}%
43  \else

```

If the path is a simple relative path, then build up the inverse path by prepending ../:

```

44      \edef\ip@inversepath{../\ip@inversepath}%
45  \fi

```

Iterate:

```

46      \def\@tempa{\ip@strippath#2/}%
47      \expandafter\@tempa
48  \fi}

```