The **nag** package

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Abstract

Old habits die hard. All the same, there are commands, classes and packages which are outdated and superseded. **nag** provides routines to warn the user about the use of those. As an example, we provide an extension that detects many of the "sins" described in **l2tabu**.

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1 User-side considerations.

1.1 Installation.

Process **nag.ins** with **\LaTeX** to obtain some files: **nag.sty** and **nag-12tabu.cfg** et al. must go to a place where **\LaTeX** will find them, like the local TEXMF tree. (If all else fails and you need it to work *right now*, having them in the same directory as the **\LaTeX** file you want to use them on may work under many circumstances.) You can, as

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*This document corresponds to **nag** 1.1, dated 2004/01/30.
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usual, run \TeX\ on nag.dtx to obtain this documentation, including the implementation docs. (This is recommended if you plan to extend nag to handle your own packages.) nagdemo.tex is a horrible document that will show you many of the warnings that nag can generate.

1.2 Usage.

Add the following to the beginning your main document (Comments and \listfiles can be safely left before it, though):

\RequirePackage[l2tabu, orthodox]{nag}

This will check for many common mistakes, and give some hints on what to use instead. However, you should always refer to l2tabu for a more detailed explanation of the whats and whys: it gives more information than can be possibly pressed into two lines of error message. Orthodox checks for pitfalls that are not technically incorrect. If you know what you’re doing, omit orthodox.

1.3 nag-l2tabu.cfg

In a nutshell, nag-l2tabu.cfg detects the following:

- Usage of the 2.09-style font commands \it, \bf, \rm, \sc, \sl, \tt, and \cal.
- Usage of \centerline.
- Usage of the outdated packages epsfig, psfig, epsf, doublespace, fancyheadings, scrpage, umlaut, isolatin, isolatin1, ttenc, caption2, psfonts, mathptm, times, palatino, mathpplle, euler and utopia, and of the outdated class scril1tr.
- Figures and tables without caption (this is not technically in l2tabu, but the people who have floats without captions tend to ask “Why is \TeX\ moving my pictures away from where I put them?”), labels within floats that do not reference the caption, and usage of the center environment within floats.

It is beyond the possibilities of this package to detect things like use of \TeX assignment syntax, or direct change of paper parameters, or reliable detection of user-issued \sloppy. Outdated maths environments are not treated because those can already be handled by Harald Harders’ onlyamsmath.

Be warned, hence, that this package will possibly balk at legitimate use, and not find illegitimate use in all cases. It is a tool, not a replacement for study of l2tabu.

1 (*\l2tabunag)
2 \ProvidesFile{nag-l2tabu.cfg}
3 \[2006/04/19 v1.8 l2tabu rules for nag.sty (ulmi)]
4 \%
5 \% The sins.
6 \%
7 \% Section numbers refer to l2tabuen 1.7 revised/enlarged dated 2004OCT24
8 \%
9 \$ 1.1

2
9 \ObsoletePackage{a4wide}{the \lq a4paper\rq\space class option}
10 \ObsoletePackage{a4}{the \lq a4paper\rq\space class option}
11 \%
12 \S 1.2--1.5 cannot reasonably be checked programmatically
13 \%
14 \S 1.6 is handled by H.Harders' onlyamsmath package
15 \%
16 \S 1.7 cannot reasonably be checked programmatically
17 \%
18 \S 1.8 \textit{sloppy} is called by parbox, among others, and would
19 \%
20 \S 2.1.1
21 \ObsoleteCS{an old LaTeX 2.09 command}{bf}
22 \protect\bfseries\protect\textbf
23 \ObsoleteCS{an old LaTeX 2.09 command}{it}
24 \protect\itshape\protect\textit
25 \ObsoleteCS{an old LaTeX 2.09 command}{rm}
26 \protect\rmfamily\protect\texttt
27 \ObsoleteCS{an old LaTeX 2.09 command}{sc}
28 \protect\scshape\protect\textsc
29 \ObsoleteCS{an old LaTeX 2.09 command}{sf}
30 \protect\sffamily\protect\textsf
31 \ObsoleteCS{an old LaTeX 2.09 command}{tt}
32 \protect\ttfamily
33 \%
34 \S 2.1.2
35 \%
36 \S 2.1.3
37 \%
38 \S 2.2.1
39 \%
40 \ObsoleteClass{scrlettr}{the scrlttr2 package}
41 \%
42 \S 2.2.2
43 \%
44 \S 2.2.3
45 \%
46 \S 2.2.4
47 \%
48 \S 2.2.5
49 \%
50 \S 2.2.6
51 \%
52 \S 2.2.7 we don't check for bst yet.
53 \%
54 This is in l2tabu 1.8
3
1.4 nag-orthodox.cfg

nag-orthodox.cfg warns about usage that is not technically incorrect, but will mostly do things an unwary user may not expect. This includes in particular the usage of font size and style switches as environments (line spacing will be off if the environment does not contain a trailing \par, spurious spaces might occur since the switches don’t \ignorespaces), and, conversely, the usage of center etc. environments as unclosed switches. (Detection of the latter might still be somewhat brittle.)
1.5 nag-abort.cfg

Requesting this nag file will turn all complaints into errors.

\ProvidesFile{nag-abort.cfg} [2005/05/08 v0.1 treat complaints as errors (ulmi)]
\renewcommand\nag@warn[1]{
  \addtocounter{nag@sins}{1}
  \PackageError{nag}{#1}{#1}
}
\renewcommand\nag@warnNoLine[1]{
  \addtocounter{nag@sins}{1}
  \PackageError{nag}{#1}{#1}
}

2 Author-side considerations and implementation.

If you are a package or class author and want to extend the range of nag (or prevent nag from criticizing your macros), please see the description below, in sections 2.2 and following. It is probably wise to group new rules in a separate nag file: users can request nag files by passing their name as a package parameter, as shown above for the example of l2tabu.

2.1 Low-level tools.

Identify ourselves.
\NeedsTeXFormat{LaTeX2e}
\ProvidesPackage{nag}[2006/07/08 0.5 warning about old commands (ulmi)]
\let\@xa\expandafter
\let\@nx\noexpand

First of all, two counters we need. The first is used to generate running numbers for replacement macros, the latter is stepped for each complaint we have, so that the user gets a frighteningly high number, showing how sinful he or she is.
\newcounter{nag@c}
\newcounter{nag@sins}
\texttt{\nag@prepend} \texttt{\nag@prepend\{cs\}\{something\}}: Prepend \texttt{\{something\}} to the macro definition of \texttt{\{cs\}}.

In reality, we do call indirection: save old macro away, redefine macro to do the something, call old macro. (With thanks to Juergen Goebel, Heiko Oberdiek and Rolf Nieprasch (\texttt{savesym}))

\begin{verbatim}
124 \newcommand\nag@prepend[2]{% 
125 \@xa\let
126 \csname nag@@#1\thenag@c\@xa\endcsname
127 \csname #1\endcsname
128 \@xa\nag@pr@p@nd\csname #1\@xa\endcsname
129 \stepcounter{nag@c}%
130 \newcommand\nag@pr@p@nd[3]{% 
132 \def#1{#3#2}%
133 \def#1(#3#2)%
134 }
\end{verbatim}

\texttt{\nag@warn} All complaints to the user run through one of these two macros, with or without source line.

\begin{verbatim}
135 \newcommand\nag@warn{% 
136 \addtocounter{nag@sins}{1}% 
137 \PackageWarning{nag}%
138 }
139 \newcommand\nag@warnNoLine{% 
140 \addtocounter{nag@sins}{1}% 
141 \PackageWarningNoLine{nag}%
142 }
\end{verbatim}

\subsection*{2.2 Obsoletifying commands.}

(No, I do not think that is a proper word either.)

\texttt{\ObsoleteCS} Usage: \texttt{\ObsoleteCS[[reason]]\{CS\}\{suggestions\}} Mark \texttt{\{CS\}} as obsolete. \texttt{\{reason\}} defaults to obsolete. When the macro is used anyway, the following warning is logged: Command \texttt{\{CS\}} is \texttt{\{reason\}}. Use \texttt{\{suggestions\}} instead.

\begin{verbatim}
143 \newcommand\ObsoleteCS[3][obsolete]{% 
144 \AtBeginDocument{% 
145 \nag@prepend[#2]{% 
146 \nag@warn{% 
147 Command \texttt{\backslashchar#2} is #1. 
148 \MessageBreak
149 Use \texttt{\#3 instead})%
150 )%
151 )%
152 }
\end{verbatim}
2.3 Obsoletifying packages and classes.

Checking for packages and classes is done by looking for ver@foo.sty, which holds the version information that is also displayed by \listfiles. This means that we're out of luck if fontenc ever becomes obsolete, because that won't be detected.

First, define a macro to check if a control sequence is defined. Unlike \@ifundefined, this will not define the control sequence to \relax, but the arguments will be executed in a group. For our purposes, this doesn't matter, because we only give a warning (and \addtocounter already is \global).

\newcommand\nag@ifcsname[3]{\begingroup\@ifundefined{#1}{#3}{#2}\endgroup}

Just because we can, use \epsilon\TeX\ \ifcsname \else \fi this bootstrapping gives me a big grin... Note we add an extra group for compatibility with the non-\epsilon case.

\newcommand\nag@ifcsname{ifcsname}{\begingroup\ifcsname #1\endcsname % It still might be relax from some other test. Thanks to J"org % Sommer for finding this bug. %\@ifundefined{#1}{#3}{#2}\else #3\fi\endgroup
This way of escaping the grouping gives me an even bigger grin.
\global\let\nag@ifcsname\nag@ifcsname

\ObsoletePackage Usage: \ObsoletePackage[\langle reason \rangle]{\langle package \rangle}{\langle alternative \rangle}. Mark \langle package \rangle as obsolete. \langle reason \rangle defaults to obsolete. If the \langle package \rangle is used anyway, at the end of the compilation, the following warning will be displayed: Package \langle package \rangle is \langle reason \rangle. Use \langle alternative \rangle instead.

\newcommand\\ObsoletePackage[3][obsolete]{\AtEndDocument{\nag@ifcsname{ver@#2.sty}{\nag@warnNoLine{Package #2 is #1.\MessageBreak Use #3 instead}#3}{#2}{}\endgroup
}\global\let\nag@ifcsname\nag@ifcsname

\ObsoleteClass Usage: \ObsoleteClass[\langle reason \rangle]{\langle class \rangle}{\langle alternative \rangle}. Mark \langle class \rangle as obsolete. \langle reason \rangle defaults to obsolete. If the \langle class \rangle is used anyway, at the end of the compilation, the following warning will be displayed: Class \langle class \rangle is \langle reason \rangle. Use \langle alternative \rangle instead.

\newcommand\\ObsoleteClass[3][obsolete]{\AtEndDocument{\nag@ifcsname{ver@#2.sty}{\nag@warnNoLine{Package #2 is #1.\MessageBreak Use #3 instead}#3}{#2}{}\endgroup
}\global\let\nag@ifcsname\nag@ifcsname

7
\newcommand\ObsoleteClass[3][obsolete]{% 
\AtEndDocument{% 
% |@clsextension| is onlypreamble, for some reason. 
\nag@ifcsname{ver@#2.cls}{% 
\nag@warnNoLine{% 
Class #2 is #1.\MessageBreak 
Use #3 instead}% 
}% 
}% 
}% 

2.4 Common float errors and no-nos.

We do the following:

- check for presence of a caption
- check for absence of the center environment
- check that a label comes only after a caption

First of all, we define two ifs to memorize whether we have a label and/or a caption in the float already. Package writers may want to set these manually behind nag's back. In this way, they can suppress possible warnings if they know what they're doing – we only check at the end of the float environment, which gives them plenty of time to call \csname nag@haslabeltrue\endcsname et al. (Thanks to Markus Kohm for pointing out this need.)

\newif\ifnag@haslabel 
\newif\ifnag@hascaption

Now, to the work proper: first, add the endcenter check, then, prepare to set up the caption/label checks locally to the floats, and finally, add the code that generates the warning.

\newcommand\nag@hackfloat[1]{% 
\nag@prepend{#1}{% 
\nag@prepend{endcenter}{% 
\nag@warn% 
{\lq center\rq\space environment in #1.\MessageBreak 
Maybe you want \protect\centering\space instead} 
}% 
}% 
\nag@prepend{#1}{% 
}% 

Add checks to all macros named by \nag@labels and \nag@captions, respectively. The hascounter etc. information is now global. I don't think those should be hidden by groups. In particular, a center or minipage environment would hide the caption inside from a label outside. Well, maybe I should do it the way the kernel does, which means a label is just as local as \refstepcounter's \@currentlabel information. I think we can leave captions global.
Note: we cannot exchange the order of the for loops here: if a cs generates both a label and a caption, it shouldn't get complained about.

\@for\labelprovider:=\nag@labels\do{%
  \nag@prepend{\labelprovider}{\nag@captioncheck\nag@haslabeltrue}%
}%
\@for\captionprovider:=\nag@captions\do{%
  \nag@prepend{\captionprovider}{\global\nag@hascaptiontrue}%
}%
\global\nag@haslabelfalse\global\nag@hascaptionfalse
%
\nag@prepend{end#1}{%
  \ifnag@hascaption\relax\else
    \nag@warn{#1 with no \protect\caption}%
  \fi
}%
}

\newcommand\nag@captioncheck{%
  \ifnag@hascaption\else
    \nag@warn{\protect\label\space in float, but not after \protect\caption}%
  \fi
}%

Define the lists of commands that are floats, generate labels, and generate captions, respectively. We don't start with defined floats (that is for l2tabu.obs to set up), but keep the list non-empty, so that we can always add to it with \g@addto@macro\{\texttt{list}\}\{\texttt{things}\}.

\def\nag@floats{\nag@dummy}
\def\nag@labels{\texttt{label}}
%% The latter two are used by KOMA-Script.
\def\nag@captions{\caption,\captionabove,\captionbelow}

We call the above for each float environment named via \nag@floats:

\newcommand\nag@floatsetup{%
  \@for\flo:=\nag@floats\do{%
    \@xa\nag@hackfloat\@xa{\flo}%
  }%
}%

but only after all other packages get their chance to add to the list:

\AtBeginDocument{%
  \nag@floatsetup
}%
\AtBeginDocument{%
  \nag@floatsetu
}\AtEndDocument{%
  \ifnum\value{nag@sins}>0%
    \PackageWarningNoLine{nag}{\arabic{nag@sins} complaints

At the very end, we will display a running total of complaints. This feature was more-or-less suggested by David Kastrup.
3 Switch vs. Environment

People often use switches as environments and vice versa. This is dangerous in because it tends to almost work. (Consider font size commands in particular, but also \centering vs. center environment.) As usual, “it’s not an error if you know what you’re doing”. In particular, it is perfectly valued code to use the \foo...\endfoo syntax. So, \NotASwitch needs to trace the calls to \foo and see if they match with corresponding \endfoos with its own stack. This might still be brittle. Fortunately, it is currently only needed for nag-orthodox, where it checks for the justification environments.

First of all, a helper macro we hinge upon:

```latex
\newcommand\nag@ifCurrentEnvironment[3]{% 
  \bgroup 
  \def\tmp@a{#1} \ifx\@currenvir\tmp@a \else \fi 
  \egroup}
```

And now, the two variations there are:

```
\NotAnEnvironment \newcommand\NotAnEnvironment{\texttt{(command)}} \texttt{Issue an error if the user calls \texttt{\begingroup{command}} and not \texttt{command} directly.}
```

\NotASwitch is a bit more involved:
Usage:\texttt{\NotASwitch{\textit{command}}} issue an error if the user calls \texttt{\command} and not \texttt{\begin{command}} and mis-nests calls or doesn't call \texttt{\endcommand} at all.

\verb|\newcommand\nag@endenv[1]|%  
% we need to maintain a stack of environments that are used in the  
\verb|\foo...\endfoo| way.

\verb|\newcommand\nag@envstack{\relax}|  
\verb|\newcommand\nag@beginenv[1]{|%  
% push a begin-entry onto the stack. Form is  
\verb|{|\texttt{\foo{lineno}}}| for environment \texttt{foo}.

\verb|\newcommand\nag@endenv[1]|%  
% we need to maintain a stack of environments that are used in the  
\verb|\foo...\endfoo| way.

\verb|\newcommand\nag@beginenv[1]|%  
% push a begin-entry onto the stack. Form is  
\verb|{|\texttt{\foo{lineno}}}| for environment \texttt{foo}.

\verb|\newcommand\nag@endenv[1]|%  
% we need to maintain a stack of environments that are used in the  
\verb|\foo...\endfoo| way.

\verb|\newcommand\nag@endenv[1]|%  
% we need to maintain a stack of environments that are used in the  
\verb|\foo...\endfoo| way.
Now, the user-side command is easy.

\newcommand\NotASwitch[1]{\AtBeginDocument{\nag@prepend{#1}{\nag@beginenv{#1}}\nag@prepend{end#1}{\nag@endenv{#1}}}{}%}

Finally, we deal with package options. This is simple: just try to input appropriate nag files.

\DeclareOption*{\InputIfFileExists{nag-\CurrentOption.cfg}{\PackageInfo{nag}{Loaded nag-\CurrentOption.cfg}}{\InputIfFileExists{\CurrentOption.nag}{\PackageWarningNoLine{nag}{Loaded old-style config file \CurrentOption.nag. MessageBreak Consider renaming the file to nag-\CurrentOption.cfg}}{\PackageWarningNoLine{nag}{Required ruleset \CurrentOption, and it wasn’t there}}}}%\ProcessOptions*
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