

New L^AT_EX Style for FAO Yearbook *

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Abstract

This package provides class for typesetting FAO Yearbook. This is a refactoring of the `faoyeabook` package

1 Introduction

The package `faoyearbook` [1] was written in 2011 for FAO Statistical Yearbook.

The package `faosyb` is a refactoring of this package. We use the lessons learned and incorporate new design requirements. We use some (actually plenty) code from the previous version, but since we do not have to be compatibility, we can correct some unfortunate decisions.

2 User Guide

The installation of the class follows the usual practice [2] for L^AT_EX packages:

1. Run `latex` on `faosyb.ins`. This will produce the L^AT_EX class `faosyb.cls`.
2. Put the file `faosyb.cls` to the place where L^AT_EX can find it (see [2] or the documentation for your T_EX system).
3. Update the database of file names. Again, see [2] or the documentation for your T_EX system for the system-specific details.
4. The file `faosyb.pdf` provides the documentation for the package (this is the file you are probably reading now).

As an alternative to items 2 and 3 you can just put the file `faosyb.cls` in the working directory where your `.tex` file is.

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2.1 Invocation

To use the class, put in the preamble of your document

```
\documentclass[<options>]{faosyb}
```

If the option **web** is chosen, the pages of the book have the dimensions corresponding to A4 paper. However, if the option **print** is chosen, then the pages are printed on a wider area, and crop marks are added for the trimming. Either **web** or **print** option must be chosen: there is no default.

If the option **issuu** is chosen, the internal links are transformed to external in the form suitable for <http://www.issuu.com>. Note that this option probably does not make much sense unless **web** option is also chosen. However, it is still possible to select both **print** and **issuu** option if someone needs it for an obscure purpose.

The option **Draft** (note the capitalization!) leads to the the large word ‘DRAFT’ printed across the pages. The standard L^AT_EX option **draft** leads to the same result, but it also makes other changes, most notably, in the behavior of the `\includegraphics` command and warnings.

`\ifprint` It is possible to query the current mode using the macro `\ifprint`, for example

```
\ifprint
  Stuff for print version
\else
  Stuff for web version
\fi
```

Any branch of this conditional may be empty, so web-only stuff can be coded as

```
\ifprint\else Web-only stuff\fi
```

`\includegraphics` There is a special facility for `\includegraphics` command to choose a file depending on the current mode of the package. Namely, if there is a file `image_print.pdf` visible by L^AT_EX, then the commands `\includegraphics{image}` or `\includegraphics{image.pdf}` selects the file `image_print.pdf`. In the case this file is not found, the file `image.pdf` is selected instead. Similarly in the web mode the file `image_web.pdf` will be selected first, and only if it does not exist, `image.pdf` is selected. This rule works also for commands `\includeLargeGraphics` and `\includeExtraLargeGraphics` described below.

Note that at this time there is no similar facility for the `\input` command.

2.2 Setting Parameters

`\faoset` Some parameters in the class can be set with the command `\faoset{<key=value>}`, for example

```
\faoset{bgcolor=blue}
```

Most of the parameters are explained below.

One of the important parameters is **year**. While the package at this time does not provide facilities for the title pages, it needs to know the year for the proper typesetting of footers. The command

```
\faoset{year=2013}
```

is used to provide this information.

2.3 Fonts

`\narrowfamily` The class uses PT Sans fonts [3] for body text and Arev fonts [4] for math. It
`\textnarrow` defines two additional families: Narrow and Caption, corresponding to the PT
`\captionfamily` Sans Narrow and PT Sans Caption font. They can be selected by the declarations
`\textcaption` `\narrowfamily` and `\captionfamily` or by the commands `\textnarrow{<text>}`
and `\textcaption{<text>}` following the usual L^AT_EX conventions. Note that since
PT Sans does not provide math alphabet, this choice does not change the mathe-
matical text.

PT Sans Narrow may be useful for typesetting tables, for example,

```
{\scriptsize\narrowfamily
\rowcolors{4}{@bgcolor!30}{@bgcolor!20}
\input{./Tables/P1.DEM_1.tex}}
```

The choice of `\narrowfamily` is automatically done by the `tablepages` environment.

2.4 Colors and Icons for Parts

A Yearbook is separated into parts (more on this below). Each part has its own color and icon. They are set by the keys `bgcolor` and `icon` of the `\faoset` command, for example,

```
\faoset{icon=./Icons/agriculture.png}
\faoset{icon=./Icons/population}
\faoset{bgcolor=blue}
\faoset{bgcolor=green!25!yellow}
```

The parameter for the `icon` key can be any file name (with or without extension), suitable for the `\includegraphics` command. The parameter for the `bgcolor` key can be specified in any form acceptable by `xcolor` package [5].

The key `tableheadcolor` sets the color for the headers of tables defined by H or P key (see Section 2.7). Normally it is the current `@bgcolor` color, but it can be set to any required value.

`\selecticon` Note that `\faoset` command does not change the icon or background color
`\selectcolor` immediately. When issued *before* `\part` command, it sets up icon and color for

the next part. If needed, you can manually change this using `\selecticon` and `\selectcolor` commands. In most cases you should *not* use these commands.

`@bgcolor` After a `\part` command (or explicit `\selecticon` and `\selectcolor` command we can access the current values of the color in `@bgcolor`, `@tablecolor`
`@tableheadcolor` colors and `\currenticon` macro.
`\currenticon`

Foreword and other parts in the front matter of the book do not use icons. Instead they have geometric symbols. The key `symbol` can have the values `righttriangle`, `square`, `rightsemicircle` and sets the symbol for such part.

`\lettrine` Front matter uses dropped capitals (lettrines) in the beginning of the sections. The command `\lettrine{W}{ord}` can help in this case.

2.5 Sectioning

`\part` The main division of the text are `\parts`. The command `\part{<title>}` is used for
`\section` numbered parts, while the command `\part*{<title>}` is used for unnumbered parts.
`\subsection` The next division are `\sections` and `\subsections`. They are never numbered.
The style does not use `\chapters`.
`\EndPartIntro` The sections immediately following new parts are special: they are typeset in one column and cannot have floats. The command `\EndPartIntro` switches to the “normal” sections.

2.6 Headers and Footers

`\evenfootmark` Normally headers and footers are defined by the text. However, there is a
`\oddfootmark` possibility to change some of them. Commands `\evenfootmark{<text>}` and `\oddfootmark` set the right and left footers for even and odd pages correspondingly (the remaining footers are used by the page numbers). By default they are defined as

```
\evenfootmark{\textbf{FA0} Statistical Yearbook \textbf{\fao@year}}
\oddfootmark{\rightmark}
```

The last command sets the footer to be the current section name (or part name before the first section), but the user can change this.

2.7 Floats

One of the most important changes from the previous version of the class [1] is the treatment of floats.

In standard \LaTeX floats “float”: they can be placed by the algorithm anywhere. The previous version made them “sticky”: the author explicitly tells \TeX where floats should be placed. However, to do so the class required the author to make explicitly page breaks, which was not very convenient.

This version has a completely rewritten interface and algorithm for placing floats:

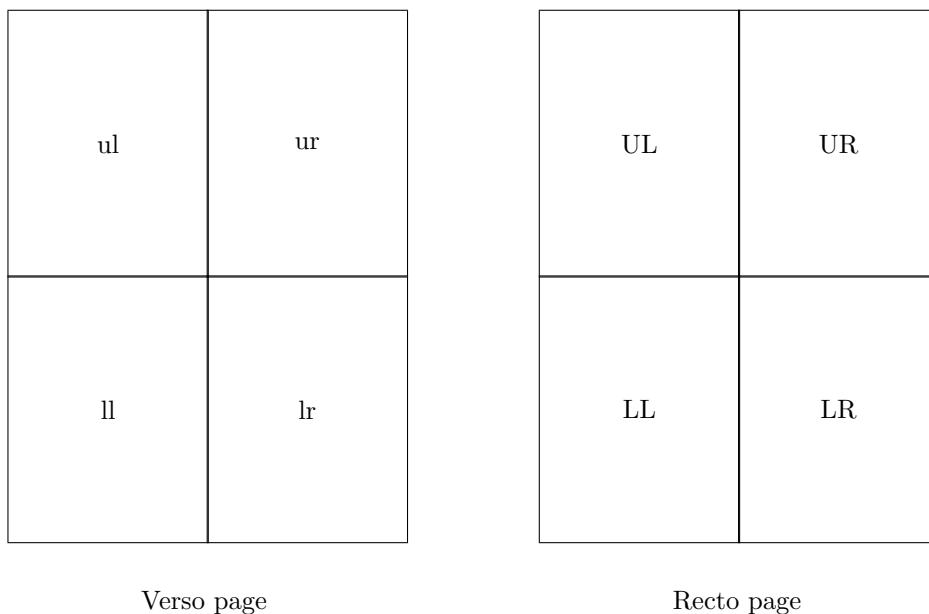


Figure 1: A Spread

1. Like in standard \LaTeX , authors do not normally provide page breaks— \TeX tries to make this decision for them.
2. Like in the previous version, floats are put exactly where the authors want them—no default placing and second-guessing.

Here is how it is done.

The main unit of the book is *spread*: a verso page and the corresponding recto page. Each page is divided into four quarters, upper left, upper right, lower left and lower right. We will denote them `ul`, `ur`, `ll`, `lr` for the verso page and `UL`, `UR`, `LL`, `LR` for the recto page (Figure 1). We allow four kinds of floats:

Single floats occupy exactly one quarter. They are denoted as `S`.

Tall floats occupy two quarters stacked vertically (for example, `ul` and `ll`). They are denoted as `T`.

Wide floats occupy two quarters adjacent horizontally (for example, `LL` and `LR`). They are denoted as `W`.

Big floats occupy all four quarters on a page. They are denoted as `B`.

The parameters $\{\langle type \rangle\}$ and $\{\langle location \rangle\}$ are mandatory for floats, for example

```

\begin{map}{T}{ur}
...
\end{map}
\begin{chart}{S}{UL}
...
\end{chart}

```

For multiquarter floats the location is the location of the upper left corner, so Big float can use only `ul` or `UL` location.

Of course, not all combinations are valid: you cannot specify float as `{T}{ll}` or `{W}{UR}`, for example. If you use such combinations, the results may be unpredictable. Also it is not predictable what happens if you try to put overlapping floats (e.g. `{S}{UR}` and `{W}{UL}`).

There are two additional rules:

1. A verso page may have text and floats (still it is recommended that if it has text, then it should not have floats occupying the upper left corner).
2. A recto page may have *either* text or floats: if there are floats for this page, all text is moved to the following verso page.

<code>chart</code> <code>map</code> <code>table</code>	<p>There are three types of floats defined by the class:</p> <p>chart plots and other charts,</p> <p>map mapped data.</p> <p>table mini tables.</p>
<code>caption</code>	<p>Each of these kinds of material is typeset using the corresponding environment: chart, table or map. Note that the caption for each of these environments <i>must</i> precede the graphical material, for example:</p>

```

\begin{chart}{B}{UL}
\caption{Hunger Data}
\label{chart:hunger}
\includegraphics{hunger.pdf}
\end{chart}

```

Note that our class redefines `table` environemnt!. For tables on separate pages use `longtable`.

<code>\chartwidth</code> <code>\chartheight</code>	<p>Inside a chart, map or table it is useful to know the size allocated for the graphics or table, for example, to be able to scale the graphics. Two lengths, <code>\chartwidth</code> and <code>\chartheight</code> provide this information, so the user can say, for example,</p>
---	--

```

\includegraphics[width=\chartwidth, height=\chartheight]{theChart}

```

`\source` Inside a `chart`, `map` or `table` the macro `\source{<source>}` gives the source of the information, for example,

`\Source{FA0, Statistical Division [FAOSTAT]}`

`\listoftables` The standard L^AT_EX has the command `\listoftables` to produce the list of
`\listofcharts` tables in the document. Our class retains this command and produces two addi-
`\listofmaps` tional commands `\listofcharts` and `\listofmaps` with the obvious meaning.

2.8 Page Breaks

`\clearpage` Standard L^AT_EX has commands for immediate page break (e.g. `\clearpage`)
`\cleardoublepage` and for switching to the next recto page, possibly ejecting the next verso page
`\clearspread` (`\cleardoublepage`). The class provides another command `\clearspread`. It
switches to the next *verso* page, possibly ejecting the next recto page (and putting
there floats intended for this page, if any).

2.9 Tables

`tablepages` The tables at the end of a part should be typeset inside `tablepages` environment. The environment switches to the one column setup, decreases the margins and changes the font to `\narrowfamily`.

To typeset numerical items one should use `d` column identifier with the format `d{<a.b>}`, where *a* is the number of decimal in the integer part of the number, and *b* is the number of decimal digitst in the fractional part. For example, a number 12.345 corresponds to `d{2.3}`. The column headers are usually *not* numerical, so one need to use `\multicolumn` entries to typeset them. The class defines several such entries:

H produces a centered entry.

P produces an entry of a given length, for example, `P{1.5cm}`

C produces an entry of the length corresponding to the given number of numerical columns. For example, `C{2}` corresponds to a header of two numerical columns. Each column is assumed to be of the size enough to store -99.999 .

`\hhline` For the rules that do not span the table width `\hhline{<specificaition>}` command from the `hhline` package should be used. The `{<specification>}` argument of this command has many variants, but for our purposes we need only one variant: the command `-` produces a horizontal line spanning one column. The color of this line is determined by the command `\arrayrulecolor{<color>}`, issued in the last `>{<argument>}` command before the `-` specification. Therefore the command `>\arrayrulecolor{@tableheadcolor}-` produces a line of the color `@tableheadcolor`, which is seen as the absence of line. The command `>\arrayrulecolor{black}---` produces a black line spanning three columns.

Thus if we have a four-column table and want a rule spanning columns 2–3, the following command should be issued:

```
\hhline{>\arrayrulecolor{@tableheadcolor}}-% Column 1, no rule
>\arrayrulecolor{black}--% Columns 2 and 3, black rule
>\arrayrulecolor{@tableheadcolor}}-% Column 4, no rule
```

The usual `*` specification may be used for repeating patterns, for example, `{5}{-}` is equivalent to `-----`.

The vertical bar `|` specification in the `\hhline` argument means an interruption of the line. The interruption is by default a black interval, to make it the same color as the header background, use `>\arrayrulecolor{@tableheadcolor}}|`.

The design of the tables in the current edition requires several important changes to the usual tables:

1. There should be no `\toprule` at the beginning of a table.
2. The first row header of a table must be empty and white; this is done by the command `\cellcolor{white}` in this cell.
3. `\hhline` separating rows in the header must not go through this first white cell; this is done by the `~` specification.

2.10 Publication Descriptions

`publication` FAO yearbook describes some FAO publications. These publications should be put inside the environment `publication`. The environment has one mandatory argument, which is the title of the publication, and one optional argument, which sets the file name of the publication cover. Note that the option argument, if present, must precede the mandatory one. If this argument is absent, no cover is included. Inside the environment the macros `\pDescription{<description>}`, `\pEdition{<year>}{<edition>}`, `\pWeb{<URL>}` and `\pCycle{<date>}` are used to typeset the corresponding items related to the publication. For example,

```
\pDescription
  \pEdition
    \pCycle
      pWeb
        \begin{publication}[./Plots/StateOfFoodAndAgriculture.png]{The State
          of Food and Agriculture}
          \pDescription{The State of Food and Agriculture, FAO's major
            annual flagship publication, aims at bringing to a wider
            audience balanced science-based assessments of important issues
            in the field of food and agriculture. Each edition of the
            report contains a comprehensive, yet easily accessible, overview
            of a selected topic of major relevance for rural and
            agricultural development and for global food security. This is
            supplemented by a synthetic overview of the current global
            agricultural situation.}
          \pEdition{2010}{Livestock in the balance}
          \pEdition{2011}{Women in Agriculture Closing the gender gap for
            development}
          \pCycle{May each year}
```



```
\pWeb{http://www.fao.org/docrep/013/i2050e/i2050e00.htm}
\end{publication}
```

Note that, as in the example, some fields may be repeated.

publicationparskip Two spacing parameters can be used for typesetting of publications: **publicationskip** is the amount of additional space between the publications, while **publicationparskip** is the space between the paragraphs inside the publication environment. The default values correspond to the command

```
\faoset{publicationskip=6pt plus 2pt minus 2pt,
        publicationparskip=6pt plus 6pt minus 4pt}
```

2.11 Metadata

\metadatasection The sources of the data are collected in special sections called “Metadata section”. Each section is introduced by the command **\metadatasection{<title>}**, for example,

```
\metadatasection{Indicators}
```

metadata The sources themselves are collected in the **metadata** environments. Each environment has one obligatory argument—the name of the source. It may include the following commands:

\key **\key{<key>}** sets the corresponding key which is used for labeling the metadata

\source **\source{<source>}** sets the source of the data.

\owner **\owner{<owner>}** sets the owner of the data.

Note that there is no “description” command because any text which is not an argument of the commands above is considered to belong to the description of the data.

Example of the usage of these commands:

```
\metadatasection{Indicators}
\begin{metadata}{Agricultural population}
  \key{agripop}%
  Agricultural population is defined as all persons depending for
  their livelihood on agriculture, hunting, fishing and forestry.
  It comprises all persons economically active in agriculture as
  well as their non-working dependents. It is not necessary that
  this referred population exclusively come from rural population.
  \source{FILL ME}
  \owner{FILL ME}
\end{metadata}
```

`\refMetadata` The metadata is referenced by the command `\refMetadata{<key>}`, for example
`\refMetadata{agripop}`

This command will not be typeset, but makes creates a backreference to the corresponding chart from the indicator section.

Note that the package automatically provides backreferencing: all charts, maps and tables where the metadata is referenced, are mentioned in the corresponding metadata section.

2.12 Further Reading

`freading` The special environment `freading` is used for the “further reading” sections of the book. It starts the text from the new page and changes some defaults.

2.13 Subscripts in Text

`\textsubscript` The standard \LaTeX defines `\textsuperscript`. The class adds a similar `\textsubscript` command.

3 Implementation

3.1 Options

`\faoyearbook@size@warning` The font-changing options are not used in our setup, so we just produce a warning:

```
1 \long\def\faoyearbook@size@warning#1{%
2   \ClassWarning{faoyearbook}{Size-changing option #1 will not be
3     honored}}%
4 \DeclareOption{8pt}{\faoyearbook@size@warning{\CurrentOption}}%
5 \DeclareOption{9pt}{\faoyearbook@size@warning{\CurrentOption}}%
6 \DeclareOption{10pt}{\faoyearbook@size@warning{\CurrentOption}}%
7 \DeclareOption{11pt}{\faoyearbook@size@warning{\CurrentOption}}%
8 \DeclareOption{12pt}{\faoyearbook@size@warning{\CurrentOption}}%
```

`\ifprint` We have a flag which shows whether we are in Web or print mode

```
9 \newif\ifprint
10 \printfalse
11 \DeclareOption{web}{\printfalse
12   \PassOptionsToPackage{paper=a4paper}{geometry}}
13 \DeclareOption{print}{\printtrue
14   \PassOptionsToPackage{papersize={230mm,317mm},
15     layoutoffset=1cm,layoutvoffset=1cm}{geometry}}
```

`\ifDraft` If we are in ‘Draft’ or ‘draft mode’, we print a word ‘draft’ across the page:

```
16 \newif\ifDraft
17 \Draftfalse
18 \DeclareOption{Draft}{\Drafttrue}
19 \DeclareOption{draft}{\Drafttrue}
```

`\if@issuemode` Whether we need issuu-style links

```
20 \newif\if@issuemode
21 \@issuemodefalse
22 \DeclareOption{issuu}{\@issuodemtrue}
```

All other options are just sent to the main class:

```
23 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{report}}
24 \ProcessOptions\relax
```

3.2 Loading Class and Packages

We start with the base class and some packages

```
25 \LoadClass[10pt,twoside,twocolumn]{report}
26 \RequirePackage{graphicx,xkeyval}
27 \RequirePackage[table,cmyk]{xcolor}
28 \RequirePackage{tikz,dcolumn}
29 \RequirePackage{geometry}
30 \usetikzlibrary{calc}
31 \RequirePackage{fancyhdr}
32 \RequirePackage{lscape,longtable,siunitx,booktabs}
```

```

33 \RequirePackage{multicol,atbegshi,picture,hhline,afterpage}
34 \RequirePackage[T1]{fontenc}
35 \RequirePackage[utf8x]{inputenc}
36 \RequirePackage{pdfpages}
37 \RequirePackage[authoryear]{natbib}
38 \RequirePackage[breaklinks]{hyperref}
39 \RequirePackage{bookmark}
40 \RequirePackage{adjmulticol,lettrine}
41 \if@issuume
42 \RequirePackage{issuulinks}
43 \fi

```

Options for the hyperref package are set as follows:

```

44 \ifprint
45 \hypersetup{breaklinks,colorlinks=false,pdfborder=0 0 0,
46   pdfauthor={FAO},
47   pdfsubject={Statistical Yearbook of the Food And Agricultural Organization for the United Nations},
48   pdftitle={Statistical Yearbook of the Food And Agricultural Organization for the United Nations},
49   pdfkeywords={FAO, Food Security, Undernourishment, Sustainable agriculture},
50   pdfpagelayout=TwoColumnLeft,
51   pdfnewwindow=true
52 }
53 \else
54 \hypersetup{breaklinks,colorlinks=false,pdfborder=0 0 0,
55   pdfauthor={FAO},
56   pdfsubject={Statistical Yearbook of the Food And Agricultural Organization for the United Nations},
57   pdftitle={Statistical Yearbook of the Food And Agricultural Organization for the United Nations},
58   pdfkeywords={FAO, Food Security, Undernourishment, Sustainable agriculture},
59   pdfpagelayout=TwoColumnRight,
60   pdfnewwindow=true
61 }
62 \fi

```

3.3 Color

We need to tell the printer that we are using CMYK color model. The following is taken from the pdfx package (the package itself is not too easy to make work).

```

63 \def\@pctchar{\expandafter\@gobble\string\%}
64 \def\@bchar{\expandafter\@gobble\string\}
65 \immediate\pdfobj stream attr{/N 4} file{FOGRA39L.icc}
66 \edef\OBJ@CVR{\the\pdfobj}
67 \pdfcatalog{/OutputIntents [ <<
68   /Type/OutputIntent
69   /S/GTS_PDFX
70   /OutputCondition (FOGRA39)
71   /OutputConditionIdentifier (FOGRA39 \bchar{ISO Coated v2}
72     300\pctchar\space \bchar{ECI\bchar}\bchar))
73   /DestOutputProfile \OBJ@CVR\space 0 R
74   /RegistryName(http://www.color.org)
75   >> ]}

```

`\LettrineFontHook` We want the drop caps to have @bgcolor
`76 \renewcommand\LettrineFontHook{\color{@bgcolor}}`

`\DefaultFindent` The distance between the dropped capital and the text
`77 \setlength\DefaultFindent{2pt}`

3.4 Key-Value Interface

`\faoset` We define the family `fao` for our keys:
`78 \def\faoset#1{\setkeys{fao}{#1}}`

One of the important keys is `year`
`79 \define@key{fao}{year}{\gdef\fao@year{#1}}`
`80 \faoset{year=20XX}`

3.5 Fonts

We use `arev` for mathematics:
`81 \RequirePackage{arevmath}`

For body text we use PT Sans:
`82 \def\PTSans@scale{0.95}`
`83 \def\PTSansNarrow@scale{0.95}`
`84 \def\PTSansCaption@scale{0.95}`
`85 \renewcommand{\sfdefault}{PTSans-TLF}`
`86 \renewcommand{\familydefault}{\sfdefault}`
`87 \renewcommand{\bfdefault}{b}`

`\narrowfamily` We declare a new family, `\narrowfamily`:
`88 \DeclareRobustCommand\narrowfamily{\fontfamily{PTSansNarrow-TLF}\selectfont}`

`\textnarrow` And the matching `\textnarrow` command:
`89 \DeclareTextFontCommand{\textnarrow}{\narrowfamily}`

`\captionfamily` Same with `\captionfamily`:
`90 \DeclareRobustCommand\captionfamily{\fontfamily{PTSansCaption-TLF}\selectfont}`

`\textcaption` And the matching `\textcaption` command:
`91 \DeclareTextFontCommand{\textcaption}{\captionfamily}`

`\normalsize` The basic size is 9.6pt:
`92 \renewcommand\normalsize{%`
`93 \setfontsize\normalsize{9.6pt}{\@xipt}%`
`94 \abovedisplayskip 10\p@ \@plus2\p@ \@minus5\p@`
`95 \abovedisplayshortskip \z@ \@plus3\p@`
`96 \belowdisplayshortskip 6\p@ \@plus3\p@ \@minus3\p@`
`97 \belowdisplayskip \abovedisplayskip`
`98 \let\@listi\@listI}`
`99 \normalsize`

`\small` This is the small size:

```

100 \renewcommand\small{%
101   \@setfontsize\small\@ixpt{10}%
102   \abovedisplayskip 8.5\p@ \@plus3\p@ \@minus4\p@
103   \abovedisplayshortskip \z@ \@plus2\p@
104   \belowdisplayshortskip 4\p@ \@plus2\p@ \@minus2\p@
105   \def\@listif\leftmargin\leftmargini
106         \topsep 4\p@ \@plus2\p@ \@minus2\p@
107         \parsep 2\p@ \@plus\p@ \@minus\p@
108         \itemsep \parsep}%
109   \belowdisplayskip \abovedisplayskip}

```

We use `rm` style of URL:

```

110 \urlstyle{sf}

```

3.6 Margins and Paragraphing

`\parindent` We use not indented paragraphs with paragraph borders given by skips

```

\parskip 111 \setlength\parindent\z@
112 \setlength\parskip{6\p@ plus 6\p@ minus 4\p@}

```

We use `a4paper`.

```

113 \geometry{layout=a4paper,
114   left=5cm,right=3.5cm,bottom=2cm,top=76mm,
115   footskip=9mm, head=30mm, headsep=3mm,
116   columnsep=6mm, twoside}%
117 \savegeometry{frontmatter}
118 \geometry{layout=a4paper,
119   left=2cm,right=2cm,bottom=2cm,top=2.3cm,
120   footskip=9mm, head=30mm, headsep=3mm,
121   columnsep=6mm, twoside}%
122 \savegeometry{standard}

```

3.7 Cropmarks

There are several packages that provide crop marks. Unfortunately they do not work for us because they put crop marks at the background. Since we have colored pages, we want crop marks to be on the foreground.

In this section we re-implement cropmarks of the `geometry` package, putting the marks on the foreground.

We postpone the code to the beginning of the document to get the proper value of the switch

```

123 \AtBeginDocument{\ifprint
124   \AtBeginShipout{%
125     \AtBeginShipoutUpperLeftForeground{%
126       \color{black}%
127       \@tempdima=\Gm@layouthoffset
128       \@tempdimb=\Gm@layoutvoffset

```

```

129 \put(\@tempdima,-\@tempdimb+6\p@){\line(0,1){50}}%
130 \put(\@tempdima-6\p@,-\@tempdimb){\line(-1,0){50}}%
131 \advance\@tempdima by \Gm@layoutwidth
132 \put(\@tempdima,-\@tempdimb+6\p@){\line(0,1){50}}%
133 \put(\@tempdima+6\p@,-\@tempdimb){\line(1,0){50}}%
134 \advance\@tempdimb by \Gm@layoutheight
135 \put(\@tempdima,-\@tempdimb-6\p@){\line(0,-1){50}}%
136 \put(\@tempdima+6\p@,-\@tempdimb){\line(1,0){50}}%
137 \advance\@tempdima by -\Gm@layoutwidth
138 \put(\@tempdima-6\p@,-\@tempdimb){\line(-1,0){50}}%
139 \put(\@tempdima,-\@tempdimb-6\p@){\line(0,-1){50}}%
140 }}\fi}

```

In draft mode we put the word ‘DRAFT’ across the page:

```

141 \AtBeginDocument{\ifDraft
142   \AtBeginShipout{%
143     \AtBeginShipoutUpperLeft{%
144       \color{black!25}%
145       \@tempdima=\Gm@layoutheight
146       \@tempdimb=\Gm@layoutwidth
147       \advance\@tempdima by 0.2\Gm@layoutwidth
148       \advance\@tempdimb by 0.7\Gm@layoutheight
149       \put(\@tempdima,-\@tempdimb){%
150         \rotatebox{45}{%
151           \fontsize{6cm}{6cm}\selectfont
152           DRAFT}}}}\fi}

```

3.8 Setting Colors and Icons

`\fao@color@string` This is the command that remembers the present color for TOC

```
153 \def\fao@color@string{0,0,0}
```

`@bgcolor@next` We store the next background color in `@bgcolor@next`. We store the next heading background in `@tableheadcolor@next`.

`\setbgcolor` The command `\setbgcolor` selects the next background color:

```

154 \def\setbgcolor#1{\colorlet{@bgcolor@next}[cmyk]{#1}%
155   \for\curr@ext:=\@toc@ext@list\do{%
156     \addtocontents{\curr@ext}{\string\colorlet{@bgcolor}[cmyk]{#1}}}%
157   \addtocontents{toc}{\string\colorlet{@bgcolor}[cmyk]{#1}}%
158   \gdef\fao@color@string{#1}}
159 \colorlet{@bgcolor@next}[cmyk]{white}

```

The key-value interface for the same command:

```
160 \define@key{fao}{bgcolor}{\setbgcolor{#1}}
```

And for separate setting of `@tableheadcolor`

```
161 \define@key{fao}{tableheadcolor}{\colorlet{@tableheadcolor}[cmyk]{#1}}
```

`@bgcolor` The current color is in the macro `@bgcolor`.

`@tableheadcolor` This command makes the actual color change:

```

\selectcolor 162 \def\selectcolor{\colorlet{@bgcolor}{@bgcolor@next}}%
              163 \colorlet{@tableheadcolor}{@bgcolor}}
              164 \selectcolor

@tablebg The color for table pages
          165 \define@key{fao}{tablebg}{\colorlet{@tablebg}[cmyk]{#1}}

\seticon Setting the next icon for the part
          166 \def\seticon#1{\gdef\next@icon{#1}}
          167 \define@key{fao}{icon}{\seticon{#1}}

\selecticon The actual icon change
\currenticon 168 \def\selecticon{\gdef\currenticon{\next@icon}}
              169 \def\next@icon{}

\newicon Define an icon #2 for the part #1
          170 \def\newicon#1#2{\expandafter\gdef\csname @icon@#1\endcsname{#2}}

\colored@icon The icon for us is just a mask. This will create a colored icon using background
              @bgcolor
          171 \newcommand\colored@icon[2][\bgroup\fbboxsep=-1pt%
          172 \fcolorbox{white}{@bgcolor}{\includegraphics[#1]{#2}}\egroup}

\colored@icon@fg The icon for us is just a mask. This will create a colored icon using background
              @bgcolor!#3
          173 \newcommand\colored@icon@fg[3][\bgroup\fbboxsep=-1p@%
          174 \fcolorbox{white}{@bgcolor!#3}{\includegraphics[#1]{#2}}\egroup}

```

3.9 Page Styles

`\evenfootmark` The mark on even pages

```

175 \def\evenfootmark#1{\gdef\@evenfootmark{#1}}
176 \evenfootmark{\textbf{FAO} Statistical Yearbook \textbf{\fao@year}}

\oddfootmark The mark on odd pages
          177 \def\oddfootmark#1{\gdef\@oddfootmark{#1}}
          178 \oddfootmark{\rightmark}

standardpagestyle This is our main page style
          179 \fancypagestyle{standardpagestyle}{%
          180 \fancyhf{}%
          181 \fancyhfoffset[LR]{2.22cm}%
          182 \renewcommand\headrulewidth{\z@}%
          183 \fancyhead[LE]{\hspace*{25\p@}\color{@bgcolor}\captionfamily
          184 \Huge\strut\ifnum\thepart>0\relax
          185 \thepart\fi\normalsize\dotfill}%
          186 \fancyhead[L0]{\hspace*{25\p@}\color{@bgcolor}\normalsize\dotfill}

```



```

187 \captionfamily\Huge\strut
188 \leftmark\expandafter\ifx\csname @icon@\thepart\endcsname\relax\else\space
189 \raisebox{-0.25\totalheight}{%
190 \colored@icon[width=1.2cm]{\csname
191 @icon@\thepart\endcsname}}\fi
192 \hspace*{25\p@}}%
193 \fancyfoot [LE]{
194 \bgroup
195 \setlength\fbboxsep{10\p@}%
196 \color{@bgcolor}%
197 \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
198 \normalsize\dotfill
199 \raisebox{-\height}{\@evenfootmark\hspace*{25\p@}}%
200 \egroup}%
201 \fancyfoot [LO]{
202 \bgroup
203 \setlength\fbboxsep{10\p@}%
204 \color{@bgcolor}%
205 \raisebox{-\height}{\hspace*{25\p@}\@oddfootmark}%
206 \normalsize\dotfill
207 \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
208 \egroup}%
209 }
210 \pagestyle{standardpagestyle}

```

`\@partpagerpicture` A picture in the part page. `\@part` defines it to the combination of the current icons

```
211 \def\@partpagepicture{}
```

`partpagestyle` The page style for the parts introduction

```

212 \fancypagestyle{partpagestyle}{%
213 \fancyhf{}%
214 \fancyhead [L]{%
215 \begin{picture}(0,0)
216 \@partpagepicture
217 \put(-7,63){%
218 \raisebox{-\height}{\begin{tikzpicture}
219 \fill[color=@bgcolor,opacity=.1]
220 (0,0) rectangle ($(\textwidth,\textheight)+(5cm,5cm)$);
221 \end{tikzpicture}}}%
222 \end{picture}}
223 \fancyhfoffset [LR]{2.22cm}%
224 \renewcommand\headrulewidth{\z@}%
225 \fancyfoot [LE]{
226 \bgroup
227 \setlength\fbboxsep{10\p@}%
228 \color{@bgcolor}%
229 \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
230 \normalsize\dotfill
231 \raisebox{-\height}{\@evenfootmark\hspace{20\p@}}%

```

```

232 \egroup}%
233 \fancyfoot[L0]{
234   \bgroup
235   \setlength\fbboxsep{10\p@}%
236   \color{@bgcolor}%
237   \raisebox{-\height}{\hspace*{25\p@}\@oddfootmark}%
238   \normalsize\dotfill
239   \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
240 \egroup}%
241 }

```

`\fao@partblobtop` Some pages have “part blobs”: colored blobs on the specific positions of the page.
`\fao@partblobbottom` These macros set the top and the bottom of the blob corresponding to the part set in the second parameter:

```

242 \def\fao@partblobtop#1#2{\expandafter\gdef\csname fao@blobstart#1\endcsname{#2}}
243 \def\fao@partblobbottom#1#2{\expandafter\gdef\csname fao@blobend#1\endcsname{#2}}

```

3.10 Nonfloats

In Faoyearbook we used float package. Since we changed too much in the internals, here we just rewrite the code from scratch.

`\@toc@ext@list` Added macro Comma-separated list of extensions for toc-like files:

```
244 \gdef\@toc@ext@list{toc}
```

`\nf@vert@sep` Vertical separation between the floats

```

245 \newlength\nf@vert@sep
246 \setlength\nf@vert@sep{20mm}

```

`\nf@width` The width of the nonfloat

```
247 \newlength\nf@width
```

`\nf@height` The height of the nonfloat

```
248 \newlength\nf@height
```

`\nf@captionheight` The height reserved for the caption

```

249 \newlength\nf@captionheight
250 \setlength\nf@captionheight{11mm}

```

`\nf@sourceheight` The height reserved for the source lines

```

251 \newlength\nf@sourceheight
252 \setlength\nf@sourceheight{2\baselineskip}

```

`\nf@margin` Margin for floats

```

253 \newlength\nf@margin
254 \setlength\nf@margin{12\p@}

```

`\nf@trianglebase` The design requires a triangle under the caption. Here it is
255 `\newlength\nf@trianglebase`
256 `\setlength\nf@trianglebase{12\p@}`

`\chartwidth` The resulting width of a chart
257 `\newlength\chartwidth`

`\chartheight` The resulting width of a chart
258 `\newlength\chartheight`

`\nf@topskip` Top separation for a nonfloat @topskip

`\nf@bottomskip` Bottom separation for a nonfloat @bottomskip

`\nonfloat@type` The counter to keep the next type to assign
259 `\newcount\nonfloat@type`
260 `\nonfloat@type=4\relax`

`\nf@contentsbox` The box to keep the contents of the float
261 `\newbox\nf@contentsbox`

`\nf@mainbox` The box for the float
262 `\newbox\nf@mainbox`

`\newnon@float` The macro `\newnon@float` has the following arguments: TYPE, EXT, NAME for example
`\newnon@float{map}{lom}{Map}`

It defines a nonfloat with these parameters.

263 `\def\newnon@float#1#2#3{%`

First, we need to define `\ftype@TYPE`: the type of the float. Note that tables are taken, so we need to make a special care of nonfloats that correspond to floats.

264 `\expandafter\ifx\csname ftype@#1\endcsname\relax`
265 `\expandafter\edef\csname ftype@#1\endcsname{\the\nonfloat@type}%`
266 `\multiply\nonfloat@type by 2\relax`
267 `\fi`

Now we define the extension for the floats

268 `\expandafter\def\csname ext@#1\endcsname{#2}%`
269 `\xdef\@toc@ext@list{\@toc@ext@list,#2}%`

The macro `\fnum@TYPE` formats the line like “Figure 1”. We need to check whether the counter is defined

270 `\expandafter\ifx\csname the#1\endcsname\relax`
271 `\newcounter{#1}\fi`
272 `\expandafter\def\csname fnum@#1\endcsname{#3~\csname`
273 `the#1\endcsname}%`

Now we want to define the environment TYPE. Since it might be already defined, we first delete this definition, otherwise `\newenvironment` might throw an error

```
274 \expandafter\let\csname #1\endcsname\relax
275 \expandafter\let\csname end#1\endcsname\relax
```

And the actual definition

```
276 \newenvironment{#1}{\non@float{#1}}{\endnon@float{}}
```

`\@getfirstletter` An aux macro to get a first letter of a word. Used in constructs

```
\edef\U{\@getfirstletter{AAAAA\@endword}}}
```

```
277 \def\@getfirstletter#1{\@getfirstletter#1}
278 \def\@getfirstletter#1{#1\@gobbleword}
279 \def\@gobbleword#1\@endword{}
```

`\non@float` Now we are ready to define the `\non@float` macro. It has three parameters: TYPE, SIZE and PLACEMENT. `\nf@source` is the source of the float.

```
280 \def\non@float#1#2#3{
281   \def\@capttype{#1}%
282   \def\nf@size{#2}%
283   \def\nf@placement{#3}%
```

The macro `\nf@vert@pos` is either u or l

```
284 \lowercase{\xdef\nf@vert@pos{\@getfirstletter#3\@endword}}
285 \global\let\nf@source\@empty
```

Define the source command inside float

```
286 \def\source##1{\gdef\nf@source{##1}}
```

Define the caption producing command:

```
287 \long\def\@makecaption##1##2{\long\gdef\nf@caption{%
288   {\bfseries\large\color{white}
289     \MakeUppercase{##1}: ##2}}}%
290 \gdef\nf@caption{}
```

We calculate the size of the float and skips

```
291 \nf@width=\columnwidth
292 \nf@height=\dimexpr(\textheight/2-\nf@vert@sep)%
293 \if\nf@vert@pos u\relax
294   \nf@topskip=\z@
295   \nf@bottomskip=\nf@vert@sep
296 \else
297   \nf@topskip=\nf@vert@sep%
298   \nf@bottomskip=\z@
299 \fi
300 \def\tempW{W}%
301 \def\tempT{T}%
302 \def\tempB{B}%
303 \ifx\nf@size\tempW
304   \nf@width=\textwidth
```

```

305 \fi
306 \ifx\nf@size\tempT
307   \nf@height=\textheight
308   \nf@topskip=\z@
309   \nf@bottomskip=\z@
310 \fi
311 \ifx\nf@size\tempB
312   \nf@width=\textwidth
313   \nf@height=\textheight
314   \nf@topskip=\z@
315   \nf@bottomskip=\z@
316 \fi
317 \chartheight=
318   \dimexpr(\nf@height-\nf@captionheight-\nf@sourceheight
319     -2\nf@margin-\nf@trianglebase-2\baselineskip)%
320 \chartwidth=\dimexpr(\nf@width-2\nf@margin-0.5\nf@trianglebase)%
321 \nf@height=\dimexpr(\nf@height+\nf@topskip+\nf@bottomskip)%

```

Now we construct the main box.

```

322 \global\setbox\nf@contentsbox
323   \color@vbox
324   \normalcolor
325   \vbox to \chartheight
326   \bgroup
327   \hsize\chartwidth
328   \@parboxrestore
329   \@floatboxreset
330 }

```

\endnon@float The actual typesetting

```

331 \def\endnon@float{\@endfloatbox\par
332   \hsize=\nf@width
333   \setbox\nf@mainbox=\vbox to \nf@height\bgroup
334     \hsize=\chartwidth
335     \vskip\nf@topskip
336     \noindent
337     \begin{picture}(0,0)%
338       \put(0,0){\color{@bgcolor}}%
339       \begin{tikzpicture}[baseline=(current bounding box.north)]
340         \fill (0,0) -- (\nf@trianglebase,0) --
341           (0.5\nf@trianglebase,-\nf@trianglebase) -- cycle;
342       \end{tikzpicture}}
343   \end{picture}%
344   \def\@tempa{chart}%
345   \ifx\@tempa\@capttype
346     \begin{picture}(0,0)%
347       \put(0,0){\color{@bgcolor}}%
348       \begin{tikzpicture}[baseline=(current bounding box.north)]
349         \draw(0,0) -- (\nf@width,0);
350         \draw (0.5\nf@trianglebase,-2\nf@trianglebase) --

```

```

351      (0.5\nf@trianglebase,-\charheight-2\nf@trianglebase
352      -\nf@margin) --
353      (\nf@width-\pgflinewidth, -\charheight-2\nf@trianglebase
354      -\nf@margin) -- (\nf@width-\pgflinewidth, 0);
355      \end{tikzpicture}}
356      \end{picture}%
357      \fi
358      {\color{bgcolor}\color@block{\nf@width}{\nf@captionheight}{.1\p@}}%
359      \hskip\dimexpr(\nf@margin+0.5\nf@trianglebase)%
360      \vbox to \nf@captionheight\bgroup
361      \nf@caption\vfill\normalcolor
362      \egroup\par\nointerlineskip\vskip\nf@trianglebase
363      \vskip\nf@margin
364      \noindent\hskip\dimexpr(\nf@margin+0.5\nf@trianglebase)%
365      \box\nf@contentsbox\par\nointerlineskip
366      \vskip\nf@margin
367      \hskip\dimexpr(\nf@margin+0.5\nf@trianglebase)%
368      \vbox to \nf@sourceheight\bgroup
369      \leftskip-\nf@margin\parskip\z@\parindent\z@
370      \ifx\nf@source\@empty\else
371      \vskip0.5\baselineskip
372      \color{bgcolor}%
373      \rule{.2em}{.2em}~\rule{.2em}{.2em}~%
374      \rule{.2em}{.2em}~\rule{.2em}{.2em}~%
375      \rule{.2em}{.2em}~\rule{.2em}{.2em}~%
376      \rule{.2em}{.2em}\par\normalcolor
377      Source: \nf@source\par\vfill\fi\egroup
378      \vfill\egroup
379      \edef\nf@currbox{\expandafter\csname nfbox@\nf@size
380      @\nf@placement\endcsname}%
381      \global\setbox\nf@currbox=
382      \vbox{\box\nf@currbox\nointerlineskip\penalty0\box\nf@mainbox}}

```

`\map` A standard nonfloat:

```
383 \newnon@float{map}{lom}{Map}
```

`\listofmapsname` The name for the list of maps

```
384 \def\listofmapsname{List of Maps}
```

`\table` Another one

```
385 \newnon@float{table}{lot}{Table}
```

`\chart` And another one

```
386 \newnon@float{chart}{loc}{Chart}
```

`\listofchartsname` The name for the list of charts

```
387 \def\listofchartsname{List of charts}
```

3.11 Output Routine

This is hairy because output routines are hairy...

We need several insert boxes. Naming convention: the letter for the box size and two letter code for the location. We use `\newbox` instead of `\newinsert` since we do not use associated `\count`, `\dimen` and `\skip` registers.

```

388 \newbox\nfbox@S@ul
389 \newbox\nfbox@S@ur
390 \newbox\nfbox@S@ll
391 \newbox\nfbox@S@lr
392 \newbox\nfbox@S@UL
393 \newbox\nfbox@S@UR
394 \newbox\nfbox@S@LL
395 \newbox\nfbox@S@LR
396 \newbox\nfbox@T@ul
397 \newbox\nfbox@T@ur
398 \newbox\nfbox@T@UL
399 \newbox\nfbox@T@UR
400 \newbox\nfbox@W@ul
401 \newbox\nfbox@W@ll
402 \newbox\nfbox@W@UL
403 \newbox\nfbox@W@LL
404 \newbox\nfbox@B@ul
405 \newbox\nfbox@B@UL

```

`\@tempboxb` Standard L^AT_EX has `\@tempboxa`. We need more...

```

406 \ifx\@tempboxb\@undefined
407   \newbox\@tempboxb
408 \fi

```

`\standard@output` The standard L^AT_EX output routine is saved as `\standard@output`. We use it for one column pages—maybe one even wants a standard float here?

```

409 \edef\standard@output{\the\output}

```

`\output` Right now we use standard output on one column pages and the new one with two columns

```

410 \output{\if@twocolumn\the\nf@output\else\standard@output\fi}

```

`\nf@output` Here we define our own output routine.

```

411 \newtoks\nf@output
412 \nf@output {%

```

We define the current boxes `\curr@nfbox....`. Also, `uc` or `lc` mean Upper or Lower Current column

```

413   \ifodd\c@page
414     \global\let\curr@nfbox@S@ul\nfbox@S@UL
415     \global\let\curr@nfbox@S@ur\nfbox@S@UR
416     \global\let\curr@nfbox@S@ll\nfbox@S@LL
417     \global\let\curr@nfbox@S@lr\nfbox@S@LR

```

```

418 \global\let\curr@nfbox@T@ul\nfbox@T@UL
419 \global\let\curr@nfbox@T@ur\nfbox@T@UR
420 \global\let\curr@nfbox@W@ul\nfbox@W@UL
421 \global\let\curr@nfbox@W@ll\nfbox@W@LL
422 \global\let\curr@nfbox@B@ul\nfbox@B@UL
423 \else
424 \global\let\curr@nfbox@S@ul\nfbox@S@ul
425 \global\let\curr@nfbox@S@ur\nfbox@S@ur
426 \global\let\curr@nfbox@S@ll\nfbox@S@ll
427 \global\let\curr@nfbox@S@lr\nfbox@S@lr
428 \global\let\curr@nfbox@T@ul\nfbox@T@ul
429 \global\let\curr@nfbox@T@ur\nfbox@T@ur
430 \global\let\curr@nfbox@W@ul\nfbox@W@ul
431 \global\let\curr@nfbox@W@ll\nfbox@W@ll
432 \global\let\curr@nfbox@B@ul\nfbox@B@ul
433 \fi
434 \if@firstcolumn
435 \global\let\curr@nfbox@S@uc\curr@nfbox@S@ul
436 \global\let\curr@nfbox@S@lc\curr@nfbox@S@ll
437 \global\let\curr@nfbox@T@uc\curr@nfbox@T@ul
438 \else
439 \global\let\curr@nfbox@S@uc\curr@nfbox@S@ur
440 \global\let\curr@nfbox@S@lc\curr@nfbox@S@lr
441 \global\let\curr@nfbox@T@uc\curr@nfbox@T@ur
442 \fi
443 \let \par \@@par
444 %
445 % There are several possibilities when we start the output routine for
446 % a single column in a two-column layout.
447 % \begin{enumerate}
448 % \item Wide or big non-floats completely cover the page. In this
449 % case we do not need to create columns, and directly go to the
450 % output.
451 % \item The columnd is occupied by tall or single nonfloats. We make
452 % a column of nonfloats and send it further.
453 % \item There is room for text on the page, but its height
454 % (\cs{@colroom}) is different from the one known to the page builder
455 % (\cs{vsize}). In this case we change \cs{vsize} and return.
456 % \item The room for text is exactly \cs{vsize}. In this case we form
457 % a column and return.
458 % \end{enumerate}
459 % \begin{macrocode}
460 \global\@colht=\textheight
461 \ifdim\ht\curr@nfbox@B@ul>0.5\baselineskip
462 \global\advance\@colht by -\textheight
463 \fi
464 \ifdim\ht\curr@nfbox@W@ul>0.5\baselineskip
465 \global\advance\@colht by -0.5\textheight
466 \fi

```



```

467 \ifdim\ht\curr@nfbox@W@ll>0.5\baselineskip
468   \global\advance\@colht by -0.5\textheight
469 \fi
470 \ifdim\@colht < \baselineskip
471   \nf@output@widepage
472 \else
473   \nf@makecol
474 \fi
475 }

```

`\nf@output@widepage` The macro `\nf@output@widepage` outputs a page completely filled by wide pictures.

```

476 \def\nf@output@widepage{%
477   \unvbox\@cclv
478   \penalty\outputpenalty
479   \if@firstcolumn\else
480     \ClassError{faosyb}{Wide or big nonfloats defined too late. Move
481       them up}{I encountered Big or Wide floats when I already made the
482       first column. Please move them up}
483   \fi
484   \ifdim\ht\curr@nfbox@B@ul>0.5\baselineskip
485     \setbox\@tempboxa\vsplit\curr@nfbox@B@ul to \textheight
486     \setbox\@outputbox \vbox\bgroup
487       \boxmaxdepth \@maxdepth
488       \box\@tempboxa
489       \vfill
490     \egroup
491   \else
492     \setbox\@tempboxa\vsplit\curr@nfbox@W@ul to 0.5\textheight
493     \setbox\@tempboxb\vsplit\curr@nfbox@W@ll to 0.5\textheight
494     \setbox\@outputbox\vbox\bgroup
495       \boxmaxdepth \@maxdepth
496       \box\@tempboxa
497       \nointerlineskip
498       \box\@tempboxb
499       \vfill
500     \egroup
501   \fi
502   \global\size\textheight
503   \global\colht\textheight
504   \@outputpage
505   \@firstcolumntrue
506 }

```

`\nf@makecol` This macro tries to make one column of text. If successful, it puts first column into temporary storage, and outputs the page when or if the second column is ready.

When we start `\nf@makecol`, `\@colht` already reflects possible wide nonfloats. This to get `\@colroom`, we need to take into account only the narrow ones

```

507 \def\nf@makecol{%
508   \global\@colroom\@colht
509   \ifdim\ht\curr@nfbox@T@uc>0.5\baselineskip
510     \global\@colroom=0pt
511   \fi
512   \ifdim\ht\curr@nfbox@S@uc>0.5\baselineskip
513     \global\advance\@colroom by -0.5\textheight
514   \fi
515   \ifdim\ht\curr@nfbox@S@lc>0.5\baselineskip
516     \global\advance\@colroom by -0.5\textheight
517   \fi

```

Now there could be two cases. If `\@colroom` is small, we fill the column with the non-floats only. Otherwise we have a “mixed” column with both text and nonfloats.

```

518   \ifdim\@colroom<0.5\baselineskip
519     \nf@makenfcol
520   \else
521     \nf@makemixedcol
522   \fi}

```

`\nf@makenfcol` This macro outputs a column with only non-floats. If it is called, we already know that the narrow non-floats would fill the column, so we do not do any additional checks.

```

523 \def\nf@makenfcol{%
524   \unvbox\@cclv
525   \penalty\outputpenalty
526   \ifdim\@colht>0.9\textheight % one tall or two squares
527     \ifdim\ht\curr@nfbox@T@uc>0.5\baselineskip
528       \setbox\@outputbox\vbox\bgroup
529       \boxmaxdepth \@maxdepth
530       \vsplit \curr@nfbox@T@uc to \textheight
531       \egroup
532     \else
533       \setbox\@outputbox\vbox\bgroup
534       \boxmaxdepth \@maxdepth
535       \vsplit\curr@nfbox@S@uc to 0.5\textheight
536       \nointerlineskip
537       \vsplit\curr@nfbox@S@lc to 0.5\textheight
538       \egroup
539     \fi
540   \else % one square
541     \ifdim\ht\curr@nfbox@S@uc>0.49\textheight
542       \setbox\@outputbox\vsplit \curr@nfbox@S@uc to 0.5\textheight
543     \else
544       \setbox\@outputbox\vsplit \curr@nfbox@S@lc to 0.5\textheight
545     \fi
546   \fi
547   \nf@opcol
548 }

```

`\nf@makemixedcol` This macros used when we have a mix of text with nonfloats (or possibly just text).

We check whether the page builder has the right idea about the text size; if not, we return from the output routine

```

549 \def\nf@makemixedcol{%
550   \ifdim\@colroom=\vsize
551     \nf@makemixedcol@
552   \else
553     \global\vsize=\@colroom
554     \unvbox\@cclv
555     \penalty\outputpenalty
556   \fi}

```

`\nf@makmixedcol@` And now the real work of `\nf@makemixedcol@`

```

557 \def\nf@makemixedcol@{%
558   \ifvoid\footins
559     \setbox\@outputbox \box \@cclv
560   \else
561     \setbox\@outputbox \vbox {%
562       \boxmaxdepth \@maxdepth
563       \unvbox \@cclv
564       \vskip \skip\footins
565       \color@begingroup
566         \normalcolor
567         \footnoterule
568         \unvbox \footins
569       \color@endgroup
570     }%
571   \fi
572   \ifdim\ht\curr@nfbox@S@uc>0.49\textheight
573     \setbox\@tempboxa\vsplit\curr@nfbox@S@uc to 0.5\textheight
574     \setbox\@outputbox \vbox
575       \bgroup
576         \box\@tempboxa
577         \nointerlineskip
578         \box\@outputbox
579     \egroup
580   \fi
581   \ifdim\ht\curr@nfbox@S@lc>0.49\textheight
582     \setbox\@tempboxa\vsplit\curr@nfbox@S@lc to 0.5\textheight
583     \setbox\@outputbox \vbox
584       \bgroup
585         \box\@outputbox
586         \nointerlineskip
587         \box\@tempboxa
588     \egroup
589   \fi
590   \nf@opcol}

```

`\nf@opcol` This is like the standard L^AT_EX `\@outputdblcol`, but with the treatment of wide nonfloats.

```

591 \def\nf@opcol{%
592   \if@firstcolumn
593     \global\@firstcolumnfalse
594     \global\setbox\@leftcolumn\box\@outputbox
595   \else
596     \global\@firstcolumntrue
597     \ifdim\ht\curr@nfbox@W@ul>0.5\baselineskip
598       \setbox\@tempboxa\vsplit \curr@nfbox@W@ul to 0.5\textheight
599     \else
600       \setbox\@tempboxb\box\@tempboxa
601     \fi
602     \setbox\@outputbox \vbox\bgroup
603       \box\@tempboxa
604       \nointerlineskip
605       \hb@xt@\textwidth {%
606         \hb@xt@\columnwidth {%
607           \box\@leftcolumn \hss}%
608         \hfil
609         {\normalcolor\vrule \@width\columnseprule}%
610         \hfil
611         \hb@xt@\columnwidth {%
612           \box\@outputbox \hss}%
613       }%
614     \egroup
615     \ifdim\ht\curr@nfbox@W@ll>0.5\baselineskip
616       \setbox\@tempboxa\vsplit \curr@nfbox@W@ll to 0.5\textheight
617       \setbox\@outputbox\vbox\bgroup
618         \box\@outputbox
619         \nointerlineskip
620         \box\@tempboxa
621       \egroup
622     \fi
623     \@outputpage
624     \global\vsizetextheight
625     \global\@colhttextheight
626     \global\@colroomtextheight
627   \fi}

```

`\standard@clearpage` The usual `\clearpage` flushes the floats. We keep it in `\standard@clearpage`

```

628 \let\standard@clearpage\clearpage

```

`\clearpage` Now we can define `\clearpage` to take care of the mode:

```

629 \def\clearpage{%
630   \if@twocolumn
631     \nf@clearpage
632   \else
633     \standard@clearpage
634   \fi}

```

`\nf@totalheight` The total height of all non-floats

```
635 \def\nf@totalheight{\dimexpr(%  
636 \ht\nfbox@S@UL+  
637 \ht\nfbox@S@UR+  
638 \ht\nfbox@S@LL+  
639 \ht\nfbox@S@LR+  
640 \ht\nfbox@T@UL+  
641 \ht\nfbox@T@UR+  
642 \ht\nfbox@W@UL+  
643 \ht\nfbox@W@LL+  
644 \ht\nfbox@B@UL+  
645 \ht\nfbox@S@ul+  
646 \ht\nfbox@S@ur+  
647 \ht\nfbox@S@ll+  
648 \ht\nfbox@S@lr+  
649 \ht\nfbox@T@ul+  
650 \ht\nfbox@T@ur+  
651 \ht\nfbox@W@ul+  
652 \ht\nfbox@W@ll+  
653 \ht\nfbox@B@ul)}  

```

`\nf@clearpage` We keep ejecting pages until get rid of nf stuff

```
654 \def\nf@clearpage{%  
655 \write\m@ne{}%  
656 \if@firstcolumn  
657 \ifdim\dimexpr(\pagetotal+\nf@totalheight)>\baselineskip  
658 \leavevmode  
659 \null\vfill\newpage  
660 \null\vfill\newpage  
661 \fi  
662 \else  
663 \leavevmode  
664 \null\vfill\newpage  
665 \fi  
666 \ifdim\nf@totalheight>\baselineskip  
667 \nf@clearpage\fi  
668 }  

```

`\clearspread` This is like `\cleardoublepage`, but with the logic inverted:

```
669 \def\clearspread{\clearpage\ifodd\c@page  
670 \hbox{}\newpage\if@twocolumn\hbox{}\newpage\fi\fi\@firstcolumntrue}  

```

We need to clear everything at the end

```
671 \AtEndDocument{\if@twocolumn  
672 \ifdim\nf@totalheight>\baselineskip  
673 \null\vfill\clearpage\fi  
674 \fi}  

```

3.12 Sectioning

<code>\if@mainmatter</code>	This is used to check whether we are at main matter 675 <code>\newif\if@mainmatter</code>
<code>\frontmatter</code>	We want Arabic numbers for front matter: 676 <code>\def\frontmatter{%</code> 677 <code>\pagestyle{standardpagestyle}%</code> 678 <code>\loadgeometry{frontmatter}%</code> 679 <code>\onecolumn\@mainmatterfalse}</code>
<code>\mainmatter</code>	We want Arabic numbers for main matter: 680 <code>\def\mainmatter{\cleardoublepage\loadgeometry{standard}\onecolumn</code> 681 <code>\pagestyle{standardpagestyle}%</code> 682 <code>\@mainmattertrue}</code>
<code>\tocdepth</code>	Only sections and up are allowed in TOC: 683 <code>\setcounter{tocdepth}{1}</code>
<code>\secnumdepth</code>	Only the parts are numbered in our setup: 684 <code>\setcounter{secnumdepth}{-1}</code>
<code>\thepart</code>	And the parts are numbered using Arabic numbers: 685 <code>\renewcommand \thepart {\@arabic\c@part}</code>
<code>\c@fao@partnum</code>	To draw the blobs in part color in the proper position, we need to associate them with parts. However, some parts are numbered, some are not. The macro <code>\fao@partnum</code> keeps the current part number counted continuously from the beginning to end. 686 <code>\newcounter{fao@partnum}</code> 687 <code>\setcounter{fao@partnum}{0}</code>
<code>\fao@currentpartnum</code>	The current value of <code>\fao@partnum</code> used in TOC: 688 <code>\def\fao@currentpartnum{0}</code>
<code>\part</code>	The largest partition in the book 689 <code>\renewcommand\part{%</code> 690 <code>\secdef\@part\@spart}</code>
<code>\EndPartIntro</code>	This command switches off the special formatting of part pages: 691 <code>\def\EndPartIntro{\end{adjmulticols}\clearspread\twocolumn\normalcolor</code> 692 <code>\pagestyle{standardpagestyle}}</code>
<code>iconfill</code>	Fill a line with the icons of increasing size. The parameters are the initial size, length of the strip and the intensity of the background 693 <code>\def\@maxpart{1}</code> 694 <code>\def\iconfill#1#2#3{%</code> 695 <code>\expandafter\ifx\csname @icon@1\endcsname\relax\strut\else</code>

```

696 \@tempcnta=1
697 \setbox\@tempboxa=\hbox{}%
698 \loop
699 \@tempdima=#1
700 \setbox\@tempboxa=\hbox{\unhbox\@tempboxa
701   \colored@icon@fg[width=\@tempdima]{\csname
702     @icon@\the\@tempcnta\endcsname}{#3}}%
703 \advance\@tempcnta by 1\relax
704 \ifnum\@tempcnta>\@maxpart\relax\@tempcnta=1\fi
705 \ifdim\wd\@tempboxa>\#2\else\repeat
706 \unhbox\@tempboxa
707 \fi}

```

`\currenticonfill` Several iterations of the current icon with increasing sizes. The parameters are the initial size, length and the intensity of the background.

```

708 \def\currenticonfill#1#2#3{%
709   \expandafter\ifx\csname @icon@\thepart\endcsname\relax\strut\else
710   \setbox\@tempboxa=\hbox{}%
711   \@tempdima=#1
712   \loop
713   \@tempdima=1.44\@tempdima
714   \setbox\@tempboxa=\hbox{\unhbox\@tempboxa
715     \colored@icon@fg[width=\@tempdima]{\csname
716       @icon@\thepart\endcsname}{#3}}%
717   \ifdim\wd\@tempboxa>\#2\else\repeat
718   \unhbox\@tempboxa
719   \fi}

```

`\@part` This is the actual part making macro.

```

720 \def\@part[#1]#2{%
721   \clearspread
722   \onecolumn
723   \clearspread
724   \selectcolor
725   \selecticon
726   \color{@bgcolor}%
727   \rowcolors{2}{@bgcolor!10}{}%
728   \pagestyle{partpagestyle}%
729   \refstepcounter{part}%
730   \addcontentsline{toc}{part}{\thepart\hspace{1em}#1}%
731   \protected@write\@auxout{%
732     {\string\newicon{\thepart}{\currenticon}
733       \string\gdef\string\@maxpart{\thepart}}%
734   \def\@partpagepicture{%
735     \put(-20,-500){\rotatebox{30}{\parbox{\textwidth}{%
736       \iconfill{1cm}{0.5\textwidth}{20}\currenticonfill{1cm}{0.4\textwidth}{20}\\
737       \iconfill{1cm}{1.15\textwidth}{100}\\
738       \iconfill{1cm}{1.14\textwidth}{20}}}}}%
739   \markboth{#1}{#1}%
740   \null

```

```

741 \newpage
742 \def\@partpagepicture{\put(150,-200){\rotatebox{30}{\iconfill{1cm}{12cm}{20}}}%
743 \gdef\@partpagepicture{}}
744 {\interlinepenalty \@M
745 \vspace*{80\p@}
746 \captionfamily
747 \fontsize{240\p@}{240\p@}\selectfont\raggedright\thepart~%
748 \parbox[b]{0.8\textwidth}{\fontsize{64\p@}{72\p@}\selectfont
749 \raggedright\null#2\par}\par\vskip80\p@
750 }\par\normalcolor
751 \begin{adjmulticols}{1}{44mm}{0mm}}

\@currentsymbol the symbol for the next unnumbered part
752 \define@choicekey*{fao}{symbol}[\val\nr]%
753 {righttriangle,square,rightsemicircle}{%
754 \ifcase\nr\relax
755 \gdef\@currentsymbol{(0,0) -- (1ex,0) -- (1ex,1ex) -- cycle}%
756 \or
757 \gdef\@currentsymbol{(0,0) -- (1ex,0) -- (1ex,1ex) -- (0,1ex) --
758 cycle}%
759 \or
760 \gdef\@currentsymbol{(0,0) arc[start angle=90, end angle=-90, x
761 radius = 0.5ex, y radius = 0.5ex] -- cycle}%
762 \fi
763 }{\ClassError{faosyb}{Bad symbol value \val}}
764 \faoset{symbol=square}

\@spart Unnnumbered parts are only in the foreword
765 \def\@spart#1{%
766 \cleardoublepage
767 \onecolumn
768 \selectcolor
769 \selecticon
770 \pagestyle{empty}%
771 \rowcolors{2}{@bgcolor!10}{}%
772 \phantomsection
773 \addcontentsline{toc}{spart}{\hspace{1em}#1}%
774 \makebox[0pt]{%
775 \raisebox{-\totalheight}{%
776 [0pt][0pt]{\rotatebox{90}{\fontsize{9mm}{9mm}\selectfont
777 \captionfamily
778 \tikz\fill[color=@bgcolor]\@currentsymbol;\space
779 \color{gray}#1\strut}}}%
780 \hspace*{50pt}}\par\vspace*{-\baselineskip}%
781 \vspace*{-\parskip}}

\sectionmark We do not want to have uppercase sections in the footers
782 \def\sectionmark#1{\markright{#1}}

```


`\section` New sections start on a recto page in one column mode and on a verso page in two column mode

```

783 \renewcommand\section{\par\clearspread
784   \@startsection {section}{1}{\z@}%
785                   {-1sp}%
786                   {2.3ex \@plus.2ex}%
787                   {\normalfont\Large\bfseries\raggedright
788                   \color{@bgcolor}}}
```

`\subsection` The subsection macro

```

789 \renewcommand\subsection{\@startsection{subsection}{2}{\z@}%
790                                     {-1sp}%
791                                     {1.5ex \@plus .2ex}%
792                                     {\normalfont\large\bfseries\raggedright
793                                     \color{@bgcolor}}}
```

3.13 Tables

`\tablepages` Long tables at the end of a part

```

794 \newenvironment{tablepages}{\onecolumn
795   \bgroup\narrowfamily\multicolsep=\z@
796   \vspace*{-2cm}%
797   \def\emph{\textsl}%
798   \begin{adjmulticols}{1}{-1.3cm}{-1.3cm}\centering\normalcolor}%
799   {\end{adjmulticols}\egroup}
```

`\tablemph` Some styles define `\tablemph` commands. Here we supply a stub

```

800 \AtBeginDocument{\providecommand{\tablemph}[1]{\emph{#1}}}
```

We define new column types for table headers:

```

801 \newcolumnntype{d}[1]{D{.}{.}{#1}}
802 \newcolumnntype{H}{>{\columncolor{@tableheadcolor}[1.01\tabcolsep][1.01\tabcolsep]}c}
```

P columnntype is much more complex. Basically we want a centered entry with a parbox of the given width inside.:

```

803 \newcolumnntype{P}[1]{>{\columncolor{@tableheadcolor}[1.01\tabcolsep][1.01\tabcolsep]%
804   \@fao@Pentry{#1}}c<{\end@fao@Pentry}}
```

`\@fao@Pentry` Since `\parbox` needs “real” braces to delimit the argument, we use this trick. Note `\hspace{0pt}` to allow T_EX to hyphenate the first word.

```

805 \def\@fao@Pentry#1#2\end@fao@Pentry{%
806 \parbox[t]{#1}{\centering\strut\hspace{\z@}#2\strut}}
```

Same with C entry:

```

807 \newcolumnntype{C}[1]{>{\columncolor{@tableheadcolor}[1.01\tabcolsep][1.01\tabcolsep]%
808   \@fao@Centry{#1}}c<{\end@fao@Centry}}
```

`\fao@Centry` This macro is similar to `\fao@Pentry`, but with different way to set the width of the `\parbox`:

```
809 \def\fao@Centry#1#2\endfao@Centry{%
810 \settowidth{\@tempdima}{$-99.999$}%
811 \@tempdima=#1\@tempdima\relax
812 \parbox[t]{\@tempdima}{\centering\strut\hspace{\z@}#2\strut}}
```

`\LT@makecaption` This macro produces the caption for the long tables. We redefine it to get the tables in the way specified by the designer

```
813 \def\LT@makecaption#1#2#3{%
814 \LT@mc\LT@cols {\@{}l}{\cellcolor{white}}%
815 \rlap{\fcolorbox{white}{\tableheadcolor}{\normalsize
816 \captionfamily\large\strut
817 \textcolor{white}{#1\MakeUppercase{#2}: }#3}}}%
818 \begin{picture}(0,0)%
819 \put(.5,-7){\color{bgcolor}%
820 \begin{tikzpicture}[baseline=(current bounding box.north)]
821 \fill (0,0) -- (\nf@trianglebase,0) --
822 (.5\nf@trianglebase,-\nf@trianglebase) -- cycle;
823 \end{tikzpicture}}
824 \end{picture}\normalcolor
825 \raisebox{-17pt}{\strut}}
```

3.14 Front Matter

`\@generic toc` This is a generic macro with two parameters: name of the toc and file extension

```
826 \def\@generic toc#1#2{\clearpage\loadgeometry{standard}\onecolumn
827 {\fontsize{48pt}{48pt}\selectfont
828 \captionfamily\color{black!40}#1\par}\@mkboth{#1}{#1}\bigskip
829 \@starttoc{#2}}
```

`\tableofcontents` Our table of contents

```
830 \renewcommand\tableofcontents{\clearpage\loadgeometry{standard}\onecolumn
831 \@mkboth{\contentsname}{\contentsname}%
832 \makebox[0pt][l]{\fontsize{24pt}{32pt}\selectfont \bfseries
833 \color{black!70}\MakeUppercase{\contentsname}\space}%
834 \par\vspace{-2\baselineskip}\vspace{-\parskip}%
835 \@starttoc{toc}}
```

`\@tocpartskip` This is the skip between the parts in TOC:

```
836 \newlength{\@tocpartskip}
837 \define@key{fao}{tocpartskip}{\setlength{\@tocpartskip}{#1}}
838 \faoset{tocpartskip}=\z@
```

`\fao@tocrule@start` The start of the current TOC colored rule

```
839 \newdimen\fao@tocrule@start
```

`\fao@tocrule@height` The height of the current TOC rule

```
840 \newdimen\fao@tocrule@height
```

`\@draw@tocrule@part` Drawing the toc rule for a part

```

841 \def\@draw@tocrule@part{\@fao@tocrule@height=\pagetotal
842   \protected@write\@auxout{}\string\@fao@partblobbottom{\@fao@currentpartnum}{\the\@fao@tocrule@height}%
843   \advance\@fao@tocrule@height-\@fao@tocrule@start
844   \bgroup\parskip\z@
845   \parbox[b][\z@]{\z@}{\hspace*{-15\p@}\color{\@bgcolor}\rule{2\p@}{\@fao@tocrule@height}}%
846   \parbox[b][\z@]{\z@}{\hspace*{330\p@}%
847     \color{\@bgcolor}\rule{41\p@}{\@fao@tocrule@height}}%
848   \par\vspace{-0.5\baselineskip}\egroup}

```

`\@draw@tocrule@section` Drawing the toc rule for a section

```

849 \def\@draw@tocrule@section{\@fao@tocrule@height=\pagetotal
850   \protected@write\@auxout{}\string\@fao@partblobbottom{\@fao@currentpartnum}{\the\@fao@tocrule@height}%
851   \advance\@fao@tocrule@height-\@fao@tocrule@start
852   \advance\@fao@tocrule@height5\p@
853   \bgroup\parskip\z@\small
854   \raisebox{\baselineskip}[\z@][\z@]{\parbox[b][\z@]{\hspace*{-35\p@}\color{\@bgcolor}\rule{2\p@}{\@fao@tocrule@height}}%
855   \raisebox{\baselineskip}[\z@][\z@]{\parbox[b][\z@]{\hspace*{310\p@}%
856     \color{\@bgcolor}\rule{41\p@}{\@fao@tocrule@height}}}%
857   \par\vspace{-\baselineskip}\egroup}

```

`\l@part` This prints the part in TOC:

```

858 \renewcommand*\l@part[2]{%
859   \ifnum \c@tocdepth >-2\relax
860     \addpenalty{-\@highpenalty}%
861     \setlength\@tempdima{3em}%
862     \addvspace{\@tocpartskip}%
863     \begingroup

```

We store the current vertical position of the page into `\@fao@tocrule@start`

```

864 %   \addvspace{-2pc}\par
865   \@fao@tocrule@start=\pagetotal
866   \protected@write\@auxout{}\string\@fao@partblobtop{\@fao@currentpartnum}{\the\@fao@tocrule@height}%
867   \parindent \z@ \rightskip \@pnumwidth
868   \parfillskip -\@pnumwidth
869   \leftskip180\p@
870   {\leavevmode
871     \color{\@bgcolor}\bfseries\partname\space#1:
872     \hfil \hb@xt@\@pnumwidth{\hss #2}}%
873   \par\@draw@tocrule@part
874   \nobreak
875   \global\@nobreaktrue
876   \everypar{\global\@nobreakfalse\everypar{}}%
877   \endgroup
878 \fi}

```

`\l@spart` This adds unnumbered part to TOC

```

879 \newcommand*\l@spart[2]{%
880   \ifnum \c@tocdepth >-2\relax
881     \addpenalty{-\@highpenalty}%

```

```

882 \setlength\@tempdima{3em}%
883 \beginingroup
884 \fao@tocrule@start=\pagetotal
885 \protected@write\@auxout{}\string\fao@partblobtop{\fao@currentpartnum}{\the\fao@tocrule}
886 \parindent \z@ \rightskip \@pnumwidth
887 \parfillskip -\@pnumwidth
888 \leftskip180\p@
889 {\leavevmode
890 \color{\bgcolor}\bfseries#1:
891 \hfil \hb@xt@\@pnumwidth{\hss #2}}%
892 \par\@draw@tocrule@part
893 \nobreak
894 \global\@nobreaktrue
895 \everypar{\global\@nobreakfalse\everypar{}}%
896 \endgroup
897 \fi}

```

`\l@section` This prints the section in TOC:

```

898 \renewcommand*\l@section[2]{%
899 \ifnum \c@tocdepth >-2\relax
900 \addpenalty{-\@highpenalty}%
901 \setlength\@tempdima{3em}%
902 \beginingroup
903 \small
904 \fao@tocrule@start=\pagetotal
905 \leftskip200\p@\relax\parskip\z@
906 \parindent \z@ \rightskip \@pnumwidth
907 \parfillskip -\@pnumwidth
908 {\leavevmode\small\strut
909 #1\hfil \hb@xt@\@pnumwidth{\hss #2}}\par\@draw@tocrule@section
910 \nobreak
911 \global\@nobreaktrue
912 \everypar{\global\@nobreakfalse\everypar{}}%
913 \endgroup
914 \fi}

```

`\appendix` We do not draw colored rules in the TOC part of the appendix:

```

915 \renewcommand\appendix{%
916 \bookmarksetup{startatroot}%
917 \addtocontents{toc}{\string\let\string\@draw@tocrule@part\string\relax
918 \string\let\string\@draw@tocrule@section\string\relax}}

```

We use special formatting of metadata in the lists of... This requires explicit `\pars` at the end:

```

919 \AtEndDocument{%
920 \immediate\write\@auxout{\string\@writefile{loc}{\string\par}}%
921 \immediate\write\@auxout{\string\@writefile{lot}{\string\par}}%
922 \immediate\write\@auxout{\string\@writefile{lom}{\string\par}}

```

`\nf@dottedtocline` This is like the standard `\@dottedtocline`, but with colored page numbers

```

923 \def\nf@dottedtocline#1#2#3#4#5{%
924   \ifnum #1>\c@tocdepth \else
925     \vskip \z@ \@plus.2\p@
926     {\leftskip #2\relax \rightskip \@tocrmarg \parfillskip -\rightskip
927     \parindent #2\relax\@afterindenttrue
928     \interlinepenalty\@M
929     \leavevmode
930     \@tempdima #3\relax
931     \advance\leftskip \@tempdima \null\nobreak\hskip -\leftskip
932     {#4}\nobreak
933     \leaders\hbox{$\m@th
934       \mkern \@dotsep mu\hbox{.}\mkern \@dotsep
935       mu$}\hfill
936     \nobreak
937     \hb@xt@\@pnumwidth{\hfil\normalfont\color{@bgcolor}#5}%
938     \par}%
939   \fi}

```

`\l@nonfloat` The generic listing of a nonfloat in a list

```

940 \newcommand*\l@nonfloat{\nf@dottedtocline{1}{\z@}{2.3em}}

```

`\numberline` The number in table of contents

```

941 \def\numberline#1{%
942   \raisebox{\z@}{\z@}{\z@}{%
943     \fcolorbox{@bgcolor}{@bgcolor}{%
944       \hb@xt@\@tempdima{\color{white}#1\strut\hfil}}}\hspace{2em}}

```

`\listofmaps` Our list of maps

```

945 \newcommand\listofmaps{\@generic toc{\listofmapsname}{lom}}

```

`\l@map` Entry in the list of maps

```

946 \let\l@map\l@nonfloat

```

`\listoftables` Our list of tables

```

947 \renewcommand\listoftables{\@generic toc{\listtablename}{lot}}

```

`\l@table` Entry in the list of tables

```

948 \let\l@table\l@nonfloat

```

`\listofcharts` Our list of charts

```

949 \newcommand\listofcharts{\@generic toc{\listofchartsname}{loc}}

```

`\l@chart` Entry in the list of charts

```

950 \let\l@chart\l@nonfloat

```

3.15 Metadata

<code>\metadatasession</code>	<p>The section for metadata:</p> <pre> 951 \newcommand\metadatasession[1]{\clearspread\twocolumn\normalcolor 952 \section{#1}}</pre>
<code>\metadata</code>	<p>This starts the metadata section. The commands inside are local to the metadata.</p> <pre> 953 \def\metadata#1{\bgroup 954 \def\meta@key{@@@}% Now we define the commands for metadata: </pre>
<code>\key</code>	<p>This sets the key:</p> <pre> 955 \def\key##1{\NR@getttitle{##1}\phantomsection\label{##1}% 956 \gdef\meta@key{##1}}</pre>
<code>\source</code>	<p>This typesets the source:</p> <pre> 957 \def\source##1{\emph{Source: }##1. }%</pre>
<code>\owner</code>	<p>This typesets the owner:</p> <pre> 958 \def\owner##1{\emph{Owner: }##1. }% 959 \begin{list}{-}{\topsep8\p@\labelwidth\z@ 960 \labelsep\z@\itemindent\z@\parsep0.4ex plus 0.5ex minus 961 0.2ex\relax\listparindent\z@\leftmargin\z@\rightmargin\z@ 962 \partopsep\z@}% 963 \item{\bfseries\textbullet~#1\par\penalty10000}}</pre>
<code>\endmetadata</code>	<p>This closes the environment:</p> <pre> 964 \def\endmetadata{% 965 \expandafter\ifx\csname 966 metaback@\meta@key\endcsname\relax 967 \else 968 \emph{Referenced in: } 969 \csname metaback@\meta@key\endcsname 970 \fi 971 \end{list}\egroup}</pre>
<code>\refMetadata</code>	<p>The way we actually reference the metadata:</p> <pre> 972 \def\refMetadata#1{% 973 \ifx\@capytype\@undefined\def\@capytype{table}\fi 974 \if@filesw 975 \immediate\write\@mainaux{% 976 \string\faometaback{#1}\{\@capytype\}\csname the\@capytype\endcsname\}\thepage\}\@currentpage} 977 \fi 978 }</pre>
<code>\fao@metaback</code>	<p>This reads the backreferences to metadata and prepares the the list. The arguments are: key, float type, number of float, page and hyperref</p> <pre> 979 \def\fao@metaback#1#2#3#4#5{%</pre>

```

980 \expandafter\ifx\csname metaback@#1\endcsname\relax
981 \expandafter\gdef\csname metaback@#1\endcsname{%
982 \hyper@linkstart{link}{#5}#2~#3\hyper@linkend}%
983 \else
984 \expandafter\g@addto@macro\csname metaback@#1\endcsname{,
985 \hyper@linkstart{link}{#5}#2~#3\hyper@linkend}%
986 \fi}

```

3.16 Further Reading

`\fitemize` This is the special version of `itemize` for further reading pages. Basically it is a patched kernel version.

```

987 \def\fitemize{%
988 \ifnum \@itemdepth >\thr@@\toodeep\else
989 \advance\@itemdepth\@ne
990 \edef\@itemitem{labelitem\romannumeral\the\@itemdepth}%
991 \expandafter
992 \list
993 \csname\@itemitem\endcsname
994 {\def\makelabel##1{\color{@bgcolor}{##1}\space}%
995 \itemsep\z@\labelwidth\z@
996 \leftmargin\z@\labelsep\z@}%
997 \fi}

```

`\endfitemize` This is standard:

```

998 \let\endfitemize =\endlist

```

`\freading` This is the “Further Reading environment”

```

999 \newenvironment{freading}{%
1000 \vfill\section*{Further reading}\par
1001 \vspace{-\baselineskip}{\color{@bgcolor}{\rule{\columnwidth}{1.5pt}}}\par
1002 \vspace{-\baselineskip}\bgroup
1003 \let\itemize=\fitemize
1004 \let\enditemize=\endfitemize}{\egroup}

```

3.17 Publications

`\@publicationskip` Skip between the publications. By default `\medskip`:

```

1005 \newlength{\@publicationskip}
1006 \define@key{fao}{publicationskip}{\setlength{\@publicationskip}{#1}}
1007 \faoset{publicationskip=6pt plus 2pt minus 2pt}

```

`\@publicationparskip` Paragraph skip between the publications.

```

1008 \newlength{\@publicationparskip}
1009 \define@key{fao}{publicationparskip}{\setlength{\@publicationparskip}{#1}}
1010 \faoset{publicationparskip=6pt plus 6pt minus 4pt}

```

`\publication` This typesets one publication:

```
1011 \newenvironment{publication}[2][{}]{%
1012   \par{\bfseries#2\par}\begin{minipage}[t]{0.49\columnwidth}%
1013     \setlength\parskip{\@publicationparskip}%
1014     \gdef\@pub@cover{#1}%
1015     \long\def\pDescription##1{\par##1\par}%
1016     \def\pEdition##1##2{\par##1: ##2\par}%
1017     \def\pCycle##1{\par Publication cycle: ##1\par}%
1018     \def\pWeb##1{\par \raggedright Webpage: \url{##1}\par}}%
1019   {\end{minipage}}%
1020   \ifx\@pub@cover\@empty\else
1021     \hspace{0.1\columnwidth}%
1022     \raisebox{\dimexpr\baselineskip-\totalheight}{%
1023       \includegraphics[width=0.4\columnwidth]{\@pub@cover}}\fi\par
1024   \vspace{\@publicationskip}}
```

3.18 Subscripts

`\textsubscript` This follows standard L^AT_EX:

```
1025 \DeclareRobustCommand*\textsubscript[1]{%
1026   \@textsubscript{\selectfont#1}}
1027 \def\@textsubscript#1{%
1028   {\m@th\ensuremath{_{\mbox{\fontsize\sf@size\z@#1}}}}}
```

3.19 LyX code

`\lyxlist` It seems Lyx wants this:

```
1029 \newenvironment{lyxlist}[1]
1030 {\begin{list}{-}
1031 {\settowidth{\labelwidth}{#1}
1032  \setlength{\leftmargin}{\labelwidth}
1033  \addtolength{\leftmargin}{\labelsep}
1034  \renewcommand{\makelabel}[1]{##1\hfil}}
1035 {\end{list}}
```

3.20 The final word

```
1036 \setbgcolor{gray}\selectcolor
1037 \pagestyle{empty}
1038 \normalsize\normalfont
1039 \end{class}
```


References

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Change History

1.3		\@part: Rewrote	32	\@partpagerpicture: Rewrote using tikz	17
1.4		\@spart: Changed fonts	32	General: Added Further Reading from the old code	39
2013/12/16		\@currentsymbol: T	32	Added metadata from the old code	38
v0.2		\@part: Changed formatting	31	Added Pubs from the old code	39
		iconfill: Rewrote	30	partpagestyle: Changed position of footers	17
		\EndPartIntro: Deleted \clearspread	30	Rewrote using tikz	17
		\newicon: Added macro	16	\EndPartIntro: Added \normalcolor	30
		\section: Redefined	33	\evenfootmark: Introduced macro	16
v0.3		\@genericctoc: Added macro	34	\frontmatter: Deleted change in the pagenumbers	30
		\@toc@ext@list: 11	18	\LettrineFontHook: Redefined	13
		\EndPartIntro: Restored		\mainmatter: Deleted change in the pagenumbers	30
		\clearspread	30	\metadata: Rewrote	38
		\l@chart: Added macro	37	\metadatassection: Added macro	38
		\l@map: Added macro	37	\nf@opcol: Typo corrected	27
		\l@nonfloat: Added macro	37	\oddfootmark: Introduced macro	16
		\l@table: Added macro	37	\subsection: Redefined	33
		\listofcharts: Added macro	37	\tableofcontents: Rewrote	34
		\listofchartsname: Added macro	22	standardpagestyle: Changed position of footers	16
		\listofmaps: Added macro	37	v1.4	
		\listofmapsname: Added macro	22	\@genericctoc: Added geometry change	34
		\listoftables: Added macro	37	\@part: Changed margins for intro	31
		\newnon@float: Added writing extensions to the list of extensions	19	Text is now black	31
		\numberline: Added macro	37	General: Changed dimensions	14
		\tableofcontents: Added macro	34	partpagestyle: Changed dimensions	17
v1.0		\colored@icon: Added macro	16	\EndPartIntro: Added multicolors	30
		\colored@icon@fg: Added macro	16	\frontmatter: Added new geometry	30
		iconfill: Rewrote	30	\l@nonfloat: Made pagenumbers colored	37
		\endnon@float: Source in normal color	21	\nf@captionheight: Changed size	18
v1.1		\colored@icon@fg: Added argument	16	\nf@dottedtocline: Introduced macro	37
		iconfill: Rewrote	30	\nf@sourceheight: Changed	18
		\currenticonfill: Added macro	31	\tableofcontents: Added geometry change	34
v1.3		\@part: Changed the way the icons are displayed	31	standardpagestyle: Increased sizes	16

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