

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` (default) 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.

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 2.6). 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.

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

2.5 Sectioning

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

2.6 Floats

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

In standard L^AT_EX floats “float”: they can be placed by the algorithm anywhere. The previous version made them “sticky”: the author explicitly tells T_EX 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:

1. Like in standard L^AT_EX, authors do not normally provide page breaks—T_EX 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`.



Figure 1: A Spread

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.

`chart` There are three types of floats defined by the class:
`map`
`table` **chart** plots and other charts,
 map mapped data.
 table mini tables.

`caption` 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 *must* precede the graphical material, for example:

```

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

```

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

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

```

\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 [FAO STAT]}

```

`\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 additional commands `\listofcharts` and `\listofmaps` with the obvious meaning.
`\listofmaps`

2.7 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).

2.8 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{<specification>}` 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.

2.9 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.

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}

```

2.10 Metadata

`MetadataCollection` Each chart, map or table in the book has a *source*. Sources are collected in the environment `MetadataCollection`, which consists of separate `metadata` environments. Each `metadata` environment has two obligatory arguments—the name of

the source and the key. The key is used to identify the metadata in the charts, maps, tables and other objects. The environment may include other commands.

`\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:

```
\begin{MetadataCollection}
\begin{metadata}{Agricultural population}{P1.DEM.FAO.POP.AGR}

    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}
\end{MetadataCollection}
```

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

```
\refMetadata{P1.DEM.FAO.POP.AGR}
```

This command will be typeset as

Source: Agricultural population, page NNNN.

This command must *not* occur in the caption of the chart, map or table.

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

The sources of each chart, map or table can be shown in the lists of charts, tables, maps or not. The key `metadataInLists` (by default `false`) determines whether they are shown there. To make them visible, put before the lists

```
\faosetup{metadataInLists=true}
```

2.11 Concepts and Methods

`ConceptsAndMethods` The environment `ConceptsAndMethods` starts a new section “Concepts and Meth-

ods”. Concepts and methods are collected in the series of `concept` environments. Each environment has one obligatory field: the name of the concept, for example:

```
\begin{ConceptsAndMethods}
  \begin{concept}{Gross domestic product}
    Gross domestic product (GDP) is the market value of all officially
    recognized final goods and services produced within a country in a
    given period of time.
  \end{concept}
  \begin{concept}{Gross state product}
    Gross state product (GSP), or gross regional product (GRP), is a
    measurement of the economic output of a state or province (i.e.,
    of a subnational entity). It is the sum of all value added by
    industries within the state and serves as a counterpart to the
    gross domestic product (GDP).
  \end{concept}
\end{ConceptsAndMethods}
```

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 \DeclareOption{print}{\printtrue}
13 \PassOptionsToPackage{papersize={230mm,317mm},layout=a4paper,
14   layoutoffset=1cm,layoutvoffset=1cm,twoside}{geometry}}
```

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

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

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

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

All other options are just sent to the main class:

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

3.2 Loading Class and Packages

We start with the base class and some packages

```
24 \LoadClass[10pt,twoside,twocolumn]{report}
25 \RequirePackage{graphicx,xkeyval}
26 \RequirePackage[table,cm]{xcolor}
27 \RequirePackage{tikz,geometry,dcolumn}
28 \usetikzlibrary{calc}
29 \RequirePackage{fancyhdr}
30 \RequirePackage{lscape,longtable,siunitx,booktabs}
31 \RequirePackage{multicol,atbegshi,picture,hhline,afterpage}
32 \RequirePackage[T1]{fontenc}
```

```

33 \RequirePackage[utf8x]{inputenc}
34 \RequirePackage{pdfpages}
35 \RequirePackage[authoryear]{natbib}
36 \RequirePackage[breaklinks]{hyperref}
37 \RequirePackage{bookmark}
38 \RequirePackage{adjmulticol}
39 \if@issuemode
40 \RequirePackage{issuulinks}
41 \fi

```

Options for the hyperref package are set as follows:

```

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

```

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

```

3.4 Key-Value Interface

`\faoset` We define the family `fao` for our keys:

```
74 \def\faoset#1{\setkeys{fao}{#1}}
```

One of the important keys is `year`

```
75 \define@key{fao}{year}{\gdef\fao@year{#1}}
```

```
76 \faoset{year=20XX}
```

3.5 Fonts

We use `arev` for mathematics:

```
77 \RequirePackage{arevmath}
```

For body text we use PT Sans:

```
78 \def\PTSans@scale{0.95}
```

```
79 \def\PTSansNarrow@scale{0.95}
```

```
80 \def\PTSansCaption@scale{0.95}
```

```
81 \renewcommand{\sfdefault}{PTSans-TLF}
```

```
82 \renewcommand{\familydefault}{\sfdefault}
```

```
83 \renewcommand{\bfdefault}{b}
```

`\narrowfamily` We declare a new family, `\narrowfamily`:

```
84 \DeclareRobustCommand\narrowfamily{\fontfamily{PTSansNarrow-TLF}\selectfont}
```

`\textnarrow` And the matching `\textnarrow` command:

```
85 \DeclareTextFontCommand{\textnarrow}{\narrowfamily}
```

`\captionfamily` Same with `\captionfamily`:

```
86 \DeclareRobustCommand\captionfamily{\fontfamily{PTSansCaption-TLF}\selectfont}
```

`\textcaption` And the matching `\textcaption` command:

```
87 \DeclareTextFontCommand{\textcaption}{\captionfamily}
```

`\normalsize` The basic size is 9.6pt:

```
88 \renewcommand\normalsize{%
```

```
89   \@setfontsize\normalsize{9.6pt}{\@xipt}%
```

```
90   \abovedisplayskip 10\p@ \@plus2\p@ \@minus5\p@
```

```
91   \abovedisplayshortskip \z@ \@plus3\p@
```

```
92   \belowdisplayshortskip 6\p@ \@plus3\p@ \@minus3\p@
```

```
93   \belowdisplayskip \abovedisplayskip
```

```
94   \let\@listi\@listI}
```

```
95 \normalsize
```

`\small` This is the small size:

```
96 \renewcommand\small{%
```

```
97   \@setfontsize\small{\ixpt{10}}%
```

```
98   \abovedisplayskip 8.5\p@ \@plus3\p@ \@minus4\p@
```

```
99   \abovedisplayshortskip \z@ \@plus2\p@
```

```

100 \belowdisplayskip 4\p@ \@plus2\p@ \@minus2\p@
101 \def\@listi{\leftmargin\leftmargini
102         \topsep 4\p@ \@plus2\p@ \@minus2\p@
103         \parsep 2\p@ \@plus\p@ \@minus\p@
104         \itemsep \parsep}%
105 \belowdisplayskip \abovedisplayskip}

```

We use `rm` style of URL:

```

106 \urlstyle{sf}

```

3.6 Margins and Paragraphing

We use `a4paper`.

```

107 \geometry{layout=a4paper,
108   left=2cm,right=2cm,bottom=2.8cm,top=1.5cm,
109   columnsep=30pt, twoside}%
110 \savegeometry{standard}

```

```

\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@}

```

```

\footskip We need generous foot
113 \setlength\footskip{18\p@}

```

```

\headheight We need generous headers
114 \setlength\headheight{35\p@}

```

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

```

115 \AtBeginDocument{\ifprint
116   \AtBeginShipout{%
117     \AtBeginShipoutUpperLeftForeground{%
118       \color{black}%
119       \@tempdima=\Gm@layouthoffset
120       \@tempdimb=\Gm@layoutvoffset
121       \put(\@tempdima,-\@tempdimb+6\p@){\line(0,1){50}}%
122       \put(\@tempdima-6\p@,-\@tempdimb){\line(-1,0){50}}%
123       \advance\@tempdima by \Gm@layoutwidth
124       \put(\@tempdima,-\@tempdimb+6\p@){\line(0,1){50}}%
125       \put(\@tempdima+6\p@,-\@tempdimb){\line(1,0){50}}%

```

```

126     \advance\@tempdimb by \Gm@layoutheight
127     \put(\@tempdima,-\@tempdimb-6\p@){\line(0,-1){50}}%
128     \put(\@tempdima+6\p@,-\@tempdimb){\line(1,0){50}}%
129     \advance\@tempdima by -\Gm@layoutwidth
130     \put(\@tempdima-6\p@,-\@tempdimb){\line(-1,0){50}}%
131     \put(\@tempdima,-\@tempdimb-6\p@){\line(0,-1){50}}%
132   }}\fi}

```

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

```

133 \AtBeginDocument{\ifDraft
134   \AtBeginShipout{%
135     \AtBeginShipoutUpperLeft{%
136       \color{black!25}%
137       \@tempdima=\Gm@layouthoffset
138       \@tempdimb=\Gm@layoutvoffset
139       \advance\@tempdima by 0.2\Gm@layoutwidth
140       \advance\@tempdimb by 0.7\Gm@layoutheight
141       \put(\@tempdima,-\@tempdimb){%
142         \rotatebox{45}{%
143           \fontsize{6cm}{6cm}\selectfont
144           DRAFT}}}}\fi}

```

3.8 Setting Colors and Icons

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

```

145 \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:

```

146 \def\setbgcolor#1{\colorlet{@bgcolor@next}[cmyk]{#1}%
147   \@for\curr@ext:=\@toc@ext@list\do{%
148     \addtocontents{\curr@ext}{\string\colorlet{@bgcolor}[cmyk]{#1}}}%
149   \addtocontents{toc}{\string\colorlet{@bgcolor}[cmyk]{#1}}%
150   \gdef\fao@color@string{#1}}
151 \colorlet{@bgcolor@next}[cmyk]{white}

```

The key-value interface for the same command:

```

152 \define@key{fao}{bgcolor}{\setbgcolor{#1}}

```

And for separate setting of `@tableheadcolor`

```

153 \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
154 \def\selectcolor{\colorlet{@bgcolor}{@bgcolor@next}%
155   \colorlet{@tableheadcolor}{@bgcolor}}
156 \selectcolor

```

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

`\seticon` Setting the next icon for the part
158 `\def\seticon#1{\gdef\next@icon{#1}}`
159 `\define@key{fao}{icon}{\seticon{#1}}`

`\selecticon` The actual icon change
`\currenticon` 160 `\def\selecticon{\gdef\currenticon{\next@icon}}`

`\newicon` Define an icon #2 for the part #1
161 `\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`
162 `\newcommand\colored@icon[2][\bgroup\fbboxsep=-1pt%`
163 `\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` and foreground with transparent `@bgcolor`
164 `\newcommand\colored@icon@fg[3][\bgroup\fbboxsep=z%`
165 `\sbox\@tempboxa{\bgroup\fbboxsep=-.2pt%`
166 `\fcolorbox{white}{@bgcolor!#3}{\includegraphics[#1]{#2}}\egroup}%`
167 `\rlap{\copy\@tempboxa}%`
168 `\rlap{\tikz\filldraw[color=@bgcolor!10, fill=@bgcolor,`
169 `fill opacity=.10, draw opacity=1, line width=1pt, baseline] (0,0)`
170 `rectangle (\wd\@tempboxa,\ht\@tempboxa);}%`
171 `\tikz[baseline]\draw[color=@bgcolor!10,`
172 `very thick](0,0.2pt) -- (\wd\@tempboxa,-.2pt);\egroup}`

3.9 Page Styles

`standardpagestyle` This is our main page style
173 `\fancypagestyle{standardpagestyle}{%`
174 `\fancyhf{}`
175 `\fancyhfoffset[LR]{1.8cm}%`
176 `\renewcommand\headrulewidth{\z@}%`
177 `\fancyhead[LE]{\color{@bgcolor}\captionfamily`
178 `\Huge\strut\ifnum\thepart>0\relax`
179 `\thepart\fi\normalsize\dotfill}%`
180 `\fancyhead[LO]{\color{@bgcolor}\normalsize\dotfill\captionfamily`
181 `\Huge\leftmark\expandafter\ifx\csname @icon@\thepart\endcsname\relax\else\space`
182 `\raisebox{-0.25\totalheight}{%`
183 `\colored@icon[width=1.1cm]{\csname @icon@\thepart\endcsname}}\fi}%`
184 `\fancyfoot[LE]{`
185 `\bgroup`
186 `\setlength\fbboxsep{10\p}%`
187 `\color{@bgcolor}%`


```

188 \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
189 \normalsize\dotfill
190 \raisebox{-\height}{\textbf{FAO} Statistical Yearbook \textbf{\fao@year}}%
191 \egroup}%
192 \fancyfoot[L0]{
193 \bgroup
194 \setlength\fbboxsep{10\p@}%
195 \color{@bgcolor}%
196 \raisebox{-\height}{\rightmark}%
197 \normalsize\dotfill
198 \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
199 \egroup}%
200 }
201 \pagestyle{standardpagestyle}

```

partpagestyle The page style for the parts introduction

```

202 \fancypagestyle{partpagestyle}{%
203 \fancyhf{}%
204 \fancyhead[L]{%
205 \begin{picture}(0,0)
206 \put(-14,45){\color{@bgcolor!10}%
207 \raisebox{-\height}{%
208 \rule{\dimexpr(\textwidth+4.5cm)}{\dimexpr(\textheight+4.8cm)}}}
209 \end{picture}}
210 \fancyhfoffset[LR]{1.8cm}%
211 \renewcommand\headrulewidth{\z@}%
212 \fancyfoot[LE]{
213 \bgroup
214 \setlength\fbboxsep{10\p@}%
215 \color{@bgcolor}%
216 \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
217 \normalsize\dotfill
218 \raisebox{-\height}{\textbf{FAO} Statistical Yearbook \textbf{\fao@year}}%
219 \egroup}%
220 \fancyfoot[L0]{
221 \bgroup
222 \setlength\fbboxsep{10\p@}%
223 \color{@bgcolor}%
224 \raisebox{-\height}{\rightmark}%
225 \normalsize\dotfill
226 \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
227 \egroup}%
228 }

```

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.

<code>\@toc@ext@list</code>	Added macro Comma-separated list of extensions for toc-like files: 229 <code>\gdef\@toc@ext@list{toc}</code>
<code>\nf@vert@sep</code>	Vertical separation between the floats 230 <code>\newlength\nf@vert@sep</code> 231 <code>\setlength\nf@vert@sep{30pt}</code>
<code>\nf@width</code>	The width of the nonfloat 232 <code>\newlength\nf@width</code>
<code>\nf@height</code>	The height of the nonfloat 233 <code>\newlength\nf@height</code>
<code>\nf@captionheight</code>	The height reserved for the caption 234 <code>\newlength\nf@captionheight</code> 235 <code>\setlength\nf@captionheight{32\p@}</code>
<code>\nf@sourceheight</code>	The height reserved for the source lines 236 <code>\newlength\nf@sourceheight</code> 237 <code>\setlength\nf@sourceheight{48\p@}</code>
<code>\nf@margin</code>	Margin for floats 238 <code>\newlength\nf@margin</code> 239 <code>\setlength\nf@margin{12\p@}</code>
<code>\nf@trianglebase</code>	The design requires a triangle under the caption. Here it is 240 <code>\newlength\nf@trianglebase</code> 241 <code>\setlength\nf@trianglebase{12\p@}</code>
<code>\chartwidth</code>	The resulting width of a chart 242 <code>\newlength\chartwidth</code>
<code>\charheight</code>	The resulting width of a chart 243 <code>\newlength\charheight</code>
<code>\nf@topskip</code>	Top separation for a nonfloat <code>@topskip</code>
<code>\nf@bottomskip</code>	Bottom separation for a nonfloat <code>@bottomskip</code>
<code>\nonfloat@type</code>	The counter to keep the next type to assign 244 <code>\newcount\nonfloat@type</code> 245 <code>\nonfloat@type=4\relax</code>
<code>\nf@contentsbox</code>	The box to keep the contents of the float 246 <code>\newbox\nf@contentsbox</code>
<code>\nf@mainbox</code>	The box for the float 247 <code>\newbox\nf@mainbox</code>

`\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.

```
248 \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.

```
249 \expandafter\ifx\csname ftype@#1\endcsname\relax
```

```
250 \expandafter\edef\csname ftype@#1\endcsname{\the\nonfloat@type}%
```

```
251 \multiply\nonfloat@type by 2\relax
```

```
252 \fi
```

Now we define the extension for the floats

```
253 \expandafter\def\csname ext@#1\endcsname{#2}%
```

```
254 \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

```
255 \expandafter\ifx\csname the#1\endcsname\relax
```

```
256 \newcounter{#1}\fi
```

```
257 \expandafter\def\csname fnum@#1\endcsname{#3~\csname
```

```
258 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

```
259 \expandafter\let\csname #1\endcsname\relax
```

```
260 \expandafter\let\csname end#1\endcsname\relax
```

And the actual definition

```
261 \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}}
```

```
262 \def\@getfirstletter#1{\@getfirstletter#1}
```

```
263 \def\@getfirstletter#1{#1\@gobbleword}
```

```
264 \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.

```
265 \def\non@float#1#2#3{
```

```
266 \def\@capttype{#1}%
```

```
267 \def\nf@size{#2}%
```

```
268 \def\nf@placement{#3}%
```

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

```
269 \lowercase{\xdef\nf@vert@pos{\@getfirstletter#3\@endword}}
```

```
270 \global\let\nf@source\@empty
```

Define the source command inside float

```

271 \def\source##1{\gdef\nf@source{##1}}

```

Define the caption producing command:

```

272 \long\def\@makecaption##1##2{\long\gdef\nf@caption{%
273   {\bfseries\large\color{white}
274     \MakeUppercase{##1}: ##2}}}%
275 \gdef\nf@caption{}%

```

We calculate the size of the float and skips

```

276 \nf@width=\columnwidth
277 \nf@height=\dimexpr(\textheight/2-\nf@vert@sep)%
278 \if\nf@vert@pos u\relax
279   \nf@topskip=\z@
280   \nf@bottomskip=\nf@vert@sep
281 \else
282   \nf@topskip=\nf@vert@sep%
283   \nf@bottomskip=\z@
284 \fi
285 \def\tempW{W}%
286 \def\tempT{T}%
287 \def\tempB{B}%
288 \ifx\nf@size\tempW
289   \nf@width=\textwidth
290 \fi
291 \ifx\nf@size\tempT
292   \nf@height=\textheight
293   \nf@topskip=\z@
294   \nf@bottomskip=\z@
295 \fi
296 \ifx\nf@size\tempB
297   \nf@width=\textwidth
298   \nf@height=\textheight
299   \nf@topskip=\z@
300   \nf@bottomskip=\z@
301 \fi
302 \charheight=
303   \dimexpr(\nf@height-\nf@captionheight-\nf@sourceheight
304     -2\nf@margin-\nf@trianglebase)%
305 \chartwidth=\dimexpr(\nf@width-2\nf@margin-0.5\nf@trianglebase)%
306 \nf@height=\dimexpr(\nf@height+\nf@topskip+\nf@bottomskip)%

```

Now we construct the main box.

```

307 \global\setbox\nf@contentsbox
308   \color@vbox
309   \normalcolor
310   \vbox to \charheight
311   \bgroup
312   \hsize\chartwidth
313   \@parboxrestore
314   \@floatboxreset

```

```

315 }

\endnon@float The actual typesetting
316 \def\endnon@float{\@endfloatbox\par
317   \hsize=\nf@width
318   \setbox\nf@mainbox=\vbox to \nf@height\bgroup
319     \hsize=\chartwidth
320     \vskip\nf@topskip
321     \noindent
322     \begin{picture}(0,0)%
323       \put(0,0){\color{bgcolor}%
324         \begin{tikzpicture}[baseline=(current bounding box.north)]
325           \fill (0,0) -- (\nf@trianglebase,0) --
326             (0.5\nf@trianglebase,-\nf@trianglebase) -- cycle;
327         \end{tikzpicture}}
328     \end{picture}%
329     \def\@tempa{chart}%
330     \ifx\@tempa\@capttype
331     \begin{picture}(0,0)%
332       \put(0,0){\color{bgcolor}%
333         \begin{tikzpicture}[baseline=(current bounding box.north)]
334           \draw(0,0) -- (\nf@width,0);
335           \draw (0.5\nf@trianglebase,-2\nf@trianglebase) --
336             (0.5\nf@trianglebase,-\charheight-2\nf@trianglebase
337             -\nf@margin) --
338             (\nf@width-\pgflinewidth, -\charheight-2\nf@trianglebase
339             -\nf@margin) -- (\nf@width-\pgflinewidth, 0);
340         \end{tikzpicture}}
341     \end{picture}%
342     \fi
343     {\color{bgcolor}\color@block{\nf@width}{\nf@captionheight}{.1\p@}}%
344     \hskip\dimexpr(\nf@margin+0.5\nf@trianglebase)%
345     \vbox to \nf@captionheight\bgroup
346     \nf@caption\vfill\normalcolor
347     \egroup\par\nointerlineskip\vskip\nf@trianglebase
348     \vskip\nf@margin
349     \noindent\hskip\dimexpr(\nf@margin+0.5\nf@trianglebase)%
350     \box\nf@contentsbox\par\nointerlineskip
351     \vskip\nf@margin
352     \hskip\dimexpr(\nf@margin+0.5\nf@trianglebase)%
353     \vbox to \nf@sourceheight\bgroup
354     \ifx\nf@source\@empty\else
355     \noindent\color{bgcolor}%
356       \rule{.2em}{.2em}~\rule{.2em}{.2em}~%
357       \rule{.2em}{.2em}~\rule{.2em}{.2em}~%
358       \rule{.2em}{.2em}\par\normalcolor
359     \noindent Source: \nf@source\par\vfill\fi\egroup
360     \vfill\egroup
361     \edef\nf@currbox{\expandafter\csname nfbox@\nf@size
362       @\nf@placement\endcsname}%

```

```

363 \global\setbox\nf@currbox=
364 \vbox{\box\nf@currbox\nointerlineskip\penalty0\box\nf@mainbox}}

\map A standard nonfloat:
365 \newnon@float{map}{lom}{Map}

\listofmapsname The name for the list of maps
366 \def\listofmapsname{List of Maps}

\table Another one
367 \newnon@float{table}{lot}{Table}

\chart And another one
368 \newnon@float{chart}{loc}{Chart}

\listofchartsname The name for the list of charts
369 \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.

```

370 \newbox\nfbox@S@ul
371 \newbox\nfbox@S@ur
372 \newbox\nfbox@S@ll
373 \newbox\nfbox@S@lr
374 \newbox\nfbox@S@UL
375 \newbox\nfbox@S@UR
376 \newbox\nfbox@S@LL
377 \newbox\nfbox@S@LR
378 \newbox\nfbox@T@ul
379 \newbox\nfbox@T@ur
380 \newbox\nfbox@T@UL
381 \newbox\nfbox@T@UR
382 \newbox\nfbox@W@ul
383 \newbox\nfbox@W@ll
384 \newbox\nfbox@W@UL
385 \newbox\nfbox@W@LL
386 \newbox\nfbox@B@ul
387 \newbox\nfbox@B@UL

\@tempboxb Standard LATEX has \@tempboxa. We need more...
388 \ifx\@tempboxb\@undefined
389 \newbox\@tempboxb
390 \fi

```

```

\standard@output The standard LATEX output routine is saved as \standard@output. We use it for
one column pages—maybe one even wants a standard float here?
391 \edef\standard@output{\the\output}

\output Right now we use standard output on one column pages and the new one with
two columns
392 \output{\if@twocolumn\the\nf@output\else\standard@output\fi}

\nf@output Here we define our own output routine.
393 \newtoks\nf@output
394 \nf@output {%
    We define the current boxes \curr@nfbox.... Also, uc or lc mean Upper or
    Lower Current column
395 \ifodd\c@page
396 \global\let\curr@nfbox@S@ul\nfbox@S@UL
397 \global\let\curr@nfbox@S@ur\nfbox@S@UR
398 \global\let\curr@nfbox@S@ll\nfbox@S@LL
399 \global\let\curr@nfbox@S@lr\nfbox@S@LR
400 \global\let\curr@nfbox@T@ul\nfbox@T@UL
401 \global\let\curr@nfbox@T@ur\nfbox@T@UR
402 \global\let\curr@nfbox@W@ul\nfbox@W@UL
403 \global\let\curr@nfbox@W@ll\nfbox@W@LL
404 \global\let\curr@nfbox@B@ul\nfbox@B@UL
405 \else
406 \global\let\curr@nfbox@S@ul\nfbox@S@ul
407 \global\let\curr@nfbox@S@ur\nfbox@S@ur
408 \global\let\curr@nfbox@S@ll\nfbox@S@ll
409 \global\let\curr@nfbox@S@lr\nfbox@S@lr
410 \global\let\curr@nfbox@T@ul\nfbox@T@ul
411 \global\let\curr@nfbox@T@ur\nfbox@T@ur
412 \global\let\curr@nfbox@W@ul\nfbox@W@ul
413 \global\let\curr@nfbox@W@ll\nfbox@W@ll
414 \global\let\curr@nfbox@B@ul\nfbox@B@ul
415 \fi
416 \if@firstcolumn
417 \global\let\curr@nfbox@S@uc\curr@nfbox@S@ul
418 \global\let\curr@nfbox@S@lc\curr@nfbox@S@ll
419 \global\let\curr@nfbox@T@uc\curr@nfbox@T@ul
420 \else
421 \global\let\curr@nfbox@S@uc\curr@nfbox@S@ur
422 \global\let\curr@nfbox@S@lc\curr@nfbox@S@lr
423 \global\let\curr@nfbox@T@uc\curr@nfbox@T@ur
424 \fi
425 \let \par \@@par

426 %
427 % There are several possibilities when we start the output routine for
428 % a single column in a two-column layout.
429 % \begin{enumerate}

```

```

430 % \item Wide or big non-floats completely cover the page. In this
431 % case we do not need to create columns, and directly go to the
432 % output.
433 % \item The column is occupied by tall or single nonfloats. We make
434 % a column of nonfloats and send it further.
435 % \item There is room for text on the page, but its height
436 % (\cs{colroom}) is different from the one known to the page builder
437 % (\cs{vsize}). In this case we change \cs{vsize} and return.
438 % \item The room for text is exactly \cs{vsize}. In this case we form
439 % a column and return.
440 % \end{enumerate}
441 % \begin{macrocode}
442 \global\@colht=\textheight
443 \ifdim\ht\curr@nfbox@B@ul>0.5\baselineskip
444 \global\advance\@colht by -\textheight
445 \fi
446 \ifdim\ht\curr@nfbox@W@ul>0.5\baselineskip
447 \global\advance\@colht by -0.5\textheight
448 \fi
449 \ifdim\ht\curr@nfbox@W@ll>0.5\baselineskip
450 \global\advance\@colht by -0.5\textheight
451 \fi
452 \ifdim\@colht < \baselineskip
453 \nf@output@widepage
454 \else
455 \nf@makecol
456 \fi
457 }

```

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

```

458 \def\nf@output@widepage{%
459 \unvbox\@cclv
460 \penalty\outputpenalty
461 \if@firstcolumn\else
462 \ClassError{faosyb}{Wide or big nonfloats defined too late. Move
463 them up}{I encountered Big or Wide floats when I already made the
464 first column. Please move them up}
465 \fi
466 \ifdim\ht\curr@nfbox@B@ul>0.5\baselineskip
467 \global\setbox\@outputbox\vsplit\curr@nfbox@B@ul to \textheight
468 \else
469 \setbox\@tempboxa\vsplit\curr@nfbox@W@ul to 0.5\textheight
470 \setbox\@tempboxb\vsplit\curr@nfbox@W@ll to 0.5\textheight
471 \setbox\@outputbox\vbox\bgroup
472 \box\@tempboxa
473 \nointerlineskip
474 \box\@tempboxb
475 \egroup
476 \fi

```



```

477 \global\vsizetextheight
478 \global\@colhttextheight
479 \@outputpage
480 \@firstcolumntrue
481 }

```

`\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

```

482 \def\nf@makecol{%
483   \global\@colroom\@colht
484   \ifdim\ht\curr@nfbox@T@uc>0.5\baselineskip
485     \global\@colroom=0pt
486   \fi
487   \ifdim\ht\curr@nfbox@S@uc>0.5\baselineskip
488     \global\advance\@colroom by -0.5\textheight
489   \fi
490   \ifdim\ht\curr@nfbox@S@lc>0.5\baselineskip
491     \global\advance\@colroom by -0.5\textheight
492   \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.

```

493 \ifdim\@colroom<0.5\baselineskip
494   \nf@makenfcol
495 \else
496   \nf@makemixedcol
497 \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.

```

498 \def\nf@makenfcol{%
499   \unvbox\@cclv
500   \penalty\outputpenalty
501   \ifdim\@colht>0.9\textheight % one tall or two squares
502     \ifdim\ht\curr@nfbox@T@uc>0.5\baselineskip
503       \setbox\@outputbox\vbox\bgroup
504       \boxmaxdepth \@maxdepth
505       \vsplit \curr@nfbox@T@uc to \textheight
506       \egroup
507     \else
508       \setbox\@outputbox\vbox\bgroup
509       \boxmaxdepth \@maxdepth
510       \vsplit \curr@nfbox@S@uc to 0.5\textheight
511       \nointerlineskip

```

```

512     \vsplit\curr@nfbox@S@lc to 0.5\textheight
513   \egroup
514 \fi
515 \else % one square
516   \ifdim\ht\curr@nfbox@S@uc>0.49\textheight
517     \setbox\@outputbox\vsplit \curr@nfbox@S@uc to 0.5\textheight
518   \else
519     \setbox\@outputbox\vsplit \curr@nfbox@S@lc to 0.5\textheight
520   \fi
521 \fi
522 \nf@opcol
523 }

```

\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

```

524 \def\nf@makemixedcol{%
525   \ifdim\@colroom=\vsize
526     \nf@makemixedcol@
527   \else
528     \global\vsize=\@colroom
529     \unvbox\@cclv
530     \penalty\outputpenalty
531   \fi}

```

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

```

532 \def\nf@makemixedcol@{%
533   \ifvoid\footins
534     \setbox\@outputbox \box \@cclv
535   \else
536     \setbox\@outputbox \vbox {%
537       \boxmaxdepth \@maxdepth
538       \unvbox \@cclv
539       \vskip \skip\footins
540       \color@begingroup
541       \normalcolor
542       \footnoterule
543       \unvbox \footins
544       \color@endgroup
545     }%
546   \fi
547   \ifdim\ht\curr@nfbox@S@uc>0.49\textheight
548     \setbox\@tempboxa\vsplit\curr@nfbox@S@uc to 0.5\textheight
549     \setbox\@outputbox \vbox
550       \bgroup
551         \box\@tempboxa
552         \nointerlineskip
553         \box\@outputbox

```

```

554     \egroup
555   \fi
556   \ifdim\ht\curr@nfbox@S@lc>0.49\textheight
557     \setbox\@tempboxa\vsplit\curr@nfbox@S@lc to 0.5\textheight
558     \setbox\@outputbox \vbox
559       \bgroup
560         \box\@outputbox
561         \nointerlineskip
562         \box\@tempboxa
563     \egroup
564   \fi
565   \nf@opcol}

```

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

```

566 \def\nf@opcol{%
567   \if@firstcolumn
568     \global\@firstcolumnfalse
569     \global\setbox\@leftcolumn\box\@outputbox
570   \else
571     \global\@firstcolumntrue
572     \ifdim\ht\curr@nfbox@W@ul>0.5\baselineskip
573       \setbox\@tempboxa\vsplit \curr@nfbox@W@ul to 0.5\textheight
574     \else
575       \setbox\@tempboxb\box\@tempboxa
576     \fi
577     \setbox\@outputbox \vbox\bgroup
578       \box\@tempboxa
579       \nointerlineskip
580       \hb@xt@\textwidth {%
581         \hb@xt@\columnwidth {%
582           \box\@leftcolumn \hss}%
583       \hfil
584       {\normalcolor\vrule \@width\columnseprule}%
585       \hfil
586       \hb@xt@\columnwidth {%
587         \box\@outputbox \hss}%
588     }%
589   \egroup
590   \ifdim\ht\curr@nfbox@W@ll>0.5\baselineskip
591     \setbox\@tempboxa\vsplit \curr@nfbox@W@ll to 0.5\textheight
592     \setbox\@ouputbox\vbox\bgroup
593       \box\@outputbox
594       \nointerlineskip
595       \box\@tempboxa
596   \egroup
597   \fi
598   \@outputpage
599   \global\vsizetextheight
600   \global\@colhttextheight

```

```

601     \global\@colroom\textheight
602     \fi}

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

\clearpage Now we can define \clearpage to take care of the mode:
604 \def\clearpage{%
605     \if@twocolumn
606         \nf@clearpage
607     \else
608         \standard@clearpage
609 \fi}

\nf@totalheight The total height of all non-floats
610 \def\nf@totalheight{\dimexpr(
611     \ht\nfbox@S@UL+
612     \ht\nfbox@S@UR+
613     \ht\nfbox@S@LL+
614     \ht\nfbox@S@LR+
615     \ht\nfbox@T@UL+
616     \ht\nfbox@T@UR+
617     \ht\nfbox@W@UL+
618     \ht\nfbox@W@LL+
619     \ht\nfbox@B@UL+
620     \ht\nfbox@S@ul+
621     \ht\nfbox@S@ur+
622     \ht\nfbox@S@ll+
623     \ht\nfbox@S@lr+
624     \ht\nfbox@T@ul+
625     \ht\nfbox@T@ur+
626     \ht\nfbox@W@ul+
627     \ht\nfbox@W@ll+
628     \ht\nfbox@B@ul)}

\nf@clearpage We keep ejecting pages until get rid of nf stuff
629 \def\nf@clearpage{%
630     \write\m@ne{}}%
631     \if@firstcolumn
632         \ifdim\dimexpr(\pagetotal+\nf@totalheight)>\baselineskip
633             \leavevmode
634             \null\vfill\newpage
635             \null\vfill\newpage
636         \fi
637     \else
638         \leavevmode
639         \null\vfill\newpage
640     \fi
641     \ifdim\nf@totalheight>\baselineskip

```

```

642 \nf@clearpage\fi
643 }

```

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

```

644 \def\clearspread{\clearpage\ifodd\c@page
645 \hbox{}}\newpage\if@twocolumn\hbox{}}\newpage\fi\fi\@firstcolumntrue}

```

We need to clear everything at the end

```

646 \AtEndDocument{\if@twocolumn
647 \ifdim\nf@totalheight>\baselineskip
648 \null\vfill\clearpage\fi
649 \fi}

```

3.12 Sectioning

`\if@mainmatter` This is used to check whether we are at main matter

```

650 \newif\if@mainmatter

```

`\frontmatter` We want Roman numbers for front matter:

```

651 \def\frontmatter{\cleardoublepage
652 \pagenumbering{roman}\onecolumn\@mainmatterfalse}

```

`\mainmatter` We want Arabic numbers for main matter:

```

653 \def\mainmatter{\cleardoublepage\pagenumbering{arabic}\onecolumn
654 \pagestyle{standardpagestyle}%
655 \@mainmattertrue}

```

`\tocdepth` Only sections and up are allowed in TOC:

```

656 \setcounter{tocdepth}{1}

```

`\secnumdepth` Only the parts are numbered in our setup:

```

657 \setcounter{secnumdepth}{-1}

```

`\thepart` And the parts are numbered using Arabic numbers:

```

658 \renewcommand \thepart {\@arabic\c@part}

```

`\c@fao@partnum` 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 `\fao@partnum` keeps the current part number counted continuously from the beginning to end.

```

659 \newcounter{fao@partnum}
660 \setcounter{fao@partnum}{0}

```

`\fao@currentpartnum` The current value of `\fao@partnum` used in TOC:

```

661 \def\fao@currentpartnum{0}

```

`\part` The largest partition in the book

```

662 \renewcommand\part{%
663 \secdef\@part\@spart}

```

`\EndPartIntro` This command switches off the special formatting of part pages:

```

664 \def\EndPartIntro{\clearspread\twocolumn
665   \pagestyle{standardpagestyle}}
```

`iconfill` 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

```

666 \def\@maxpart{1}
667 \def\iconfill#1#2#3{%
668   \expandafter\ifx\csname @icon@1\endcsname\relax\strut\else
669     \@tempcnta=1
670     \setbox\@tempboxa=\hbox{%
671       \loop
672         \@tempdima=#1
673         \setbox\@tempboxa=\hbox{\unhbox\@tempboxa
674           \colored@icon@fg[width=\@tempdima]{\csname
675             @icon@\the\@tempcnta\endcsname}{#3}}%
676         \advance\@tempcnta by 1\relax
677         \ifnum\@tempcnta>\@maxpart\relax\@tempcnta=1\fi
678         \ifdim\wd\@tempboxa>#2\else\repeat
679         \unhbox\@tempboxa
680       \fi}
```

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

```

681 \def\currenticonfill#1#2#3{%
682   \expandafter\ifx\csname @icon@\thepart\endcsname\relax\strut\else
683     \setbox\@tempboxa=\hbox{%
684       \loop
685         \@tempdima=1.44\@tempdima
686         \setbox\@tempboxa=\hbox{\unhbox\@tempboxa
687           \colored@icon@fg[width=\@tempdima]{\csname
688             @icon@\thepart\endcsname}{#3}}%
689         \ifdim\wd\@tempboxa>#2\else\repeat
690         \unhbox\@tempboxa
691       \fi}
```

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

```

693 \def\@part[#1]#2{%
694   \clearspread
695   \onecolumn
696   \clearspread
697   \selectcolor
698   \selecticon
699   \color{@bgcolor}%
700   \rowcolors{2}{@bgcolor!10}{}%
701   \pagestyle{partpagestyle}%
702   \refstepcounter{part}%
703   \addcontentsline{toc}{part}{\thepart\hspace{1em}#1}%

```

```

704 \protected@write\@auxout{}\%
705 {\string\newicon{\thepart}{\currenticon}
706 \string\gdef\string\@maxpart{\thepart}}\%
707 \markboth{#1}{#1}\%
708 \vspace*{120\p@}\%
709 \null
710 \hspace{-2.2cm}\rotatebox{30}{\parbox{\textwidth}{\%
711 \iconfill{1cm}{0.5\textwidth}{20}\currenticonfill{1cm}{0.4\textwidth}{20}\\
712 \iconfill{1cm}{1.15\textwidth}{100}\\
713 \iconfill{1cm}{1.14\textwidth}{20}}}\%
714 \newpage
715 {\interlinepenalty \@M
716 \vspace*{-2cm}\%
717 \hspace*{4cm}\rlap{\rotatebox{30}{\iconfill{1cm}{12cm}{20}}}\par
718 \vspace*{-80\p@}
719 \captionfamily
720 \fontsize{240\p@}{240\p@}\selectfont\raggedright\thepart~%
721 \parbox[b]{0.8\textwidth}{\fontsize{64\p@}{72\p@}\selectfont
722 \raggedright\null#2\par}\par\vskip80\p@
723 }\par}

```

`\@spart` We really do not use unnumbered parts

```
724 \def\@spart#1{\@part{#1}{#1}}
```

`\sectionmark` We do not want to have uppercase sections in the footers

```
725 \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

```

726 \renewcommand\section{\par\clearspread
727 \@startsection {section}{1}{\z@}\%
728 \hspace{-1sp}\%
729 \hspace{2.3ex \@plus.2ex}\%
730 \normalfont\Large\bfseries\raggedright
731 \color{@bgcolor}}

```

3.13 Tables

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

```

732 \newenvironment{tablepages}{\onecolumn
733 \bgroup\narrowfamily\multicolsep=\z@
734 \vspace*{-2cm}\%
735 \def\emph{\textsl}\%
736 \begin{adjmulticols}{1}{-1.3cm}{-1.3cm}\centering\normalcolor}\%
737 {\end{adjmulticols}\egroup}

```

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

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

We define new column types for table headers:

```
739 \newcolumntype{d}[1]{D{.}{.}{#1}}
740 \newcolumntype{H}{>{\columncolor{@tableheadcolor}[1.01\tabcolsep][1.01\tabcolsep]}c}
```

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

```
741 \newcolumntype{P}[1]{>{\columncolor{@tableheadcolor}[1.01\tabcolsep][1.01\tabcolsep]}%
742   \@fao@Pentry{#1}}c<{\end@fao@Pentry}}
```

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

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

Same with C entry:

```
745 \newcolumntype{C}[1]{>{\columncolor{@tableheadcolor}[1.01\tabcolsep][1.01\tabcolsep]}%
746   \@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`:

```
747 \def\@fao@Centry#1#2\end@fao@Centry{%
748   \settowidth{\@tempdima}{${-99.999$}}%
749   \@tempdima=#1\@tempdima\relax
750   \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

```
751 \def\LT@makecaption#1#2#3{%
752   \LT@mcol\LT@cols {0}{1}{\cellcolor{white}}%
753   \rlap{\fcolorbox{white}{@tableheadcolor}{\normalsize
754     \captionfamily\large\strut
755     \textcolor{white}{#1{\MakeUppercase{#2}: }#3}}}%
756   \begin{picture}(0,0)%
757     \put(.5,-7){\color{@bgcolor}}%
758     \begin{tikzpicture}[baseline=(current bounding box.north)]
759       \fill (0,0) -- (\nf@trianglebase,0) --
760         (.5\nf@trianglebase,-\nf@trianglebase) -- cycle;
761     \end{tikzpicture}}
762   \end{picture}\normalcolor
763   \raisebox{-17pt}{\strut}}}
```

3.14 Front Matter

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

```
764 \def\@generic toc#1#2{\clearspread
765   {\fontsize{48pt}{48pt}\selectfont
766     \captionfamily\color{black!40}#1\par}\@mkboth{#1}{#1}\bigskip
767   \@starttoc{#2}}
```



```

\tableofcontents Our table of contents
768 \renewcommand\tableofcontents{\@genericctoc{\contentsname}{toc}}

\l@part The way to put the part in the table of contents. We do not want bold here
769 \renewcommand*\l@part[2]{%
770   \ifnum \c@tocdepth >-2\relax
771     \addpenalty{-\@highpenalty}%
772     \addvspace{2.25em \@plus\p@}%
773     \setlength\@tempdima{3em}%
774     \begingroup
775       \parindent \z@ \rightskip \@pnumwidth
776       \parfillskip -\@pnumwidth
777       {\leavevmode\color{@bgcolor}%
778         \large #1\hfil \hb@xt@\@pnumwidth{\hss #2}}\par
779       \nobreak
780       \global\@nobreaktrue
781       \everypar{\global\@nobreakfalse\everypar{}}%
782     \endgroup
783   \fi}

\l@nonfloat The generic listing of a nonfloat in a list
784 \newcommand*\l@nonfloat{\@dottedtocline{1}{\z@}{2.3em}}

\l@numberline The number in table of contents
785 \def\l@numberline#1{%
786   \raisebox{\z@}{\z@}[\z@]{%
787     \fcolorbox{@bgcolor}{@bgcolor}{%
788       \hb@xt@\@tempdima{\color{white}#1\strut\hfil}}}\hspace{2em}}

\l@listofmaps Our list of maps
789 \newcommand\l@listofmaps{\@genericctoc{\listofmapsname}{lom}}

\l@map Entry in the list of maps
790 \let\l@map\l@nonfloat

\l@listoftables Our list of tables
791 \renewcommand\l@listoftables{\@genericctoc{\listtablename}{lot}}

\l@table Entry in the list of tables
792 \let\l@table\l@nonfloat

\l@listofcharts Our list of charts
793 \newcommand\l@listofcharts{\@genericctoc{\listofchartsname}{loc}}

\l@chart Entry in the list of charts
794 \let\l@chart\l@nonfloat

```

3.15 The final word

```
795 \setbgcolor{white}  
796 \normalsize\normalfont  
797 \end{class}
```

References

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Change History

v0.2			
\@part:	Changed formatting	...	30
iconfill:	Rewrote	30
\EndPartIntro:	Deleted \clearspread	30
\newicon:	Added macro	16
\section:	Redefined	31
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	\listofmapsname:	Added macro	. 22
	\listoftables:	Added macro	.. 33
	\newnon@float:	Added writing ex-	
	tensions to the list of extensions		19
	\numberline:	Added macro 33
	\tableofcontents:	Added macro	33
	v1.0		
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	\colored@icon@fg:	Added macro	16
	iconfill:	Rewrote 30
	\endnon@float:	Source in normal	
	color	21
	v1.1		
	\colored@icon@fg:	Added argu-	
	ment	16
	iconfill:	Rewrote 30
	\currenticonfill:	Added macro	30

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