

New L^AT_EX Style for FAO Yearbook *

Boris Veytsman[†]

2013/12/11, v0.3

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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[†]borisv@lk.net, boris@varphi.com

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

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

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.

<pre>\selecticon \selectcolor</pre>	<p>Note that <code>\faoset</code> command does not change the icon or background color immediately. When issued <i>before</i> <code>\part</code> command, it sets up icon and color for</p>
-------------------------------------	---

	the next part. If needed, you can manually change this using <code>\selecticon</code> and <code>\selectcolor</code> commands. In most cases you should <i>not</i> use these commands.
<code>@bgcolor</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>
<code>@tableheadcolor</code>	colors and <code>\currenticon</code> macro.
<code>\currenticon</code>	

2.5 Sectioning

<code>\part</code>	The main division of the text are <code>\parts</code> . The command <code>\part{<title>}</code> is used for
<code>\section</code>	numbered parts, while the command <code>\part*{<title>}</code> is used for unnumbered parts.
<code>\subsection</code>	The next division are <code>\sections</code> and <code>\subsections</code> . They are never numbered.
	The style does not use <code>\chapters</code> .
<code>\EndPartIntro</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` `\begin{publication}[./Plots/StateOfFoodAndAgriculture.png]{The State of Food and Agriculture}`
`\pEdition` `\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.}`
`\pCycle` `\pEdition{2010}{Livestock in the balance}`
`pWeb` `\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,cmym]{xcolor}
27 \RequirePackage{tikz,geometry,dcolumn}
28 \usetikzlibrary{calc}
29 \RequirePackage{fancyhdr}
30 \RequirePackage{lscape,longtable,siunitx,booktabs}
31 \RequirePackage{multicol,atbegshi,picture,hline,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}}

```

3.9 Page Styles

```

standardpagestyle This is our main page style
162 \fancypagestyle{standardpagestyle}{%
163   \fancyhf{}%
164   \fancyhfoffset[LR]{1.8cm}%
165   \renewcommand\headrulewidth{\z@}%
166   \fancyhead[LE]{\color{tablebg}\captionfamily
167     \Huge\ifnum\thepart>0\relax
168     \thepart\fi\normalsize\dotfill}%
169   \fancyhead[LO]{\color{tablebg}\normalsize\dotfill\captionfamily
170     \Huge\leftmark\expandafter\ifx\csname @icon@\thepart\endcsname\relax\else\space
171     \raisebox{-0.25\totalheight}{%
172       \includegraphics[width=1.1cm]{\csname @icon@\thepart\endcsname}\fi}%
173   \fancyfoot[LE]{
174     \bgroup
175     \setlength\fbboxsep{10\p@}%
176     \color{tablebg}%
177     \raisebox{-\height}{\fcolorbox{tablebg}{tablebg}{\color{white}\thepage}}%
178     \normalsize\dotfill
179     \raisebox{-\height}{\textbf{FAO} Statistical Yearbook \textbf{fao@year}}%
180   \egroup}%
181   \fancyfoot[LO]{
182     \bgroup
183     \setlength\fbboxsep{10\p@}%
184     \color{tablebg}%
185     \raisebox{-\height}{\rightmark}%
186     \normalsize\dotfill
187     \raisebox{-\height}{\fcolorbox{tablebg}{tablebg}{\color{white}\thepage}}%
188   \egroup}%
189 }
190 \pagestyle{standardpagestyle}

partpagestyle The page style for the parts introduction
191 \fancypagestyle{partpagestyle}{%
192   \fancyhf{}%

```



```

193 \fancyhead[L]{%
194   \begin{picture}(0,0)
195     \put(-14,45){\color{@bgcolor!10}%
196       \raisebox{-\height}{%
197         \rule{\dimexpr(\textwidth+4.5cm)}{\dimexpr(\textheight+4.8cm)}}}
198   \end{picture}}
199 \fancyhfoffset[LR]{1.8cm}%
200 \renewcommand\headrulewidth{\z@}%
201 \fancyfoot[LE]{
202   \bgroup
203   \setlength\fbboxsep{10\p@}%
204   \color{@bgcolor}%
205   \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
206   \normalsize\dotfill
207   \raisebox{-\height}{\textbf{FAO} Statistical Yearbook \textbf{fao@year}}%
208 \egroup}%
209 \fancyfoot[LO]{
210   \bgroup
211   \setlength\fbboxsep{10\p@}%
212   \color{@bgcolor}%
213   \raisebox{-\height}{\rightmark}%
214   \normalsize\dotfill
215   \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
216 \egroup}%
217 }

```

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:

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

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

```
219 \newlength\nf@vert@sep
220 \setlength\nf@vert@sep{30pt}
```

`\nf@width` The width of the nonfloat

```
221 \newlength\nf@width
```

`\nf@height` The height of the nonfloat

```
222 \newlength\nf@height
```

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

```
223 \newlength\nf@captionheight
224 \setlength\nf@captionheight{32\p@}
```

`\nf@sourceheight` The height reserved for the source lines
225 `\newlength\nf@sourceheight`
226 `\setlength\nf@sourceheight{48\p@}`

`\nf@margin` Margin for floats
227 `\newlength\nf@margin`
228 `\setlength\nf@margin{12\p@}`

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

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

`\chartheight` The resulting width of a chart
232 `\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
233 `\newcount\nonfloat@type`
234 `\nonfloat@type=4\relax`

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

`\nf@mainbox` The box for the float
236 `\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.

237 `\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.

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

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

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

241 `\fi`

Now we define the extension for the floats

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

243 `\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

```
244 \expandafter\ifx\csname the#1\endcsname\relax
245 \newcounter{#1}\fi
246 \expandafter\def\csname fnum@#1\endcsname{#3~\csname
247 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

```
248 \expandafter\let\csname #1\endcsname\relax
249 \expandafter\let\csname end#1\endcsname\relax
```

And the actual definition

```
250 \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}}
```

```
251 \def\@getfirstletter#1{\@getfirstletter#1}
252 \def\@getfirstletter#1{#1\@gobbleword}
253 \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.

```
254 \def\non@float#1#2#3{
255 \def\@capttype{#1}%
256 \def\nf@size{#2}%
257 \def\nf@placement{#3}%
```

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

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

Define the source command inside float

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

Define the caption producing command:

```
261 \long\def\@makecaption##1##2{\long\gdef\nf@caption{%
262 {\bfseries\large\color{white}
263 \MakeUppercase{##1}: ##2}}}%
264 \gdef\nf@caption{}
```

We calculate the size of the float and skips

```
265 \nf@width=\columnwidth
266 \nf@height=\dimexpr(\textheight/2-\nf@vert@sep)%
267 \if\nf@vert@pos u\relax
268 \nf@topskip=\z@
269 \nf@bottomskip=\nf@vert@sep
270 \else
271 \nf@topskip=\nf@vert@sep%
```

```

272 \nf@bottomskip=\z@
273 \fi
274 \def\tempW{W}%
275 \def\tempT{T}%
276 \def\tempB{B}%
277 \ifx\nf@size\tempW
278 \nf@width=\textwidth
279 \fi
280 \ifx\nf@size\tempT
281 \nf@height=\textheight
282 \nf@topskip=\z@
283 \nf@bottomskip=\z@
284 \fi
285 \ifx\nf@size\tempB
286 \nf@width=\textwidth
287 \nf@height=\textheight
288 \nf@topskip=\z@
289 \nf@bottomskip=\z@
290 \fi
291 \charheight=
292 \dimexpr(\nf@height-\nf@captionheight-\nf@sourceheight
293 -2\nf@margin-\nf@trianglebase)%
294 \chartwidth=\dimexpr(\nf@width-2\nf@margin-0.5\nf@trianglebase)%
295 \nf@height=\dimexpr(\nf@height+\nf@topskip+\nf@bottomskip)%

```

Now we construct the main box.

```

296 \global\setbox\nf@contentsbox
297 \color@vbox
298 \normalcolor
299 \vbox to \charheight
300 \bgroup
301 \hsize\chartwidth
302 \@parboxrestore
303 \@floatboxreset
304 }

```

\endnon@float The actual typesetting

```

305 \def\endnon@float{\@endfloatbox\par
306 \hsize=\nf@width
307 \setbox\nf@mainbox=\vbox to \nf@height\bgroup
308 \hsize=\chartwidth
309 \vskip\nf@topskip
310 \noindent
311 \begin{picture}(0,0)%
312 \put(0,0){\color{bgcolor}%
313 \begin{tikzpicture}[baseline=(current bounding box.north)]
314 \fill (0,0) -- (\nf@trianglebase,0) --
315 (0.5\nf@trianglebase,-\nf@trianglebase) -- cycle;
316 \end{tikzpicture}}
317 \end{picture}%

```

```

318 \def\@tempa{chart}%
319 \ifx\@tempa\@capttype
320 \begin{picture}(0,0)%
321 \put(0,0){\color{\bgcolor}%
322 \begin{tikzpicture}[baseline=(current bounding box.north)]
323 \draw(0,0) -- (\nf@width,0);
324 \draw (0.5\nf@trianglebase,-2\nf@trianglebase) --
325 (0.5\nf@trianglebase,-\charheight-2\nf@trianglebase
326 -\nf@margin) --
327 (\nf@width-\pgflinewidth, -\charheight-2\nf@trianglebase
328 -\nf@margin) -- (\nf@width-\pgflinewidth, 0);
329 \end{tikzpicture}}
330 \end{picture}%
331 \fi
332 {\color{\bgcolor}\color@block{\nf@width}{\nf@captionheight}{.1\p@}}%
333 \hskip\dimexpr(\nf@margin+0.5\nf@trianglebase)%
334 \vbox to \nf@captionheight\bgroup
335 \nf@caption\vfill\normalcolor
336 \egroup\par\nointerlineskip\vskip\nf@trianglebase
337 \vskip\nf@margin
338 \noindent\hskip\dimexpr(\nf@margin+0.5\nf@trianglebase)%
339 \box\nf@contentsbox\par\nointerlineskip
340 \vskip\nf@margin
341 \hskip\dimexpr(\nf@margin+0.5\nf@trianglebase)%
342 \vbox to \nf@sourceheight\bgroup
343 \ifx\nf@source\@empty\else
344 \noindent\color{\bgcolor}%
345 \rule{.2em}{.2em}~\rule{.2em}{.2em}~%
346 \rule{.2em}{.2em}~\rule{.2em}{.2em}~%
347 \rule{.2em}{.2em}\par
348 \noindent Source: \nf@source\par\vfill\fi\egroup
349 \vfill\egroup
350 \edef\nf@currbox{\expandafter\csname nfbox@\nf@size
351 @\nf@placement\endcsname}%
352 \global\setbox\nf@currbox=
353 \vbox{\box\nf@currbox\nointerlineskip\penalty0\box\nf@mainbox}}

```

\map A standard nonfloat:

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

\listofmapsname The name for the list of maps

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

\table Another one

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

\chart And another one

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

`\listofchartsname` The name for the list of charts
 358 `\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.

```
359 \newbox\nfbox@S@ul
360 \newbox\nfbox@S@ur
361 \newbox\nfbox@S@ll
362 \newbox\nfbox@S@lr
363 \newbox\nfbox@S@UL
364 \newbox\nfbox@S@UR
365 \newbox\nfbox@S@LL
366 \newbox\nfbox@S@LR
367 \newbox\nfbox@T@ul
368 \newbox\nfbox@T@ur
369 \newbox\nfbox@T@UL
370 \newbox\nfbox@T@UR
371 \newbox\nfbox@W@ul
372 \newbox\nfbox@W@ll
373 \newbox\nfbox@W@UL
374 \newbox\nfbox@W@LL
375 \newbox\nfbox@B@ul
376 \newbox\nfbox@B@UL
```

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

```
377 \ifx\@tempboxb\@undefined
378   \newbox\@tempboxb
379 \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?

```
380 \edef\standard@output{\the\output}
```

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

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

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

```
382 \newtoks\nf@output
383 \nf@output {%
```

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

```
384   \ifodd\c@page
```

```

385 \global\let\curr@nfbbox@S@ul\nfbbox@S@UL
386 \global\let\curr@nfbbox@S@ur\nfbbox@S@UR
387 \global\let\curr@nfbbox@S@ll\nfbbox@S@LL
388 \global\let\curr@nfbbox@S@lr\nfbbox@S@LR
389 \global\let\curr@nfbbox@T@ul\nfbbox@T@UL
390 \global\let\curr@nfbbox@T@ur\nfbbox@T@UR
391 \global\let\curr@nfbbox@W@ul\nfbbox@W@UL
392 \global\let\curr@nfbbox@W@ll\nfbbox@W@LL
393 \global\let\curr@nfbbox@B@ul\nfbbox@B@UL
394 \else
395 \global\let\curr@nfbbox@S@ul\nfbbox@S@ul
396 \global\let\curr@nfbbox@S@ur\nfbbox@S@ur
397 \global\let\curr@nfbbox@S@ll\nfbbox@S@ll
398 \global\let\curr@nfbbox@S@lr\nfbbox@S@lr
399 \global\let\curr@nfbbox@T@ul\nfbbox@T@ul
400 \global\let\curr@nfbbox@T@ur\nfbbox@T@ur
401 \global\let\curr@nfbbox@W@ul\nfbbox@W@ul
402 \global\let\curr@nfbbox@W@ll\nfbbox@W@ll
403 \global\let\curr@nfbbox@B@ul\nfbbox@B@ul
404 \fi
405 \if@firstcolumn
406 \global\let\curr@nfbbox@S@uc\curr@nfbbox@S@ul
407 \global\let\curr@nfbbox@S@lc\curr@nfbbox@S@ll
408 \global\let\curr@nfbbox@T@uc\curr@nfbbox@T@ul
409 \else
410 \global\let\curr@nfbbox@S@uc\curr@nfbbox@S@ur
411 \global\let\curr@nfbbox@S@lc\curr@nfbbox@S@lr
412 \global\let\curr@nfbbox@T@uc\curr@nfbbox@T@ur
413 \fi
414 \let \par \@@par

415 %
416 % There are several possibilities when we start the output routine for
417 % a single column in a two-column layout.
418 % \begin{enumerate}
419 % \item Wide or big non-floats completely cover the page. In this
420 % case we do not need to create columns, and directly go to the
421 % output.
422 % \item The columnnd is occupied by tall or single nonfloats. We make
423 % a column of nonfloats and send it further.
424 % \item There is room for text on the page, but its height
425 % (\cs{@colroom}) is different from the one known to the page builder
426 % (\cs{vsize}). In this case we change \cs{vsize} and return.
427 % \item The room for text is exactly \cs{vsize}. In this case we form
428 % a column and return.
429 % \end{enumerate}
430 % \begin{macrocode}
431 \global\@colht=\textheight
432 \ifdim\ht\curr@nfbbox@B@ul>0.5\baselineskip
433 \global\advance\@colht by -\textheight

```

```

434 \fi
435 \ifdim\ht\curr@nfbox@W@ul>0.5\baselineskip
436 \global\advance\@colht by -0.5\textheight
437 \fi
438 \ifdim\ht\curr@nfbox@W@ll>0.5\baselineskip
439 \global\advance\@colht by -0.5\textheight
440 \fi
441 \ifdim\@colht < \baselineskip
442 \nf@output@widepage
443 \else
444 \nf@makecol
445 \fi
446 }

```

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

```

447 \def\nf@output@widepage{%
448 \unvbox\@cclv
449 \penalty\outputpenalty
450 \if@firstcolumn\else
451 \ClassError{faosyb}{Wide or big nonfloats defined too late. Move
452 them up}{I encountered Big or Wide floats when I already made the
453 first column. Please move them up}
454 \fi
455 \ifdim\ht\curr@nfbox@B@ul>0.5\baselineskip
456 \global\setbox\@outputbox\vsplit\curr@nfbox@B@ul to \textheight
457 \else
458 \setbox\@tempboxa\vsplit\curr@nfbox@W@ul to 0.5\textheight
459 \setbox\@tempboxb\vsplit\curr@nfbox@W@ll to 0.5\textheight
460 \setbox\@outputbox\vbox\bgroup
461 \box\@tempboxa
462 \nointerlineskip
463 \box\@tempboxb
464 \egroup
465 \fi
466 \global\size\textheight
467 \global\@colht\textheight
468 \@outputpage
469 \@firstcolumntrue
470 }

```

`\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

```

471 \def\nf@makecol{%
472 \global\@colroom\@colht
473 \ifdim\ht\curr@nfbox@T@uc>0.5\baselineskip

```



```

474 \global\@colroom=0pt
475 \fi
476 \ifdim\ht\curr@nfbox@S@uc>0.5\baselineskip
477 \global\advance\@colroom by -0.5\textheight
478 \fi
479 \ifdim\ht\curr@nfbox@S@lc>0.5\baselineskip
480 \global\advance\@colroom by -0.5\textheight
481 \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.

```

482 \ifdim\@colroom<0.5\baselineskip
483 \nf@makenfcol
484 \else
485 \nf@makemixedcol
486 \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.

```

487 \def\nf@makenfcol{%
488 \unvbox\@cclv
489 \penalty\outputpenalty
490 \ifdim\@colht>0.9\textheight % one tall or two squares
491 \ifdim\ht\curr@nfbox@T@uc>0.5\baselineskip
492 \setbox\@outputbox\vbox\bgroup
493 \boxmaxdepth \@maxdepth
494 \vsplit \curr@nfbox@T@uc to \textheight
495 \egroup
496 \else
497 \setbox\@outputbox\vbox\bgroup
498 \boxmaxdepth \@maxdepth
499 \vsplit\curr@nfbox@S@uc to 0.5\textheight
500 \nointerlineskip
501 \vsplit\curr@nfbox@S@lc to 0.5\textheight
502 \egroup
503 \fi
504 \else % one square
505 \ifdim\ht\curr@nfbox@S@uc>0.49\textheight
506 \setbox\@outputbox\vsplit \curr@nfbox@S@uc to 0.5\textheight
507 \else
508 \setbox\@outputbox\vsplit \curr@nfbox@S@lc to 0.5\textheight
509 \fi
510 \fi
511 \nf@opcol
512 }

```

`\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

```

513 \def\nf@makemixedcol{%
514   \ifdim\@colroom=\vsize
515     \nf@makemixedcol@
516   \else
517     \global\vsize=\@colroom
518     \unvbox\@cclv
519     \penalty\outputpenalty
520   \fi}

```

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

```

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

```

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

```

555 \def\nf@opcol{%
556   \if@firstcolumn
557     \global\@firstcolumnfalse
558     \global\setbox\@leftcolumn\box\@outputbox
559   \else
560     \global\@firstcolumntrue
561     \ifdim\ht\curr@nfbox@W@ul>0.5\baselineskip
562       \setbox\@tempboxa\vsplit \curr@nfbox@W@ul to 0.5\textheight
563     \else
564       \setbox\@tempboxb\box\@tempboxa
565     \fi
566     \setbox\@outputbox \vbox\bgroup
567       \box\@tempboxa
568       \nointerlineskip
569       \hb@xt@\textwidth {%
570         \hb@xt@\columnwidth {%
571           \box\@leftcolumn \hss}%
572       \hfil
573       {\normalcolor\vrule \@width\columnseprule}%
574       \hfil
575       \hb@xt@\columnwidth {%
576         \box\@outputbox \hss}%
577     }%
578   \egroup
579   \ifdim\ht\curr@nfbox@W@ll>0.5\baselineskip
580     \setbox\@tempboxa\vsplit \curr@nfbox@W@ll to 0.5\textheight
581     \setbox\@ouputbox\vbox\bgroup
582       \box\@outputbox
583       \nointerlineskip
584       \box\@tempboxa
585   \egroup
586   \fi
587   \@outputpage
588   \global\vsizetextheight
589   \global\@colhttextheight
590   \global\@colroomtextheight
591 \fi}

```

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

```

592 \let\standard@clearpage\clearpage

```

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

```

593 \def\clearpage{%
594   \if@twocolumn
595     \nf@clearpage
596   \else
597     \standard@clearpage
598 \fi}

```

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

```

599 \def\nf@totalheight{\dimexpr(
600   \ht\nfbox@S@UL+
601   \ht\nfbox@S@UR+
602   \ht\nfbox@S@LL+
603   \ht\nfbox@S@LR+
604   \ht\nfbox@T@UL+
605   \ht\nfbox@T@UR+
606   \ht\nfbox@W@UL+
607   \ht\nfbox@W@LL+
608   \ht\nfbox@B@UL+
609   \ht\nfbox@S@ul+
610   \ht\nfbox@S@ur+
611   \ht\nfbox@S@ll+
612   \ht\nfbox@S@lr+
613   \ht\nfbox@T@ul+
614   \ht\nfbox@T@ur+
615   \ht\nfbox@W@ul+
616   \ht\nfbox@W@ll+
617   \ht\nfbox@B@ul)}

```

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

```

618 \def\nf@clearpage{%
619   \write\m@ne{}}%
620   \if@firstcolumn
621     \ifdim\dimexpr(\pagetotal+\nf@totalheight)>\baselineskip
622       \leavevmode
623       \null\vfill\newpage
624       \null\vfill\newpage
625     \fi
626   \else
627     \leavevmode
628     \null\vfill\newpage
629   \fi
630   \ifdim\nf@totalheight>\baselineskip
631     \nf@clearpage\fi
632 }

```

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

```

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

```

We need to clear everything at the end

```

635 \AtEndDocument{\if@twocolumn
636   \ifdim\nf@totalheight>\baselineskip
637     \null\vfill\clearpage\fi
638 \fi}

```

3.12 Sectioning

<code>\if@mainmatter</code>	This is used to check whether we are at main matter 639 <code>\newif\if@mainmatter</code>
<code>\frontmatter</code>	We want Roman numbers for front matter: 640 <code>\def\frontmatter{\cleardoublepage</code> 641 <code>\pagenumbering{roman}\onecolumn\@mainmatterfalse}</code>
<code>\mainmatter</code>	We want Arabic numbers for main matter: 642 <code>\def\mainmatter{\cleardoublepage\pagenumbering{arabic}\onecolumn</code> 643 <code>\pagestyle{standardpagestyle}%</code> 644 <code>\@mainmattertrue}</code>
<code>\tocdepth</code>	Only sections and up are allowed in TOC: 645 <code>\setcounter{tocdepth}{1}</code>
<code>\secnumdepth</code>	Only the parts are numbered in our setup: 646 <code>\setcounter{secnumdepth}{-1}</code>
<code>\thepart</code>	And the parts are numbered using Arabic numbers: 647 <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. 648 <code>\newcounter{fao@partnum}</code> 649 <code>\setcounter{fao@partnum}{0}</code>
<code>\fao@currentpartnum</code>	The current value of <code>\fao@partnum</code> used in TOC: 650 <code>\def\fao@currentpartnum{0}</code>
<code>\part</code>	The largest partition in the book 651 <code>\renewcommand\part{%</code> 652 <code>\secdef\@part\@spart}</code>
<code>\EndPartIntro</code>	This command switches off the special formatting of part pages: 653 <code>\def\EndPartIntro{\clearspread\twocolumn</code> 654 <code>\pagestyle{standardpagestyle}}</code>
<code>iconfill</code>	Fill a line with the icons of increasing size. The parameters are the initial size and length of the strip 655 <code>\def\@maxpart{1}</code> 656 <code>\def\iconfill#1#2{%</code> 657 <code>\expandafter\ifx\csname @icon@1\endcsname\relax\strut\else</code> 658 <code>\@tempcnta=1</code> 659 <code>\setbox\@tempboxa=\hbox{#1}</code>

```

660 \loop
661 \@tempdima=#1
662 \ifnum\@tempcnta=\c@part
663 \@tempdima=2\@tempdima\fi
664 \setbox\@tempboxa=\hbox{\unhbox\@tempboxa
665 \includegraphics[width=\@tempdima]{\csname
666 @icon@\the\@tempcnta\endcsname}}%
667 \advance\@tempcnta by 1\relax
668 \ifnum\@tempcnta>\@maxpart\relax\@tempcnta=1\fi
669 \ifdim\wd\@tempboxa>#2\else\repeat
670 \unhbox\@tempboxa
671 \fi}

```

\@part This is the actual part making macro.

```

672 \def\@part[#1]#2{%
673 \clearspread
674 \onecolumn
675 \clearspread
676 \selectcolor
677 \selecticon
678 \color{\bgcolor}%
679 \rowcolors{2}{\bgcolor!10}{}%
680 \pagestyle{partpagestyle}%
681 \refstepcounter{part}%
682 \addcontentsline{toc}{part}{\thepart\hspace{1em}#1}%
683 \protected@write\@auxout{%
684 {\string\newicon{\thepart}{\currenticon}
685 \string\gdef\string\@maxpart{\thepart}}%
686 \markboth{#1}{#1}%
687 \null
688 \hspace{-2.2cm}\rotatebox{30}{\parbox{\textwidth}{%
689 \iconfill{1cm}{\textwidth}\
690 \iconfill{1cm}{\textwidth}\
691 \iconfill{1cm}{\textwidth}\
692 \iconfill{1cm}{\textwidth}\
693 \iconfill{1cm}{\textwidth}}}}
694 \newpage
695 {\interlinepenalty \@M
696 \vspace*{-2cm}%
697 \null\rlap{\rotatebox{30}{\iconfill{1cm}{\textwidth}}}\par
698 \captionfamily
699 \fontsize{240\p@}{240\p@}\selectfont\raggedright\thepart~%
700 \parbox[b]{0.8\textwidth}{\fontsize{64\p@}{72\p@}\selectfont
701 \raggedright\null#2\par}\par\vskip80\p@
702 }\par}

```

\@spart We really do not use unnumbered parts

```

703 \def\@spart#1{\@part[#1]{#1}}

```

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

```
704 \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

```
705 \renewcommand\section{\par\clearspread
706   \@startsection {section}{1}{\z@}%
707                   {-1sp}%
708                   {2.3ex \@plus.2ex}%
709                   {\normalfont\Large\bfseries\raggedright
710                   \color{@bgcolor}}}
```

3.13 Tables

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

```
711 \newenvironment{tablepages}{\onecolumn
712   \bgroup\narrowfamily\multicolsep=\z@
713   \vspace*{-2cm}%
714   \def\emph{\textsl}%
715   \begin{adjmulticols}{1}{-1.3cm}{-1.3cm}\centering\normalcolor}%
716   {\end{adjmulticols}\egroup}
```

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

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

We define new column types for table headers:

```
718 \newcolumnntype{d}[1]{D{.}.\}{#1}}
719 \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.:

```
720 \newcolumnntype{P}[1]{>{\columncolor{@tableheadcolor}}[1.01\tabcolsep][1.01\tabcolsep]%
721   \@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.

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

Same with C entry:

```
724 \newcolumnntype{C}[1]{>{\columncolor{@tableheadcolor}}[1.01\tabcolsep][1.01\tabcolsep]%
725   \@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`:

```
726 \def\@fao@Centry#1#2\end@fao@Centry{%
727   \settowidth{\@tempdima}{$-99.999$}%
728   \@tempdima=#1\@tempdima\relax
729   \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

```

730 \def\LT@makecaption#1#2#3{%
731   \LT@mcol\LT@cols {#1}{\cellcolor{white}}%
732   \rlap{\fcolorbox{white}{\tableheadcolor}{\normalsize
733     \captionfamily\large\strut
734     \textcolor{white}{#1\MakeUppercase{#2}: }#3}}}%
735   \begin{picture}(0,0)%
736     \put(.5,-7){\color{bgcolor}}%
737     \begin{tikzpicture}[baseline=(current bounding box.north)]
738       \fill (0,0) -- (\nf@trianglebase,0) --
739         (.5\nf@trianglebase,-\nf@trianglebase) -- cycle;
740     \end{tikzpicture}}
741   \end{picture}\normalcolor
742   \raisebox{-17pt}{\strut}}}
```

3.14 Front Matter

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

```

743 \def\@generic toc#1#2{\clearspread
744   {\fontsize{48pt}{48pt}\selectfont
745     \captionfamily\color{black!40}#1\par}\@mkboth{#1}{#1}\bigskip
746   \@starttoc{#2}}
```

`\tableofcontents` Our table of contents

```

747 \renewcommand\tableofcontents{\@generic toc{\contentsname}{toc}}
```

`\l@part` The way to put the part in the table of contents. We do not want bold here

```

748 \renewcommand*\l@part[2]{%
749   \ifnum \c@tocdepth >-2\relax
750     \addpenalty{-\@highpenalty}%
751     \addvspace{2.25em \@plus\p@}%
752     \setlength\@tempdima{3em}%
753     \begin{group}
754       \parindent \z@ \rightskip \@pnumwidth
755       \parfillskip -\@pnumwidth
756       {\leavevmode\color{bgcolor}%
757         \large #1\hfil \hb@xt@\@pnumwidth{\hss #2}}\par
758       \nobreak
759       \global\@nobreaktrue
760       \everypar{\global\@nobreakfalse\everypar{}}%
761     \end{group}
762   \fi}
```

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

```

763 \newcommand*\l@nonfloat{\@dottedtocline{1}{\z@}{2.3em}}
```

`\numberline` The number in table of contents


```

764 \def\numberline#1{%
765   \raisebox{\z@}{\z@}{\z@}{%
766     \fcolorbox{@bgcolor}{@bgcolor}{%
767       \hb@xt@{@tempdima}{\color{white}#1\strut\hfil}}}\hspace{2em}}

\listofmaps Our list of maps
768 \newcommand\listofmaps{@generic{toc}{\listofmapsname}{lom}}

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

\listoftables Our list of tables
770 \renewcommand\listoftables{@generic{toc}{\listtablename}{lot}}

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

\listofcharts Our list of charts
772 \newcommand\listofcharts{@generic{toc}{\listofchartsname}{loc}}

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

```

3.15 The final word

```

774 \setbgcolor{white}
775 \normalsize\normalfont
776 </class>

```

References

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Change History

v0.2			
\@part:	Changed formatting	...	30
iconfill:	Rewrote	29
\EndPartIntro:	Deleted \clearspread	29
\newicon:	Added macro	.....	16
\section:	Redefined	.....	31
v0.3			
\@generictoc:	Added macro	...	32
\@toc@ext@list:	11	.....	17
\EndPartIntro:	Restored		
\clearspread	.....		29
\l@chart:	Added macro	.....	33
\l@map:	Added macro	33
\l@nonfloat:	Added macro	32
\l@part:	Added macro	32
\l@table:	Added macro	33
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\listofmapsname:	Added macro	.	21
\listoftables:	Added macro	..	33
\newnon@float:	Added writing ex-		
	tensions to the list of extensions		18
\numberline:	Added macro	32
\tableofcontents:	Added macro		32

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