

# New L<sup>A</sup>T<sub>E</sub>X 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<sup>A</sup>T<sub>E</sub>X packages:

1. Run `latex` on `faosyb.ins`. This will produce the L<sup>A</sup>T<sub>E</sub>X class `faosyb.cls`.
2. Put the file `faosyb.cls` to the place where L<sup>A</sup>T<sub>E</sub>X can find it (see [2] or the documentation for your T<sub>E</sub>X system).
3. Update the database of file names. Again, see [2] or the documentation for your T<sub>E</sub>X 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<sup>A</sup>T<sub>E</sub>X 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<sup>A</sup>T<sub>E</sub>X, 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 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 `\captionfamily` and `\textcaption` or by the commands `\textnarrow{<text>}` and `\textcaption{<text>}` following the usual L<sup>A</sup>T<sub>E</sub>X conventions. Note that since PT Sans does not provide math alphabet, this choice does not change the mathematical 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}}
```

## 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 30% of 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 immediately. When issued *before* `\part` command, it sets up icon and color for the next part. If needed, you can manually change this using `\selecticon` and `\selectcolor` commands. In most cases you should *not* use these commands.

`@bgcolor` After a `\part` command (or explicit `\selecticon` and `\selectcolor` com-

`@tableheadcolor`

`\currenticon`

mand we can access the current values of the color in `@bgcolor`, `@tablecolor` colors and `\currenticon` macro.

## 2.5 Sectioning

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

## 2.6 Floats

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

In standard L<sup>A</sup>T<sub>E</sub>X floats “float”: they can be placed by the algorithm anywhere. The previous version made them “sticky”: the author explicitly tells T<sub>E</sub>X where floats should be placed. However, to do so the class required the author to make explicit page breaks, which was not very convenient.

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

1. Like in standard L<sup>A</sup>T<sub>E</sub>X, authors do not normally provide page breaks—T<sub>E</sub>X tries to make this decision for them.
2. Like in the previous version, floats are put exactly where the authors want them—no default placing and second-guessing.

Here is how it is done.

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

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

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

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

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

The parameters `{<type>}` and `{<location>}` are mandatory for floats, for example

```
\begin{map}{T}{ur}
```



Figure 1: A Spread

```

...
\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** environemnt!. For tables on separate pages use **longtable**.

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

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

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

```
\Source{FA0, Statistical Division [FA0STAT]}
```

**\listoftables**    The standard L<sup>A</sup>T<sub>E</sub>X 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<sup>A</sup>T<sub>E</sub>X 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

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}}|`.

## 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: `publicationsskip` 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{publicationsskip=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 Methods”. 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  $\text{\LaTeX}$  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 \if@issuemode
39 \RequirePackage{issuulinks}
40 \fi

Options for the hyperref package are set as follows:

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

```

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

```

### 3.4 Key-Value Interface

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

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

One of the important keys is `year`

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

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

### 3.5 Fonts

We use `arev` for mathematics:

```
76 \RequirePackage{arevmath}
```

For body text we use PT Sans:

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

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

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

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

```
81 \renewcommand{\familydefault}{\sfdefault}
```

```
82 \renewcommand{\bfdefault}{b}
```

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

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

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

```
84 \DeclareTextFontCommand{\textnarrow}{\narrowfamily}
```

`\captionfamily` Same with `\captionfamily`:

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

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

```
86 \DeclareTextFontCommand{\textcaption}{\captionfamily}
```

`\normalsize` The basic size is 9.6pt:

```
87 \renewcommand\normalsize{%
```

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

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

```
90   \abovedisplayshortskip \z@ \@plus3\p@
```

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

```
92   \belowdisplayskip \abovedisplayskip
```

```
93   \let\@listi\@listI}
```

```
94 \normalsize
```

`\small` This is the small size:

```
95 \renewcommand\small{%
```

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

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

```
98   \abovedisplayshortskip \z@ \@plus2\p@
```

```

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

```

We use `rm` style of URL:

```
105 \urlstyle{sf}
```

### 3.6 Margins and Paragraphing

We use `a4paper`.

```

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

```

```

\parindent We use not indented paragraphs with paragraph borders given by skips
\parskip 110 \setlength\parindent{z@
111 \setlength\parskip{6\p@ plus 6\p@ minus 4\p@}

```

```

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

```

```

\headheight We need generous headers
113 \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

```

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

```

```

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

```

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

```

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

```

### 3.8 Setting Colors and Icons

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

```

144 \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:

```

145 \def\setbgcolor#1{\colorlet{@bgcolor@next}[cmyk]{#1}%
146   \addtocontents{toc}{\string\colorlet{@bgcolor}[cmyk]{#1}}%
147   \gdef\fao@color@string{#1}}
148 \setbgcolor{white}

```

The key-value interface for the same command:

```

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

```

And for separate setting of `@tableheadcolor`

```

150 \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
151 \def\selectcolor{\colorlet{@bgcolor}{@bgcolor@next}%
152   \colorlet{@tableheadcolor}{@bgcolor!30}}
153 \selectcolor

```

`@tablebg` The color for table pages

```

154 \define@key{fao}{tablebg}{\colorlet{@tablebg}[cmyk]{#1}}

```

`\seticon` Setting the next icon for the part

```

155 \def\seticon#1{\gdef\next@icon{#1}}
156 \define@key{fao}{icon}{\seticon{#1}}

\selecticon The actual icon change
\currenticon 157 \def\selecticon{\gdef\currenticon{\next@icon}}
```

### 3.9 Page Styles

`standardpagestyle` This is our main page style

```

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

`partpagestyle` The page style for the parts introduction

```

188 \fancypagestyle{partpagestyle}{%
189   \fancyhf{}%
190   \fancyhead[L]{%
191     \begin{picture}(0,0)
192       \put(-14,45){\color{@bgcolor!10}%
193         \raisebox{-\height}{%
194           \rule{\dimexpr\textwidth+4.5cm}{\dimexpr\textheight+4.5cm}}}}
```



```

195 \end{picture}}
196 \fancyhfoffset[LR]{1.8cm}%
197 \renewcommand\headrulewidth{\z@}%
198 \fancyfoot[LE]{
199 \bgroup
200 \setlength\fbboxsep{10\p@}%
201 \color{@bgcolor}%
202 \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
203 \normalsize\dotfill
204 \raisebox{-\height}{\textbf{FAO} Statistical Yearbook \textbf{fao@year}}%
205 \egroup}%
206 \fancyfoot[LO]{
207 \bgroup
208 \setlength\fbboxsep{10\p@}%
209 \color{@bgcolor}%
210 \raisebox{-\height}{\rightmark}%
211 \normalsize\dotfill
212 \raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%
213 \egroup}%
214 }

```

### 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>\nf@vert@sep</code>	Vertical separation between the floats <pre> 215 \newlength\nf@vert@sep 216 \setlength\nf@vert@sep{30pt} </pre>
<code>\nf@width</code>	The width of the nonfloat <pre> 217 \newlength\nf@width </pre>
<code>\nf@height</code>	The height of the nonfloat <pre> 218 \newlength\nf@height </pre>
<code>\nf@captionheight</code>	The height reserved for the caption <pre> 219 \newlength\nf@captionheight 220 \setlength\nf@captionheight{32\p@} </pre>
<code>\nf@sourceheight</code>	The height reserved for the source lines <pre> 221 \newlength\nf@sourceheight 222 \setlength\nf@sourceheight{48\p@} </pre>
<code>\nf@margin</code>	Margin for floats <pre> 223 \newlength\nf@margin 224 \setlength\nf@margin{12\p@} </pre>

`\nf@trianglebase` The design requires a triangle under the caption. Here it is

```

225 \newlength\nf@trianglebase
226 \setlength\nf@trianglebase{12\p@}

```

`\chartwidth` The resulting width of a chart

```

227 \newlength\chartwidth

```

`\chartheight` The resulting width of a chart

```

228 \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

```

229 \newcount\nonfloat@type
230 \nonfloat@type=4\relax

```

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

```

231 \newbox\nf@contentsbox

```

`\nf@mainbox` The box for the float

```

232 \newbox\nf@mainbox

```

`\newnon@float` The macro `\newnon@float` has the following arguments: TYPE, EXT, NAME, LISTNAME, for example

```

\newnon@float{map}{lom}{Map}{List of Maps}

```

It defines a nonfloat with these parameters.

```

233 \def\newnon@float#1#2#3#4{%

```

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.

```

234 \expandafter\ifx\csname ftype@#1\endcsname\relax
235 \expandafter\edef\csname ftype@#1\endcsname{\the\nonfloat@type}%
236 \multiply\nonfloat@type by 2\relax
237 \fi

```

Now we define the extension for the floats

```

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

```

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

```

239 \expandafter\ifx\csname the#1\endcsname\relax
240 \newcounter{#1}\fi
241 \expandafter\def\csname fnum@#1\endcsname{#3~\csname
242 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

```
243 \expandafter\let\csname #1\endcsname\relax
244 \expandafter\let\csname end#1\endcsname\relax
```

And the actual definition

```
245 \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}}
```

```
246 \def\@getfirstletter#1{\@getfirstletter#1}
247 \def\@getfirstletter#1{#1\@gobbleword}
248 \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.

```
249 \def\non@float#1#2#3{
250   \def\@capttype{#1}%
251   \def\nf@size{#2}%
252   \def\nf@placement{#3}%
```

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

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

Define the source command inside float

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

Define the caption producing command:

```
256 \long\def\@makecaption##1##2{\long\gdef\nf@caption{%
257   {\bfseries\large\color{white}
258     \MakeUppercase{##1}: ##2}}}%
259 \gdef\nf@caption{}
```

We calculate the size of the float and skips

```
260 \nf@width=\columnwidth
261 \nf@height=\dimexpr\textheight/2-\nf@vert@sep%
262 \if\nf@vert@pos u\relax
263   \nf@topskip=\z@
264   \nf@bottomskip=\nf@vert@sep
265 \else
266   \nf@topskip=\nf@vert@sep%
267   \nf@bottomskip=\z@
268 \fi
269 \def\tempW{W}%
270 \def\tempT{T}%
271 \def\tempB{B}%
272 \ifx\nf@size\tempW
273   \nf@width=\textwidth
```

```

274 \fi
275 \ifx\nf@size\tempT
276   \nf@height=\textheight
277   \nf@topskip=\z@
278   \nf@bottomskip=\z@
279 \fi
280 \ifx\nf@size\tempB
281   \nf@width=\textwidth
282   \nf@height=\textheight
283   \nf@topskip=\z@
284   \nf@bottomskip=\z@
285 \fi
286 \chartheight=
287   \dimexpr(\nf@height-\nf@captionheight-\nf@sourceheight
288     -2\nf@margin-\nf@trianglebase)%
289 \chartwidth=\dimexpr(\nf@width-2\nf@margin-0.5\nf@trianglebase)%
290 \nf@height=\dimexpr(\nf@height+\nf@topskip+\nf@bottomskip)%
    Now we construct the main box.
291 \global\setbox\nf@contentsbox
292   \color@vbox
293   \normalcolor
294   \vbox to \chartheight
295   \bgroup
296   \hsize\chartwidth
297   \@parboxrestore
298   \@floatboxreset
299 }

```

\endnon@float The actual typesetting

```

300 \def\endnon@float{\@endfloatbox\par
301   \hsize=\nf@width
302   \setbox\nf@mainbox=\vbox to \nf@height\bgroup
303     \hsize=\chartwidth
304     \vskip\nf@topskip
305     \noindent
306     \begin{picture}(0,0)%
307       \put(0,0){\color{\bgcolor}%
308         \begin{tikzpicture}[baseline=(current bounding box.north)]
309           \fill (0,0) -- (\nf@trianglebase,0) --
310             (0.5\nf@trianglebase,-\nf@trianglebase) -- cycle;
311         \end{tikzpicture}}
312     \end{picture}%
313   \def\@tempa{chart}%
314   \ifx\@tempa\@capttype
315     \begin{picture}(0,0)%
316       \put(0,0){\color{\bgcolor}%
317         \begin{tikzpicture}[baseline=(current bounding box.north)]
318           \draw(0,0) -- (\nf@width,0);
319           \draw (0.5\nf@trianglebase,-2\nf@trianglebase) --

```

```

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

```

```

\map A standard nonfloat:
349 \newnon@float{map}{lom}{Map}{List of Maps}

\table Another one
350 \newnon@float{table}{lot}{Table}{List of Tables}

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

```

352 \newbox\nfbox@S@ul
353 \newbox\nfbox@S@ur
354 \newbox\nfbox@S@ll
355 \newbox\nfbox@S@lr

```

```

356 \newbox\nfbox@S@UL
357 \newbox\nfbox@S@UR
358 \newbox\nfbox@S@LL
359 \newbox\nfbox@S@LR
360 \newbox\nfbox@T@ul
361 \newbox\nfbox@T@ur
362 \newbox\nfbox@T@UL
363 \newbox\nfbox@T@UR
364 \newbox\nfbox@W@ul
365 \newbox\nfbox@W@ll
366 \newbox\nfbox@W@UL
367 \newbox\nfbox@W@LL
368 \newbox\nfbox@B@ul
369 \newbox\nfbox@B@UL

\@tempboxb Standard LATEX has \@tempboxa. We need more...
370 \ifx\@tempboxb\@undefined
371   \newbox\@tempboxb
372 \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?
373 \edef\standard@output{\the\output}

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

\nf@output Here we define our own output routine.
375 \newtoks\nf@output
376 \nf@output {%
    We define the current boxes \curr@nfbox.... Also, uc or lc mean Upper or
    Lower Current column
377   \ifodd\c@page
378     \global\let\curr@nfbox@S@ul\nfbox@S@UL
379     \global\let\curr@nfbox@S@ur\nfbox@S@UR
380     \global\let\curr@nfbox@S@ll\nfbox@S@LL
381     \global\let\curr@nfbox@S@lr\nfbox@S@LR
382     \global\let\curr@nfbox@T@ul\nfbox@T@UL
383     \global\let\curr@nfbox@T@ur\nfbox@T@UR
384     \global\let\curr@nfbox@W@ul\nfbox@W@UL
385     \global\let\curr@nfbox@W@ll\nfbox@W@LL
386     \global\let\curr@nfbox@B@ul\nfbox@B@UL
387   \else
388     \global\let\curr@nfbox@S@ul\nfbox@S@ul
389     \global\let\curr@nfbox@S@ur\nfbox@S@ur
390     \global\let\curr@nfbox@S@ll\nfbox@S@ll
391     \global\let\curr@nfbox@S@lr\nfbox@S@lr

```

```

392 \global\let\curr@nfbox@T@ul\nfbox@T@ul
393 \global\let\curr@nfbox@T@ur\nfbox@T@ur
394 \global\let\curr@nfbox@W@ul\nfbox@W@ul
395 \global\let\curr@nfbox@W@ll\nfbox@W@ll
396 \global\let\curr@nfbox@B@ul\nfbox@B@ul
397 \fi
398 \if@firstcolumn
399 \global\let\curr@nfbox@S@uc\curr@nfbox@S@ul
400 \global\let\curr@nfbox@S@lc\curr@nfbox@S@ll
401 \global\let\curr@nfbox@T@uc\curr@nfbox@T@ul
402 \else
403 \global\let\curr@nfbox@S@uc\curr@nfbox@S@ur
404 \global\let\curr@nfbox@S@lc\curr@nfbox@S@lr
405 \global\let\curr@nfbox@T@uc\curr@nfbox@T@ur
406 \fi
407 \let \par \@@par
408 %
409 % There are several possibilities when we start the output routine for
410 % a single column in a two-column layout.
411 % \begin{enumerate}
412 % \item Wide or big non-floats completely cover the page. In this
413 % case we do not need to create columns, and directly go to the
414 % output.
415 % \item The columnnd is occupied by tall or single nonfloats. We make
416 % a column of nonfloats and send it further.
417 % \item There is room for text on the page, but its height
418 % (\cs{@colroom}) is different from the one known to the page builder
419 % (\cs{vsize}). In this case we change \cs{vsize} and return.
420 % \item The room for text is exactly \cs{vsize}. In this case we form
421 % a column and return.
422 % \end{enumerate}
423 % \begin{macrocode}
424 \global\@colht=\textheight
425 \ifdim\ht\curr@nfbox@B@ul>0.5\baselineskip
426 \global\advance\@colht by -\textheight
427 \fi
428 \ifdim\ht\curr@nfbox@W@ul>0.5\baselineskip
429 \global\advance\@colht by -0.5\textheight
430 \fi
431 \ifdim\ht\curr@nfbox@W@ll>0.5\baselineskip
432 \global\advance\@colht by -0.5\textheight
433 \fi
434 \ifdim\@colht < \baselineskip
435 \nf@output@widepage
436 \else
437 \nf@makecol
438 \fi
439 }

```

`\nf@output@widepage` The macro `\nf@output@widepage` outputs a page completely filled by wide pic-

tures.

```

440 \def\nf@output@widepage{%
441   \if@firstcolumn\else
442     \ClassError{faosyb}{Wide or big nonfloats defined too late. Move
443       them up}{I encountered Big or Wide floats when I already made the
444       first column. Please move them up}
445   \fi
446   \ifdim\ht\curr@nfbox@B@ul>0.5\baselineskip
447     \global\setbox\@outputbox\vsplit\curr@nfbox@B@ul to \textheight
448   \else
449     \setbox\@tempboxa\vsplit\curr@nfbox@W@ul to 0.5\textheight
450     \setbox\@tempboxb\vsplit\curr@nfbox@W@ll to 0.5\textheight
451     \setbox\@outputbox\vbox\bgroup
452       \box\@tempboxa
453       \nointerlineskip
454       \box\@tempboxb
455     \egroup
456   \fi
457   \global\size\textheight
458   \global\@colht\textheight
459   \@outputpage
460 }
```

`\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

```

461 \def\nf@makecol{%
462   \global\@colroom\@colht
463   \ifdim\ht\curr@nfbox@T@uc>0.5\baselineskip
464     \global\@colroom=0pt
465   \fi
466   \ifdim\ht\curr@nfbox@S@uc>0.5\baselineskip
467     \global\advance\@colroom by -0.5\textheight
468   \fi
469   \ifdim\ht\curr@nfbox@S@lc>0.5\baselineskip
470     \global\advance\@colroom by -0.5\textheight
471   \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.

```

472   \ifdim\@colroom<0.5\baselineskip
473     \nf@makenfcol
474     \unvbox\@cclv
475   \else
476     \nf@makemixedcol
477   \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.

```

478 \def\nf@makenfcol{%
479   \ifdim\@colht>0.9\textheight % one tall or two squares
480     \ifdim\ht\curr@nfbox@T@uc>0.5\baselineskip
481       \setbox\@outputbox\vbox\bgroup
482       \boxmaxdepth \@maxdepth
483       \vsplit \@curr@nfbox@T@uc to \textheight
484       \egroup
485     \else
486       \setbox\@outputbox\vbox\bgroup
487       \boxmaxdepth \@maxdepth
488       \vsplit\curr@nfbox@S@uc to 0.5\textheight
489       \nointerlineskip
490       \vsplit\curr@nfbox@S@lc to 0.5\textheight
491       \egroup
492     \fi
493   \else % one square
494     \ifdim\ht\curr@nfbox@S@uc>0.49\textheight
495       \setbox\@outputbox\vsplit \curr@nfbox@S@uc to 0.5\textheight
496     \else
497       \setbox\@outputbox\vsplit \curr@nfbox@S@lc to 0.5\textheight
498     \fi
499   \fi
500   \nf@opcol}

```

`\nf@makemixedcol` This macro is 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

```

501 \def\nf@makemixedcol{%
502   \ifdim\@colroom=\vsize
503     \nf@makemixedcol@
504   \else
505     \global\vsize=\@colroom
506     \unvbox\@cclv
507   \fi}

```

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

```

508 \def\nf@makemixedcol@{%
509   \ifvoid\footins
510     \setbox\@outputbox \box\@cclv
511   \else
512     \setbox\@outputbox \vbox {%
513       \boxmaxdepth \@maxdepth
514       \unvbox \@cclv
515       \vskip \skip\footins
516       \color@begingroup

```

```

517         \normalcolor
518         \footnoterule
519         \unvbox \footins
520     \color@endgroup
521 }%
522 \fi
523 \ifdim\ht\curr@nfbox@S@uc>0.49\textheight
524     \setbox\@tempboxa\vsplit\curr@nfbox@S@uc to 0.5\textheight
525     \setbox\@outputbox \vbox
526         \bgroup
527         \box\@tempboxa
528         \nointerlineskip
529         \box\@outputbox
530     \egroup
531 \fi
532 \ifdim\ht\curr@nfbox@S@lc>0.49\textheight
533     \setbox\@tempboxa\vsplit\curr@nfbox@S@lc to 0.5\textheight
534     \setbox\@outputbox \vbox
535         \bgroup
536         \box\@outputbox
537         \nointerlineskip
538         \box\@tempboxa
539     \egroup
540 \fi
541 \nf@opcol}

```

\nf@opcol This is like the standard L<sup>A</sup>T<sub>E</sub>X \@outputdblcol, but with the treatment of wide nonfloats.

```

542 \def\nf@opcol{%
543     \if@firstcolumn
544         \global\@firstcolumnfalse
545         \global\setbox\@leftcolumn\box\@outputbox
546     \else
547         \global\@firstcolumntrue
548         \ifdim\ht\curr@nfbox@W@ul>0.5\baselineskip
549             \setbox\@tempboxa\vsplit \curr@nfbox@W@ul to 0.5\textheight
550         \else
551             \setbox\@tempboxb\box\@tempboxa
552         \fi
553     \setbox\@outputbox \vbox\bgroup
554         \box\@tempboxa
555         \nointerlineskip
556         \hb@xt@\textwidth {%
557             \hb@xt@\columnwidth {%
558                 \box\@leftcolumn \hss}%
559             \hfil
560             {\normalcolor\vrule \@width\columnseprule}%
561             \hfil
562             \hb@xt@\columnwidth {%
563                 \box\@outputbox \hss}%

```

```

564     }%
565   \egroup
566   \ifdim\ht\curr@nfbox@W@ll>0.5\baselineskip
567     \setbox\@tempboxa\vsplit \curr@nfbox@W@ll to 0.5\textheight
568     \setbox\@outputbox\vbox\bgroup
569       \box\@outputpage
570       \nointerlineskip
571       \box\@tempboxa
572     \egroup
573   \fi
574   \@outputpage
575   \global\vsizel\textheight
576   \global\@colht\textheight
577   \global\@colroom\textheight
578 \fi}

```

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

```

579 \let\standard@clearpage\clearpage

```

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

```

580 \def\clearpage{%
581   \if@twocolumn
582     \nf@clearpage
583   \else
584     \standard@clearpage
585 \fi}

```

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

```

586 \def\nf@totalheight{\dimexpr(
587   \ht\nfbox@S@UL+
588   \ht\nfbox@S@UR+
589   \ht\nfbox@S@LL+
590   \ht\nfbox@S@LR+
591   \ht\nfbox@T@UL+
592   \ht\nfbox@T@UR+
593   \ht\nfbox@W@UL+
594   \ht\nfbox@W@LL+
595   \ht\nfbox@B@UL+
596   \ht\nfbox@S@ul+
597   \ht\nfbox@S@ur+
598   \ht\nfbox@S@ll+
599   \ht\nfbox@S@lr+
600   \ht\nfbox@T@ul+
601   \ht\nfbox@T@ur+
602   \ht\nfbox@W@ul+
603   \ht\nfbox@W@ll+
604   \ht\nfbox@B@ul)}

```

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

```

605 \def\nf@clearpage{%
606   \ifvmode
607     \ifnum \@dbltopnum =\m@ne
608       \ifdim \pagetotal <\topskip
609         \hbox{}}%
610     \fi
611   \fi
612 \fi
613 \newpage
614 \write\m@ne{}}%
615 \vbox{}}%
616 \penalty -\@Mi
617 \if@firstcolumn\else
618 \null\vfill\newpage\fi
619 \ifdim\nf@totalheight>\baselineskip
620 \null\vfill\clearpage\fi
621 }

```

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

```

622 \def\clearspread{\clearpage\if@twoside \ifodd\c@page
623   \hbox{}}\newpage\if@twocolumn\hbox{}}\newpage\fi\fi\fi}

```

We need to clear everything at the end

```

624 \AtEndDocument{\if@twocolumn
625   \ifdim\nf@totalheight>\baselineskip
626   \null\vfill\clearpage\fi
627 \fi}

```

### 3.12 Sectioning

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

```

628 \newif\if@mainmatter

```

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

```

629 \def\frontmatter{\cleardoublepage
630   \pagenumbering{roman}\onecolumn\@mainmatterfalse}

```

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

```

631 \def\mainmatter{\cleardoublepage\pagenumbering{arabic}\onecolumn
632   \pagestyle{standardpagestyle}%
633   \@mainmattertrue}

```

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

```

634 \setcounter{tocdepth}{1}

```

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

```

635 \setcounter{secnumdepth}{-1}

```

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

```
636 \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.

```
637 \newcounter{fao@partnum}
638 \setcounter{fao@partnum}{0}
```

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

```
639 \def\fao@currentpartnum{0}
```

`\part` The largest partition in the book

```
640 \renewcommand\part{%
641   \clearspread
642   \selectcolor
643   \selecticon
644   \addtocontents{toc}{\string\colorlet{@bgcolor}[cmyk]{\fao@color@string}}%
645   \stepcounter{fao@partnum}%
646   \addtocontents{toc}{%
647     \string\gdef\string\fao@currentpartnum{\thefao@partnum}}%
648   \rowcolors{2}{@bgcolor!10}{}%
649   \pagestyle{partpagestyle}%
650   \if@twocolumn
651     \onecolumn
652   \fi
653   \cleardoublepage\bgroup\color{@bgcolor}%
654   \secdef\@part\@spart}
```

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

```
655 \def\EndPartIntro{\egroup
656   \clearspread\twocolumn
657   \pagestyle{standardpagestyle}}
```

`iconfill` Fill a line with the current icon of increasing size. The parameters are the initial size and number of repetitions

```
658 \def\iconfill#1#2{%
659   \@tempdima=#1
660   \@tempcnta=#2
661   \hfill
662   \loop
663     \includegraphics[width=\@tempdima]{\currenticon}%
664     \@tempdima=1.44\@tempdima
665     \advance\@tempcnta by -1
666     \ifnum\@tempcnta>0\repeat\hfill}
```

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

```
667 \def\@part[#1]#2{%
668     \refstepcounter{part}%
669     \addcontentsline{toc}{part}{\thepart\hspace{1em}#1}%
670     \markboth{#1}{#1}%
671     {\interlinepenalty \@M
672     \iconfill{.7cm}{7}\par
673     \captionfamily
674     \fontsize{240\p@}{240\p@}\selectfont\raggedright\thepart~%
675     \parbox[b]{0.8\textwidth}{\fontsize{86\p@}{86\p@}\selectfont
676     \raggedright#2}\par\vskip120\p@
677     }\par}
```

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

```
678 \def\sectionmark#1{\markright{#1}}
```

## References

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