

# New L<sup>A</sup>T<sub>E</sub>X Style for FAO Yearbook \*

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2013/12/10, v0.2

## 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}}
```

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

## 2.4 Colors and Icons for Parts

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

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

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

The key `tableheadcolor` sets the color for the headers of tables defined by H or P key (see Section 2.6). Normally it is the current `@bgcolor` color, but it can be set to any required value.

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

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

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

## 2.5 Sectioning

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



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 [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

**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  $\text{\LaTeX}$  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,dcolum}
28 \usetikzlibrary{calc}
29 \RequirePackage{fancyhdr}
30 \RequirePackage[lscape,longtable,siunitx,booktabs]
31 \RequirePackage{multicol,atbegshi,picture,hhline,afterpage}
32 \RequirePackage[T1]{fontenc}
```

```

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

```

Options for the hyperref package are set as follows:

```

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

```

### 3.3 Color

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

```

61 \def\@pctchar{\expandafter\@gobble\string\%}
62 \def\@bchar{\expandafter\@gobble\string\}
63 \immediate\pdfobj stream attr{/N 4} file{FOGRA39L.icc}
64 \edef\OBJ@CVR{\the\pdfastobj}
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@layoutoffset
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   \addtocontents{toc}{\string\colorlet{@bgcolor}[cmyk]{#1}}%
148   \gdef\fao@color@string{#1}}
149 \setbgcolor{white}

```

The key-value interface for the same command:

```

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

```

And for separate setting of `@tableheadcolor`

```

151 \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
152 \def\selectcolor{\colorlet{@bgcolor}{@bgcolor@next}%
153   \colorlet{@tableheadcolor}{@bgcolor}}
154 \selectcolor

```

`@tablebg` The color for table pages

```

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

```

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

`\selecticon` The actual icon change  
`\currenticon` 158 `\def\selecticon{\gdef\currenticon{\next@icon}}`

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

### 3.9 Page Styles

`standardpagestyle` This is our main page style  
160 `\fancypagestyle{standardpagestyle}{%`  
161 `\fancyhf{}`  
162 `\fancyhfoffset[LR]{1.8cm}`  
163 `\renewcommand\headrulewidth{\z@}`  
164 `\fancyhead[LE]{\color{@bgcolor}\captionfamily`  
165 `\Huge\ifnum\thepart>0\relax`  
166 `\thepart\fi\normalsize\dotfill}`  
167 `\fancyhead[L0]{\color{@bgcolor}\normalsize\dotfill\captionfamily`  
168 `\Huge\leftmark\expandafter\ifx\csname @icon@\thepart\endcsname\relax\else\space`  
169 `\raisebox{-0.25\totalheight}{%`  
170 `\includegraphics[width=1.1cm]{\csname @icon@\thepart\endcsname}\fi}`  
171 `\fancyfoot[LE]{`  
172 `\bgroup`  
173 `\setlength\fbboxsep{10\p@}`  
174 `\color{@bgcolor}`  
175 `\raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%`  
176 `\normalsize\dotfill`  
177 `\raisebox{-\height}{\textbf{FAO} Statistical Yearbook \textbf{\fao@year}}%`  
178 `\egroup}`  
179 `\fancyfoot[L0]{`  
180 `\bgroup`  
181 `\setlength\fbboxsep{10\p@}`  
182 `\color{@bgcolor}`  
183 `\raisebox{-\height}{\rightmark}`  
184 `\normalsize\dotfill`  
185 `\raisebox{-\height}{\fcolorbox{@bgcolor}{@bgcolor}{\color{white}\thepage}}%`  
186 `\egroup}`  
187 `}`  
188 `\pagestyle{standardpagestyle}`

`partpagestyle` The page style for the parts introduction  
189 `\fancypagestyle{partpagestyle}{%`  
190 `\fancyhf{}`  
191 `\fancyhead[L]{%`  
192 `\begin{picture}(0,0)`  
193 `\put(-14,45){\color{@bgcolor!10}`



```

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

```

### 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.

```

\nf@vert@sep Vertical separation between the floats
216 \newlength\nf@vert@sep
217 \setlength\nf@vert@sep{30pt}

\nf@width The width of the nonfloat
218 \newlength\nf@width

\nf@height The height of the nonfloat
219 \newlength\nf@height

\nf@captionheight The height reserved for the caption
220 \newlength\nf@captionheight
221 \setlength\nf@captionheight{32\p@}

\nf@sourceheight The height reserved for the source lines
222 \newlength\nf@sourceheight
223 \setlength\nf@sourceheight{48\p@}

\nf@margin Margin for floats
224 \newlength\nf@margin
225 \setlength\nf@margin{12\p@}

```

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

```

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

```

`\chartwidth` The resulting width of a chart

```

228 \newlength\chartwidth

```

`\chartheight` The resulting width of a chart

```

229 \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

```

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

```

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

```

232 \newbox\nf@contentsbox

```

`\nf@mainbox` The box for the float

```

233 \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.

```

234 \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.

```

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

```

Now we define the extension for the floats

```

239 \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

```

240 \expandafter\ifx\csname the#1\endcsname\relax
241 \newcounter{#1}\fi
242 \expandafter\def\csname fnum@#1\endcsname{#3~\csname
243 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

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

And the actual definition

```
246 \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}}
```

```
247 \def\@getfirstletter#1{\@getfirstletter#1}
248 \def\@getfirstletter#1{#1\@gobbleword}
249 \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.

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

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

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

Define the source command inside float

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

Define the caption producing command:

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

We calculate the size of the float and skips

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

```

275 \fi
276 \ifx\nf@size\tempT
277   \nf@height=\textheight
278   \nf@topskip=\z@
279   \nf@bottomskip=\z@
280 \fi
281 \ifx\nf@size\tempB
282   \nf@width=\textwidth
283   \nf@height=\textheight
284   \nf@topskip=\z@
285   \nf@bottomskip=\z@
286 \fi
287 \chartheight=
288   \dimexpr(\nf@height-\nf@captionheight-\nf@sourceheight
289     -2\nf@margin-\nf@trianglebase)%
290 \chartwidth=\dimexpr(\nf@width-2\nf@margin-0.5\nf@trianglebase)%
291 \nf@height=\dimexpr(\nf@height+\nf@topskip+\nf@bottomskip)%
    Now we construct the main box.
292 \global\setbox\nf@contentsbox
293   \color@vbox
294   \normalcolor
295   \vbox to \chartheight
296   \bgroup
297   \hsize\chartwidth
298   \@parboxrestore
299   \@floatboxreset
300 }

```

\endnon@float The actual typesetting

```

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

```

```

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

```

```

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

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

\chart And another one
352 \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.

```

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

```

```

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

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

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

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

```

```

393 \global\let\curr@nfbox@T@ul\nfbox@T@ul
394 \global\let\curr@nfbox@T@ur\nfbox@T@ur
395 \global\let\curr@nfbox@W@ul\nfbox@W@ul
396 \global\let\curr@nfbox@W@ll\nfbox@W@ll
397 \global\let\curr@nfbox@B@ul\nfbox@B@ul
398 \fi
399 \if@firstcolumn
400 \global\let\curr@nfbox@S@uc\curr@nfbox@S@ul
401 \global\let\curr@nfbox@S@lc\curr@nfbox@S@ll
402 \global\let\curr@nfbox@T@uc\curr@nfbox@T@ul
403 \else
404 \global\let\curr@nfbox@S@uc\curr@nfbox@S@ur
405 \global\let\curr@nfbox@S@lc\curr@nfbox@S@lr
406 \global\let\curr@nfbox@T@uc\curr@nfbox@T@ur
407 \fi
408 \let \par \@@par
409 %
410 % There are several possibilities when we start the output routine for
411 % a single column in a two-column layout.
412 % \begin{enumerate}
413 % \item Wide or big non-floats completely cover the page. In this
414 % case we do not need to create columns, and directly go to the
415 % output.
416 % \item The columnnd is occupied by tall or single nonfloats. We make
417 % a column of nonfloats and send it further.
418 % \item There is room for text on the page, but its height
419 % (\cs{@colroom}) is different from the one known to the page builder
420 % (\cs{vsize}). In this case we change \cs{vsize} and return.
421 % \item The room for text is exactly \cs{vsize}. In this case we form
422 % a column and return.
423 % \end{enumerate}
424 % \begin{macrocode}
425 \global\@colht=\textheight
426 \ifdim\ht\curr@nfbox@B@ul>0.5\baselineskip
427 \global\advance\@colht by -\textheight
428 \fi
429 \ifdim\ht\curr@nfbox@W@ul>0.5\baselineskip
430 \global\advance\@colht by -0.5\textheight
431 \fi
432 \ifdim\ht\curr@nfbox@W@ll>0.5\baselineskip
433 \global\advance\@colht by -0.5\textheight
434 \fi
435 \ifdim\@colht < \baselineskip
436 \nf@output@widepage
437 \else
438 \nf@makecol
439 \fi
440 }

```

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

tures.

```

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

`\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

```

464 \def\nf@makecol{%
465   \global\@colroom\@colht
466   \ifdim\ht\curr@nfbox@T@uc>0.5\baselineskip
467     \global\@colroom=0pt
468   \fi
469   \ifdim\ht\curr@nfbox@S@uc>0.5\baselineskip
470     \global\advance\@colroom by -0.5\textheight
471   \fi
472   \ifdim\ht\curr@nfbox@S@lc>0.5\baselineskip
473     \global\advance\@colroom by -0.5\textheight
474   \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.

```

475   \ifdim\@colroom<0.5\baselineskip
476     \nf@makenfcol
477   \else
478     \nf@makemixedcol
```



479   \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.

```

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

```

\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

```

504 \def\nf@makemixedcol{%
505   \ifdim\@colroom=\vsize
506     \nf@makemixedcol@
507   \else
508     \global\vsize=\@colroom
509     \unvbox\@cclv
510   \fi}

```

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

```

511 \def\nf@makemixedcol@{%
512   \ifvoid\footins
513     \setbox\@outputbox \box\@cclv
514   \else
515     \setbox\@outputbox \vbox {%
516       \boxmaxdepth \@maxdepth

```

```

517     \unvbox \@cclv
518     \vskip \skip\footins
519     \color@begingroup
520     \normalcolor
521     \footnoterule
522     \unvbox \footins
523     \color@endgroup
524 }%
525 \fi
526 \ifdim\ht\curr@nfbox@S@uc>0.49\textheight
527   \setbox\@tempboxa\vsplit\curr@nfbox@S@uc to 0.5\textheight
528   \setbox\@outputbox \vbox
529     \bgroup
530     \box\@tempboxa
531     \nointerlineskip
532     \box\@outputbox
533   \egroup
534 \fi
535 \ifdim\ht\curr@nfbox@S@lc>0.49\textheight
536   \setbox\@tempboxa\vsplit\curr@nfbox@S@lc to 0.5\textheight
537   \setbox\@outputbox \vbox
538     \bgroup
539     \box\@outputbox
540     \nointerlineskip
541     \box\@tempboxa
542   \egroup
543 \fi
544 \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.

```

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

```

```

564         \hfil
565         \hb@xt@\columnwidth {%
566             \box\@outputbox \hss}%
567     }%
568 \egroup
569 \ifdim\ht\curr@nfbox@W@ll>0.5\baselineskip
570     \setbox\@tempboxa\vsplit \curr@nfbox@W@ll to 0.5\textheight
571     \setbox\@outputbox\ vbox\bgroup
572         \box\@outputpage
573         \nointerlineskip
574         \box\@tempboxa
575     \egroup
576 \fi
577 \@outputpage
578 \global\vsizetextheight
579 \global\colhttextheight
580 \global\colroomtextheight
581 \fi}

```

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

```

582 \let\standard@clearpage\clearpage

```

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

```

583 \def\clearpage{%
584     \if@twocolumn
585         \nf@clearpage
586     \else
587         \standard@clearpage
588 \fi}

```

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

```

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

```

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

```

608 \def\nf@clearpage{%
609 \leavevmode
610 \null\vfill\penalty-\@M
611 \write\m@ne{}}%
612 \if@firstcolumn\else
613 \null\vfill\penalty-\@M\fi
614 \ifdim\nf@totalheight>\baselineskip
615 \nf@clearpage\fi
616 }

```

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

```

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

```

We need to clear everything at the end

```

619 \AtEndDocument{\if@twocolumn
620 \ifdim\nf@totalheight>\baselineskip
621 \null\vfill\clearpage\fi
622 \fi}

```

### 3.12 Sectioning

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

```

623 \newif\if@mainmatter

```

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

```

624 \def\frontmatter{\cleardoublepage
625 \pagenumbering{roman}\onecolumn\@mainmatterfalse}

```

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

```

626 \def\mainmatter{\cleardoublepage\pagenumbering{arabic}\onecolumn
627 \pagestyle{standardpagestyle}%
628 \@mainmattertrue}

```

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

```

629 \setcounter{tocdepth}{1}

```

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

```

630 \setcounter{secnumdepth}{-1}

```

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

```

631 \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.

```

632 \newcounter{fao@partnum}
633 \setcounter{fao@partnum}{0}

```

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

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

`\part` The largest partition in the book

```
635 \renewcommand\part{%
636   \secdef\@part\@spart}
```

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

```
637 \def\EndPartIntro{\twocolumn
638   \pagestyle{standardpagestyle}}
```

`iconfill` Fill a line with the icons of increasing size. The parameters are the initial size and length of the strip

```
639 \def\@maxpart{1}
640 \def\iconfill#1#2{%
641   \expandafter\ifx\csname @icon@1\endcsname\relax\else
642     \@tempcnta=1
643     \setbox\@tempboxa=\hbox{}%
644     \loop
645       \@tempdima=#1
646       \ifnum\@tempcnta<\c@part
647         \@tempdima=2*\@tempdima\fi
648         \setbox\@tempboxa=\hbox{\unhbox\@tempboxa
649           \includegraphics[width=\@tempdima]{\csname
650             @icon@\the\@tempcnta\endcsname}}%
651         \advance\@tempcnta by 1\relax
652         \ifnum\@tempcnta>\@maxpart\relax\@tempcnta=1\fi
653         \ifdim\wd\@tempboxa>#2\else\repeat
654         \unhbox\@tempboxa
655         \fi}
```

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

```
656 \def\@part[#1]#2{%
657   \clearspread
658   \onecolumn
659   \clearspread
660   \selectcolor
661   \selecticon
662   \color{@bgcolor}%
663   \rowcolors{2}{@bgcolor!10}{}%
664   \pagestyle{partpagestyle}%
665   \refstepcounter{part}%
666   \addcontentsline{toc}{part}{\thepart\hspace{1em}#1}%
667   \protected@write\@auxout{%
668     {\string\newicon{\thepart}{\currenticon}
669     \string\gdef\string\@maxpart{\thepart}}%
670     \markboth{#1}{#1}%
671     \null
672     \hspace{-3cm}\rotatebox{30}{\parbox{\textwidth}{%

```

```

673     \iconfill{1cm}{\textwidth}\\
674     \iconfill{1cm}{\textwidth}\\
675     \iconfill{1cm}{\textwidth}\\
676     \iconfill{1cm}{\textwidth}\\
677     \iconfill{1cm}{\textwidth}}
678 \newpage
679 {\interlinepenalty \@M
680  \vspace*{-2cm}%
681  \null\rlap{\rotatebox{30}{\iconfill{1cm}{\textwidth}}}\par
682  \captionfamily
683  \fontsize{240\p@}{240\p@}\selectfont\raggedright\thepart~%
684  \parbox[b]{0.8\textwidth}{\fontsize{64\p@}{72\p@}\selectfont
685   \raggedright\null#2\par}\par\vskip80\p@
686 } \par}

\@spart We really do not use unnumbered parts
687 \def\@spart#1{\@part{#1}{#1}}

\sectionmark We do not want to have uppercase sections in the footers
688 \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
689 \renewcommand\section{\if@twocolumn\clearspread\else\cleardoublepage\fi
690  \@startsection {section}{1}{\z@}%
691                  {-3.5ex \@plus -1ex \@minus -.2ex}%
692                  {2.3ex \@plus .2ex}%
693                  {\normalfont\Large\bfseries}}

```

### 3.13 Tables

```

\tablepages Long tables at the end of a part
694 \newenvironment{tablepages}{\clearpage\onecolumn\clearspread
695  \bgroup\narrowfamily
696  \def\emph{\textsl}%
697  \begin{adjmulticols}{1}{-1.3cm}{-1.3cm}\centering}%
698  {\end{adjmulticols}\egroup}

\tablemph Some styles define \tablemph commands. Here we supply a stub
699 \AtBeginDocument{\providecommand{\tablemph}[1]{\emph{#1}}}

We define new column types for table headers:
700 \newcolumntype{d}[1]{D{.}{.}{#1}}
701 \newcolumntype{H}{>\columncolor{@tableheadcolor}[1.01\tabcolsep][1.01\tabcolsep]}c}

P columntype is much more complex. Basically we want a centered entry with
a parbox of the given width inside.:
702 \newcolumntype{P}[1]{>\columncolor{@tableheadcolor}[1.01\tabcolsep][1.01\tabcolsep]%
703  \@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  $\TeX$  to hyphenate the first word.

```

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

```

Same with `C` entry:

```

706 \newcolumntype{C}[1]{>{\columncolor{@tableheadcolor}}[1.01\tabcolsep][1.01\tabcolsep]%
707 \@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`:

```

708 \def\@fao@Centry#1#2\end@fao@Centry{%
709 \settowidth{\@tempdima}{\$-99.999\$}%
710 \@tempdima=#1\@tempdima\relax
711 \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

```

712 \def\LT@makecaption#1#2#3{%
713 \LT@mc@col\LT@cols {0}{1}{\cellcolor{white}}%
714 \rlap{\fcolorbox{white}{@tableheadcolor}{\normalsize
715 \captionfamily\large\strut
716 \textcolor{white}{#1{\MakeUppercase{#2}: }#3}}}%
717 \begin{picture}(0,0)%
718 \put(.5,-7){\color{@bgcolor}}%
719 \begin{tikzpicture}[baseline=(current bounding box.north)]
720 \fill (0,0) -- (\nf@trianglebase,0) --
721 (.5\nf@trianglebase,-\nf@trianglebase) -- cycle;
722 \end{tikzpicture}}
723 \end{picture}%
724 \raisebox{-17pt}{\strut}}

```

### 3.14 The final word

```

725 \normalsize\normalfont
726 </class>

```

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## Change History

v0.2	.....	29
\@part: Changed formatting . . .		29
iconfill: Rewrote . . . . .		29
\EndPartIntro: Deleted \clearspread		
	\newicon: Added macro . . . . .	16
	\section: Redefined . . . . .	30

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