The TOPtesi bundle

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Abstract

This file describes the TOPtesi bundle; it is a set of files designed to typeset with LaTeX a university final report that in Italian is generally called "tesi"; it was originally developed at the Technical University of Turin (Politecnico di Torino) but it was adapted for typesetting theses in any Italian university. Well... since the Erasmus student mobility is very extended and many Italian students participate in the so called *double degree* programs, their theses, or whatever they are called in other countries, may be typeset so as to comply also with the host university rules; therefore this set of files has the ambition to be suited for typesetting theses in any university in the world... This ambition can't be fulfilled, though, because of the complexity of the title page (and possibly of the legal page) requirements.

1 Introduction

The TOPtesi bundle collects a certain number of files, specifically

- a class file `toptesi.cls` to be used as the main document class; the main document may be any of a certain number of reports that in Italy are called with various names: "monografia", "monografia di laurea", "tesi di laurea", "tesi di laurea specialistica", "tesi di laurea magistrale", "tesi di dottorato", "dissertazione di dottorato", and so on. All these documents have in common the fact that they all conclude a period of university education. Moreover since they may conclude a double degree university program, they may receive foreign names such as, for example, "Projet de fin d'études", "Master thesis", and the like.

- An extension package `toptesi.sty` that contains most of the code for the real typesetting; it might be used as an extension to the report class file, although this use is discouraged.

- A second extension package `topfront.sty` that contain the commands and the typesetting macros for the title page; this file may be used as an independent extension package to be added to, say, the report class file for typesetting just the title page; this file might be used as a template for setting up the title page fixed information in languages different from Italian.

- A third extension package `topcoman.sty` that defines a certain number of user commands suitable for typesetting technical matters.

- A fourth extension package `trieste.sty` and its accompanying package option `topsiz14.clo` that is used as an option by `toptesi.cls` in order to define a certain number of variations required for theses in humanities at the university of Trieste; these variations are not that important, but they may be preferred also in other faculties so that the suitable option comes handy also in other situations.

- The logos of a certain number of Italian universities in `.eps`, `.jpg`, and `.pdf` formats; such logos are included for the user sake, but the user should pay attention to use them according to the rules and limitations of each university and it is strongly advised to look up such regulations in each university Web site.

- A documentation file `toptesi-doc.pdf` written in Italian where every feature is explained in detail; essential information is given in this English documentation.

The above files are complemented with a configuration file that any user may personalize at will; these personalizations make it easy to configure the bundle so as to make it suitable for another language; in facts the babel package contains localizations for many languages, but such localisations deal with the standard infix LaTeX names and phrases and do not cope with the thesis title page requirements.

2 User commands

The `toptesi.cls` is basically an extension of the standard class `report.cls`; it redefines the page typesetting grid, the headers and the footers, and the title page layout and commands. `toptesi.cls` does not set such crazy settings as "double spaced" text; it is intended to typeset the thesis with the quality of a LaTeX well typeset document, not as a typewriter written one. I suppose that typewriter documents have completely vanished except perhaps in the legal professions, especially in Italy where legal documents have to be written on special paper produced by the State Polygraphic Institute and carry a watermark and the Republic's Seal; without a special printer it would be very difficult to typeset from a computer on such a custom paper.

Theses very often are full of specialized material: formulas, diagrams and pictures, texts written in non latin alphabets, special symbols for philological mark-up, and the like; a common typewriter would not be suitable and the quality of the contents requires professional typesetting; this is why I strongly believe that instructions on typesetting styles that refer to the good old times of mechanical typewriters should be banned.

Most new commands refer themselves to the information that should be typeset in the title page; some class options specify special stylistic page details; the rest

is simple and traditional LaTeX mark-up as it is implemented in the LaTeX kernel and in the report document class.

2.1 Class options

The class accepts all the options accepted by the report document class plus the ones defined here:

chapterbib Allows to typeset a list of references at the end of each chapter and the bibliography items are numbered with a *chapter.item* indication.

classica Specifies a general modification of certain details that are supposed to be more adequate in the humanities; specifically this option lets old style numbers to be used for certain numerical pieces of information; some variations are also introduced in the title page.

cucitura In two sided printing it is better to move the typesetting grid towards the outer edges so as to cope with the thesis binding that is generally not made up by sewing together a number of signatures; the default outer displacement is fixed to 7mm, but it can be customized by means of a proper entry in the configuration file or by an explicit command in the preamble.

14pt Extends the normal size choice to 14 points; it is appreciated in various fields of humanities, but I would discourage this use in a technical thesis, where 10 point perhaps is too small, but 11 point or 12 point typesetting may be adequate. It is worth mentioning that this option implements the font settings in a different way from what is being done with the `extsizes` package bundle; this is why the original `size14.clo` class option file has been renamed `topsiz14.clo` so as to avoid conflicts with the `size14.clo` file belonging to that bundle.

autoretitolo This option modifies the left hand (even numbered) pages in two side typesetting; normally the even numbered page headings contain the chapter title, while the odd numbered ones contain the current section title. If the `classica` option has been specified, then with this option it is possible to have even numbered headings contain the author's name and the thesis title, while the odd numbered ones contain the chapter title. Since the thesis title might be too long to fit in the header together with the author's name, the `\title` macro as been modified so as to accept an optional short title, similarly to the sectioning commands.

oldstyle Also this option works only if `classica` had already been specified; it typesets several numerical data with the old style numbers.

2.2 Title page commands

The user must specify a certain number of commands in order to have the title page contain all the required information. It must be specified that most of these

commands may be used in the configuration file so as to avoid repeating the same data for different "reports"; well, a university student might write a bachelor's "monografia", then a master thesis and finally a doctoral dissertation; why should s/he repeat his/her name, the name of the institution, and so on? all the user commands for the title page redefine default values or strings; therefore if none of the required information is given, the default values and strings are typeset, possibly with hilarious results...

Since most users are supposed to be Italian, the user commands are mostly in Italian; the following description gives their names and meanings; every command receives one argument; only the command \title accepts an optional argument according to the usual LATEX syntax:

$$\command[opt\_arg]{req\_arg}$$

\frontespizio is the actual command that typesets the title page and this command uses all the information that is passed to it by means of the following commands.

\monografia sets the bachelor's report style and retrieves the report title

\titolo gets the thesis title and an optional thesis short title

\sottotitolo gets the thesis subtitle if any

\materia gets the name of the subject the thesis deals with

\Materia alias for \materia

\direttore gets the name of the Doctoral School Director

\coordinatore gets the name of the Doctoral School Coordinator

\QualificaDirettore gets the phrase that describes the director or coordinator official position; by using the command \direttore the default phrase "Direttore della Scuola di Dottorato" is printed above the "director's" name; if \coordinatore is used the default phrase "Coordinatore della Scuola di Dottorato" is printed instead. If neither one is applicable or a description in another language is required, this macro is available for specifying such position.

\relatore gets the name of the thesis first supervisor

\secondorelatore gets the name of the second supervisor

\terzorelatore gets the name of the third supervisor; it is assumed that the number of supervisors never exceeds three.

\tutore gets the name of the doctorate tutor; there is no difference with regards to the \relatore, but the default phrase "Tutore" is printed above this person's name.

\TutorName gets the phrase that describes the tutor position, possibly in a different language.

\AdvisorName gets the string that qualifies the supervisor(s); the default string is "Relatore:" or "Relatori:" for the plural; in another language this command is used to define the string, say, "Supervisors:" if the thesis has been supervised by more than one person.

\CoAdvisorName gets the string that qualifies the co-supervisor(s); the default string is "Correlatore:" or "Correlatori:" in the plural; this command may be used to define the string, say, "Corapporteur:" in a French Projet de fin d'études.

\candidato gets the name of the male author

\candidata gets the name of the female author

\secondocandidato gets the name of the second male author

\secondacandidata gets the name of the second female author

\terzocandidato gets the name of the third male author

\terzacandidata gets the name of the third female author; most often the thesis author is just one person; but there are some institutions where group final works are accepted; it is assumed that the group does not contain more than three authors. The specification of the gender allows the software to determine the correct labeling phrase in the proper gender and proper number. For different languages there might be no difference in gender but there is a difference in the plural ending.

\CandidateName gets the string that describes the student status in a foreign language or even in Italian; the default string is "Candidato:" (with colons) adjusted to masculine or feminine, singular or plural; with the option `classica` the string becomes "Laureando:"; in other languages it is necessary to specify this string in the proper gender and number.

\sedutadilaurea gets the date of the final exam, or presentation, or defense of the thesis; if this date is omitted the default date is the current month and year in Italian.

\esamedidottorato an alias for **\sedutadilaurea** to be used for doctoral dissertations.

\ciclodidottorato gets the roman numeral that specifies the doctoral cycle.

\CycleName redefines the string that expresses the name of the doctoral cycle; by default this is "ciclo" but this command is useful to set the name in a different language.

\corsodilaurea gets the proper name of the degree course; the phrase that describes the degree course is specified, if necessary, with the following command; with this one you specify just, say, "Electrical Engineering"

\CorsoDiLaureaIn gets the generic name of the degree course, for example "Bachelor Degree in"

\TesiDiLaurea gets the generic phrase that describes the thesis; by default it is "Tesi di Laurea"; in English one might set it to "Master Thesis".

\NomeMonografia gets the phrase that describes the bachelor's report; by default it is "Monografia di Laurea". In some Italian universities it might be called "Tesi di Laurea", so that the master thesis should be given another qualification, for example "Tesi di Laurea Magistrale".

\NomeDissertazione gets the phrase that describes the doctoral thesis; by default it is "Tesi di Dottorato".

\InName infix strings often require adjusting of the prepositions; this macro gets the preposition that stands for "in" (the default). In German it might become "auf".

\NomeAnnoAccademico defines the infix string that stands for "Academic year". This macro is defined only if the option `classica` is in force; after all the command `\annoaccademico` is defined only with that option.

\logosede specifies the name of the file that contains the university logo; no default is defined; rather a warning message is issued if no name is given or the file is missing, but typesetting goes on without the inclusion of any logo.

\setbindingcorrection sets up the length to displace the text block to the external margin so as to have a wider internal margin to accommodate for the binding correction. Its argument is not optional and is used to modify the default correction of 7 mm.

Since the infix strings are all memorized into control sequences and for each of them it is possible to use a defining command, all strings can be modified at will, so that there is no difficulty to localize the package in another language; this comes particularly handy for the Erasmus students on double degree programs.

As a final remark notice that the commands for typesetting the title page are contained in the package `topfront.sty`, which can be used as an autonomous extension to the `report` document class. One could easily typeset just the title page with a separate TeX source file so as to test the completeness of the commands and coherence of the configuration file or for just printing the isolated title page.

2.3   Typesetting commands

The bundle and the TOPtesi document class accept all LaTeX commands provided by the LaTeX `kernel`, the `report` document class, and the `graphics` extension package, besides those provided by the `babel` package.

With this respect it must be underlined that the Italian and English languages are specified by default, the Italian one being the default language. An initial specification of `\selectlanguage{english}` sets the English language as default. Should a student typeset the thesis in French, it would be necessary to specify the option `french` among the *class* options, and so start the document by specifying `\selectlanguage{french}`. But the user should pay attention to use `babel` in the proper way:

- Due to the way LaTeX classes load the requested files, and to the fact that the `babel` package has already been loaded by the `toptesi` class, the user cannot reload it with a different list of language options; therefore the latter language options *must be specified* as global class options; therefore, if the thesis has to be typeset, fore example, in French, is is necessary to do the following:

  ```
  \documentclass[...,french,...]{toptesi}
  ...
  \begin{document}
  \selectlanguage{french}
  ```

- With the 2010 TeX system distributions, both TeXLive and MiKTeX, all known (to LaTeX) language hyphenation rules are preloaded; with other less up to date TeX system distributions this might not be true. Remember that `babel` macros select the language typesetting rules, but hyphenation is activated only if the program format file has been generated with the pertinent language hyphenation rules. You can check this detail by reading the first dozen of lines of your thesis `.log` file; there is the list of all language hyphenation rules that are available in the format file. While (American) English is the default and almost any distribution of the TeX system has many language defaults, it is more likely that French is preloaded while Italian is not.

  Should the required language(s) be missing, the user is forced to read his/her distribution instructions, so as to find out how to configure his/her system so as to consider the languages s/he wants to work with, and finally s/he must recreate the format files and put them in the proper places of the standard or the local folder tree. The user is invited to carefully investigate on these fine points and to configure the system properly; it would be very upsetting using fine software for producing a perfectly typeset thesis that, unfortunately, has wrong hyphenation points! Luckily enough, recent distributions of the TeX system have all the known hyphenation rules preloaded; in any case even older distributions have available command line commands or graphical user interfaces that make it easy to perform the tasks of changing the list of preloaded hyphenation rules and rebuilding all the format files, moving them to the proper places.

The TOPtesi bundle adds very little to the user commands; nevertheless the package `topcoman.sty`, that is part of this bundle and is automatically loaded,

defines some useful commands for typesetting technical matters in such a way as to fulfill the ISO regulations. Some of these commands are already defined with the `babel` Italian option, but if your thesis is written in different languages it may happen that such commands are not available any more when you select another language; with the presence of the definitions contained in `topcoman.sty` such useful commands remain available with every language.

The following description specifies these particular commands.

`\DeclareSlantedCapitalGreekLetters` does exactly what its name means: it changes the definitions of the mathematical capital Greek letters so that they are typeset in "italics"; they are in effects taken from the math italic alphabet, instead of the default roman one.

`\ensuremath` should be already defined in the LaTeX kernel; should one still be using an obsolete version, this command gets available anyhow.

`\ohm` typesets an upright capital omega even if the capital Greek letters are in italics; another good point is that `\ohm` can be used also in text mode.

`\ped` inserts a subscript in upright type; the ISO regulations require the use of italics for physical or mathematica quantities, and upright type for whatever is not a variable, from the names of functions (such as sin, cos, log, etc.), to the indices that contain information on something that is not variable. This means that V_i requires an italic index to imply that the object V is the i-th in a set, while, say, $V_{\max}$ indicates the maximum value of the variable V. This command may be used both in math and in text mode.

`\ap` similarly `\ap` inserts an apex in upright type, both in math and in text mode.

`\unit` sets the unit of measure close to the numerical measure by insetting a non breakable thin space and by setting the units of measure in upright type; this works both in math and text mode. Of course it is necessary to input the `\unit` command without intervening spaces in the source file; it's necessary to typeset, say, `35\unit{km}` and to avoid to input `35␣\unit{km}`. This command, as it is defined, conflicts with the definition of the homonymous command `\unit` as defined by the `units` package, but since this latter package is necessarily input *after* `topcomand.sty` is read, the last definition is the one in force, therefore if one wishes to use the `units` package s/he should not encounter any inconsistencies.

`\micro` sets the decimal prefix μ in typesetting units of measure.

`\gradi` sets the small circle that defines the sexagesimal degrees; it may be used also for the celsius degrees by writing in the source file, say, `35\unit{\gradi C}` in order to get $35\,°C$.

`\gei` inserts the imaginary unit in upright type with the "spelling" used by the technologists: "j". This command may be redefined, of course, but this strange name is due to the fact that nowadays the letter "j" in Italian is

called with the English name (much shorter than the traditional Italian name "i lunga") and the indicated spelling "gei" is the phonetic Italian rendering of the English word. The imaginary unit is not a variable, it is an operator, so that the ISO regulations require for this symbol an upright type.

`\eu` inserts the Euler number symbol "e" in upright type; since this entity is not a variable, but it is a mathematical constant, the ISO regulations require it to be written in upright type. The ISO regulations require the upright type for "e" and any mathematical constant, but the electron charge e is typeset in math italics because this physical "constant", not a mathematical one.

`\listing` requires for its argument the name of a file and typesets it in verbatim mode; this command is very useful for typesetting the listings of the programs that were written for the thesis; for best results it is recommended that the source program has lines not longer than 80 characters. There exists an external package `listings`, that the user might want to load, that does a similar work in a more professional and configurable way; our package simpler command might be preferable for its simplicity.

All these commands are defined into the separate package `topcoman.sty` that can be used as an independent extension package with (possibly) any document class.

3   Format PDF suitable for archiving

Politecnico di Torino as well as many other Italian and foreign universities are moving towards archiving theses in electronic format, specifically in the PDF one. The problem of course is: "Will it be possible to read the archived documents, say, fifty years from now?"

This essential question has been answered by the International Standards Organization (ISO) that in 2005 published the regulation ISO 19005-1. This regulation defines a PDF variant suitable for archiving, named PDF/A, that has two sub-formats distinguished as PDF/A-1a, and PDF/a-1b. The 'a' sub-format is more exacting, while the 'b' one is less stringent.

The requirements for the 'a' sub-format imply not only those imposed on the 'b' one, but also that all characters are conforming to UNICODE and that the logical structure of the document be maintained. The requirements for the 'b' sub-format are that the document must be reproducible without modifications exactly as it was at the moment of archiving. Both sub-formats must contain *metadata* that are searchable even without decompressing the normally compressed PDF file, and that contain information useful for archive maintenance; among these informations, of course, the PDF/A category the document belongs to, the document title, the authors, and few other optional information, such as the keywords that ease up the library search.

Since version 1.40, the program `pdflatex`, possibly with the addition of some patches, is capable of producing PDF/A-1b conforming files, provided that some

attention is put into the manipulation of the source file of the thesis. With the distribution of the 2008 version of the T_EX system, the executable `pdflatex` has version number 1.40.9 and should be capable of producing PDF/A-1b files without the need of any patch.

The particular attention needed to avoid problems with the PDF/A certification is summarized as follows:

- The preliminary essential requirement is that the `pdflatex` used to typeset the thesis be sufficiently recent to support the PDF/A requirements. It's better to have the most recent distribution of the T_EX system installed on your PC. Do not try to typeset the thesis with the 'old' L^AT_EX; you *must* process the input thesis file(s) with `pdflatex`; in the following, no specific check will be made in order to verify if you are actually using `pdflatex`. If you really need to use the 'old' L^AT_EX, you get a DVI file and you need to transform it with `dvips` into a PS file; at this point you have lost the possibility of exploiting the internal commands of `pdflatex` version 1.40.9 or later. You can still produce a PDF/A final document, but you have to transform it with `ghostscript`; read the `ghostscript` (version 8.61 or later) documentation file `ps2pdf.html` in order to find out how to produce the correct PS to PDF/A transformation.

- Download from CTAN and install the package `pdfx`, if it is not already part of your T_EX system installation.

- Install in the main `pdfx` directory a good version of a color model profile file, such as, for example, `ECI-RGB-V1.0.icc` (see in the download page of the site `www.eci.org`).

- If your thesis main file, the one you run your `pdflatex` on, is named, say, `JohnSmithMasterThesis.tex`, prepare in the same directory another file named `JohnSmithMasterThesis.xmpdata` that contains the *metadata* relative to the thesis; pay attention to follow the stringent syntax described and exemplified in the `pdfx` documetation. A minimal set of *metadata* example would be the following one:

  ```
  \Title{Experiments in Trichotetratomy}
  \Author{John Smith}
  ```

  Keywords require a specific XML style format that can be examined in the package documentation.

- Some mathematical symbol commands obtained from the standard L^AT_EX set-up and the standard mathematical fonts require some patching that is already included in this `ToPtesi` bundle; but it is not excluded that with other fonts similar patches might be requested.

- Use only PNG and JPEG images with RGB color profiles.

- If you include PDF images that contain some text, be sure that the font for this text is completely embedded in the included file. Should the PDF file come from an external drawing program be sure to configure that program so that it embeds all the fonts used in the image. If you don't succeed, open the PDF file with the free program `inkscape` and save it back in PDF format; the missing fonts will be replaced with their traced outlines and this will not disturb the PDF/A conformity.

- Verify your final PDF file with a suitable program and do not give up doing the necessary corrections or modifications while the verification program keeps saying the this or that is not conforming to the PDF/A specification. A suitable program is the Preflight plug-in of Adobe Acrobat Professional version 8 or later, but this, although the most authoritative, is a commercial program; probably your university has special facilities for this task.

Up to day the realization of a PDF/A conforming file sets forth several problems that are of great concern for the large Institutions that have thousands of document a year to archive; it is not a question implied in the free nature of the `pdflatex` program, that, on the opposite, according to our experience has a very high rate of success in producing PDF/A conforming documents. If you stick to the default TeX system fonts and use this patched version of `ToPtesi` you should be able to avoid most problems.

4 Documented code

4.1 The class code

Here begins the usual machinery for stating the required TeX format and for sharing some code between the driver and the class part of the code, since they are supposed to carry the same date and version number, besides the description string.

```
1 ⟨∗class⟩
2 \NeedsTeXFormat{LaTeX2e}
3 \ProvidesClass{toptesi}%
4 [2010/11/14 v.5.01 Class for typesetting university theses]
```

The class itself is very simple since it requires just the `report` document class and some packages with some default options. All options specified for the `toptesi` class are passed on to the `report` class; the latter, on turn, is called with the `a4paper` option. According to the LaTeX machinery of option passing the options passed on to the loaded class should be appended to the existing options, so that if `letterpaper` was specified in the calling statement of `toptesi`, this last option would override the default `a4paper` option. The same holds true for the other package options except for the encoding name used as an option for the `inputenc` package; this simply does not work and the package is not loaded any more as it was in the previous versions[1]. Similarly if another language was specified in the

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[1]Thanks to Enrico Gregorio who pointed out this feature.

list of `toptesi` options, this language would be appended yo the `babel` package default options and would become the default language.

```
5 \DeclareOption*{\PassOptionsToClass{\CurrentOption}{report}}
6 \ProcessOptions\relax
7 %
8 \LoadClass[a4paper]{report}
9 \RequirePackage[english,italian]{babel}
10 \RequirePackage{toptesi}
11 %
12 ⟨/class⟩
```

4.2   The `toptesi.sty` code

The greatest part of the `toptesi` class code is saved into a separate file partly for backward compatibility reasons (before version 3.x `toptesi` was just an extension to the `report` class) and partly because it might be used as a standaolone package, although, take notice, it might conflict with the `book` class code and certainly it is incompatible with the `article` class. This package must contain its own TeX format declaration and might have different version and subversion numbers compared to the class file and the other invoked packages that are part of the same bundle.

```
13 ⟨*topsty⟩
14 \NeedsTeXFormat{LaTeX2e}
15 \ProvidesPackage{toptesi}%
16 [2010/11/14 v.5.01 Extension for toptesi.cls]%
```

We start with defining the debugging macros; these trace commands and macros and are the usual one I use for debugging. I know the `trace` package is supposed to be much better, but I am used to these ones.

```
17 \def\TRON{\tracingcommands \tw@ \tracingmacros \tw@}
18 \def\TROFF{\tracingcommands\z@ \tracingmacros \z@}
19 \let\TROF\TROFF
```

Now we define the specific package macros: `classica` and `trieste` are identical; `trieste` is maintained for backward compatibility. The option `14pt` is for choosing a normal size of 14pt; the class option file `topsiz14.clo` has a name that should not conflict with other similar class option packages and is in line with the other standard `size??.clo` files. `chapterbib` allows to set a list of references at the end of each chapter.

```
20 \newlength\T@Pbinding\setlength\T@Pbinding{7mm}\def\setbindingcorrection#1{\T@Pbinding=#1}
21 \newif\if@binding \@bindingfalse
22 \newif\ifT@Ppdfa  \T@Ppdfafalse
23 \newif\ifchapterbibliography \chapterbibliographyfalse
24 \DeclareOption{cucitura}{\@bindingtrue}
25 \DeclareOption{14pt}{\input{topsiz14.clo}}
26 \DeclareOption{chapterbib}{\chapterbibliographytrue}
27 \DeclareOption{trieste}{\AtEndOfPackage{\RequirePackage{trieste}}}
28 \DeclareOption{classica}{\AtEndOfPackage{\RequirePackage{trieste}}}
```

```
29 \DeclareOption{pdfa}{\T@Ppdfatrue}
30 %
31 \ProcessOptions\relax
```

The `graphicx` package is loaded by default; it is required for inserting the university logo; if the user forgets that this package has already been loaded nothing dramatic happens, because the `\usepackage` and `\RequirePackage` macros perform the necessary tests in order to avoid reloading the same packages again and again.

```
32 \RequirePackage{graphicx}
```

The text height gets set so as to cope with the standard UNI A4 size; in any case the typesetting grid is set to an height of 585pt and is then rounded to an integer number of lines depending on the size option that has been chosen. The `\topmargin`, `\headheight` and `\headsep` parameters have already been set in the size class option file, so that here just a small adjustment is made.

```
33 \textheight 585pt
34 \divide\textheight by \baselineskip
35 \multiply\textheight by \baselineskip
36 \advance\textheight by \topskip
```

For the text grid width a certain reduction is made if the extra size of 14pt is chosen.

```
37 \ifx\f@size\@xivpt
38     \textwidth=138mm
39 \else
40     \textwidth=150mm
41 \fi
```

Because of the above adjustment the right and left margins must be recomputed; in any case they must be recomputed because the default positioning of the text grid is centered; only if the class option `cucitura` is specified (`\if@binding` in this case is true) the text grids are moved to the outside in order to leave a wider inner margin. At the same time if the text grid is moved to the outside, the marginal note width must be reduced accordingly. These changes are executed at the `\begin{document}` stage.

```
42 \oddsidemargin=\paperwidth
43 \advance\oddsidemargin -\textwidth
44 \divide\oddsidemargin \tw@
45 \advance\oddsidemargin -1in
46 \evensidemargin=\oddsidemargin
47 \marginparwidth\oddsidemargin
48 \advance\marginparwidth 1in
49 \advance\marginparwidth-2.5\marginparsep
50 %
51 \AtBeginDocument{%
52 \if@binding
53  \typeout{Messaggio Toptesi: Ricalcolo i margini}
54  \advance\oddsidemargin \T@Pbinding
55  \advance\evensidemargin -\T@Pbinding
```

```
56  \advance\marginparwidth -\T@Pbinding
57  \advance\marginparwidth -\T@Pbinding
58 \fi}
```

We now establish the page style. We start by setting to "empy" the tokens that keep the left and the right marks; we define a box so as to set the headers inside this box; we redefine also the plain page styles; it is actually a leftover from the previous versions when the page number was set at the foot in bold face, but we leave it here without the bold face specification, so that in future versions folios may be redefined in a common way with the other page styles. Notice that in all page styles folios are always in the footers. By defining \lapagina to be equivalent to \thepage we can later on redefine \lapagina the way we like; we actually do so with the option classica.

```
59 \def\lapagina{\thepage}
60 \mark{{}{}}
61 \newbox\@intesta
62 %
63 \def\ps@plain{\let\@mkboth\@gobbletwo
64 \def\@oddfoot{\null\hfill {{\lapagina}}\hfill \null}\def\@oddhead{}
65 \def\@evenhead{}\let\@evenfoot\@oddfoot}
```

Other page styles are defined in a different way according to the choice of one side or two side printing. In any case the header is set without capitalization as it happens in all the default document classes, and it is underlined at a fixed distance from the base line. If the chapter or section heading a warning is issued so as to invite the user to exploit the sectioning commands optional short argument.

```
66 \if@twoside
67     \def\ps@headings{\let\@mkboth\markboth%
68     \def\@oddfoot{\null\hfill {{\lapagina}} \hfill\null}
69     \let\@evenfoot\@oddfoot
70     %
71     \def\@evenhead{\setbox\@intesta\hbox{\footnotesize\slshape
72         \leftmark}%
73     \ifdim\wd\@intesta>\textwidth \headWarn{\chapter}\fi%
74     \underline{\makebox[\textwidth]{\footnotesize\slshape
75         \strut\leftmark}}}%
76     \def\@oddhead{\setbox\@intesta\hbox{\footnotesize\slshape
77         \rightmark}%
78     \ifdim\wd\@intesta>\textwidth \headWarn{\section}\fi%
79     \underline{\makebox[\textwidth]{\footnotesize\slshape
80         \strut\rightmark}}}%
81     \def\chaptermark##1{\markboth{\thechapter\ -- ##1}{}}
82     \def\sectionmark##1{\markright{\ifnum\c@secnumdepth>\z@
83     \thesection\ -- \fi ##1}}}
84 \else
85     \def\ps@headings{\let\@mkboth\markboth
86     \def\@oddfoot{\null \hfill {\lapagina} \hfill \null}
87     \def\@evenfoot{}
88     \def\@oddhead{\setbox\@intesta\hbox{\footnotesize\slshape
89         \rightmark}%
```

```
90    \ifdim\wd\@intesta>\textwidth \headWarn{\chapter}\fi%
91    \underline{\makebox[\textwidth]{\footnotesize\slshape
92        \strut\rightmark}}}%
93    \def\chaptermark##1{\markright{\thechapter\ -- ##1}}}
94 \fi
95 %
96 \def\headWarn#1{\PackageWarning{toptesi}{%
97    THE HEADING IS TOO LONG\MessageBreak
98    Use the optional argument of command \string#1\MessageBreak
99    See the LaTeX Handbook (1994) on section C.4.1\MessageBreak}}
```

The various tables of contents or figures or tables require some boolean variables to be defined; in facts, although the ISO regulations require that every technical report contains the list of figures and/or tables, in Italy theses rarely contain these lists; after all: is a thesis a technical report? We require also some other boolean variables to handle the difference between front matter and main matter; this differences are already defined in the book document class, but not in the report one.

```
100 \newif\iffigurespage
101 \newif\iftablespage
102 \newif\ifnumeriromani
103 \newif\iffrontmatter
```

The \frontmatter and \mainmatter commands are defined and at the beginning of the document the default situation of front matter is established.

```
104 \def\frontmatter{\clearpage\ps@plain\pagenumbering{roman}%
105    \numeriromanitrue\frontmattertrue\@openrightfalse}
106 \def\mainmatter{\if@twoside\@openrighttrue\fi
107    \clearpage\ps@headings\pagenumbering{arabic}%
108    \numeriromanifalse\frontmatterfalse}
109 \AtBeginDocument{\frontmatter}
```

The main matter is automatically established with the first \chapter command issued by the user; this means that every command that starts a section at the "chapter" level within the front matter must be executed without an explicit call to \chapter.

By default we set to false the boolean variables that control the typesetting of the list of figures and the list of tables.

```
110 \figurespagefalse
111 \tablespagefalse
```

We have to define the front matter sectioning names \sommario and \ringraziamenti so as to remain in the front matter.

```
112 \def\sommario{%
113 \iffrontmatter\else\frontmattertrue\fi
114 \if@openright\cleardoublepage\else\clearpage\fi
115 \global\@topnum\z@
116 \@afterindentfalse
117 \@schapter{\summaryname}%
118 \addcontentsline{toc}{chapter}{\summaryname}%
```

```
119          }
120 %
121 \def\ringraziamenti{%
122  \iffrontmatter\else\frontmattertrue\fi
123  \if@openright\cleardoublepage\else\clearpage\fi
124  \global\@topnum\z@
125  \@afterindentfalse
126  \@schapter{\acknowledgename}%
127  \addcontentsline{toc}{chapter}{\acknowledgename}%
128          }
```

The strings \summaryname and \acknowledgename are not defined in any language option to babel. Default definitions are given below, but the user must define new names for localizing the package in a language different from Italian and English.

We have to modify the \chapter and \part commands so that as the user first issues one of these commands the typesetting style is switched to the one for the main matter.

```
129 \renewcommand\chapter{%
130    \iffrontmatter\mainmatter\fi
131    \if@openright\cleardoublepage\else\clearpage\fi
132    \thispagestyle{plain}%
133    \global\@topnum\z@
134    \@afterindentfalse
135    \secdef\@chapter\@schapter}
136 %
137 \renewcommand\part{%
138    \iffrontmatter\mainmatter\fi
139    \if@openright\cleardoublepage\else\clearpage\fi
140    \thispagestyle{empty}%
141    \if@twocolumn\onecolumn\@tempswatrue\else\@tempswafalse\fi
142    \null\vfil
143    \secdef\@part\@spart}
```

At the same time we have to make sure that \tableofcontents, \listoftables and \listoffigures do not exit from the front matter style. We assume these commands are issued while in front matter, the default at the begin document step, so we have to avoid to use starred or un-starred \chapter commands.

```
144 \renewcommand\tableofcontents{%
145 \if@twocolumn\@restonecoltrue\onecolumn\else\@restonecolfalse\fi
146 \if@openright\cleardoublepage\else\clearpage\fi
147 \global\@topnum\z@
148 \@afterindentfalse
149 \@schapter{\contentsname}%
150 \@starttoc{toc}%
151 \clearpage
152 \if@restonecol\twocolumn\fi
153          }
154 \renewcommand\listoffigures{%
155      \if@twocolumn\@restonecoltrue\onecolumn\else\@restonecolfalse\fi
156      \if@openright\cleardoublepage\else\clearpage\fi
```

```
157        \global\@topnum\z@
158        \@afterindentfalse
159        \@schapter{\listfigurename}
160        \@mkboth{\listfigurename}{\listfigurename}%
161        \@starttoc{lof}%
162        \clearpage
163        \if@restonecol\twocolumn\fi
164        }
165 \renewcommand\listoftables{%
166        \if@twocolumn\@restonecoltrue\onecolumn\else\@restonecolfalse\fi
167        \if@openright\cleardoublepage\else\clearpage\fi
168        \global\@topnum\z@
169        \@afterindentfalse
170        \@schapter{\listtablename}%
171        \@mkboth{\listtablename}{\listtablename}%
172        \@starttoc{lot}%
173        \clearpage
174        \if@restonecol\twocolumn\fi
175        }
```

We need to define `\indici` that typesets the table of contents and, optionally, the lists of tables and/or figures while assuring that the front matter style is used for typesetting.

```
176 \def\indici{%
177 \iffrontmatter\else\frontmattertrue\fi
178        \tableofcontents
179        \iftablespage
180                {\addvspace{10pt}
181                \let\saveaddvspace=\addvspace
182                \def\addvspace##1{}
183                \listoftables
184                \let\addvspace=\saveaddvspace}
185        \fi
186        \iffigurespage
187                {\addvspace{10pt}
188                \let\saveaddvspace=\addvspace
189                \def\addvspace##1{}
190                \listoffigures
191                \let\addvspace=\saveaddvspace}
192        \fi
193 }
```

Command `\onecolumn` is not actually necessary; it simply overrides the possible misused option `twocolumn` in the opening document class statement; no thesis should be typeset in double column.

```
194 \onecolumn
```

Here come some declarations for vertical justification and for avoiding an hyphenated word at the bottom of a page

```
195 \if@twoside
196        \flushbottom
```

```
197 \else
198     \ifx\@xivpt\f@size
199         \raggedbottom
200     \else
201         \flushbottom
202     \fi
203 \fi
204 \brokenpenalty=10000
```

Here comes a questionable command and/or environment; good typesetting requires the baseline skip to be proportioned to the font size, generally it is some 10–20% larger than the font size. In some reasonable instances a wider or a narrower baseline skip might be required; the LaTeX kernel allows to use the `\linespread` command; in the previous versions of this bundle a command `\interlinea` and an environment `interlinea` were defined so as to allow to set the line spread factor. The experience has shown that students tend to use this command so as to typeset a poor and thin thesis on more pages. Well, every instrument can be judiciously or maliciously used; this is one of those double sided instruments.

```
205 \def\interlinea#1{\linespread{#1}\selectfont}
206 \def\endinterlinea{\par}
```

But whatever might be the current line spread factor within figures and tables we reset this factor to the unit value; floating bodies do not belong to this or that section of text where a different spread factor might be reasonable.

```
207 \def \@floatboxreset {%
208         \reset@font
209         \linespread{1}%
210         \normalsize
211         \@setminipage
212 }
```

Since we are at it we define the floating bodies placing parameters; not only the values "here", "top of the page" and "bottom of the page", that we set as default ones leaving to the user to explicitly specify the "page of floats", but also the numerical and geometrical parameters that control the float placements. These geometrical parameters are critical and everybody has his/her own ideas of what are the best values for them. According to my experience these parameters work quite well but I would not suggest them for every kind of typewritten document. In particular the zero value for the text fraction appears strange, but students have the tendency to create large figures (more than large tables) and these tend to clog the figure queue. A 100% space for the top of page figures and a requirement of 0% text allows large floats to exit the queue provided they do not exceed the text height.

```
213 \def\fps@figure{htb} \def\fps@table{htb}
214 %
215 \setcounter{topnumber}{2}
216 \def\topfraction{1}
217 \setcounter{bottomnumber}{1}
218 \def\bottomfraction{.5}
```

```
219 \setcounter{totalnumber}{3}
220 \def\textfraction{0}
221 \def\floatpagefraction{0}
222 \setcounter{dbltopnumber}{2}
223 \def\dbltopfraction{1}
224 \def\dblfloatpagefraction{0}
```

One command that the default definition does not satisfy me very much is the caption command; actually it is the internal `\@makecaption` macro that performs the job. The point is that I prefer a narrower justified caption rather than a caption where the last line is just a short word or the right segment of an hyphenated word. If one sets the `\finalhyphendemerits` counter to an incredibly high value, one might succeed in avoiding hyphenation in the last word of a caption; but this might lead to a very loose typesetting of the caption paragraph, especially if the horizontal box that contains it hardly exceeds the caption width. I initially set the caption width (a new length) to the overall text width diminished by 3em; then if the caption text, inclusive of the caption type string and number, is shorter than the text width it is typeset as centered text; if it exceeds the text width it is set as a justified paragraph whose line width equals the established caption width; but in any case the last line of the paragraph is measured and if it is shorter than one third of the caption width, this width is shortened a little bit and the paragraph is set again with this shortened caption width; in order to be sure that one iteration is sufficient, the shrinking of the caption width must be computed according to the number of lines the paragraph occupies. In order to count the number of lines the caption paragraph occupies it is necessary to recall that the first line occupies a vertical space that equals `\topskip` while the other lines occupy a vertical space equal to `\baselineskip`; the latter one is generally larger than `\topskip` therefore the integer division of the height of the vertical box divided by the `\baselineskip` is truncated to count a line less than the true value. In our case if the caption does not stay in one line, its text is typeset in a vertical box with a line spread of 0.95 so as to make the caption a little more compact than the regular text. The baseline skip is a little shorter than the regular one, but it should still exceed the default `\topskip`; when we first typeset the caption in a vertical box we strip off the last line and we must remember the presence of this line in our arithmetics. If the length of the stripped last line is longer that one third of the caption width, then the vertical box is recomposed by restacking the individual lines, but if this last line is shorter than one third of the caption width, this width is recomputed in this way: let $N - 1$ be the number of lines obtained with the integer division, i.e. one line less than those actually contained in the vertical box. Let x be the initial caption width and x_2 the last line width; let y be the new caption width; then the total length of the caption of width x is $Nx + x_2$ and this should be distributed over $N + 1$ lines; if we obtained the new caption width y by dividing the total length by $N + 1$ we should be able to typeset the whole caption with all the lines of equal length. This does not actually take place because the new lines do not necessarily contain the same amount of inter word space, some words might have been hyphenated in a different way, and so on. Moreover we do not want a caption that barely exceeds the length of `\captionwidth` to be retyped into a

two line caption width that is about one half of the width of the other captions. Therefore we allow for some white space in the last line by computing the new caption width with the following formula

$$y = \frac{(N + 0.5)x + x_2}{N + 1}$$

```
225 \newdimen\captionwidth
226 \long\def\@makecaption#1#2{%
227     \begingroup
228     \small \parskip\z@ \parindent\z@
229     \finalhyphendemerits 100000\relax
230     \linespread{0.95}\selectfont
231     \vskip \abovecaptionskip
232     \captionwidth=\hsize
233     \advance\captionwidth-3em
234     \setbox0 \hbox{#1.\quad#2}%
235     \ifdim\wd0>\hsize
236         \setbox1 \vbox{\hsize=\captionwidth
237         \unhbox0\par\global\setbox2\lastbox}%
238         \setbox2\hbox{\unhbox2}%
239         \ifdim\wd2<0.333333\captionwidth
240             \count255=\ht1 \advance\count255 \dp1
241             \divide\count255\baselineskip
242             \advance\count255\@ne
243             \@tempdima=\wd2
244             \advance\@tempdima \count255\captionwidth
245             \advance\@tempdima 0.5\captionwidth
246             \advance \count255\@ne
247             \divide \@tempdima \count255
248             \captionwidth=\@tempdima
249             \setbox0 \vbox{\hsize\captionwidth
250             #1.\quad#2}
251         \else
252             \setbox2\hbox to\captionwidth{\unhbox2 \hfill}%
253             \setbox0\vbox{\unvbox1\box2}%
254         \fi
255     \fi
256     \makebox[\hsize]{\box0}%
257     \endgroup
258 }
```

The option `chapterbib` requires a redefinition of the `thebibliogrpahy` environment in case a separate reference list is required for every chapter. The point is that for this task the reference key must contain also the chapter number; the rest is simply a redefinition of the environment that behaves differently according to the chosen option. In any case the bibliography goes to the table of contents as a unnumbered chapter or section.

```
259 \def\redef@bibitem{\def\@bibitem##1{\item\if@filesw
260         \immediate\write\@auxout
```

20

```
261         {\string\bibcite{##1}{\thechapter.\the\c@enumi}}\fi\ignorespaces}}
262 %
263 \def\thebibliography#1{%
264 \ifchapterbibliography\section*{\bibname}\relax
265     \if@twoside\markright{\bibname}\fi
266     \addcontentsline{toc}{section}{\bibname}\relax
267     \redef@bibitem
268     \list{[\thechapter.\arabic{enumi}]}{%
269     \settowidth\labelwidth{[\thechapter.#1]}\leftmargin\labelwidth
270     \advance\leftmargin\labelsep\itemsep\z@ plus 1pt\parsep\z@
271     \usecounter{enumi}}
272 \else
273     \chapter*{\bibname}\relax
274     \@mkboth{\bibname}{\bibname}\relax
275     \addcontentsline{toc}{chapter}{\bibname}\relax
276     \list{[\arabic{enumi}]}{\settowidth\labelwidth{[#1]}%
277     \leftmargin\labelwidth
278     \advance\leftmargin\labelsep\itemsep\z@ plus 1pt\parsep\z@
279     \usecounter{enumi}}
280 \fi
281 \def\newblock{\hskip .11em plus .33em minus -.07em}
282 \sloppy
283 \sfcode`\.=1000\relax}
284
285 \let\endthebibliography=\endlist
```

For what regards footnotes nothing is changed except resetting the line spread to one, in case the current value is different.

```
286 \long\def\@footnotetext#1{\insert\footins{\linespread{1}\footnotesize
287     \interlinepenalty\interfootnotelinepenalty
288     \splittopskip\footnotesep
289     \splitmaxdepth \dp\strutbox \floatingpenalty \@MM
290     \hsize\columnwidth \@parboxrestore
291     \edef\@currentlabel{\csname p@footnote\endcsname\@thefnmark}%
292     \@makefntext{\rule{\z@}{\footnotesep}\ignorespaces#1\strut}}}
```

These last heterogeneous definitions are partly important and partly residues of the good old times of MS-DOS v.3 when a Ctrl-Z character would be placed at the end of files. It's a long time that such version is not being used, but some old time files might still be around.

The cryptic code that redefines the comma in math mode establishes that this character is a normal math character, instead of a math punctuation mark; this should not be necessary with the Italian option for the babel package and it is possible that in a future version it will be eliminated.

\topmargin set to 0pt simply means that the real top margin is 25.4mm, i.e. one inch, since the output offset is one inch by default.

```
293 \mathcode`\,="013B
294 \catcode`\^^Z=10
295 \topmargin 0pt
```

The TOPtesi bundle contains two new chapter like sections activated with the commands \sommario and \ringraziamenti respectively. The infix strings that start these sections depend on the used language.

Because of this it is necessary to extend the list of infix string definitions provided the \captions⟨language⟩ macros defined by the language description files of babel; for this purpose we define a macro for adding new items for these two new sectioning commands. This macro receives three arguments: the first is the babel language name, the second is the string for the summary name, and finally the third is the string for the acknowledgements name; everything is contained within a group and only the relevant captions macro is globally redefined. The token register '0' is normally for scratch usage, but the fact that its value is restored upon exiting the group provides the necessary protection against an involuntary reassignment to this register. At the same time if a specific language option was not specified, a warning message is issued, but compilations goes on any way without the sectioning string names. For being sure no other undefined error messages are issued, the \summaryname and \acknowledgename are let to \empty.

```
296 \let\summaryname\empty
297 \let\acknowledgename\empty
298 \newcommand*\ExtendCaptions[3]{{%
299 \@ifundefined{captions#1}{%
300 \PackageWarning{toptesi}{Language option #1 not specified\MessageBreak
301 Skipping any redefinition\MessageBreak}%
302 }{%
303 \expandafter\let\expandafter\@tempA\csname captions#1\endcsname
304  \toks0=\expandafter{\@tempA%
305     \def\summaryname{#2}%
306     \def\acknowledgename{#3}}%
307 \expandafter\xdef\csname captions#1\endcsname{\the\toks0}%
308 }}}%
```

For Italian and English there are no problems; we provide immediately these extensions by means of the newly available macro:

```
309 \ExtendCaptions{italian}{Sommario}{Ringraziamenti}
310 \ExtendCaptions{english}{Summary}{Acknowledgements}
```

In facts the babel options for Italian and English have already been loaded by default; therefore both caption macros \captionsitalian and \captionsenglish are already defined and can be freely extended. For any other language the corresponding language option must be entered in the class opening statement, otherwise a warning is issued but compilation is not stopped. Therefore if, for example, the user wants to write the thesis in Spanish, the thesis main file shall start like this:

```
\documentclass[...,spanish]{toptesi}
\ExtendCaptions{spanish}{Resumen}{Agradecimientos}
...
\begin{document}
\selectlanguahe{spanish}
...
```

and the rest of the thesis will be typeset correctly in Spanish. Remember that Italian is the default language and nothing is necessary for setting up the Italian defaults. If English is desired, then after \begin{document} is is necessary to specify the default language; for ease of use the following macros are defined so they can be used instead of the lengthy babel command; after the beginning of the document it is then possible to specify \inglese or \english, and the default language turns into English. These shorthand commands can be alternated so as to switch from one language to the other; nevertheless remember that there are more correct ways to switch languages with the babel commands without changing the infix strings.

```
311 \def\italiano{\selectlanguage{italian}}%
312 \def\english{\selectlanguage{english}}%
313 \let\inglese\english
```

At the beginning of the document the following commands are executed; the general macro \italiano sets the summary and the acknowledgements names in Italian, as the default language; and the \@chapapp macro is redefined so as to agree with the default language. If a different default language is desired, we recall it again, it is necessary to do the following:

- specify \english *after* the \begin{document} statement, if English is supposed to be the default language, or

- specify the language name, other than Italian or English, among the class options; use the \ExtendCaptions macro for extending the list of sectioning commands infix strings as explained above; specify with \selectlanguage the new language as the default one *after* the \begin{document} statement.

```
314 \AtBeginDocument{%
315     \italiano
316     \renewcommand\@chapapp{\chaptername}%
317     }
```

At last the subsidiary and independent packages topcoman and topfront are requested for input and file input is explicitly ended.

```
318 \RequirePackage{topfront}
319 \RequirePackage{topcoman}
320 \def\sf@size{7}
```

Last but not least, here come the specifications for the PDF/A-1b format. First of all the patches to the macros \not and \mapstochar that produce problems with the format, because they have a declared width of 0 pt; this is no problem for latex or pdflatex, but it is a problem for the PDF/A format. Therefore these command must be replaced by equivalent ones that do not use zero-width glyps. For \not, another slash can be used, but in order to have it the right size in all math typesetting modes it is necessary to have a different command for every mode; this is achieved with the \mathchoice primitive as such:

```
321 \renewcommand*\not{\mathrel{\mathchoice%
322 {\rlap{$\displaystyle\mkern2.5mu\mathnormal{/}$}}%
323 {\rlap{$\textstyle\mkern2.5mu\mathnormal{/}$}}%
324 {\rlap{$\scriptstyle\mkern2.5mu\mathnormal{/}$}}%
325 {\rlap{$\scriptscriptstyle\mkern2.5mu\mathnormal{/}$}}%
326 }}
```

Actually the zero-width property of the slash must be simulated with a zero-width box but within this box it is necessary to specify the typesetting style of the math mode material.

A similar trick is used to patch the \mapstochar command but no other glyph was found suitable for substituting the original one; therefore we had to make it up with the picture environment:

```
327 \renewcommand\mapstochar{\mathrel{\mathchoice
328 {\displaystyle\unitlength=0.0555\fontdimen6\font
329     \picture(0,0)\put(1,1.5){\linethickness{0.72\unitlength}%
330     \line(0,1){6}}\endpicture}
331 {\textstyle\unitlength=0.0555\fontdimen6\font
332     \picture(0,0)\put(1,1.5){\linethickness{0.72\unitlength}%
333     \line(0,1){6}}\endpicture}
334 {\scriptstyle\unitlength=0.0555\fontdimen6\font
335     \picture(0,0)\put(1,0.55){\linethickness{0.61\unitlength}%
336     \line(0,1){5}}\endpicture}
337 {\scriptscriptstyle\unitlength=0.0555\fontdimen6\font
338     \picture(0,0)\put(1,0.2){\linethickness{0.56\unitlength}%
339     \line(0,1){4}}\endpicture}
340 }}
```

The above patches are introduced irrespective of using `pdflatex` for producing a PDF/A compliant file; one might need to produce a traditional PDF file, or even a DVI file, to be converted to the PS format, in order to possibly further transform it to PDF/A by means of `ghostscript` (see the details in the `ps2pdf.html` file belonging to the `ghostscript` documentationx).

Finally, if the class option `pdfa` was specified, we load the `pdfx.sty` file with the suitable option for typesetting a (hopefully) PDF/A conforming file. We must remember that `pdfx.sty` on turn loads the `hyperref.sty` file with the necessary `pdfa` option. The user, therefore does not need to reload that package, but is free to configure it through the \hypersetup command arguments right at the beginning of the thesis main file.

```
341 \ifT@Ppdfa\RequirePackage[a-1b]{pdfx}\fi
342 ⟨/topsty⟩
```

4.3   The package file `topfront.sty`

This file is input by `toptesi`, version 5.x, but it can be used as an independent extension package.

It contains all the definition for the composition of just the title page along the style requirements of `toptesi`, version 5.x. It makes use of an optional configu-

ration file where the user can define a lot of default information and all the infix language dependent strings that are peculiar to this title page.

This file specifies that it requires the LaTeX 2ε format and identifies itself. Since the package might be used to extend the performances of other classes, this package does not specify any input encoding, assuming that the calling class already provided this information.

```
343 ⟨*topfrn⟩
344 \NeedsTeXFormat{LaTeX2e}
345 \ProvidesPackage{topfront}[2010/05/09 v.5.01 Title page for TOPtesi]
```

The title page information depends on the type of "thesis' that is being typeset. The following commands specify the kind of information that is going to be typeset. Some boolean variables are automatically set by the commands in order to change some formatting depending on the kind of thesis. For languages that distinguish feminine from masculine adjectives or qualifications some automatic machinery is set up in order to format some infix strings in a way that copes with the singular or plural forms; in particular when there is a multitude of authors (maximum three) of different gender the adjectives or qualifications are set masculine plurals, while when there is just one author or the authors are of the same gender the adjectives or qualifications are set according to number and gender. Al this is done by setting or resetting the truth value associated to the boolean variable `femminile`. The boolean variable `dottorato` controls the PhD thesis format, while the other variable `laureatriennale` controls the formatting of the bachelor's degree report. All other theses are treated as master theses, and in all cases the appropiate infix string is typeset in the title page

```
346 \newif\iffemminile
347 \newif\ifdottorato \dottoratofalse
348 \newif\iflaureatriennale \laureatriennalefalse
```

The thesis title is specified by means of the following commands; \monografia, the name of the bachelors degree final report, sets also the corresponding boolean variables and redefines the command \titolo so as to avoid duplications and inconsistencies; of course something could still be inconsistent if the commands are given in the wrong order.

\titolo accepts an optional argument, the "short title", more or less as the standard sectioning commands; this is due to the fact that with the class option `autoretitolo` the thesis title is written together with the author's name in the even side headings; if the thesis full title is too long it produces overfull headlines with ugly results; a short title may solve the inconvenience. The \sottotitolo command is another way to maintain a short title; all the supplementary title information may be typeset in the subtitle.

```
349 \def\monografia#1{\global\laureatriennaletrue
350        \global\dottoratofalse
351        \global\def\titolo##1{\PackageWarning{toptesi}%
352        {Il titolo e' gia' stato impostato con
353            il comando \string\monografia}}%
354        \gdef\@title{#1}}
355 \let\@stitle\empty
```

25

```
356 \newcommand*{\titolo}[2][]{{\def\@tempA{#1}%
357     \ifx\@tempA\empty\gdef\@stitle{#2}\else\gdef\@stitle{#1}\fi
358     \gdef\@title{#2}}}
359 \def\sottotitolo#1{\gdef\@subtitle{#1}}
```

The `\materia` or its alias `\Materia` are used to specify the subject of the thesis; as a silly example a set of commands that reflect this subtle difference might be the following:

```
\materia{Applied Tetratricotomy}
\titolo{The tetratricotomy of blond hair}
\sottotitolo{Accurate measurements of the four fourths
  of tetratricotomized blond hair}
```

and the title page, for example, will contain something like this:

<div align="center">

Master Thesis

in

Applied Tetratricotomy

The tetratricotomy of blond hair

Accurate measurements of the four fourths
of tetratricotomized blond hair

</div>

```
360 \let\@materia\empty
361 \def\Materia#1{\def\@materia{#1}}\let\materia\Materia
```

Things get more complicated for doctoral theses; in general there is no supervisor; at most if a professor is assigned to supervise or control the doctoring's work this may be called in whatever mode but here we assume his name is input with the command `\tutore` even if "tutor" does not appear as the best choice; in any case in Italian "tutore" does not have the same meaning as the English "tutor". Most Doctoral Schools require in place to name the School's director or coordinator. This is why this person's name can be introduced with `\direttore` or `\coordinatore`; the actual label printed over this person name is "Direttore" or "Coordinatore" but it can be changed with `\QualificaDirettore`.

```
362 \newif\ifDirettore \Direttorefalse
363 \def\tutore#1{\gdef\@tutore{#1}}
364 \def\direttore{\Direttoretrue\relatore}%
365 \def\coordinatore{\Direttorefalse\relatore}%
366 \def\QualificaDirettore#1{\gdef\@PhDdirector{#1}}
```

For "normal" theses we may have from one to three supervisors and from one to three authors; not all universities accept a multitude of supervisors and/or authors of the same thesis, but some do; this is why this bundle accepts up to three names for each category. The `\second...` commands set the plural forms of the labels printed above the name lists. For the candidates there are different commands

to input ladies or gentlemen names; according to the masculine (ending in 'o') or feminine (ending in 'a') commands the appropriate truth values are assigned to the boolean variable `femminile` and the labels are set accordingly.

Notice that in the case of bachelor degree final report no supervisor name is printed even if one or more supervisor names are specified. This must be kept in mind in order to avoid surprises in finding missing information in the title page. Further on there are suggestions for circumventing this fact.

```
367 \def\relatore#1{\gdef\@principaladviser{#1}}
368 \def\secondorelatore#1{\gdef\@secondadviser{#1}}
369 \def\terzorelatore#1{\gdef\@thirdadviser{#1}}
370 \def\candidato#1{\gdef\@author{#1}\femminilefalse}
371 \def\candidata#1{\gdef\@author{#1}\femminiletrue}
372 \def\secondocandidato#1{\gdef\@secondauthor{#1}\femminilefalse}
373 \def\secondacandidata#1{\gdef\@secondauthor{#1}}
374 \def\terzocandidato#1{\gdef\@thirdauthor{#1}\femminilefalse}
375 \def\terzacandidata#1{\gdef\@thirdauthor{#1}}
```

The next set of macros is used to typeset the "date" of the thesis defense or presentation or whatever is done for the final exam. The macro si sort of complicated because the input format for this "date" may vary from a single year, to a year range, to a month and year specification so that different actions must be taken; if the option `classica` is in force[2] then the formatting of the "date" may be still different. This command is aliased with `\esamendidottorato` which literally means "defense of the doctoral dissertation"; nevertheless both commands refer to a simple date in one of those formats.

`\getseduta` splits the date in its two components, month and year; if the argument is a single string without intervening spaces, the first one is the string itself and the second is empty; this emptiness may be tested and in case the date formatting is modified accordingly. In particular if the string is a single spaceless one, this string is assigned to `\@submitdate`; otherwise a different treatment is made according to the fact that `classica` is in force; if `classica` is not in force the total string, including spaces is assigned to `\@submitade`. If `classica` is in force, `\s@dutaTrieste` is called with the whole string. On turn `\s@dutaTrieste` verifies if the date should be typeset with old style numbers or in the usual way; in the latter case the whole string is assigned to `\@submitdate`; in the former one the year part may be a single year or a year range; This separation is tested by splitting the year part across one dash; If the dash is present the extremes of the year range are assigned to `\1` and `\2`, otherwise the year part is a single year;. If a single year is given this is simply typeset with old style numbers and the appropriate commands are assigned to the `\@submitdate` control sequence.. If a year range is given, this year range is also typeset with old style numbers, and the dash is executed with a regular en-dash surrounded with white space.

```
376 \def\sedutadilaurea#1{\getseduta#1 !}
377 \def\getseduta#1 #2!{%
```

---

[2]This option cannot be active if this extension package is used to extend a document class other than `toptesi`; nevertheless if the package `trieste.sty` is loaded before this package, the relevant information equivalent to `classica` is fully defined and this package works as it should.

```
378      \def\@tempA{#2}%
379      \ifx\@tempA\empty
380          \def\@submitdate{#1}%
381      \else
382          \expandafter
383          \ifx\csname StileTrieste\endcsname\relax
384              \def\@submitdate{#1 #2}%
385          \else
386              \s@dutaTrieste#1 #2!%
387          \fi
388      \fi
389 }%
390 \def\s@dutaTrieste#1 #2!{%
391      \if@ldstyle
392          \s@paranumeri#2-!%
393          \ifx\2\empty
394              \edef\@submitdate{\noexpand#1 \noexpand\oldstylenums{#2}}%
395          \else
396              \s@paranumeri#2!%
397              \edef\@submitdate{\noexpand#1
398              \noexpand\oldstylenums{\1} -- \noexpand\oldstylenums{\2}}%
399          \fi
400          \let\1\undefined
401          \let\2\undefined
402      \else
403          \def\@submitdate{#1 #2}%
404      \fi
405 }
406 \def\s@paranumeri#1-#2!{\def\1{#1}\def\2{#2}}%
407 \let\esamedidottorato\sedutadilaurea
```

The next macros are used to assign strings to some literal information to be typeset in the title page. `\ciclodidottorato` requires an uppercase roman numeral (in Italy), but it can accept anything that can precede the infix word "cycle". Macros `\corsodilaurea` and `\corsodidottorato` specify the degree course qualification; You would specify just "Elettronica", for example, and the package will write in the title page "Corso di Laurea in Elettronica". The infix part may be changed depending on the default language and the configuration file.

`\scuoladidottorato` gets the name of the PhD School; `\ateneo` gets the the generic name of the university; `\nomeateneo` gets the proper name of the university. In Italy Universities are generally named after the city they are in; in large cities where there are several universities, each one of them has a proper name. For example the generic name might be "Università di Roma" and the proper name might be "La Sapienza". `\facolta` receives an optional argument that is the uppercase roman numeral specific of the faculty and a compulsory argument that corresponds to the type of faculty; for example, with `\facolta[II]{Ingegneria}` the package typesets in the title page "II Facoltà di Ingengeria"; if the optional argument is not specified non roman numeral is typeset; the infix string `Facolt\'a␣di␣` may be changed with the configuration file depending on the default language. Fi-

nally \logosede gets the name of the graphic file that contains the information relative to the university logo. If such logo is not available, the user does not specify this command; if the user uses this command to insert the university logo but the file is not available the usual `graphicx` package warning is issued but compilation goes on without the logo. The \tutoreaziendale macro is the last addition; several students who work on their thesis or final project in a company want to have the company supervisor name printed in the title page; this does not preclude expressing the student's deepest thanks in the acknowledgements section, but it does not harm ro name this person also in the title page.

```
408 \def\ciclodidottorato#1{\gdef\@ciclo{#1 \@cyclename}}%
409 \def\corsodilaurea#1{\global\dottoratofalse\gdef\@corso{#1}}
410 \def\corsodidottorato#1{\global\dottoratotrue\global\laureatriennalefalse
411     \gdef\@corso{#1}}
412 \def\scuoladidottorato#1{\global\dottoratotrue\global\laureatriennalefalse
413     \gdef\@phdschool{#1}}
414 \def\ateneo#1{\gdef\@ateneo{\expandafter\uppercase{\expandafter #1}}}
415 \def\nomeateneo#1{\gdef\@nomeat{\expandafter\uppercase{\expandafter #1}}}
416 \newcommand\facolta[2][]{\gdef\@facname{#2}\gdef\@facnumber{#1}}
417 \def\logosede#1{\edef\@logosede{\noexpand\includegraphics[width=3cm]{#1}}}
418 \def\tutoreaziendale#1{\gdef\@tutoreaziendale{#1}}
```

The following commands are user commands that modify the infix strings according to the language used and to the specifications of the actual university. All these commands can be put in the configuration file so as to specify what is desired as a default. If these commands are specifically used to redefine something before issuing the \frontespizio command, the command that actually typesets the title page, the new definitions override the configuration ones.

\FacoltaDi sets or changes the string "Facoltà di" in, say, "Faculty of"

\DottoratoIn sets or changes the string "Dottorato in" in, say, "PhD in"

\CorsoDiLaureaIn sets or changes the string "Corso di Laurea in" in, say, "Master of Science in"

\TesiDiLaurea sets or changes the string "Tesi di Laurea" in, say, "Tesi di Laurea Magistrale"

\NomeMonografia sets or changes the string "Monografia di Laurea" in, say, "Tesi di Laurea"

\NomeDissertazione sets or changes the string "Dissertazione" in, say, "PhD dissertation"

\InName sets or changes the string "in" in, say, "auf"

\CandidateName sets or changes the string "Candidato" in, say, "Laureando"

\AdvisorName sets or changes the string "Relatore" in, say, "Supervisors"

\CoAdvisorName sets or changes the string "Correlatore" in, say, "Corapporteur"

\NomeTutoreAziendale sets or changes the string "Supervisore aziendale" in, say, "XYZ Company Supervisor"

\TutorName sets or changes the string "Tutore" in, say, "Supervisor"

\CycleName sets or changes the string "ciclo" in, say, "cycle"

\NomePrimoTomo sets or changes the string "Tomo primo" in, say, "First volume"

\NomeSecondoTomo sets or changes the string "Tomo secondo" in, say, "Second volume"

NomeTerzoTomo "Tomo terzo" in, say, "Third volume"

NomeQuartoTomo "Tomo quarto" in, say, "Fourth volume"

In the above description the first string is generally the default one, while the second string is just an example of the corresponding string to be set in another language or to be changed in Italian. The last four commands clearly show the difficulty of localizing language strings: it is necessary to localize the whole phrase, because of the position of the adjectives.

```
419 \newcommand\FacoltaDi[1]{\gdef\@faculty{#1}}
420 \newcommand\DottoratoIn[1]{\gdef\@PhDname{#1}}
421 \newcommand\CorsoDiLaureaIn[1]{\gdef\@laureaname{#1}}
422 \newcommand\TesiDiLaurea[1]{\gdef\@TesiDiLaurea{#1}}
423 \newcommand\NomeMonografia[1]{\gdef\@monografia{#1}}
424 \newcommand\NomeDissertazione[1]{\gdef\@dissertazione{#1}}
425 \newcommand\InName[1]{\gdef\@InName{#1}}
426 \newcommand\CandidateName[1]{\gdef\@nomecandidato{#1}}
427 \newcommand\AdvisorName[1]{\gdef\Relatore{#1}\gdef\Relatori{#1}}
428 \newcommand\CoAdvisorName[1]{\gdef\Correlatore{#1}\gdef\Correlatori{#1}}
429 \newcommand\TutorName[1]{\gdef\Tutore{#1}}
430 \newcommand\NomeTutoreAziendale[1]{\gdef\@tutoreaziendalename{#1}}
431 \newcommand\CycleName[1]{\gdef\@cyclename{#1}}
432 \newcommand\NomePrimoTomo[1]{\gdef\PrimoTomo{#1}}
433 \newcommand\NomeSecondoTomo[1]{\gdef\SecondoTomo{#1}}
434 \newcommand\NomeTerzoTomo[1]{\gdef\TerzoTomo{#1}}
435 \newcommand\NomeQuartoTomo[1]{\gdef\QuartoTomo{#1}}
```

Now we can read the configuration file if it exists; in any case what is possibly defined or redefined in the configuration file must not be redefined in the following Lines and this is why everything is subject to the test `\@ifundefined`. Most default definitions are simply "blank"; the others are in Italian. All of them, except the supervisor and candidate strings may be individually be redefined in the configuration file or in the preamble. Those that cannot be redefined such as the four "candidate" strings may be actually redefined through the only `\CandidateName` that should be used in a language depended way and with the correct number and gender once for all. The four endings in the Italian strings allow to exercise the correct selection only for Italian; a specific test is made inside the `\frontespizio` command; because of this the same machinery cannot be used, say, for French but

may be in the future this feature is resolved in a proper way. The same is true
for the supervisor and the co-supervisor strings that may be changed once for all
with \AdvisorName and \CoAdvisorName.

```
436 \IfFileExists{toptesi.cfg}{\input{toptesi.cfg}}{}
437 %
438 \@ifundefined{@cyclename}{\def\@cyclename{ciclo}}{}
439 \@ifundefined{@title}{\def\@title{}}{}
440 \@ifundefined{@author}{\def\@author{}}{}
441 \@ifundefined{@principaladviser}{\def\@principaladviser{}}{}
442 \@ifundefined{@secondadviser}{\def\@secondadviser{}}{}
443 \@ifundefined{@thirdadviser}{\def\@thirdadviser{}}{}
444 \@ifundefined{@PhDdirector}{%
445     \edef\@PhDdirector{\ifDirettore Direttore \else Coordinatore \fi
446     del corso di dottorato}}{}
447 \@ifundefined{@tutore}{\def\@tutore{}}{}
448 \@ifundefined{@secondauthor}{\def\@secondauthor{}}{}
449 \@ifundefined{@thirdauthor}{\def\@thirdauthor{}}{}
450 %
451 \@ifundefined{@nomerelatore}{\def\@nomerelatore{}}{}
452 \@ifundefined{@nomecandidato}{\def\@nomecandidato{}}{}
453 \@ifundefined{Candidato}{\def\Candidato{Candidato}}{}
454 \@ifundefined{Candidata}{\def\Candidata{Candidata}}{}
455 \@ifundefined{Candidati}{\def\Candidati{Candidati}}{}
456 \@ifundefined{Candidate}{\def\Candidate{Candidate}}{}
457 \@ifundefined{Relatore}{\def\Relatore{Relatore}}{}
458 \@ifundefined{Relatori}{\def\Relatori{Relatori}}{}
459 \@ifundefined{Correlatore}{\def\Correlatore{Correlatore}}{}
460 \@ifundefined{Correlatori}{\def\Correlatori{Correlatori}}{}
461 \@ifundefined{Tutore}{\def\Tutore{Tutore}}{}
462 \@ifundefined{@tutoreaziendale}{\def\@tutoreaziendale{}}{}
463 \@ifundefined{@tutoreaziendalename}%
464         {\def\@tutoreaziendalename{Supervisore Aziendale}}{}
465 \@ifundefined{@subtitle}{\def\@subtitle{}}{}
466 %
467 \@ifundefined{@corso}{\def\@corso{}}{}
468 \@ifundefined{@ciclo}{\def\@ciclo{}}{}
469 \@ifundefined{@ateneo}{\def\@ateneo{POLITECNICO DI TORINO}}{}
470 \@ifundefined{@nomeat}{\def\@nomeat{}}{}% Nome proprio dell'ateneo
471 \@ifundefined{@facolta}{\def\@facname{Ingegneria}}{}
472 \@ifundefined{@facnumber}{\def\@facnumber{}}{}
473 \@ifundefined{@faculty}{\def\@faculty{Facolt\`a di }}{}
474 %
475 \@ifundefined{PrimoTomo}{\def\PrimoTomo{Tomo primo}}{}
476 \@ifundefined{SecondoTomo}{\def\SecondoTomo{Tomo secondo}}{}
477 \@ifundefined{TerzoTomo}{\def\TerzoTomo{Tomo terzo}}{}
478 \@ifundefined{QuartoTomo}{\def\QuartoTomo{Tomo quarto}}{}
```

If the final exam date is not given the default value is the current month and the
current year typeset in Italian; therefore the user is strongly requested to enter
a date either with the \sedutadilaurea or the \esamedidottorato commands.

The university logo command by default is also empty.

```
479 \@ifundefined{@submitdate}{\def\@submitdate{\ifcase\the\month\or%
480   Gennaio\or Febbraio\or Marzo\or Aprile\or Maggio\or Giugno\or
481   Luglio\or Agosto\or Settembre\or Ottobre\or Novembre\or Dicembre\fi
482   \space \the\year}}{}
483 \@ifundefined{@logosede}{\let\@logosede\relax}{}
484 %
485 \@ifundefined{@TesiDiLaurea}{\def\@TesiDiLaurea{Tesi di Laurea}}{}
486 \@ifundefined{@phdschool}{\def\@phdschool{SCUOLA DI DOTTORATO}}{}
487 \@ifundefined{@PhDname}{\def\@PhDname{Dottorato in }}{}
488 \@ifundefined{@laureaname}{\def\@laureaname{Corso di Laurea in }}{}
489 \@ifundefined{@dissertazione}{\def\@dissertazione{Tesi di Dottorato}}{}
490 \@ifundefined{@monografia}{\def\@monografia{Monografia di Laurea}}{}
491 \@ifundefined{@InName}{\def\@InName{in}}{}
```

Finally it comes the only active macro \frontespizio, the one macro that actually typesets the title page. The macro starts with a local redefinition of the myheadings page style; with this style the university name goes into the header, while the exam date goes in the footer; in this way the information that must be typeset in the title page is not crunched in too little space and the overall text bounding box assumes a shape similar to that of the page.

Everything is closed within a group so all definitions remain local.

```
492 \def\frontespizio{%
493 \begingroup
494     \def\ps@myheadings{\let\@mkboth\markboth
495     \def\@oddhead{\vbox{%
496     \hbox to \hsize{\hfill {\LARGE \@ateneo}\hfill}%
497     \expandafter
498     \ifx\csname StileTrieste\endcsname\relax
499     \else
500         \hbox to \hsize{\hfil\vrule\@width\z@
501       \@height3.5ex\vrule\@height1.4\p@\@depth-\p@\@width50mm\hfil}%
502     \fi
503     }}%
504     \def\@oddfoot{\vbox to 15mm{\vss
505     \expandafter
506     \ifx\csname StileTrieste\endcsname\relax
507     \else
508         \hbox to \hsize{\hfil\raisebox{-.3ex}[\z@][\z@]{%
509       \vrule\@height-2.6\p@\@depth3\p@\@width50mm}\hfil}%
510     \fi
511     \hbox to\hsize{\hfill{\Large{\@submitdate}}\hfill}}%
512     }%
513     \let\@evenhead\@oddhead
514     \let\@evenfoot\@oddfoot
515     }%
```

We want also the title page to be set in the middle of the page irrespective of the binding correction; so we assign the average of the two side margins to each margin.

```
516        \advance\oddsidemargin \evensidemargin
517        \divide\oddsidemargin \tw@
518        \evensidemargin \oddsidemargin
```

We select the `myheadings` page style; setting the page counter to zero is a remain of old settings, but it does not hurt; the `\null` command inserts a void horizontal box into the vertical list; it is useful to act as a block against which the vertical glue pushes for setting the subsequent material. The normal font is chosen in case preceding commands did change the font characteristics.

```
519        \thispagestyle{myheadings}%
520        \null\setcounter{page}{1}%
521        \normalfont
```

The generic university name is already in the header; if it is non blank the first thing we set in the page is the university proper name and some vertical glue.

```
522        \ifx\@nomeat\empty \else
523            {\vspace*{-3\topskip}\centering
524                {\Large \@nomeat}\par}\vfill
525        \fi
```

Then the faculty name comes next; but fot the doctoral school it uses the doctoral school name entered with `\scuoladidottorato`, otherwise it inserts the faculty ordinal number or prefix and name already entered with the optional and required arguments of `\facolta`.

```
526        \begin{center}
527        {\rmfamily\mdseries
528        \ifdottorato
529            \large \@phdschool
530        \else
531            \LARGE\ifx\@facnumber\empty\else\@facnumber\space\fi
532            \@faculty\@facname%
533        \fi
534        \par\medskip}%
```

Further specification: it inserts the field of the PhD research or the degree course name; for example it inserts the line "Philosophy Degree in Applied Tetratrico-tomy – XVI cycle" or "Master of Science in Applied Tetratricotomy".

```
535        \ifx\@corso\empty \else{\large
536            \ifdottorato
537                \@PhDname\@corso\ifx\@ciclo\empty\else~--~\@ciclo\fi
538            \else
539                \@laureaname\@corso
540            \fi
541            \par}
542        \fi
543        \end{center}
```

It now centers the name of the report, be it "Doctoral Dissertation" or "Master Thesis" or whatever; in case the command `\materia` was used, it then centers the area which the thesis deals with.

```
544        \vfill
```

```
545          \begin{center}
546            \LARGE
547            \ifdottorato
548                \@dissertazione%
549            \else
550                \iflaureatriennale
551                    \@monografia%
552                \else
553                    \@TesiDiLaurea%
554                \fi
555            \fi
556            \ifx\empty\@materia\else
557                \\\@InName\\\@materia
558            \fi
559          \end{center}
```

Next comes the real title entered with `\titolo` or `\monografia` and the possible subtitle.

```
560          \vfill
561          \begin{center}
562            {\huge\bfseries \baselineskip=0.95em plus 1pt
563                    \@title \par}
564          \end{center}
565 % con l'eventuale sottotitolo
566          \ifx\@subtitle\empty \else
567              \begin{center}%
568                \large\textrm{\@subtitle}\par
569              \end{center}%
570          \fi
```

If the option `classica` is in force the thesis might be divided in several volumes; apparently these in humanities are often oversized. In this case the `\frontespizio` command may be given at the beginning of every volume and the counter `tomo` is stepped up; the volume number is therefore printed in each title page; the infix string may be redefined as it was shown above.

```
571          \expandafter
572          \ifx\csname StileTrieste\endcsname\relax
573          \else
574              \ifnum\value{tomo}>\z@
575                  \par\bigskip
576                  \noindent\makebox[\textwidth]{%
577                  \large\textbf{%
578                  \ifcase\c@tomo%
579                      \or \PrimoTomo%
580                      \or \SecondoTomo%
581                      \or \TerzoTomo%
582                      \or \QuartoTomo%
583                      \else
584                          \PackageWarning{toptesi}{%
585                          Counter tomo equals \the\c@tomo\MessageBreak
```

```
586                         It was not considered a thesis might get
587                         divided in more than four volumes}%
588                  \fi}}%
589            \fi
590      \fi
591      \par
```

Going down in the title page now comes the optional insertion of the university logo; this is a simple task once `\@logosede` has been defined, and this was done either with an explicit command `\logosede` with its argument in the preamble, or a specific line in the configuration file.

```
592      \ifx\@logosede\@empty\else
593      \vspace*{\bigskipamount}
594      {\centering \@logosede\par}\fi
```

the final task is to typeset the possible supervisors' names, the candidates' names and all the rest of the bureaucratical terms. We have to distinguish between a bachelor degree report that is not supposed to have a supervisor, from the doctoral dissertation where we do not indicate the supervisor, but the School Director, and the master thesis where there might be one or more supervisors; with the `classica` option in force no label is printed over the supervisor's name, unless there is a plurality od supervisors.

```
595      \vfill
596      \iflaureatriennale
597            \let\@nomerelatore\empty
598      \else
599            \ifdottorato
600                  \edef\@nomerelatore{\@PhDdirector}%
601            \else
602                  \ifx\@principaladviser\empty\else
603                        \def\@nomerelatore{\Relatore:}%
604                  \fi
605                  \@ifundefined{StileTrieste}%
606                        {\ifx\@secondadviser\empty \else
607                              \def\@nomerelatore{\Relatori:}%
608                        \fi}{}%
609            \fi
610      \fi
```

Similarly the label names for the exam candidates are chosen; in Italian the names are infix strings that are selected according the gender and the number; if these labels have to be set in a different language it is necessary to define one string that has to be selected by the user according to number and gender. The label for the doctorship is left empty.

```
611      \ifdottorato
612            \let\@nomecandidato\empty
613      \else
614      \iflanguage{italian}{%
615            \iffemminile
616                  \def\@nomecandidato{\Candidata:}%
```

```
617            \else
618                    \def\@nomecandidato{\Candidato:}%
619            \fi
620            \ifx\@secondauthor\empty \else
621                    \iffemminile
622                            \def\@nomecandidato{\Candidate:}%
623                    \else
624                            \def\@nomecandidato{\Candidati:}%
625                    \fi
626            \fi}{}
627        \fi
```

For the names of the supervisor(s) and of the candidate(s) a different approach is used for each one of the three categories of theses. If a bachelor degree report is dealt with, the name of the *only* candidate is centerd and written in caps-and-small-caps.

```
628        \iflaureatriennale
629            \begin{center}%
630                    \large\mdseries\textsc{\@author}
631            \end{center}%
```

For doctoral and master theses two virtual boxes (actually macros) are filled up so as to align the supervisor name(s) and, in second virtual box, the candidate name(s). The label is set in the first line with proper number and gender; in the second line the first name, and in the subsequent lines, if there are any, the other names. These virtual boxes actually contain a tabular environment each; these environments shall be actually typeset when these virtual box macros are executed. If the classica option is in force no label is set over the principal advisor name, but a label is set over the co-advisor name(s). The type size is also e little different for the classica option. The \protect command is used to protect the names in case they contain accent macros that might be expanded at the wrong moment.

```
632        \else
633 %  Per laurea e dottorato con relatori e correlatori...
634            \def\BoxRelatori{%
635                \begin{tabular}[t]{l}%
636                \hbox{{\@ifundefined{StileTrieste}{\large}{}%
637                    \textbf{\protect\@nomerelatore}}}\\[.6ex]
638                \hbox{{\large\textrm{\protect\@principaladviser}}}%
639                \ifx\@secondadviser\empty \else
640                   \@ifundefined{StileTrieste}{}{%
641                      \ifx\@thirdadviser\empty
642                         \ifx\@secondadviser\empty\else
643                                \\[1.5ex]\textbf{\Correlatore:}%
644                         \fi
645                      \else
646                         \\[1.5ex]\textbf{\Correlatori:}%
647                      \fi}
648                   \\[.6ex]\hbox{{\large\textrm{\protect\@secondadviser}}}%
```

36

```
649              \fi
650              \ifx\@thirdadviser\empty \else
651                  \\[.6ex] \hbox{{\large\textrm{\protect\@thirdadviser}}}%
652              \fi
653              \end{tabular}%
654          }%
```

A similar approach is taken for the candidate name(s)

```
655          \def\BoxCandidati{%
656              \begin{tabular}[t]{l}%
657                  \hbox{\@ifundefined{StileTrieste}{\large}{}%
658                      \textbf{\protect\@nomecandidato}}\\[.6ex]
659                  \hbox{\large\textrm{\protect\@author}}%
660                  \ifx\@secondauthor\empty
661                  \else
662                      \\\hbox{\large\textrm{\protect\@secondauthor}}%
663                  \fi
664                  \ifx\@thirdauthor\empty
665                  \else
666                      \\\hbox{\large\textrm{\protect\@thirdauthor}}%
667                  \fi
668              \end{tabular}%
669          }%
```

The real typesetting of these name lists takes place now; if the thesis is referred
to the PhD school one type of layout is used, otherwise the default master thesis
layout is used; remember that the bachelor degree case has already taken place.
For the doctoral dissertation the doctoring person name is typeset centered in
one line by itself and everything else is set 3em below into a three column table
extended to the \hsize, the first line containing the person labels and the second
line containing the true names. The central column is used just for spacing, but
it does not contain anything.

```
670          \ifdottorato
671              \begin{center}\large
672                  \textbf{\@author}\\[3em]
673                  {\normalsize
674                  \begin {tabular*}{\hsize}{@{\extracolsep{\fill}}ccc}
675                  \ifx\@tutore\empty\else
676                      \textbf{\Tutore}
677                  \fi
678                  &\relax&
679                  \ifx\@principaladviser\empty\else
680                      \textbf{\@nomerelatore}
681                  \fi
682                  \\
683                  \ifx\@tutore\empty\else
684                      \@tutore
685                  \fi
686                  &\relax&
687                  \ifx\@principaladviser\empty\else
```

```
688                        \@principaladviser
689                    \fi
690                    \end{tabular*}
691                    }%
692                \end{center}
693          \else
```

For the master thesis the two virtual boxes are set one besides the other but skewed so that to the right or, respectively, to the left of every name there is enough space for the signatures. With the `classica` option in force the two boxes are simply aligned.

```
694                    \@ifundefined{StileTrieste}{%
695                    \begin{flushleft}%
696                        \BoxRelatori
697                    \end{flushleft}\par\vspace*{-1.5\baselineskip}
698                    \begin{flushright}%
699                        \BoxCandidati
700                    \end{flushright}\par}{%
701                    \noindent
702                    \makebox[\textwidth]{\BoxRelatori
703                        \hfill\BoxCandidati}\par}%
704          \fi
705      \fi
```

The final item is the optional name of the company supervisor.

```
706 \ifx\@tutoreaziendale\@empty\else
707     \vfill\vfill
708     {\centering \textbf{\@tutoreaziendalename}\\[.6ex]
709     \@tutoreaziendale\par}
710 \fi
```

All the material now is on the page; we put some more vertical glue and we close the page sending it to the output file; the final `\endgroup` closes the `\begingroup` that was set at the beginning of this long macro.

```
711     \vfill\par\null
712     \if@twoside\cleardoublepage\else\clearpage\fi
713 \endgroup}
714 ⟨/topfrn⟩
```

4.4 A sample configuration file

The following code generates a simple configuration file that the user can change at will; it can be used as a template for generating a really personal configuration file.

```
715 ⟨*topcfg⟩
716 %%
717 %%================================================================
718 %% This file is the only file of the TOPtesi bundle that the user
719 %% can modify without restrictions in order to personalize the
720 %% contents of this configuration file to his/her needs. The user
```

```
721 %% can add or remove lines, comment or uncomment lines, change the
722 %% arguments to the macros, add definitions and so on.
723 %%==================================================================
724 %%
725 \ateneo{Politecnico di Torino}
726 \facolta{Ingegneria}
727 \FacoltaDi{Facolt\`a di }
728 %%\DottoratoIn{Corso di dottorato in }
729 \CorsoDiLaureaIn{Corso di Laurea in }
730 \TesiDiLaurea{Tesi di Laurea Magistrale}
731 %%\NomeMonografia{Monografia di Laurea}
732 %%\NomeDissertazione{Tesi di Dottorato}
733 \InName{in}
734 %%\TutorName{Tutore}
735 %%\CycleName{ciclo}
736 ⟨/topcfg⟩
```

4.5 The package file `topcoman.sty`

This file may be used as an independent extension package for the `report` document class, and possibly for other classes

```
737 ⟨*topcmn⟩
738 \NeedsTeXFormat{LaTeX2e} % lavora solo con LaTeX 2e
739 \ProvidesPackage{topcoman}%
740      [2008/12/15 v.5.00 Additional commands for the TOPtesi bundle]
```

The new command `\DeclareSlantedCapitalGreekLetters` optionally sets the capital Greek letters in math mode with the glyphs taken from the math italic fonts, not from the math roman fonts, at is is by default; some persons prefer to use both symbols with different meanings, so this command lets them do so.

```
741 \newcommand*\DeclareSlantedCapitalGreekLetters{%
742      \mathchardef\Gamma="7100
743      \mathchardef\Delta="7101
744      \mathchardef\Theta="7102
745      \mathchardef\Lambda="7103
746      \mathchardef\Xi="7104
747      \mathchardef\Pi="7105
748      \mathchardef\Sigma="7106
749      \mathchardef\Upsilon="7107
750      \mathchardef\Phi="7108
751      \mathchardef\Psi="7109
752      \mathchardef\Omega="710A
753 }
```

The `\ensuremath` command is defined in the LaTeX kernel from a certain version on; should the user employ a really old LaTeX 2ε implementation this definition supplies the missing one.

```
754 \providecommand{\ensuremath}[1]{\ifmmode#1\else$#1$\fi}%
```

The following commands may be already defined; should they be missing they are supplied here. The greatest part of them is already defined in the Italian option to the `babel` language; but remember; this package may be used as a stand alone one, without the initial call by the `toptesi` document class, so that the language Italian might be undefined.

```
755 \providecommand{\ohm}{\ensuremath{{\mathrm{\Omega}}}}
756 \providecommand{\ped}[1]{\ensuremath{_{\mathrm{#1}}}}
757 \providecommand{\ap}[1]{\ensuremath{^{\mathrm{#1}}}}
758 \providecommand{\unit}[1]{\ensuremath{{\mathrm{\,#1}}}}
759 \providecommand{\gei}{\ensuremath{{\mathop{\mathrm{j}}\nolimits}}}
760 \providecommand{\eu}{\ensuremath{{\mathop{\mathrm{e}}\nolimits}}}
761 \providecommand{\micro}{\ensuremath{\ifx\muup\undefined\mu\else\muup\fi}}
762 \providecommand{\gradi}{\ensuremath{^\circ}}
```

The next set of definitions are used to list a program file. There are better packages to perform this task in the CTAN archives. This set of macros has the advantage that is very short and light on the computer memory; nevertheless it performs its duty pretty well. The font face is the typewriter one; the font size is chosen so as to allow approximately 80 characters in the text width of the thesis. It respects the possible indentation tabs (ASCII code 9) by inserting the correct amount of typewriter spaces so as to align every line to the correct boundary which is "zero modulo eight". If the program file contains some form feed ASCII characters (ASCII code 12), this TEX code inserts a new page command. The code may appear strange, and it does because it makes heavy use of the dirty tricks of appendix D of the TEXbook.

```
763 \def\listing#1{\par\begingroup
764 \programma \input #1 \endgroup}
765 \def\uncatcodespecials{\def\do##1{\catcode`##1=12}\dospecials}
766 \def\programma{\footnotesize\tt \parindent 0pt
767 \def\par{\leavevmode\egroup\box0\endgraf}
768 \catcode`\`=\active \catcode`\^^I=\active \catcode`\^^L=\active
769 \obeylines \uncatcodespecials \obeyspaces
770 \everypar{\startbox}}
```

The above code does the whole work, but the alignment to the tab stops and the new page command associated to the form feed ASCII character are done with the following definitions.

```
771 \newdimen\tabwidth \setbox0=\hbox{\footnotesize\tt\space} \tabwidth=8\wd0
772 \def\startbox{\setbox0=\hbox\bgroup}
773 {\obeyspaces\global\let =\ }
774 {\catcode`\`=\active \gdef`{\relax\lq}}
775 {\catcode`\^^I=\active
776 \gdef^^I{\leavevmode\egroup \dimen0=\wd0
777 \divide\dimen0 by\tabwidth
778 \multiply\dimen0 by\tabwidth
779 \advance\dimen0 by\tabwidth
780 \wd0=\dimen0 \box0 \startbox}}
781 {\catcode`\^^L=\active \gdef^^L{\par\penalty-10000}}
```

The following code is already set in the `toptesi` package; here it is repeated because this package might be used as a stand alone one. Remember that the comma as a decimal separator is required for all languages except English.

```
782 \mathcode`\,="013B
783 \catcode`\^^Z=10
```

The following commands are used to write the "lower case" roman numerals with the small-caps; in order to avoid complications with missing fonts or math environments we make sure to typeset these numerals with script size capitals; this solution is not probably the best one but it works; it typesets these roman numerals with the current font; for this thesis bundle roman numerals are used only for folios, therefore there are no problems with a choice of font shapes and series. But for this task we need a robust command in order to set the script math size

```
784 \DeclareRobustCommand*{\simulatedSC}[1]{%
785 {\fontsize{\sf@size}{\f@baselineskip}\selectfont#1}}%
786 \renewcommand*{\@roman}[1]{\simulatedSC{\@Roman#1}}%
```

A user, Antonio Mele, suggested and requested the possibility of having the figure and table name inserted automatically when the `\ref`command is issued. For single citations the solution works fine, but for range references it does not work. In Italian the name must be lower case while in other languages, specifically in English, the name has a capital initial. Since this feature might be handy in certain circumstances and annoying in other ones, this feature can be turned on and off at will with the enabling and disabling commands. By default the feature is disabled.

```
787 \def\ft@figure{\iflanguage{italian}{\MakeLowercase{\figurename}}%
788              {\figurename}~}
789 \def\ft@table{\iflanguage{italian}{\MakeLowercase{\tablename}}%
790              {\tablename}~}
791 %
792 \newcommand*\EnableFigTabNames{%
793              \let\p@figure\ft@figure\let\p@table\ft@table}
794 \newcommand*\DisableFigTabNames{%
795              \let\p@figure\empty\let\p@table\empty}
796 %
797 \DisableFigTabNames
798 ⟨/topcmn⟩
```

4.6 The class option file `topsiz14.clo`

Among the options available there is the possibility of typesetting the thesis with a large normal font size, specifically 14pt. The following file is just a copy of the other size??.clo class option files where the font dimensions have been modified so as to be coherent whit a normal size of 14pt. There is nothing unusual except that the font sizes are taken from the kernel macros where the magic numbers of non integer sizes are specified. The baseline skips are substantially the ones taken from the 10pt default size and multiplied by 1.44, or those of the 12pt option multiplied

by 12; in both cases they were rounded to integers most of the times. Since the whole bundle works only under LaTeX 2_ε, we deleted all the tests for compatibility with LaTeX 209 and the corresponding test branches.

```
799 ⟨∗top14⟩
800 \NeedsTeXFormat{LaTeX2e}
801 \ProvidesFile{topsiz14.clo}%
802                [2008/12/15 v.5.00  TopTesi 14pt size-option file]
803 \renewcommand\normalsize{%
804    \@setfontsize\normalsize\@xivpt{18}%
805    \abovedisplayskip 14\p@ \@plus3\p@ \@minus7\p@
806    \abovedisplayshortskip \z@ \@plus3\p@
807    \belowdisplayshortskip 8.5\p@ \@plus3.5\p@ \@minus3\p@
808    \belowdisplayskip \abovedisplayskip
809    \let\@listi\@listI}
810 \normalsize
811 \renewcommand\small{%
812    \@setfontsize\small\@xiipt{14}%
813    \abovedisplayskip 13\p@ \@plus3\p@ \@minus6\p@
814    \abovedisplayshortskip \z@ \@plus3\p@
815    \belowdisplayshortskip 7.5\p@ \@plus3.5\p@ \@minus3\p@
816    \def\@listi{\leftmargin\leftmargini
817                \topsep 9\p@ \@plus3\p@ \@minus5\p@
818                \parsep 4.5\p@ \@plus2\p@ \@minus\p@
819                \itemsep \parsep}%
820    \belowdisplayskip \abovedisplayskip
821 }
822 \renewcommand\footnotesize{%
823    \@setfontsize\footnotesize\@xipt{13}
824    \abovedisplayskip 12\p@ \@plus2\p@ \@minus5\p@
825    \abovedisplayshortskip \z@ \@plus3\p@
826    \belowdisplayshortskip 7\p@ \@plus3\p@ \@minus3\p@
827    \def\@listi{\leftmargin\leftmargini
828                \topsep 6\p@ \@plus2\p@ \@minus2\p@
829                \parsep 3\p@ \@plus2\p@ \@minus\p@
830                \itemsep \parsep}%
831    \belowdisplayskip \abovedisplayskip
832 }
833 \renewcommand\scriptsize{\@setfontsize\scriptsize\@xpt{12}}
834 \renewcommand\tiny{\@setfontsize\tiny\@viiipt\@xpt}
835 \renewcommand\large{\@setfontsize\large\@xviipt{22}}
836 \renewcommand\Large{\@setfontsize\Large\@xxpt{25}}
837 \renewcommand\LARGE{\@setfontsize\LARGE\@xxvpt{30}}
838 \renewcommand\huge{\@setfontsize\huge\@xxvpt{30}}
839 \let\Huge=\huge
840 \if@twocolumn
841    \setlength\parindent{1em}
842 \else
843    \setlength\parindent{1.5em}
844 \fi
```

```
845 \setlength\smallskipamount{3.5\p@ \@plus 1\p@ \@minus 1\p@}
846 \setlength\medskipamount{7\p@ \@plus 2\p@ \@minus 2\p@}
847 \setlength\bigskipamount{14\p@ \@plus 4\p@ \@minus 4\p@}
848 \setlength\headheight{14\p@}
849 \setlength\headsep    {36\p@}
850 \setlength\topskip    {14\p@}
851 \setlength\footskip{30\p@}
852 \if@compatibility \setlength\maxdepth{4\p@} \else
853 \setlength\maxdepth{.5\topskip} \fi
854   \setlength\@tempdima{\paperwidth}
855   \addtolength\@tempdima{-2in}
856   \setlength\@tempdimb{390\p@}
857   \if@twocolumn
858     \ifdim\@tempdima>2\@tempdimb\relax
859       \setlength\textwidth{2\@tempdimb}
860     \else
861       \setlength\textwidth{\@tempdima}
862     \fi
863   \else
864     \ifdim\@tempdima>\@tempdimb\relax
865       \setlength\textwidth{\@tempdimb}
866     \else
867       \setlength\textwidth{\@tempdima}
868     \fi
869   \fi
870   \@settopoint\textwidth
871   \setlength\@tempdima{\paperheight}
872   \addtolength\@tempdima{-2in}
873   \addtolength\@tempdima{-1.5in}
874   \divide\@tempdima\baselineskip
875   \@tempcnta=\@tempdima
876   \setlength\textheight{\@tempcnta\baselineskip}
877 \addtolength\textheight{\topskip}
878 \if@twocolumn
879 \setlength\marginparsep{10\p@}
880 \else
881 \setlength\marginparsep{10\p@}
882 \fi
883 \setlength\marginparpush{7\p@}
884   \if@twoside
885     \setlength\@tempdima        {\paperwidth}
886     \addtolength\@tempdima      {-\textwidth}
887     \setlength\oddsidemargin    {.4\@tempdima}
888     \addtolength\oddsidemargin  {-1in}
889     \setlength\marginparwidth   {.6\@tempdima}
890     \addtolength\marginparwidth {-\marginparsep}
891     \addtolength\marginparwidth {-0.4in}
892   \else
893     \setlength\@tempdima        {\paperwidth}
894     \addtolength\@tempdima      {-\textwidth}
```

```
895    \setlength\oddsidemargin    {.5\@tempdima}
896    \addtolength\oddsidemargin  {-1in}
897    \setlength\marginparwidth   {.5\@tempdima}
898    \addtolength\marginparwidth {-\marginparsep}
899    \addtolength\marginparwidth {-0.4in}
900    \addtolength\marginparwidth {-.4in}
901  \fi
902  \ifdim \marginparwidth >2in
903    \setlength\marginparwidth{2in}
904  \fi
905  \@settopoint\oddsidemargin
906  \@settopoint\marginparwidth
907  \setlength\evensidemargin  {\paperwidth}
908  \addtolength\evensidemargin{-2in}
909  \addtolength\evensidemargin{-\textwidth}
910  \addtolength\evensidemargin{-\oddsidemargin}
911  \@settopoint\evensidemargin
912  \setlength\topmargin{\paperheight}
913  \addtolength\topmargin{-2in}
914  \addtolength\topmargin{-\headheight}
915  \addtolength\topmargin{-\headsep}
916  \addtolength\topmargin{-\textheight}
917  \addtolength\topmargin{-\footskip}
918  \addtolength\topmargin{-.5\topmargin}
919  \@settopoint\topmargin
920 \setlength\footnotesep{10.4\p@}
921 \setlength{\skip\footins}{13\p@ \@plus 4\p@ \@minus 2\p@}
922 \setlength\floatsep    {14\p@ \@plus 2\p@ \@minus 4\p@}
923 \setlength\textfloatsep{20\p@ \@plus 2\p@ \@minus 4\p@}
924 \setlength\intextsep   {16\p@ \@plus 4\p@ \@minus 4\p@}
925 \setlength\dblfloatsep    {16\p@ \@plus 2\p@ \@minus 4\p@}
926 \setlength\dbltextfloatsep{20\p@ \@plus 2\p@ \@minus 4\p@}
927 \setlength\@fptop{0\p@ \@plus 1fil}
928 \setlength\@fpsep{10\p@ \@plus 2fil}
929 \setlength\@fpbot{0\p@ \@plus 1fil}
930 \setlength\@dblfptop{0\p@ \@plus 1fil}
931 \setlength\@dblfpsep{10\p@ \@plus 2fil}
932 \setlength\@dblfpbot{0\p@ \@plus 1fil}
933 \setlength\partopsep{3\p@ \@plus 2\p@ \@minus 2\p@}
934 \def\@listi{\leftmargin\leftmargini
935            \parsep 5\p@  \@plus2.5\p@ \@minus\p@
936            \topsep 10\p@ \@plus4\p@   \@minus6\p@
937            \itemsep5\p@  \@plus2.5\p@ \@minus\p@}
938 \let\@listI\@listi
939 \@listi
940 \def\@listii {\leftmargin\leftmarginii
941              \labelwidth\leftmarginii
942              \advance\labelwidth-\labelsep
943              \topsep    5\p@   \@plus2.5\p@ \@minus\p@
944              \parsep    2.5\p@ \@plus\p@    \@minus\p@
```

```
945                   \itemsep    \parsep}
946 \def\@listiii{\leftmargin\leftmarginiii
947                   \labelwidth\leftmarginiii
948                   \advance\labelwidth-\labelsep
949                   \topsep    2.5\p@\@plus\p@\@minus\p@
950                   \parsep    \z@
951                   \partopsep \p@ \@plus\z@ \@minus\p@
952                   \itemsep   \topsep}
953 \def\@listiv {\leftmargin\leftmarginiv
954                   \labelwidth\leftmarginiv
955                   \advance\labelwidth-\labelsep}
956 \def\@listv  {\leftmargin\leftmarginv
957                   \labelwidth\leftmarginv
958                   \advance\labelwidth-\labelsep}
959 \def\@listvi {\leftmargin\leftmarginvi
960                   \labelwidth\leftmarginvi
961                   \advance\labelwidth-\labelsep}
962 ⟨/top14⟩
```

4.7   The package file `trieste.sty` for the `classica` option

As mentioned above, the `classica` option was devised in order to cope with theses in humanities and the specifications came from Paolo Ciacchi, a student of the University of Trieste, who was preparing a master thesis in classical Greek philology. The necessity of the large normal size derived from the necessity of having clear mark-up signs among the myriad philologists use, that sometimes let me believe that the philological mark-up requires typesetting environments similar to the mathematical ones, since the material to be typeset does not form a linear sequence, as in plain text, but a bi-dimensional structure as in mathematics. In previous version this file was input with the option `trieste`, but another option `classica` was defined so as not to tie these facilities only to the University of Trieste.

The other requirements involve the title page and I agreed to implement them, since they are likely to be useful for other universities as well; the effort for localizing this bundle makes this point less stringent compared to the previous versions, but there are other layout fine points that cannot be solved with a simple substitution of infix strings.

In order to have the whole bundle be aware of the option classica a specific control sequence is defined so as to be unique to this file. This definition is not "undefined" only if this file has already been input.

```
963 ⟨*toptrst⟩
964 \NeedsTeXFormat{LaTeX2e}
965 \ProvidesPackage{trieste}%
966     [2008/12/15 v.5.00 specific options for classical thesis typesetting]
967 \def\StileTrieste{classica}
```

For the options specific to this package a couple of boolean variables are defined and the option definitions set them to the value "true".

```
968 \newif\if@utoretitolo \@utoretitolofalse
969 \newif\if@ldstyle \@ldstylefalse
970 \DeclareOption{autoretitolo}{\@utoretitolotrue}
971 \DeclareOption{oldstyle}{\@ldstyletrue}
972 \ProcessOptions
```

The singular and plural masculine and feminine strings for "candidate" are redefined. For other languages the configuration file comes in handy.

```
973 \def\Candidato{Laureando}
974 \def\Candidata{Laureanda}
975 \def\Candidati{Laureandi}
976 \def\Candidate{Laureande}
```

Since theses in humanities may end up to occupy several volumes (classically "tomo" in Italian means "volume", although the latter spelling is valid also in Italian with the same meaning but appears to be neglected by the humanists; in English "tome" indicates a "large book"; in Italian the meaning nuance of "tomo" is a little different because it is used to indicate the volumes into which a large typeset work is divided; the humanists, as usual, know well their words and use them properly!) a mechanism is set up to create a different title page for each volume; we need a volume counter and a command to start each volume; the \frontespizio macro typesets the real title page and we have already seen that it can print the volume ordinal. The localization allows to change the infix string that is going to be printed. When several tomes are involved, instead of using the \frontespizio macro, use the \tomo one, that provides to stepping up the volume counter before actually printing the new tome title page.

```
977 \newcounter{tomo}
978 \newcommand*{\tomo}{\clearpage\stepcounter{tomo}\frontespizio}
```

Folios as well are to be redefined and also the page styles require a redefinition so as to being able to use old style numbers. The macro \lapagina (it's not a case the this macro name is the direct translation of "the page") contains the folio number; if it is in roman numerals nothing happens, but if the old style numbers are required the folio is surrounded by the proper macros so as to expand the folio macro before typesetting it in old style. The page style does not need an actual redefinition, because the original definition in file toptesi.sty already uses \lapagina as the typeset folio indicator.

```
979 \renewcommand*{\lapagina}{%
980     \ifnumeriromani
981         \thepage
982     \else
983         \if@ldstyle
984             \expandafter\oldstylenums\expandafter{\thepage}%
985         \else
986             \thepage
987         \fi
988     \fi
989     }
```

But we actually have to redefine the page style for the new headings because the classica options changes completely the left and the right headers depending on the option autoretitolo; in this case the left header contains the candidate's name a a short version of the thesis title, while the right heading contains the chapter (short) title; if this option is not in force, headings appear as usual. The redefinition of the headings page style is made only of this option is in force. IN case of two side printing where the left head and the right head are different, the left heading contains the author name and the short title name; if there are other authors the first author name is printed followed by "et al."; if the over all header string exceeds the text width, a message is printed so as to induce the user to make use of the optional \titolo argument, the one that is supposed to contain the short title. In the right heading there is the chapter title; again if the header turns out to bee too wide, a message is issued to the user.

More complicated things are done when typesetting on one side; in facts the author name (possibly followed by "et al.") and the short thesis title are typeset on the left of the only header while the chapter title is typeset on the right; in the unlikely situation where these two elements separated by at least 2em of white space do not exceed the text width, they are printed, but if they do, as it is likely to happen, then my suggestion would be not to use the autoretitolo option, but if the user absolutely wants this layout, then the author's name, possibly followed by "et al.", and the short thesis title are set in a vertical box; the same happens for the chapter title in another box; these texts are set withe ragged margins on the center, and finally these boxes are set one next to the other with an intermediate glob of infinitely stretchable glue, and finally set in the header box with a rule underneath the two of them. The result might be barely acceptable if both vertical boxes do not exceed two lines and no words have to be hyphenated, but in general I believe it is an ugly layout; the user is warned!

```
990 \if@utoretitolo
991     \if@twoside
992 %
993         \renewcommand*{\ps@headings}{\let\@mkboth\markboth%
994         \def\@oddfoot{\null \hfill \textbf{\lapagina} \hfill \null}%
995         \let\@evenfoot\@oddfoot
996 %
997         \def\@evenhead{%
998             \setbox\@intesta\hbox{\latintext
999             \footnotesize\strut\textsc{%
1000            \@author\ifx\@secondauthor\empty\else\ et al.\fi: \@stitle}%
1001            }%
1002        \ifdim\wd\@intesta>\textwidth\headwrn{\titolo}\fi
1003        \underline{\makebox[\textwidth]{\box\@intesta}}}%
1004        \def\@oddhead{\latintext
1005            \setbox\@intesta\hbox{%
1006                \footnotesize\strut\textsl{\rightmark}}%
1007        \ifdim\wd\@intesta>\textwidth \headWarn{\section}\fi%
1008        \underline{\makebox[\textwidth]{\box\@intesta}}}%
1009        \def\chaptermark##1{\markright{\thechapter\ -- ##1}{}}%
```

```
1010          \def\sectionmark##1{}}%
1011      \else
1012        \renewcommand*{\ps@headings}{\let\@mkboth\markboth
1013            \def\@oddfoot{\null \hfill \textbf{\lapagina}\hfill \null}%
1014            \let\@evenfoot\empty\let\@evenhead\empty
1015            \def\@oddhead{{\setbox\z@\hbox{\latintext\footnotesize
1016            \textsc{%
1017            \@author\ifx\@secondauthor\empty\else\ et al.\fi: \@stitle}}%
1018            \setbox\tw@\hbox{\latintext\footnotesize\textsl{\rightmark}}%
1019            \dimen@=2em\advance\dimen@\wd\z@\advance\dimen@\wd\tw@
1020            \ifdim\dimen@<\textwidth \relax
1021            \else
1022              \setbox\z@\vbox{\hsize.48\textwidth\parindent\z@\raggedright
1023              \latintext\footnotesize\textsc{%
1024              \@author\ifx\@secondauthor\empty\else\ et al.\fi: \@stitle
1025              }}%
1026              \setbox\tw@\vbox{\hsize.48\textwidth\parindent\z@\raggedleft
1027                  \latintext\footnotesize\textsl{\rightmark}}%
1028            \fi
1029            \setbox\@intesta\vbox to\z@{%
1030                \vss\hbox to\textwidth{\strut\box\z@\hfill\box\tw@}}%
1031            \underline{\box\@intesta}}%
1032            \def\chaptermark##1{\markright{\thechapter\ -- ##1}}}}
1033      \fi
1034 \fi
```

Here `\annoaccademico` is defined that typesets the infix string corresponding to "Anno accademico" followed by the year range in old style numbers (irrespective of the `oldstyle` option); Commands for the localization are provided so as to set a different string, possibly through the configuration file. In order to set an adequate en-dash between the old style numbers a new definition is given that takes care to set the dash at a height above the base line that copes the specific shape of the old style numbers.

```
1035 \newcommand*\NomeAnnoAccademico[1]{\gdef\AnnoAccademico{#1}}
1036 \@ifundefined{AnnoAccademico}{\gdef\AnnoAccademico{Anno accademico}}{}
1037 %
1038 \def\annoaccademico#1{%
1039   \def\@submitdate{{\large\textsc{\AnnoAccademico}} {\Large\s@tanno#1!}}}
1040 \def\s@tanno#1-#2!{\oldstylenums{#1\EnDash#2}}
1041
1042 \def\EnDash{{\settowidth{\dimen@}{\large\sc I}%
1043 \setbox\tw@\hbox{2}\dimen\tw@.5\ht\tw@\advance\dimen\tw@-.5\dp\tw@
1044 \dimen4\dimen\tw@\advance\dimen4by.0385ex\relax
1045 \advance\dimen\tw@-.0385ex\relax
1046 \makebox[1.5\dimen@]{%
1047     \vrule\@width\dimen@\@height\dimen4\@depth-\dimen\tw@}}}
```

The footnote rule separator is also longer that the default one. Dealing with notes the footnote separator is also changes as well as the footnote skip. But the humanists like to have also unnumbered notes within numbered ones, as if they

were two separate sets; of course specialized extensions are available on CTAN, but as a poor man solution the command `\nota` was introduced that inserts a note with a symbol as a note mark; the symbol *must* be a mathematica symbol as the dagger or the double dagger; by default it is the asterisk. At the same time the default definition of the mathematical asterisk is that of a binary operator; I have experienced that the note symbol gets a better positioning if if is declared an ordinary symbol, treated as, say, a letter. This is why its math code is redefined. A final unusual request was to be able to put a blank unnumbered note, as a (rather wide) note separator. The command `\NoteWhiteLine` has to be used at the end of the text of the preceding note.

```
1048 \renewcommand\footnoterule{%
1049    \kern-6\p@
1050    \hrule\@width.4\columnwidth
1051    \kern5.6\p@}
1052 \setlength\footnotesep{12\p@}
1053 \setlength{\skip\footins}{24\p@ \@plus 4\p@ \@minus 2\p@}
1054 \DeclareMathSymbol{*}{\mathalpha}{symbols}{"03}
1055 \newcommand*\nota[1][*]{%
1056    \xdef\@thefnmark{\ensuremath{\m@th#1}}\@footnotemark\@footnotetext
1057 }
1058 \newcommand*{\NoteWhiteLine}{\par\vspace*{-.3\baselineskip}}
```

The humanists asked me to create some other simple macros: one for skipping a whole page, without header and footer; another to compose a dedication page; a third one for typesetting a page with one or more witty sentences. The first request has a trivial solution, but at least `\paginavuota` is much shorter to type in that its expansion.

The environments `dedica` for the dedication, and `citazioni` for the witty sentences are almost identical; both typeset their content with a reduced text width, half of the normal one; this column is typeset on the right of the page. The `dedica` environment is supposed to be used in the front matter, while the witty sentence environment may be used anywhere. The dedication is typeset in `\Large` font size and in italics; if the author wants a different size and/or a different shape s/he must specify it at the beginning of the dedication. The `citazioni` environment typesets its material with the default font shape series and size, so the author has to specify any change s/he desires.

```
1059 \newcommand*\paginavuota{\clearpage\thispagestyle{empty}\null\clearpage}
1060 %
1061 \newenvironment{dedica}{\clearpage
1062    \if@twoside
1063       \ifodd\c@page\else\thispagestyle{empty}\clearpage\fi
1064    \fi
1065    \thispagestyle{empty}%
1066    \list{}{\labelwidth\z@
1067    \leftmargin.5\textwidth
1068    \parindent\z@
1069    \raggedright\LARGE\itshape}\item[]
1070 }{%
```

```
1071      \endlist\clearpage
1072 }
1073 %
1074 \newenvironment{citazioni}{%
1075      \clearpage\thispagestyle{empty}
1076      \list{}{\labelwidth\z@
1077      \leftmargin.5\textwidth
1078      \parindent\z@
1079      \raggedright}\item[]
1080 }{%
1081      \endlist\clearpage
1082 }
1083 ⟨/toptrst⟩
```