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Standard layout for scientific CWI-publications

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# Standard Layout for Scientific CWI-Publications

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This document defines the standard layout to be used for CWI tracts, monographs, reports, etc. Furthermore, it details the text-processing procedures needed to generate this layout.

Key Words & Phrases: Typesetting, textprocessing.

## 1. INTRODUCTION

In 1984 R.T. BAANDERS, J. K. LENSTRA and H. NOOT designed a standard typographical form for (scientific) CWI publications, which was thereafter approved by the board of directors of the CWI. In sections 1. and 2. and appendices I and II that standard is described. The other sections describe software through which it can be generated.

At the core of our text-processing system lie the UNIX<sup>1</sup> text-processing software **troff** [1], the **ms**-package [2], **eqn** [3] and **tbl** [4]. Furthermore, the utilities **refer** [6], **pic** [7] and **ideal** [8] can be used. For the production of a document in CWI standard layout, three additional software components are provided:

- 1 A preprocessor (**preproc**), written in C.
- 2 A collection of **troff** macros.
- 3 A set of additional **eqn** definitions.

The CWI macro package is a variation on the **ms**-package [2]. Some **ms**-macros are (slightly) modified, others are added to the package. This manual describes only the *differences* with the **ms** package. Our **eqn** definitions are described in Appendix III. Hence for a complete description of the text processing system used at CWI, the documentation on **nroff/troff** [1], the **ms**-package [2], **eqn** [3] and **tbl** [4] should be consulted. Furthermore, **refer** [6], **pic** [7] and **ideal** [8] can be used. This document only serves as an addendum to these manuals.

The standard must be applied to CWI publications in bookform such as monographs, conference proceedings and other collections of articles, as well as to scientific reports. For other kinds of documents (letters, leaflets, etc.) no standard has as yet been defined.

Standardized publications come in three physically different forms:

- 1 *Tract 10/12*, used for mathematical publications in book form. The page size (paper size) is 16×24 cm. The publication is set from 10 point type with a vertical line spacing of 12 points.

1. UNIX is a trademark of Bell Laboratories

2 *Tract 9/11*, which may be used for non-mathematical publications. Set from 9 point type with a line spacing of 11 points. In all other aspects, *Tract 9/11* is identical to *Tract 10/12*.

3 *Report 10/12*. For publications which are not in book form. The layout is like that of *Tract 10/12*, except that:

1 The page size is 20×28 cm.

2 The title page contains some extra elements (see section 2).

The layout of these three kinds of publications is almost identical, and is controlled by one and the same set of markup phrases (macros). Selection of a specific layout is brought about by a call to one of the macros `.TR`, `.T9` or `.RP` at the beginning of a document.

## 2. LAYOUT DESCRIPTION

In this section we describe the common properties of the layout of *Tract 10/12*, *Tract 9/11* and *Report 10/12*. A central feature of these document forms is that they have the same logical structure. They consist of collections of chapters and appendices or of collections of articles, in which every chapter or article begins with a special title page. An annotated layout example can be found in Appendix I. Furthermore, this document itself is an example of *Report 10/12* style.

### 2.1. Use of typefounts

The correspondence between typefounts to be used and text to be typeset is as follows:

Times Roman: Body text.

Times Roman Small Capital: Used in section headings, proper names and in standard words like 'THEOREM', 'FIGURE', etc. (see the heading of section 2).

Times Italic: Used for subsection and yet lower level headings (see the heading of this subsection) and everywhere (reference, abstract, footnote, main text) in titles of publications (see also section 2.7.).

Vega Light: Used for chapter number, chapter title, chapter subtitle, author's names, page numbers and abstract.

Vega Light Italic: To typeset running heads and author's affiliation.

For special purposes, other typefounts may be used. In this report for instance, texts which represent input to the typesetting programs are set from the OCR-B fount and program names are set from Times Roman Bold.

### 2.2. Elements of a title page

The first (title) page of a chapter, article or appendix contains some text-elements which are not found on other pages. We describe these elements starting with the element that is situated at the top of the page and then work our way downwards. For details of element size and positioning, Appendix I and II can be consulted.

Just as any other page, a title page contains a page number (set from 10 point Vega Light) but there is no running head.

Next there may be a centered line with the text 'Chapter' or 'Appendix', followed by a chapter or appendix number (Set from Vega Light, 14 point).

Next comes the chapter, article or appendix Title (set centered, Vega Light, 14 points), followed by an optional subtitle (10 point Vega Light, centered).

Then, there may be an author name (names) (set from 10 point Vega Light, centered) which is followed on the next line by an author *affiliation* (set from Vega Light Italic, 8 point). The sequence: author name(s), affiliation may be repeated.

Next is space for an abstract (set from Vega Light, 8 point, with a line spacing of 10 points). This abstract is indented 30 points with respect to both the left- and the right margin used for the main text.

Whenever appropriate, there is room at the end of the abstract for a Mathematical Subject Classification, Keywords & Phrases and Notes.

Then, the main text of a chapter (article, appendix) starts. If necessary, enough white space will be inserted to ensure that the main text does not begin higher than 252 points below the page number.

Reports must have a report number plus the address of CWI at the page bottom (see `.RN`, section 4.3.).

### 2.3. Headings

There are 5 different kinds of headings each with different typographical properties:

Chapter (article, appendix) titles are only used at the top of a title page. Set from 14 point Vega Light, centered (see section 2.2).

Chapter (article, appendix) subtitles may only be used directly below titles. Set from 10 point Vega Light, centered.

Section headings are mainly set from Times Small Capitals (9 or 10 point depending on the type size of the main text). The first character from the first word of a Section heading is always capitalized! The same is true for the first character of every other section-heading word, except for 'unimportant' words like pronouns. Section headings are preceded by one blank line. The section text starts on the next line. (EXAMPLE: heading 2. of this report.)

Subsection headings are like section headings but they are set from Times Italic. Only their first character is capitalized. (EXAMPLE: heading 2.2. of this report.)

All headings of lower level than subsection headings are typographically indistinguishable from each other. They are set from Times Italic, are preceded by one blank line but immediately followed on the same line by the text of the section to which they apply. Hence, care should be taken to terminate such a heading with a period. (EXAMPLE: heading 2.7.1. below.)

It is up to the author to decide whether headings are numbered or not. If numbered headings are used, heading numbers should be set from the same type as the rest of the heading.

### 2.4. Paragraphs and white space

The standard prescribes that the text of a paragraph starts on a new line, with an indentation of 1 em (i.e. 10 points for 10 point type, 9 points for 9 point type). A paragraph following a title, section heading or subsection heading however has no indented first line. A paragraph which is preceded by a still lower level heading does not even begin on a new line. In principle, there is no white space between adjacent paragraphs. White space surrounding formulas, section headings etc. is automatically provided by the appropriate format commands. Only under exceptional circumstances caused by typographical reasons may the user explicitly insert some white space between adjacent paragraphs. (An example is the white space between lines 4 and 5 of section 2.8.) In those cases, a white space of 4 points is used.

### 2.5. Running heads and page numbers

Pages have running heads at the side near the back of the book and page numbers at the other side. Both are placed at the top of the page. So, a right-hand page has a page number at its right hand side and a running head at its left-hand side. The converse holds for left-hand pages. Right-hand pages have odd page numbers, left-hand pages are numbered even. Title pages have a page number but never a running head. Page numbers are set from 10 point Vega Light, running heads from 8 point Vega Light Italic. Normally, running head text is derived from heading text. The left-hand page may have title, section heading or subsection heading text for its running head. The right-hand page running head may contain section heading text, subsection heading text or even text from headings at still deeper levels. Normally, for pages which face each other, the left hand running head text comes from a (sub)section heading at a higher (or at most at the same) level as the level of the heading which contains the right-hand running head (but see page 5 of this document!). Apart from that, it is up to the author to decide which level of headings is used for running heads, as long as it is used systematically.

## 2.6. Footnotes

Footnotes are set from 8 point Times Roman with 10 point line space. In the main text, footnotes are referred to by means of an 8-point digit which is raised one half line space. The footnote text itself is labelled by a digit which is directly followed by a period and a digit-wide space. The footnote numbering starts anew on every page.

Footnotes on the first page of a *Report* are an exception; they are set from Vega Light just as the Report number etc. below them. (See the first page of this report.)

## 2.7. References

**2.7.1. The form of a reference.** References are collected at the end of chapters, articles or the complete publication. A list of references begins with a line containing the word 'REFERENCES'. Next come the references, each starting on a new line, as in:

21. E. W. DIJKSTRA (October 1972). The humble programmer, *CACM*, 15.10, 859-866.

In general, a reference has the form:

1 Author name, set from Times Small Capitals as in:

E. W. DIJKSTRA

Note that only initials are used (no full Christian names) and that they come before the family name. Multiple author names are separated by commas.

2 A date of publication, as in:

(October 1972).

3 If there is a reference to an article in a journal, in conference proceedings, etc., now comes the title of the article set from Times Roman as in:

The humble programmer,

Note that the only the first character from this title is capitalized.

4 Next comes the title of the 'physical object' (book, conference proceeding, journal etc.) to which the reference is made. This title is set from Times Italic as in:

*CACM*,

Important words in the title begin with a capital. (Example: *Computer Programming as an Art*.)

5 Next come, as far as applicable, a report identification, a volume number, an issue number and page numbers, a publisher or issuer, the place of publication and eventually further specifications (all from Times Roman) as in:

15.10, 859-866.

(Another example: Doctoral Thesis, Math. Dept, MIT, Cambridge Mass.)

In the main text, a reference is indicated by an integer between square brackets (e.g. [2]).

**2.7.2. Using the refer preprocessor.** A sure way to get references in CWI standard format is to use the utility **refer** [6]. This **troff** preprocessor places calls to macros which format references in its output. A package of macros which is adapted to CWI style is automatically used when **refer** is invoked through the **STANDARD** command (see section 5). To get the example reference from 2.7.1. in correct form, the lines

```
%A E. W. Dijkstra
%T The humble programmer
%J CACM
%V 15
%N 10
%P 859-866
%D October 1972
```

could have been embedded directly in the document or in a database file of references.

### 2.8. Mathematics

Mathematics is typeset using the standard **eqn** preprocessor [3]. Additional symbols which can be used in formulae, but which are not described in [1] or [3] can be found in:

1 *Typesetting and Troff* [5].

2 Appendix III.

Some remarks on style:

1 Displayed equations are set indented and may be numbered at the right margin.

2 Theorems, Lemmas and the like are typeset from Times Italic (their text only, not proofs etc.).

EXAMPLE:

**THEOREM 78 (MAC WILLIAM).** *Let  $C$  be an  $(n, k)$  code over  $GF(q)$  with  $A_i$  the number of vectors of weight  $i$  in  $C$  and  $B_i$  the number of vectors of weight  $i$  in  $C$ . The following equations relate the  $\{A_i\}$  and  $\{B_i\}$*

$$\sum_{j=0}^n \binom{n-j}{n-v} B_j = q^{v-k} \sum_{j=0}^n \binom{n-j}{v} A_j. \quad (31)$$

See also Appendix I.

3 The following words are set from Times Roman Small Capital: **THEOREM (STELLING)**, **LEMMA**, **PROOF (BEWIJS)**, **COROLLARY (GEVOLG)**, **EXAMPLE (VOORBEELD)** and **DEFINITION (DEFINITIE)** whenever they are used to 'label' a theorem etc. (see further 4.4.). Otherwise they are set from plain Times Roman as can be seen in the previous sentence.

### 2.9. Figures and tables

Figures and tables are centered. Figure and table captions are centered on a line below the figure or table. When figures (tables) are numbered, the caption should begin with **FIGURE (TABLE, FIGUUR, TABEL)** followed by that number and possibly further caption text. Number and caption text are set from Times Roman (see the example in Appendix I).

Whenever possible, tables are set at the same point size as the body text of the document (i.e. 9 or 10 point). Only for tables which would otherwise exceed the linelength, smaller type can and must be used. When numerical tables contain fractions, it is strongly suggested to use the small fractions available through our **eqn** definitions (see Appendix III).

## 3. PREPROCESSING

There are some markup directives which are not directly implemented as **troff** macros. For those directives the first processing step is performed by the preprocessor **preproc** as in:

**preproc file.in | tbl | eqn | troff ...**

This preprocessor converts the relevant markup directives to **troff**-compatible expressions.

Partly for historical reasons and partly for convenience, the following three markup directives are supported:

**x\0 y**

gives the overprint of  $x$  by  $y$ . It is advantageous to use this notation for accents instead of standard **troff**-expressions like  $\backslash z$  or  $\backslash o$ . The quality of output is often better this way. For instance, when **i\0** occurs, a 'dotless i' is used automatically. For a list of accents, see Appendix IV.

**\ (n spaces)**

generates a stretch of white space, the size of  $n$  ems.

**.NP**

generates a new page. (Note: use of **.NP** without use of the preprocessor is a catastrophe because of interference with an **ms**-macro of the same name.)

Furthermore, the following markup phrase is partially supported by the preprocessor (and partially by a CWI standard macro):

```
.SC "Text in Upper- and Lower Case"
```

**.SC** maps the upper case characters of its argument to upper case characters and the lower case characters to (sometimes simulated) small capitals, compatible with the typefont currently in use.<sup>1</sup>

EXAMPLE:

```
.SC "K. Go\0"del"
```

generates:

```
K. GÖDEL
```

**.HA L R**

automatically derives running heads from headings. The **L**- argument indicates from which heading the left-hand running head is extracted, the **R**- argument does the same for the right-hand running head. **L** and **R** can have the values: **TL**, **SH**, **SS** or **OH**. When **.HA** is called without arguments, the automatic header mechanism is switched off. The preprocessor extracts text from header text and inserts calls to the **ms**-macros **.HO** and **.HE** (see section 4.2.). The text is taken from the *first* input line following **.TL**, **.SH** or **.SS** or from the argument to **.OH**. During this extraction, leading section numbers from headers are removed, unwanted capitals are mapped to lower case, long texts are truncated, etc. But nevertheless, the result is not always as desired. In those cases, the user should explicitly insert calls to **.HO** or **.HE** with the appropriate arguments in the final version of his input text.

Finally, the macros **.AB**, **.AE**, **.SH**, **.NB**, **.NE**, **.FS** and **.FE** more or less rely on the preprocessor. Without preprocessing they generate reasonable output, but *not* standard layout! The same is true when author names are generated through **refer** (**%A** produces names set from small capitals because of some preprocessing).

## 4. MACRO AND STRING DEFINITIONS

### 4.1. Macros from the *ms*-package

Our CWI standard layout package is an adapted version of the **ms**-package. Some macros are added to **ms**, others are modified. But although the typographical result may be slightly different, all macros from **ms** described in [2] can be used freely. (Except for **.NL**, which has been redefined by us.) The macros **.CT**, **.TR**, **.RP**, **.IE** and **.HO** which are part of the **ms**-package but are not described in [2], have totally different effects in our package, however.

Note: The number registers **LL** (Line Length), **LT** (Length Title), **FL** (Footnote Length), **PS** (Point Size), **VS** (Vertical point Size), **HM** (Header Margin) and **FM** (Footer Margin) which are used in the **ms**-package, are set to different values by our macros. These register values should not be tampered with by users who want to produce CWI standard layout. Furthermore, the user of the CWI standard macro package should not define his own macros, strings or number registers with names beginning with '@', because names of objects internal to the CWI package begin that way.

1. Actually, the preprocessor converts a line of the form:

```
.SC "XxxxX Yyyy"
```

into:

```
.SC
```

```
\*(caX)\*(scXXX)\*(caX Y)\*(scYYY)\*(ca
```

A subsequent call to the **troff** macro **.SC** defines the strings **ca** and **sc** in such a way that font-changes between capitals and small capitals are generated (compatible with the current typeface).



#### 4.2. Modified *ms* macros

The macros discussed below were already present in the standard *ms*-package. In our package they have the same function, but produce output in a different style. (Some of them rely on the preprocessor for the production of standard style.)

**.HO X**

Make **X** the header text for odd numbered (right-hand) pages.

**.HE X**

Make **X** the header text for even numbered (left-hand) pages.

**.TL**

Title macro. If not preceded by a call to **.CR** or **.AP**, a call to **.TL** implies the start of a new page (otherwise we are already at the top of a new page). All following lines until the first **.SL**, **.AU**, **.AI**, **.AB**, **.SH**, **.SS**, **.OH**, **.PP** or **.LP** are set as centered title-text.

**.AU**

The following lines (until **.AI**, **.AB**, **.SH**, etc.) contain author's names.

**.AI**

Author's affiliation. (see also **.AC**, section 4.3.)

**.AB**

Begin of abstract. The following lines until **.AE** are set as abstract text.

**.AE**

End of abstract. Back to Times Roman, normal line width and point size.

**.SH**

The following lines until a call to **.SS**, **.PP** or **.LP** are set as section heading text. Capitals occurring in these lines are set from Times Roman capitals, lower case characters from small capitals.

**.PP .LP .IP**

The indentation and white space generated by these macros has been adapted to CWI style.

#### 4.3. Non-*ms* macros

The following macros are part of the CWI standard package, but not of the *ms*-package:

**.CR X**

Start a new chapter title page. The word 'Chapter' is typeset followed by the chapter number **X**.

**.AP X**

Start an appendix title page. The word 'Appendix' is typeset, followed by appendix number **X**.

**.AC**

To be used instead of **.AI** (see 4.2.) when the author's affiliation is CWI. The address of CWI is then automatically provided.

**.HB X**

Set both the left-hand head text and the right-hand head text to **X**.

**.SS**

The following line(s), until the next **.OH**, **.PP** or **.LP** are subsection header text. They are typeset from Times Italic.

**.OH X**

The argument **X** is text for a heading at a lower level than a subsection heading. These headings are typeset from Times Italic and are automatically followed by a period. (Body text continues on the same output line.)

**.NN X Y**

**.NN** behaves like the *ms* macro **.NH**. It adds section numbers for nested sections to headings. The nesting-depth is determined by the first (**X**) argument to **.NN** which can have values 0, 1, 2, etc. (See further the discussion of **.NH** in [2].) Headings are set in a style compatible with that of **.SH**, **.SS** or **.OH**. As a consequence on nesting-levels 1 and 2 the heading text must follow on lines directly below the call to **.NN** and be followed by **.LP**. The second (**Y**) argument to **.NN** is absent in that case. Headings on nesting-levels > 2 are to be given as the second (**Y**) argument to **.NN** however. In that

case, `.LP` is not used. (Analogous to the use of `.OH`.)

EXAMPLE:

```
.NN
Section Heading
.NN 2
Subsection heading
.NN 3 "Other heading"
It is clear that...
```

generates:

1. SECTION HEADING

*1.1. Subsection heading*

*1.1.1. Other heading.* It is clear that...

`.NB X`

Append an automatically generated reference to a footnote to the word `X`. (i.e. `X` is adorned with a somewhat raised small digit.) If no argument is given, the reference is placed slightly separated from the previous text word. The following lines, until a call to `.NE` are footnote text proper and go to the bottom of the (current) page. This footnote will be labeled by the same digit. `.NB` only works correctly within plain text but not within titles, displayed text, tables etc. If footnotes are to be used there, do the following: In the first place append the footnote reference explicitly using `\s7\un\d\s0`, which places reference `n`. Secondly place the text for the footnote between `.NB -` (`.NB` with a `-` as argument!) and `.NE` somewhere within adjacent text and not within the titles etc. The `-` argument to `.NB` suppresses the generation of the footnote reference (which has already been placed by hand).

`.NE`

Signals the end of the text that will go into a footnote.

EXAMPLE:

If the input contains:

```
This is a
.NB reference
This is the footnote from the example.
.NE
to a footnote.
```

the output is:

This is a reference<sup>1</sup> to a footnote.

as well as the footnote at the bottom of this page.

`.SC "Capitals interspersed with strings of the form: \*(sc or \*(ca"`

Typesets its argument from Capitals and Small Capitals. (See also section 3.)

`.SB, .SE, .SI, .SU`

Like `.IP` from the `ms`-package, these macros generate labeled indented paragraphs. A difference with `.IP` is that the labels are automatically generated. The main reason for incorporating `.SB` etc. is historical. They were part of a non-`troff` formatting system once in use at CWI.

1. This is the footnote from the example.

**.SI X**: Set indentation parameter to *X* ems.  
**.SB**: Begin indented paragraph (Sum up Begin). Use indentation as previously set by **.SI**. (**.SB Y** can be used to override the indentation as set by **.SI**. It gives it a value of *Y* ems.)  
**.SE**: End indented paragraph (Sum up End).  
**.SU**: Only to be used between calls to **.SB** and **.SE**. The current output-line is terminated and a new one is started. The first call to **.SU** after **.SB** places 1 in the extra margin space generated by **.SB**. The *n*-th call to **.SU** places *n* in that position. As an alternative, **.SU X** can be used. Then the argument *X* is placed in the margin instead of the automatically generated digit.

EXAMPLE:

```
Text processing software:
.SB
.SU
\fbnroff/troff\fr, a text formatter which can be used in
conjunction with various preprocessors, like \fBeqn\fr, \fBtbl\fr,
\fbpic\fr, \fBideal\fr and \fbrefer\fr.
.SU
\fBeqn\fr, a preprocessor for mathematical text.
.SE
```

generates:

```
Text processing software:
1 nroff/troff, a text formatter which can be
  used in conjunction with various
  preprocessors, like eqn, tbl, pic, ideal and
  refer.
2 eqn, a preprocessor for mathematical text.
```

Note that the numbers 1 and 2 in the margin are automatically generated by **.SU** which is not the case when **.IP** is used.

**.IB**, **.IE**, **.K<**

Another version of indented paragraphs. **.IB** starts an indented block, **.IE** ends it. The amount of indentation is the same as for **.IP**. **.K<** may only be called between an **.IB**, **.IE** pair. A call to **.K<** has the effect that the current output-line is terminated and a new one started. This new output line is *not* extra indented however but starts at the margin in use before the call to **.IB**. The next output line is extra indented again. (Section 2.1. is generated that way.)

**.NI**, **.Ni**, **.NA**

Again a historical relic! A call to **.NI** will cause page numbers to be in the format I, II, III, IV etc. A call to **.Ni** leads to numbers of the form i, ii, iii etc. (Note that there is no period after these numbers.) **.NA** restores Arabic page numbers.

**.NL**

Terminate the current output-line and start a new one.

**.BL**

Terminate the current output-line, append a blank line and start a new output-line.

**.B4**

Works as **.BL**, but generates a thin blank line with a height of 4 points.

**.HN**, **.HY**

Do not hyphenate any further (**.HN**) or switch on hyphenation (**.HY**).

**.RN X**

Generate a footnote which states that this is report number *X* and which gives the address of CWI. To be used on *title-pages* of *reports* only.

EXAMPLE:

`.RN OS-R8401`

when used on the first page of a report, places

```
Report OS-R8401
Centre for Mathematics and Computer Science
P.O. Box 4079, 1009 AB Amsterdam, The Netherlands
```

as a footnote at the bottom of the page. In other circumstances, `.RN` does nothing at all.

`.CT N`, `.CE`, `.II N`

These macros can be used for typesetting tables of contents of a document.

EXAMPLE:

If the contents must contain:

introduction to typesetting	10
typefonts used	12

the following input will lead to the required result:

```
.CT 10
introduction to typesetting
.CT 12
typefonts used
.CE
```

The text following `.CT` may span over more than one line. A call to `.II N` sets the following content items with an indentation of `N` ems. (The default is no indentation.) In this way, nested tables of contents can be generated.

`.TR`, `.T9`, `.RP`

These macros should only be called once, right at the beginning of a document. They determine whether the output format will be *Tract 10/12* (`.TR`), *Tract 9/11* (`.T9`) or *Report 10/12* (`.RP`). The default format is the one brought about by `TR`.

#### 4.4. String definitions

To assist in the prescribed typesetting of standard words like 'TABLE' some string definitions are supplied by the standard package. The result of their expansion may depend on whether we have a document in Dutch or English. These definitions are:

```
\*(Tm: THEOREM (STELLING)
\*(La: LEMMA
\*(Pf: PROOF (BEWIJS)
\*(Cy: COROLLARY (GEVOLG)
\*(Fe: FIGURE (FIGUUR)
\*(Te: TABLE (TABEL)
\*(Ee: EXAMPLE (VOORBEELD)
\*(Rs: REFERENCES (REFERENTIES)
\*(Dn: DEFINITION (DEFINITIE)
\*(Rk: REMARK (OPMERKING)
```

## 5. TYPESETTING COMMANDS

A document is formatted in CWI standard format by the command:

**STANDARD [flags] [pagenumber] filename [filenames]**

**Flags** can be:

<b>flag</b>	<b>effect</b>
<b>-D</b>	Document in the Dutch language
<b>-E</b>	Document in English
<b>-H</b>	Output for the Harris 7500
<b>-V</b>	Output for the Versatec
<b>-VH</b>	Simulated Harris output for the Versatec
<b>-R</b>	Use <b>refer</b> as preprocessor
<b>-RP</b>	Use refer, next argument is the name of a database file containing references

Default, an English document for the Versatec for which **refer** is not invoked, is assumed.

**Pagenumber** is a number  $\geq 1$  which is used as the number of the first typeset page. Default, a 1 is used.

EXAMPLE:

**STANDARD -RP refsfile -E -H 12 docfile1 docfile2**

When Harris-output is selected, a file named **filename.onh** is generated (the first filename from the **filenames** argument is used!). In the example, file **docfile1.onh** would be generated. That file has thereafter to be sent to the typesetter, using **harprot**. Output for the Versatec is automatically spooled to that device.

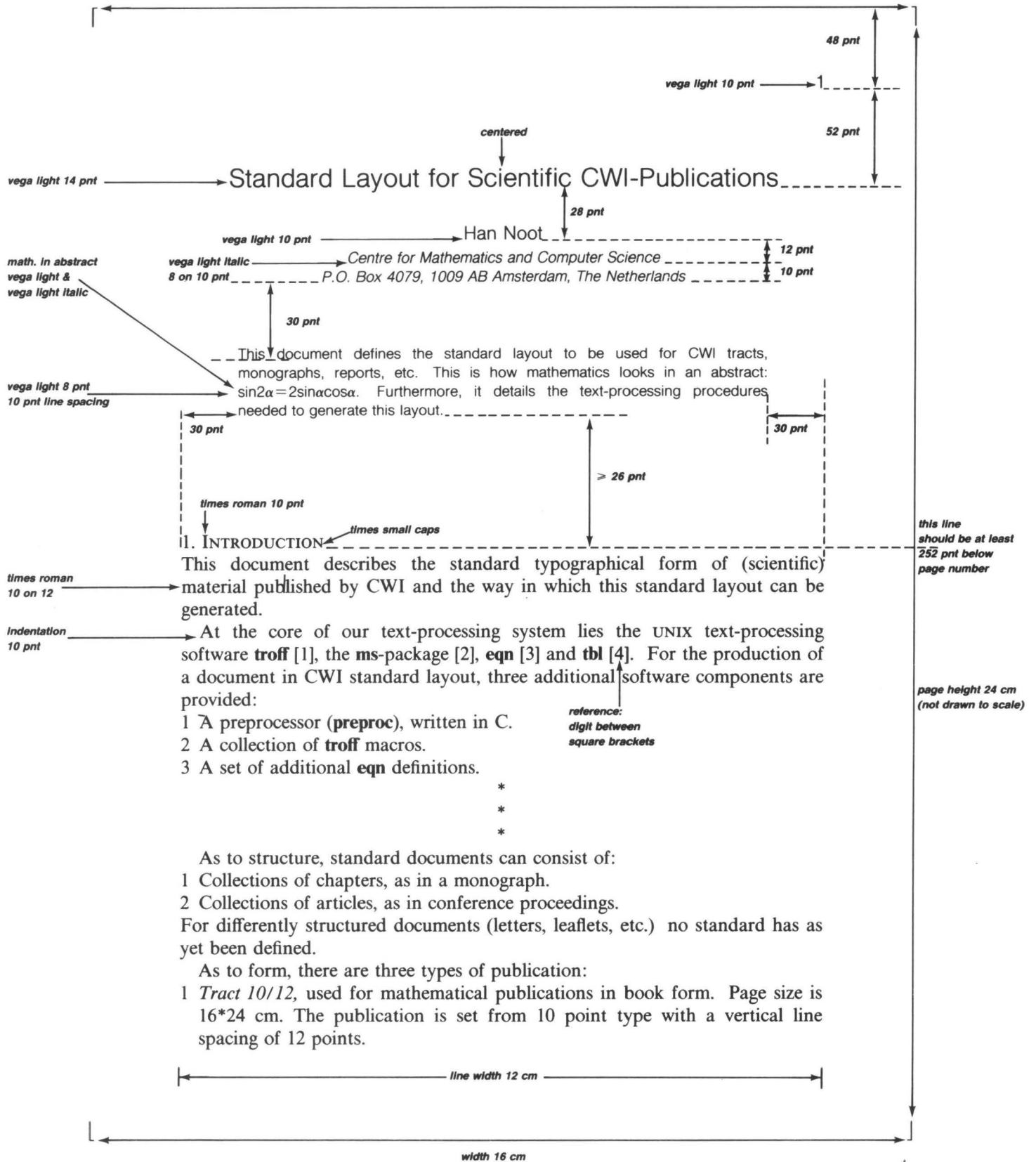
## REFERENCES

1. J. F. OSSANNA (1976). *NROFF/TROFF User's Manual*, Computing Science Technical Report No. 54, Bell Laboratories, Murray Hill, New Jersey 07974.
2. M. E. LESK (1982). *Typing Documents on the UNIX System: Using the -ms Macros with TROFF and NROFF*, Bell Laboratories, Murray Hill, New Jersey 07974.
3. B. W. KERNIGHAN, L. L. CHERRY (1976). *Typesetting Mathematics- User's Guide*, Computing Science Technical Report No. 17, Bell Laboratories, Murray Hill, New Jersey 07974.
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## Appendix I

### Tract Format

The following pages contain some annotated text in *Tract 10/12* format, showing details of page size, use of typefounts, etc. Because a tract page does not properly fit on a report page, the height and width of a tract page as well as the height of its text area are *not* shown to scale. All other dimensions, including linelength, are correct however.



vega light 10 pnt → 2

vega light italic 8 pnt → Typefounts

48 pnt

1.1. Use of typefounts ← times italic 10 pnt

The correspondence between typefounts to be used and text to be typeset is as follows:

Times Roman: Body text.

Times Small Capital: Used in section headings, proper names and in standard words like 'THEOREM', 'FIGURE', etc. (see section 2).

Times Italic: Used for subsection and subsection headings (see 2.4.3.) and everywhere (references, abstract, footnotes, main text) in titles of publications.

Vega Light: Used for chapter number, chapter title, chapter subtitle, author's names, page numbers and abstract.

Vega Light Italic: To set running heads and author's affiliation.

24 pnt (one blank line) →

1.1.1 Mathematics. Mathematics is typeset, using the standard eqn preprocessor [3]. Additional symbols which can be used in formulae, but which are not described in [1] or [3] can be found in:

\*  
\*  
\*

words like table, theorem, lemma etc. are set with the first character from times roman and the remainder from times small capitals

EXAMPLE:

theorem, lemma etc. in times italic

THEOREM 78 (MAC WILLIAM). Let  $C$  be an  $(n, k)$  code over  $GF(q)$  with  $A_i$  the number of vectors of weight  $i$  in  $C$  and  $B_i$  the number of vectors of weight  $i$  in  $C$ . The following equations relate the  $\{A_i\}$  and  $\{B_i\}$

$$\sum_{j=0}^n \binom{n-j}{n-v} B_j = q^{v-k} \sum_{j=0}^n \binom{n-j}{v} A_j$$

displayed equations are indented (not centered)

formula number right adjusted → (31)

See also Appendix I.

3 The following words are set from Times Roman Small Capital:

THEOREM (STELLING)

LEMMA

PROOF (BEWIJS)

COROLLARY (GEVOLG).

2.4.5. Figures and tables. Figures and tables are centered. Figure and table captions are centered on a line below the figure or table. When figures (tables) are numbered, the caption should begin with FIGURE (TABLE, FIGUUR, TABEL) followed by that number and eventually further caption text. Both are set from Times Roman (see the example from Appendix I).

page height 24 cm (not drawn to scale)





References

3

EXAMPLE:

words like table theorem, lemma etc. are set with their first character from times roman and the remainder in times small capitals

text element	set from
title	Vega Light
subtitle	Vega Light
author's name	Vega Light
author's affiliation	Vega Light Italic
body text	Times Roman

centered caption

TABLE 1. Use of typefonts

Whenever possible, tables are set at the same point size as the body-text of the document<sup>1</sup> (i.e. 9 or 10 point). Only for tables which would otherwise exceed the linelength, smaller<sup>2</sup> type can and must be used. When numerical tables contain fractions, it is strongly suggested to use the small fractions, available through eqn (see Appendix III).

reference to footnote: digit in pointsize 8

REFERENCES

1. J. F. OSSANNA (1976). *NROFF/TROFF User's Manual*, Bell Laboratories, Murray Hill, New Jersey 07974.
2. M. E. LESK (1982). *Typing Documents on the UNIX System: Using the -ms Macros with TROFF and NROFF*, Bell Laboratories, Murray Hill, New Jersey 07974.
3. B. W. KERNIGHAN, L. L. CHERRY (1976). *Typesetting Mathematics- User's Guide*, Bell Laboratories, Murray Hill, New Jersey 07974.
4. M. E. LESK (1976). *TBL - A Program to Format Tables*, Bell Laboratories, Murray Hill, New Jersey 07974.
5. J. N. AKKERHUIS (1983). *Typesetting and Troff*, CWI, Amsterdam, IW247/83.

names are typeset using small caps (everywhere)

(book) title: times italic (everywhere)

1. The first footnote on this page is labelled with 1. It is set from 8-point type.
2. The second footnote.

footnotes are set from times roman 8 on 10



## Appendix II

### Report Format

In the following table, the differences between *Report 10/12* and *Tract 10/12* style are summarized.

<b>property</b>	<b>Tract 10/12</b>	<b>Report 10/12</b>
page height	24 cm	28 cm
page width	16 cm	20 cm
line length	12 cm	15.5 cm
text height	20.25 cm	22.5 cm

Apart from these differences, all information from the annotated example in Appendix I applies to *Report*- as well as to *Tract* style! Finally, *Report* style requires the presence of a report number and CWI address as a footnote on the title-page (see **.RN**, section 4.3.).

## Appendix III

### Eqn Definitions

The following **eqn** keywords can be used besides the ones described in [3].

<b>keyword</b>	<b>result</b>	
FSA	Ⓐ	French Script A
FSB	Ⓑ	
.	.	
.	.	
FSY	Ⓒ	
FSZ	Ⓓ	French Script Z
fsh	Ⓔ	French Script h
fsl	Ⓕ	French Script l
fso	Ⓖ	French Script o
fsz	Ⓗ	French Script z
OPENA	<b>A</b>	Scitype open face A
OPENB	<b>B</b>	
.	.	
.	.	
OPENY	<b>Y</b>	
OPENZ	<b>Z</b>	Scitype open face Z
GOTHA	Ⓐ	Gothic A
GOTHB	Ⓑ	
.	.	
.	.	
GOTHY	Ⓒ	
GOTHZ	Ⓓ	Gothic Z
gotha	a	Gothic a
gothb	b	
.	.	
.	.	

keyword	result	
gothy	ŧ	
gothz	Ʒ	Gothic z
1o3	$\frac{1}{3}$	
1o4	$\frac{1}{4}$	
1o5	$\frac{1}{5}$	
1o6	$\frac{1}{6}$	
1o7	$\frac{1}{7}$	
1o8	$\frac{1}{8}$	
1o9	$\frac{1}{9}$	
2o1	$\frac{2}{1}$	
.	.	
.	.	
2o9	$\frac{2}{9}$	
3o1	$\frac{3}{1}$	
.	.	
.	.	
3o9	$\frac{3}{9}$	
4o1	$\frac{4}{1}$	
.	.	
.	.	
9o8	$\frac{9}{8}$	
lll	lll	
ntls	⋈	
ntgt	⋉	
3dot	∴	
smem	∈	A smaller version of ∈
snom	∉	A smaller version of ∉
SAN	∧	A smaller version of ∧
SOR	∨	A smaller version of ∨
ifrom	lower limit of integrals etc.	used instead of from (see below)
ito	upper limit of integrals etc.	used instead of to (see below)
u,		sometimes better than ‘,’ (see below)
u.		sometimes better than ‘.’ (see below)

Small fractions like 1o2, 9o9, etc. which are missing from this table are already provided in the form of **troff** special characters (see [5]).

When typesetting integrals with limits, (int from to) the limits come out much nicer if the keywords **ifrom** and **ito** are used instead of **from** and **to**.

Finally, when we have displayed formula's ending with a comma or period (especially when the formula contains a fraction bar prior to the period or comma), use **u,** or **u.** instead of just **,** or **.** because then the comma or period are typeset at the height of the fraction-line instead of at the height of the type base line.

## Appendix IV

### Accent Definitions

The following table shows the use of the \O construction in creating accents:

accent-expression:	result:	comment:
e\O´	é	acute accent
e\O`	è	grave accent
e\O^	ê	circumflex
E\O^	Ê	the same circumflex
e\O"	ë	diëresis
e\O:	ë	also a diëresis
i\O:	ï	note the dotless i
e\O~	ẽ	tilde
e\OH	ę	hook
e\OU	ę	underline comma
e\O,	ę	the same
e\OC	ç	cedilla
e\Oo	œ	corona
e\Ov	ě	Háček
e\OB	ë	breve

## Appendix V

### Input Example

This appendix contains the input which leads to the typeset output shown in Appendix I.

```
.TL                                     \"Title macro
Standard Layout for Scientific CWI-Publications
.AU                                     \"Author's name
Han Noot
.AC                                     \"Adress of CWI
.AB                                     \"Begin of abstract
This document defines the standard layout to be used for CWI tracts, monographs, reports, etc.
This is how mathematics looks in an abstract: $ sin 2 alpha = 2 sin alpha cos alpha $.
Furthermore, it details the text-processing procedures needed to generate this layout.
.AE                                     \"End of abstract
.SH                                     \"Section heading
1. Introduction
.LP                                     \"New paragraph
This document describes the standard typographical form of
(scientific) material published by CWI and
the way in which this standard layout can be generated.
.PP
At the core of our text-processing system lies the
.SC unix                               \"Small Capitals macro
text-processing software \fBtroff\fR [1], the \fBms\fR-package [2], \fBeqn\fR [3]
and \fBtbl\fR [4].
For the production of a document in CWI standard layout, three
additional software components are provided:
.SB                                     \"Begin automatically numbered indented paragraph
.                                     \"(Sum up Begin)
.SU                                     \"Precede next input line by item number
A preprocessor (\fBpreproc\fR), written in C.
.SU
A collection of \fBtroff\fR macros.
.SU
```



```

sum from j=0 to n left ( pile ( n-j above n-v } right ) B sub j =
q sup v-k sum from j=0 to n left ( pile ( n-j above v } right ) A sub j u.
.EN                                     \"End of displayed equation
.sp 1
.R
See also Appendix I.
.IP 3
The following words are set from Times Roman Small Capital:
.NL
.SC "Theorem (Stelling)"
.NL
.SC Lemma
.NL
.SC "Proof (Bewijs)"
.NL
.SC "Corollary (Gevolg).\"
.OH "2.4.5. Figures and tables"
Figures and tables are centered. Figure- and table captions are centered on a line
below the figure or table. When figures (tables) are numbered, the caption should begin with
.SC "Figure (Table, Figuur, Tabel)\"
followed by that number and eventually further caption text.
Both are set from Times Roman (see the example from Appendix I).
.br
\\*(Ee:
.TS                                     \"Tabel start macro, see [4]
center tab (@);
l l.
\\fbtext element@set from\\fR
title@Vega Light
subtitle@Vega Light
author's name@Vega Light
author's affiliation@Vega Light Italic
body text@Times Roman
.TE                                     \"Table End
.ce
\\*(Te 1. Use of typefounts             \"Note the use of string Te
.PP
Whenever possible, tables are set at the same point size as the body-text of the
.NB document                            \"Begin of automatically numbered footnote (Note Begin)
The first footnote on this page is labelled with 1. It is set from 8-point type.
.NE                                     \"End of footnote (Note End)
(i.e. 9- or 10 point). Only for tables which would otherwise exceed the linelength,
.NB smaller
The second footnote.
.NE
type can and must be used. When numerical tables contain fractions, it is strongly
suggested to use the small fractions, available through \\fBeqn\\fR (see Appendix III).
.NL
\\*(Rs                                     \"Sets \"References\" from small capitals
.NL
.HO References
.IP 1.
.SC "J. F. Ossanna"
(1976).
.I
NROFF/TROFF User's Manual,
.R
Bell Laboratories, Murray Hill, New Jersey 07974.
.IP 2.
.SC "M. E. Lesk"
(1982).

```



```
.I
Typing Documents on the UNIX System: Using the -ms Macros with
TROFF and NROFF.
.R
Bell Laboratories, Murray Hill, New Jersey 07974.
.IP 3.
.SC "B. W. Kernighan, L. L. Cherry"
(1976).
.I
Typesetting Mathematics- User's Guide,
.R
Bell Laboratories, Murray Hill, New Jersey 07974.
.IP 4.
.SC "M. E. Lesk"
(1976).
.I
TBL - A Program to Format Tables,
.R
Bell Laboratories, Murray Hill, New Jersey 07974.
.IP 5.
.SC "J. N. Akkerhuis"
(1983).
.I
Typesetting and Troff,
.R
CWI, Amsterdam, IW247/83.
```

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