Hans Hagen

# Typographic
## Programming

# Introduction

Today, automated typesetting is quite popular, which is partly due to the fact that document coding standards have evolved, in particular XML. For instance, when you navigate the internet, a typesetting engine is at work to render the pages. When you ask for a print preview, you often get a different rendering. So, one document source can result in different views.

The vehicle that we use for automated typesetting of books is called CONTEXT. This system is based on the well known typesetting engine and language TEX and the graphic programming environment METAPOST. Systems like this provide a mixture of predefined typographical solutions and document specific programming. The code needed to perform the task ends up in a file or collection of files, often called styles. Because writing such styles is closely related to both typography and programming, we qualify it as *typographic programming*, the theme of this book.

This book is not a reference manual to CONTEXT. For the many possibilities that these systems provide we refer to the suite of manuals that come with the system. Some of the mechanism mentioned here are described in detail in dedicated manuals. Here we focus on the more general aspects of document design and the translation of design into a style. Because we will focus a lot on esthetics, quality, and structure, we elaborate a it on these themes.

If you typeset a document, the quality of the result is determined by several factors, like:

- the consistency of the design: layout, font and color usage
- the match between the design and the content: a 400 word summary is not the same as one made up of 100 words
- the application of quality control in all stages of the process
- the presence of typographic directives in the source code: special symbols, compound words, extensive tagging
- the amount of structure present in the document source: a change in typographic behaviour needs to be triggered and demands well defined anchor points
- the flexibility of the designer and style writer with regards to the content and graphical gimmicks

No matter how hard we try to set up a style in a structured way, in practice we often end up is a messy situation. To mention a few possible reasons:

- the design is kind of fixed before the content is known, e.g. some elements need more space than special areas (like margins) provide
- the amount and nature of text and graphics is quite different from the dummies used during the design

- the fonts and/or line spacing are not suitable for the content, e.g. math
- what starts as consistent color usage ends up in seemingly random usage due to ad hoc decisions
- the design does not match the structure of the document, i.e. the content is far from similar to the nice quotes and demo texts used for demonstrating the design
- content is dropped due to flaws in the design and/or design elements are omitted because the content turns out to be different
- click and point applications are seldom stimulate stuctured design: a few pages look different than 100 pages with real content ending up on left and right hand pages
- dimensions and other specifications are fuzzy or worse, meaningless numbers like "level 5 in this or that menu" are used to communicate
- designs are not always consistent: in interactive programs this can normally be solved on the fly, leading to even less consistency

The bottom line is not that interactive markup programs are better or worse than command driven typesetting engines. Both have their applications, advantages and shortcomings. Producing a 50 page booklet is not the same as automatically type-setting 100 books of 200 pages each in a similar layout, especially if you take into account production factors like the number of permitted keystrokes (or mouse move-ments and clicks), update time and production time. The complication mentioned in the previous paragraph come from the fact that both demand a different way of thinking and handling. Whatever method one chooses, the problem of matching design to content does not change.

Due to its nature, command driven typesetting leaves less room for quick hacks and last minute tweaking. Setting up a style for a complex layout and complex content is therefore related to computer programming:

- identify and analyze the problem and boundary conditions
- generalize and implement an as robust as possible solution
- set up a representative test bed and check the results

In this book we take existing, frozen, and in my opinion proper designs as starting point and therefore we are freed from fighting the inconsistent boundary conditions mentioned before.

On the following pages, we will demonstrate how to implement style elements. It is not my intention to replicate complete styles for books, but careful reading will learn you how to do that yourself. We will also spent some words on the fine points of style design, but as said, the details and real dirty tricks can be found in manuals that come with CONTEXT, for instance `details.pdf`. We assume that the reader has

at least some knowledge of CONTEXT and is familiar with the concept of command driven (or: intentional) typesetting.

Another aspect to keep in mind when reading this manual is that taste, of both the designer and the consumer changes over time. For some time I considered the newspaper I've been reading each morning to be superior in design: it used mixed ragged right and aligned typesetting, provides a balanced mixture between serif (specially designed for the paper) and sans serif font. Parts of the paper were professionally layed out and I had plans to show some of that in this manual. Alas, as per 2004 the design was changed to an all rather bold serif titles and ragged right only. Gone was the subtle and clean look and feel, back were the screaming titles, and worse: gone was my appetite for reading that paper. So, when you read this manual in a few years from now, keep in mind that it was written in 2004, using the possibilities of that years TEX and CONTEXT: a frozen moment in time.[1]

We will now switch to document style design mode. Don't panic if you don't understand all the commands and options. Many of them will be used several times and their working will become clear. It really helps if you have a recent version of CONTEXT on your system so that you can key in code and play with those settings yourself.

There was a time when in the process of bookproduction the different skills were assigned to different persons: designer, typographer, lithographer, printer, etc. Photographs were made by a photographer, who in many cases was also responsible for scaling and cutting the picture to its desired size. The computer has diffused the border between those skills. However, since design and typography are to some extend two dimensions, we run into situations were a nice design is matched by bad typography or the reverse. It's no real problem if a designer is dyslectic and a typographer color blind, but you may wonder about the opposite. The author of this document is neither a designer nor a typographer, so you are warned.

**Hans Hagen — Hasselt 2004**

[1] For those who have access to a library with Dutch newspapers: take a look at the 2002–2003 issues of 'Trouw' to get a good feeling.

Preliminary Version

# Contents

This book is divided in sections. Color combinations are used to identify a sub section. I owe an apology to readers who are colorblind. I felt that it was time for a colorful document and I always want to use some of the more recent CONTEXT tricks.

**Typesetting**

**Organization**

**Layout**

**Examples**

# Typesetting

*todo*

# Typesetting

When TₑX breaks paragraphs into lines, it assigns penalties or rewards (negative penalties) to possible breakpoints. When the final decisions are made, the accumulated penalties play an important role. When in a next stage the paragraph has to be split across pages, a similar system of penalties comes into play. You can control this system by setting the values of penalties for certain situations.[1]

| variable | value | scope |
|---|---:|:---:|
| \brokenpenalty | 100 | paragraph |
| \hyphenpenalty | 50 | paragraph |
| \widowpenalty | 0 | page |
| \clubpenalty | 0 | page |
| \doublehyphendemerits | 10000 | paragraph |
| \finalhyphendemerits | 5000 | paragraph |
| \adjdemerits | 10000 | paragraph |

Because a non linear scale is used, and because some values have special meanings, in practice it takes some trial and error to get the effects you want. You should also keep in mind that setting one penalty may influence the consequences of setting another one. For instance, you can prevent widow lines by setting the \widowpenalty to a very high value, but in a three line paragraph this may lead to club lines when the \clubpenalty is much lower.

A naive approach to get the best of everything is to assign all variables a high value, like:

```
\brokenpenalty         10000  \hyphenpenalty         10000
\doublehyphendemerits 10000  \finalhyphendemerits 10000
\widowpenalty          10000  \clubpenalty          10000
\adjdemerits            5000
```

This may lead to many underfull pages and rather ugly paragraphs, especially when strict hyphenation rules are applies (for instance values larger than 3 for lefthyphenmin and/or righthyphenmin). We've run into designers who had no problem with such strict settings. Since in this particular case ragged right alignment was used, it more or less meant that TₑX's sophisticated linebreak mechanisms are turned off.

[1] In this section we simplify the process of breaking paragraphs and pages. For those who are interested in the nasty details, the reasoning behind these mechanisms, and the special meaning of some values, we refer to Donald Knuth's TₑXbook.

On the next pages, we show the consequence of setting the variables mentioned here. Each sample is visually split into three parts demonstrating what happens when one line firts on the previous page, and one line has to move to the next page.

Each line has a background, demonstrating the natural width of the line: the amount of text that sticks out of the background bar is compensated by stretchable space between the words.

We will use a quote from Hermann Zapf as sample text. When typeset in the running text, this looks as follows:

Coming back to the use of typefaces in electronic publishing: many of the new typographers receive their knowledge and information about the rules of typography from books, from computer magazines or the instruction manuals which they get with the purchase of a PC or software. There is not so much basic instruction, as of now, as there was in the old days, showing the differences between good and bad typographic design. Many people are just fascinated by their PC's tricks, and think that a widely-praised program, called up on the screen, will make everything automatic from now on.    **Hermann Zapf**

When TeX breaks this text into lines, it will hyphenate words when needed. This text has the following hyphenation points:

zapf

In order to show the differences in settings, a smaller font size will be used. Example 1.1 shows how this text will will be typeset. The right part shows the hyphenation points.

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zapf

normal                                          broken

**Example 1.1**

The previously shown strict settings (10000 or more) can have rather disasterous results, as shown in Example 1.2. When we use such values, it will be no surprise that those who have strict opinions about breaking prefer ragged right texts.

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<center>normal             strict</center>

<center>**Example 1.2**</center>

Another reason for prefering ragged right text is that even 25 years after TEX surfaced, most desk top publishing systems are still pretty bad when it comes to breaking paragraphs into lines. By looking at lines only (while TEX takes the whole paragraph into account) the only way out when aligning text is stretching the space. Example 1.3 demonstrates that TEX can align rather well.

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<center>**Example 1.3**</center>

Keep in mind that the width is smaller than normally used, a more realistic situation is example 1.4.

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normal

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ragged

**Example 1.4**

# Typesetting

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1000000000

**brokenpenalty**

This penalty is added after each line that ends with a hyphenated word.

High values will discourage TEX in breaking a page there.

**widowpenalty**

This is the penalty added before the last line of a paragraph. This penalty determines how eager TeX will be in splitting a page before the last line.

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1000000000

**clubpenalty**

This is the penalty added after the first line of a paragraph. This penalty determines TₑX's willingness to split a page after the first line.

**hyphenpenalty**

This penalty is added after each location in the paragraph where TEX can hyphenate and therefore this penalty determines the way TEX splits the paragraph into lines.

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<div align="center">1000000000</div>

**exhyphenpenalty**

This penalty is added after each location in the paragraph where the user indicates that TEX may hyphenate. This penalty determines the way TEX splits the paragraph into lines.

## doublehyphendemerits

While TeX is breaking a paragraph into lines, it calculates demerits for potential linebreaks. This value is added to the demerits of a line if that line as well as the previous one both end with a hyphen.

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<div align="center">0</div>

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<div align="center">2500</div>

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<div align="center">1000000000</div>

### finalhyphendemerits

When the pre-last line ends with a hyphen, TeX adds this value to the demerits of that line, thereby discouraging a line break at that point when the paragraph is split into lines.

## adjdemerits

In the process of breaking a paragraph into lines, TEX tags each of the lines as very loose, loose, decent or tight.

If two lines are tagged differently, TEX qualifies them as being visually incompatible. In that case the value of this variable is added to the demerits of the lines.

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1000

**pretolerance**

When the paragraph is split into lines TeX calculates the badness for each (possible) line; the badness is the the accumulates stretch divided by the maximum allowed stretch.

In a first attempt to break a paragraph into lines, TeX will not try any further when the badness for each line is less than the pretolerance. Otherwise TeX will start the second attempt to break the paragraph into lines (see next page).

## tolerance

If a second pass is needed because the pretolerance is exceeded, TEX will hyphenate words. In that case, the baddness as well as penalties, for instance resulting from a hyphenation, determine the demerits of line. This time the tolerance determines if TEX accepts an alternative solution.

Keep in mind that TEX considers all possible ways to break a paragraph into lines, and for each solution the demerits are calculated. TEX will choose the solution with the least demerits for a paragraph.

When this pass fails, the third and emergency pass will be exercised (see next page).

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<div align="center">0em</div>

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<div align="center">2em</div>

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<div align="center">4em</div>

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<div align="center">1em</div>

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<div align="center">3em</div>

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<div align="center">5em</div>

### emergencystretch

This variable holds the amount of extra stretch that TEX may apply per line in order to avoid overfull lines. Normally some stretch is built into the space, which in TEX actually is glue and not a character.

The emergency pass is the third and last pass that TEX will make over the paragraph. Keep your fingers crossed.

A combination of a relative high tolerance and a moderate emergency stretch is often sufficient to prevent overfull boxes and therefore acceptable in situations where you cannot scrutinize the result.

In these examples the tolerance is set to the vary low value of 1. A value of 0 would block breaking.

Preliminary Version

# Typesetting

*interlinespace, identation, whitespace, alignment*

Preliminary Version

# Typesetting

Hanging punctuation is considered to be a quality of high end typesetting. The main reason applying this feature is that it provides a more uniform right margin.
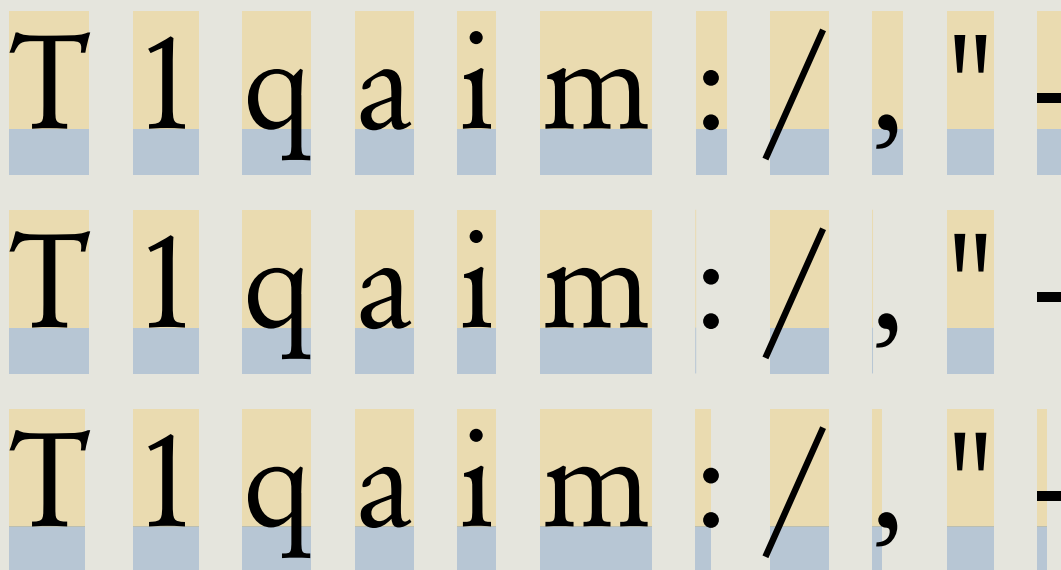
## Protruding is more than hanging punctuation.

## Protruding is more than hanging punctuation.

**protruding**

this feature in its most simple form is also known as hanging punctuation

**hz**

if you want less disturbing gaps in your paragraph, then hz is your friend

The second of the previous lines has the period hanging into the right margin. Since the punctuation (including hyphens) do not take much (visual) space they are present but not prominent. This makes the characters that end up at the margin line up nicely and this has a positive effect on the so called grayness of the paragraph.

PDFTEX extends this mechanism to any character and while doing so, it takes the hanging into account when calculating the most optimal linebreaks. Since parts of the last character of the lines no longer end up in the available space, slightly more room is available. In multi column documents this may lead to paragraphs taking less space but this is compensated by the fact that one has to increase the distance between columns in order not to let the hanging characters come too close to the next column. You can apply protruding to the left as well as to the right edge of the paragraph.

Since PDFTEX provides control over what characters to protrude for which font instance, you can imagine that CONTEXT has some support for protruding built in.

T 1 q a i m : / , " -   natural

T 1 q a i m : / , " -   pure

T 1 q a i m : / , " -   normal

The first example line show the natural width of a few characters. In most cases, there is some positive or negative space at the left and right of the shape. When characters are put together, TEX may put them closer together or more apart, depending on the so called character kerning pairs as defined in the font metric files. It is for instance quite normal to put a W and A closer together than their 'official' dimensions demand.

# AWARENESS

# AWARENESS

The amount of kerning depends on the shape of the neighbouring glyphs, for instance a capital A can shift left under the right slope of a W, something that makes less sense for a lowercase a.

# awareness

# awareness

Although proper kerning is quite possible, DTP systems and word processors often don't mind messing around with inter character spacing. I have quite a few interesting books that are properly designed but also awfully typeset, which makes reading less fun.

You can consider protruding to be a kind of kerning but this time with an imaginary character at the margin. The optimal amount of protruding depends on the font design and should therefore be part of the font metrics, but alas, this is not the case.

Therefore in CONTEXT we have implemented protruding as font handling. There can be multiple font handlers active at the same time, as we will see later.

If you want to make optimal use of this feature, you should consider making font specific definition files, which is not that complex, but here we will stick to a few prebuild handlers.

The 'pure' handler only protrudes punctuation, while the 'normal' handler applies to the whole characterset but with average optimal values. The results are demonstrated example 1.5 (where we quote E.R. Tufte) and 1.6 (where we quote Hermann Zapf).

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pure                                    disabled

**Example 1.5**

Since Tufte's quote has so much punctuation, it is well suited for showing the difference between italic (or slanted) and regular hanging punctuation as demonstrated in Example 1.7. You need a magnifying glass to see the difference.

How do we trigger this feature? First of all you need to be aware of the fact that before you actually define a font, you need to tell what handling you want to apply. Say that we want to hang only the serif fonts and say that we use Palatino as main typeface.

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normal

pure

**Example 1.6**

*roup,*

*roup,*

pure italic

pure normal

**Example 1.7**

```
\setupfontsynonym [Serif] [handling=pure]
\definettypeface[palatino][rm][serif][palatino][default]
```

Here we instruct the font loader to treat serif fonts in a special way by applying handling pure. Next we define a typeface collection palatino and in the process the fonts tagged as Serif will get hanging set. If we also want the bold variants to hang, we should add:

```
\setupfontsynonym [SerifBold] [handling=pure]
```

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pure italic                                   pure normal

**Example 1.8**

We can now enable this typeface collection by:

```
\setupbodyfont[palatino]
```

and turn on hanging by:

```
\setupalign[hanging]
```

Hanging is turned off by:

```
\setupalign[nohanging]
```

If you want to set all serif weights at once, you can call a typescript before defining the typeface:

```
\usetypescript [serif] [hanging] [pure]
```

for hanging punctuation, or for all characters:

```
\usetypescript [serif] [hanging] [normal]
```

This is not the place to describe how to define such handlings, for that we refer to the main handling definition file `hand-def.tex`. The pure handling vector is defined as:

```
\startfonthandling [pure]

  \defineprotrudefactor , 0 1
  \defineprotrudefactor . 0 1
  \defineprotrudefactor : 0 1
  \defineprotrudefactor ; 0 1
  \defineprotrudefactor - 0 1

  \defineprotrudefactor hyphen 0 1
  \defineprotrudefactor endash 0 .5
  \defineprotrudefactor emdash 0 .33 % .5

\stopfonthandling
```

The handling itself is defined as follows:

```
\definefonthandling [pure]            [pure] [type=hanging]
\definefonthandling [purebold]        [pure] [type=hanging]
\definefonthandling [pureslanted]     [pure] [type=hanging,right=1.5]
\definefonthandling [pureitalic]      [pure] [type=hanging,right=1.5]
\definefonthandling [pureboldslanted] [pure] [type=hanging,right=1.5]
\definefonthandling [purebolditalic]  [pure] [type=hanging,right=1.5]
```

The right parameter (there is also left) is a multiplication factor that is applied to the values in the associated vector. Such definitions can be more extensive, like:

```
\definefonthandling
  [normalitalic]
  [punctuation,alpha,extended]
  [type=hanging,right=1.5]
```

Here we combine three vectors into one handling. Now, if you think this is complex, you think probably right. Normally you will just invoke protruding handlings defined previously, but the mechanisms are there to tune them.

In typesetting the two characters hz are tightly connected to Hermann Zapf and the next couple of pages we will discuss a method for optimizing the look and feel of a paragraph using a mechanism that is inspired on his work. Although official qualified in PDFTEX as font adjusting, we will use the short qualification hz since this is how it's called in the PDFTEX community.

Example 1.9 shows hz in action. The left side paragraph is typeset with hz enabled and has a more even spacing than the right hand text. The average reader will not notice the trick, but those sensitive for character shapes will see that some glyphs are slightly widened. Ideally the programs that built the glyph should be defined in such a way that this goes unnoticed, but in practice glyph programs are not that clever and so a brute force horizontal scaling is applied. The values are promilles. A step of 5 means that each alternative font instance will be .5% narrower or wider. A minimum value of 80 means that the glyphs will be scaled at most 8% smaller than normal. Normally one will not use such extremes.

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50 50 10

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disabled

**Example 1.9**

We thrive in information-thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine, enumerate, glean, synopsize, winnow the wheat from the chaff and separate the sheep from the goats.

We thrive in information-thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine, enumerate, glean, synopsize, winnow the wheat from the chaff and separate the sheep from the goats.

25 25 5                                    disabled

**Example 1.10**

Example 1.9 we will permit glyphs to be stretched upto 5% in steps of one percent. Although 5% does not sound like much, we need to keep in mind that when one sees for instance an 'o' on one line scaled down 5% and on the next line line scaled up 5%, the difference of 10% is quite visible. For that reason, it's best to stick to smaller extremes, like 2.5% or even 2% combined with small steps, as shown in example 1.10.

Activating this mechanism is done in a way similar to hanging: we associate some font handling with the specific font instance and enable hz with the alignment handler.

```
\setupfontsynonym [Serif] [handling=hx]
\setupfonthandling [hz] [min=25,max=25,step=5]
\definettypeface[palatino][rm][serif][palatino][default]
\setupbodyfont[palatino]
\setupalign[hz]
```

You can also combine these features. For that you need to define a handling that combines protruding and hz:

```
\definefonthandling [quality] [hz,pure]
```

We thrive in information-thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine, enumerate, glean, synopsize, winnow the wheat from the chaff and separate the sheep from the goats.

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50 50 10 / pure                              disabled

**Example 1.11**

Watch how we hook this into the font definition. We need to activate both mechanism.

```
\setupfontsynonym [Serif] [handling=quality]
\setupfonthandling [hz] [min=25,max=25,step=5]
\definettypeface[palatino][rm][serif][palatino][default]
\setupbodyfont[palatino]
\setupalign[hz,hanging]
```

The result is shown in example 1.11 and 1.12. The default extremes of hz are 20/20, but 25/25 is acceptable as well.

You can finetune the percentages per character (glyph). In this case, the A will get half the scaling and the B a bit more. So, given 20/20 extremes, the A will have 10/10 extremes.

```
\startfonthandling [hz]

  \defineadjustfactor A .5
  \defineadjustfactor B .7
```

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We thrive in information-thick worlds because of our marvelous and everyday capacity to select, edit, single out, structure, highlight, group, pair, merge, harmonize, synthesize, focus, organize, condense, reduce, boil down, choose, categorize, catalog, classify, list, abstract, scan, look into, idealize, isolate, discriminate, distinguish, screen, pigeonhole, pick over, sort, integrate, blend, inspect, filter, lump, skip, smooth, chunk, average, approximate, cluster, aggregate, outline, summarize, itemize, review, dip into, flip through, browse, glance into, leaf through, skim, refine, enumerate, glean, synopsize, winnow the wheat from the chaff and separate the sheep from the goats.

25 25 5 / pure                                            disabled

**Example 1.12**

```
  \defineadjustfactor C .7

  ...
```

```
\stopfonthandling
```

The definition of the hz handling is as follows (see hand-def.tex):

```
\definefonthandling [hz] [hz,extended] [type=hz]
```

The extended vector is just a mapping onto similar looking glyphs, and its starts with:

```
\startfonthandling [extended]
```

```
  \inherithandling Acircumflex A
  \inherithandling acircumflex a
  ....
```

```
\stopfonthandling
```

You can overload these values, but it needs to be done before the font is defined.

# Organization

In the manual titled "It's in the Details" you can find a lot of information on how to move text on the grid, how to fine tune the positioning of graphics and how to handle backgrounds and other fancy aspects of typesetting documents.

Since quality has a lot to do with an eye for detail, we could repeat much what is discussed in the manual mentioned. However, here we will discuss details from the perspective of style writing.

There are some basic rules in typography with regards to the amount of different fonts and sizes used in a document and on a page. For instance, when additional (sub)title show up in a later stage, try to give it a place in the existing structure instead of just making up a new fuzzy structuring level.

Although TEX users happily use the programmability of TEX to handle all kind of special cases, they will seldom end up with many different font sizes. The same is true for colors. The main reason for this is that a structured document source leads to a structure in font and color usage as well as spacing. This positive effect is often compensated in a negative way by a rather dull design, simply because the preprogrammed options are limited.

If you are bounds to a specific design, this section may be disappointing. Discussions about what looks good tend to freeze in taking stands in what is good: "one should always", "this reads better", "this is normal", "everyone knows", and similar quotes are hard to counter, even harder when underlying logic is missing while actually a certain amount of logic is needed in order to be able to implement solutions.

*system in layout*
*system in fonts*
*system in color*
*system in headings*
*system in spacing*
*symmetry in dimensions (left and right page things)*
*section headers - examples - maybe from projects but 'improved'*

Preliminary Version

Organization

# Organization

*todo*

Preliminary Version

# Organization

*todo*

# Organization

*todo*

# Organization

*todo*

# Organization

*todo*

Preliminary Version

# Layout

*todo*

Preliminary Version

# Layout

In this section we will focus on setting up a layout. In a following section I will use (parts of) existing publications as an example, but before we go into that detail, I'll spend some words on the general approach.

Text will flow into the main text area. This area is positioned on a (virtual) sheet of paper. Headers and footers are more or less part of the text area as we will see later. Left and right margins have a live on their own but information may flow from the main text area to margins, for instance margin words.

In the margin you see a letter size sheet with a simple symmetrical layout, set up with:

```
\setuppapersize
  [letter][letter]
```

```
\setuplayout
  [width=middle,
   height=middle]
```

These two commands will be present in most style files. The second sheet shows the header and footer areas in gray.

```
\setupcolors
  [state=start]
```

```
\setupbackgrounds
  [header,footer][text]
  [background=color,
   backgroundcolor=gray]
```

Such a simple layout can be tested with some dummy texts, as in:

```
\setupheadertexts[this is a header line]
\setupfootertexts[this is a footer line]
```

```
\starttext
    \dorecurse{10}{\input zapf \blank}
\stoptext
```

A more prominent way of showing the main areas is to use the command:

```
\showframe
```

So, setting up the basic layout can be summarized as follows:

- define the paper size
- set up the basic layout areas
- define dedicated backgrounds, overlays and layers
- set up the text areas and margins

If you start from an existing layout definition, you can either try to copy this to the point (pt), or accept small differences due to the way CONTEXT handles text. If you have some (or complete) control over the design, this is no problem and since in CONTEXT many measures are somehow related, you will get a rather consistent layout automatically. If on the other hand you run into a designer who keeps measuring his or her eye catching design element, you will probably end up in an inconsistent result, especially with complex documents.

When a design is made using a desk-top publishing system, you will get a couple of pages with sample text on (horizontal) grid lines, and special elements (like graphics) aligned on vertical alignment lines (a kind of pseudo columns). However, when you start using real content, real margin words, real graphics, and real display material, trouble strikes: solutions have to be found for all those boundary cases. Especially demands with regards to grid snapping can be conflicting. No matter what you may find on your way: start simple! In the end the quality not in a few points more or less but in the way your text consistently aligns, which in turn depends on the line characteristics. Fortunately you can count on not too many people who are able to distinguish points from base points and can relate asked font sizes to design sizes. Also, once proofing starts, you can rely on the printers used for printing proof sheets for not being too accurate.

# Layout

In desk-top publishing applications, the gridlines often determine where things are anchored. In CONTEXT we can work with grids, but when setting up the layout we prefer grid independent measure, if only because we can then more easily adapt the layout independent from font choices.

You may wonder how lines of text are related to text areas. As you may expect, CONTEXT will try to put the lines of a text at equal distances when possible. You can instruct TEX to stretch the space between lines, but this is not the default behaviour. So, in most cases you don't have to bother about the way lines end up on the paper. There are however situations where TEX needs help, although it may take a while until you notice this. In case you consider it a shortcoming: it sometimes better to have control than to fight hard coded behaviour.

We can best illustrate this with a few example lines. Let's typeset the name of the music CD that I am listening to while writing this paragraph.

## Tales of a Librarian — Tori Amos

The characters sit on what we call the baseline. If you take a sample text like this, you will notice that all character representations (glyphs) are on top of the baseline. The same is true for the following CD title:

## Storm — Heather Nova

While browsing my stack of CD's, it took a while before I hit a title that extends below the baseline, like:

## Feast on Scraps — Alanis Morissette

The amount of room taken on top of the baseline is called height, the amount below the baseline is tagged as depth. Here is another line with depth:

## Bad Love — Randy Newman

When finding solutions for typographic problems, it really makes a difference if we have to take the depth into account or not. It is for that reason that a sample text should have height as well as depth. Watch the following line:

a b c d e f g h i j k l m n o p q r s t u v w x y z

A bit reordered this shows up as:

a b c d e f h i k l m n o r s t u v w x z    g j p q y

The number of character representations with descenders is not that large, some 20%
of all character have depth. When using capitals the the Q is a good candidate and
occasionally (as in the font used here) the J has depth.

## John Adams – El Dorado

Many of todays machines have liquid crystal displays where texts (lines) are displayed.
So far the only one with a proper baseline concept is the OCE3165 printer we use.
Many companies have no problem with messing up the concept of descenders, my
CD player for instance happily displays Reading when a new CD is inserted.

In typographic environments two magic terms are used: x-height and m-width. In
TeX (and therefore CONTEXT) these will surface as the dimensions ex and em. In
practice the x-height is indeed the height of the x, but an m-width is not always the
width of the m. Quite often it matches the width of the em-dash (—). This ▬ has a
width of one em and the height of one ex. In the current font an ex indeed has the
height of an x, as is proven here: ▄▄. An em is here the same as the bodyfont size:
12.0pt.

In CONTEXT we also talk in terms of struts. A strut is an invisible bar, made visible
here: |. This bar has the maximum height and depth of a line, but no width.
Struts are used in special places to force proper (base)line distances as well as proper
line heights and depths. And this is where confusion strikes. Watch the following
example: the last text has a forced depth.

## hello  Hello  Hello

If we align typographical elements, we take the height and depth of a struts as starting
point. This means trouble when a designers starts talking in terms of the H-height
(which happens). Apart from the fact that this height of a H depends on the font
design, it is not per se the tallest glyph, take:

## Hello  (Hello)

When we zoom in you'll notice that the H is not the tallest, the lowercase l is taller!
It must be stressed that this is font dependent.
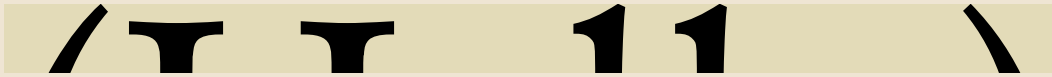
In for instance German language documents, you will encounter the umlaut to be the height forcing champion.

## Äquator Überschrift Öffnung

In CONTEXT the strut height is normally set to 72% of the line height, and therefore the depths takes the other 28%. In the font used here, the height and depth of a ( are (7.11,2.25) and those of a Q are (6.825,2.12). As you can see, the CONTEXT default values are not far from those of a (.

By default the lineheight is set to 2.8 times the x-height of the body font which means that when you adapt the body font size, the line distance will nicely adapt itself. Alas, this is not always what a designer has in mind when he or she demands a 10 point body font with a 12 point lineheight.

| typeface | sample | strut | ( ratio | 10pt | 11pt | 12pt |
|----------|--------|-------|---------|------|------|------|
| Garamond | (Hello) | \| | (7.11,2.25) | 11.64801pt | 12.81282pt | 13.97762pt |
| Palatino | (Hello) | \| | (7.2,2.17) | 13.13197pt | 14.4452pt | 15.75838pt |
| Modern | (Hello) | \| | (7.5,2.5) | 12.05553pt | 13.26108pt | 14.46669pt |

The previous table demonstrates that a font size of say 10 points does not result in similar perceived size. The table also shows clearly that the x-height differs per font. The default value of 2.8ex is an acceptable compromise, especially since it permits inline math without too much distortion of the grid. Beware of small lineheights in combination with non average ascenders and descenders (these are the official qualifications for the part of a glyph above and below the baseline).

Often only the main body font and fonts of special typographical elements like titles are specified. This leaves the style programmer to take care of figuring out the occasionally showing up monospaced and math fonts. In that case you need carefully check the relative font size.

The idea behind this rather long excursion into lineheights is that instead of focusing on grids and baseline related points, you can best rely on the proper layout dimensions and leave everything else for later, when the font system is set up and the fine points of typesetting are dealt with.

Take for instance header and footer lines. By default a header text is forced upwards and a footer text downwards. The next two examples demonstrate this.

|                |                |
| a sample text  | one more       |
|                |                |
| a sample text  | one more       |

Imagine that we would not force a proper height and depth of lines here; it would look like:

|                |                |
| a sample text  | one more       |
|                |                |
| a sample text  | one more       |

When setting up the header and footer dimensions, there is no concept of baseline involved, other than the one forced by struts. We can force the direction (up or down).

```
  \setupheader[after=\vfill,before=]
\setupfooter[before=\vfill,after=]
```

If you really want to get rid of the struts, you can say

```
  \setupheader[strut=no]
\setupfooter[strut=no]
```

You should only do this when you take control over spacing yourself, otherwise you will get visually incompatible header and footer lines.

The way baselines are anchored in the main text area is —as you may expect— determined by the height of the line, but not only. Because TeX is by design not grid oriented, it can handle lines with unequal heights quite well. This is needed for complex math where it is not unnatural for lines to have a more than average height. Because this can lead to situations where the first lines on pages do not align, TeX has a concept of so called topskip: the height of the first line on a page. By default the topskip is equal to the bodyfont size.

a sample text
more text

In practice this means that the first line in the text area is not aligned like the header and footer lines. This is demonstrated below:

header text

first line
second line

footer text

For the moment this is all you need to know about lines when you set up the layout:

- forget about the grid and lineheights, we can deal with them later
- in the header and footer lines text can be moved up and down, but keep in mind that height and depth will be forced
- notice that the first line in the text area has some additional space on top

The following pages will introduce some ways of defining the basic layout. For that we will use a few existing publications as starting point. We start each section with an introduction page.

Preliminary Version

# Layout

At the end of 2003 on the CONTEXT mailing some users started asking questions about how to set up a layout using commonly accepted rules for dimensions, preferable using presets.[1] In this section we will therefore deal with the relationship between layout dimensions and esthetics.

One such rule is that the average number of characters on a line must lay in the range 65–75. Other rules —we call them rules because they tend to have devoted followers— demand a certain relationship between the dimensions of the text area and the papersize. Yet another rule is that the height and width of a text area have a pleasing ratio. You can imagine that therefore one decision may trigger a chain reaction in settings. In a system like CONTEXT one can quite well define a layout in such a way that the chain is executed in the proper way.

Let's start with the rule we mentioned first: the average width of a line. As an example we take a quote from one of Peter D. Wards books:

**Peter D. Ward**
The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

I may go unnoticed, but in a properly typeset text, the distance between characters depends on the shape of the character and is called kerning. If we don't kern this text we get:

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

If you don't see the difference, watch the following instance; here we have put the kerned and unkerned text on top of each other. It's up to you to determine which of the samples in the margin is kerned.

**The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.**

The kerning is font dependent and some font designs have hardly any kerns while others have many. It may be clear that when the width of a word depends on kerning,

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

[1] The komascript style for LATEX was mentioned as an example of such presets.
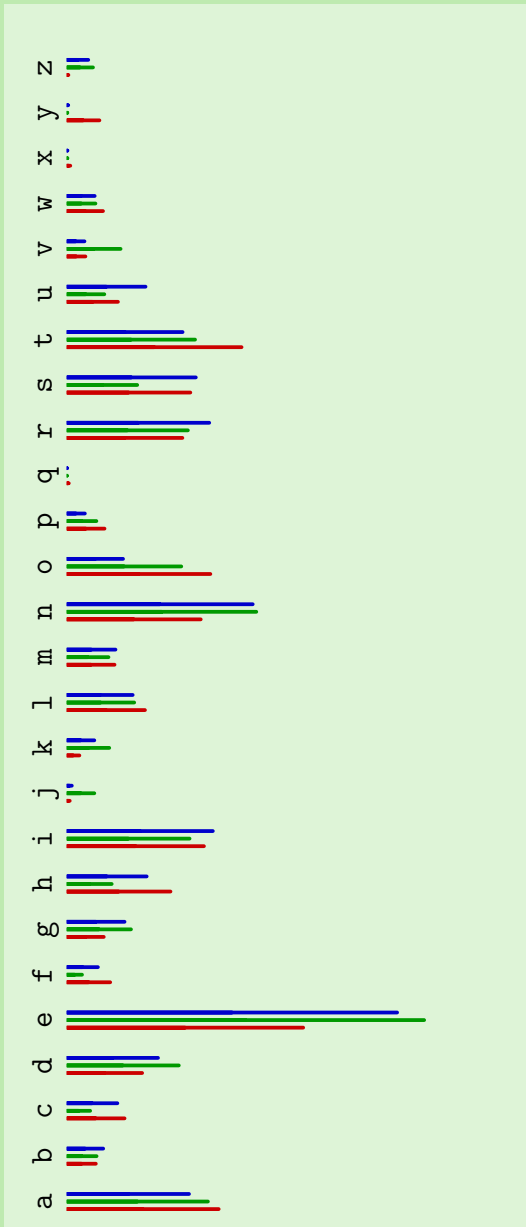
so will breaking the paragraph into lines. It also means that stating that a line may have at most 70 characters is somewhat strange. The next three examples have an average of 65 characters.

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

Here the average is calculated using language dependent character frequency tables: english, dutch and german. Watch how the slight differences in width influence the way a line is broken. The graphic in the margin shows the distribution for english (red), dutch (green) and german (blue). The line next three examples have an average width of 85 characters.

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

The next four renderings show the difference between a width of 65 characters based on the emwidth, exheight, frequence and average character width. All are font dependent, and the frequency method is language dependent as well.

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day — and we humans are the cigarettes.

In CONTEXT you can set the method and the associated language with:

*todo: proper command*

```
\usemodule[layout]
\chardef\charwidthmethod=4
\def\charwidthlanguage{\currentmainlanguage}
```

Method 1 ignores the widths and assumes that each character has a width of .5em, which is true for most monospaced fonts. Method 2 takes the x as starting point, and assumes that it's height kind of matches its width. Method 3 is the best one, and determines the average width based on the language specific character table. Method 4 is a mixture between the first two methods: character specific widths applied to an equal distribution. Method 0 reports the total count, which normally is 100. The next table shows the average character width per language and method.

| | 0 / amount | 1 / .5em | 2 / ex | 3 / frequency | 4 / list |
|---|---|---|---|---|---|
| **en** | 99.98999pt | 5.9994pt | 4.9915pt | 5.0436pt | 5.29799pt |
| **nl** | 100.13403pt | 6.00804pt | 4.99869pt | 5.0877pt | 5.29799pt |
| **de** | 100.00998pt | 6.0006pt | 4.99251pt | 5.05304pt | 5.29799pt |

The command `\averagecharwidth` returns the average character width using the chosen method. This means that settings like the following are correct:

```
\setuplayout[width=65\averagecharwidth]
```

However, you should be aware that this value is font dependent, so it's better to freeze the character width using:

```
\freezeaveragecharacterwidth
```

The next few pages are dedicated to a few preset layouts.

*todo*

# Layout

*todo*

# Layout

*todo*

Preliminary Version

Layout

# Layout

*todo*

Preliminary Version

# Layout

*todo*

Preliminary Version

# Examples

*todo*

Preliminary Version

# Examples

This is one of those books that you can hardly overlook when it sits on display in a bookshop: it's a kind of brick, in this case a colorful one. The books is made up mostly of pictures of animals. There is an introduction and there are lots of tables mostly of interest to specialists in nature preservement.

The right edge of the pages are colored, and sort of mark sections. However, within those sections there are subsections, marked by titles layed over the photo's. There are no pagenumbers, which means that the structure is not accessible, which is not that much a problem because it's a picture book and not an encyclopedia.
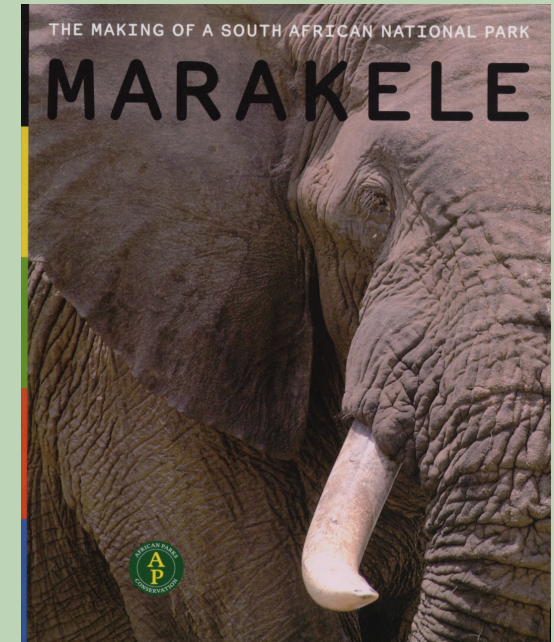


**MARAKELE**   **The making of a south african national park**

Photographs: Louise Agnew, Andy Rouse, Paul van Vlissingen, Tet van Vlissingen

African Parks BV, Langbroekerdijk A97, 3947 BE Langbroek, The Netherlands

www.africanparks-conservation.com   ISBN 90-808037-1-5
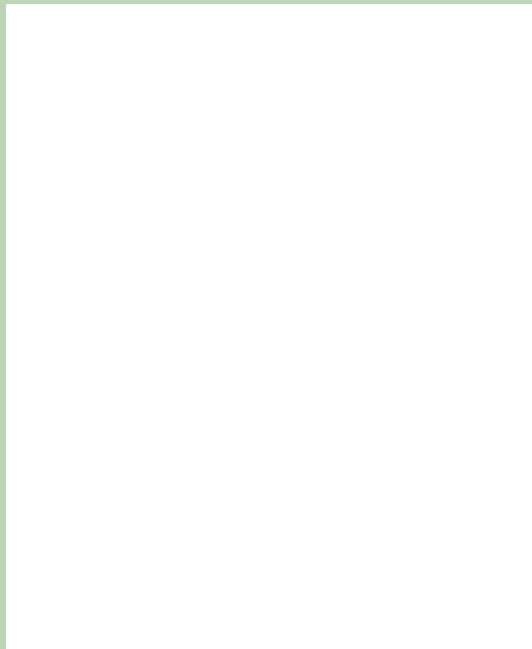
```
\definepapersize
  [thisbook]
  [width=18cm,
   height=22cm]

\setuppapersize
  [thisbook]
  [thisbook]

\setuplayout
  [backspace=0pt,
   topspace=0pt,
   cutspace=4mm,
   header=0pt,
   footer=0pt,
   width=middle,
   height=middle,
   edgedistance=0mm,
   edge=4mm]

\setuppagenumbering
  [alternative=doublesided]
```

This book is special in the way that there are only a few pages with text and many with photographs that fill the page. This means that we have two layout setups. Let's start with the easy part, the pages with pictures.

The cutspace is taken by the edge area. This narrow band will be used for color band identifying the sections of the book.

```
\setupcolors
  [state=start]

\definecolor[edgecolor][darkgray]

\defineoverlay
  [pagegraphic]
  [\uniqueMPpagegraphic{pagegraphic}]

\startuniqueMPpagegraphic{pagegraphic}
  StartPage ;
    fill if OnRightPage :
      rightboundary Page leftenlarged  RightEdgeWidth
    else :
      leftboundary  Page rightenlarged LeftEdgeWidth
    fi withcolor OverlayColor ;
  StopPage ;
\stopuniqueMPpagegraphic

\setupbackgrounds
  [page]
  [background=pagegraphic,
   backgroundcolor=edgecolor]
```

The colored bar can best be implemented as a background graphic. Since it runs over the whole page height, the page background is the most appropriate one to use.

Because the color changes we use a symbolic name for the color. That way we can redefine the color per section. The doublesided layout forces us to implement a left- and rightpage alternative. We could have used the left- and rightpage backgrounds, but the current approach saves us keystrokes.

More details about METAPOST graphics can be found in the MetaFun manual. For the moment it is sufficient to know that a unique graphic will be recalculated when the circumstances change: background dimensions, background color, side of page.

We didn't account yet for inaccuracies in the process of cutting a book to its intended dimensions. Normally you will add some extra margins to graphics so that they stick exceed the page boundary. This so called bleeding will prevent white bands at the page boundary due to to wide cutting.
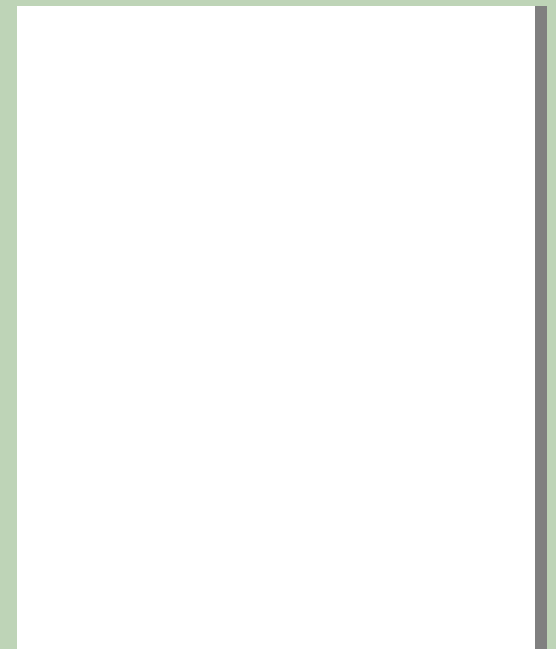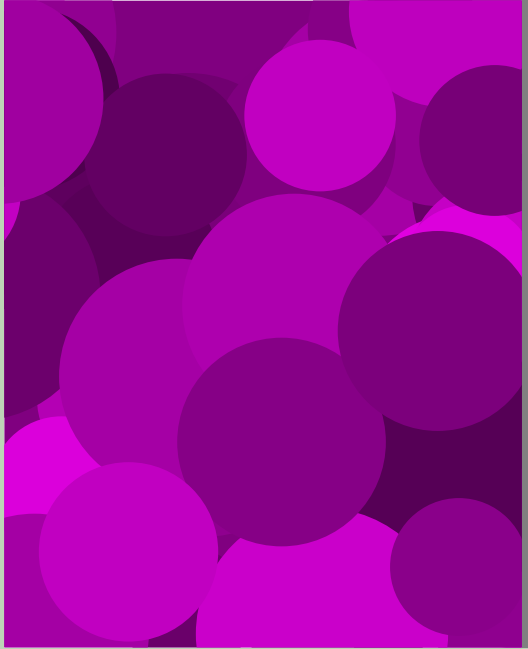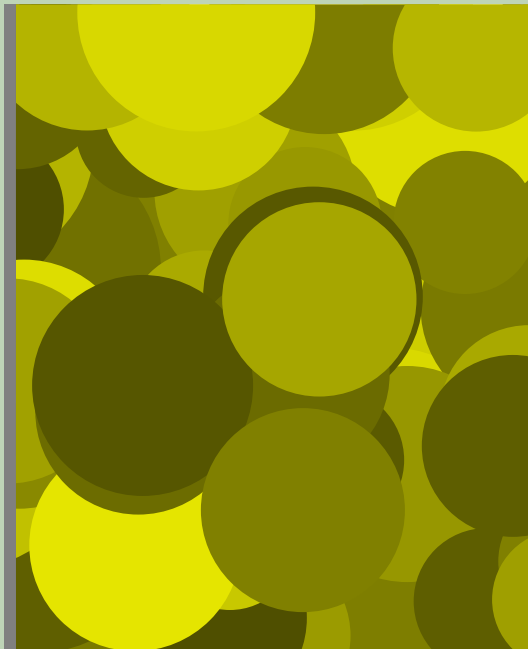
```
\useMPlibrary[dum]

\defineexternalfigure
  [fullpage]
  [width=\textwidth,
   height=\textheight,
   text=]

\setupmakeup
  [standard]
  [page=,
   doublesided=no]

\startstandardmakeup
  \externalfigure[whatever][fullpage]
\stopstandardmakeup

\startstandardmakeup
  \externalfigure[whatever][fullpage]
\stopstandardmakeup
```

```
\definelayer
  [textlayer]
  [doublesided=yes,
   width=\textwidth,
   height=\textheight]

\setupbackgrounds
  [text]
  [background=textlayer]

\definestartstop
  [Title]
  [style=TitleFont,
   color=white]

\definelayerpreset
  [rtitle]
  [corner={right,top},location={left,bottom},x=.5cm,y=1cm]

\definelayerpreset
  [ltitle]
  [x=.5cm,y=1cm]

\definefont
  [TitleFont]
  [Sans at 18pt]

\startstandardmakeup
  \setlayer[textlayer]{\externalfigure[whatever][fullpage]}
  \setlayer[textlayer][odd] [preset=rtitle]{\Title{RIGHT TITLE}}
  \setlayer[textlayer][even][preset=ltitle]{\Title{LEFT  TITLE}}
\stopstandardmakeup
```
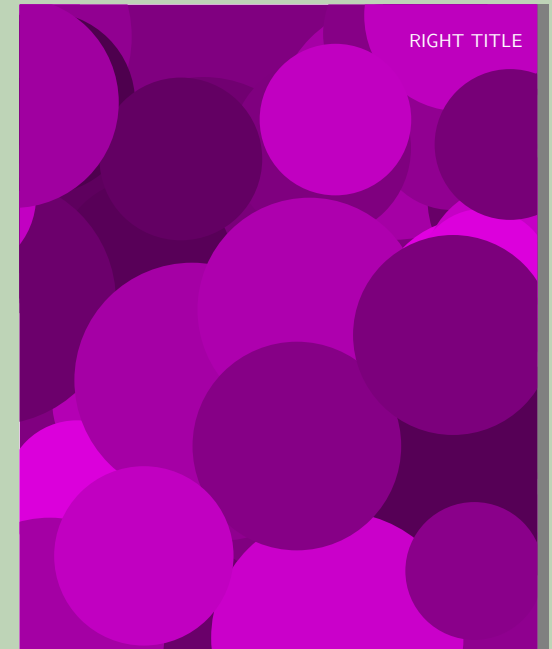
We use a layer to collect the title. Because the position depends on the page, we
need to test for a left or righthand page and both need a different placement. An
alternative approach is to avoid layers and put the titles in the text stream. However,
layers are more appropriate for this kind of situations.

*not yet finished*

Full Page

Preliminary Version
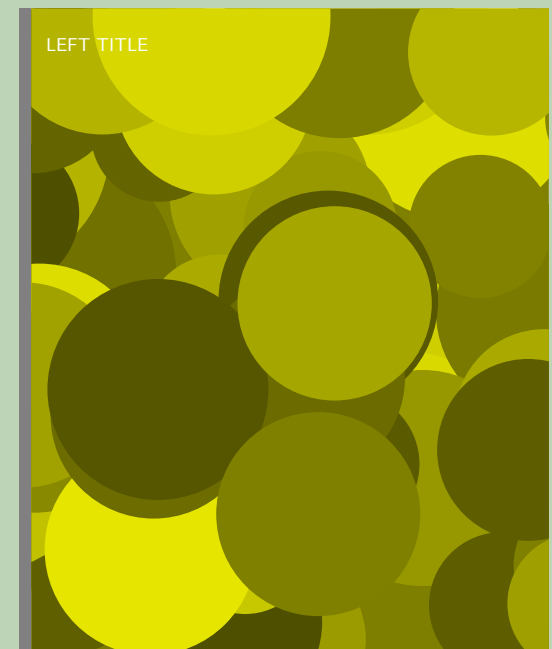
Examples

# Examples

Often much attention is paid to the presentation of a music CD: a full color insert, booklet or printed carrier is quite common. In most cases the design, photography and information are interesting, attractive, and well done. The typography on the other hand often spoils the whole. Typesetting the text with TEX and then using the result as input for the used desk top application would improve the look and feel a lot.

For our our next exploration we will define the layout for one of Tori Amos CD's, one with mostly photographs. If you want to see a CD with real nice typesetting (and structure as well), take a look at *Tales of a Librarian*, 7567-83658-5.
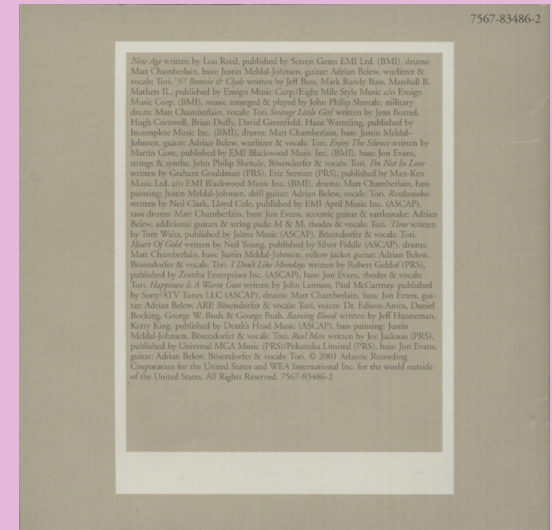
Keep in mind that TEX is not really meant for typesetting such one-time typesetting jobs, we only want to demonstrate a few principles and tricks.

**StrangeLittleGirls**

Warner Music Group, New York, USA

www.toriamos.com    7567-83486-2

Preliminary Version

```
\setuppapersize
  [CD]
  [oversized]

\setuplayout
  [location=middle,
   marking=on,
   backspace=26mm,
   topspace=12mm,
   bottomspace=9mm, % 12mm - 3mm
   header=0pt,
   footer=8mm,
   footerdistance=2mm,
   margin=0pt,
   width=middle,
   height=middle]
```

The layout is quite simple: we only use the text area. At first glance a backspace of 22 mm makes more sense, however, because we want to make live easy when dealing with text, we let the text width determine the dimensions.
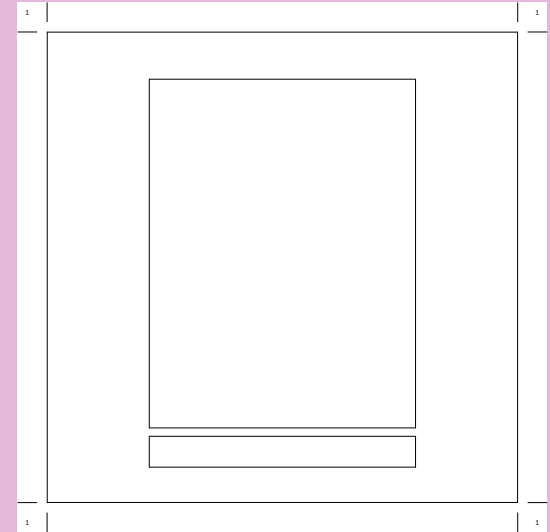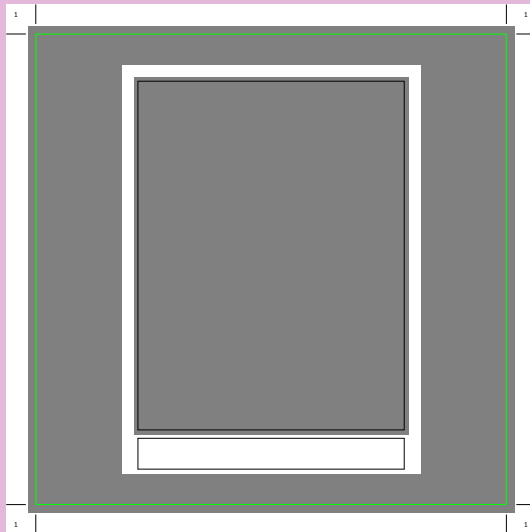
```
\setupcolors
  [state=start]

\setupbackgrounds
  [page]
  [background=pagegraphic,
   backgroundcolor=darkgray]

\defineoverlay[pagegraphic][\reuseMPgraphic{pagegraphic}]

\startreusableMPgraphic{pagegraphic}
  StartPage ;
    fill Page enlarged 2mm withcolor OverlayColor ; % 2mm bleed
    path p, q, r ;
    p := Field[Text][Text]   enlarged 4mm ;
    q := Field[Text][Footer] enlarged 4mm bottomenlarged -3mm ;
    r := Field[Text][Text]   enlarged 1mm ;
    fill p withcolor white ;
    fill q withcolor white ;
    fill r withcolor OverlayColor ;
  StopPage ;
\stopreusableMPgraphic
```

Apart from the cover (which has a full page photograph) each page has the same background. This means that we can reuse the background graphic.

Watch how we play a bit with the dimensions of the bottomspace and footer background area. This way we end up with a nicely centered footer. Don't worry if you don't grab this immediately, since there are many ways to accomplish this.

The bottom graphic demonstrates how the footer and text backgrounds overlap into one common background.
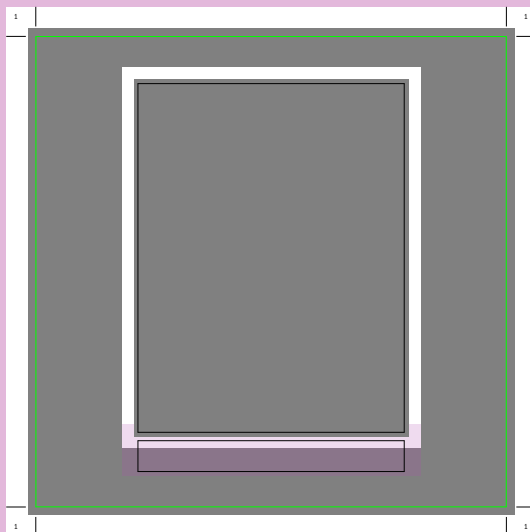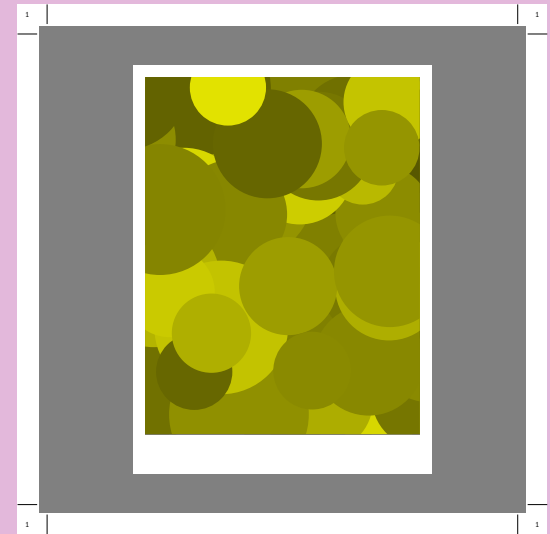
```
\useMPlibrary
  [dum]

\definelayer
  [pictlayer]
  [width=\dimexpr(\textwidth+2mm),
   height=\dimexpr(\textheight+2mm)]

\setupbackgrounds
  [text]
  [background=pictlayer,
   backgroundoffset=1mm]

\defineexternalfigure
  [somefigure]
  [width=\dimexpr(\textwidth+2mm),
   height=\dimexpr(\textheight+2mm),
   text=]
```
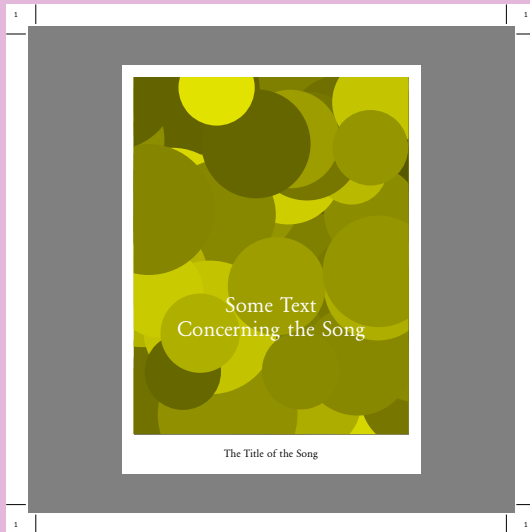
We place the graphics using a layer. Of course we can directly put the graphic in the text stream but on the next page we will see that there is more to be placed.

```
\definelayer
  [textlayer]
  [width=\dimexpr(\textwidth+2mm),
   height=\dimexpr(\textheight+2mm),
   y=5.5cm]

\setupbackgrounds
  [text]
  [background={pictlayer,textlayer},
   backgroundoffset=1mm]

\defineframedtext
  [picttitle]
  [width=\dimexpr(\textwidth+2mm),
   align={lohi,middle},
   offset=0pt]

\setupfooter
  [before=\vfill,
   after=\vfill]
```

Instead of puting the text in the picture layer, we use a dedicated one. This permits us to preset the position.

```
\starttext
  \setlayer [pictlayer] {\externalfigure[picture-1][somefigure]}
  \setlayer [textlayer] {\picttitle{Some Text Concerning the Song}}
  \setupfootertexts [The Title of the Song]
  \page[dummy]
\stoptext
```

For a small booklet a bit of coding does not harm, but when typesetting a big database you may like the following approach: variables and a setup.

```
\setupvariables [cd] [pict=,text=,foot=]
```

```
\startsetups[sample]
  \setlayer
    [pictlayer]
    {\externalfigure[\getvariable{cd}{pict}][somefigure]}

  \setlayer
    [textlayer]
    {\picttitle{\getvariable{cd}{text}}}

  \setupfootertexts
    [\getvariable{cd}{foot}]

  \page[dummy]
\stopsetups
```

This separates the typesetting directives and the content so that we can adapt the placement without the need to change the source in many places.

```
\setupvariables
  [cd]
  [pict=picture-1,
   text=Some Text Concerning the Song,
   foot=The Title of the Song]
```

```
\setups[sample]
```

Although it is not discussed here, we show how we set up the fonts. By coincidence this CD booklet is typeset in the same font as we use here: Garamond.

```
\definefont [FooterFont][Serif at  8pt]
\definefont [TextFont]  [Serif at 16pt]
```

```
\setupframedtexts
  [picttitle]
  [frame=off,
   color=white,
   style=\TextFont\setstrut\strut]
```

```
\setupfooter
  [style=\FooterFont\setstrut\strut]
```

```
\definelayer
  [pagelayer]
  [width=\dimexpr(\paperwidth+4mm),
   height=\dimexpr(\paperheight+4mm),
   offset=-2mm]

\setupbackgrounds
  [page]
  [background={pagegraphic,pagelayer}]

\setlayer
  [pagelayer]
  {\externalfigure
      [picture-0]
      [width=\dimexpr(\paperwidth+4mm),
       height=\dimexpr(\paperheight+4mm),
       text=]}

\setuplayout[page]

\startstandardmakeup
  \setupalign[middle]
  \vfill
  \definedfont[Serif at 60pt]
  \color[white]{ToriAmos}
  \vskip 2mm
  \definedfont[Serif at 20pt]
  \setstrut \strut \color[white]{StrangeLittleGirls}
  \vskip2mm
\stopstandardmakeup

\setuplayout[reset]
```
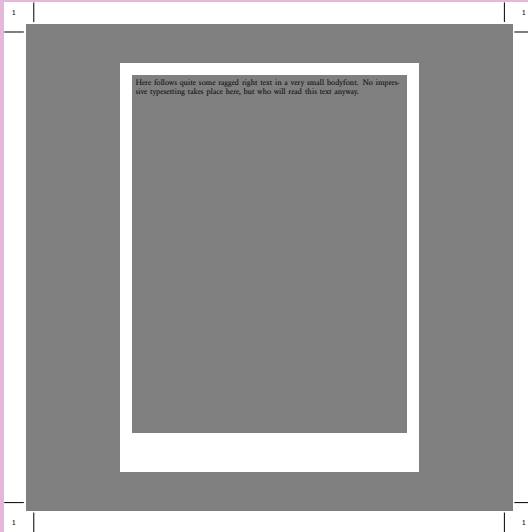
The rest of the booklet is just cover picture and a back page with text. For that purpose we extend the definition of the page background. Watch how we temporary switch to a predefine full page layout.

```
\setlayer
  [pagelayer]
  [preset=righttop,x=2mm,y=2mm]
  {\tfxx 7567-83486-2}

\startstandardmakeup
  \setupalign[right] \switchtobodyfont[6pt]
  Here follows quite some ragged right text in a very
  small bodyfont. No impressive typesetting takes place
  here, but who will read this text anyway.
  \vfill
\stopstandardmakeup
```

You probably noticed the multiples of 2mm in offsets and positions. These are needed because we define the page backgrounds to bleed 2mm. Such a bleed is needed in order to compensate for print and cut errors.

We presented the pages not in their natural order. Normally you will start with the definitions and end with the content, surrounded by one pair of \starttext and \stoptext.

```
\definelayout
  [leaflet]
  [backspace=12mm, % 26 - 14
   cutspace=40mm] % 26 + 14

\setupbackgrounds
  [text]
  [background=textgraphic]

\defineoverlay
  [textgraphic]
  [\uniqueMPgraphic{textgraphic}]

\startuniqueMPgraphic{textgraphic}
  fill OverlayBox enlarged 1mm withcolor .2white ;
\stopuniqueMPgraphic

\setuplayout[leaflet]

\startstandardmakeup
  \startcolor[white]
  \setupalign[right] % raggedright
  \switchtobodyfont[12pt]
  \definedescription [track] [width=1.5em,before=,after=]
  \starttrack{00} Some Title    \stoptrack
  \starttrack{01} Another Title \stoptrack
  \vfill
  \switchtobodyfont[5pt]
  Some more unreadable small text.
  \stopcolor
\stopstandardmakeup

\setuplayout[reset]
```

As usual there are some ugly things like the barchart and a few logos. You can use the page layer to place and position them. We leave that as an exercise for the reader.

Preliminary Version