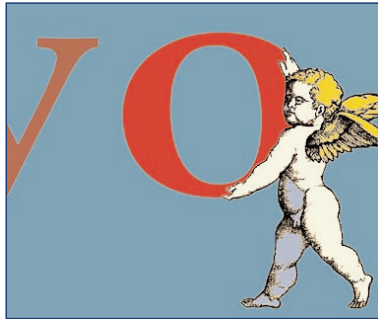


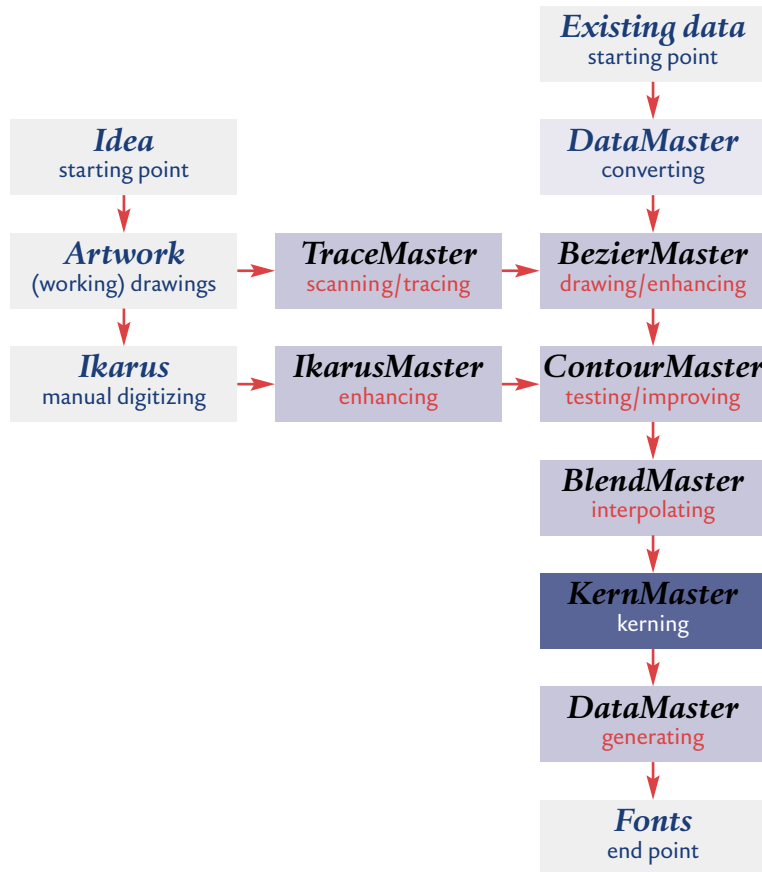
Dutch Type Library

DTL KernMaster



's-Hertogenbosch/Hamburg
Autumn 2004

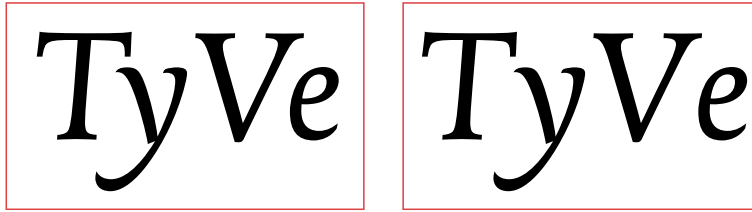
The diagram shows a typical workflow based on the modules of DTL FontMaster.



DTL KernMaster is the module for the automatic creation of kerning pairs for BE and IK databases with output into AFM file or kern.fea file. The program is especially developed with OpenType production in mind: it is possible to generate kerning for a complete BE or IK database, including Cyrillic, Greek, Eastern-European, etc. at once. Class kerning is supported with output into kern.fea files for the OpenType production. The module also supports batch processing.

Kerning should not be used to correct but to refine the spacing and the fact is, that there are numerous combinations which you can't get optimal without kerning, especially when Eastern European, Cyrillic and Greek character sets are included. Using very sophisticated algorithms, DTL KernMaster makes it possible to perfectly optimize the spacing.

The quality of the kerning generated by DTL KernMaster is very high but changes can always be made manually in the Metrics Editors of DTL Bezier- and IkarusMaster. Also the class kerning can be edited here.

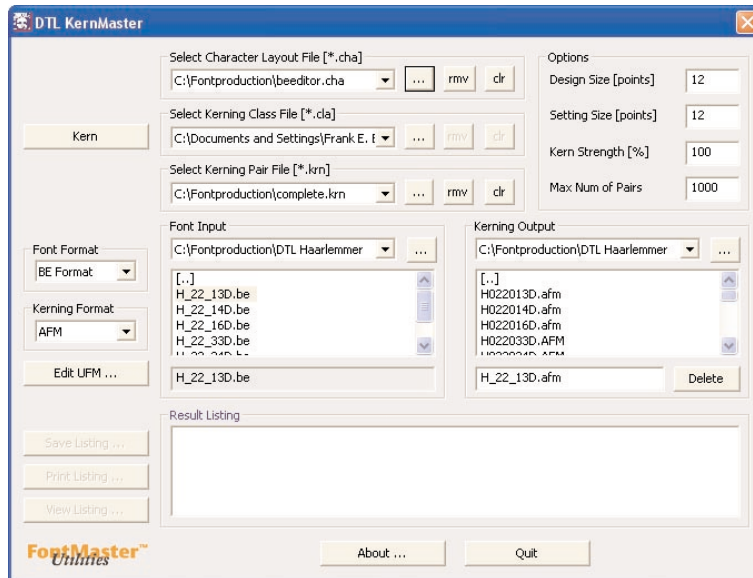


Two versions of the same typeface, respectively with and without kerning pairs calculated by DTL KernMaster.

Starting DTL KernMaster

In DTL KernMaster the glyphs are converted first to extremely high resolution bit maps before sophisticated algorithms are used to calculate the kerning. Complete BE and IK font databases can be supplied with kerning pairs. There is basically no limit to the number of kerning pairs, so very large databases that support multiple scripts can be used in combination with extensive kerning pair definitions. The actual calculation is a matter of seconds, depending on the speed of the CPU, of course.

DTL KernMaster does not work with font formats like PS Type 1, TrueType or OpenType directly. Fonts have to be converted to the BE or IK format in DTL DataMaster first, before using DTL KernMaster.



All basic functions can be handled in the main dialog of DTL KernMaster.

Main dialog

The main dialog, which is shown when the program starts, is divided into four sections:

- One that contains info about the supporting Character Layout file, Kerning class file and Kern Pair file.

- A section that contains the options.
- A section that contains the font input and the kerning output. Also the font format and the kerning format can be selected here.

Select Character Layout File [*.cha]
C:\Fontproduction\beeditor.cha ... rmv clr

Select Kerning Class File [*.cla]
C:\Documents and Settings\Frank E. f ... rmv clr

Select Kerning Pair File [*.krn]
C:\Fontproduction\complete.krn ... rmv clr

```
# -- Kerning classes
@A_IC = [a acute acircumflex adieresis agrave
aring atilde abreve amacron
aogonek];
@A_SC = [Asmall Agravesmall Aacutesmall
Acircumflexsmall Atildesmall
Adieresissmall
Aringsmall Abreve.small Amacron.small
Aogonek.small];
```

- And to complete the dialog, there is also a listing of the kerning process.

Kerning class info as defined in the default kernmaster.cla file.

I. Supporting (text) files

Before kerning can be calculated for a BE or IK font database, supporting text files have to be selected.

I.1 Select Character Layout File [*.cha]

The selected Character Layout File should correspond with the glyph arrangement of the database. By default the beeditor.cha file is selected but any other Character Layout File can be used in case for instance the beeditor.cha file does not support all the scripts in the font database.

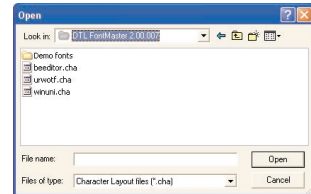
If the numbering system used in the database differs from the listing in the Character Layout File, the resulting kerning info will be unpredictable and unreliable. More information about the syntax of the Character Layout File can be found in Appendix III.

I.2 Select Kerning Class File [*.cla]

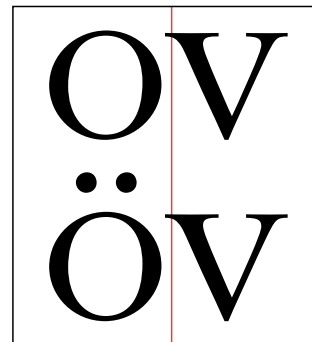
For the production of kern feature files kerning classes can be used. A kern class is a group of characters that all should be handled the same way by an application if kerning has been applied for a combination of the kern class with another character (or kern class). This way the structure of a file that contains the kern pairs as kern classes differs from an AFM file, in which all pairs are defined individually. However, files that support kern class pairs also can contain individual combinations. The kerning pairs listing of separate characters and/or kern classes, is defined in *.krn files.

The kern classes are defined in a Kerning Class File (*.cla), by default the kernmaster.cla file. In this file the groups that form the classes are listed. As with all other supporting files for DTL FontMaster, also a Kerning Class File can be altered using a simple text editor.

Although the Kerning Class File currently has no influence at all on the AFM file output, a Kerning Class File should be selected always otherwise an error message will be shown by the program.



NOTE: *The arrangement of the glyphs in the database must correspond with the selected Character Layout File, otherwise the resulting kerning info will be unreliable.*



Kern class info assures the same handling of kerning for all members of the same kern class.

1.3 Select Kerning Pair File [**.krn*]

The Kerning Pair File contains a listing of all the kerning pairs in a simple format. This is completely comparable with the definitions in an AFM file: *KPX [PostScript name] [PostScript name]*. For the kern feature file output, in stead of the PostScript name the name of the kern class should be provided. The name of the kern class should be exactly according to the definition in the Kerning Class File (**.cla*). For example: if the kern class has been defined as follows: *@A_LC = [a acute acircumflex adieresis agrave aring atilde abreve amacron aogonek]*, in the kern pair this class should be represented by *@A_LC*.

The default Kerning Pair File is *kernmaster.krn*, which contains roughly 1000 kerning pairs for all Western European languages. Besides this kerning file also a file called *complete.krn* has been placed by the installer in the same directory as the DTL FontMaster program files. This file contains roughly 5000 kerning pairs for Western European, Eastern European, Turkish, Cyrillic and Greek character sets. Using the *complete.krn* file in combination with a font database and Character Layout File that both cover multiple scripts, will result in an extensive AFM file which can be used for the generation of fonts that either support single or multiple code pages.

```
Comment DTL KernMaster version 2.00.009
Comment Copyright Dutch Type Library, 2004
Comment Creation Date:17/03/04
StartFontMetrics
StartKernData
StartKernPairs 4
KPX @A_UC @C_UC
KPX T e
KPX one one
KPX @A_UC v
EndKernPairs
EndKernData
```

An example of a small Kerning Pair File that contains kern class information.



If the font database contains multiple scripts, all kerning pairs can be calculated at once.

2. Options

There is a range of options to influence the calculated kerning values.

2.1 Design Size [*points*]

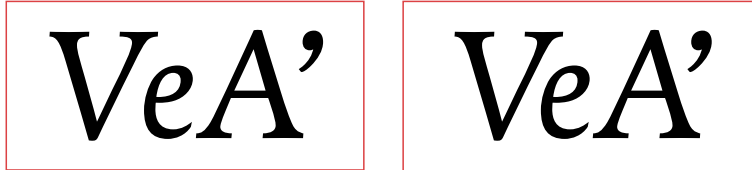
The point size entered here interacts with the Setting Size and this results in a certain tightness of the kerning. The point size is defined in the digital pica points (pt) where 1 pt measures 0.351 mm. The Design Size indicates the point size for which the typeface was originally designed and spaced. The default of 12 points indicates that the typeface was designed and spaced for text purposes. The same point size is the default setting for the Setting Size. Normally there is no need to alter these settings. The effect on the calculated kerning values is always based on the difference between the given point sizes for the Design Size and the Setting Size.

Options	
Design Size [points]	12
Setting Size [points]	12
Kern Strength [%]	100
Max Num of Pairs	1000

There are several options to control the tightness i.e. 'kernstrength' of the kerning.

2.2 Setting Size [points]

If the Setting Size is smaller than the Design Size, the negative kerning values will be smaller and the positive kerning values larger, so the overall image will be looser. If the Setting Size is larger than the Design Size there will be more negative kerning and less positive kerning, so the overall image will be tighter. The given point sizes only indicate the relative difference in kerning; there is no need at all to enter the exact point size for the Design Size if this is for instance unknown.



Normally a text face will be somewhat wider spaced in comparison with a display typeface. Choosing tighter kerning through entering a larger number for the Setting Size will affect the overall spacing. Please note that the actual spacing of the font is not changed, of course.

2.3 Kern Strength [%]

With Kern Strength the tightness of the kerning is fixed. Basically the effect is comparable with what can be accomplished with Design Size and Setting Size. However the difference is that Kern Strength works with percentages and has to be controlled with an integer between 10 and 200. A value smaller than the default 100 will result in a wider kerning and a value larger than 100 will result in a tighter kerning.


The extra functionality that this option offers, is that it can be combined with Design Size/Setting Size. This way for instance a standard set narrow or wide kerning can be used in combination with optimized solutions for the different point sizes.

2.4 Max. Num of Pairs

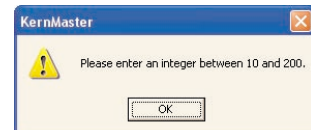
There is no technical limit to the number of kerning pairs. The default amount is 1000 but any number can be entered. The standard *kernmaster.krn* file contains roughly 1000 kerning pairs and is limited to Western European character combinations. The *complete.krn* file contains also combinations for Eastern European, Turkish, Cyrillic and Greek.

It is standard procedure to generate a kerning file that contains all applicable combinations for a font database. This is not only helpful for OpenType production but also for the generation of single code pages with DTL DataMaster. Automatically only the relevant kerning pairs for this code page will be exported.

If an extensive kerning file is used and the number of kern pairs is

 **NOTE:** The entered point sizes are only used to control the kerning values. There is no need to enter an exact value for the Design Size.

The tighter kerning in the example at the right was achieved by entering a larger point size for the Setting Size.

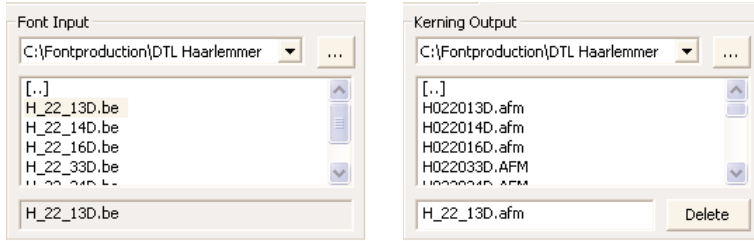


With an integer between 10 and 200 the tightness of the kerning can be controlled. The default value is 100.

smaller than the total amount of combinations, the combinations with the smallest kerning values will be removed. This process will be repeated until the entered number in the Max. Num of Pairs has been reached.

3. Input/Output control

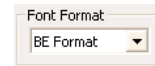
A simple interface is used to control respectively the font input and the resulting kerning output.



It is easy to control the input/output data.

3.1 Font Input

Before selecting one or more font databases, the font database format has to be chosen first. There are three options: *BE Format*, *IK Format* and *IK, BE*. Because DTL KernMaster can generate kerning in batch, multiple databases can be selected.



The format options are BE, IK or both.

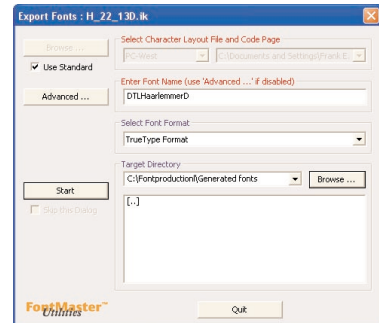
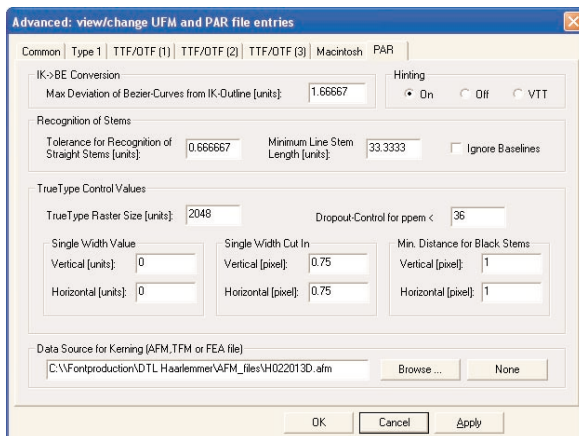
3.2 Kerning Output

Here a folder/directory has to be chosen for the output. The output format, AFM or FEA, has to be selected first. The name of the resulting Adobe Font Metrics or kern feature file can be changed. The default setting is the name of the selected font database plus the suffix AFM or FEA.



The output format can be either AFM or FEA.

The *Edit UFM* button opens the *UFM* file that is in the same directory as the font database file. This way it is for instance possible to directly connect the newly generated kerning information in the *PAR* dialog of the *UFM* file.



In the PAR section of the UFM file the newly generated kerning file can be connected to the font database.

4. Result Listing

After processing the kerning pairs DTL KernMaster will show a listing which can be printed, saved and viewed. This is especially useful when kerning is generated in batch. If the *View Listing...* option is chosen, the file will be opened in the standard browser.

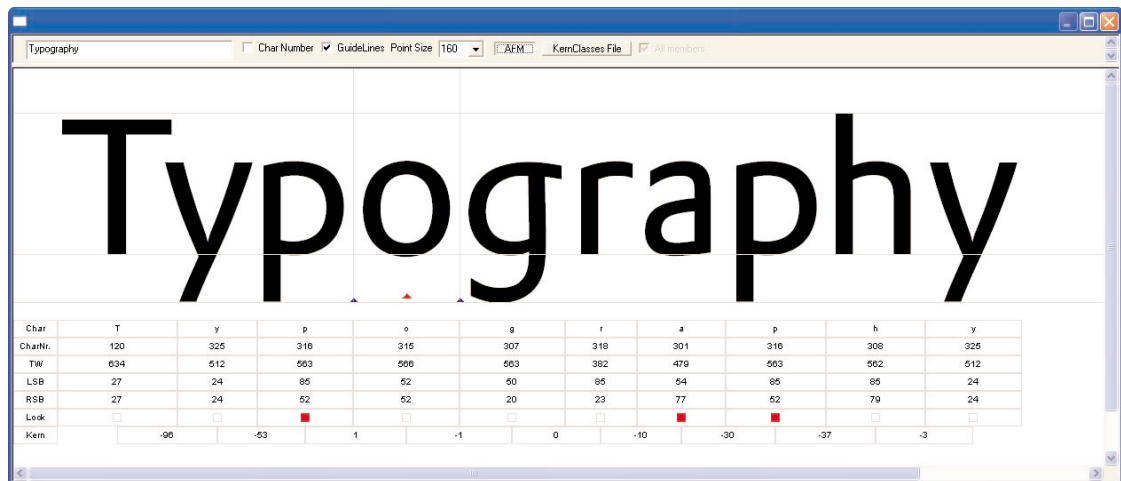
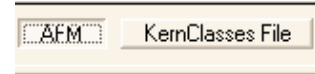
```
DTL KernMaster 2.00.009A : Mar-25-2004 12:00:00
Batch processing is being started.
* kerning class file is "eMac 80GB:Applications (Mac OS 9):Dutch Type
Library:DTL FontMaster 2.00.009A:kernmaster.cla"
* kerning pair file is "eMac 80GB:Applications (Mac OS 9):Dutch Type
Library:DTL FontMaster 2.00.009A:kernmaster.krn"
* character layout file is "eMac 80GB:Applications (Mac OS 9):Dutch Type
Library:DTL FontMaster 2.00.009A:beeditor.cha"
* encoding key is "ANNumLat1"
+ kerning calculation ist being started
+ input: "eMac 80GB:Desktop Folder:AFM_Output:D_19_13T.BE"
+ output: "eMac 80GB:Desktop Folder:AFM_Output:D_19_13T.afm"
- output: "eMac 80GB:Desktop Folder:AFM_Output:D_19_13T.afm"
- input: "eMac 80GB:Desktop Folder:AFM_Output:D_19_13T.BE"
- kerning calculation has been finished
```

The listing of the kerning process can be viewed, printed and saved.

5. Checking the outcome

The output by DTL KernMaster can be checked and edited in the Metrics Editor of both DTL Bezier- and IkarusMaster. Therefore the AFM file or FEA file has to be selected in the Metrics Editor. Any changes made will be saved automatically to the original metrics file.

An AFM or FEA file can be selected in the Metrics Editor of DTL Bezier- and IkarusMaster



It is possible to check and alter the kerning in the Metrics Editor of both DTL Bezier- and IkarusMaster.