

DTL
FontMaster Conference 2009
The Hague



OpenType Status 2009

The OT Promise in 1997 : “ It just works!”

12 Years of OT Development What is the status now ?

- OpenType Features have been defined for most scripts :
 - Latin, Greek, Cyrillic
 - Far East: Han, Kana, Hangul, Yi, Bopomofo
 - Middle East: Arabic, Hebrew, Syriac, Thaana
 - Indic Scripts: Devanagari, Bengali, Malayalam
Gujarati, Gurmurkhi, Kannada
 - Mongolia, Tibet
 - South East Asia: Khmer, Lao, Thai

- OpenType Specification Version 1.6
- Open Font Format: ISO Standard ISO/IEC 14496-22 (OT Spec 1.4)

- Feature support has been implemented in
 - Layout and Text editing applications (InDesign, Xpress..)
 - Office applications (MS Word..)
 - Operating systems (Windows, Mac OS X..)
 - Platform Independent Layout Engines (Bitstream Panorama)
 - Open Source Libraries (Pango)
 - Web to Print Applications (Prince)
 - Web Browsers and CSS (just recently announced)

- What are the problems, where do they come from ?

- What is left to be done ?

What does OT support mean ?

Basic Unicode support (including the non BMP glyphs)

Basic support for simple scripts (latin, greek, cyrillic)

Support for advanced typographic features

Extended Language Support for complex scripts:

Support for CJK (Far East)

Support for Middle East scripts

Support for more complex scripts (Indic,Lao, Khmer, Thai...)

Where do problems come from ?

- Insufficient or incomplete implementation
- Redundant or unclear information in the OT font specification
 - kern vs. gpos
 - Line spacing
 - Names (glyph names, font names)
 - Font bundling (family vs. single fonts)
- Font Caching
- Duplicate Fonts
- Different font formats
- Bugs in applications or OS 's
- Different behaviour of OTF and TTF
- Different behaviour on different platforms

Operating Systems, Layout Engines

- Windows XP , Vista, (WPF), Windows 7
- Mac OS X 10.3, 10.4, Leopard 10.5, Snow Leopard 10.6
- Linux + Platform independent Libraries (Pango, QT, HarfBuzz)
- Layout Engines (Panorama)

Applications (Unicode capable only)

- MS Office 2003 Win, 2004 MAC, 2007 Windows
- MS Publisher
- Adobe CS, CS2, CS3, CS4, ME, CJK (Windows, MAC)
- Quark 7,8 (MAC, Windows)
- Mellel (MAC OS X), Open Office (Linux)
- Wordpad (Win), TextEdit (Mac OS X)

What is an OpenType Font ?

- A valid OpenType font is a font conforming to the OT Spec
 - OTF (CFF name keyed fonts)
 - OTF (CFF cid keyed fonts)
 - TTF (with/without GSUB/GPOS)
 - TTC (TrueType Collections)
- Encoding is based on Unicode
- Glyph number is restricted to 65536
- It is platform independent and runs on Mac and Windows without modification
- It can support one or more scripts with appropriate typographic features

Basic Unicode Support

- All Unicode glyphs should be accessible (incl. non BMP glyphs)
 - Adobe Japan character sets use already Plane 2 glyphs
 - HKSCS has about 1700 glyphs in plane 2
 - GB18030-2000 has glyphs in plane 2
 - CJK Extension B has about 40000 glyphs in plane 2.
- Fonts should have a Unicode CMAP
Custom Encodings are still possible, but outdated
(ShiftJis, GB2312-80, Big 5 ...)
- Glyph names should not be important
Mapping from GID to Unicode using Cmaps
(namekeyed CFF fonts)

Format	Support	Mac OS X		Windows				Adobe CS2/CS3/CS4		Quark 7	Quark 8
		10.4	10.5, 10.6	XP	Vista	WPF	7.0	Win	Mac	Win Mac	Win Mac
OTF	Unicode	(✓)☹		✓	✓	✓	✓	✓	✓	✓	✓
TTF	Unicode	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
OTF	Non BMP	✓	✓	✓	✓	✓	✓	✓	✓	☹	✓
TTF	Non BMP	✓	✓	✓	✓	✓	✓	✓	✓	☹	✓

Unicode font support in Mac OS X 10.3 – 10.6

- .dfonts and MacTT with a Unicode Cmap are ok
.dfonts are not accessible by Adobe applications
- PC TrueType fonts (.ttf) work too
- OTF fonts work correctly with Adobe apps
- OTF fonts with an internal CID structure also work
- OTF fonts with an internal string array with glyph names are **poorly** supported in **OS X 10.3/10.4** and treated like Type1 fonts

In OS X 10.3, 10.4:

Carbonized applications access codepages via internal mappings. This doesn't work always correctly .

For COCOA/AAT the Unicode number was recalculated from the Postscript glyph name, although these fonts have a Unicode Cmap !?!

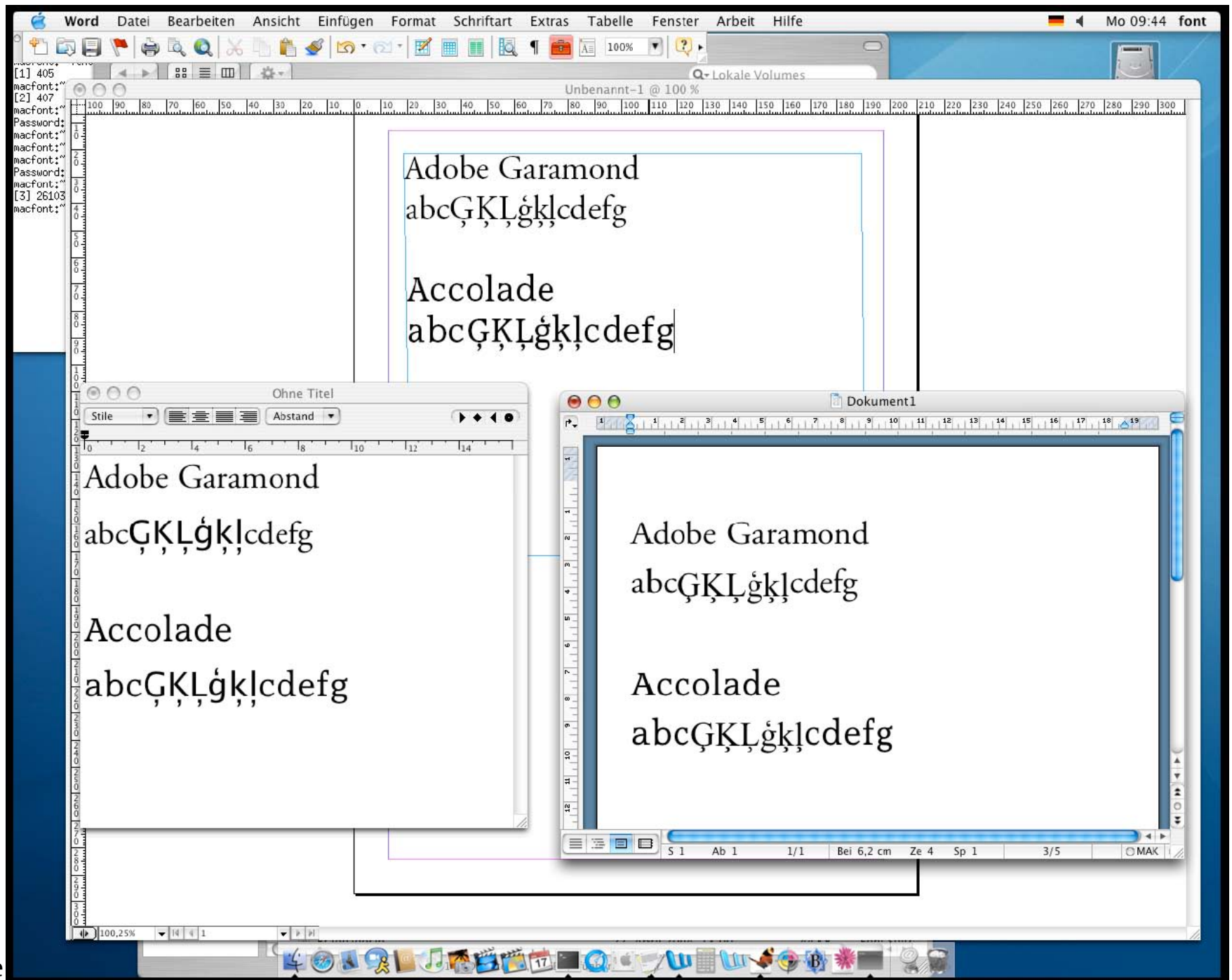
Name problems : Gcedilla – Gcommaccent

Greek fonts : mu, Delta, sigma1, Omega

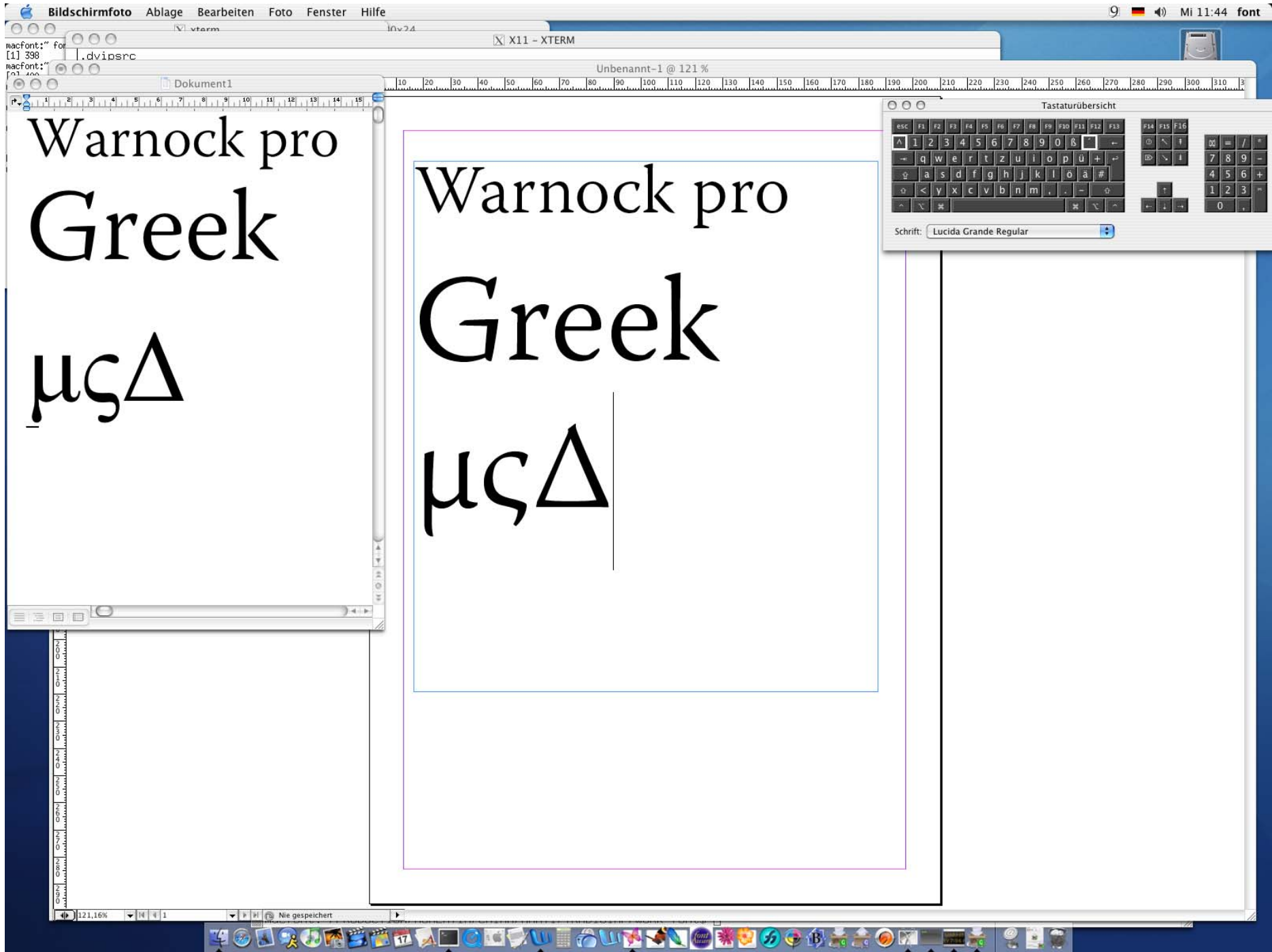
Encoding problems with CFF custom encoding

In OS X 10.5 and 10.6 Apple introduced Core Text and replaced the older text API's.

The problems have been fixed. (A good reason to Upgrade!)

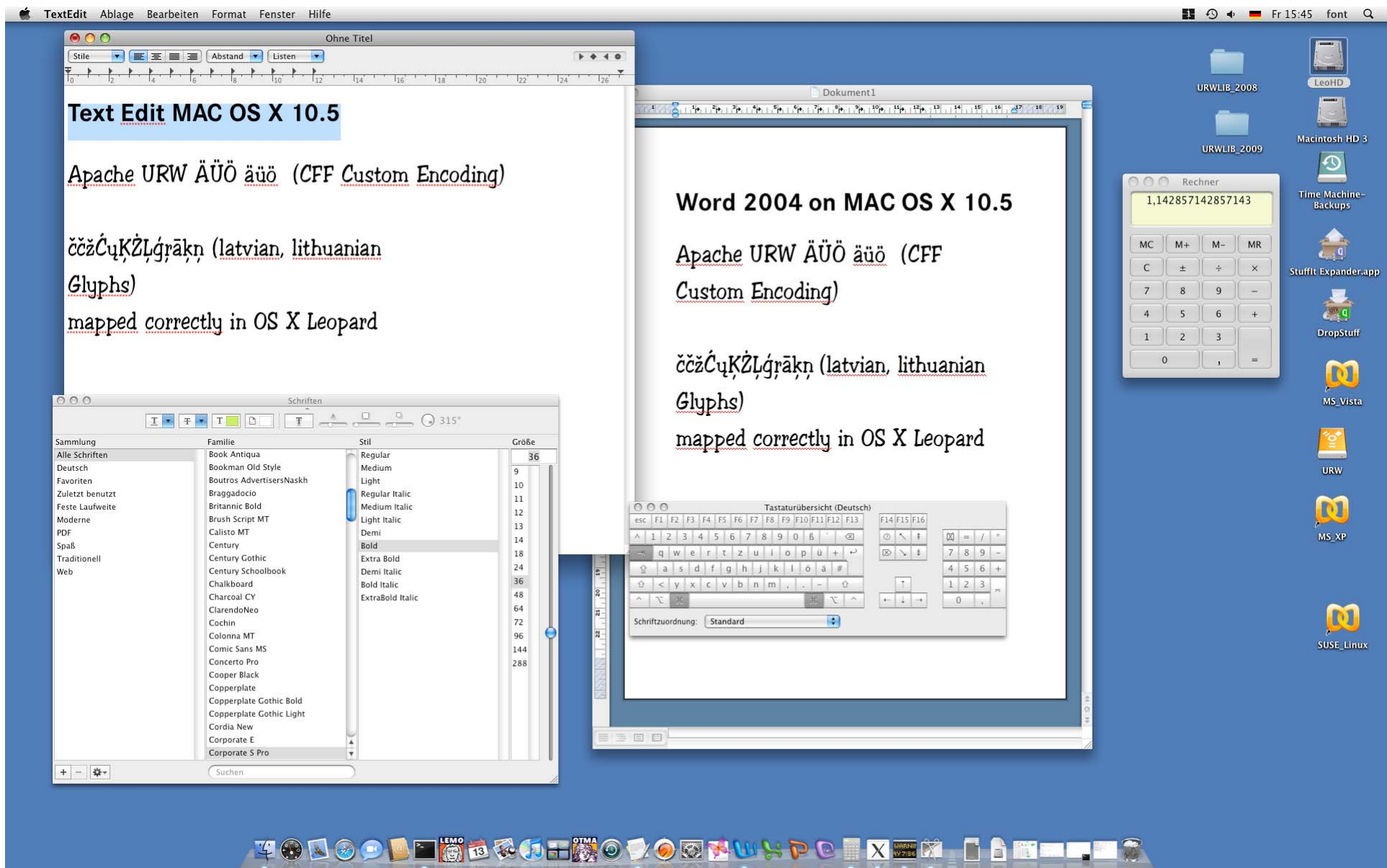


Dr. Jürgen
OpenType



TextEdit Mac
OS X (Tiger):
Apache URW
(OTF CFF Custom Encoding)
Umlaute : € † ... Š Ÿ ö

InDesign CS 2
OS X (Tiger):
Apache URW
(OTF CFF Custom
Encoding)
Umlaute : Ä Ü Ö ä ü ö



Basic Feature Support: Kerning

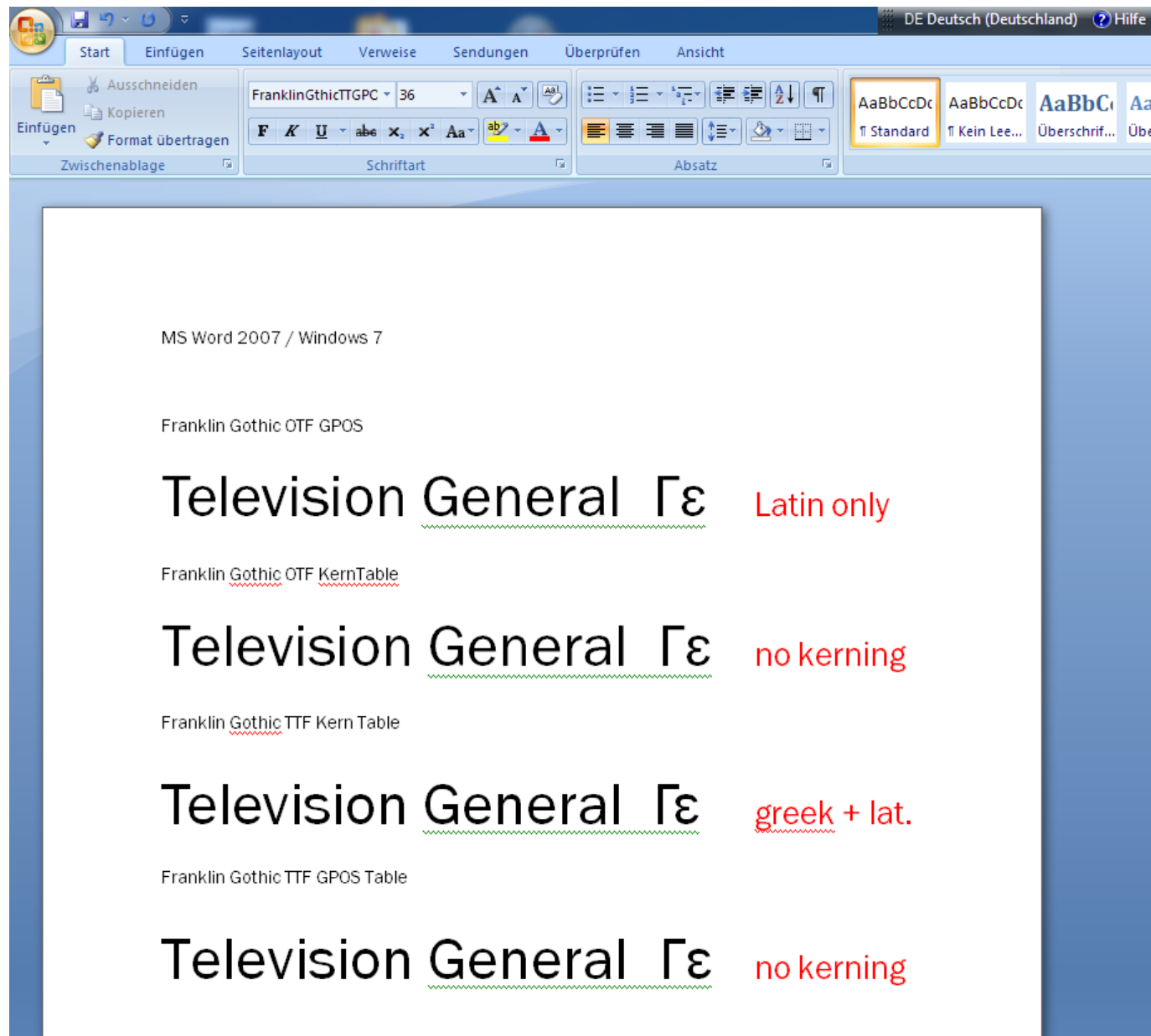
- Two ways to include Kerning into OpenType Fonts
 - Classical flat kerning in the KERN table
 - Advanced kerning in the GPOS table
- GPOS and KERN are used in different environments
 - GPOS used with OTF
 - KERN used with TTF
- GPOS and KERN can be different

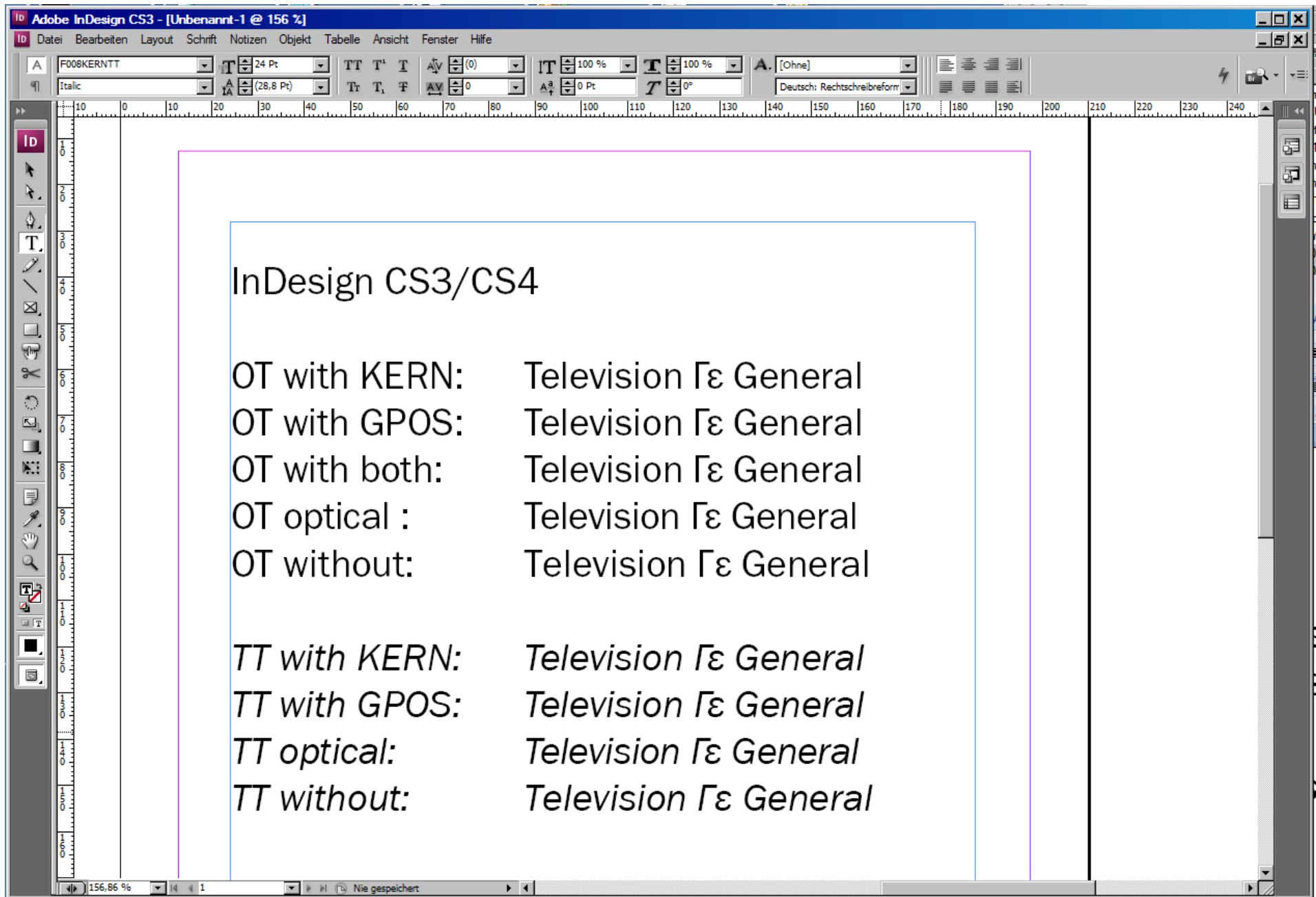
Test: OpenType Font with WGL4 Charset and about 4000 Kerning Pairs

FontFormat	Kerning Format	Mac OS X Word 2004		Windows Office 2007			Adobe CS 3/4		Quark 7/8	
		10.3	10.4	XP	Vista	7.0	Win	Mac	Win	MAC
OTF	GPOS	Only latin	Only latin	(✓) ⁽¹⁾	(✓) ⁽¹⁾	✓ latin	✓	✓	✓ ⁽²⁾	✓ ⁽²⁾
OTF	KERN	👎	👎	👎	👎	👎	✓	✓	✓	✓
OTF	GPOS + KERN	Only latin	Only latin	(✓) ⁽¹⁾	(✓) ⁽¹⁾	latin	✓	✓	✓	✓
TTF	GPOS	👎	👎	👎	👎	👎	✓	✓	✓ ⁽²⁾	✓ ⁽²⁾
TTF	KERN	👎	👎	(✓) ⁽¹⁾	(✓) ⁽¹⁾	✓	✓	✓	✓ latin	✓ latin
TTF	GPOS + KERN	👎	👎	(✓) ⁽¹⁾	(✓) ⁽¹⁾	✓	✓	✓	✓ ⁽²⁾	✓ ⁽²⁾

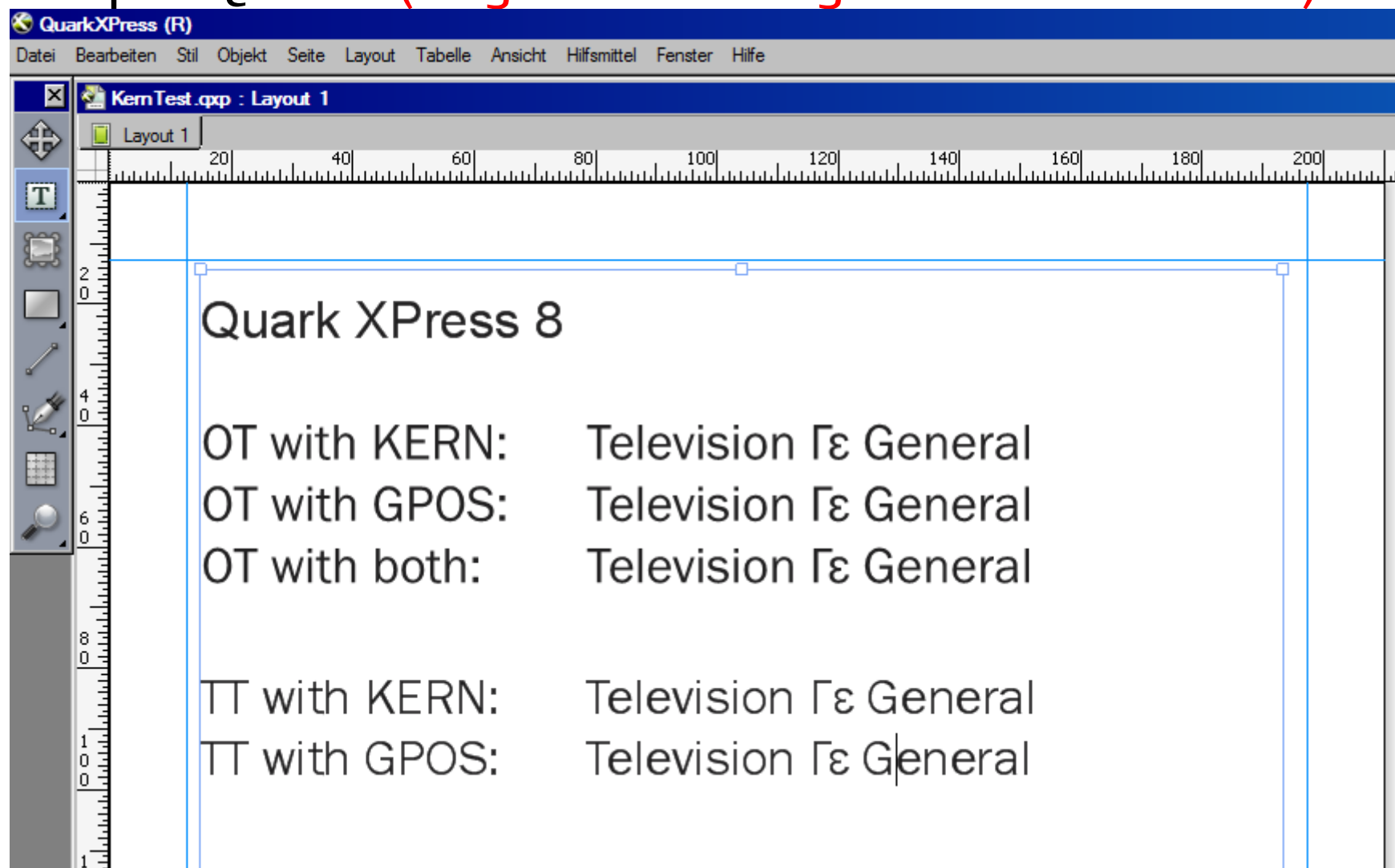
(1) Bug in the GDI

(2) GPOS Kerning cannot be disabled





Sample : Quark 8 (Bug: GPOS kerning cannot be disabled !)



Summary for Kerning:

Full Support for Kerning only in high end layout programs like InDesign and Quark.

The different treatment of GPOS and KERN tables is annoying and should be removed.

Side remark:

In one of the Vista fonts (Cambria) you can find a kern table with one subtable and about 15000 pairs.

The OT spec however has an entry (unsigned short) for the length of the subtable which clearly is not correct because you need 6 byte for each kerning pair.

At least the specification should be updated that this value is ignored.

Basic : Linespacing

The OTF specification has several (redundant) values for Ascenders and Descenders.

Linespacing is calculated from one set of the following entries

- HHEA Ascender, Descender, LineGap (MAC)
- OS/2 Typo Ascender, Descender, LineGap (Windows)
- OS/2 WinAscent, WinDescent (Clipping)

Problem : No consistent Linespacing

Different Applications are using different values and different algorithms :

Word (MAC) BTB = HHEA.Ascender + HHEA.Descender

TextEdit (MAC) BTB = HHEA.Ascender + HHEA.Descender + HHEA.Linegap

Word (Win) BTB = WinAscent + WinDescent

Best Recommendation:

HHEA Ascender = OS/2 Typo Ascender = OS/2 WinAscent

HHEA Descender = OS/2 Typo Descender = OS/2 WinDescent

HHEA LineGap = OS/2 TypeLineGap = 0

Might cause problems in multilingual fonts.

A new bit in the OS/2 Table now indicates which metric should be used :

Bit 7 in FsSelection : **DONT_USE_WIN_LINE_METRICS**

Basic : Glyph Names

OT fonts sometimes contain glyph names:

- Latin TTF fonts : yes
- OTF name keyed fonts : yes
- TTF CJK fonts : no
- CID keyed OTF fonts : no

Glyph names are not used by the OS. (Except the Mac OS X 10.3 and 10.4 but that has been fixed).

Glyph names are used in PDF ´s and in printer drivers.
Sometimes used to reconstruct the Unicode.

There is a standard list from Adobe (AGL, AGLFN).

Basic : Font Names

The name table just contains too many different entries. Its difficult to supply all necessary names to make a font platform and application compatible.

I am sure this will not be modified but I hope its not getting worse by introducing some new name entries into the name table !

Font handling in WPF:

WPF introduces new name entries:

NameID 21: WWS Family

NameID 22: WWS Subfamily

WWS = Weight, Width and Slope

Name ID

- 1 FontFamily Name (PC 4 members, MAC any number)
- 2 Subfamily Name (PC 4 Styles, MAC any number)

- 4 Font FullName (usually 1 + 2)
For OTF equal to the PS FontName in CFF
- 6 Postscript Name

- 16 Preferred Family Name (= ID 1 on the MAC)
- 17 Preferred Subfamily Name (= ID 2 on the MAC)

- 18 Compatible FullName (MAC only = old FOND Name)

#	platformID	encodingID	languageID	nameID	nameString	
0	1	0	0	0	Copyright © 2000, 2001 Adobe Systems Incorporated. All Rights	Macintosh
1	1	0	0	1	Adobe Garamond Pro	Macintosh
2	1	0	0	2	Semibold Italic	Macintosh
3	1	0	0	3	1.007;ADBE;AGaramondPro-SemiboldItalic	Macintosh
4	1	0	0	4	Adobe Garamond Pro Semibold Italic	Macintosh
5	1	0	0	5	OTF 1.007;PS 001.000;Core 1.0.30;makeotf.lib1.4.1030	Macintosh
6	1	0	0	6	AGaramondPro-SemiboldItalic	Macintosh
7	1	0	0	7	Adobe Garamond is either a registered trademark or a trademark	Macintosh
8	1	0	0	9	Robert Slimbach	Macintosh
9	1	0	0	11	http://www.adobe.com/type	Macintosh
10	1	0	0	14	http://www.adobe.com/type/legal.html	Macintosh
11	1	0	0	18	Adobe Garamond Pro Sb Italic	Macintosh
12	3	1	1033	0	Copyright © 2000, 2001 Adobe Systems Incorporated. All Rights	Microsoft /
13	3	1	1033	1	Adobe Garamond Pro	Microsoft /
14	3	1	1033	2	Bold Italic	Microsoft /
15	3	1	1033	3	1.007;ADBE;AGaramondPro-SemiboldItalic	Microsoft /
16	3	1	1033	4	AGaramondPro-SemiboldItalic	Microsoft /
17	3	1	1033	5	OTF 1.007;PS 001.000;Core 1.0.30;makeotf.lib1.4.1030	Microsoft /
18	3	1	1033	6	AGaramondPro-SemiboldItalic	Microsoft /
19	3	1	1033	7	Adobe Garamond is either a registered trademark or a trademark	Microsoft /
20	3	1	1033	9	Robert Slimbach	Microsoft /
21	3	1	1033	11	http://www.adobe.com/type	Microsoft /
22	3	1	1033	14	http://www.adobe.com/type/legal.html	Microsoft /
23	3	1	1033	17	Semibold Italic	Microsoft /

otted - AGaramondPro-SemiboldItalic.otf/OTF/CFF /FontInfo - CFF /FontInfo

Type	Name	Value	Comment
CHAR*	FontName	AGaramondPro-SemiboldItalic	CFF /FontInfo/FontName
CHAR*	version	001.000	CFF /FontInfo/version
CHAR*	Notice	Copyright (c) 2000, 2001 Adobe Systems Incorporated. All Right	CFF /FontInfo/Notice
CHAR*	FamilyName	Adobe Garamond Pro	CFF /FontInfo/FamilyName
CHAR*	FullName	Adobe Garamond Pro Semibold Italic	CFF /FontInfo/FullName
FWORD	FontBBox.left	-593	CFF /FontInfo/FontBBox.left
FWORD	FontBBox.bottom	-340	CFF /FontInfo/FontBBox.bottom
FWORD	FontBBox.right	1176	CFF /FontInfo/FontBBox.right
FWORD	FontBBox.top	893	CFF /FontInfo/FontBBox.top
USHORT	unitsPerEm	1000	CFF /FontInfo/unitsPerEm
FWORD	isFixedPitch	0	CFF /FontInfo/isFixedPitch
Fixed	ItalicAngle	-18.500	CFF /FontInfo/ItalicAngle
FWORD	UnderlinePosition	-100	CFF /FontInfo/UnderlinePosition
FWORD	UnderlineThickness	50	CFF /FontInfo/UnderlineThickness
SHORT	Encoding	0	CFF /FontInfo/Encoding
SHORT	charset	3	CFF /FontInfo/charset
USHORT	nGlyphs	504	CFF /FontInfo/nGlyphs

Basic : Encoded vs. unencoded glyphs

There are several glyphs which are accessed by features but also have unicode entries:

- german long s
- greek final sigma
- mathematical greek signs
- Japanese vertical alternates
- Japanese full width and halfwidth forms
- Arabic presentation forms

Always use the available Unicode even if the glyphs are selected through an OpenType feature.

otted Glyph Viewer - WarnockPro-Light.otf

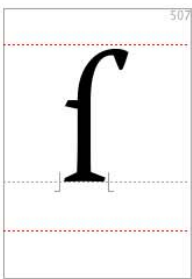
Root

AG

Root

Glyph Set and Code Selector

Glyph Index (GID) 507



View

- Image
- Outline
- Points
- Numbers
- Box
- hhea asc/dsc
- typo asc/dsc
- win asc/dsc
- gridfit
- grayscale

ppem: 160

zoom: 100

Bounding Box

left: 25

bottom: -1

right: 372

top: 713

Metrics Editor

LSB: 25

ADW: 260

TSB: null

ADH: null

Print ...

Glyph Encoding Editor

'CFF' id: longs

'cmap' subtable codes:

(0) Unicode / Unicode 2.0 semantics, BMP 0x017f del

(1) Macintosh / Roman del

(2) Microsoft / Unicode BMP only 0x017f del

otted GPOS/GSUB Viewer - WarnockPro-Light.otf

Layout Table

'GSUB' table

Script 'latn', Latin

Language <default>

Feature (24) 'hist', Historical Form

Lookup (19) single substitution

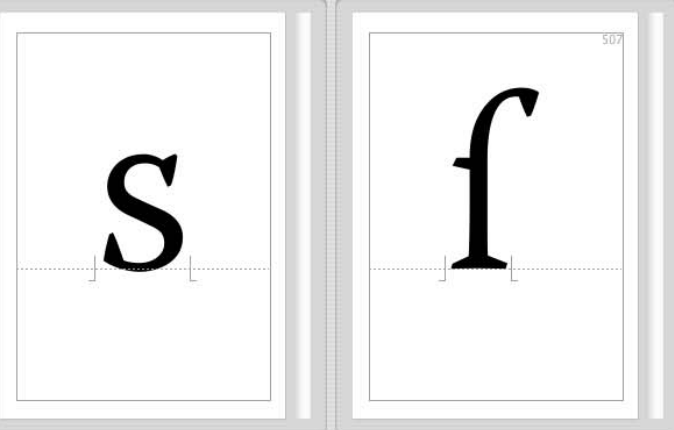
Subtable View

Data Report Image

Single Substitution Lookup

replace: (84) 's'

with: (507) 'longs'



SHORT

USHORT

rsset

lyphs

- MacintoshHD
- DropStuff
- URW
- Stuffit Expander
- TRANSFER
- TRANSFER



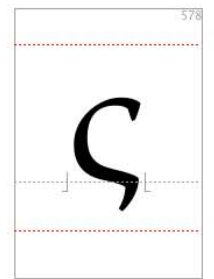
Tastaturübersicht

ottted Glyph Viewer - WarnockPro-Light.otf

AG Root

Glyph Set and Code Selector

Glyph Index (GID) 578



View

- Image
- Outline
- Points
- Numbers
- Box
- hhea asc/dsc
- typo asc/dsc
- win asc/dsc
- gridfit
- grayscale

ppem: 160
zoom: 100

Bounding Box

left: 39
bottom: -160
right: 396
top: 451

Metrics Editor

LSB: 39
ADW: 421
TSB: null
ADH: null

Print ...

Glyph Encoding Editor

'CFF' id: uni03C2

'cmap' subtable codes:

- (0) Unicode / Unicode 2.0 semantics, BMP 0x03c2 del
- (1) Macintosh / Roman del
- (2) Microsoft / Unicode BMP only 0x03c2 del

ottted GPOS/GSUB Viewer - WarnockPro-Light.otf

Layout Table 'GSUB' table
Script 'latn', Latin
Language <default>

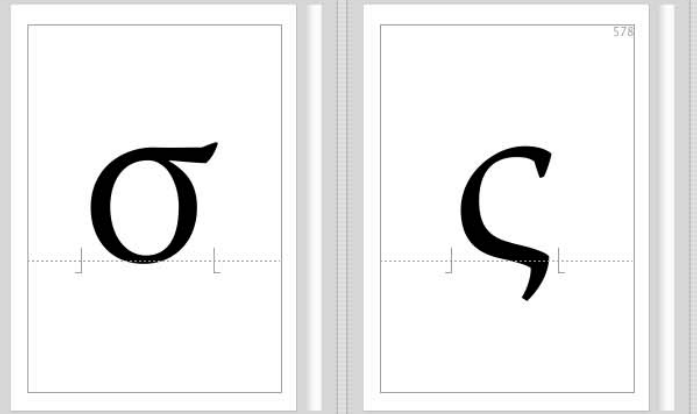
Feature (20) 'fina', Terminal Forms
Lookup (4) single substitution

Subtable View

Data Report Image

Single Substitution Lookup

replace: (560) 'sigma' with: (578) 'uni03C2'



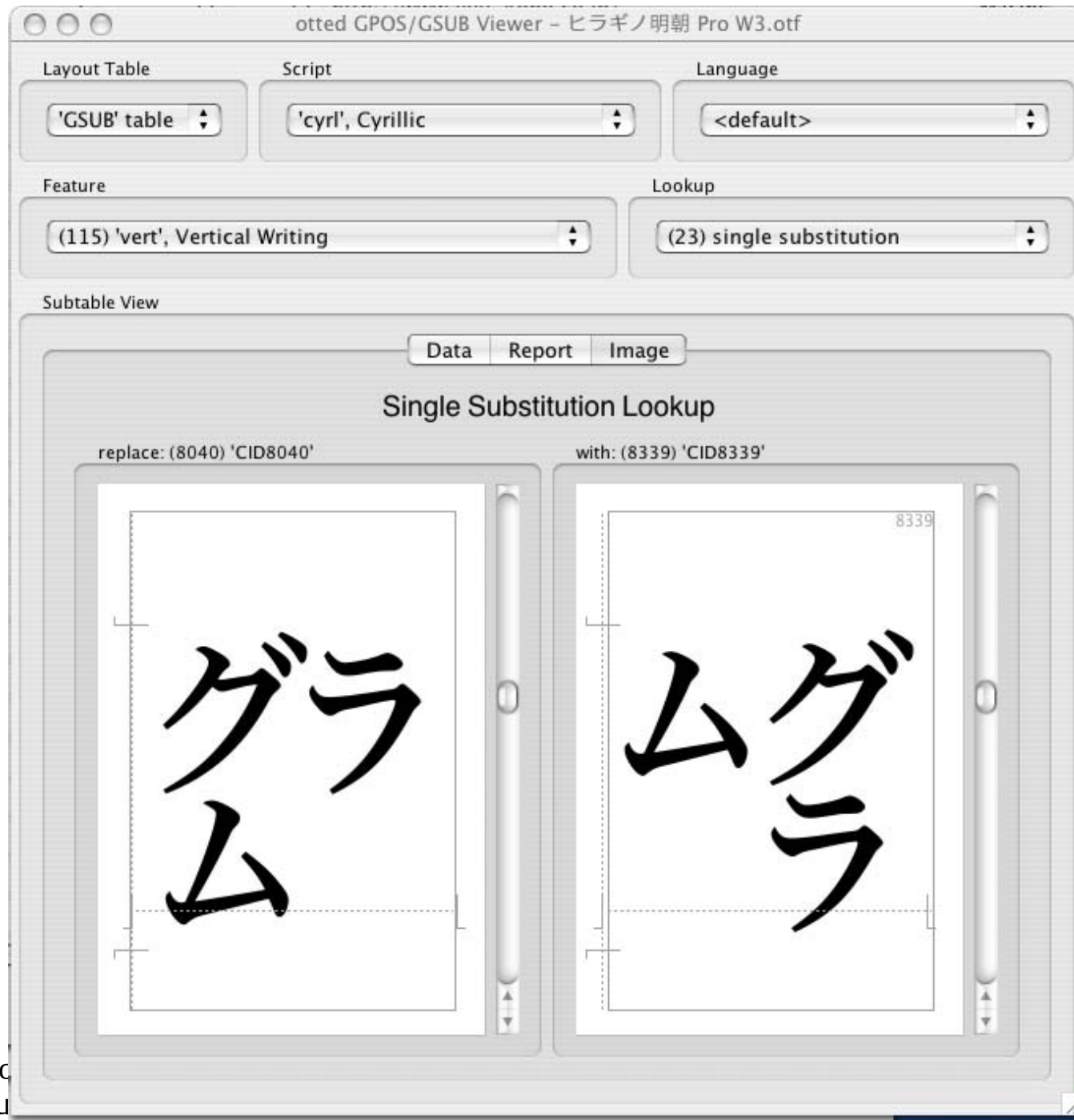
SHORT
USHORT

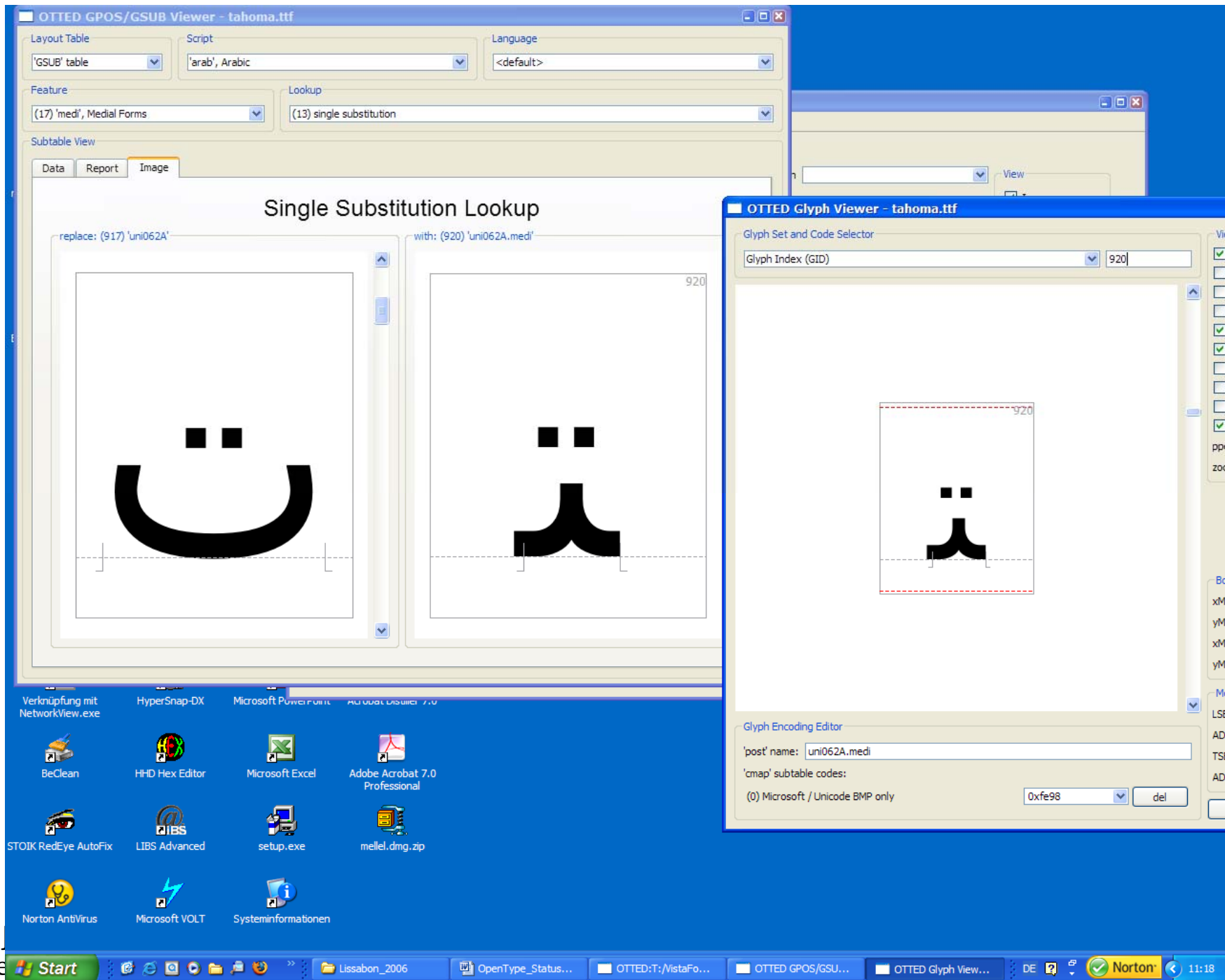
reset
glyphs

- MacintoshHD
- DropStuff
- URW
- Stuffit Expander
- TRANSFER
- TRANSFER

Tastaturübersicht





Dr.
Ope



Basic : Font Caching

Installing font updates is very often not successful because of font caching algorithms

- Adobe applications are creating arbitrary numbers of files named AdobeFnt*.lst
- On the MAC OS X there are several files for font caching.

The OS (MAC OS X) or the applications should provide an easy way to clear the font cache.

Now you have to use third party tools or simply search and delete all these files.

Suggestion: Use also the font version number for caching and clear all internal data if its different !!

Basic : Font Embedding

Font embedding is application dependent.

In MS Office you can embed TTF fonts but no OTF fonts.

WebFont Embedding: EOT allows only to use TTF fonts.

For customers it is difficult to understand.

Basic : Symbol Fonts

Symbol Fonts can be encoded:

- In the PUA
- With “faked” Unicodes (for example Latin 1)
- Partly with correct Unicodes
- As featured fonts with an ornament feature for example

In Windows Symbol fonts (TTF only) can be encoded with a CMAP 3,0.

This allows a normal keyboard input and PUA Unicodes.

This does not work with OTF fonts.

Basic western OT layout features

GPOS:

- kern, csp
- mark, mkmk, mset

Simple GSUB substitutions:

- pnum, lnum, onum, tnum
- liga, dlig, hlig, rlig
- case, smcp, c2sc, c2pc
- sups, sinf, subs, ordn, titl, swsh,
- hist, zero, salt, ss01...ss20

Contextual GSUB features :

- calt, clig, frac, cswh,
- numr, dnom, frac

Basic latin features supported by:

- Adobe InDesign 2, CS, CS2, CS3, CS4
- Adobe Illustrator CS, CS2, CS3, CS4
- Adobe Photoshop CS, CS2 partly
- Mellel 1.9 , ...
- Quark 7, 8
- Windows WPF
- MS Publisher

Not supported in

- MS Office (Windows)
- MS Office (Mac)
- Open Office (Linux)

New in InDesign CS 3, CS 4:

- mark attachment (mark, mkmk)
- positional forms (fina, medi, init, isol)
like arabic, useful for script typefaces

InDesign CS3 , Quark 8

- locl

Evaluates language dependent alternate forms for example for:
Romanian, Serbian, Turkish
Arabic vs. Urdu
Japanese vs. Chinese forms

proportional figures

1971 1901 3461\$%

proportionale oldstyle figures

1971 1901 3461\$%

tabular old style figures

1971 1901 3461\$%

liga (standard ligatures),

fi fj fh fft ffi Th ffb

fi fj fh fft ffi Th ffb

dlig (discretionary ligatures)

ct sp st

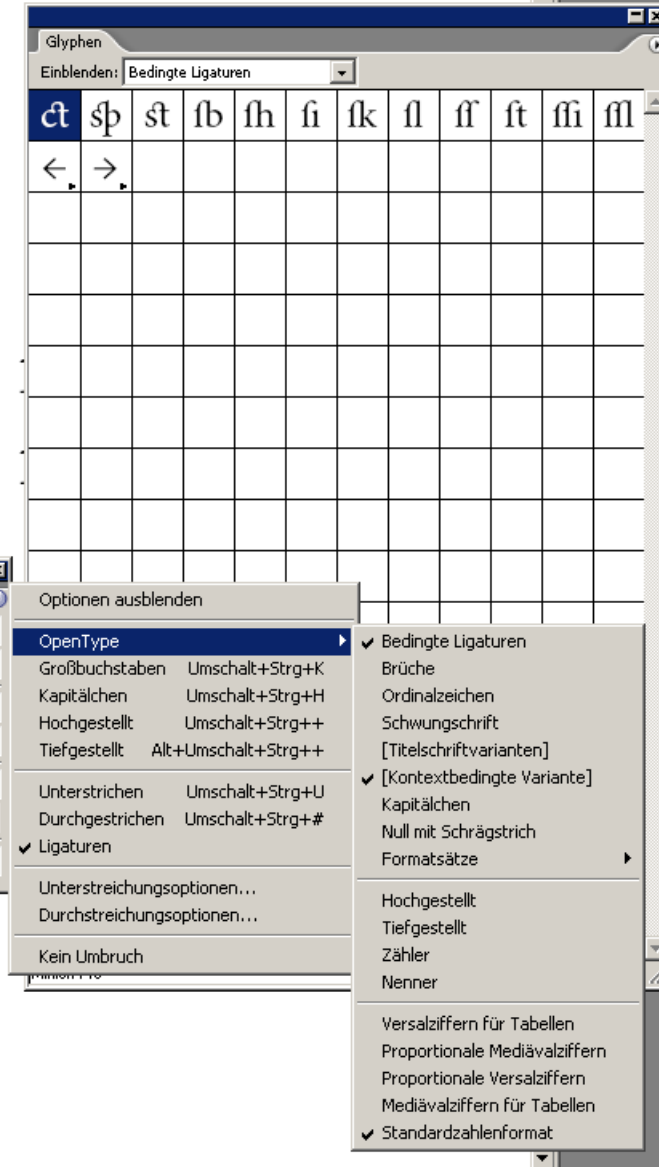
ct sp st

case

(HH) (HH)

smcp (small capitals)

10\$ & í ñ 10\$ & í Ñ



lining figures

1971 1901 3461\$%

proportional figures

1971 1901 3461\$%

proportionale oldstyle figures

1971 1901 3461\$%

tabular old style figures

1971 1901 3461\$%

liga (standard ligatures),

fi fj fh fft ffi Th ffb fk

fi f*j* fh fh*h* fh*h* fh*h* Th ffb fk

dlig (discretionary ligatures)

ct sp st

ct *s*p *s*t

case

(HH) (HH)

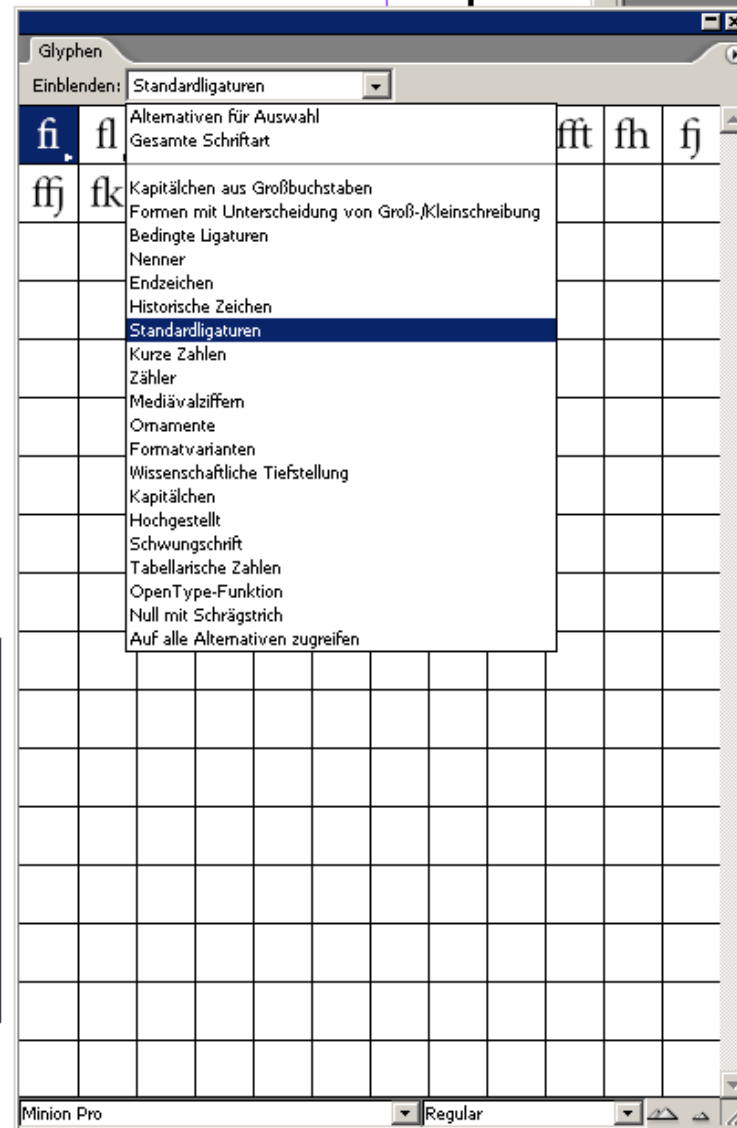
smcp (small capitals)

10\$ & í ñ 10\$ & Í Ñ

c2sc (small capital forms)

3461 HAMBURG

3461 HAMBURG



lining figures

1971 1901 3461\$%

proportional figures

1971 1901 3461\$%

proportionale oldstyle figures

1971 1901 3461\$%

tabular old style figures

1971 **1**901 3461\$%

liga (standard ligatures),

fi fj fh fft ffi Th ffb fk

fi fj fh fft ffi Th ffb fk

dlig (discretionary ligatures)

ct sp st

ct sp st

case

(HH) (HH)

smcp (small capitals)

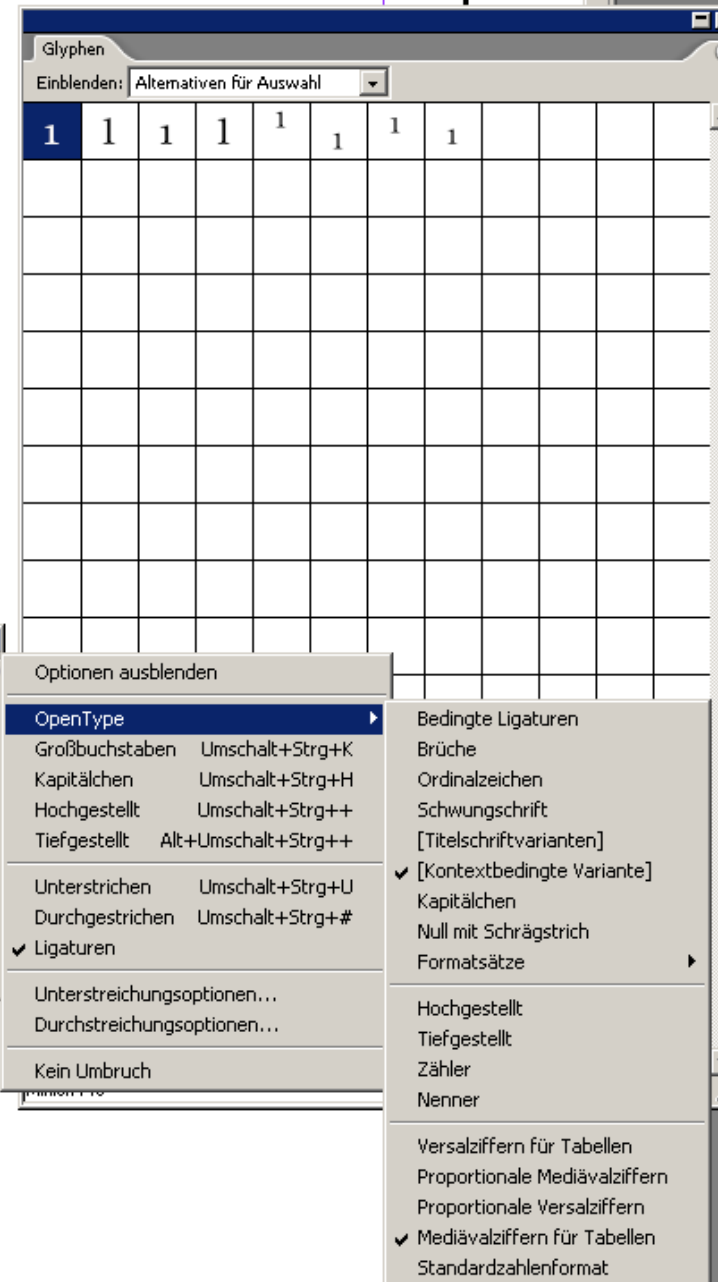
10\$ & íñ 10\$ & ÍÑ

c2sc (small capital forms)

3461 HAMBURG

3461 HAMBURG

hist (historical forms)



Cambria

lining figures

1971 1901 3461\$%

proportional figures

1971 1901 3461\$%

proportionale oldstyle figures

1971 1901 3461\$%

tabular old style figures

1971 1901 3461\$%

liga (standard ligatures)

fi fj fh fft

fi fj fh fft

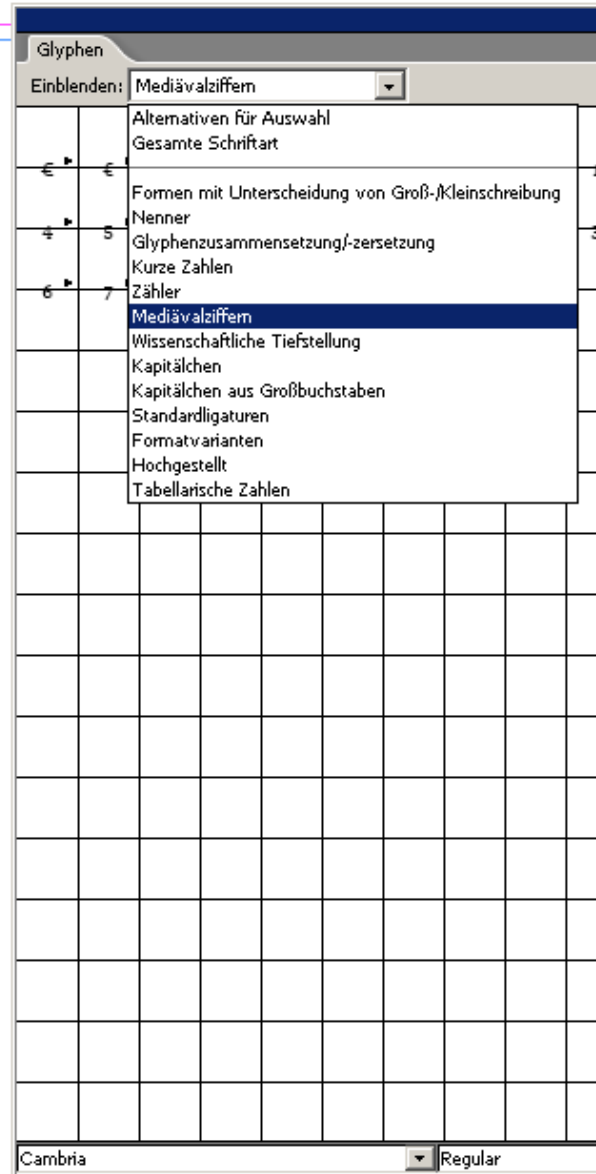
dlig (discretionary ligat

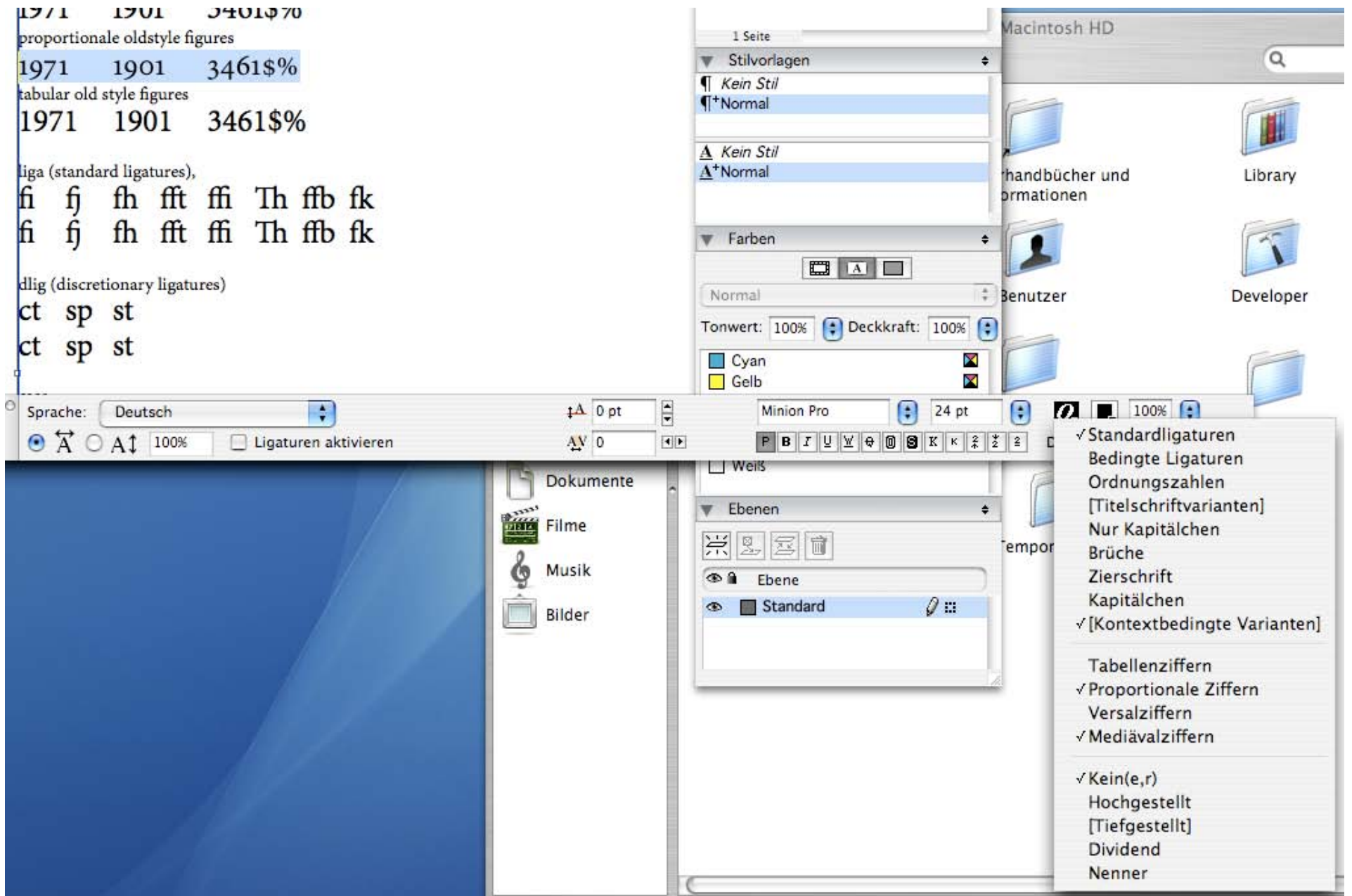
ct sp st

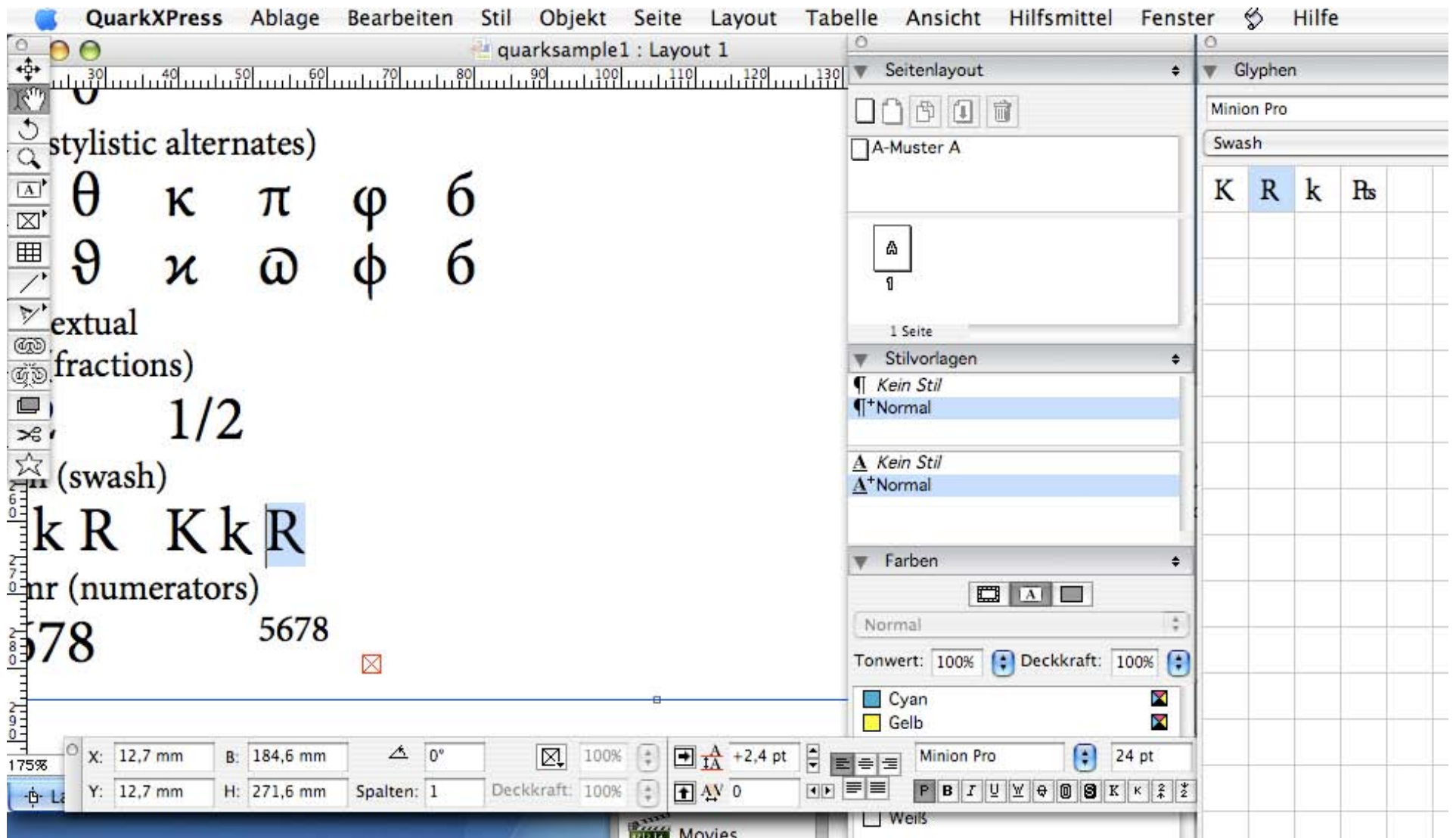
ct sp st

case

(HH) (HH)







QuarkXPress Ablage Bearbeiten Stil Objekt Seite Layout Tabelle Ansicht Hilfsmittel Fenste

quarksample1 : Layout 1

zero
0 0

salt (stylistic alternates)
β θ κ π φ ϐ
ϑ ϒ κ ω φ ϐ

Contextual
frac (fractions)
1/2 1/2

swsh (swash)
K k R K k R

numr (numerators)
5678 5678

Seitenlayout
A-Muster A

Stilvorlagen
Kein Stil
Normal

Farben
Normal
Tonwert: 100% Deckkraft: 100%

Cyan
Gelb
Magenta
Passkreuze
Schwarz

Minion Pro 24 pt

175% Seite: 1

Layout 1

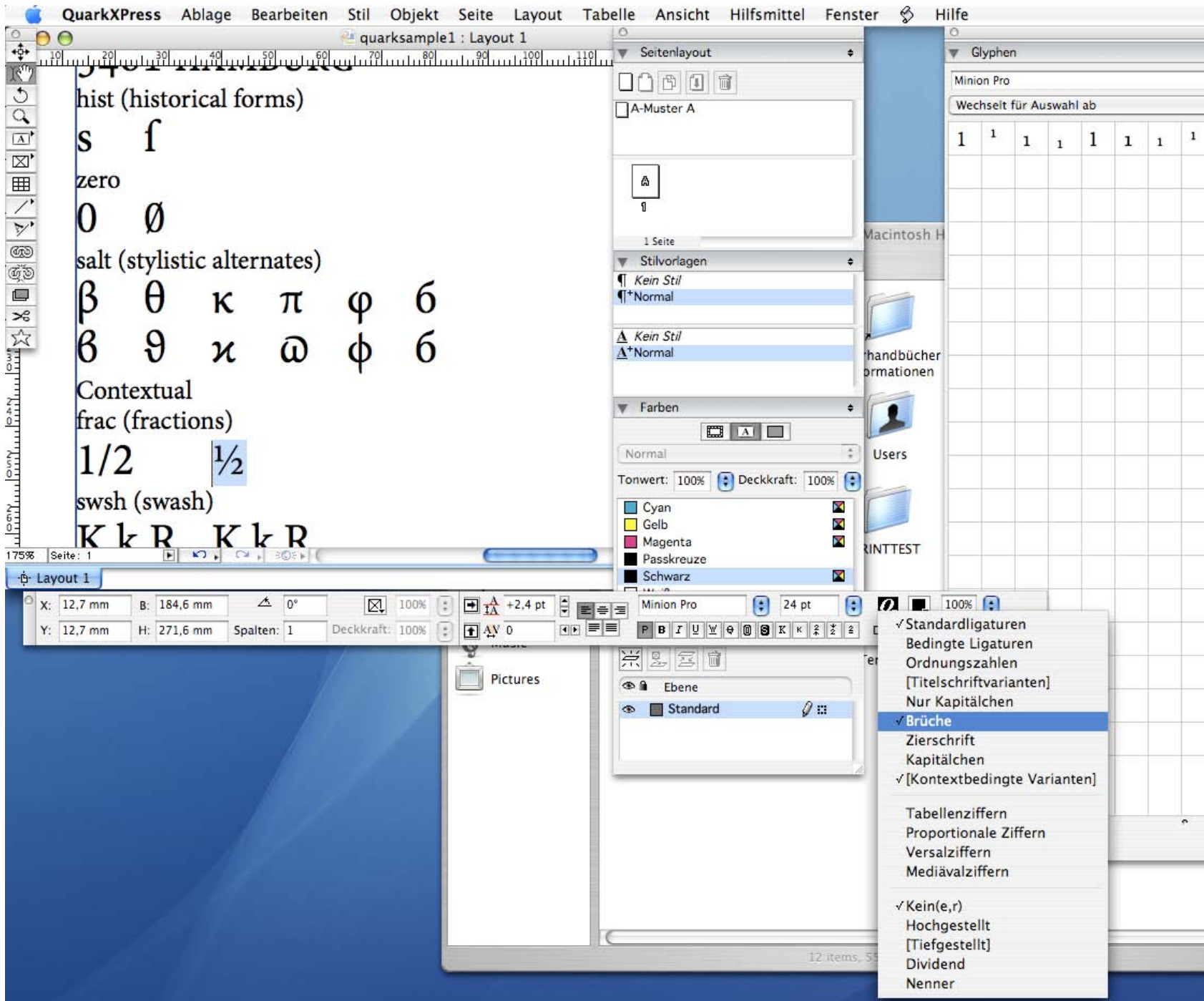
X: 12,7 mm B: 184,6 mm 0° 100% +2,4 pt
Y: 12,7 mm H: 271,6 mm Spalten: 1 Deckkraft: 100% 0

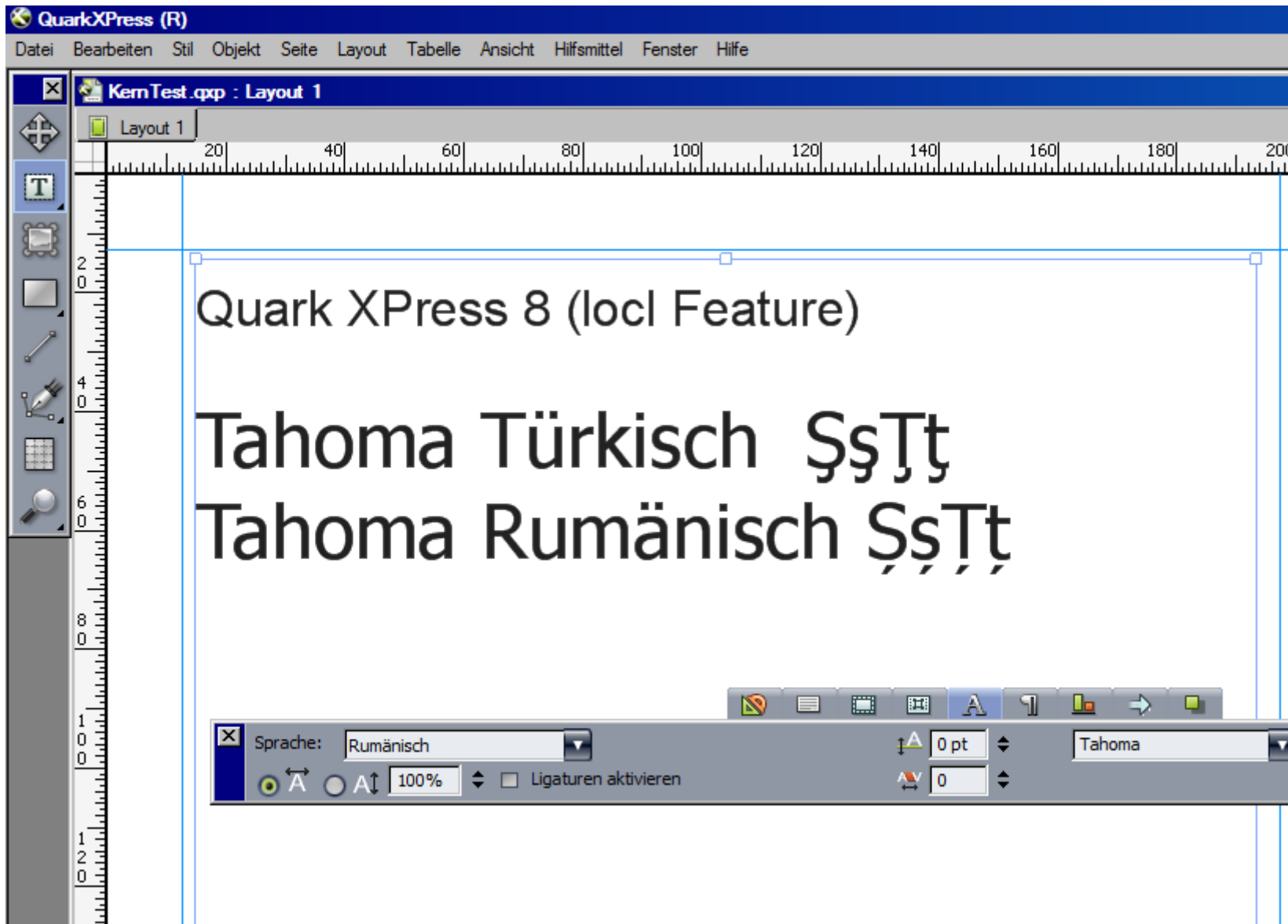
Gesamte Schrift
Wechselt für Auswahl ab
Sonderzeichen (mit Umbruch)
Sonderzeichen

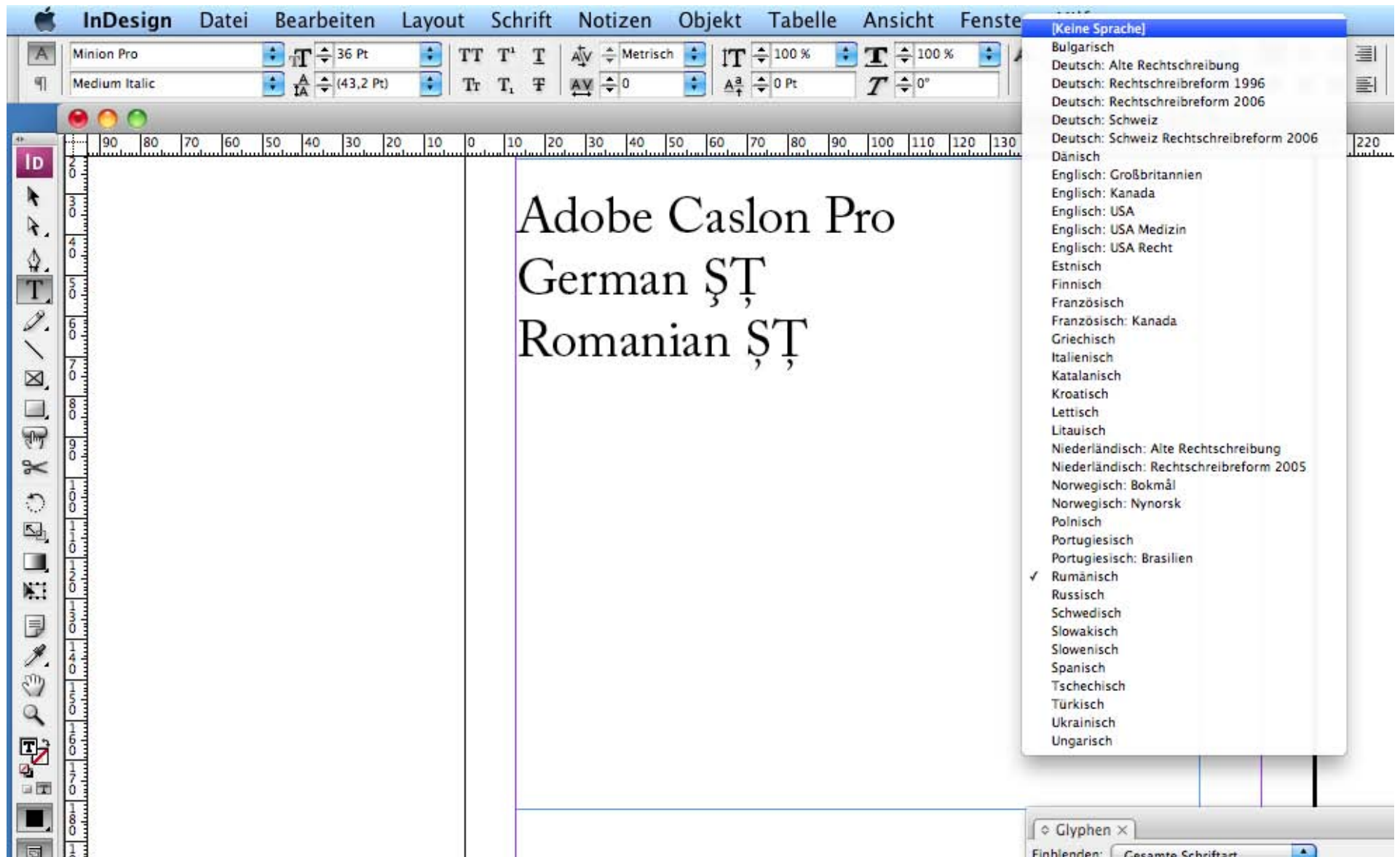
Access all alternates
Small capitals from capitals
Case sensitive forms
Discretionary ligatures
Denominators
Historical forms
Standard ligatures
Lining figures
Numerators
Oldstyle figures
Ornaments
Proportional figures
Stylistic alternates
Scientific Inferiors
Small capitals
Superscript
Swash
Tabular figures

✓ Slashed zero

Europäische Zeichen
Symbole





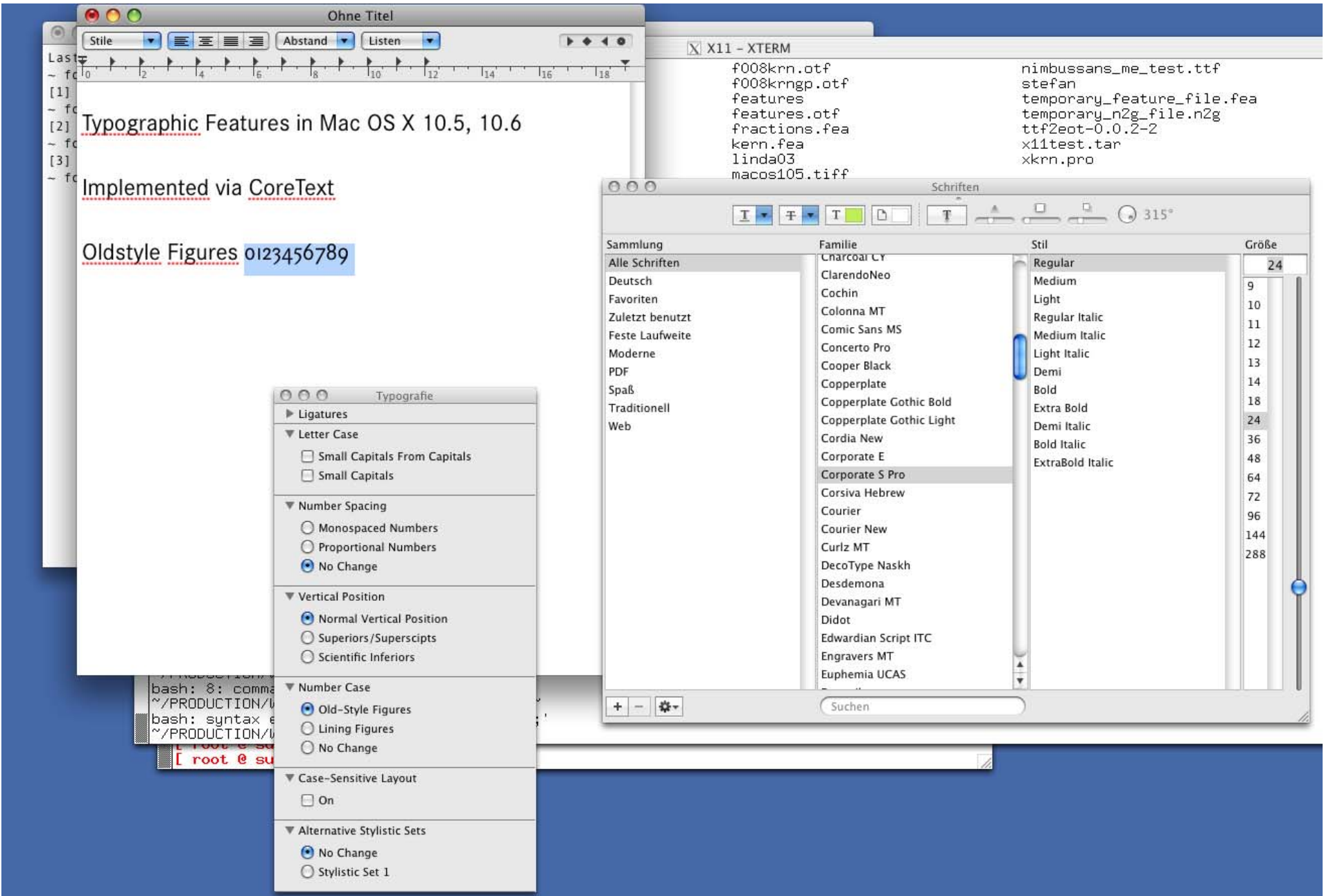


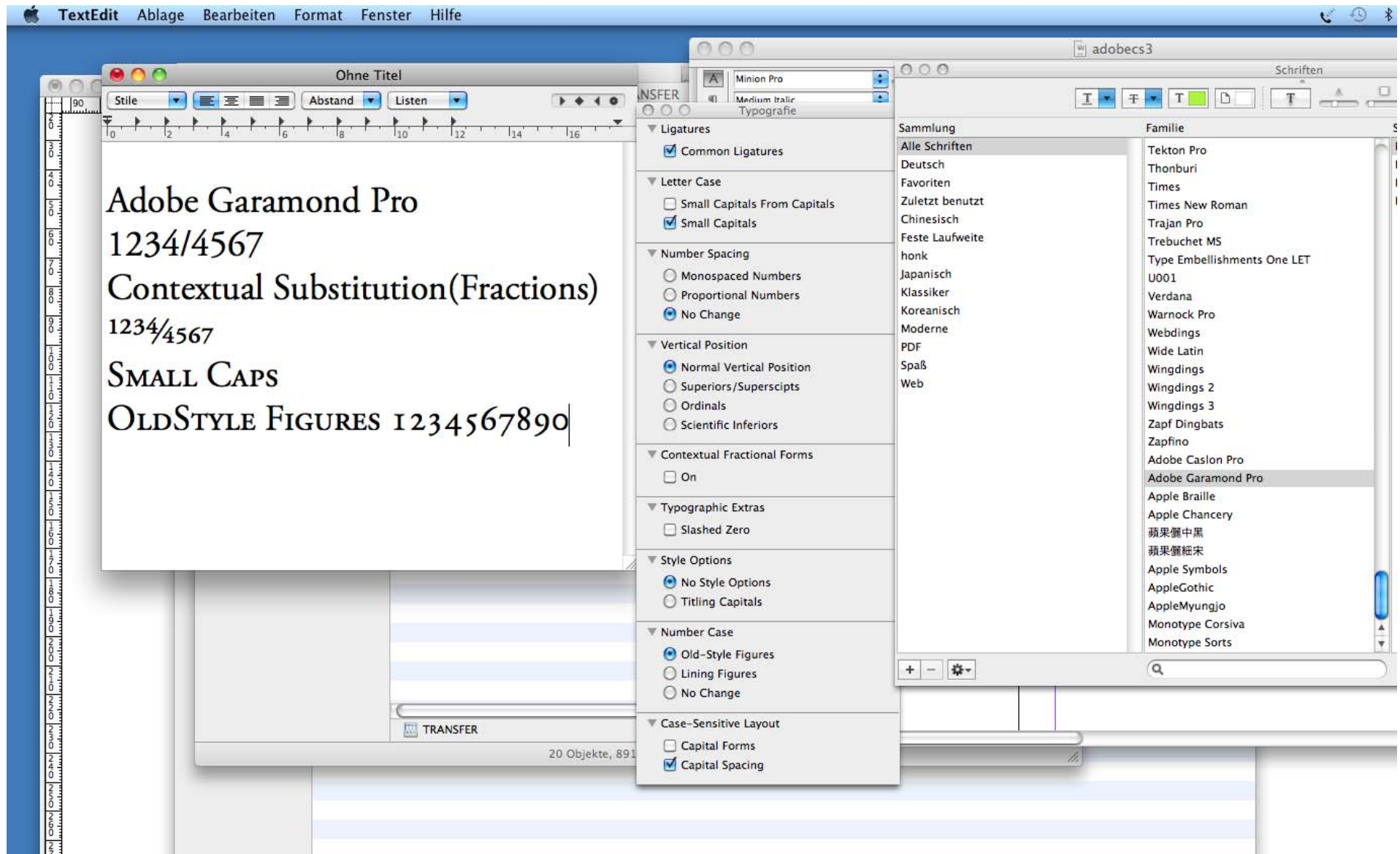
Support for OT Features on Mac OS X

- Apple has its own technology (AAT)
- In OS X 10.5 it introduced CoreText (replacing ATSUI & QD)
- It also supports many OT features like:

Oldstyle Figures, Ligatures, Small Caps etc...

- In OS X 10.6 it supports also contextual substitution
- It also supports features for complex scripts like arabic.





Nonlatin Scripts: CJK layout features

GPOS:

- kern, vkern, vhal, vpal, halt, palt

GSUB:

- simple latin features for the latin/cyrillic/greek glyphs
- hkna, vkna, hwid, fwid, twid, qwid,
- jp78,jp83,jp90, nalt, nlck, ruby, expt, hojo, tnam
- vert, vrt2
- smpl, trad, salt

Most of these features apply only to Japanese fonts.
Chinese fonts usually only have features for vertical writing.

CJK Features supported by :

- Adobe InDesign, Illustrator CS (Jap, Chin, Korean version)
- Windows (WPF)
- Quark 8 (Japanese version ?)
- Mac OS X 10.5 supports all japanese features !!

Italic glyphs are supported differently :

- TTF : Italic glyphs are included via the style button and TTC
- OTF: Italic glyphs are included as a feature

ottted:/System/Library/Fonts/ヒラギノ明朝 Pro W3.otf/

ヒラギノ明朝 Pro W3.otf

- Root
- OpenType Font For...
- Offset Table
- Table Directory
- 'BASE' table
- 'CFF' table
 - CFF /FontInfo
 - CFF /GlyphInfo
- 'DSIG' table
- 'EBDT' table
- 'EBLC' table
- 'GPOS' table
 - GPOS/Header
 - GPOS/Script...
 - GPOS/Featur...
 - GPOS/Looku...
- 'GSUB' table
 - GSUB/Header
 - GSUB/Script...
 - GSUB/Featur...
 - GSUB/Looku...
- 'OS/2' table
 - OS2/Struct
- 'VORG' table
 - VORG/Header
 - VORG/vertOr...
- 'Zapf' table
- 'cmap' table
 - cmap/Header
 - cmap/List
- 'head' table
 - head/Struct
- 'hhea' table
 - hhea/Struct
- 'hmtx' table
 - hmtx/List

code: Glyph Index (GID) selection View

Image
 Outline
 Prints

☒	!	"	#	\$	%	&
'	()	*	+	,	-
/	0	1	2	3	4	5
6	7	8	9	:	;	<
=	>	?	@	A	B	C
D	E	F	G	H	I	J
K	L	M	N	O	P	Q
R	S	T	U	V		

ottted GPOS/GSUB Viewer - ヒラギノ明朝 Pro W3.otf

Layout Table: 'GSUB' table Script: 'cyril', Cyrillic Language: <default>

Feature: (50) 'jp78', JIS78 Forms Lookup: (10) single substitution

Subtable View

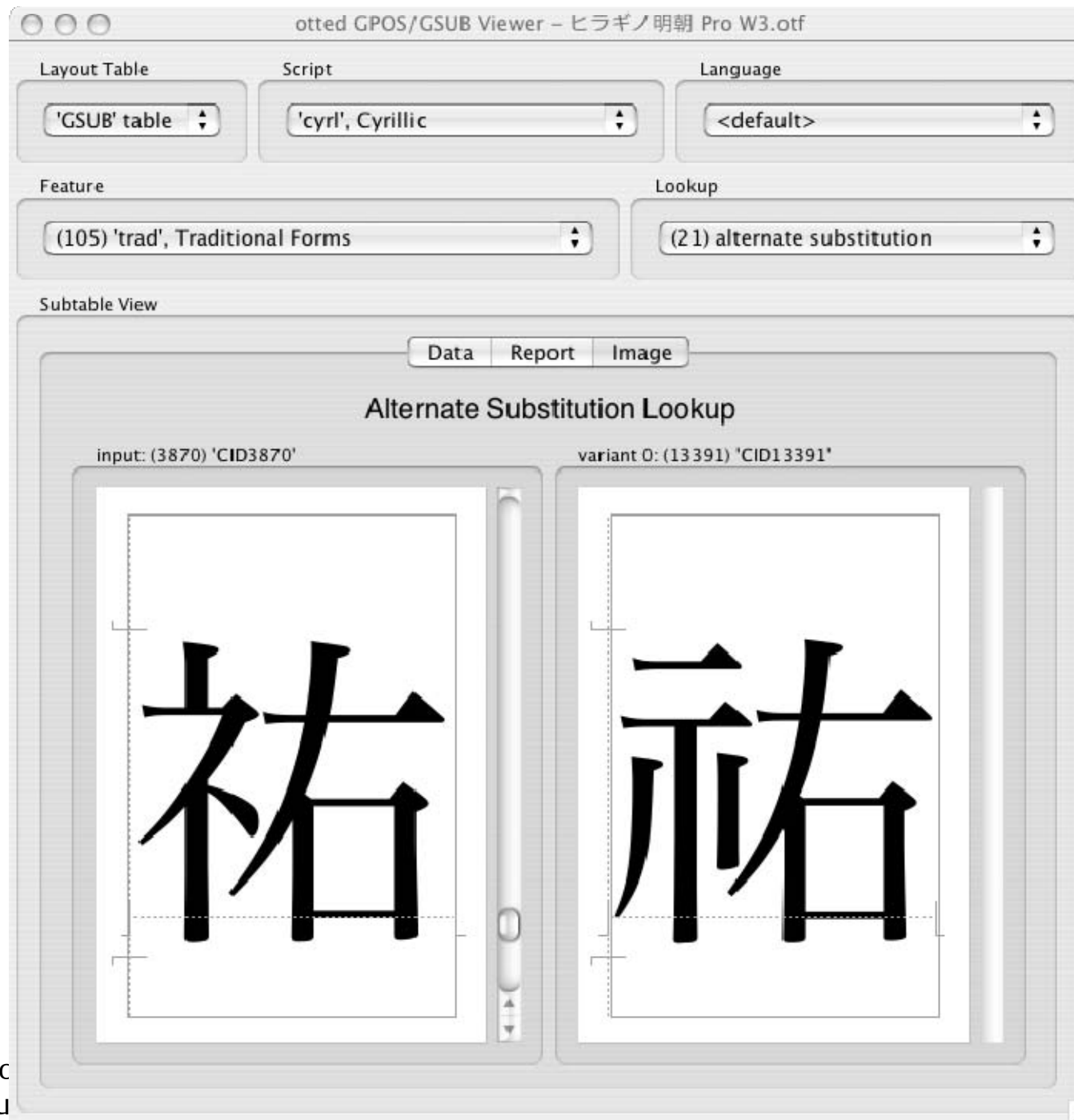
Data Report Image

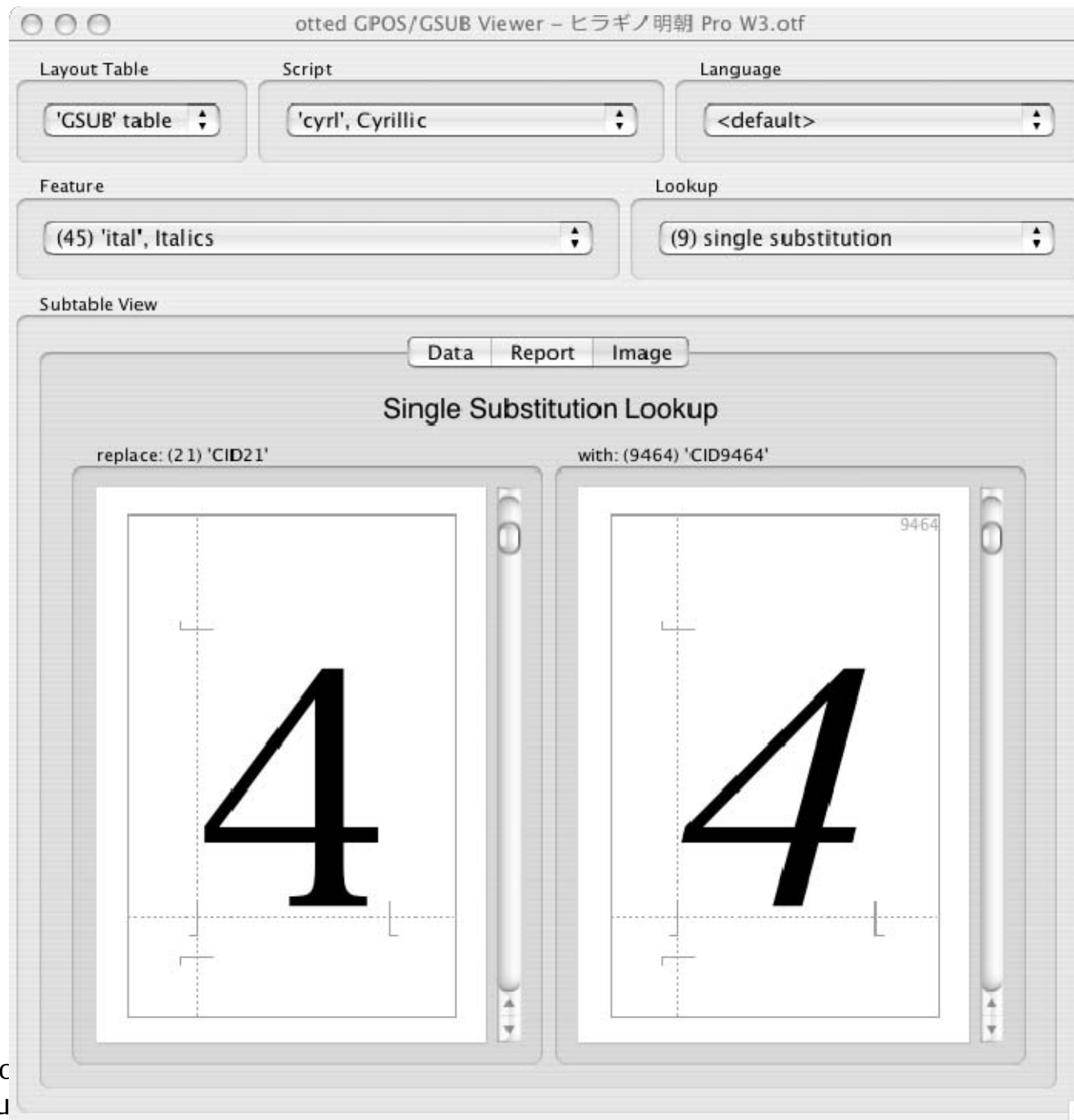
Single Substitution Lookup

replace: (1126) 'CID1126' with: (7633) 'CID7633'

- MacintoshHD
- DropStuff
- URW
- Stuffit Expander
- TRANSFER
- TRANSFER
- OSX

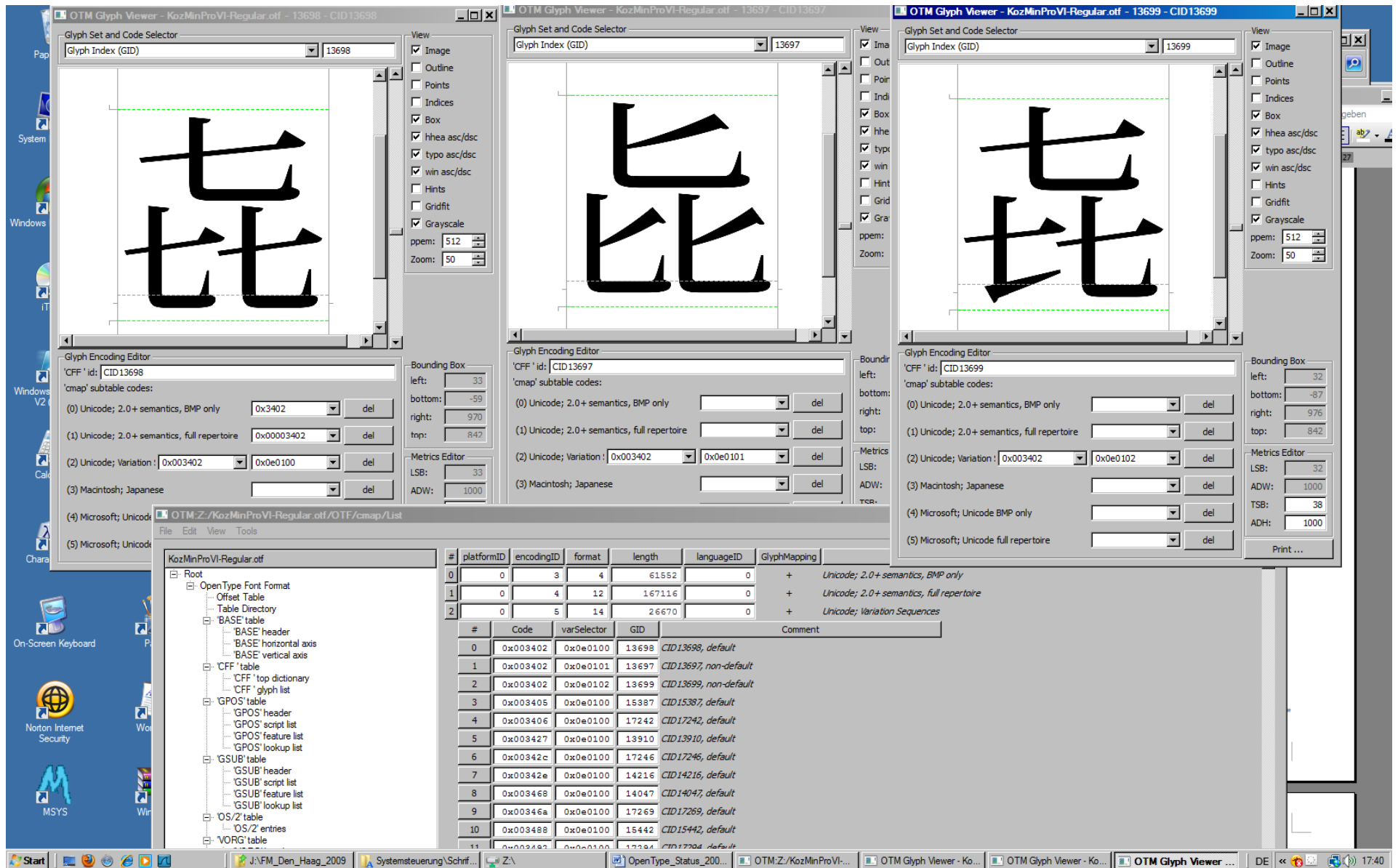
Tastaturübersicht





IVS (Ideographic Variation Selector)

- Han Unification allows only one glyph variant for one Unicode point
- There are glyph variants for chinese simplified, traditional, cantonese (Hongkong), Korea, Japan ...
- This has been taken into account by features
- Adobe introduced an extension of the Unicode specification for ideographic variations:
A specific form of the glyphs is registered with the base Unicode and a variation selector (f.e. x0e0101)
- Unicode variation selectors can be stored in plain text



Nonlatin Scripts: Arabic layout features

GPOS:

- kern, curs, mkmk, mark

GSUB:

- fina, init, medi, isol
- liga, dlig, rlig, jalt
- ccmp, locl

Supported in :

- Adobe InDesign CS ME
- MS Word (Windows)
- Mellel 1.9 (MAC)
- Windows Vista (WPF)
- Mac OS X 10.5, 10.6

Verschiedene Lookups aus der Tahoma (Arabisch)

aibiL (= Libia)

ل

(L **isolated**)

لي

(i **final**, L **initial**)

ليب

(b **final**, i **medial**, L **initial**)

ليبي

(i **final**, b i **medial**, L **initial**)

ليبيا

(a **final**, ibi **medial**, L **initial**)

The same document on Mac OS X with Office 2004

aibiL (= Libia)

ل (L *isolated*)

لي (i *final*, L *initial*)

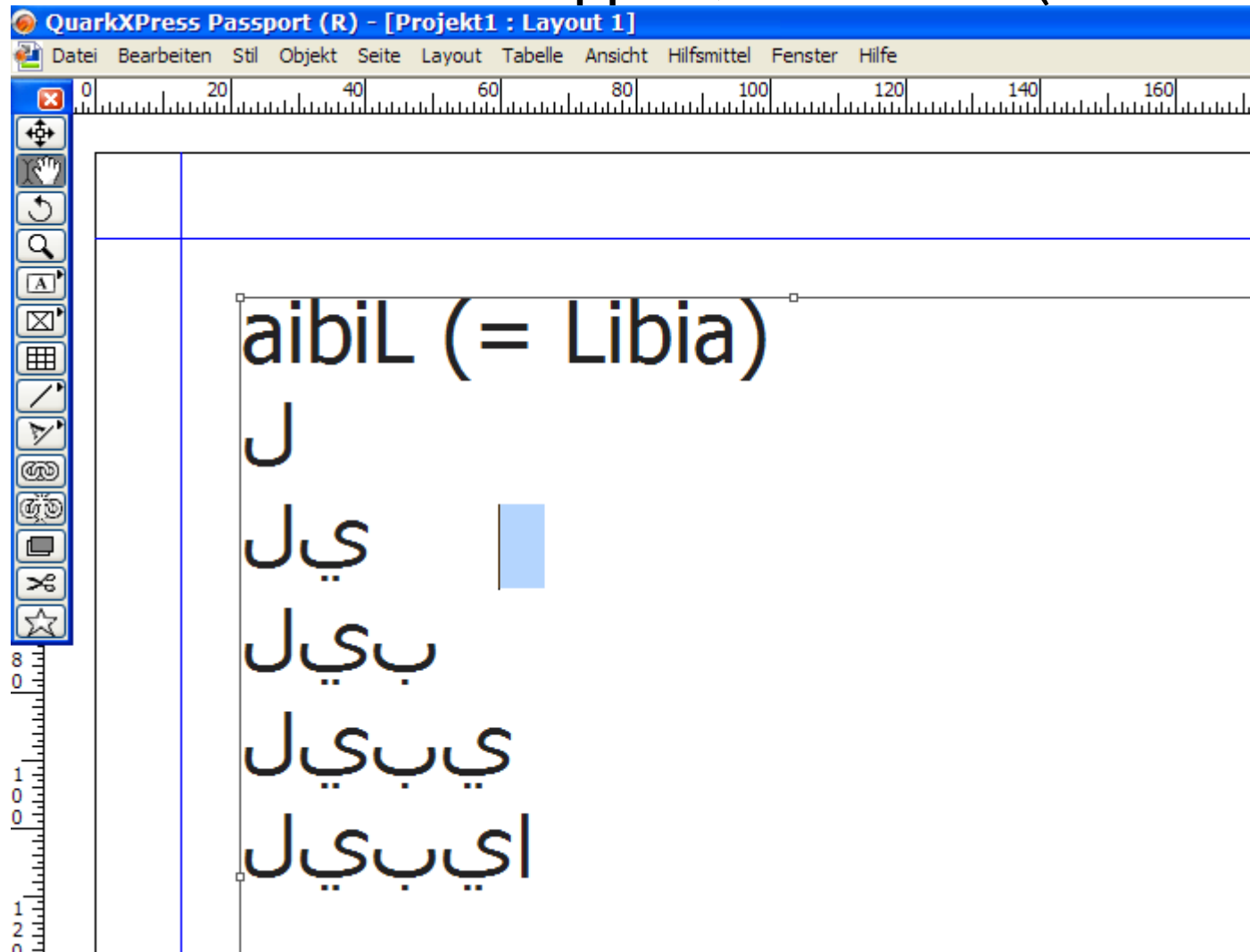
ليب (b *final*, i *medial*, L *initial*)

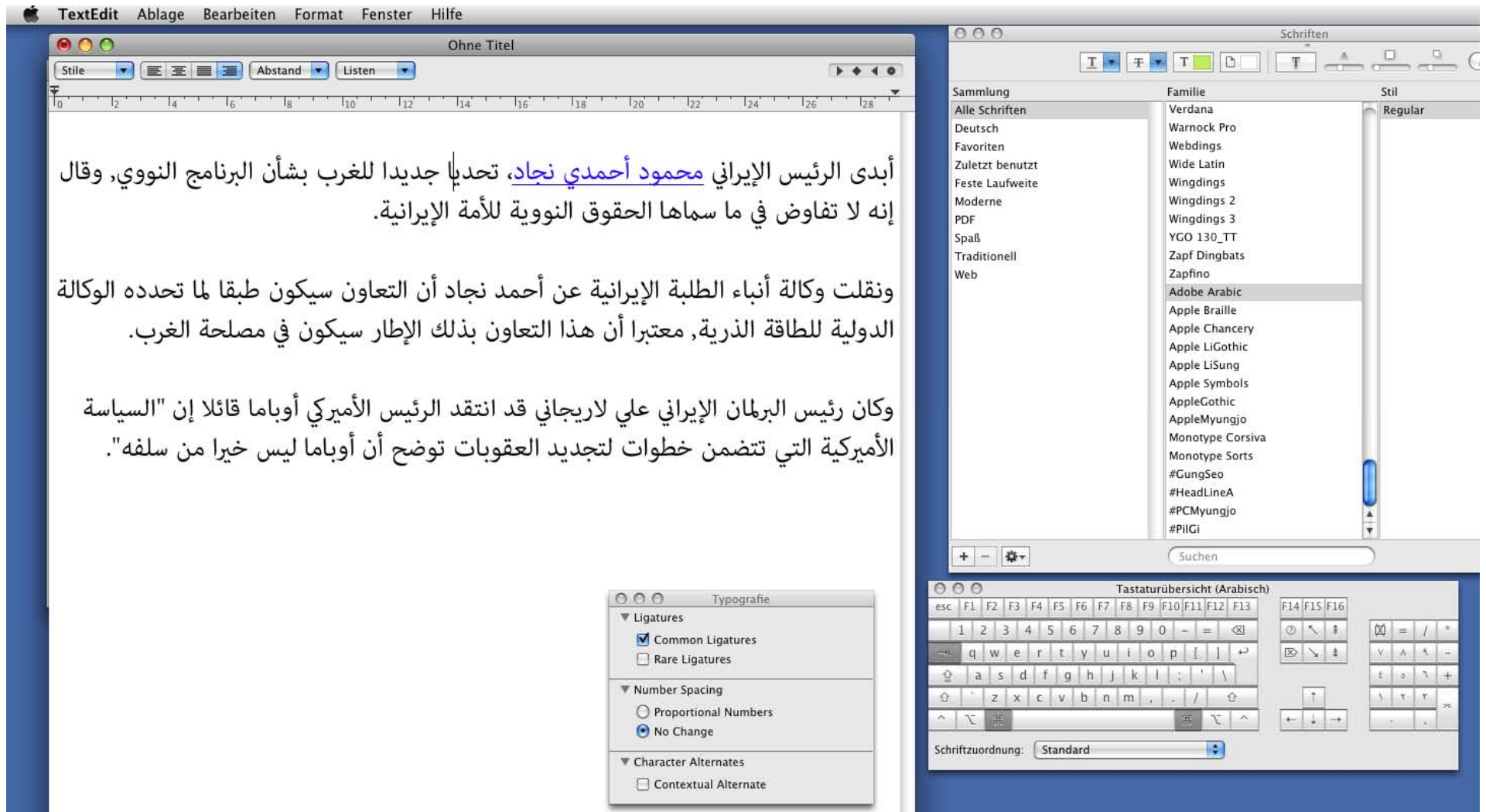
ليبي (i *final*, b i *medial*, L *initial*)

ليبيا (a *final*, ibi *medial*, L *initial*)

The same in Quark 7, 8 :

- No bidirectional support, no features (Needs an Extension)





Nonlatin Scripts: Indic + Southeast Asia

Indic scripts (Devanagari, Gurmurki, Tamil, Malayalam...) and also southeast Asian scripts like Thai, Burmese, ... are rather complicated and require many more features like:

abvf	Above-base Forms
abvm	Above-base Mark Positioning
abvs	Above-base Substitutions
afrc	Alternative Fractions
akhn	Akhands
blwf	Below-base Forms
blwm	Below-base Mark Positioning
blws	Below-base Substitutions
....	

Already supported in Windows.

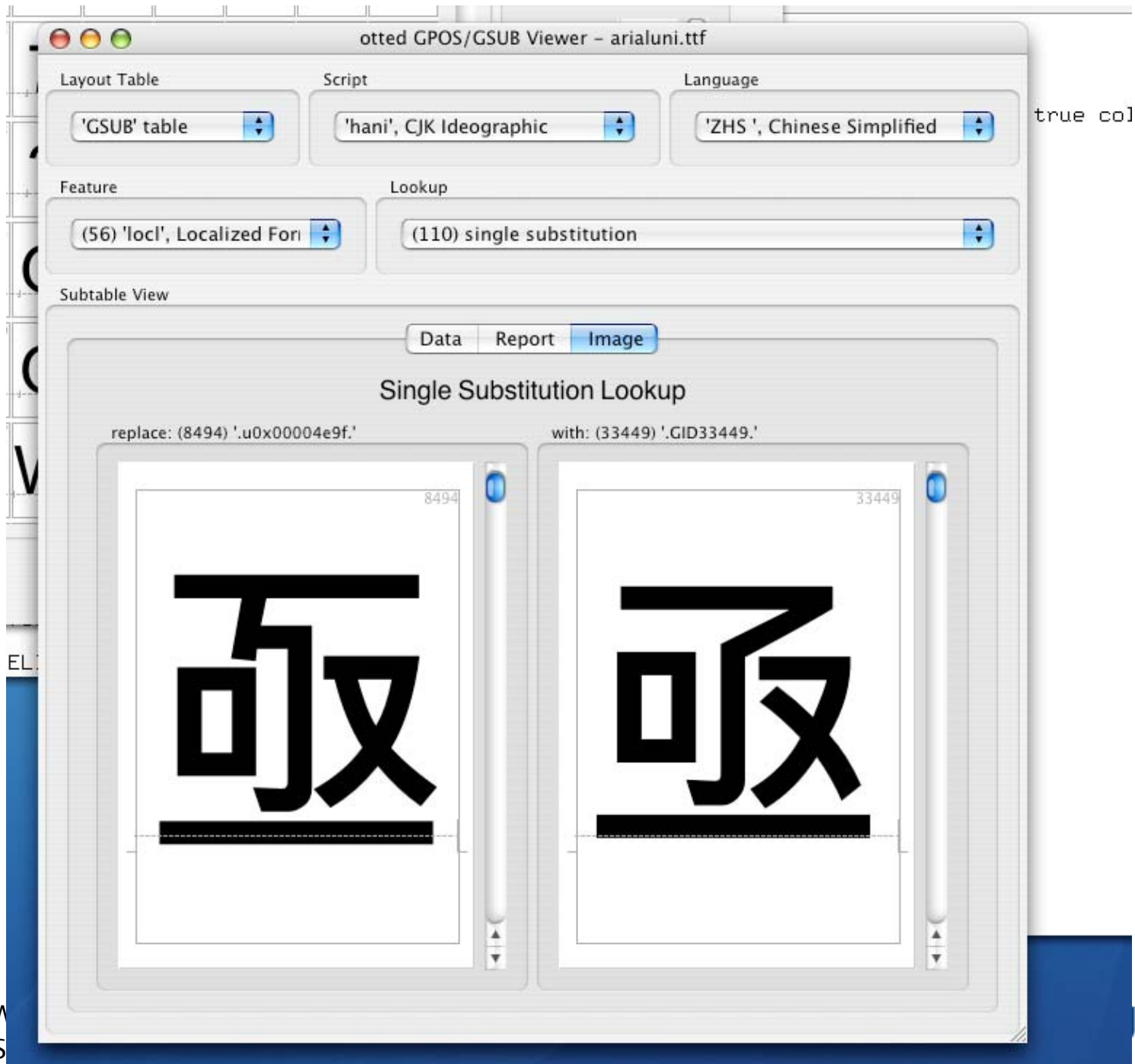
All Scripts: locl feature

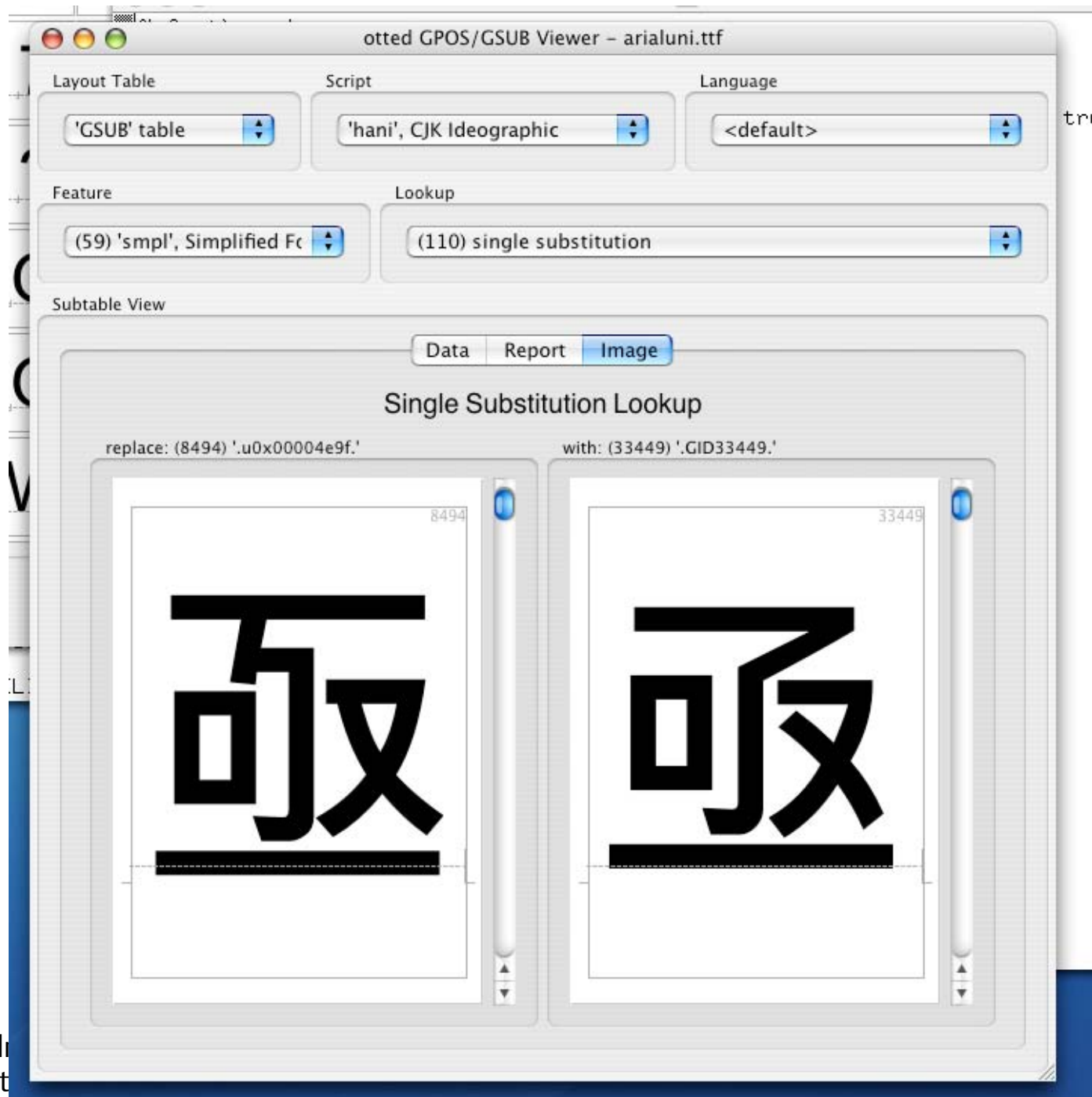
Nearly all scripts represent different languages and require sometimes localized forms :

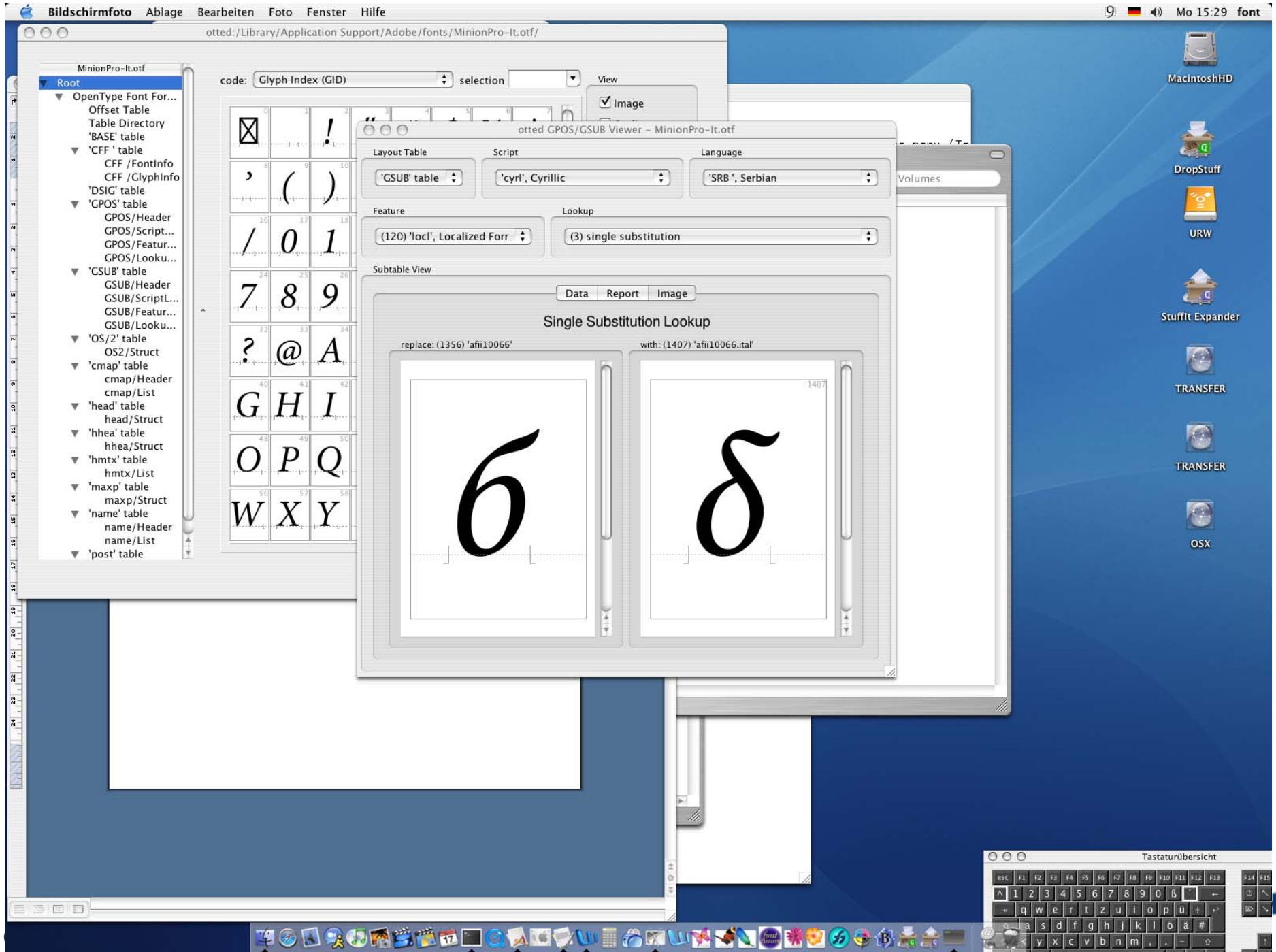
- Serbian and Bulgarian forms in the cyrillic script
- Chinese, Japanese and Korean form in CJK
- Urdu forms are different from arabic
- Even a different acute accent for polish language can be Implemented.

Implemented already in many fonts and now supported in
InDesign CS 3, Quark Xpress 8

It should work cross platform and for all applications.

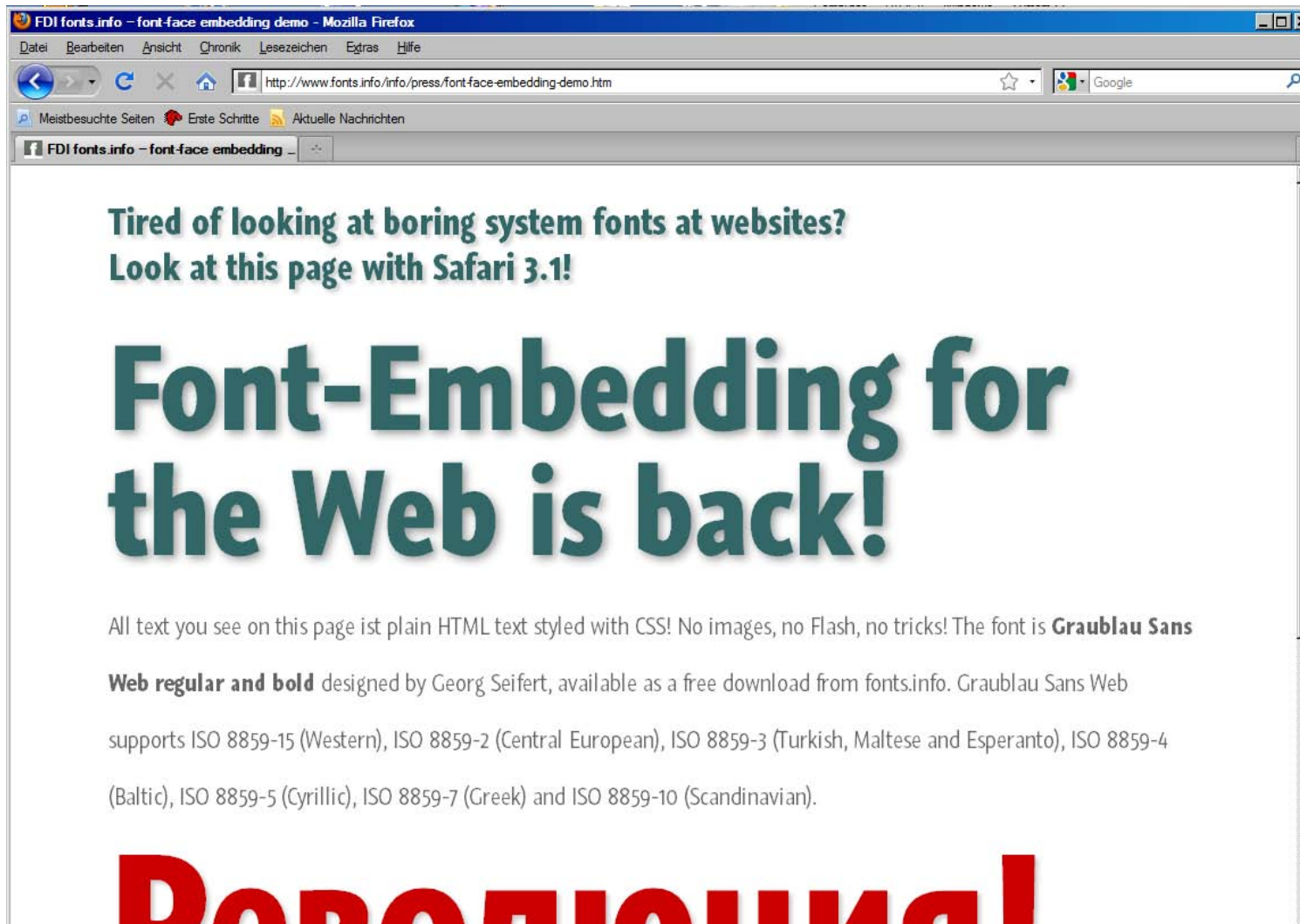






Web Font Embedding

- MS started WebFont Embedding in 1997 (EOT, WEFT)
- EOT as a proprietary format was only supported by Internet Explorer
- 2008 MS submitted EOT to the W3C as a standard
- Mozilla Firefox, Safari and Opera started to support plain TTF/OTF embedding
- This summer W3C discussed different proposals:
 - EOT Lite
 - WOFF
 - TTF/OTF
 - SVG



OpenType Features in Web Browsers

Just recently Håkon Lie from Opera proposed an extension of the font variant property to include OpenType features into the CSS specification.

Jonathan Kew from Mozilla made a demo version to show how this would work:

Using the font defaults:

WITH LOVE FROM FIREFOX

Using discretionary ligatures and an alternate glyph style:

WITH LOVE FROM FIREFOX

Summary

OpenType has become a central part of font technology on all platforms.

The implementation and support of OT features into applications, OS´ s and fonts has been successfully done for many scripts. Especially Apple has made lot of progress with OT support.

There is room for improvement and of course for further development especially for the integration of more complex scripts.

WebFont embedding and feature support on Websites will be the next big step.

Font production has become more complicated during the last decade but also more interesting! 😊😊😊

OpenType Wishlist

TTF and OTF fonts should have identical behaviour on all platforms:

- Fix the kerning problems (MS, Apple)
- Support GPOS in TTF (MS, Apple)
- Introduce OTC (OpenType Collection Files)
- Make the **locl** feature work (MS, Apple)
- Consistent way to treat local glyph variants

TTF/TTC and OTF fonts should be expanded to support more than 65536 glyphs!