Linotype
TypoTechnica Frankfurt 2007

OpenType Status 2007

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

10 Years of OT Development
What is the status now ?

- OpenType Features have been defined for many scripts : Latin, Greek, Cyrillic, CJK (Kanji, Kana, Hangul), Arabic, Hebrew Indic Scripts, Thai, Burmese...

- Feature support has been implemented in many applications and OS´s to a different extent

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

- What is left to be done ?

What does OT support mean ?

a. Basic Unicode support (including the non BMP glyphs)

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

c. Support for advanced typographic features

d. Support for CJK

e. Support for Middle East scripts

f. Support for more complex scripts (Indic, Burmese...)

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 styling (family vs. single fonts)
- Font Caching
- Duplicate Fonts
- Different font formats
- Bugs in applications or OS´s
- Different behaviour of OTF and TTF

OS´s to be investigated:

- Windows XP , Vista, WPF
- Mac OS X Panther 10.3, Tiger 10.4, (Leopard 10.5)
- Linux /Freetype

Applications (Unicode capable only)

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

Non-Unicode Applications not investigated :
Office X (MAC), Macromedia Flash, Freehand, Framemaker 7...

Basic Unicode Support

- 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)

- All Unicode glyphs should be accessible (incl. non BMP glyphs)
  - Adobe Japan character sets use already Plane 2 glyphs

- Fonts should have a Unicode CMAP
  Custom Encodings are still possible, but outdated

- Glyph names should not be important
  Mapping from GID to Unicode using Cmaps

Format	Support	Mac OS X		Windows			Adobe CS2/CS3		Quark 7	
		10.3	10.4	XP	Vista	WPF	Win	Mac	Win	Mac
OTF	Unicode	(✓)☹	(✓)☹	✓	✓	✓	✓	✓	✓	✓
TTF	Unicode	✓	✓	✓	✓	✓	✓	✓	✓	✓
OTF	Non BMP	✓	✓	✓	✓	✓	✓	✓	☹	☹
TTF	Non BMP	✓	✓	✓	✓	✓	✓	✓	☹	☹

Unicode font support in Mac OS X 10.3 and 10.4

- .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

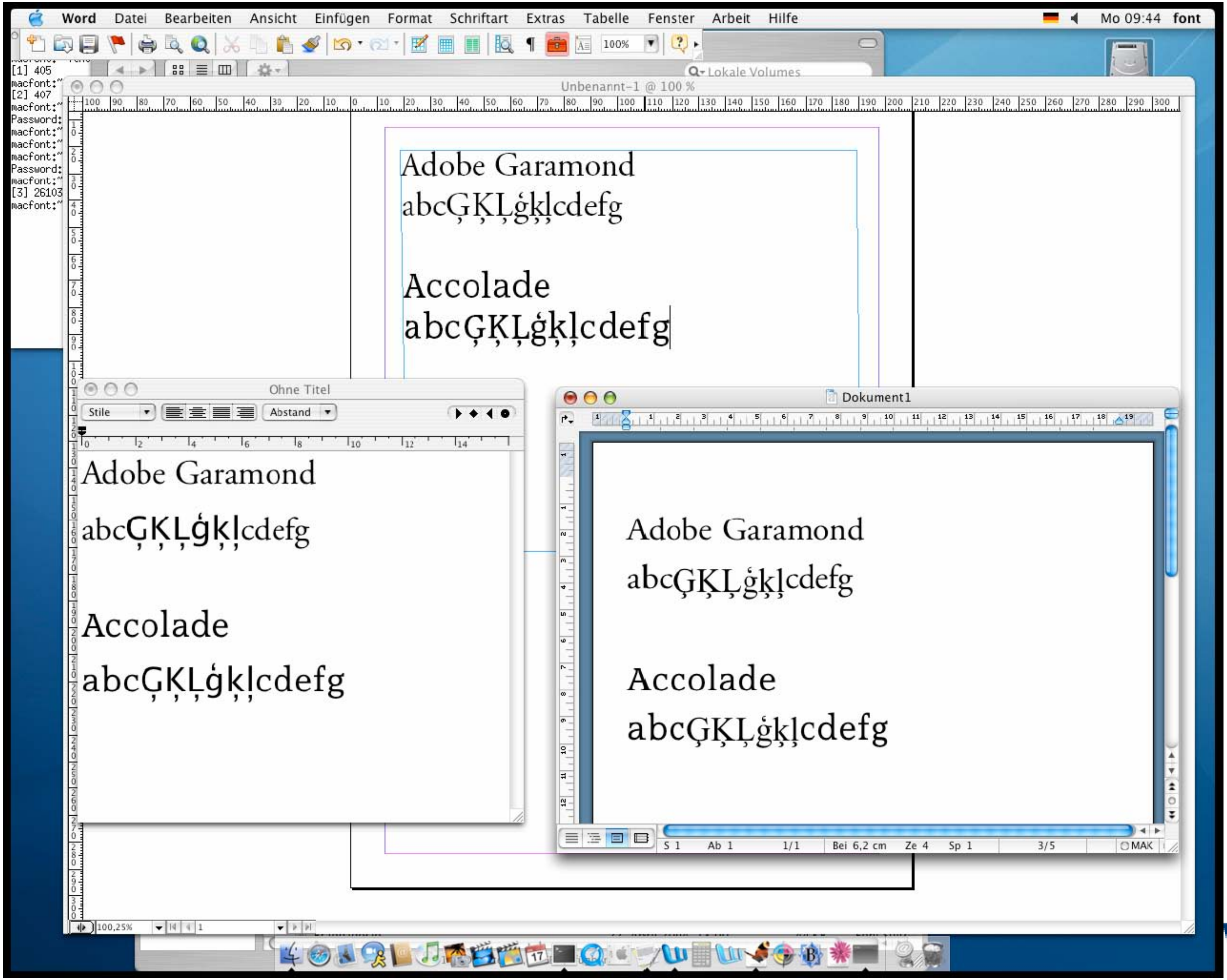
- OTF fonts with an internal CID structure also work: Apples Hiragino font family is an OTF font family with up to 18000 glyphs. There are even glyphs from higher planes (non BMP) included.

- OTF fonts with an internal string array with glyph names are poorly supported in OS X and treated like Type1 fonts:

  Carbonized applications acces codepages via internal mappings. This doesn´t work always correctly .

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

  This is a big problem in earlier versions (up to 10.3.9)
  but is still a problem in 10.4 (Tiger).
  Name problems : Gcedilla – Gcommaccent
  Greek fonts : mu, Delta, sigma1, Omega



```
[1] 405
macfont:~
[2] 407
macfont:~
Password:
macfont:~
macfont:~
macfont:~
Password:
macfont:~
[3] 26103
macfont:~
```

Adobe Garamond

abcĢĶĻģķļcdefg

Accolade

abcĢĶĻģķļcdefg

Adobe Garamond

abcĢĶĻģķļcdefg

Accolade

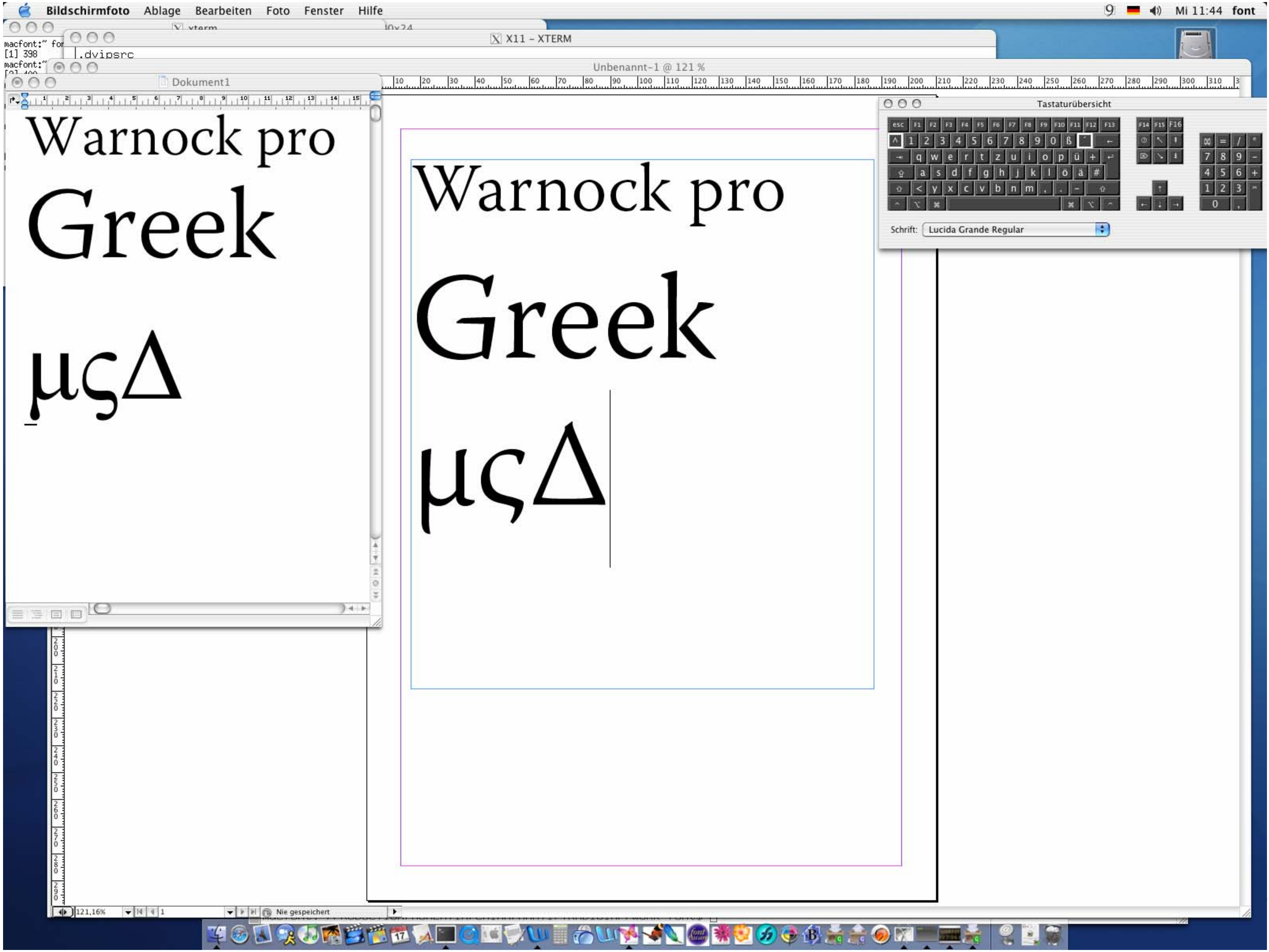
abcĢĶĻģķļcdefg

Adobe Garamond

abcĢĶĻģķļcdefg

Accolade

abcĢĶĻģķļcdefg



Warnock pro

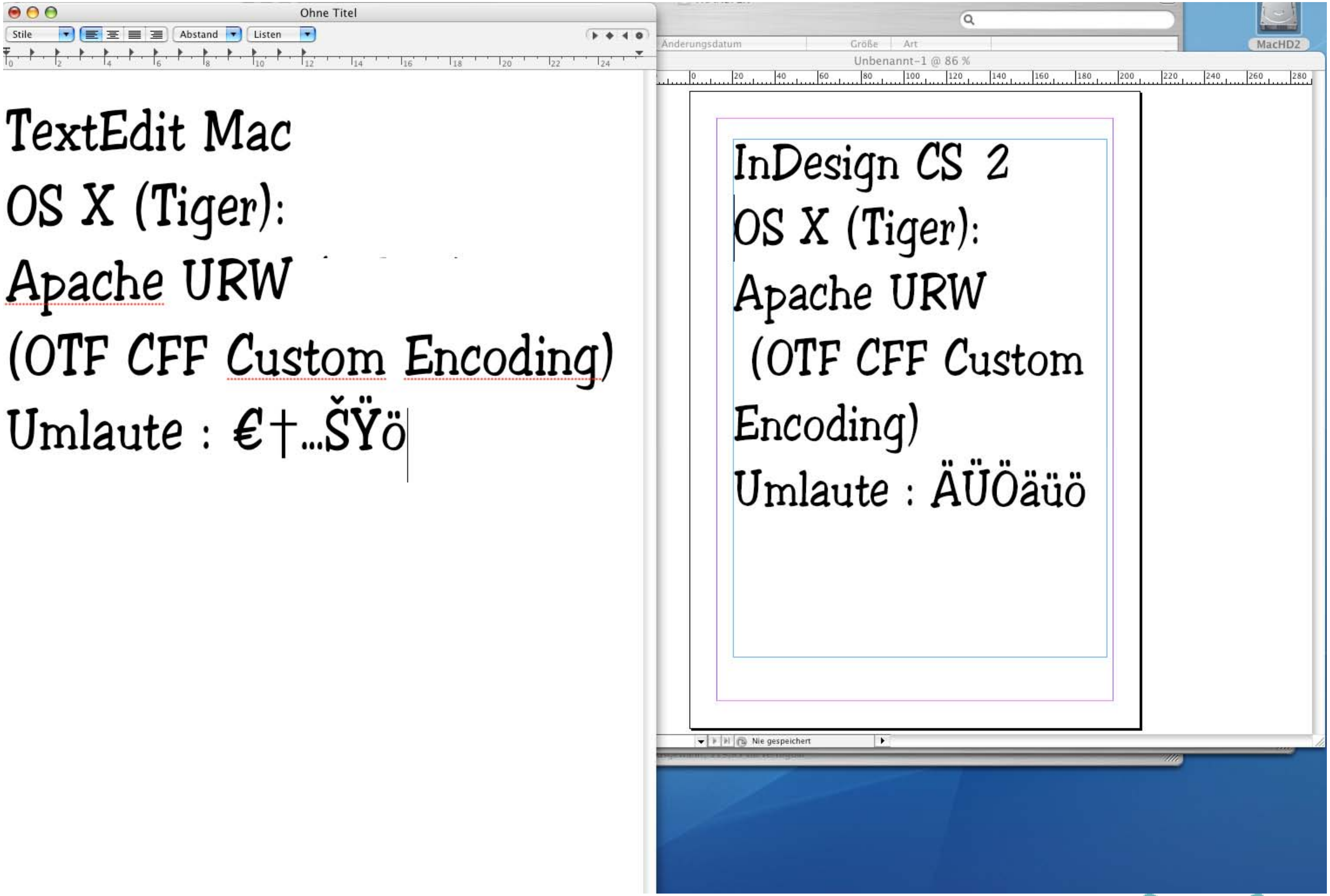
Greek

μςΔ

Warnock pro

Greek

μςΔ



TextEdit Mac
OS X (Tiger):
Apache URW
(OTF CFF Custom Encoding)
Umlaute : €†…ŠŸö

InDesign CS 2
OS X (Tiger):
Apache URW
(OTF CFF Custom
Encoding)
Umlaute : ÄÜÖäüö

Unicode font support in Mac OS X 10.5

- Naming Problems
- Encoding problems with CFF custom encoding

These problems will be fixed in Mac OS X 10.5 according to Peter Lofting

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

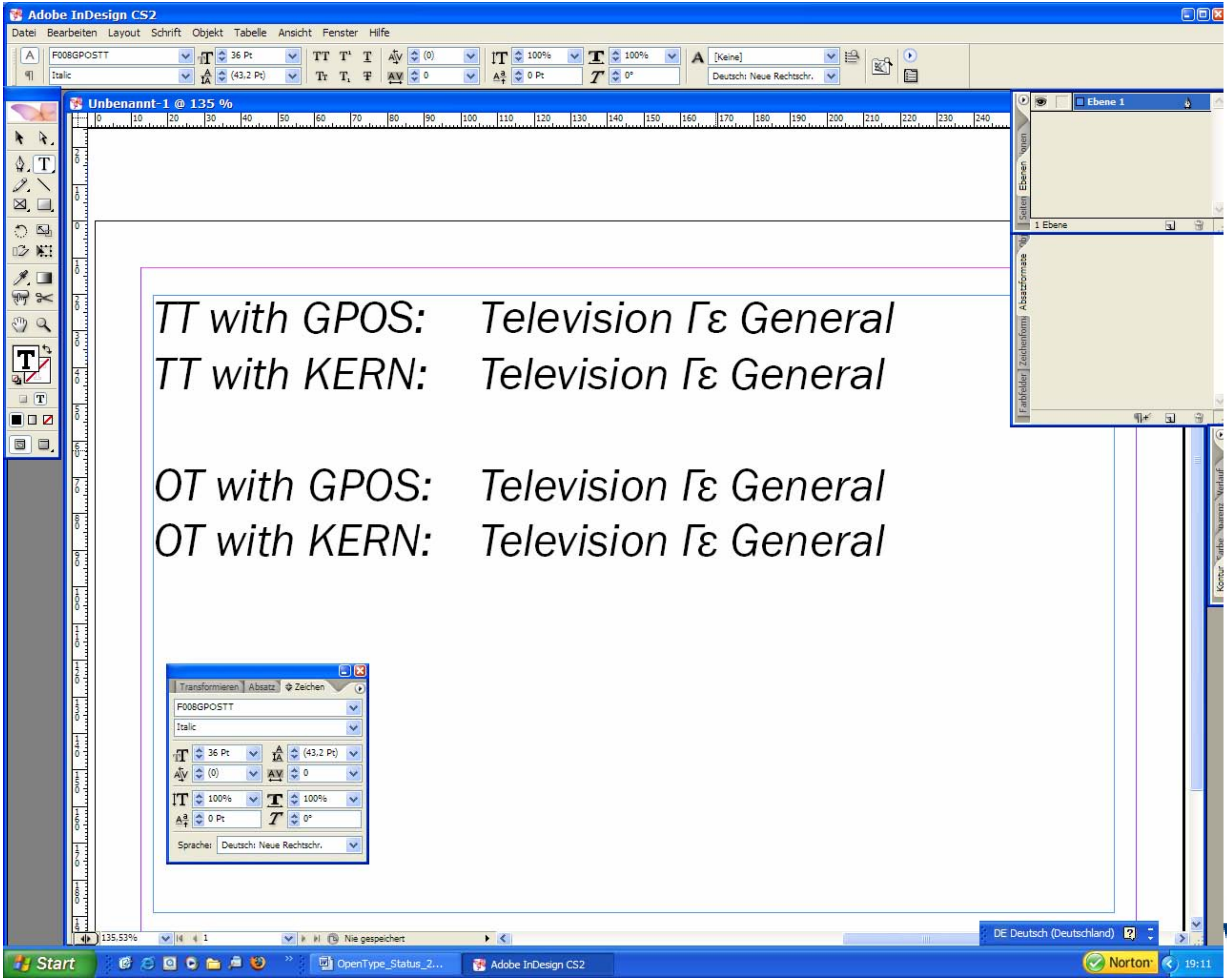
Test: OpenType Font with WGL4 Charset and about 4000 Kerning Pairs

FontFormat	Kerning Format	Mac OS X Word 2004		Windows			Adobe CS2		Quark 7	
		10.3	10.4	XP	Vista	WPF	Win	Mac	Win	MAC
OTF	GPOS	Only latin	Only latin	(✓)[1]	(✓)[1]	?	✓	✓	✓[2]	✓[2]
OTF	KERN	👎	👎	👎	👎	?	✓	✓	✓	✓
OTF	GPOS + KERN	Only latin	Only latin	(✓)[1]	(✓)[1]	?	✓	✓	✓	✓
TTF	GPOS	👎	👎	👎	👎	?	👎	✓	✓[2]	✓[2]
TTF	KERN	👎	👎	(✓)[1]	(✓)[1]	?	✓	✓	✓	✓
TTF	GPOS + KERN	👎	👎	(✓)[1]	(✓)[1]	?	✓	✓	✓[2]	✓[2]

Sample Windows XP + Office 2003:

TT with GPOS:	*Television Γε General (no kerning)*
OT with KERN:	*Television Γε General (no kerning)*
TT with KERN:	*Television Γε General*
OT with GPOS:	*Television Γε General*

(1) There is no kerning pair for Ge in the font !
(This is a bug in the GDI: GetKerningPairsA in XP, Vista)



TT with GPOS: Television Γε General

TT with KERN: Television Γε General

OT with GPOS: Television Γε General

OT with KERN: Television Γε General

F008GPOSTT

Italic

36 Pt (43,2 Pt)

(0) 0

100% 100%

0 Pt 0°

Sprache: Deutsch: Neue Rechtschr.

Freetype/Linux: Supports Kerning, but no GPOS features.

Kerning in OpenOffice:

Windows :	Same beaviour as MS Office
Linux :	OTF not supported TTF no kerning

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 but that is a bug).
Glyph names are used in PDF´s and in printer drivers.
Sometimes used to reconstruct the Unicode.

Glyph names are used in the design process, but that is a different issue.

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

FontLab is trying to create names automatically from Unicode and features.

Suggestion:
There should be a unique naming convention like:
All unicode glyphs should be named : X4E00 -> uni4E00
All variants should be named like uni0040.alt , .swash ...

or
Do not use any names in final fonts.

If the naming convention is unique, its redundant anyway.

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

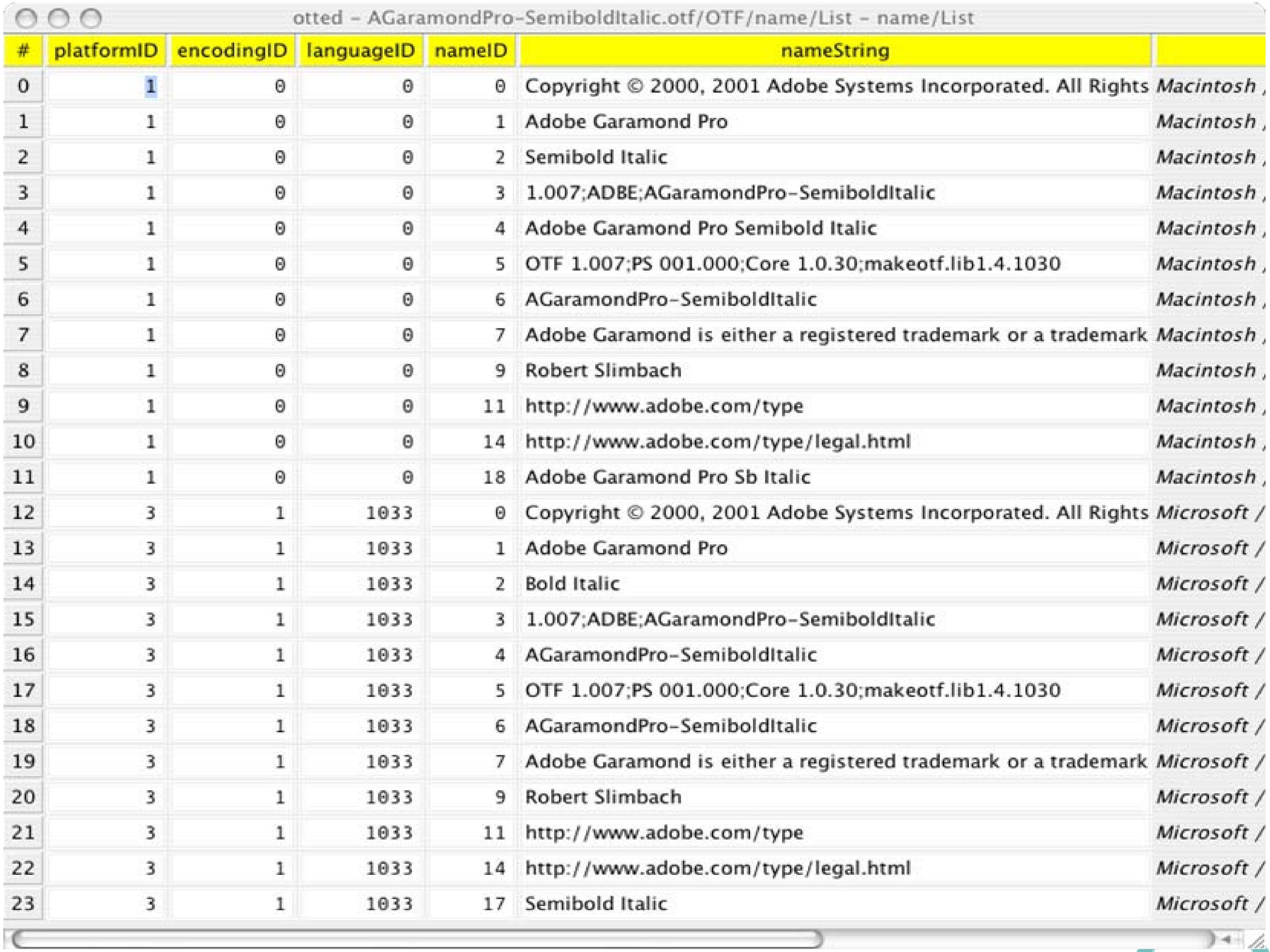
Name ID

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

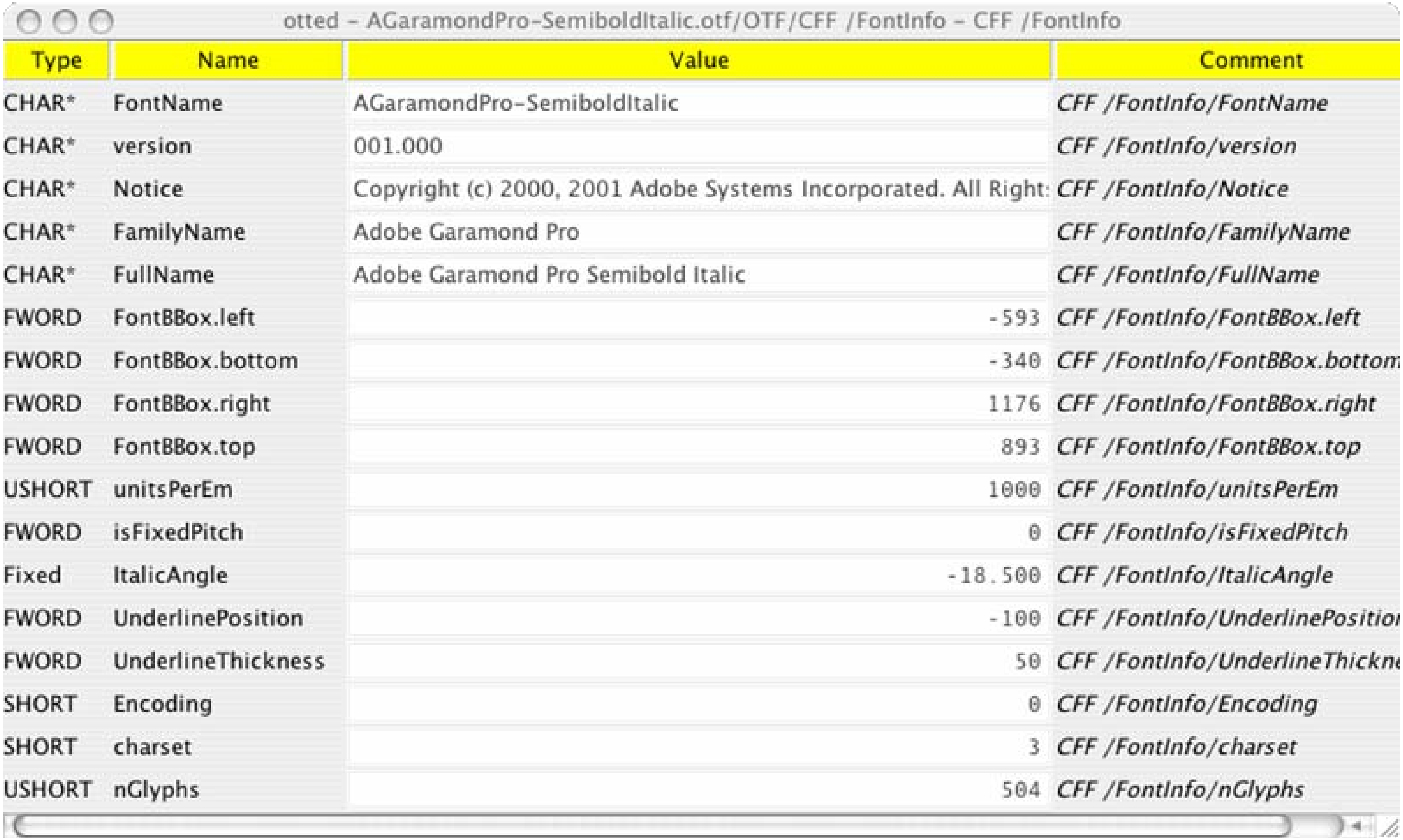
16 Preferred Family Name (= ID 1 on the MAC)
17 Preferred Subfamily Name (= ID 2 on the MAC)

18 Compatible FullName (MAC only = old FOND Name)



otted – AGaramondPro-SemiboldItalic.otf/OTF/name/List – name/List

#	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

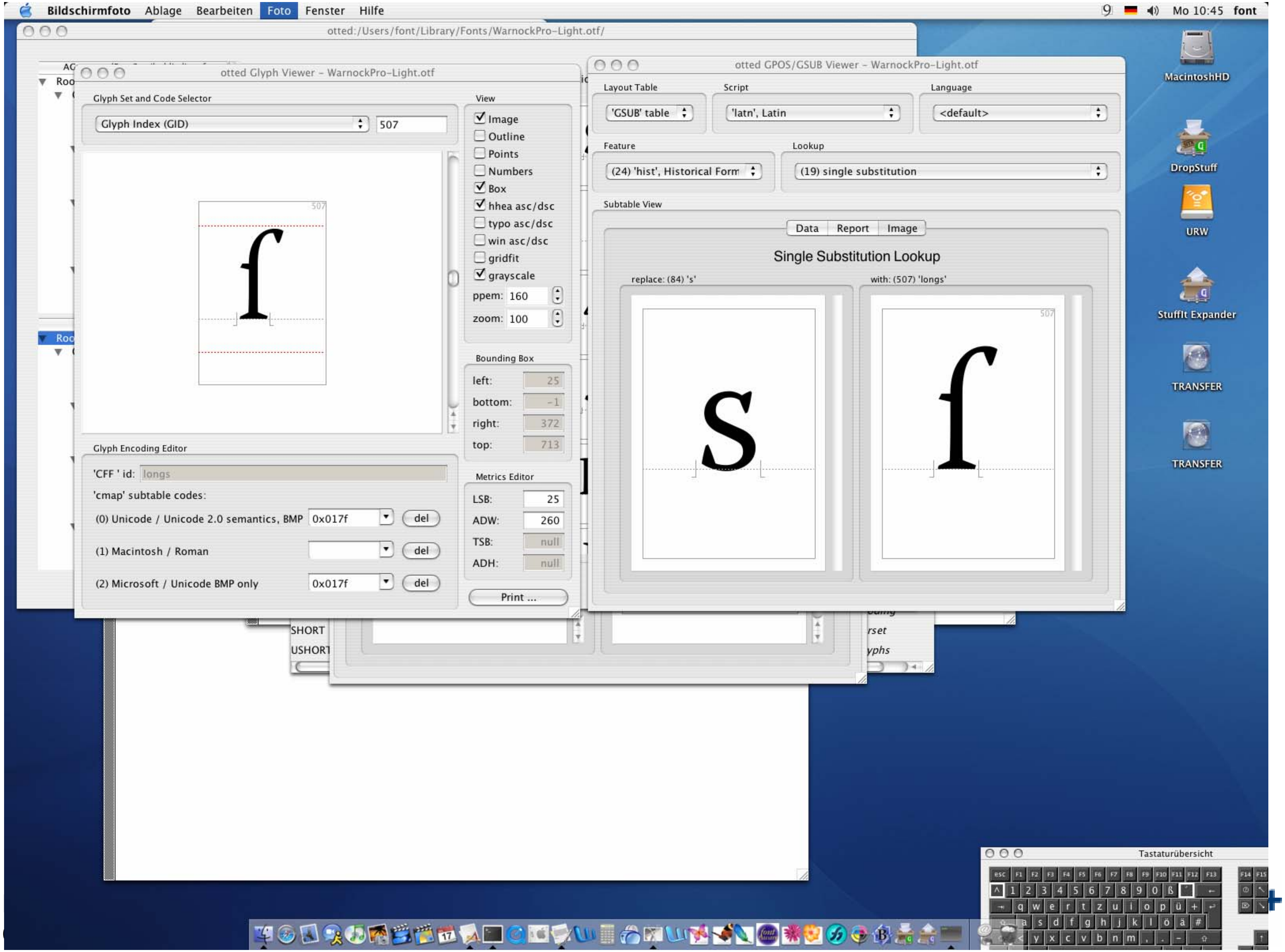
Type	Name	Value	Comment
CHAR*	FontName	AGaramondPro-SemiboldItalic	*CFF /FontInfo/FontName*
CHAR*	version	001.000	*CFF /FontInfo/version*
CHAR*	Notice	Copyright (c) 2000, 2001 Adobe Systems Incorporated. All Right:	*CFF /FontInfo/Notice*
CHAR*	FamilyName	Adobe Garamond Pro	*CFF /FontInfo/FamilyName*
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/UnderlinePositio*
FWORD	UnderlineThickness	50	*CFF /FontInfo/UnderlineThickn*
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:/Users/font/Library/Fonts/WarnockPro-Light.otf/

otted Glyph Viewer – WarnockPro-Light.otf

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

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

Metrics Editor

LSB: 25
ADW: 260
TSB: null
ADH: null

Print ...

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

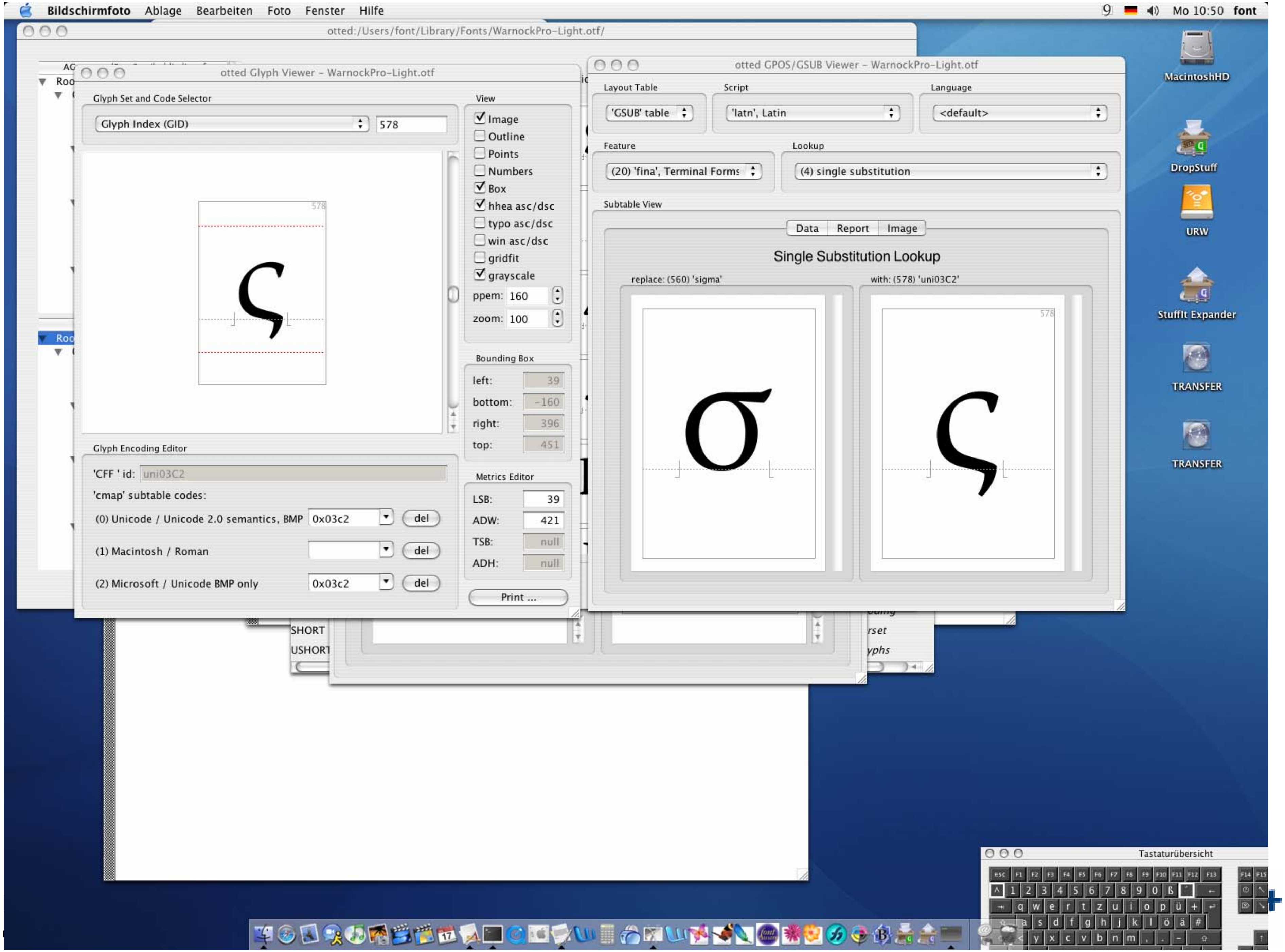
Subtable View

Data Report Image

Single Substitution Lookup

replace: (84) 's'

with: (507) 'longs'



Bildschirmfoto Ablage Bearbeiten Foto Fenster Hilfe — Mo 10:50 font

otted:/Users/font/Library/Fonts/WarnockPro-Light.otf/

otted Glyph Viewer - WarnockPro-Light.otf

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

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

Metrics Editor

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

Print ...

otted GPOS/GSUB Viewer - WarnockPro-Light.otf

Layout Table: 'GSUB' table
Script: 'latn', Latin
Language: <default>
Feature: (20) 'fina', Terminal Forms
Lookup: (4) single substitution

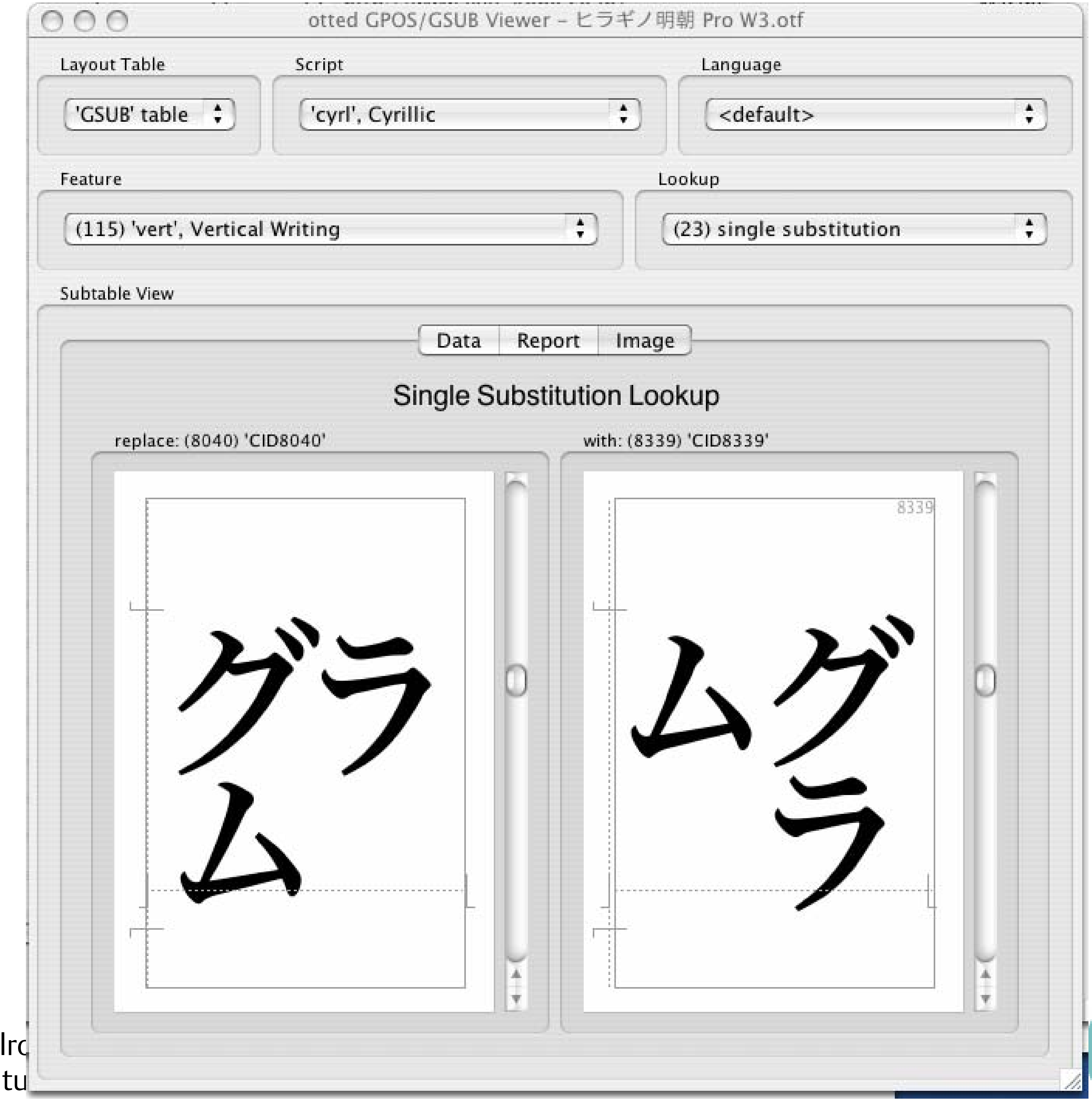
Subtable View

Data | Report | Image

Single Substitution Lookup

replace: (560) 'sigma'

with: (578) 'uni03C2'



otted GPOS/GSUB Viewer – ヒラギノ明朝 Pro W3.otf

Layout Table: 'GSUB' table

Script: 'cyrl', Cyrillic

Language: <default>

Feature: (115) 'vert', Vertical Writing

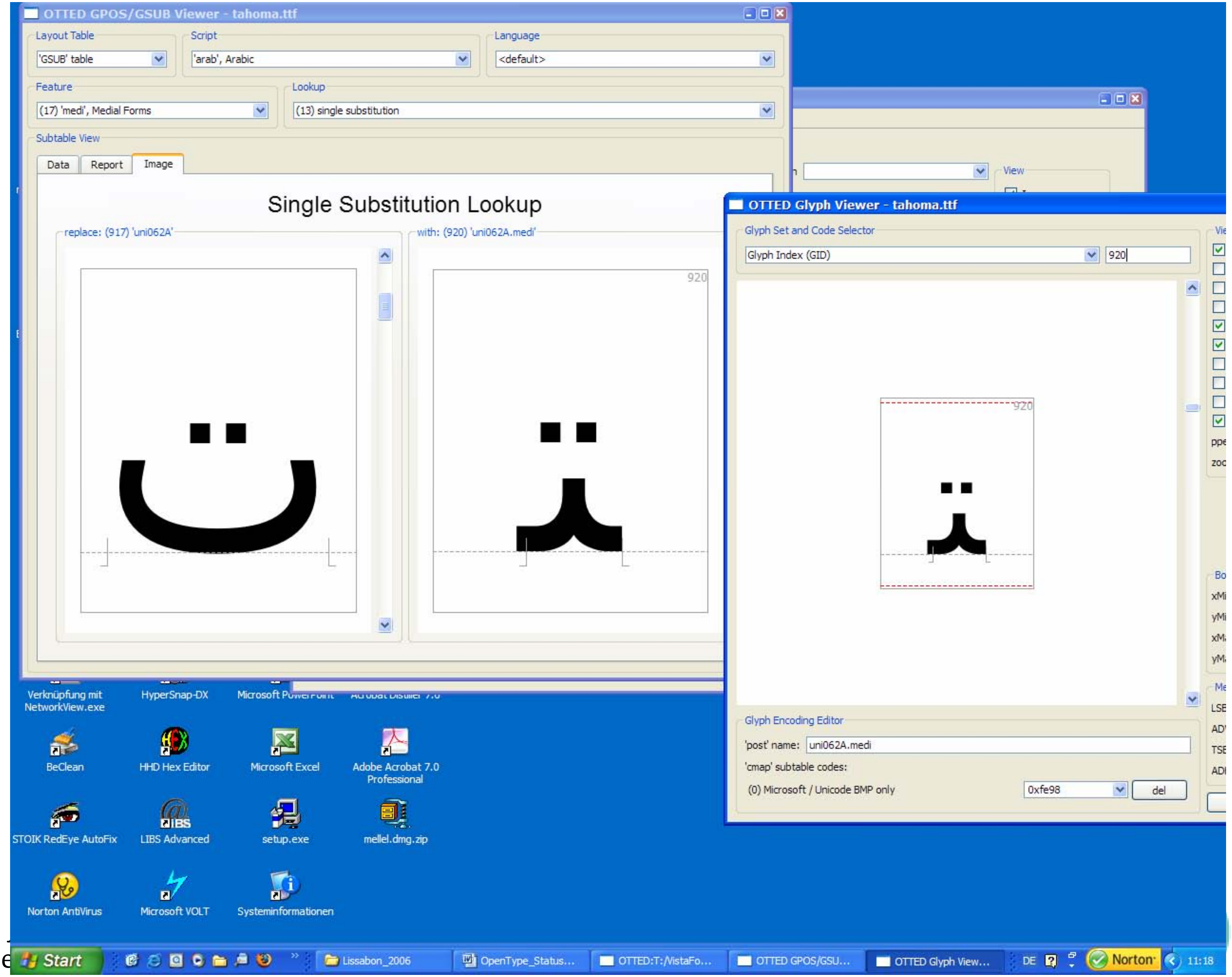
Lookup: (23) single substitution

Subtable View

Single Substitution Lookup

replace: (8040) 'CID8040'

with: (8339) 'CID8339'



OTTED GPOS/GSUB Viewer - tahoma.ttf

Layout Table: 'GSUB' table

Script: 'arab', Arabic

Language: <default>

Feature: (17) 'medi', Medial Forms

Lookup: (13) single substitution

Subtable View

Single Substitution Lookup

replace: (917) 'uni062A'

with: (920) 'uni062A.medi'

OTTED Glyph Viewer - tahoma.ttf

Glyph Set and Code Selector: Glyph Index (GID) 920

Glyph Encoding Editor

'post' name: uni062A.medi

'cmap' subtable codes:

(0) Microsoft / Unicode BMP only 0xfe98

Dr.

Ope

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Basic : Font Caching

Installing font updates is very often not succesful 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.

For customers it is difficult to understand.

Will this change ? (question for MS)

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 can be encoded with a CMAP 3,0.
This allows a normal keyboard input and PUA Unicodes.

Does this work with OTF ?

Basic western OT layout features

GPOS:
- kern, cpsp
- 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
- Adobe Illustrator CS, CS2,CS3
- Adope Photoshop CS, CS2 partly
- Mellel 1.9
- Quark 7
- Windows WPF

Not supported in

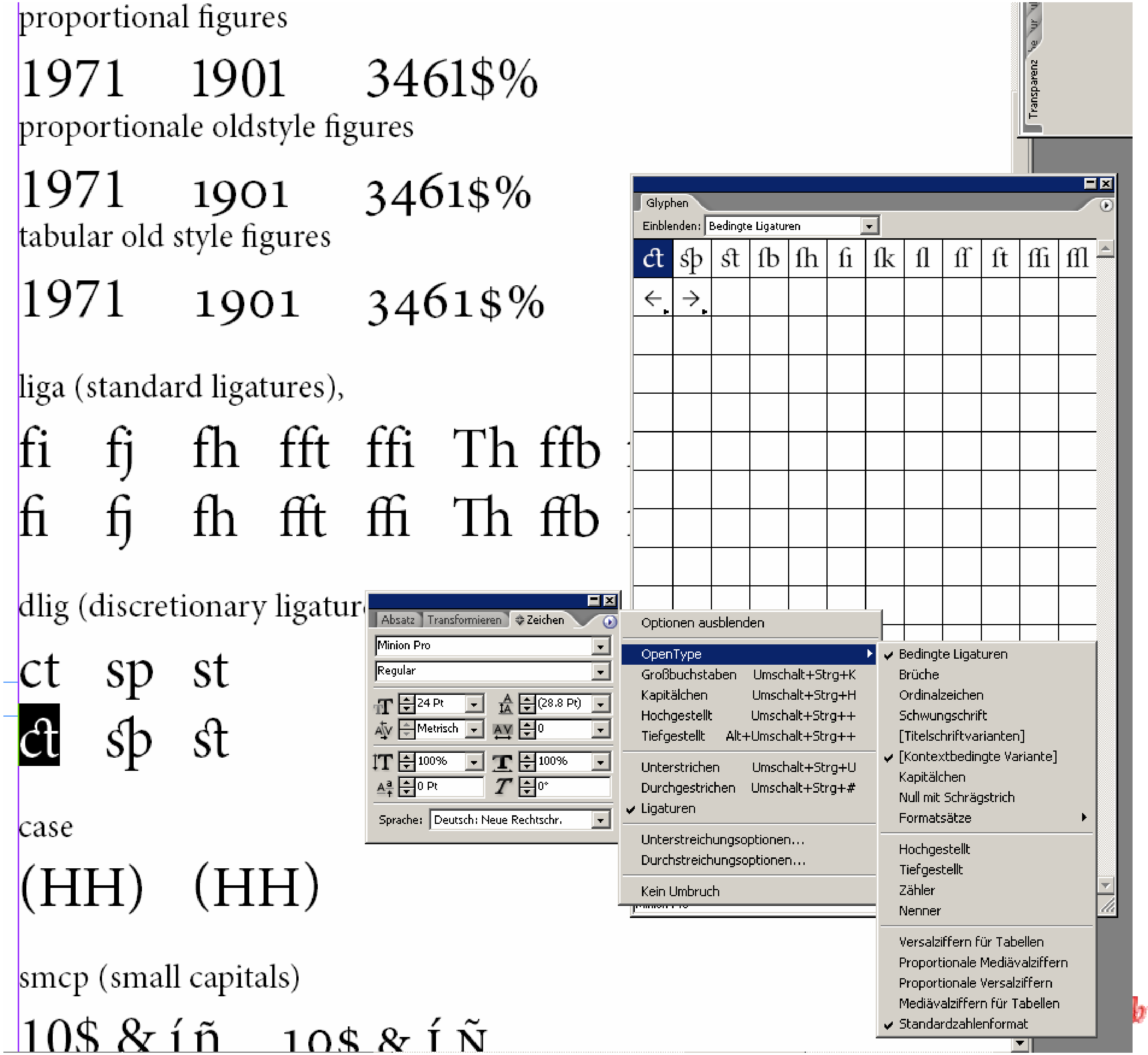
- MS Office (Windows)
- MS Office (Mac)
- Open Office (Linux)

New in Illustrator CS 3:

- mark attachment (mark, mkmk)

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

- 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 ligatur

ct sp st

ct sp st

case

(HH) (HH)

smcp (small capitals)

10$ & í ñ 10$ & Í Ñ

Glyphen

Einblenden: Bedingte Ligaturen

Minion Pro

Regular

24 Pt

(28.8 Pt)

Metrisch

0

100%

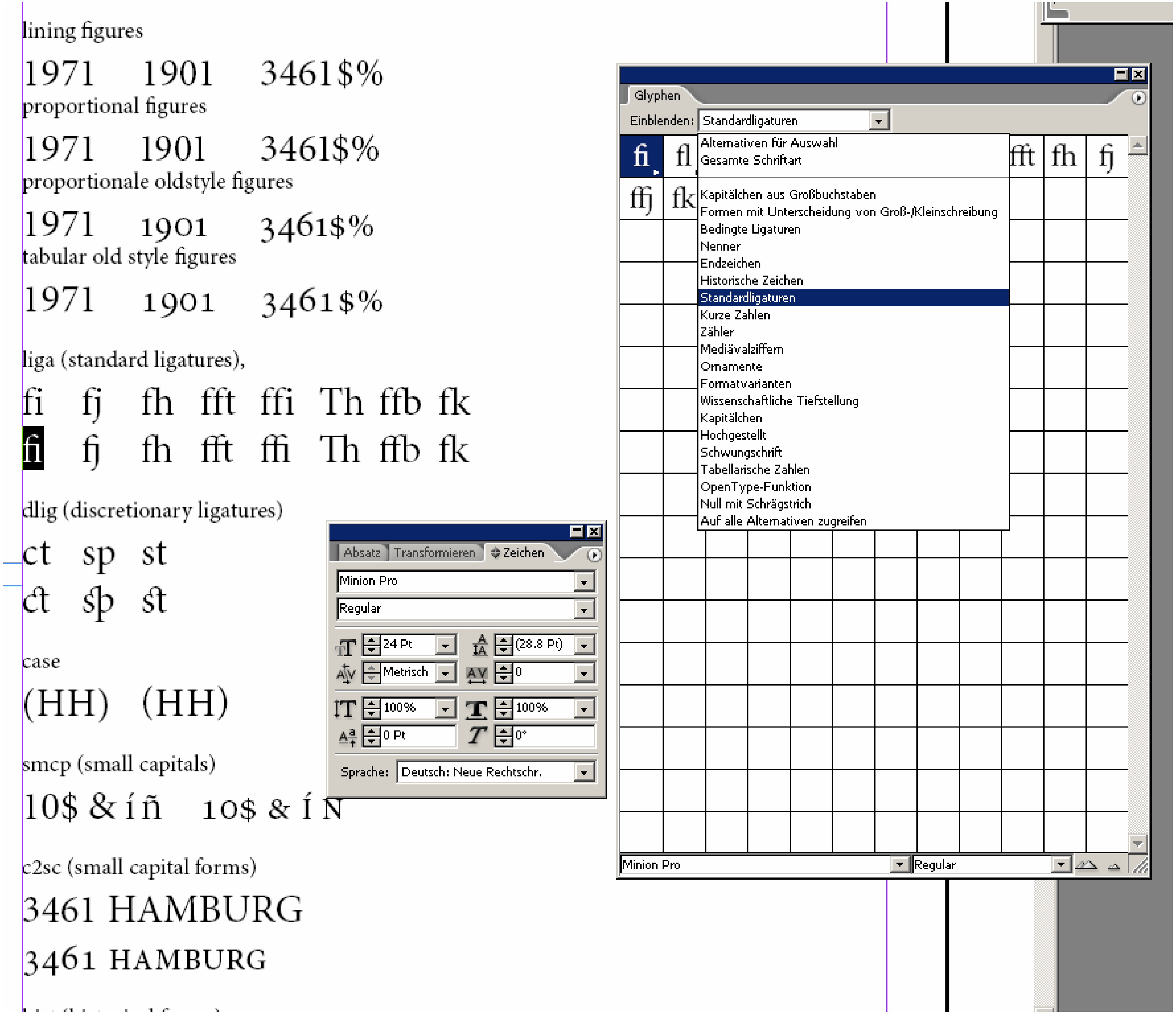
100%

0 Pt

0°

Sprache: Deutsch: Neue Rechtschr.

Optionen ausblenden
OpenType
Großbuchstaben Umschalt+Strg+K
Kapitälchen Umschalt+Strg+H
Hochgestellt Umschalt+Strg++
Tiefgestellt Alt+Umschalt+Strg++
Unterstrichen Umschalt+Strg+U
Durchgestrichen Umschalt+Strg+#
✓ Ligaturen
Unterstreichungsoptionen…
Durchstreichungsoptionen…
Kein Umbruch
✓ Bedingte Ligaturen
Brüche
Ordinalzeichen
Schwungschrift
[Titelschriftvarianten]
✓ [Kontextbedingte Variante]
Kapitälchen
Null mit Schrägstrich
Formatsätze
Hochgestellt
Tiefgestellt
Zähler
Nenner
Versalziffern für Tabellen
Proportionale Mediävalziffern
Proportionale Versalziffern
Mediävalziffern für Tabellen
✓ Standardzahlenformat



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 fj fh fft ffi Th ffb fk

dlig (discretionary ligatures)

ct sp st

ct sp st

case

(HH) (HH)

smcp (small capitals)

10$ & í ñ 10$ & í N

c2sc (small capital forms)

3461 HAMBURG

3461 HAMBURG

Glyphen

Einblenden: Standardligaturen

Minion Pro

Regular

Minion Pro

Regular

24 Pt

(28,8 Pt)

Metrisch

0

100%

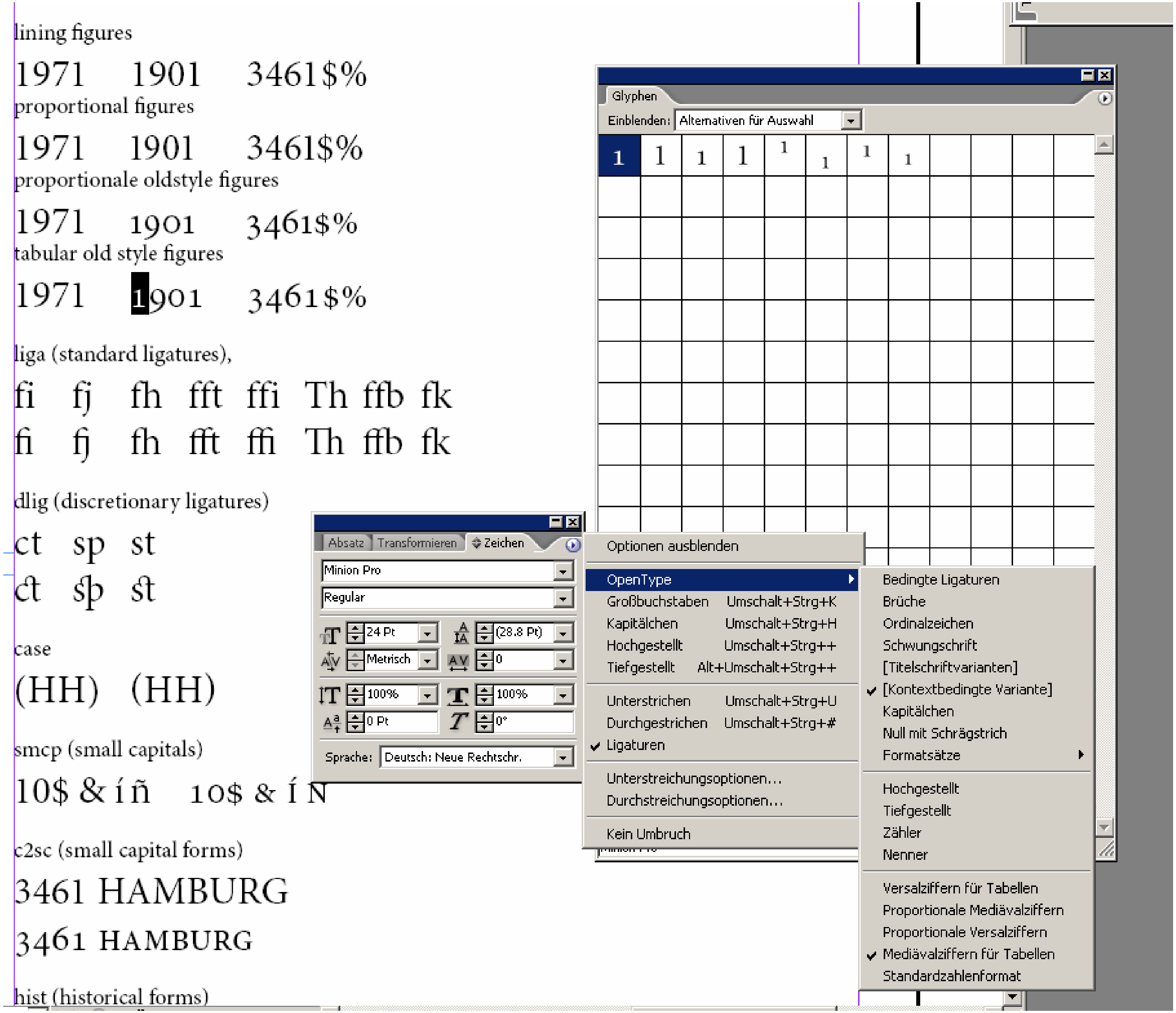
100%

0 Pt

0°

Sprache: Deutsch: Neue Rechtschr.

URW++



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 fj fh fft ffi Th ffb fk

dlig (discretionary ligatures)

ct sp st

ct sp st

case

(HH) (HH)

smcp (small capitals)

10$ & í ñ 10$ & í N

c2sc (small capital forms)

3461 HAMBURG

3461 HAMBURG

hist (historical forms)

Glyphen

Einblenden: Alternativen für Auswahl

Zeichen

Minion Pro

Regular

24 Pt

(28.8 Pt)

Metrisch

0

100%

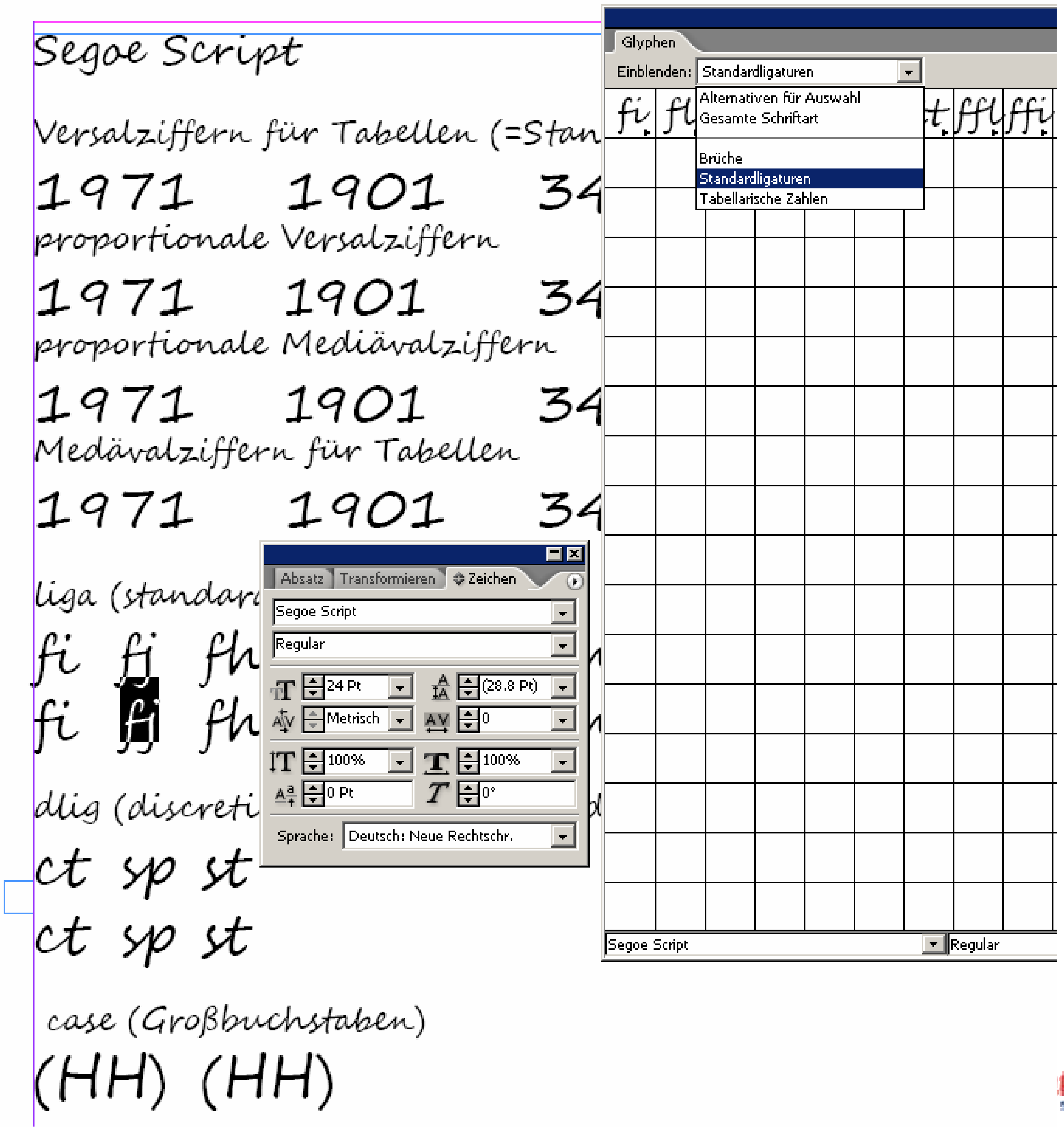
100%

0 Pt

0°

Sprache: Deutsch: Neue Rechtschr.

1 1 1 1 1 1 1 1
Absatz
Transformieren
Optionen ausblenden
OpenType
Großbuchstaben Umschalt+Strg+K
Kapitälchen Umschalt+Strg+H
Hochgestellt Umschalt+Strg++
Tiefgestellt Alt+Umschalt+Strg++
Unterstrichen Umschalt+Strg+U
Durchgestrichen Umschalt+Strg+#
✓ Ligaturen
Unterstreichungsoptionen…
Durchstreichungsoptionen…
Kein Umbruch
Bedingte Ligaturen
Brüche
Ordinalzeichen
Schwungschrift
[Titelschriftvarianten]
✓ [Kontextbedingte Variante]
Kapitälchen
Null mit Schrägstrich
Formatsätze
Hochgestellt
Tiefgestellt
Zähler
Nenner
Versalziffern für Tabellen
Proportionale Mediävalziffern
Proportionale Versalziffern
✓ Mediävalziffern für Tabellen
Standardzahlenformat



Segoe Script

Versalziffern für Tabellen (=Stan

1971 1901 34

proportionale Versalziffern

1971 1901 34

proportionale Mediävalziffern

1971 1901 34

Medävalziffern für Tabellen

1971 1901 34

liga (standar

fi fj fh

fi fj fh

dlig (discreti

ct sp st

ct sp st

case (Großbuchstaben)

(HH) (HH)

Absatz | Transformieren | Zeichen

Segoe Script

Regular

24 Pt | (28,8 Pt)

Metrisch | 0

100% | 100%

0 Pt | 0°

Sprache: Deutsch: Neue Rechtschr.

Glyphen

Einblenden: Standardligaturen

- Alternativen für Auswahl
- Gesamte Schriftart
- Brüche
- Standardligaturen
- Tabellarische Zahlen

fi fl st ffl ffi

Segoe Script | Regular

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

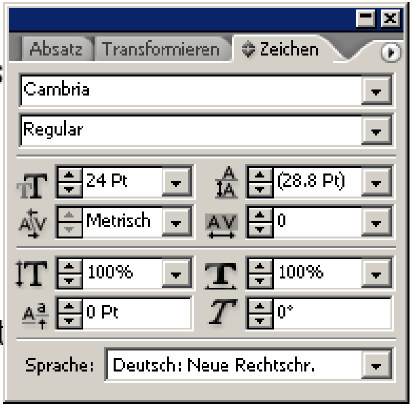
dlig (discretionary ligat

ct sp st

ct sp st

case

(HH) (HH)



Cambria

Regular

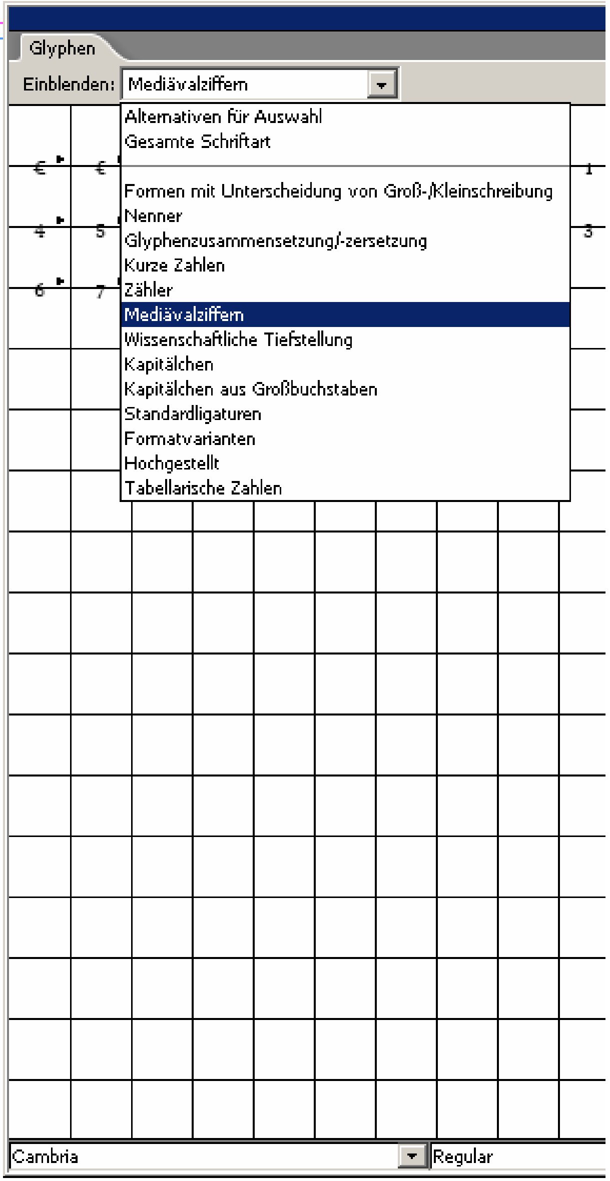
24 Pt | (28.8 Pt)

Metrisch | 0

100% | 100%

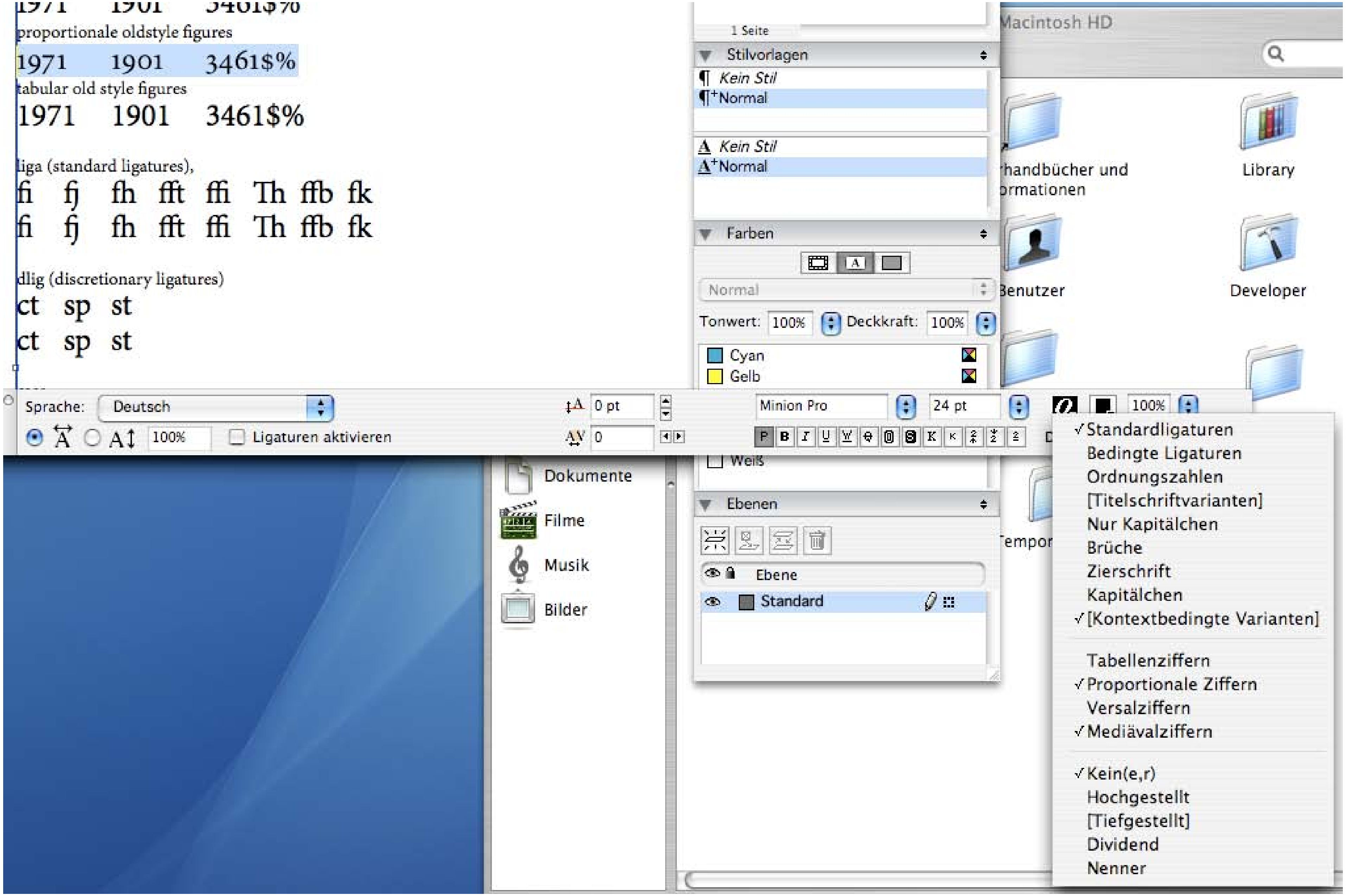
0 Pt | 0°

Sprache: Deutsch: Neue Rechtschr.



Einblenden: Mediävalziffern

Cambria | Regular



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 fj fh fft ffi Th ffb fk

dlig (discretionary ligatures)

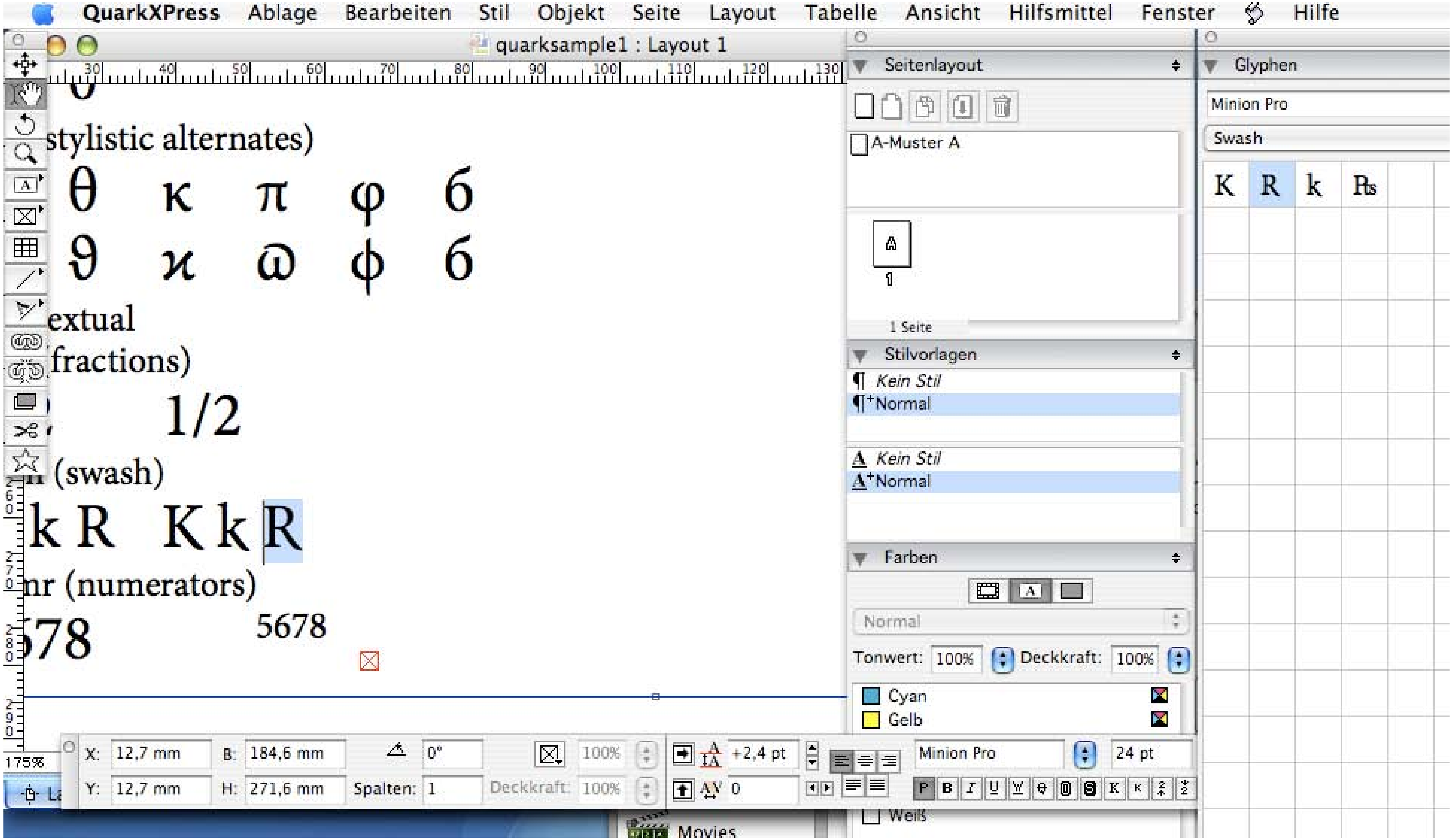
ct sp st

ct sp st

Sprache: Deutsch

○ Ligaturen aktivieren

Minion Pro, 24 pt



quarksample1 : Layout 1

stylistic alternates)

θ κ π φ б

ϑ ϰ ϖ ϕ б

extual

fractions)

1/2

(swash)

k R K k R

nr (numerators)

78 5678

A-Muster A

1 Seite

¶ Kein Stil

¶+Normal

A Kein Stil

A+Normal

Normal

Tonwert: 100% Deckkraft: 100%

Cyan

Gelb

Weiß

Movies

Minion Pro

Swash

K R k ₧

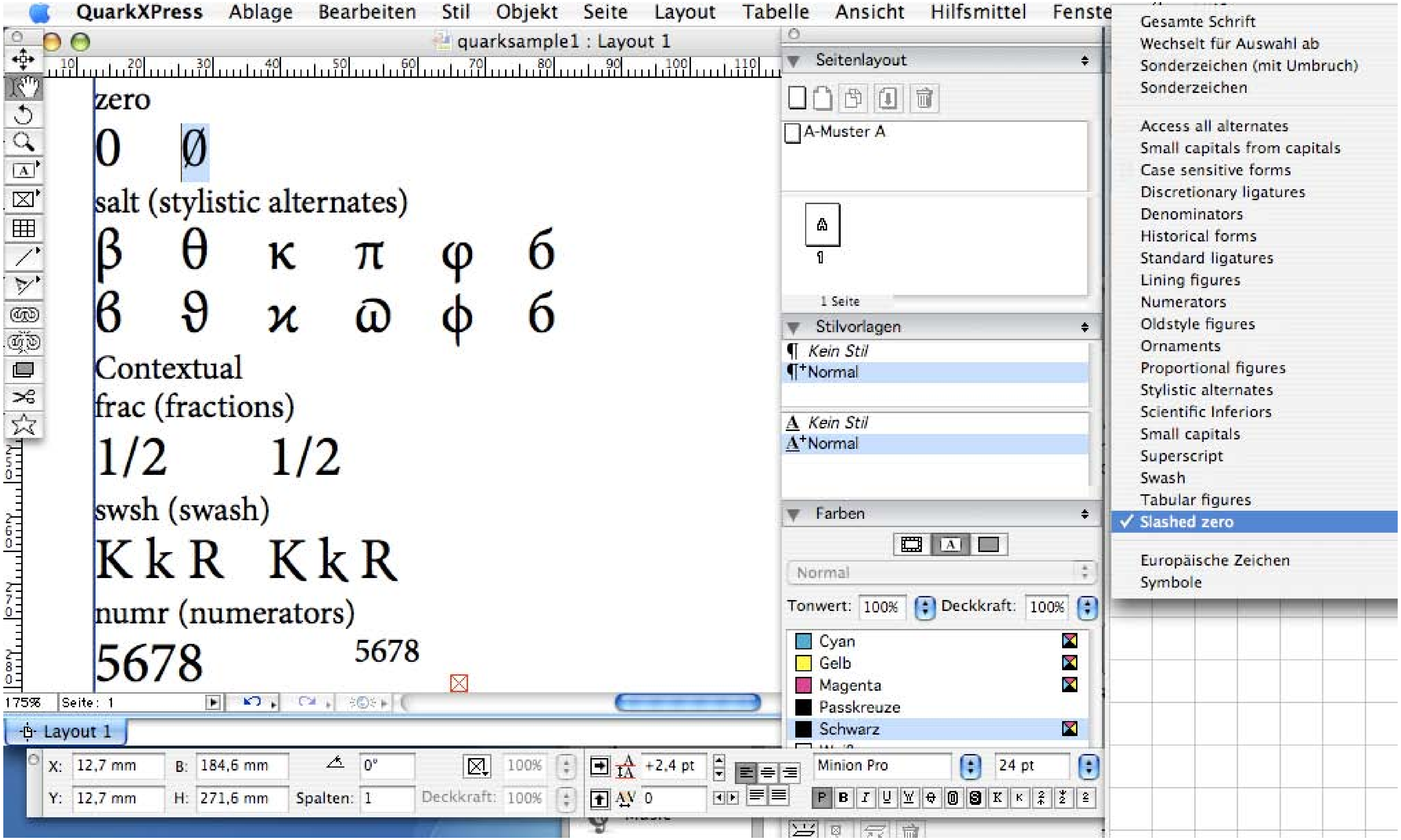
175%

X: 12,7 mm B: 184,6 mm 0° 100%

Y: 12,7 mm H: 271,6 mm Spalten: 1 Deckkraft: 100%

+2,4 pt Minion Pro 24 pt

0



zero

0 Ø

salt (stylistic alternates)

β θ κ π φ б

ϐ ϑ ϰ ϖ ϕ б

Contextual

frac (fractions)

1/2 1/2

swsh (swash)

K k R K k R

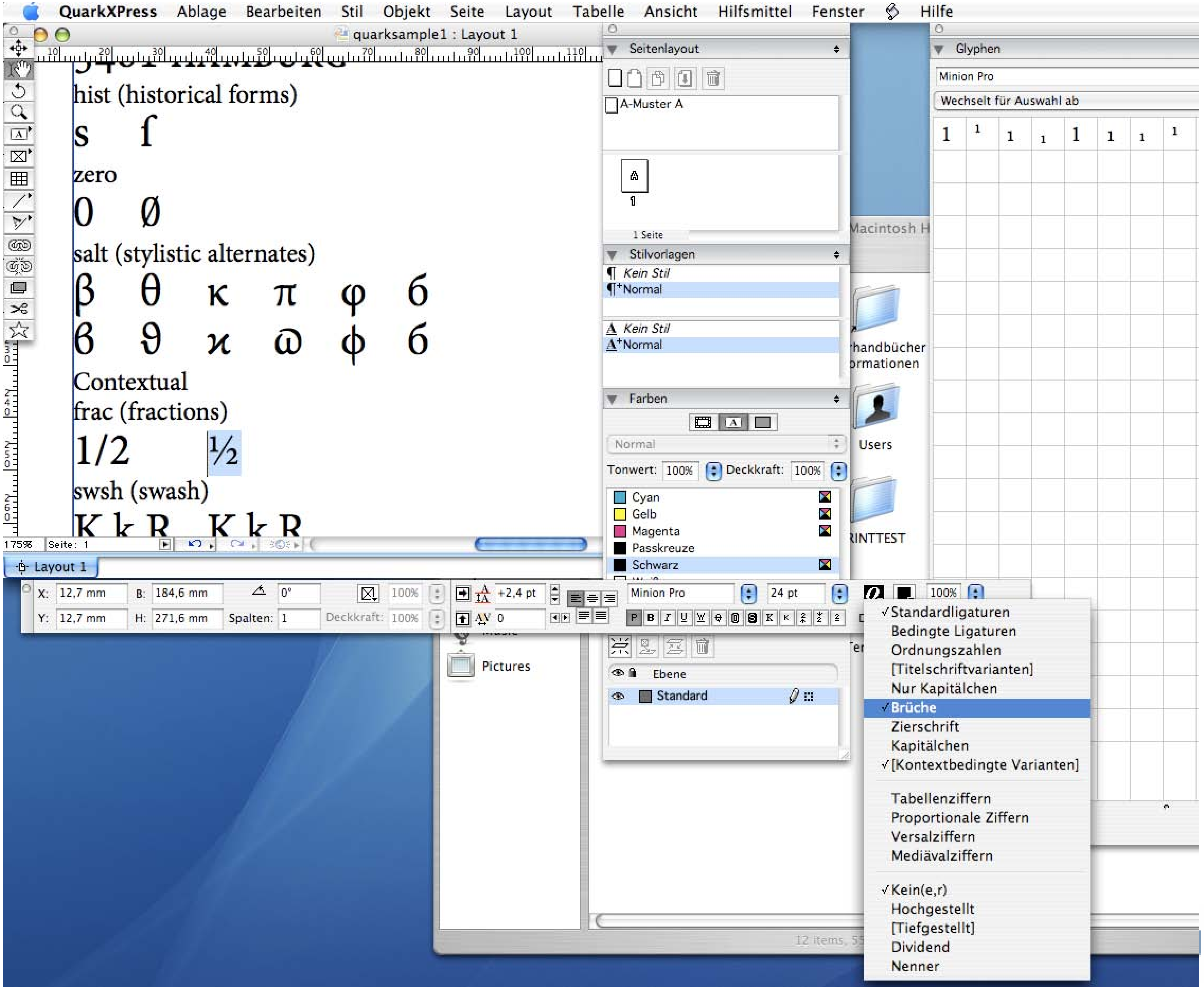
numr (numerators)

5678 5678

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

+2,4 pt 0 Minion Pro 24 pt

Tonwert: 100% Deckkraft: 100%



hist (historical forms)

s ſ

zero

0 Ø

salt (stylistic alternates)

β θ κ π φ б

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Contextual

frac (fractions)

1/2 ½

swsh (swash)

K k R K k R

X: 12,7 mm B: 184,6 mm 0°

Y: 12,7 mm H: 271,6 mm Spalten: 1 Deckkraft: 100%

+2,4 pt

0

Minion Pro 24 pt 100%

Glyphen: Minion Pro — Wechselt für Auswahl ab

Tonwert: 100% Deckkraft: 100%

Nonlatin Scripts: CJK layout features

GPOS:

- kern, vkrn, 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.

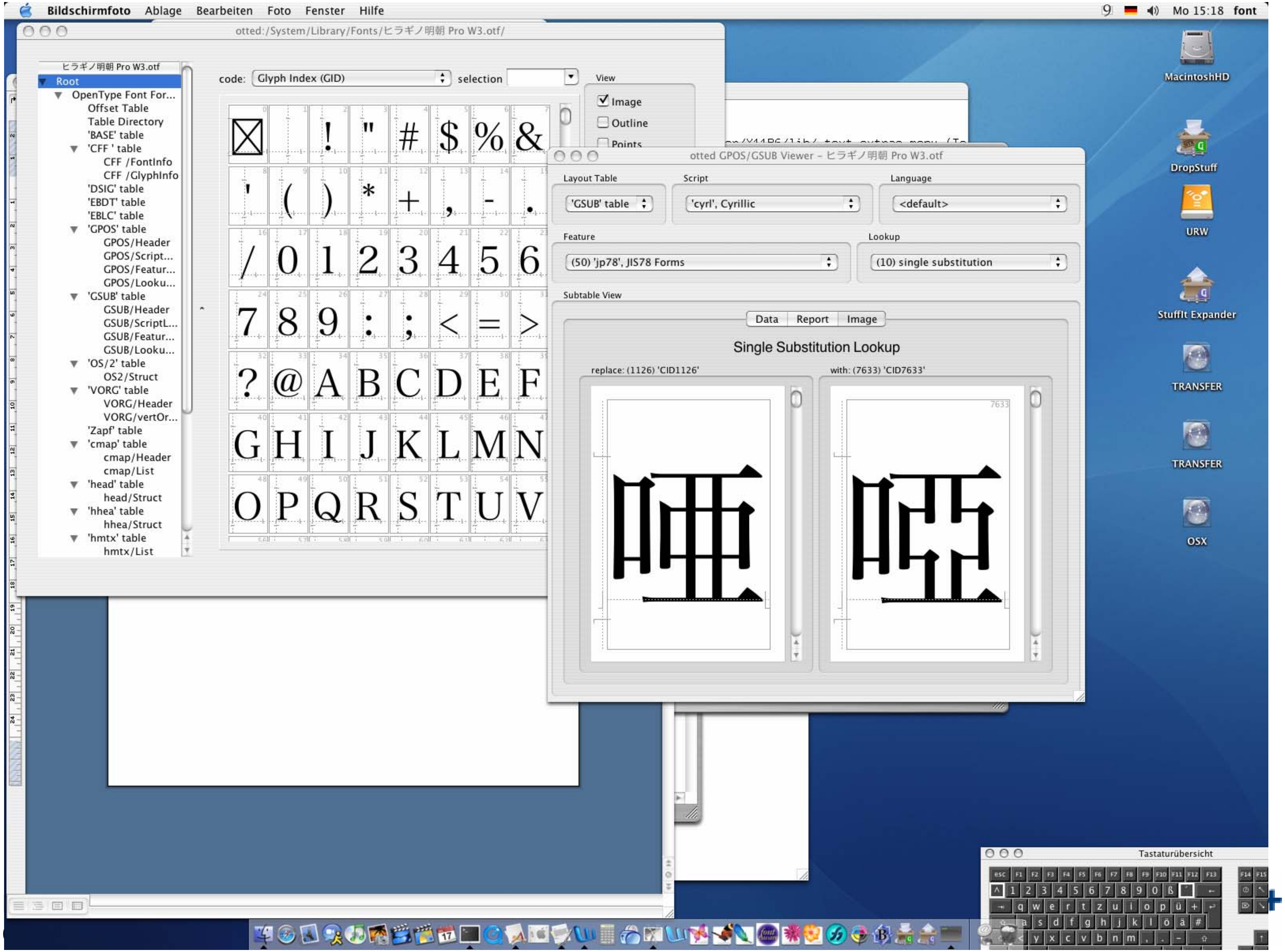
CJK Features supported by :

- vert feature by many older applications

Other features:

- Adobe InDesign, Illustrator CS (Jap, Chin, Korean version)
- Windows (WPF) ?

The MS Meiryo font contains all these features.



otted:/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/ScriptL...
      - 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
□ Points

☒		!	"	#	$	%	&
'	(	)	*	+	,	-	.
/	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

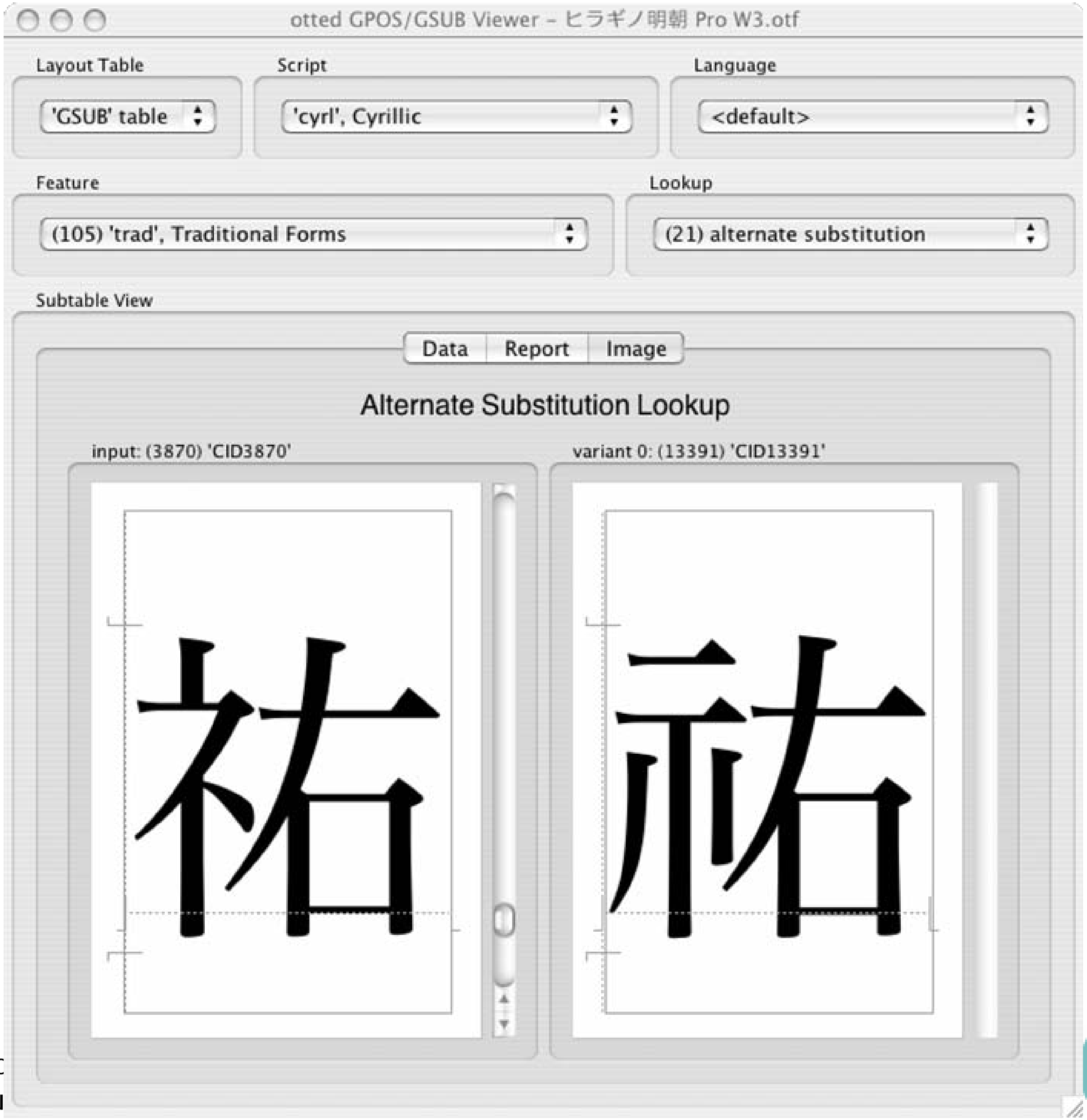
otted GPOS/GSUB Viewer – ヒラギノ明朝 Pro W3.otf

Layout Table: 'GSUB' table
Script: 'cyrl', Cyrillic
Language: <default>
Feature: (50) 'jp78', JIS78 Forms
Lookup: (10) single substitution

Subtable View

Single Substitution Lookup

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



otted GPOS/GSUB Viewer – ヒラギノ明朝 Pro W3.otf

Layout Table: 'GSUB' table

Script: 'cyrl', Cyrillic

Language: <default>

Feature: (105) 'trad', Traditional Forms

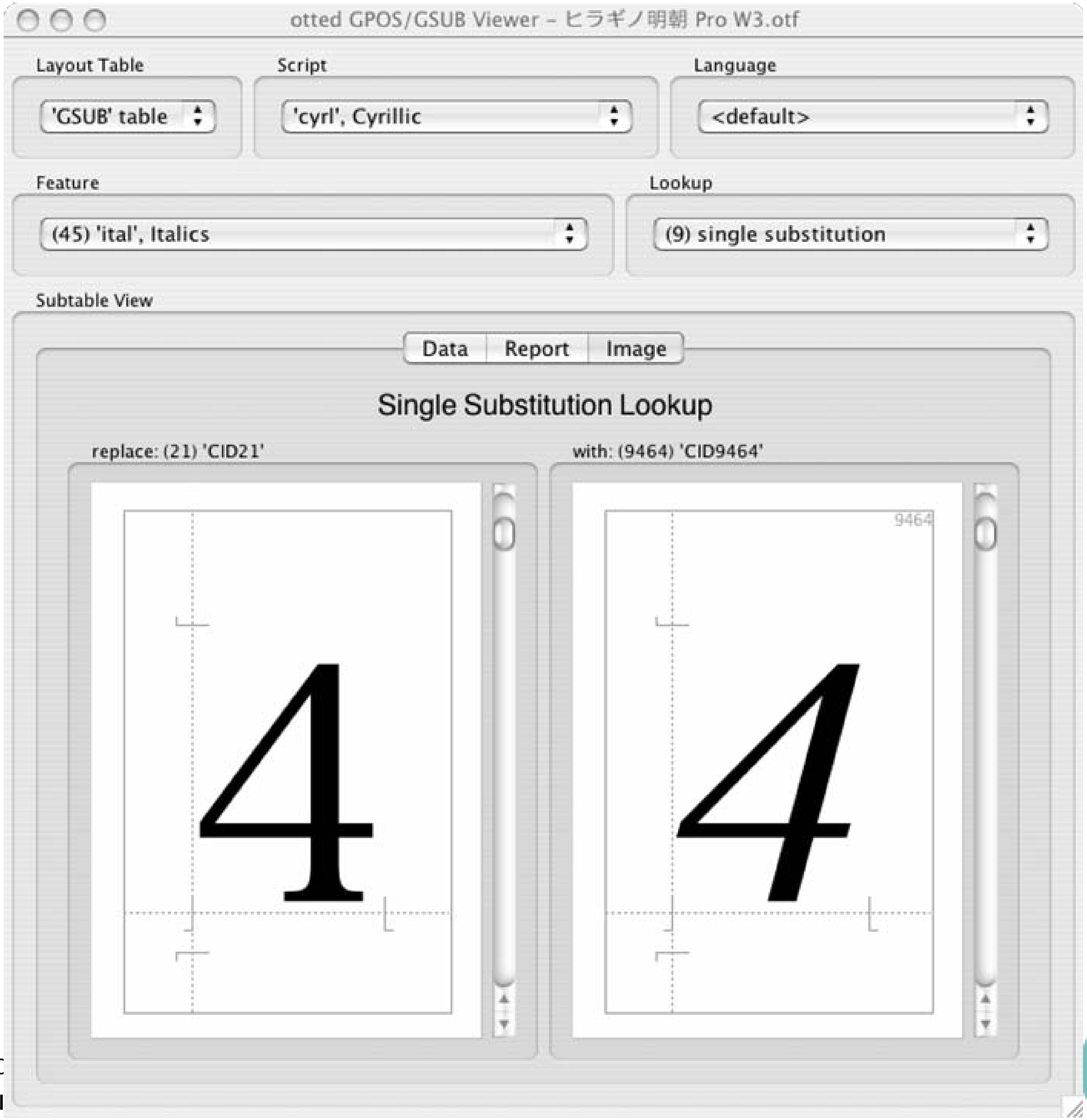
Lookup: (21) alternate substitution

Subtable View

Alternate Substitution Lookup

input: (3870) 'CID3870'

variant 0: (13391) 'CID13391'



otted GPOS/GSUB Viewer – ヒラギノ明朝 Pro W3.otf

Layout Table: 'GSUB' table

Script: 'cyrl', Cyrillic

Language: <default>

Feature: (45) 'ital', Italics

Lookup: (9) single substitution

Subtable View

Single Substitution Lookup

replace: (21) 'CID21'

with: (9464) 'CID9464'

Nonlatin Scripts: Arabic layout features

GPOS:

- kern, curs, mkmk, mark

GSUB:

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

Supported in :

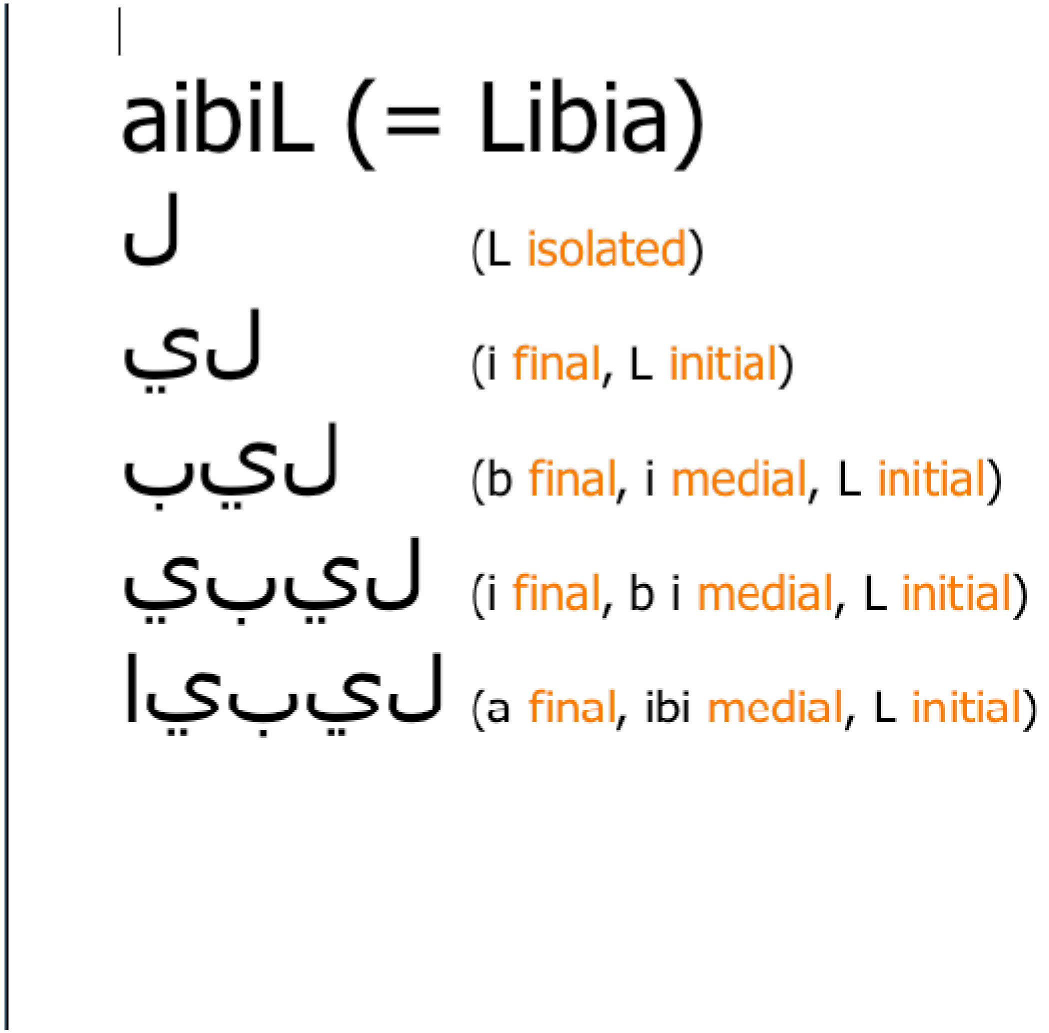
- Adobe InDesign CS ME
- MS Word (Windows)
- Mellel 1.9 (MAC)
- Windows Vista (WPF)

Verschiedene Lookups aus der Tahoma (Arabisch)

aibiL (= Libia)

ل	(L isolated)
لي	(i final, L initial)
ليـــب	(b final, i medial, L initial)
ليـــبي	(i final, b i medial, L initial)
ليبيـــــــا	(a final, ibi medial, L initial)

The same document on Mac OS X with Office 2004



aibiL (= Libia)

ل (L isolated)

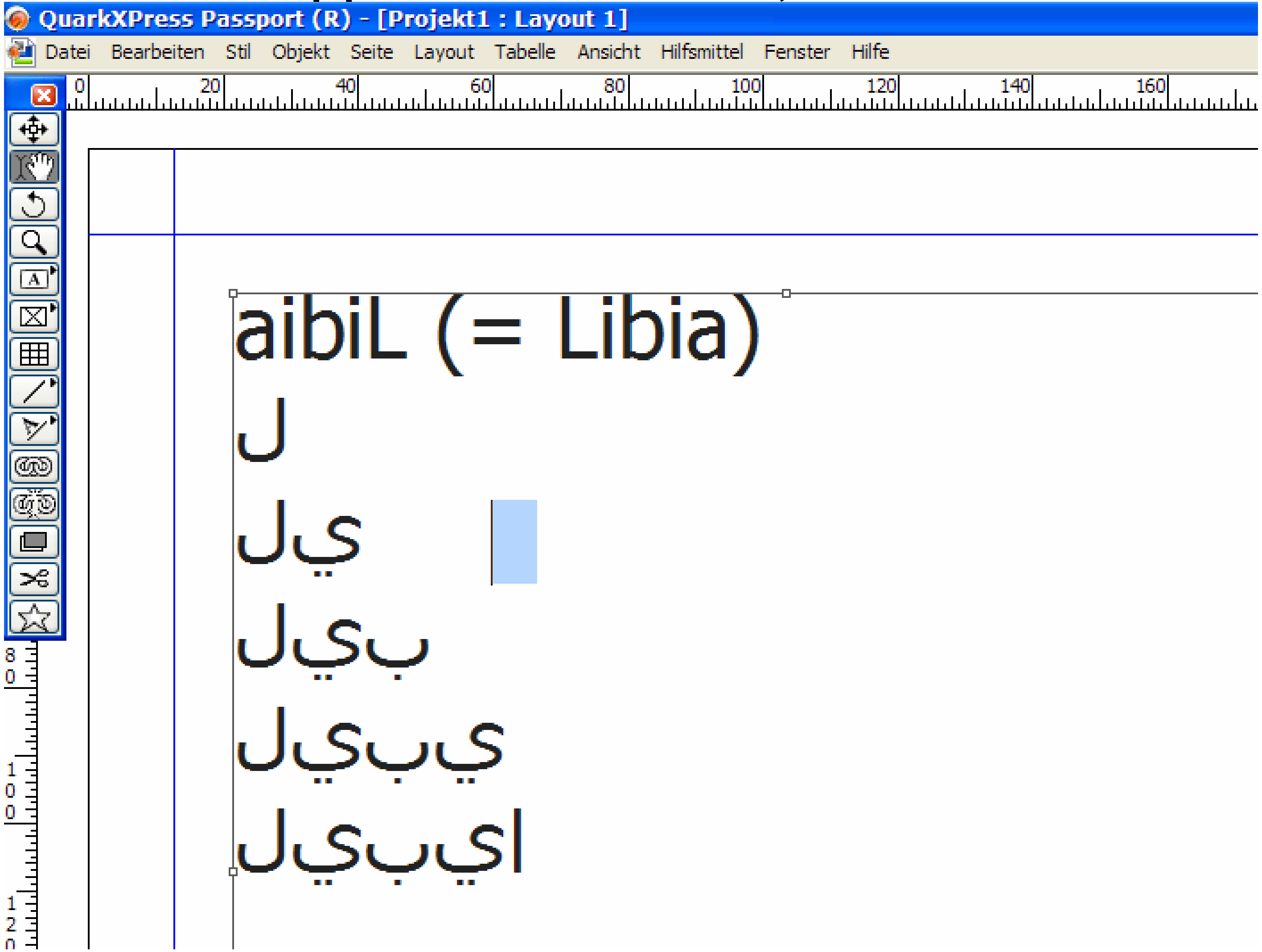
لي (i final, L initial)

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



aibiL (= Libia)
ل
لي
ليب
ليبي
ليبيا

Dr. Jürgen Willrodt
OpenType Status 2007

Nonlatin Scripts: Indic + Southeast Asia

Indic scripts (Devanagari, Gurmurki, Tamil, Mayalayam...) 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.

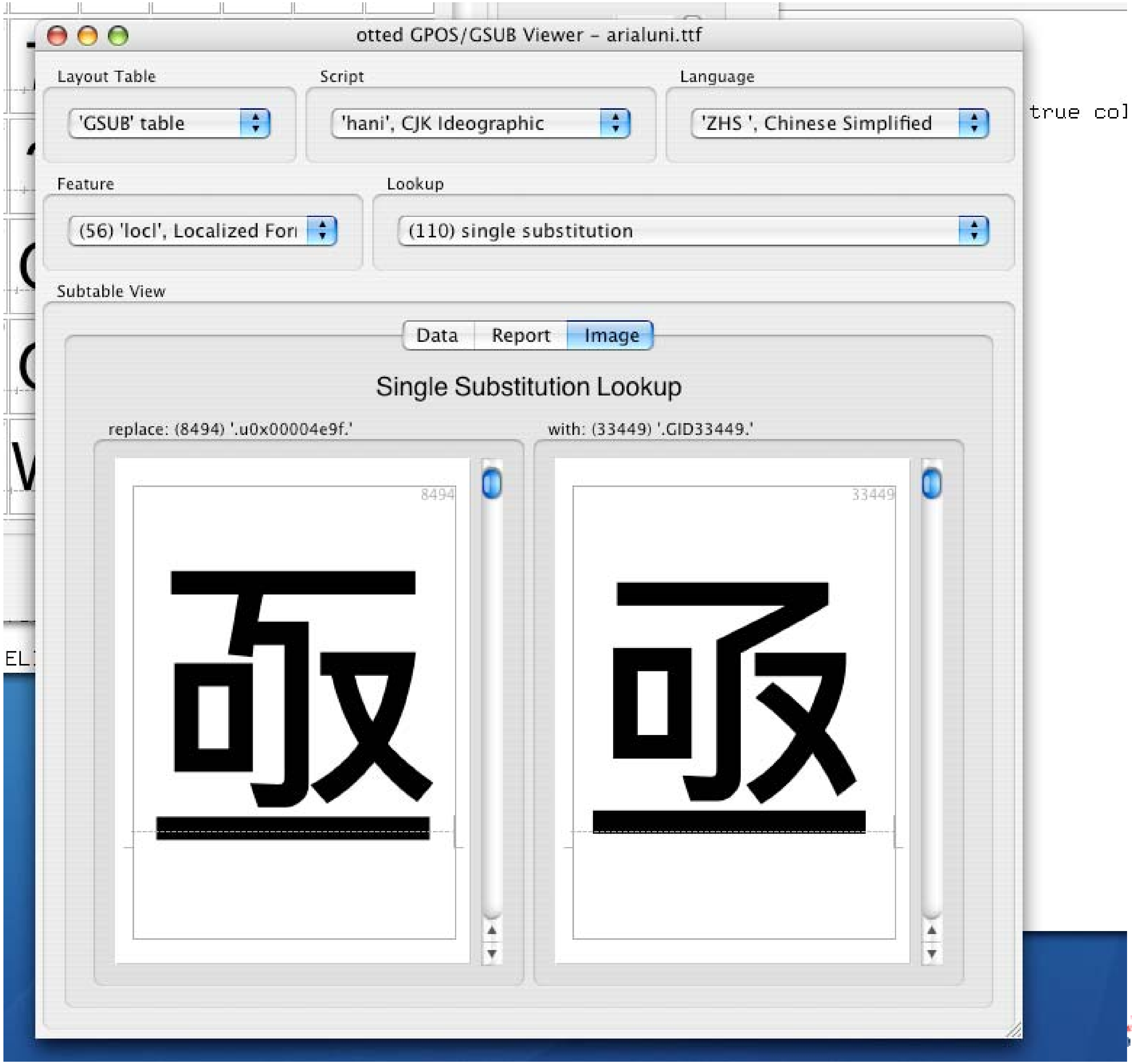
The locl feature should be connected to the selected locale or keyboard !

User interface in InDesign CS 3 ?

Language specific processing is supported in the Uniscribe shaping engine in Windows but not in WPF.

Language specific processing is possible with new API´s.

Any application yet ?



otted GPOS/GSUB Viewer – arialuni.ttf

Layout Table: 'GSUB' table

Script: 'hani', CJK Ideographic

Language: 'ZHS ', Chinese Simplified

Feature: (56) 'locl', Localized Fori

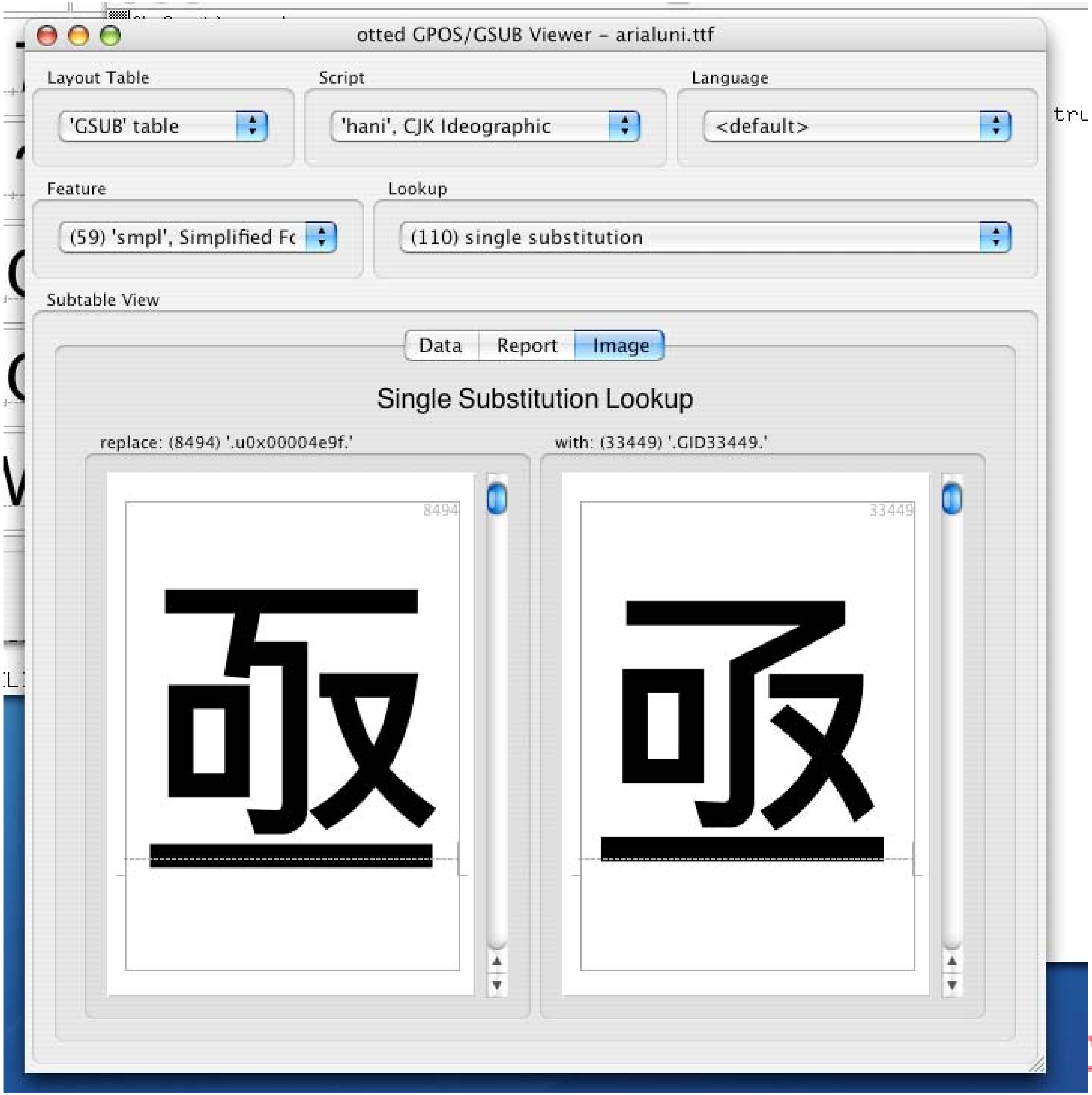
Lookup: (110) single substitution

Subtable View

Single Substitution Lookup

replace: (8494) '.u0x00004e9f.'

with: (33449) '.GID33449.'



otted GPOS/GSUB Viewer – arialuni.ttf

Layout Table: 'GSUB' table

Script: 'hani', CJK Ideographic

Language: <default>

Feature: (59) 'smpl', Simplified Fc

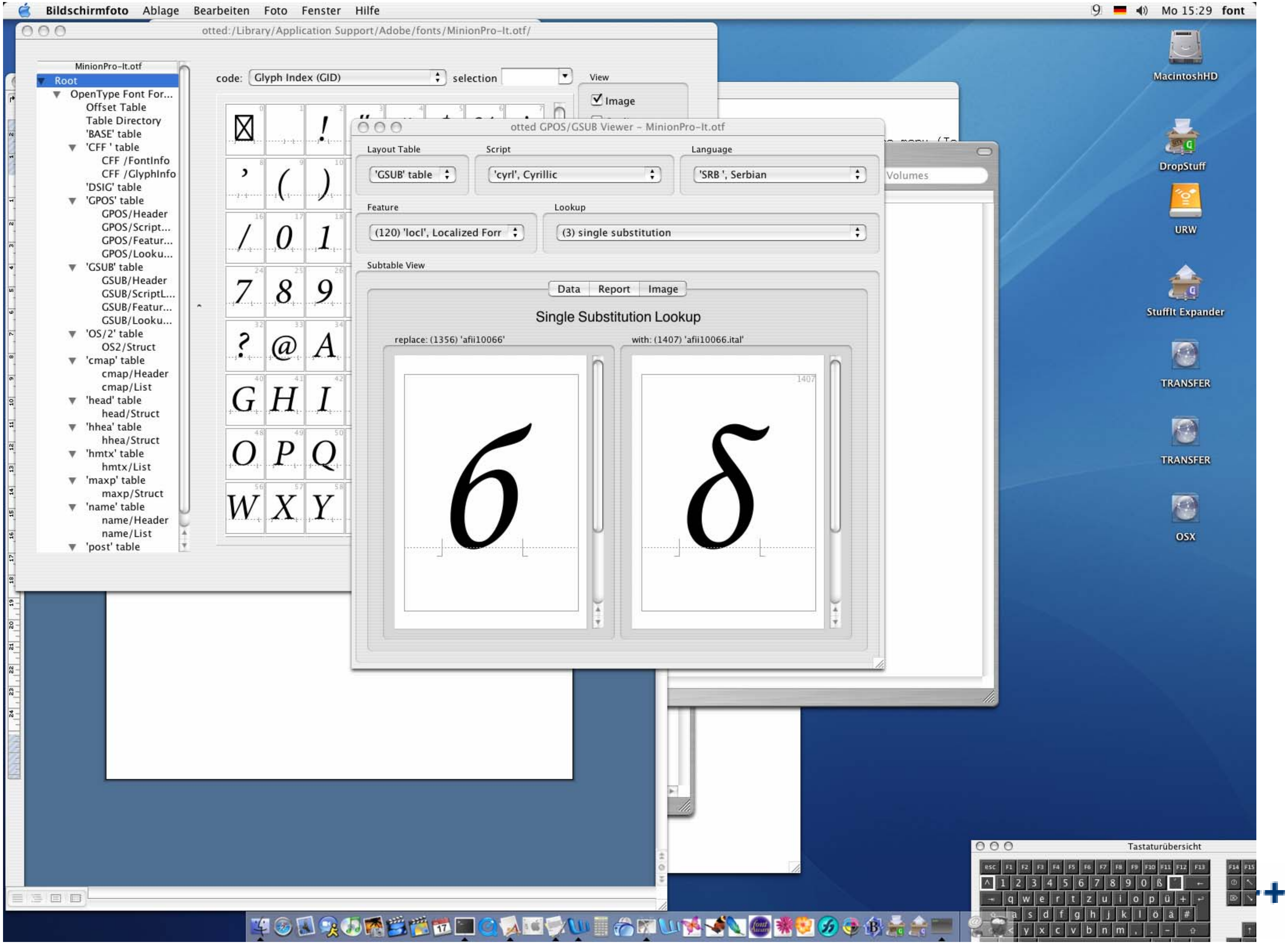
Lookup: (110) single substitution

Subtable View

Single Substitution Lookup

replace: (8494) '.u0x00004e9f.'

with: (33449) '.GID33449.'



otted:/Library/Application Support/Adobe/fonts/MinionPro-It.otf/

MinionPro-It.otf
- Root
  - OpenType Font For...
    - Offset Table
    - Table Directory
    - 'BASE' table
    - 'CFF ' table
      - CFF /FontInfo
      - CFF /GlyphInfo
    - 'DSIG' table
    - 'GPOS' table
      - GPOS/Header
      - GPOS/Script...
      - GPOS/Featur...
      - GPOS/Looku...
    - 'GSUB' table
      - GSUB/Header
      - GSUB/ScriptL...
      - GSUB/Featur...
      - GSUB/Looku...
    - 'OS/2' table
      - OS2/Struct
    - 'cmap' table
      - cmap/Header
      - cmap/List
    - 'head' table
      - head/Struct
    - 'hhea' table
      - hhea/Struct
    - 'hmtx' table
      - hmtx/List
    - 'maxp' table
      - maxp/Struct
    - 'name' table
      - name/Header
      - name/List
    - 'post' table

code: Glyph Index (GID)

View: ☑ Image

otted GPOS/GSUB Viewer – MinionPro-It.otf

Layout Table: 'GSUB' table

Script: 'cyrl', Cyrillic

Language: 'SRB ', Serbian

Feature: (120) 'locl', Localized Forr

Lookup: (3) single substitution

Subtable View: Data | Report | Image

Single Substitution Lookup

replace: (1356) 'afii10066'

with: (1407) 'afii10066.ital'

Summary

The implementation and support of OT features into applications, OS´s and fonts has been successfully done for many scripts.

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

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

Top 8 Wishlist

- Update the OT Spec
- Use the CMAP for OTF fonts instead of the names (Apple)
- Fix the kerning problems (MS, Apple)
- Remove any dependency on glyph names
- Support GPOS in TTF (MS, Apple)
- Add an easy way to clean the font cache (Adobe, Apple)
- Make the locl feature work (MS, Apple)
- Introduce OTC (OpenType Collection Files)
- Add support for more than 65536 gylphs (MS, Apple,Adobe)