How To build a Newton Font on MacOS X

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16th April 2004

1 Introduction

This How-To explains how to port a MacOS font to NewtonOS on MacOS X.

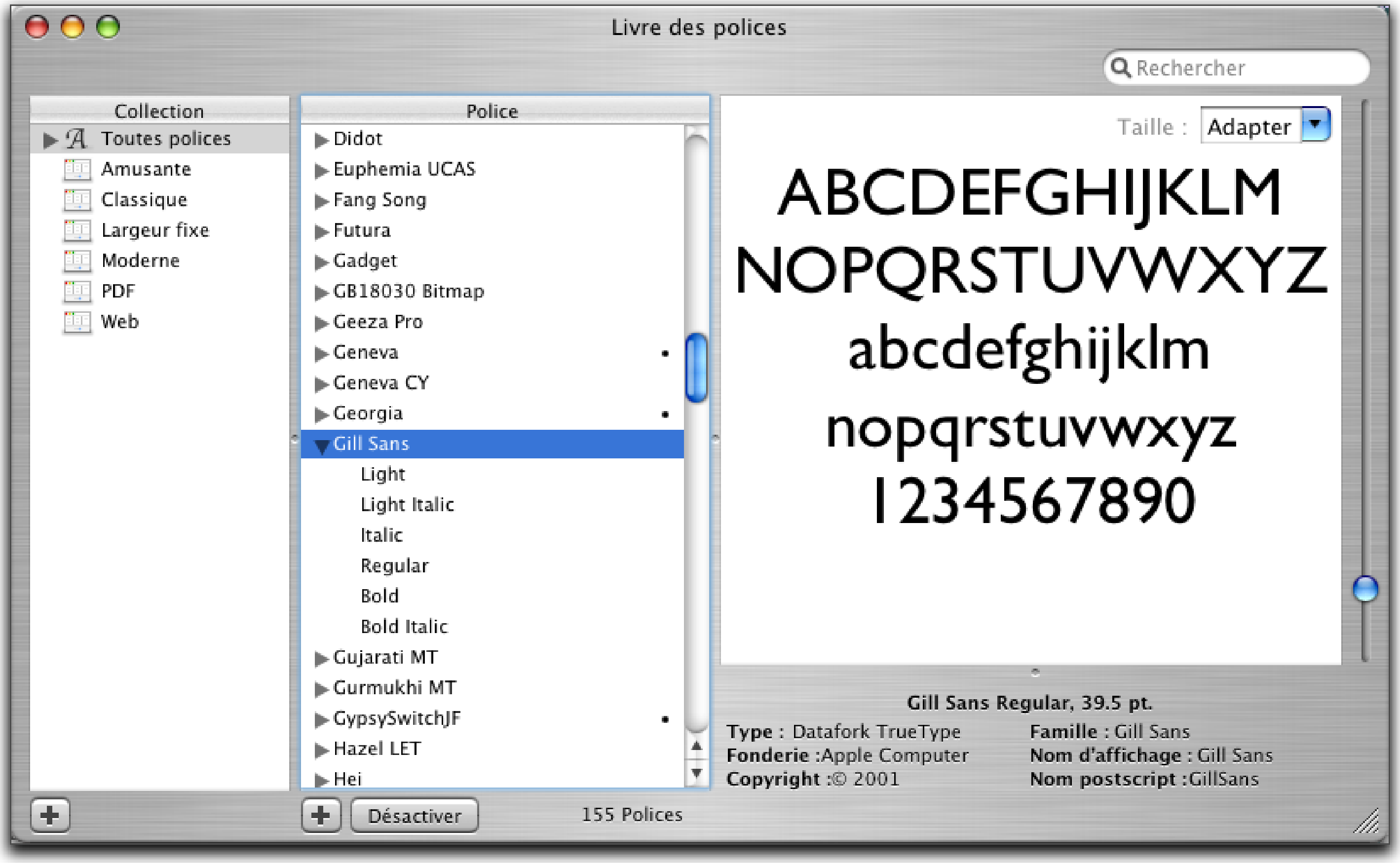
Porting fonts rely on old Apple font tools and therefore on Classic. We (the DCL Group) are currently investigating a method to port fonts without relying on these tools, but some features of these old tools we need are apparently not available in MacOS X Font Tools.

Important Note : Fonts are copyrightable and usually copyrighted. Please make sure that porting a font is compatible with the license you were granted on it.

This tutorial supposes that you have basic knowledge of MacOS X, that you know what the Terminal is, but it does not require that you have a long experience with the tools involved. We may use terms that would require a definition or a clarification. Most unusual terms used here are defined in the Newton Glossary[1]. Do not hesitate to send me corrections or ask me for clarifications if required.

This tutorial will guide through porting Gill Sans. The font book application shows this font:

[1] http://www.splorp.com/newton/glossary/



Gill Sans Regular, 39.5 pt.

Type : Datafork TrueType
Fonderie : Apple Computer
Copyright :© 2001
Famille : Gill Sans
Nom d'affichage : Gill Sans
Nom postscript : GillSans

This font actually exists in 6 forms:

- Gill Sans Regular
- Gill Sans Bold
- Gill Sans Italic
- Gill Sans Bold Italic
- Gill Sans Light
- Gill Sans Light Italic

This font can be ported as two Newton font packages (Gill Sans and Gill Sans Light). The Gill Sans package will include regular (or plain), bold, italic and bold-italic forms and the Gill Sans Light package will include regular and italic forms.

You will need :

- Newton Toolkit 1.6.4, which can be downloaded from UNNA (`http://www.unna.org/`)
- The following Apple Font Tools (`http://fonts.apple.com/`)
  - AAT Font Tool 2.0a8

  - Fissioner 1.2b2
  - Fuser 1.2b1
  - TrueEdit 2.2b2
- ResEdit (`http://developer.apple.com/`)
- Apple Developer Tools for MacOS X (`http://developer.apple.com/`)
- MacOS X Terminal

2 Preparing the conversion

To prepare the conversion, create a folder called `Gill Sans` somewhere on your disk. Then, create a folder called `Font` in it.

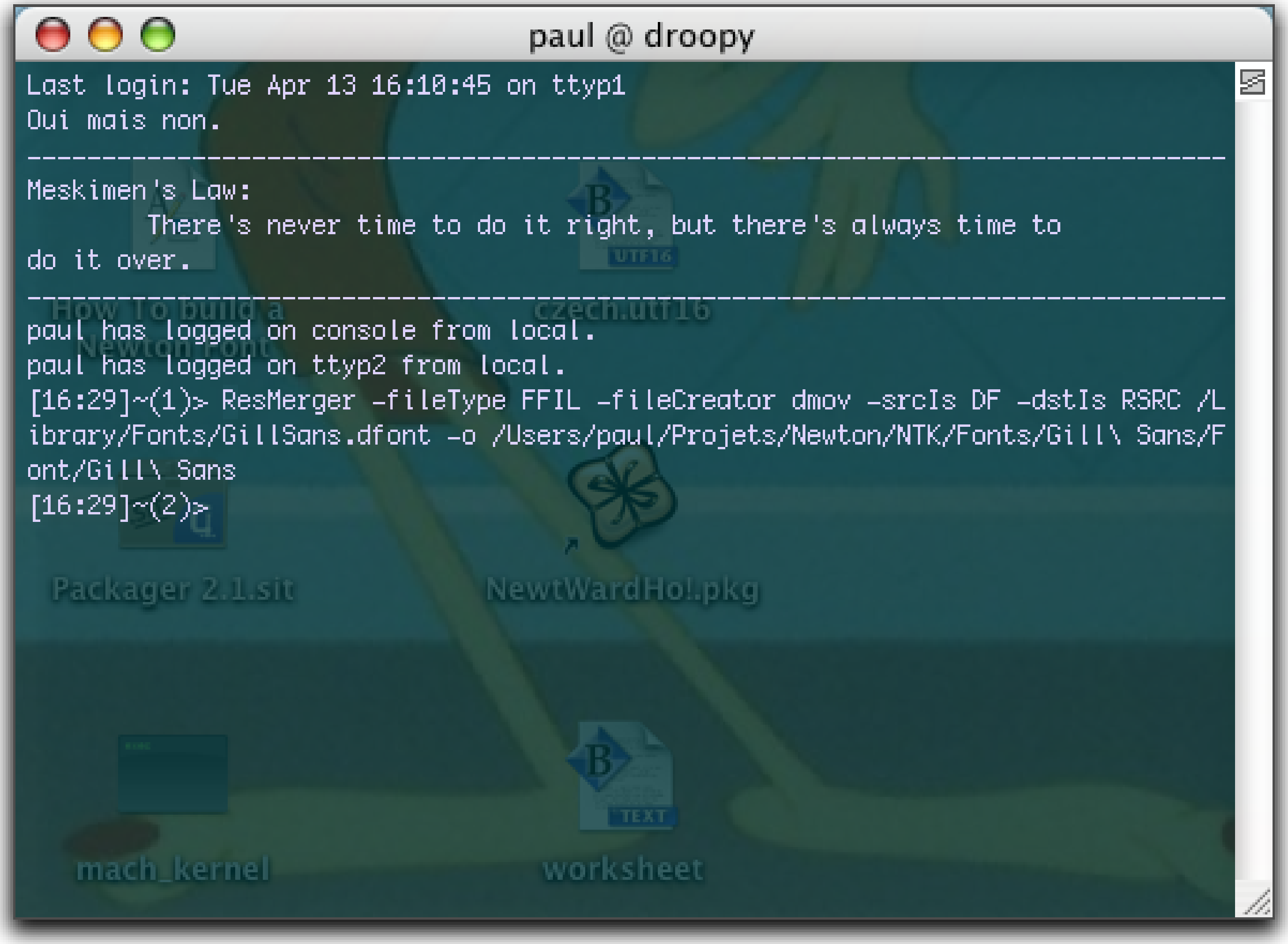
On my disk, this folder is in:

```
/Users/paul/Projets/Newton/NTK/Fonts/
```

3 Converting the font to a classic font suitcase

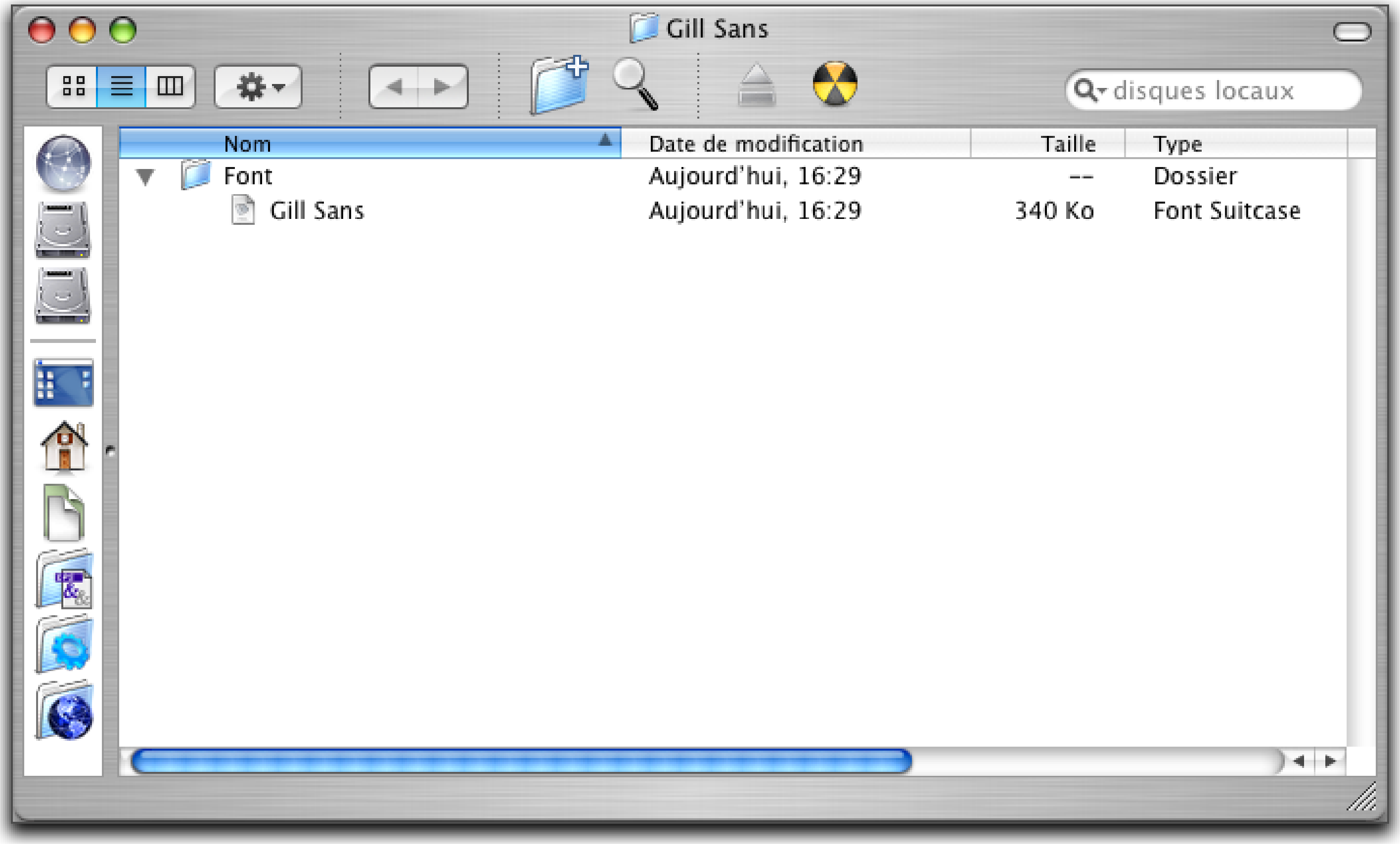
This step is necessary for Gill Sans because it is in the dfont format. The dfont format is just a resource fork in the data fork. To perform the conversion, you can use `ResMerger` command line tool from the Developer Tools. `Gill Sans` is in `/Library/Fonts/GillSans.dfont`. You just have to write in the terminal (on a single line) :

```
ResMerger -fileType FFIL -fileCreator dmov -srcIs DF -dstIs RSRC
/Library/Fonts/GillSans.dfont -o
/Users/paul/Projets/Newton/NTK/Fonts/Gill\ Sans/Font/Gill\ Sans
```



```
Last login: Tue Apr 13 16:10:45 on ttyp1
Oui mais non.
---------------------------------------------------------------------------------
Meskimen's Law:
        There's never time to do it right, but there's always time to
do it over.
---------------------------------------------------------------------------------
paul has logged on console from local.
paul has logged on ttyp2 from local.
[16:29]~(1)> ResMerger -fileType FFIL -fileCreator dmov -srcIs DF -dstIs RSRC /L
ibrary/Fonts/GillSans.dfont -o /Users/paul/Projets/Newton/NTK/Fonts/Gill\ Sans/F
ont/Gill\ Sans
[16:29]~(2)>
```

Adapt the line to use the actual path of your folder. This line creates the file `Gill Sans` in your `Font` folder.



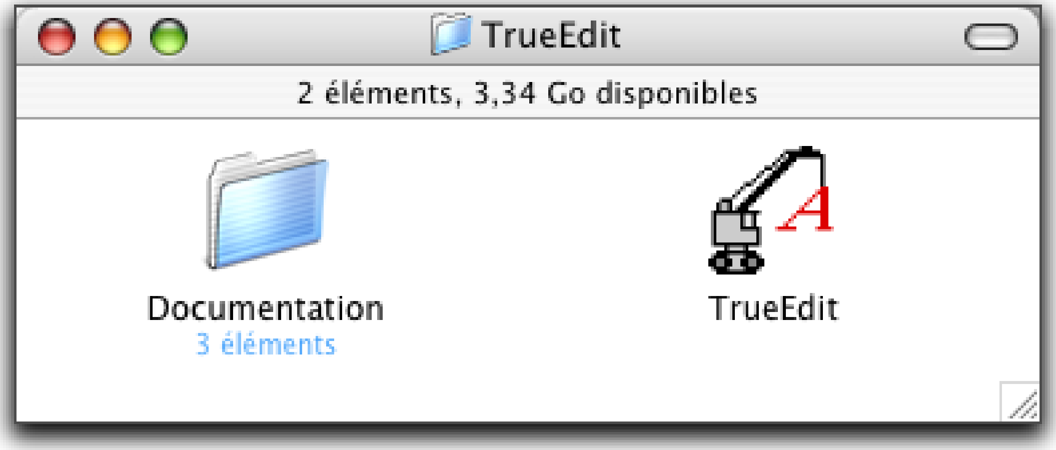
Nom	Date de modification	Taille	Type
Font	Aujourd'hui, 16:29	--	Dossier
Gill Sans	Aujourd'hui, 16:29	340 Ko	Font Suitcase

This step is not required if you are converting a font available as a suitcase. If it is available as a suitcase, just copy it to the `Font` folder.

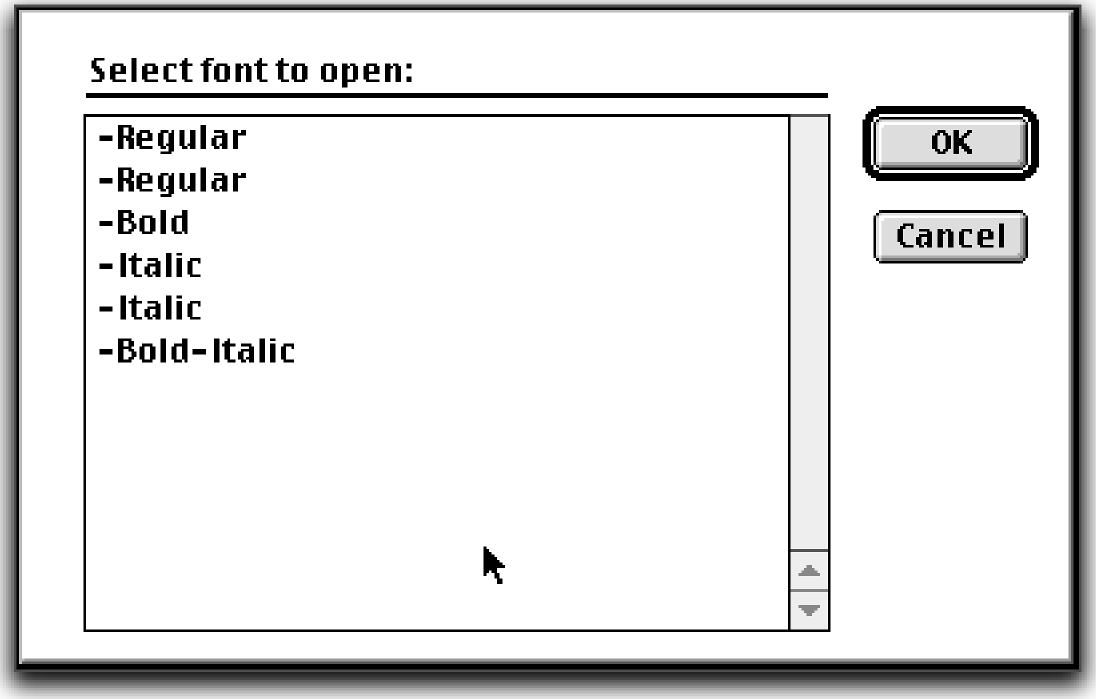
There may be tools with a graphical interface to perform this step.

4 Checking what work will need to be performed

The next step is to open the font with TrueEdit to find what work will be required.



Opening the Gill Sans font with TrueEdit reveals that this suitcase includes six fonts, the six forms revealed by MacOS X font book. [2]



Select font to open:

-Regular
-Regular
-Bold
-Italic
-Italic
-Bold-Italic

If you open the first regular font, you will see its tables:

[2] TrueEdit sometimes cannot display the font names properly in such lists, apparently because it relies on Resource names and some fonts' `sfnt` resources do not have any name.

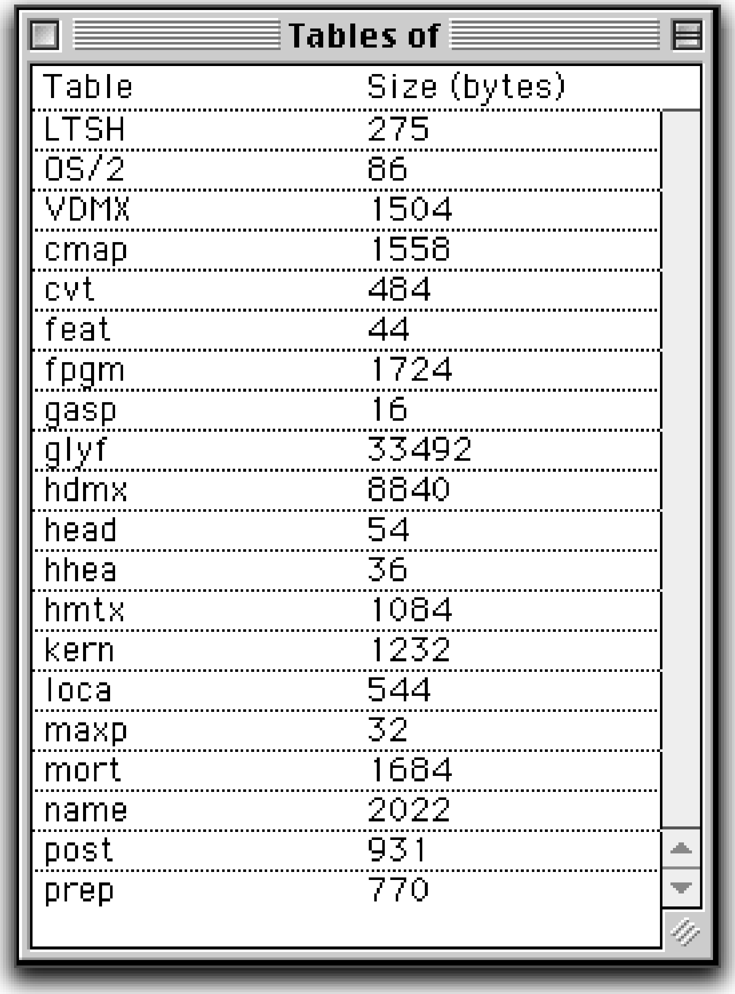
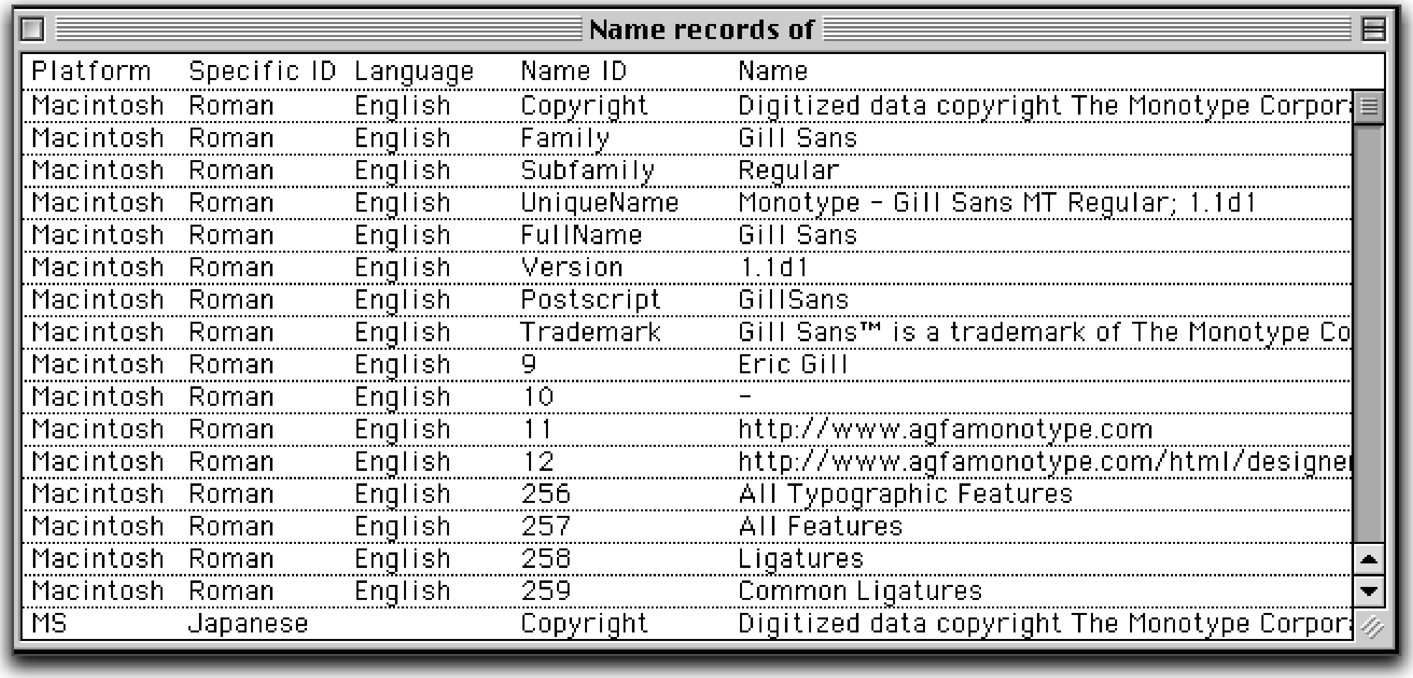


Table	Size (bytes)
LTSH	275
OS/2	86
VDMX	1504
cmap	1558
cvt	484
feat	44
fpgm	1724
gasp	16
glyf	33492
hdmx	8840
head	54
hhea	36
hmtx	1084
kern	1232
loca	544
maxp	32
mort	1684
name	2022
post	931
prep	770

Double-clicking the `name` row shows the `name` table with the various information on this font including the family and the subfamily names (so you can check that indeed you did open the Gill Sans Regular font) :



Name records of

Platform	Specific ID	Language	Name ID	Name
Macintosh	Roman	English	Copyright	Digitized data copyright The Monotype Corpor
Macintosh	Roman	English	Family	Gill Sans
Macintosh	Roman	English	Subfamily	Regular
Macintosh	Roman	English	UniqueName	Monotype - Gill Sans MT Regular; 1.1d1
Macintosh	Roman	English	FullName	Gill Sans
Macintosh	Roman	English	Version	1.1d1
Macintosh	Roman	English	Postscript	GillSans
Macintosh	Roman	English	Trademark	Gill Sans™ is a trademark of The Monotype Co
Macintosh	Roman	English	9	Eric Gill
Macintosh	Roman	English	10	-
Macintosh	Roman	English	11	http://www.agfamonotype.com
Macintosh	Roman	English	12	http://www.agfamonotype.com/html/designe
Macintosh	Roman	English	256	All Typographic Features
Macintosh	Roman	English	257	All Features
Macintosh	Roman	English	258	Ligatures
Macintosh	Roman	English	259	Common Ligatures
MS	Japanese		Copyright	Digitized data copyright The Monotype Corpor

This font has no `bdat` table which means that it has no bitmap information. This is true for all the fonts included in this suitcase, but if you're working with another font, you may want to check.

NewtonOS requires bitmap tables in fonts. You will generate these tables using `Fissioner` and `Fuser`.

5 Running AAT Font Tool

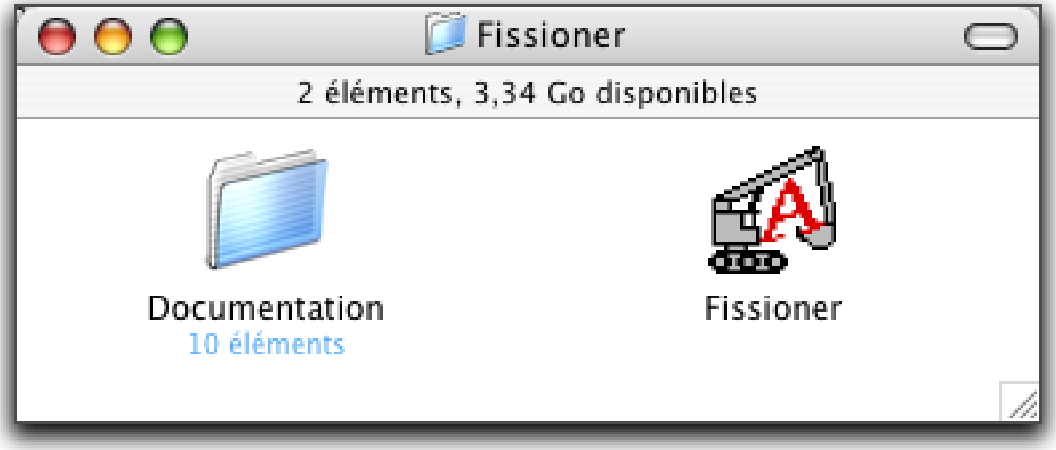
The next step is to run AAT Font Tool on the font.

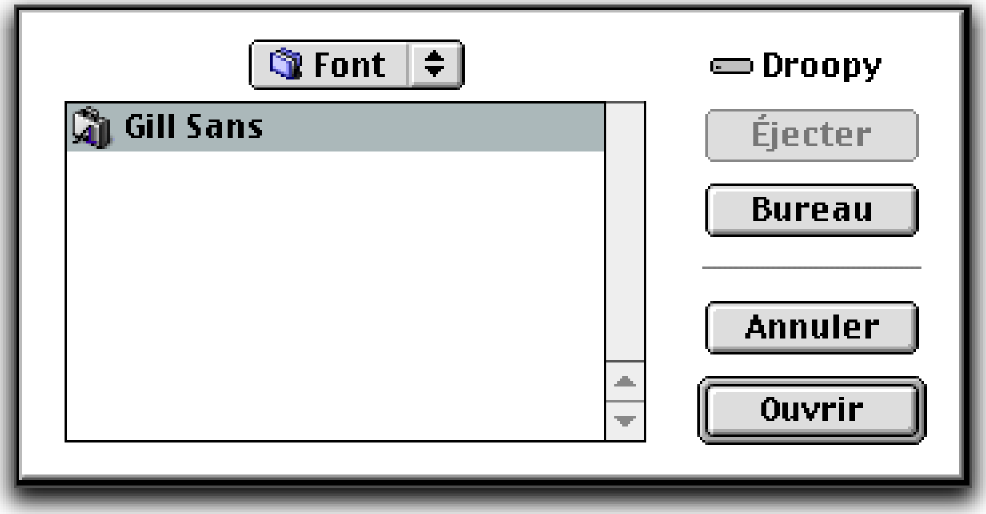
According to Apple documentation, running AAT Font Tool on fonts to built Newton fonts is only useful because NewtonOS require Unicode character maps in fonts. In fact, most MacOS X fonts already have Unicode character maps. However, old Apple Font Tools are not extremely stable and my experience is that they work better on a font pre-processed by AAT Font Tool.

Just drop the font suitcase on AAT Font Tool (make sure you closed it in TrueEdit first). Gill Sans suitcase will go from 340 KB to 368 KB.

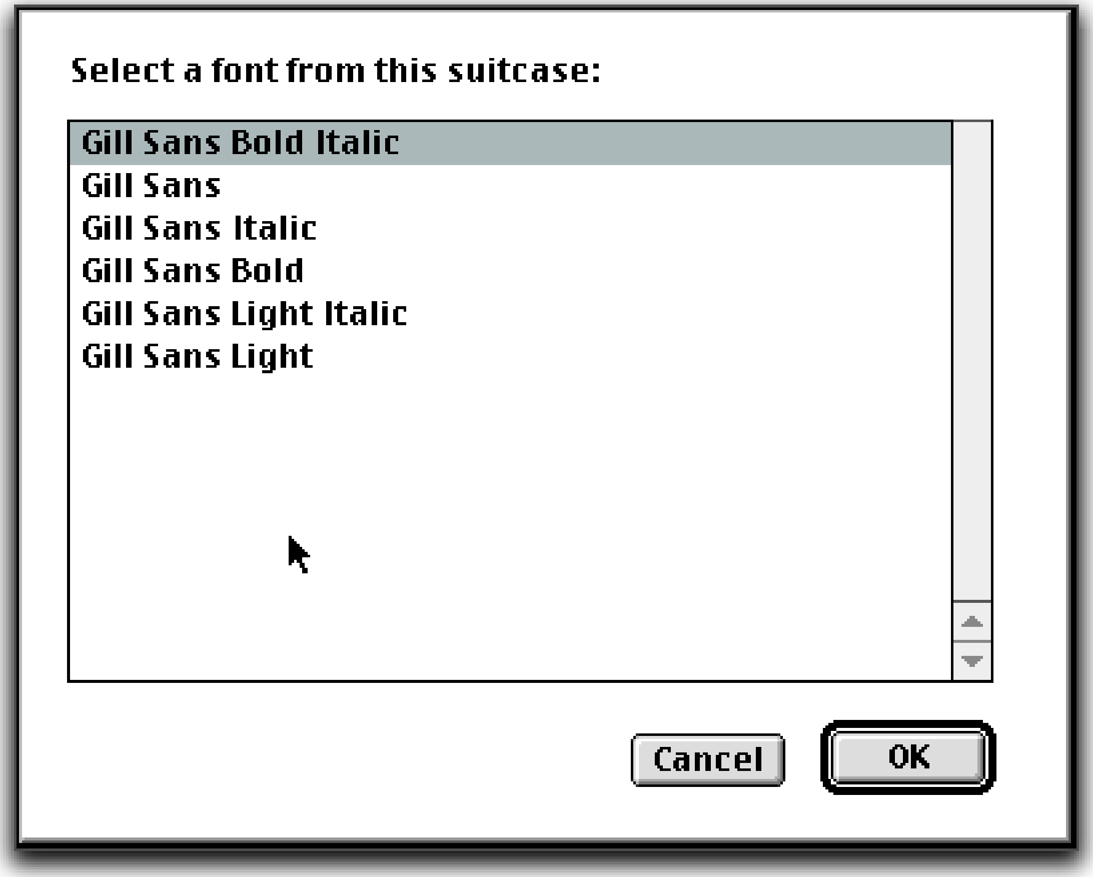
6 Creating bitmaps

Newton Fonts are TrueType fonts with bitmaps. Gill Sans is a set of TrueType fonts with no bitmap embedded in them. You need to generate the bitmaps for the sizes you want. In this tutorial, we will build fonts with 6 sizes (9, 10, 12, 14, 18 and 24). To do so, run Fissioner and tell it to open the Gill Sans suitcase.





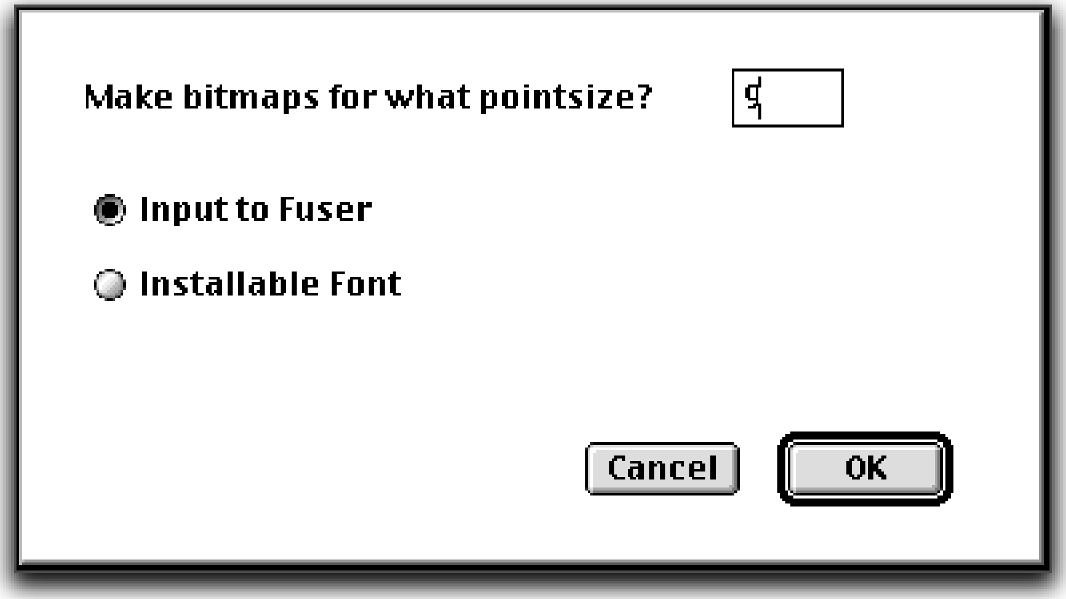
Then, choose one of the 6 fonts (you will have to do them all anyway). You can start with `Gill Sans Bold Italic` because it's the first in the list.



Select a font from this suitcase:

- Gill Sans Bold Italic
- Gill Sans
- Gill Sans Italic
- Gill Sans Bold
- Gill Sans Light Italic
- Gill Sans Light

Then, enter a font size and press OK.



Make bitmaps for what pointsize? 9

● Input to Fuser

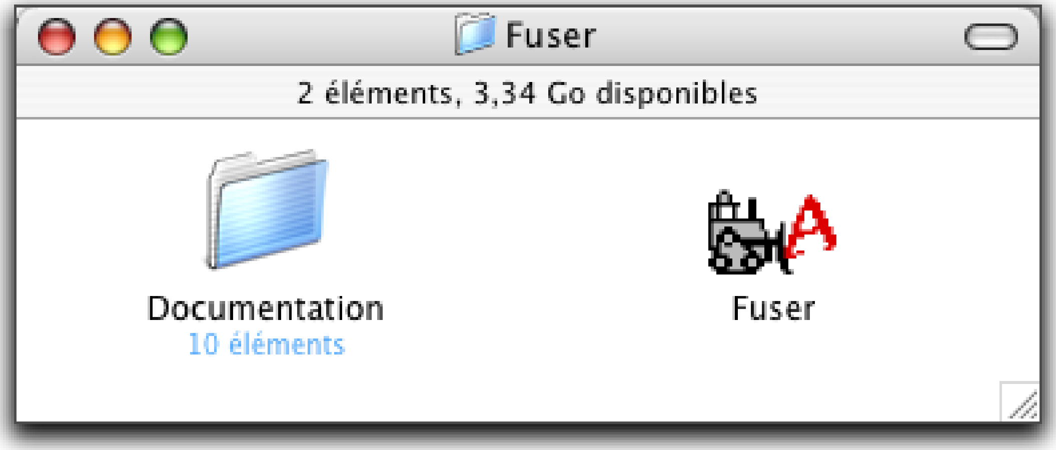
○ Installable Font

This will generate two files.

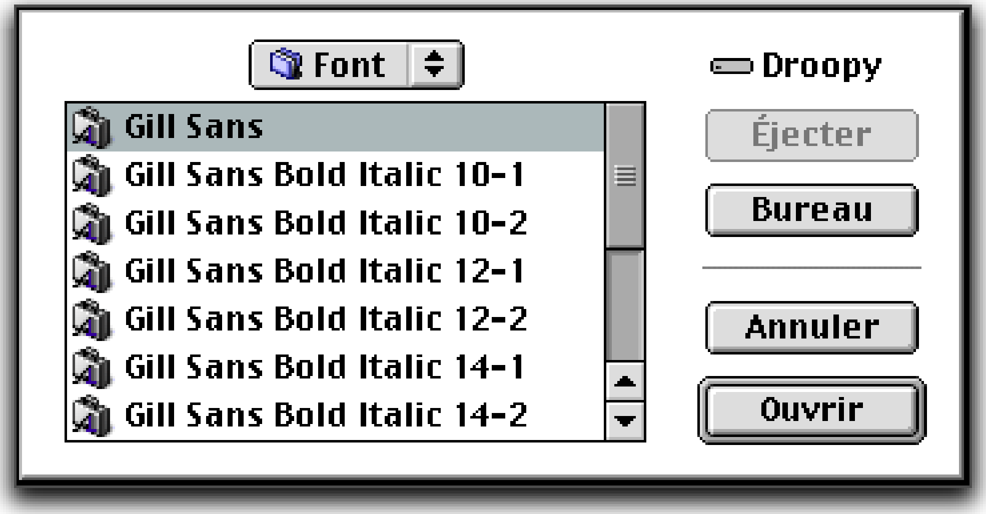
Iterate this process for all the the sizes. You will end up with 12 files plus the original suitcase in the `Font` folder.

Then, you need to put the bitmaps back into the TrueType font.

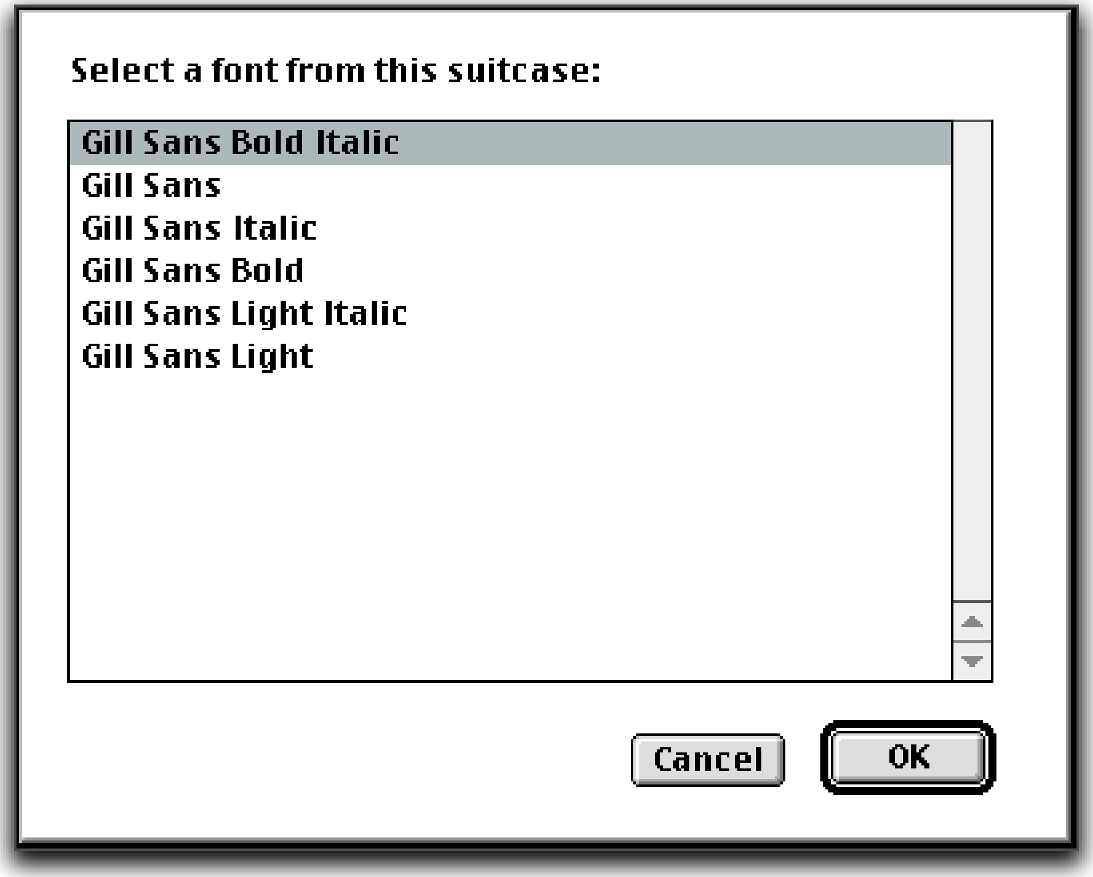
To do so, run Fuser.



Choose Gill Sans :


Font
Droopy
Gill Sans
Gill Sans Bold Italic 10-1
Gill Sans Bold Italic 10-2
Gill Sans Bold Italic 12-1
Gill Sans Bold Italic 12-2
Gill Sans Bold Italic 14-1
Gill Sans Bold Italic 14-2
Éjecter
Bureau
Annuler
Ouvrir

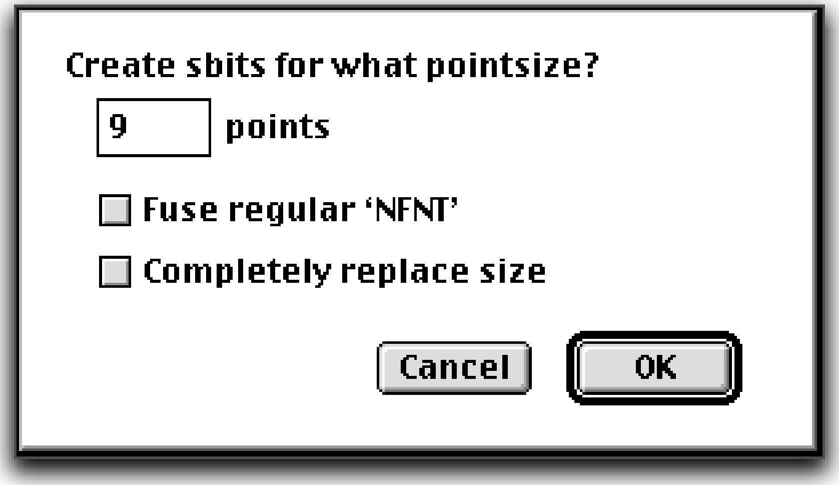
Select Gill Sans Bold Italic since it’s the one you are doing now :



Select a font from this suitcase:

- Gill Sans Bold Italic
- Gill Sans
- Gill Sans Italic
- Gill Sans Bold
- Gill Sans Light Italic
- Gill Sans Light

And then, choose a size and press OK.



Create sbits for what pointsize?

9 points

□ Fuse regular 'NFNT'

□ Completely replace size

You will have to do this another 5 times for the other 5 sizes.

Finally, open the font with TrueEdit to check that everything went well.

There are new tables :

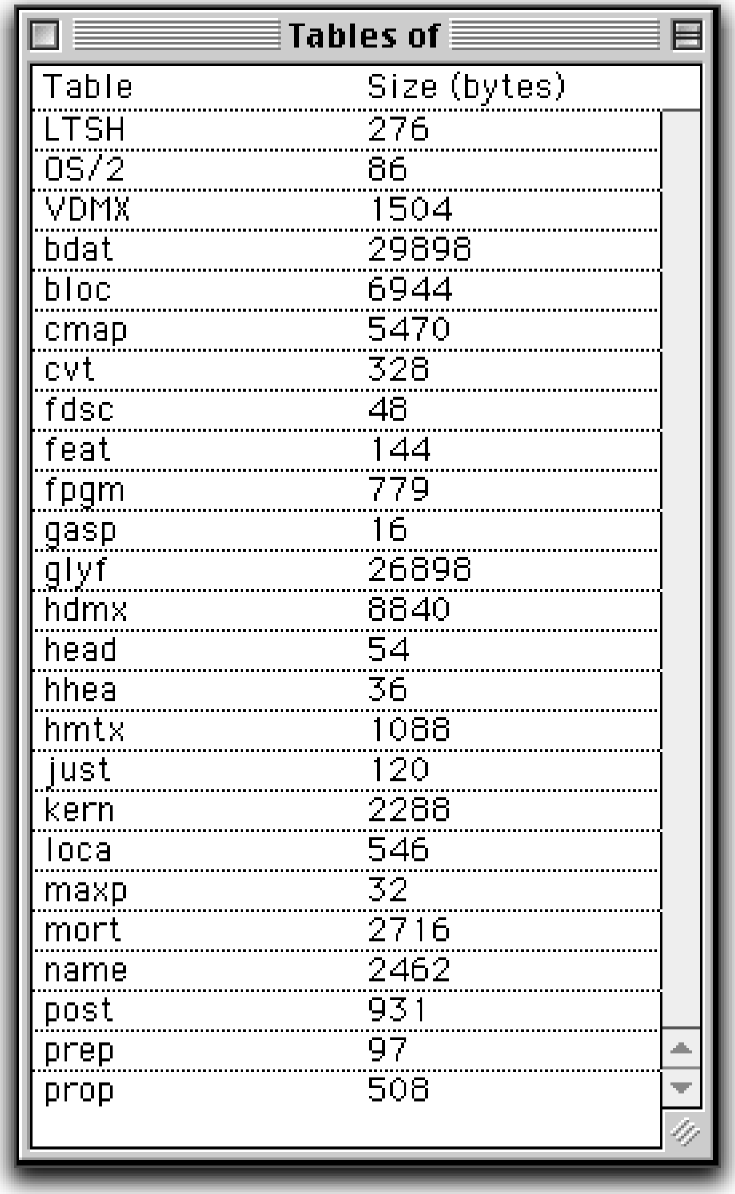
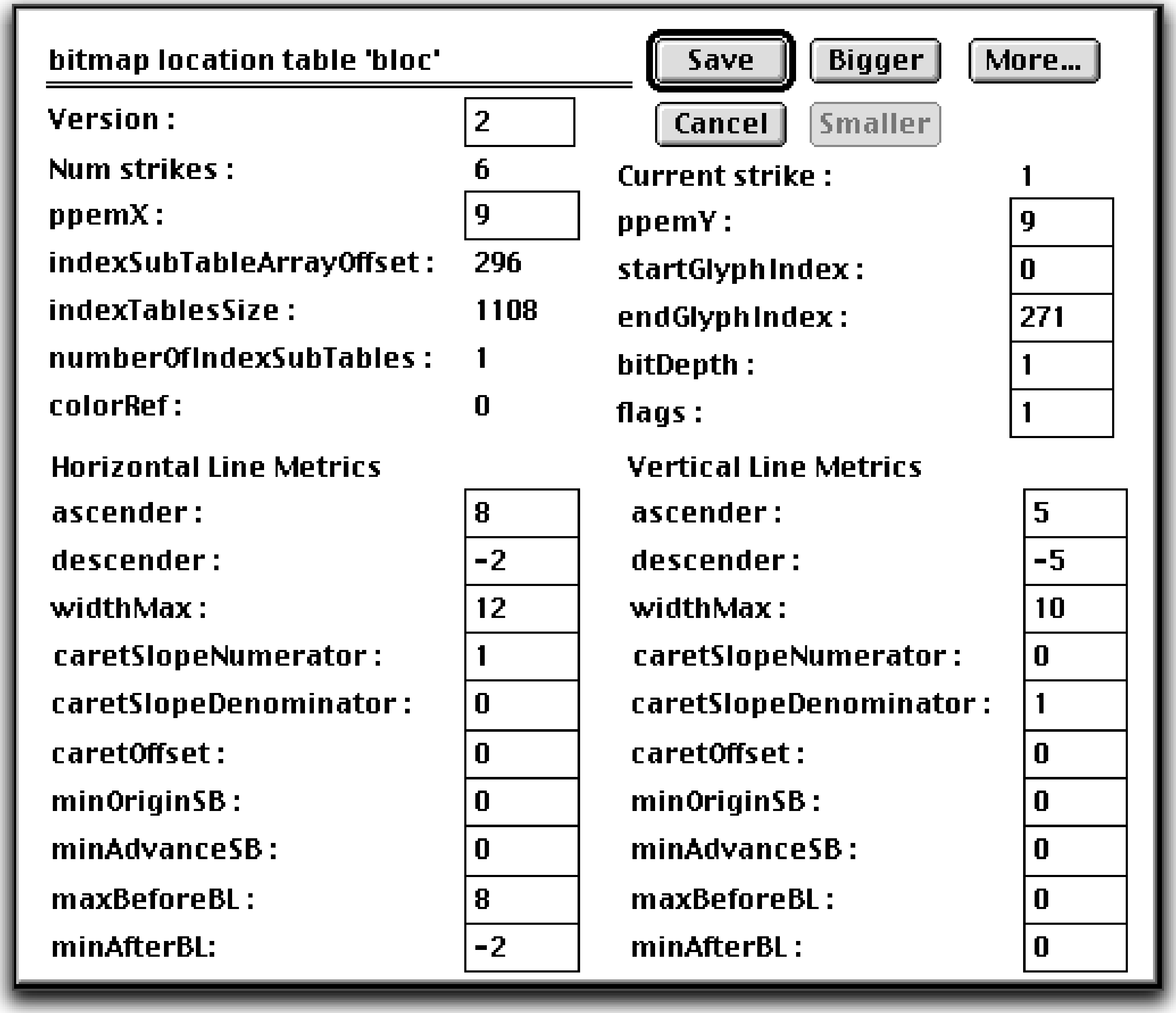


Table	Size (bytes)
LTSH	276
OS/2	86
VDMX	1504
bdat	29898
bloc	6944
cmap	5470
cvt	328
fdsc	48
feat	144
fpgm	779
gasp	16
glyf	26898
hdmx	8840
head	54
hhea	36
hmtx	1088
just	120
kern	2288
loca	546
maxp	32
mort	2716
name	2462
post	931
prep	97
prop	508

Open the `bloc` table. With the buttons labelled `Smaller` and `Bigger` you can navigate through the sizes (the size is in the field labelled `ppemX`).



bitmap location table 'bloc'

Version :	2		
Num strikes :	6	Current strike :	1
ppemX :	9	ppemY :	9
indexSubTableArrayOffset :	296	startGlyphIndex :	0
indexTablesSize :	1108	endGlyphIndex :	271
numberOfIndexSubTables :	1	bitDepth :	1
colorRef :	0	flags :	1

Horizontal Line Metrics		Vertical Line Metrics	
ascender :	8	ascender :	5
descender :	-2	descender :	-5
widthMax :	12	widthMax :	10
caretSlopeNumerator :	1	caretSlopeNumerator :	0
caretSlopeDenominator :	0	caretSlopeDenominator :	1
caretOffset :	0	caretOffset :	0
minOriginSB :	0	minOriginSB :	0
minAdvanceSB :	0	minAdvanceSB :	0
maxBeforeBL :	8	maxBeforeBL :	0
minAfterBL:	-2	minAfterBL :	0

Check that the six sizes are present and that for each size, the `maxBeforeBL` and `minAfterBL` fields are not 0. If you have 0, copy what you will find in the `ascender` and `descender` fields respectively[3].

You can trash the 12 files created by Fissioner now and repeat the process with the five other fonts in the suitcase (we only need 4 fonts to build the Gill Sans Newton package, the two others, Gill Sans Light and Gill Sans Light Italic, are for the Gill Sans Light Newton package).

I suggest doing backups everytime bitmaps for a font have been successfully included back in the font. Fissioner and Fuser aren't very stable and sometimes, they may damage your font. Typically, the font will only include 3 sizes out of six although you did include all the sizes. Or these tools may crash Classic. You probably don't want to start all over again this boring process. Sometimes, doing bitmaps in the descending order of sizes helps.

[3] The `maxBeforeBL` and `minAfterBL` fields were not used in earlier versions of MacOS, but they are used by NewtonOS.

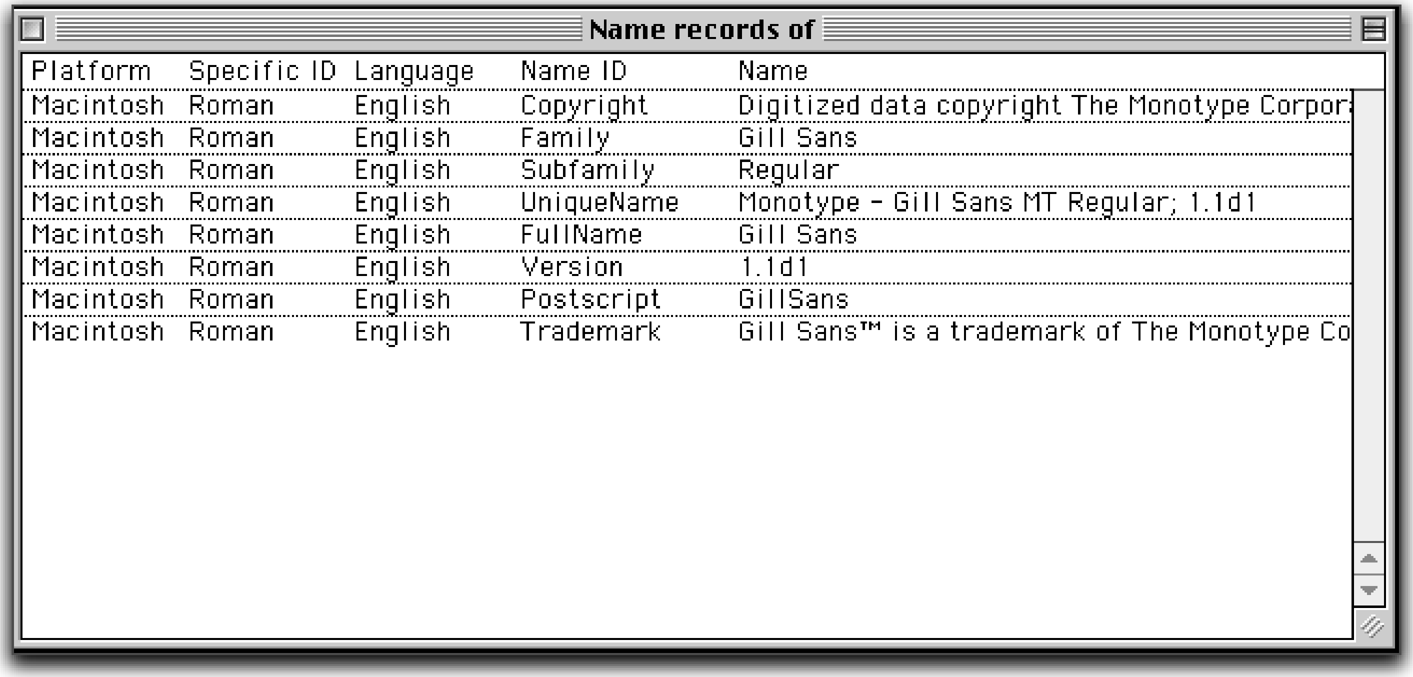
7 Cleaning the fonts

The next step is to remove every bit of the fonts NewtonOS won't need. I suggest doing a backup before as there is no way to recover a table you would have accidently deleted.

Open each font of the suitcase with TrueEdit and delete all tables except:

- `bdat`
- `bloc`
- `cmap`
- `head`
- `hhea`
- `hmtx`
- `maxp`
- `name`

Then open the `cmap` table and delete every row except the Unicode one. Open the name table and delete every row except the English ones where the Name ID is not a number (this means keeping the 8 or 9 rows that have one of the following Name IDs : Copyright, Family, Subfamily, UniqueName, FullName, Version, Postscript, Trademark, Manufacturer)[4].



Name records of

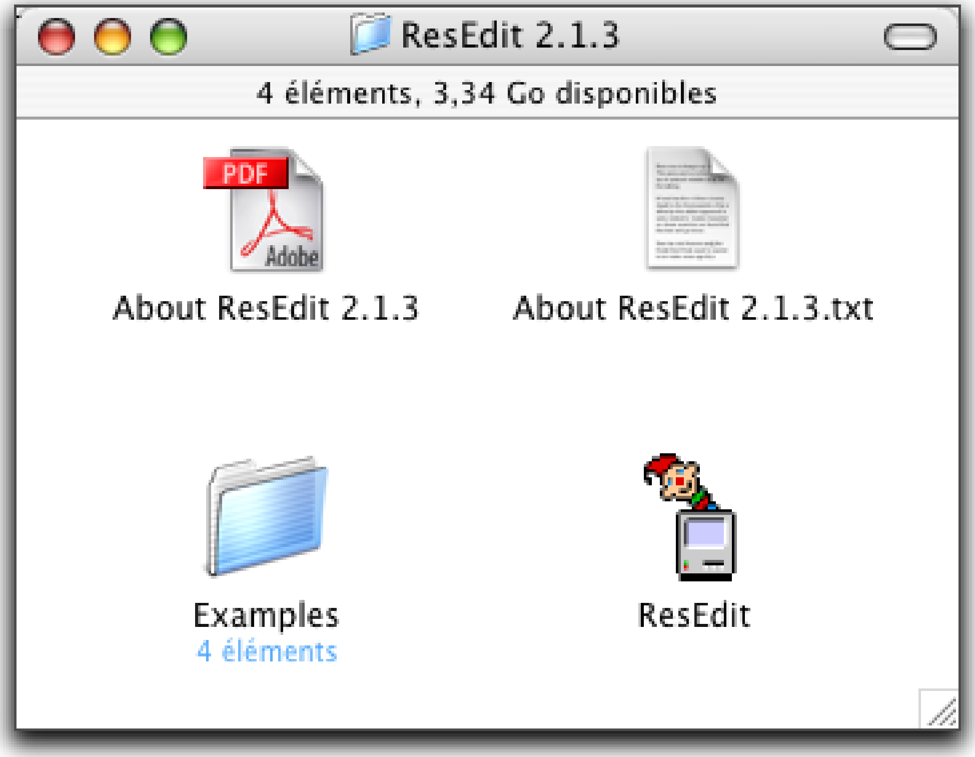
Platform	Specific ID	Language	Name ID	Name
Macintosh	Roman	English	Copyright	Digitized data copyright The Monotype Corpor
Macintosh	Roman	English	Family	Gill Sans
Macintosh	Roman	English	Subfamily	Regular
Macintosh	Roman	English	UniqueName	Monotype - Gill Sans MT Regular; 1.1d1
Macintosh	Roman	English	FullName	Gill Sans
Macintosh	Roman	English	Version	1.1d1
Macintosh	Roman	English	Postscript	GillSans
Macintosh	Roman	English	Trademark	Gill Sans™ is a trademark of The Monotype Co

[4] Some documentation mention that NewtonOS does not use the `name` table, while others mention that one must keep it for NewtonOS

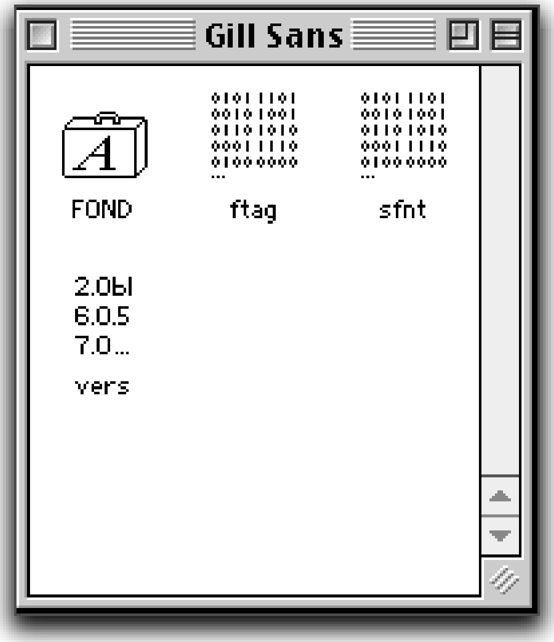
Write the PostScript and the copyright down or copy them to a text file, you will need them when building the package.

8 Getting the Macintosh Font ID and the Resource IDs

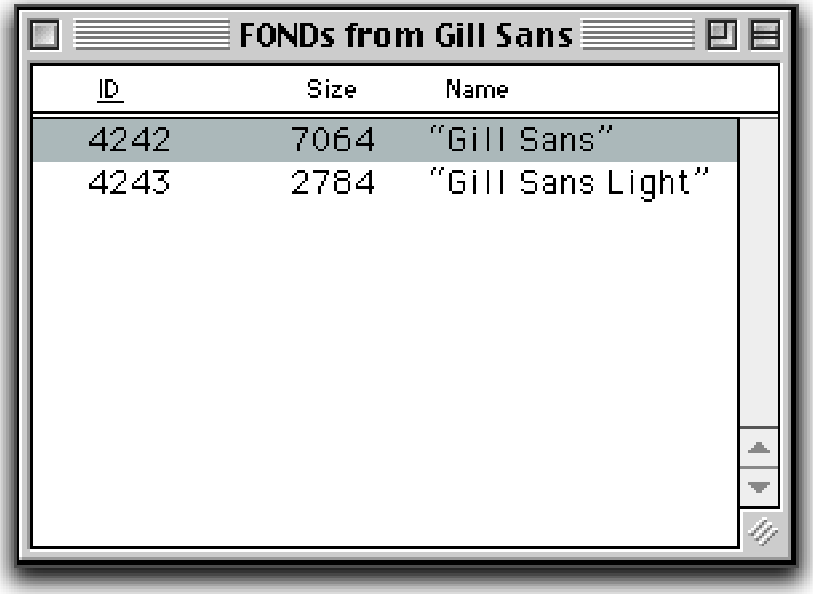
If a font is still open in TrueEdit, close it. Then open the suitcase with ResEdit.



Double-click on the FOND icon.

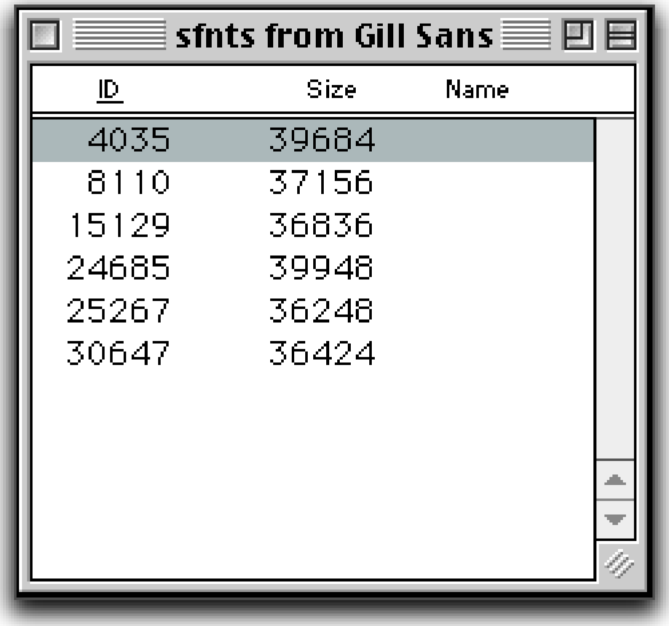


There is one resource (one line) per font family, hence Gill Sans suitcase has two lines (one for Gill Sans and one for Gill Sans Light). Gill Sans family ID is 4242 and Gill Sans Light family ID is 4243.


FONDs from Gill Sans

ID	Size	Name
4242	7064	"Gill Sans"
4243	2784	"Gill Sans Light"

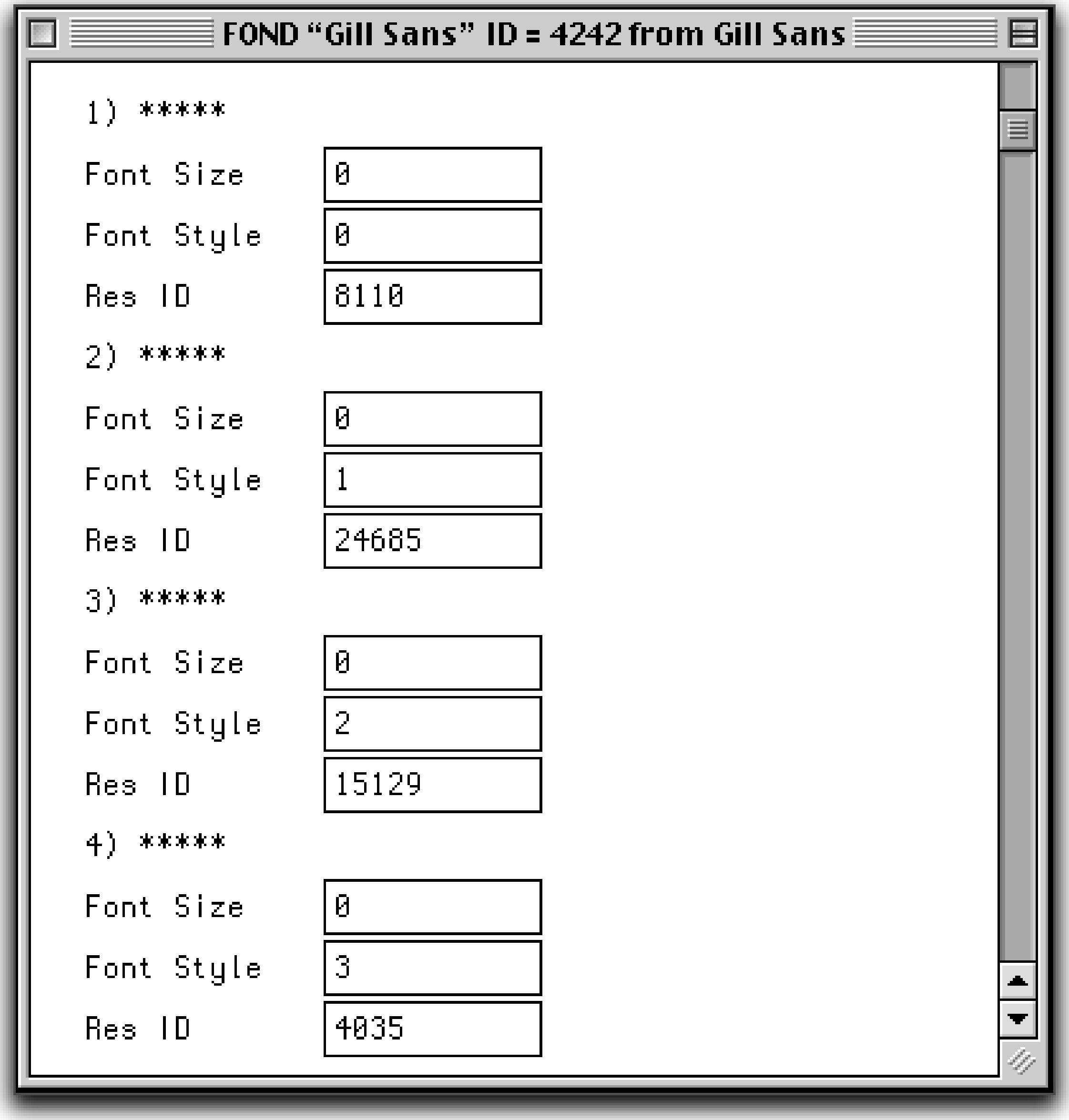
You need to identify the sfnt resources for NTK. Double-click on the sfnt icon. Some fonts have sfnt resources with names. This is not the case with Gill Sans :



sfnts from Gill Sans

ID	Size	Name
4035	39684	
8110	37156	
15129	36836	
24685	39948	
25267	36248	
30647	36424	

To identify the resources, open the FOND resource and scroll down to the Font entries :



FOND “Gill Sans” ID = 4242 from Gill Sans

```
1) *****
Font Size      0
Font Style     0
Res ID         8110
2) *****
Font Size      0
Font Style     1
Res ID         24685
3) *****
Font Size      0
Font Style     2
Res ID         15129
4) *****
Font Size      0
Font Style     3
Res ID         4035
```

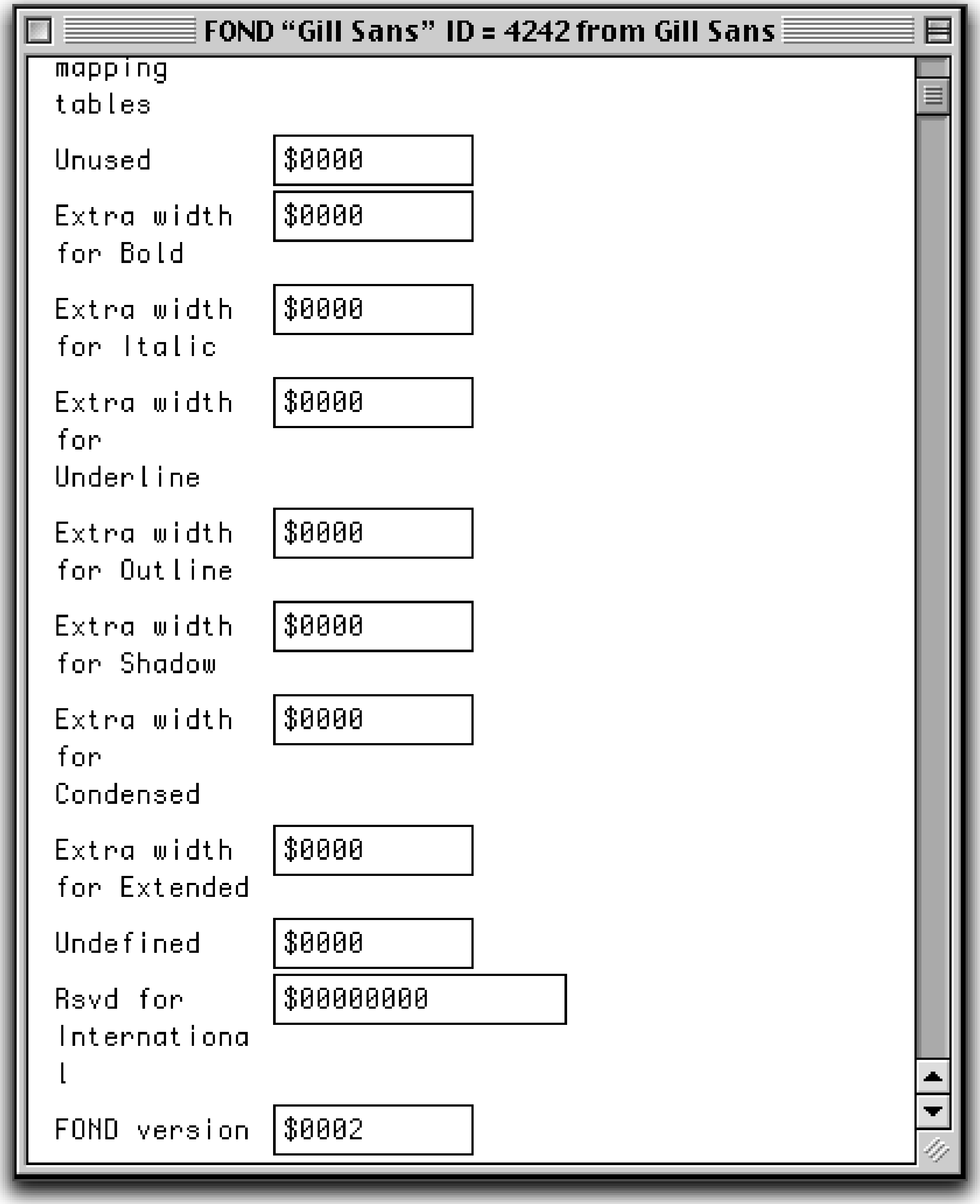
The Gill Sans `FOND` resource has 4 font entries. The `Font Style` field determines the face of the font. 0 is plain, 1 is bold, 2 is italic and 3 is bold italic (the only four styles handled in Newton fonts).

Hence, in Gill Sans, `sfnt #8110` is Gill Sans Plain, `sfnt #24685` is Gill Sans Bold, `sfnt #15129` is Gill Sans Italic and `snft #4035` is Gill Sans Bold Italic.

9 Building the hsty table

NewtonOS uses a specific table of type `hsty` (Horizontal Style) to print properly on LaserWriter printers when the font style is not available.

While the FOND resource is open in ResEdit, scroll up to see the `Extra width for *` fields.



FOND “Gill Sans” ID = 4242 from Gill Sans

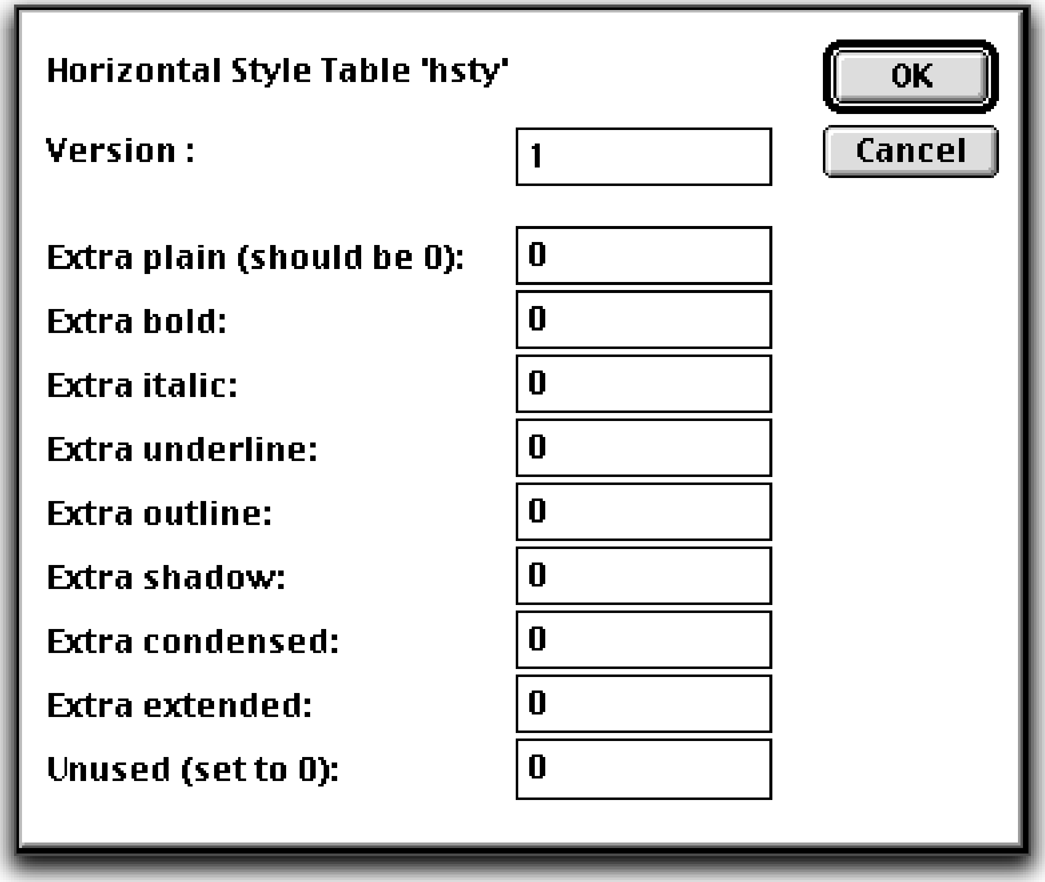
mapping tables

Unused	$0000
Extra width for Bold	$0000
Extra width for Italic	$0000
Extra width for Underline	$0000
Extra width for Outline	$0000
Extra width for Shadow	$0000
Extra width for Condensed	$0000
Extra width for Extended	$0000
Undefined	$0000
Rsvd for International	$00000000
FOND version	$0002

The values are all zeroes for Gill Sans and Gill Sans Light. The Horizontal Style table should contain these values scaled by the unit used in the `htmx` (Horizontal Metrix) table. However, I don’t know how to scale these values exactly, unless they are zeroes.

Close the suitcase in ResEdit.

If you have zeroes, you can create the `hsty` table in every font with TrueEdit. Choose `New Table` from the `File` menu and select `horizontal style` at the bottom of the `Tag` popup. The values are already filled with zeroes.



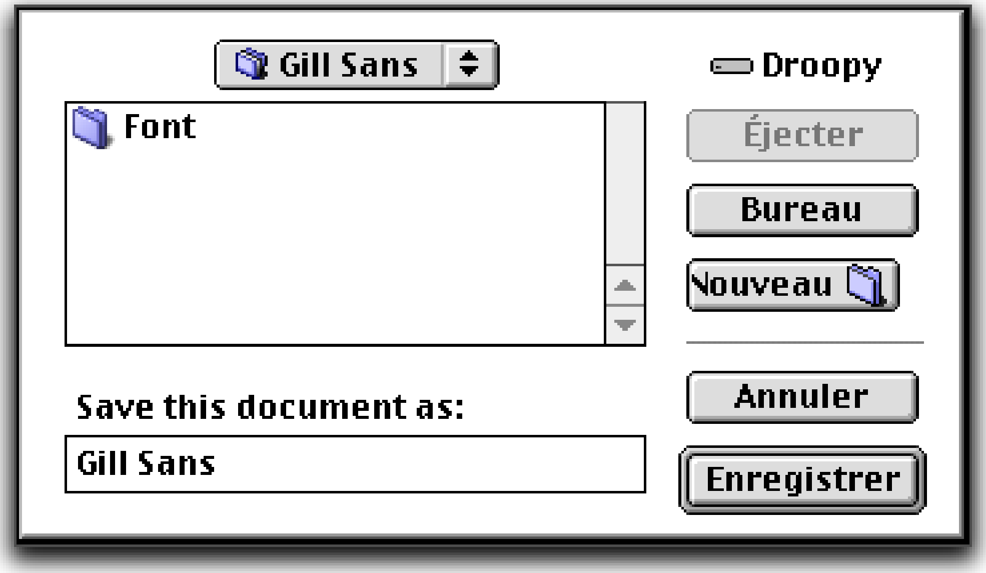
Horizontal Style Table 'hsty'

Version :	1
Extra plain (should be 0):	0
Extra bold:	0
Extra italic:	0
Extra underline:	0
Extra outline:	0
Extra shadow:	0
Extra condensed:	0
Extra extended:	0
Unused (set to 0):	0

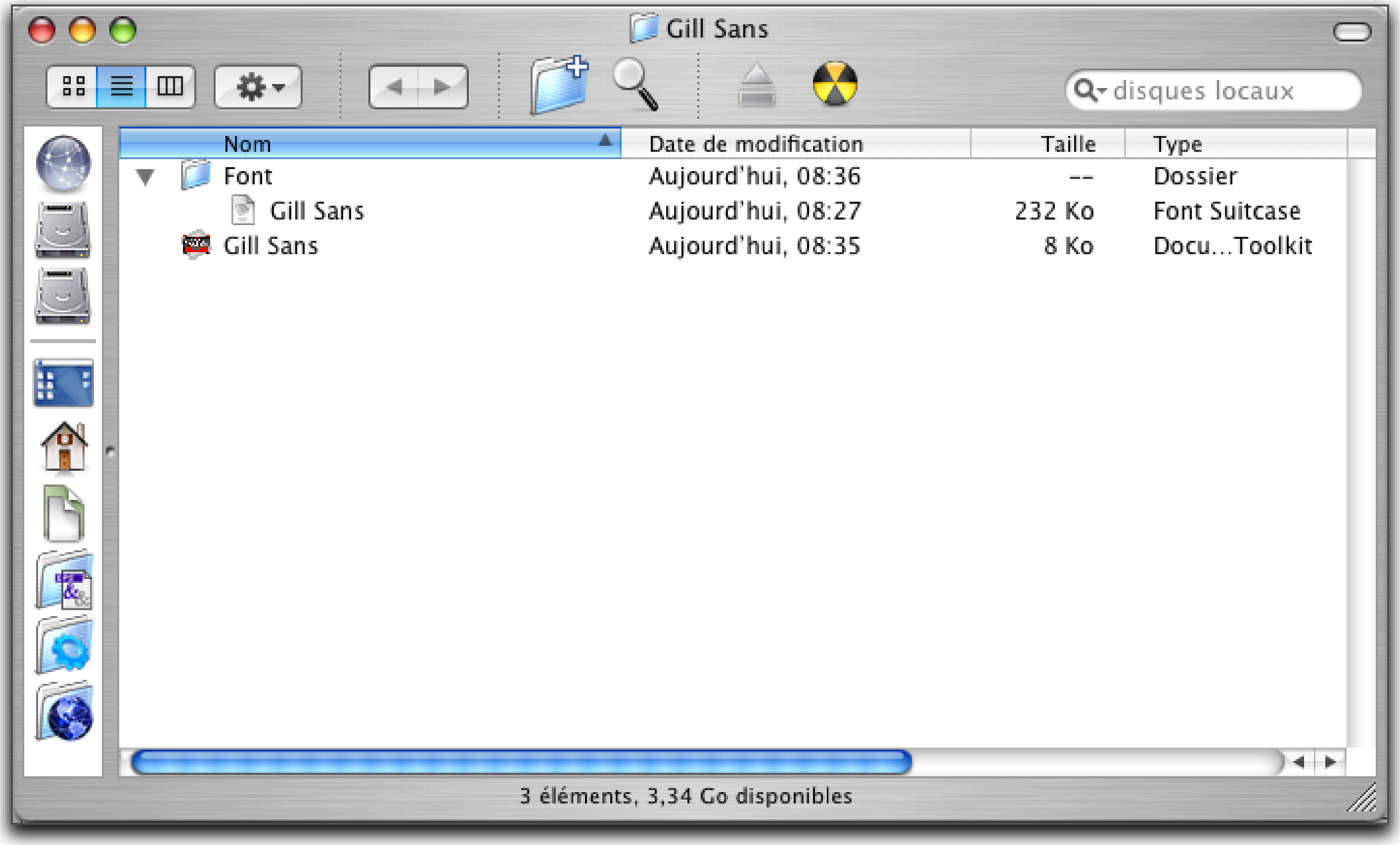
Note : this table is optional and is only used for printing.

10 Building the Newton Package

Start NTK. Click cancel in the Open File dialog that appears and create a new project from the `Project` menu. Call it Gill Sans and put it in the Gill Sans folder.



Save this document as: Gill Sans

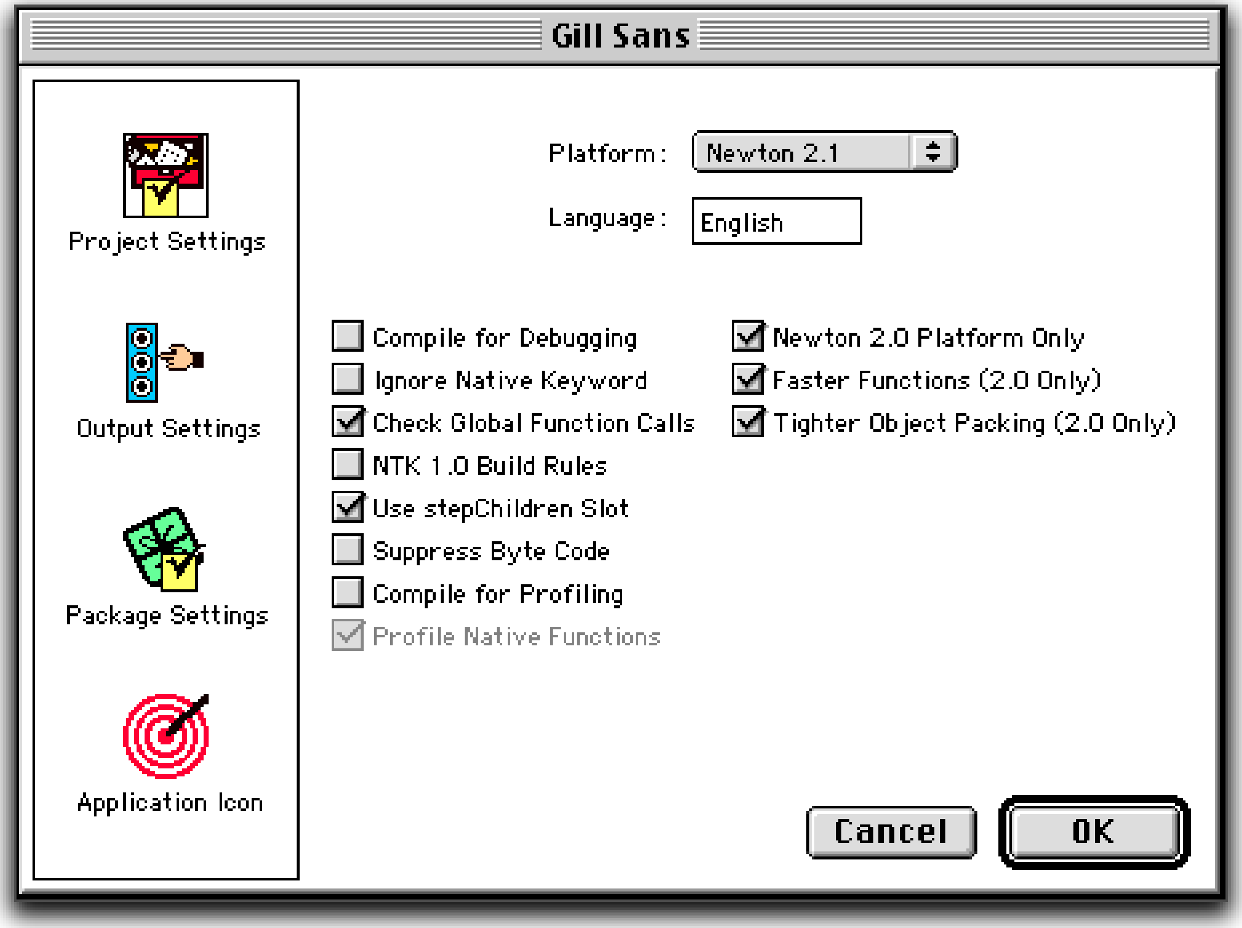


Nom	Date de modification	Taille	Type
▼ Font	Aujourd'hui, 08:36	--	Dossier
Gill Sans	Aujourd'hui, 08:27	232 Ko	Font Suitcase
Gill Sans	Aujourd'hui, 08:35	8 Ko	Docu…Toolkit

3 éléments, 3,34 Go disponibles

Set the Project settings (from the `Project` menu) as follows:

- in the `Project Settings` pane :
  - Uncheck `Compile for debugging`
  - Check Newton 2.0 platform only if you want to install the font on a Newton with NewtonOS 2.x.

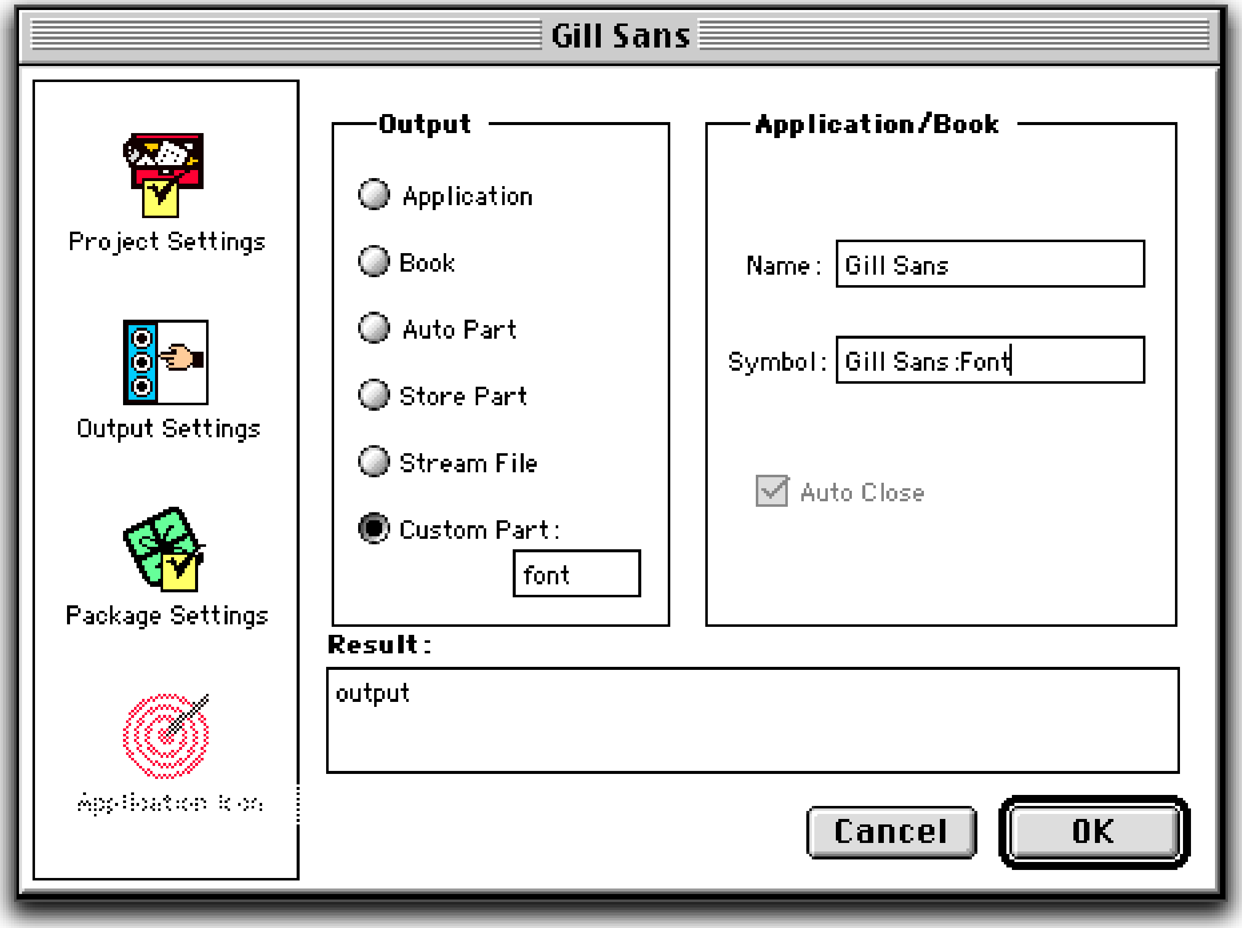


Platform : Newton 2.1

Language : English

☐ Compile for Debugging
☐ Ignore Native Keyword
☑ Check Global Function Calls
☐ NTK 1.0 Build Rules
☑ Use stepChildren Slot
☐ Suppress Byte Code
☐ Compile for Profiling
☑ Profile Native Functions
☑ Newton 2.0 Platform Only
☑ Faster Functions (2.0 Only)
☑ Tighter Object Packing (2.0 Only)

- in the `Output Settings` pane :
  - Click `Custom Part:` and enter `font` in it.
  - Put `output` in the `Result` field.
  - Set the symbol to `Gill Sans:Font`.



Output

○ Application

○ Book

○ Auto Part

○ Store Part

○ Stream File

● Custom Part: font

Application/Book

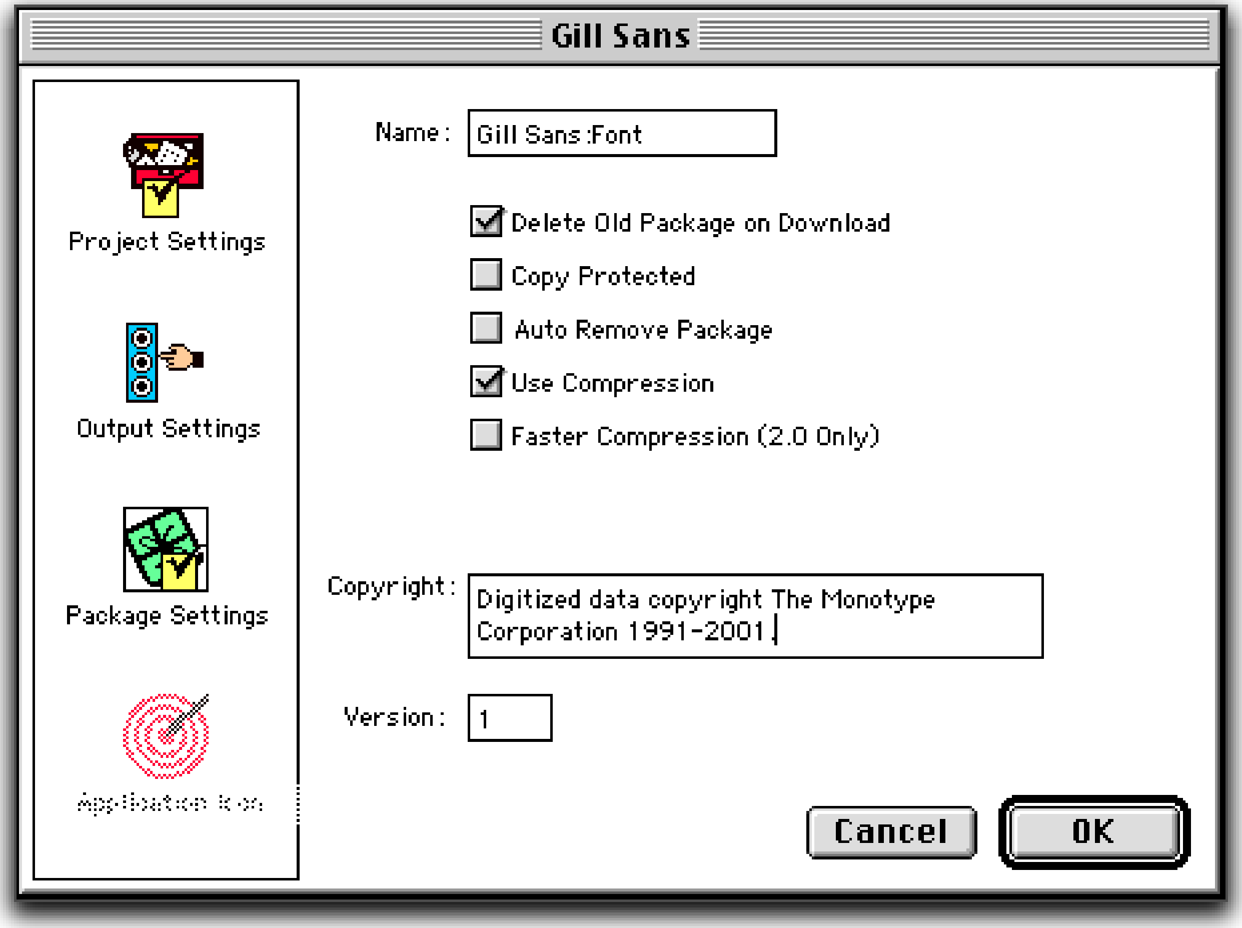
Name: Gill Sans

Symbol: Gill Sans:Font

☑ Auto Close

Result: output

- in the `Package Settings` pane :
  - Set the name to `Gill Sans:Font`
  - Check `Use Compression`
  - Uncheck `Faster Compression`
  - Set the `Copyright` field to the (beginning of the) Copyright string of the font that you read in the name table in TrueEdit.



Name: Gill Sans:Font

☑ Delete Old Package on Download

☐ Copy Protected

☐ Auto Remove Package

☑ Use Compression

☐ Faster Compression (2.0 Only)

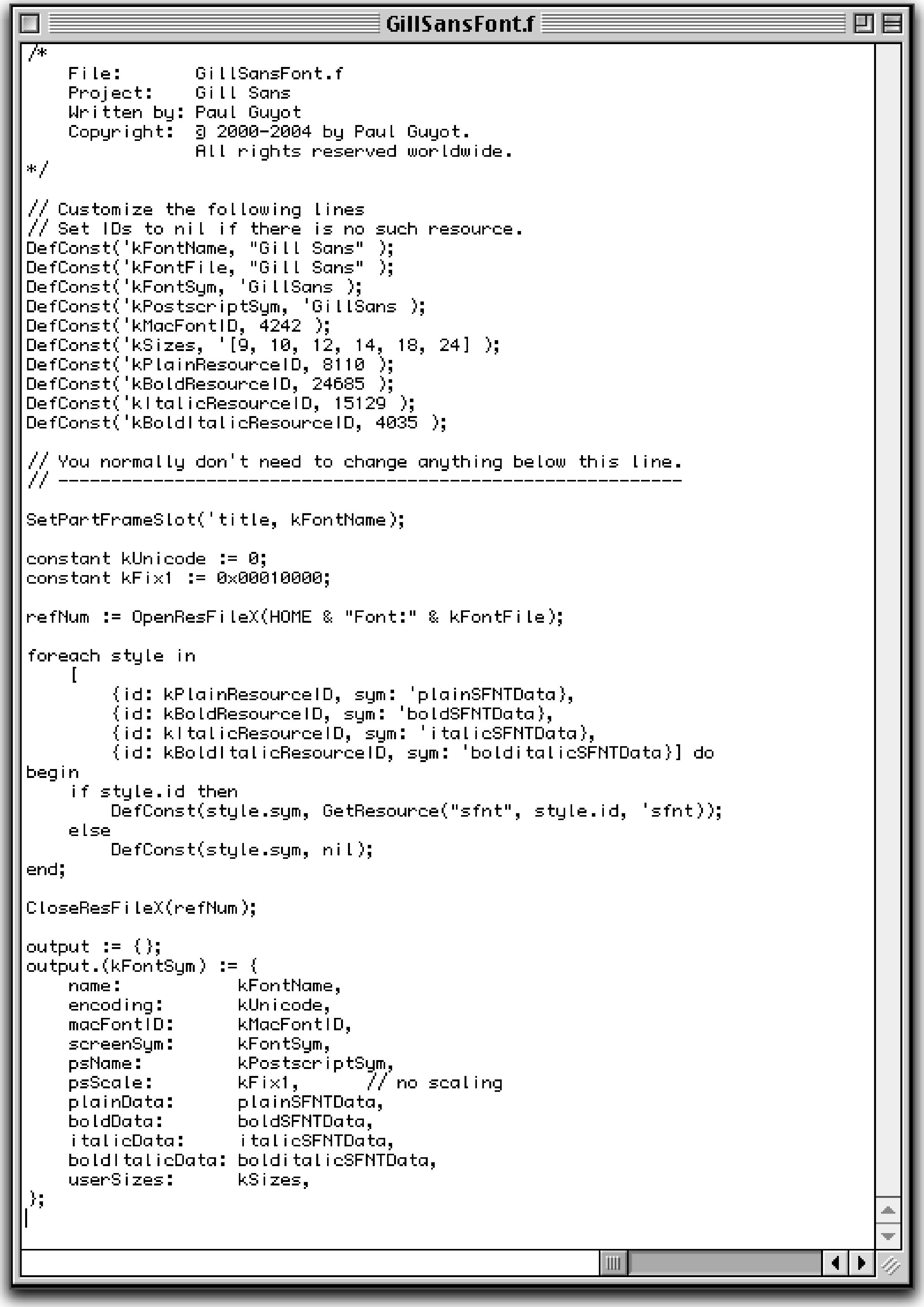
Copyright: Digitized data copyright The Monotype Corporation 1991-2001

Version: 1

Create a new text file in NTK from the File menu. Write the following content:

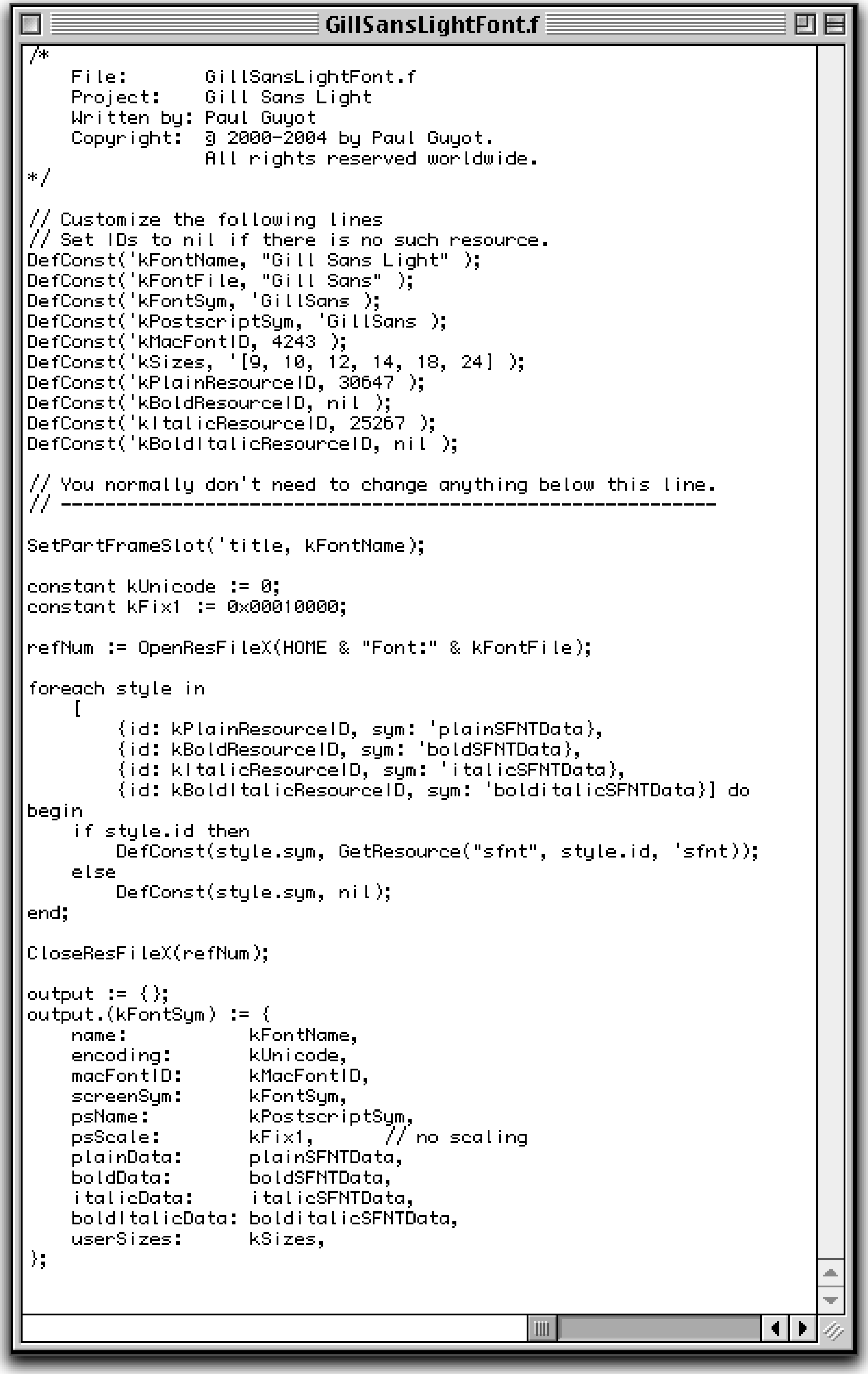
```
/*
    File:        GillSansFont.f
    Project:     Gill Sans
    Written by:  Paul Guyot
    Copyright:   © 2000-2004 by Paul Guyot.
                 All rights reserved worldwide.
*/

// Customize the following lines
// Set IDs to nil if there is no such resource.
DefConst('kFontName, "Gill Sans" );
DefConst('kFontFile, "Gill Sans" );
DefConst('kFontSym, 'GillSans );
DefConst('kMacFontID, 4242 );
DefConst('kSizes, '[9, 10, 12, 14, 18, 24] );
DefConst('kPlainResourceID, 8110 );
DefConst('kBoldResourceID, 24685 );
DefConst('kItalicResourceID, 15129 );
DefConst('kBoldItalicResourceID, 4035 );

// You normally don't need to change anything below this line.
// -----------------------------------------------------------

SetPartFrameSlot('title, kFontName);

constant kUnicode := 0;
constant kFix1 := 0x00010000;

refNum := OpenResFileX(HOME & "Font:" & kFontFile);

foreach style in
    [
        {id: kPlainResourceID, sym: 'plainSFNTData},
        {id: kBoldResourceID, sym: 'boldSFNTData},
        {id: kItalicResourceID, sym: 'italicSFNTData},
        {id: kBoldItalicResourceID, sym: 'bolditalicSFNTData}] do
begin
    if style.id then
        DefConst(style.sym, GetResource("sfnt", style.id, 'sfnt));
    else
        DefConst(style.sym, nil);
end;

CloseResFileX(refNum);

output := {};
output.(kFontSym) := {
    name:           kFontName,
    encoding:       kUnicode,
    macFontID:      kMacFontID,
    screenSym:      kFontSym,
    psName:         kFontSym,
    psScale:        kFix1,        // no scaling
    plainData:      plainSFNTData,
    boldData:       boldSFNTData,
    italicData:     italicSFNTData,
    boldItalicData: bolditalicSFNTData,
    userSizes:      kSizes,
};
```

Save it as GillSansFont.f



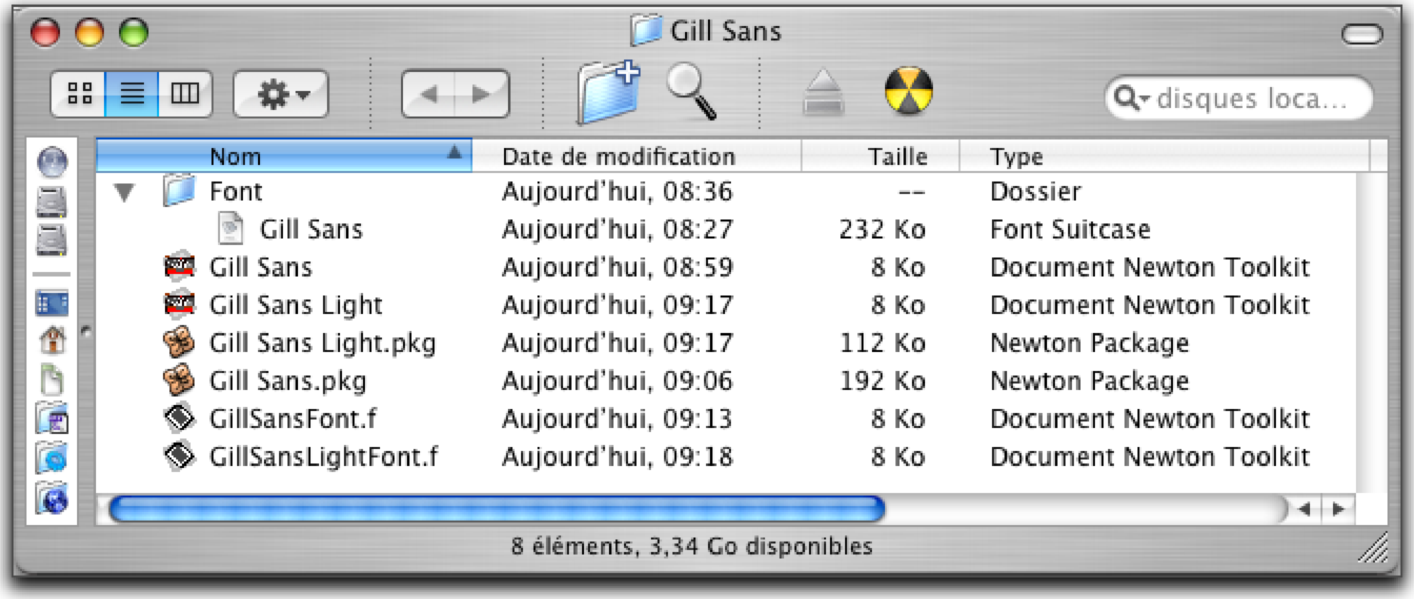
```
/*
    File:       GillSansFont.f
    Project:    Gill Sans
    Written by: Paul Guyot
    Copyright:  © 2000-2004 by Paul Guyot.
                All rights reserved worldwide.
*/

// Customize the following lines
// Set IDs to nil if there is no such resource.
DefConst('kFontName, "Gill Sans" );
DefConst('kFontFile, "Gill Sans" );
DefConst('kFontSym, 'GillSans );
DefConst('kPostscriptSym, 'GillSans );
DefConst('kMacFontID, 4242 );
DefConst('kSizes, '[9, 10, 12, 14, 18, 24] );
DefConst('kPlainResourceID, 8110 );
DefConst('kBoldResourceID, 24685 );
DefConst('kItalicResourceID, 15129 );
DefConst('kBoldItalicResourceID, 4035 );

// You normally don't need to change anything below this line.
// -----------------------------------------------------------

SetPartFrameSlot('title, kFontName);

constant kUnicode := 0;
constant kFix1 := 0x00010000;

refNum := OpenResFileX(HOME & "Font:" & kFontFile);

foreach style in
    [
        {id: kPlainResourceID, sym: 'plainSFNTData},
        {id: kBoldResourceID, sym: 'boldSFNTData},
        {id: kItalicResourceID, sym: 'italicSFNTData},
        {id: kBoldItalicResourceID, sym: 'bolditalicSFNTData}] do
begin
    if style.id then
        DefConst(style.sym, GetResource("sfnt", style.id, 'sfnt));
    else
        DefConst(style.sym, nil);
end;

CloseResFileX(refNum);

output := {};
output.(kFontSym) := {
    name:           kFontName,
    encoding:       kUnicode,
    macFontID:      kMacFontID,
    screenSym:      kFontSym,
    psName:         kPostscriptSym,
    psScale:        kFix1,      // no scaling
    plainData:      plainSFNTData,
    boldData:       boldSFNTData,
    italicData:     italicSFNTData,
    boldItalicData: bolditalicSFNTData,
    userSizes:      kSizes,
};
```

Add the file to the project (with `Add GillSansFont.f` from the `Project` menu) and then build the package (with `Build Package` from the `Project` menu). Repeat this step for Gill Sans Light.



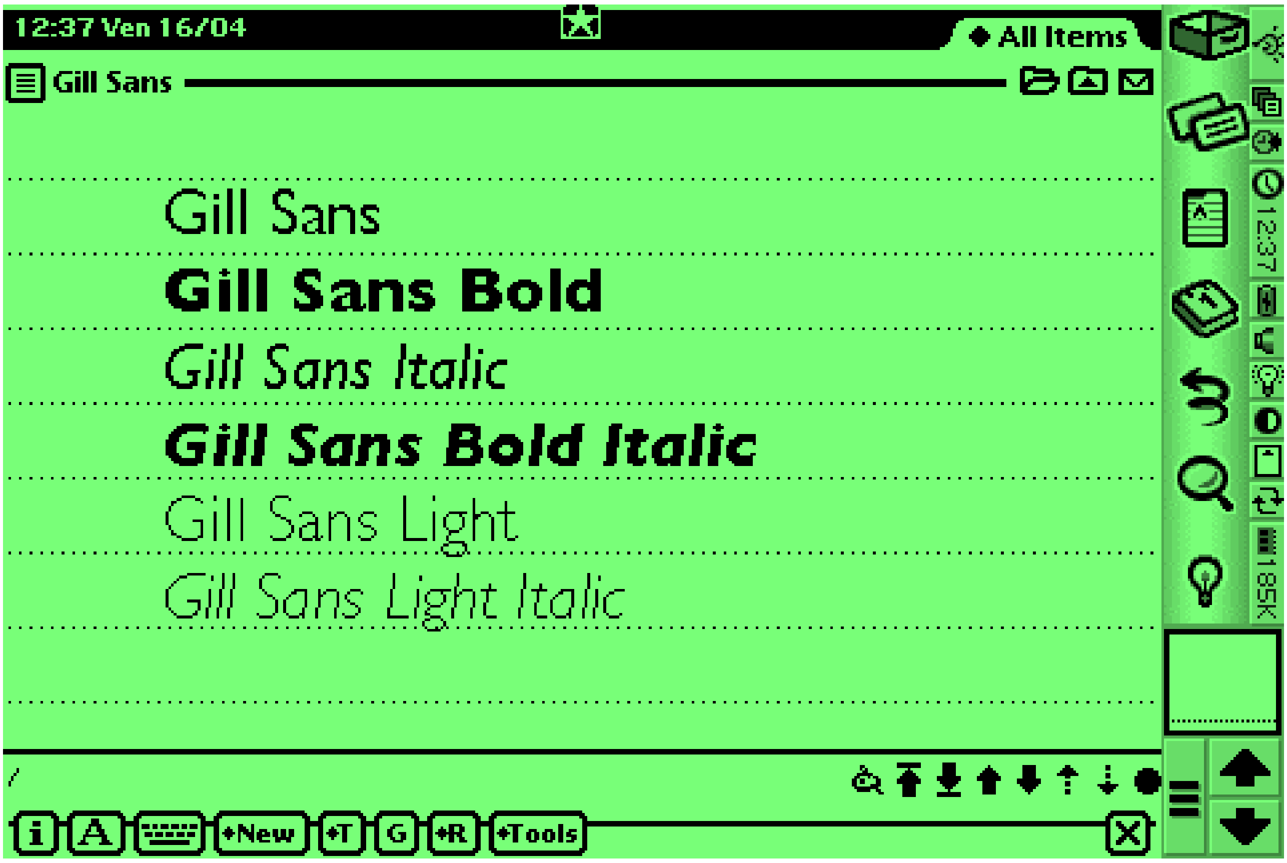
```
/*
    File:       GillSansLightFont.f
    Project:    Gill Sans Light
    Written by: Paul Guyot
    Copyright:  © 2000-2004 by Paul Guyot.
                All rights reserved worldwide.
*/

// Customize the following lines
// Set IDs to nil if there is no such resource.
DefConst('kFontName, "Gill Sans Light" );
DefConst('kFontFile, "Gill Sans" );
DefConst('kFontSym, 'GillSans );
DefConst('kPostscriptSym, 'GillSans );
DefConst('kMacFontID, 4243 );
DefConst('kSizes, '[9, 10, 12, 14, 18, 24] );
DefConst('kPlainResourceID, 30647 );
DefConst('kBoldResourceID, nil );
DefConst('kItalicResourceID, 25267 );
DefConst('kBoldItalicResourceID, nil );

// You normally don't need to change anything below this line.
// -----------------------------------------------------------

SetPartFrameSlot('title, kFontName);

constant kUnicode := 0;
constant kFix1 := 0x00010000;

refNum := OpenResFileX(HOME & "Font:" & kFontFile);

foreach style in
    [
        {id: kPlainResourceID, sym: 'plainSFNTData},
        {id: kBoldResourceID, sym: 'boldSFNTData},
        {id: kItalicResourceID, sym: 'italicSFNTData},
        {id: kBoldItalicResourceID, sym: 'bolditalicSFNTData}] do
begin
    if style.id then
        DefConst(style.sym, GetResource("sfnt", style.id, 'sfnt));
    else
        DefConst(style.sym, nil);
end;

CloseResFileX(refNum);

output := {};
output.(kFontSym) := {
    name:           kFontName,
    encoding:       kUnicode,
    macFontID:      kMacFontID,
    screenSym:      kFontSym,
    psName:         kPostscriptSym,
    psScale:        kFix1,      // no scaling
    plainData:      plainSFNTData,
    boldData:       boldSFNTData,
    italicData:     italicSFNTData,
    boldItalicData: bolditalicSFNTData,
    userSizes:      kSizes,
};
```

Voilà.



Nom	Date de modification	Taille	Type
Font	Aujourd'hui, 08:36	--	Dossier
Gill Sans	Aujourd'hui, 08:27	232 Ko	Font Suitcase
Gill Sans	Aujourd'hui, 08:59	8 Ko	Document Newton Toolkit
Gill Sans Light	Aujourd'hui, 09:17	8 Ko	Document Newton Toolkit
Gill Sans Light.pkg	Aujourd'hui, 09:17	112 Ko	Newton Package
Gill Sans.pkg	Aujourd'hui, 09:06	192 Ko	Newton Package
GillSansFont.f	Aujourd'hui, 09:13	8 Ko	Document Newton Toolkit
GillSansLightFont.f	Aujourd'hui, 09:18	8 Ko	Document Newton Toolkit

8 éléments, 3,34 Go disponibles



Gill Sans

Gill Sans Bold

Gill Sans Italic

Gill Sans Bold Italic

Gill Sans Light

Gill Sans Light Italic

11 Notes

- A Newton font package actually can include several fonts, but this topic is not covered by this tutorial.

- Due to the lack of a PostScript printer, printing was not tested (including scaling). Most fonts do not print properly from the Newton on PostScript printers because the Newton does not download PostScript fonts to the PostScript printers before printing (and therefore the Newton Fonts do not include the Postscript fonts).
- NewtonOS only understands some formats of font tables and porting Asian fonts often fails.

12 Change History

- 14/04/2004 Initial version

13 Contact

Don't hesitate to send remarks, comments and questions to the author at `mailto:pguyot@kallisys.net`.