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(51) INT CL:
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(56) Documents Cited:
None

(58) Field of Search:
Other: **No search performed: Section 17(5)(b)**

(54) Title of the Invention: **Speed reading system and method**
Abstract Title: **Method of altering the appearance of digital text to increase reading speed**

(57) A method for handling texts when reproduced on a display is provided. In a first step, a digitized text that is to be reproduced is selected. In a second step, a software program is executed, which includes at least one rule for the setting of at least one distinction that is perceptible when reproduced on the display and is incorporated into the digitized text. The software program is used on the digitized text in order, in accordance with the rule, to make the at least one distinction in the text. The rules may be that of at least one frequency based rule and at least one distinction-type rule. The distinctions may be shown as semi bold font, bold font, extrabold font, negative font, different font size, font width, font style, capitalization, and underling or highlighting. The invention attempts to increase the speed at which a user can read text.

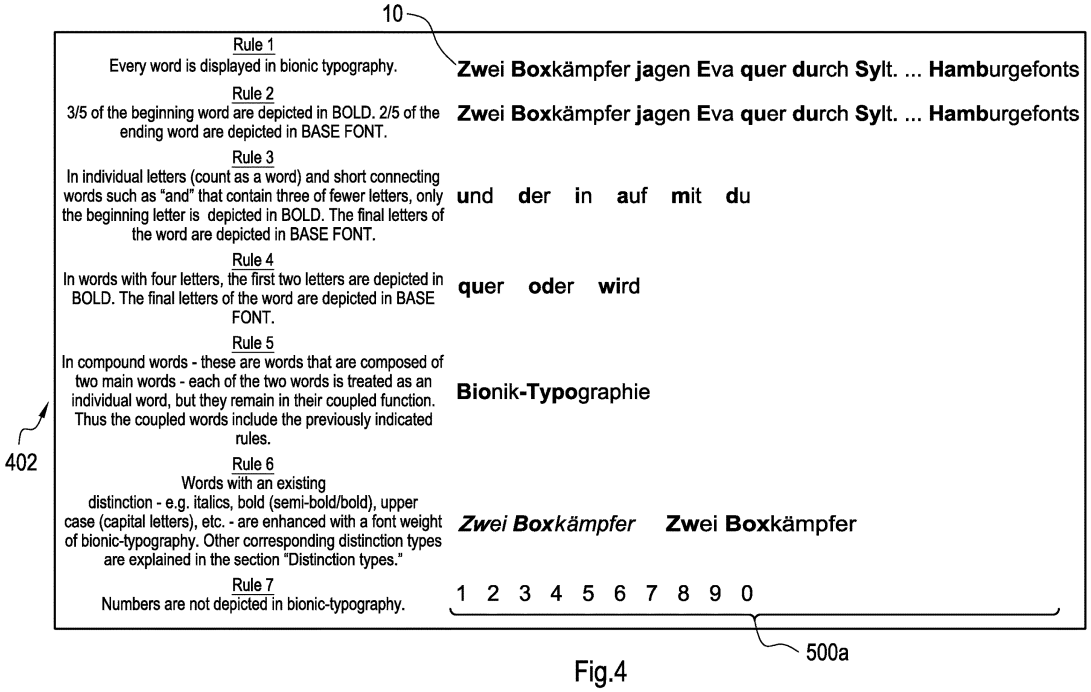


Fig.4

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

GB 2552586 A

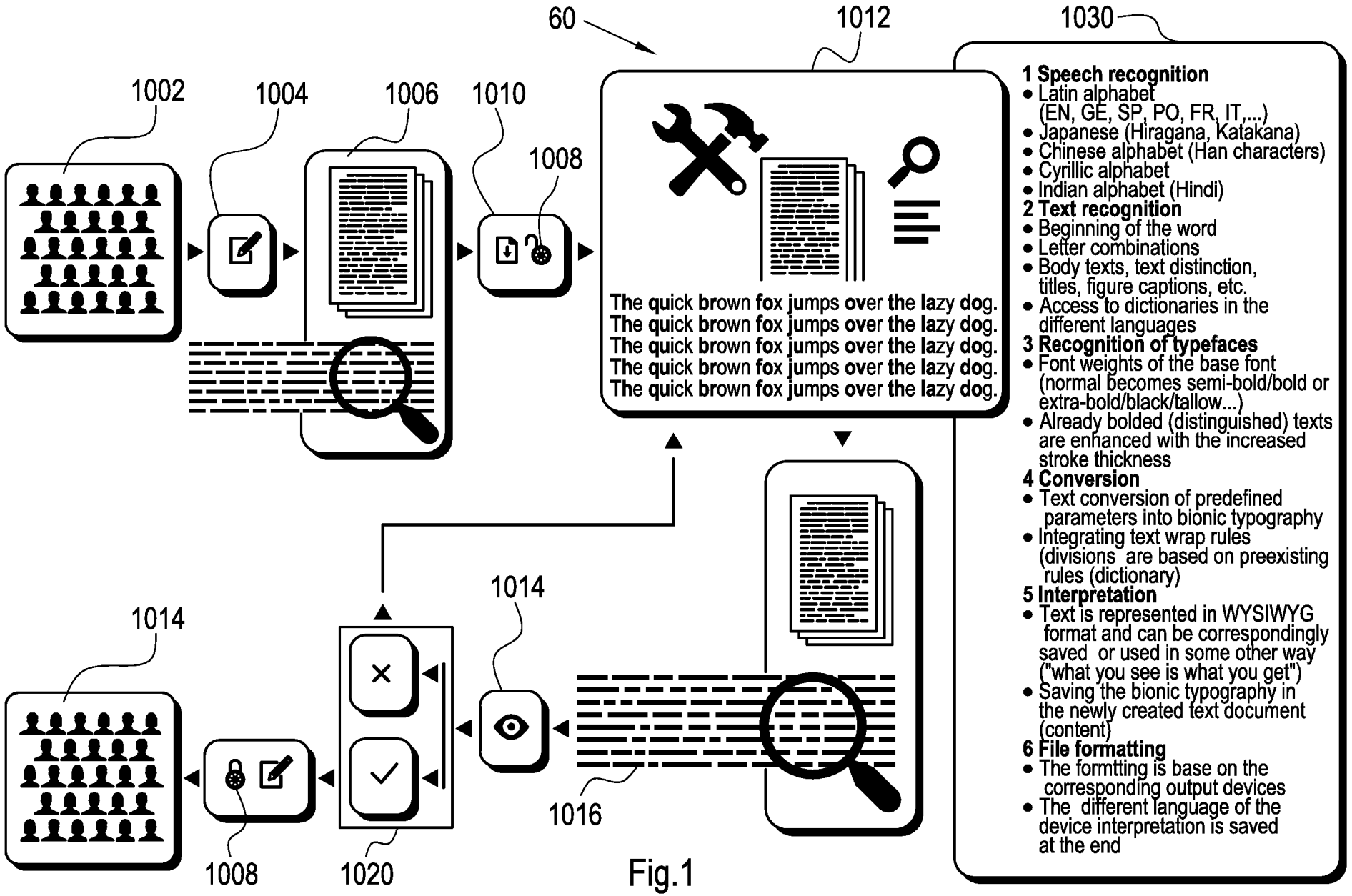

60
1012
1030
1002
1004
1006
1010
1008
The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.
The quick brown fox jumps over the lazy dog.
1 Speech recognition
• Latin alphabet (EN, GE, SP, PO, FR, IT,...)
• Japanese (Hiragana, Katakana)
• Chinese alphabet (Han characters)
• Cyrillic alphabet
• Indian alphabet (Hindi)
2 Text recognition
• Beginning of the word
• Letter combinations
• Body texts, text distinction, titles, figure captions, etc.
• Access to dictionaries in the different languages
3 Recognition of typefaces
• Font weights of the base font (normal becomes semi-bold/bold or extra-bold/black/tallow...)
• Already bolded (distinguished) texts are enhanced with the increased stroke thickness
4 Conversion
• Text conversion of predefined parameters into bionic typography
• Integrating text wrap rules (divisions are based on preexisting rules (dictionary)
5 Interpretation
• Text is represented in WYSIWYG format and can be correspondingly saved or used in some other way ("what you see is what you get")
• Saving the bionic typography in the newly created text document (content)
6 File formatting
• The formtting is base on the corresponding output devices
• The different language of the device interpretation is saved at the end
1014
1014
1016
1008
1020

Fig.1

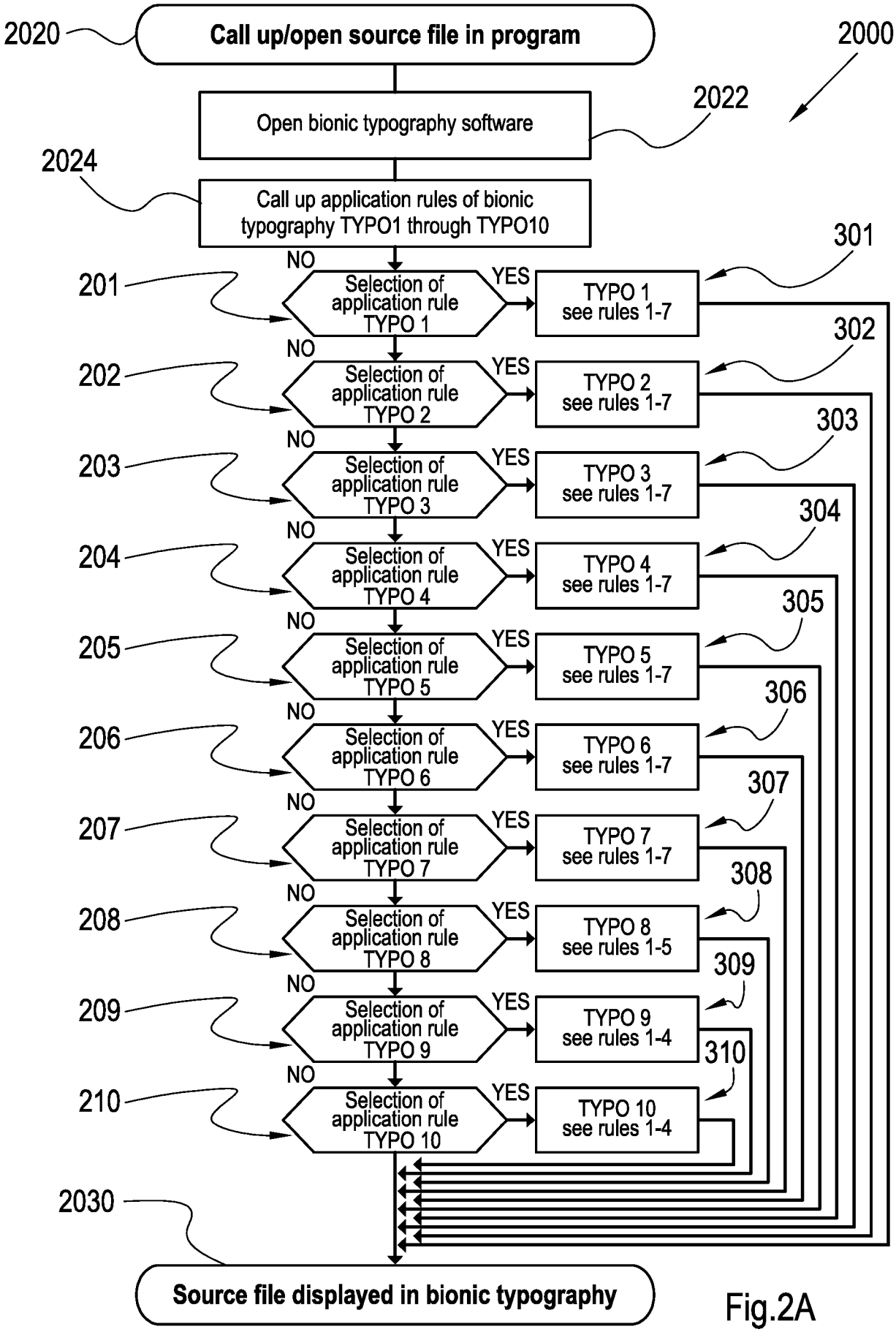

2020
Call up/open source file in program
2000
2022
Open bionic typography software
2024
Call up application rules of bionic typography TYPO1 through TYPO10
301
NO
201
Selection of application rule TYPO 1
YES
TYPO 1 see rules 1-7
302
NO
202
Selection of application rule TYPO 2
YES
TYPO 2 see rules 1-7
303
NO
203
Selection of application rule TYPO 3
YES
TYPO 3 see rules 1-7
304
NO
204
Selection of application rule TYPO 4
YES
TYPO 4 see rules 1-7
305
NO
205
Selection of application rule TYPO 5
YES
TYPO 5 see rules 1-7
306
NO
206
Selection of application rule TYPO 6
YES
TYPO 6 see rules 1-7
307
NO
207
Selection of application rule TYPO 7
YES
TYPO 7 see rules 1-7
308
NO
208
Selection of application rule TYPO 8
YES
TYPO 8 see rules 1-5
309
NO
209
Selection of application rule TYPO 9
YES
TYPO 9 see rules 1-4
310
NO
210
Selection of application rule TYPO 10
YES
TYPO 10 see rules 1-4
2030
Source file displayed in bionic typography

Fig.2A

50

52

401

Rule 1
Every word is displayed in bionic typography.
Rule 2
3/5 of the beginning word are depicted in BOLD. 2/5 of the ending word are depicted in BASE FONT.
Rule 3
In individual letters (count as a word) and short connecting words such as “and” that contain three of fewer letters, only the beginning letter is depicted in BOLD. The final letters of the word are depicted in BASE FONT.
Rule 4
In words with four letters, the first two letters are depicted in BOLD. The final letters of the word are depicted in BASE FONT.
Rule 5
In compound words – these are words that are composed of two main words – each of the two words is treated as an individual word, but they remain in their coupled function. Thus the coupled words include the previously indicated rules.
Rule 6
Words with an existing distinction - e.g. italics, bold (semi-bold/bold), upper case (capital letters), etc. – are enhanced with a font weight of „BIONIC“(TM)-typography. Other corresponding distinction types are explained in the section
Rule 7
Numbers are not depicted in „BIONIC“(TM)-typography.

Fig.2B

10

Zwei Boxkämpfer **jag**en Eva **que**r **dur**ch **Sy**lt. ... **Hamburg**efonts

Zwei Boxkämpfer **jag**en Eva **que**r **dur**ch **Sy**lt. ... **Hamburg**efonts

und der in auf mit du

quer oder wird

Bionik-Typographie

***Zwei Box**kämpfer* **Zwei Box**kämpfer

1 2 3 4 5 6 7 8 9 0

500

Fig.3

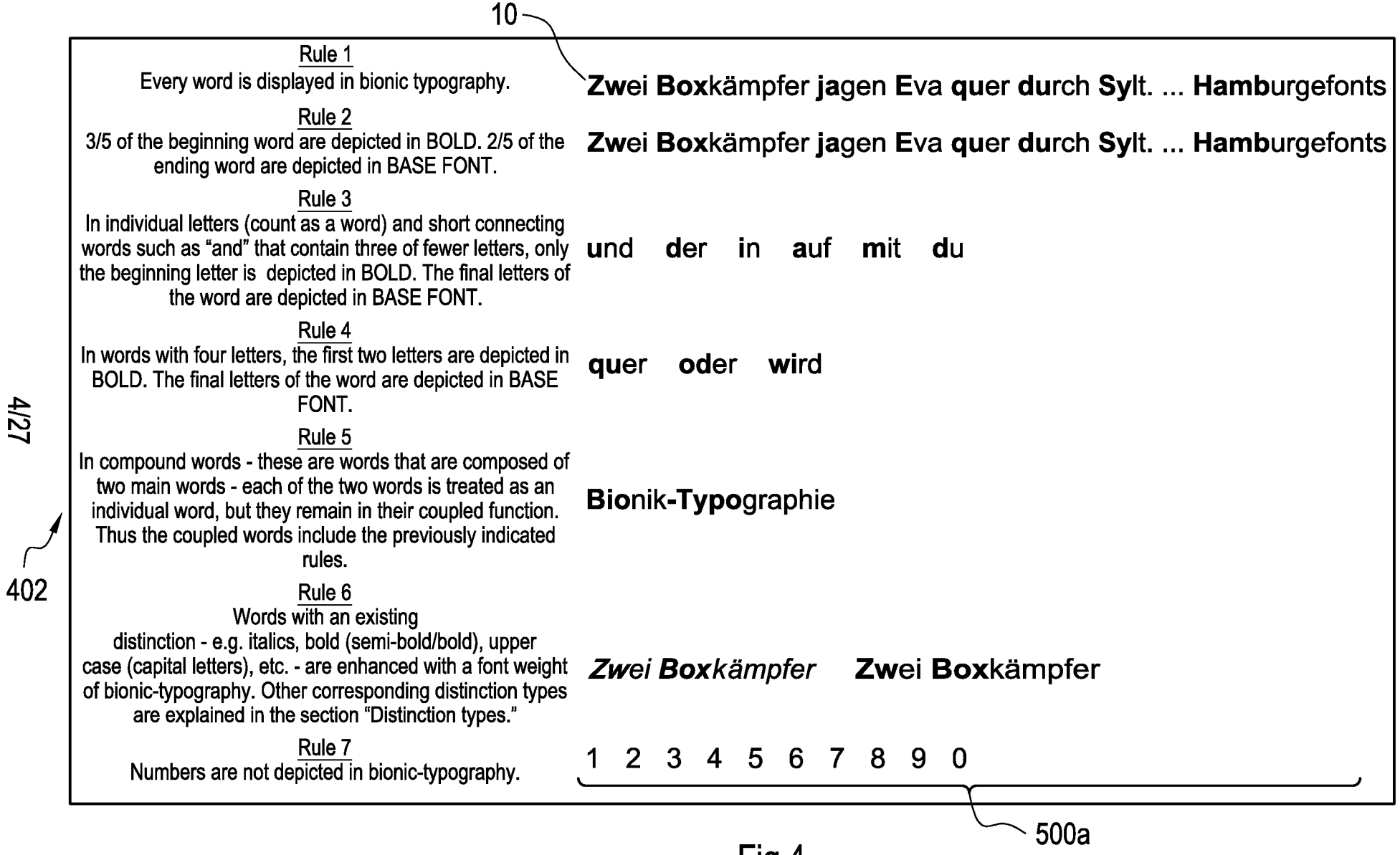

10
Rule 1
Every word is displayed in bionic typography.
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburgefonts
Rule 2
3/5 of the beginning word are depicted in BOLD. 2/5 of the ending word are depicted in BASE FONT.
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburgefonts
Rule 3
In individual letters (count as a word) and short connecting words such as "and" that contain three of fewer letters, only the beginning letter is depicted in BOLD. The final letters of the word are depicted in BASE FONT.
und der in auf mit du
Rule 4
In words with four letters, the first two letters are depicted in BOLD. The final letters of the word are depicted in BASE FONT.
quer oder wird
Rule 5
In compound words - these are words that are composed of two main words - each of the two words is treated as an individual word, but they remain in their coupled function. Thus the coupled words include the previously indicated rules.
Bionik-Typographie
Rule 6
Words with an existing distinction - e.g. italics, bold (semi-bold/bold), upper case (capital letters), etc. - are enhanced with a font weight of bionic-typography. Other corresponding distinction types are explained in the section "Distinction types."
Zwei Boxkämpfer
Zwei Boxkämpfer
Rule 7
Numbers are not depicted in bionic-typography.
1 2 3 4 5 6 7 8 9 0
500a
4/27
402

Fig.4

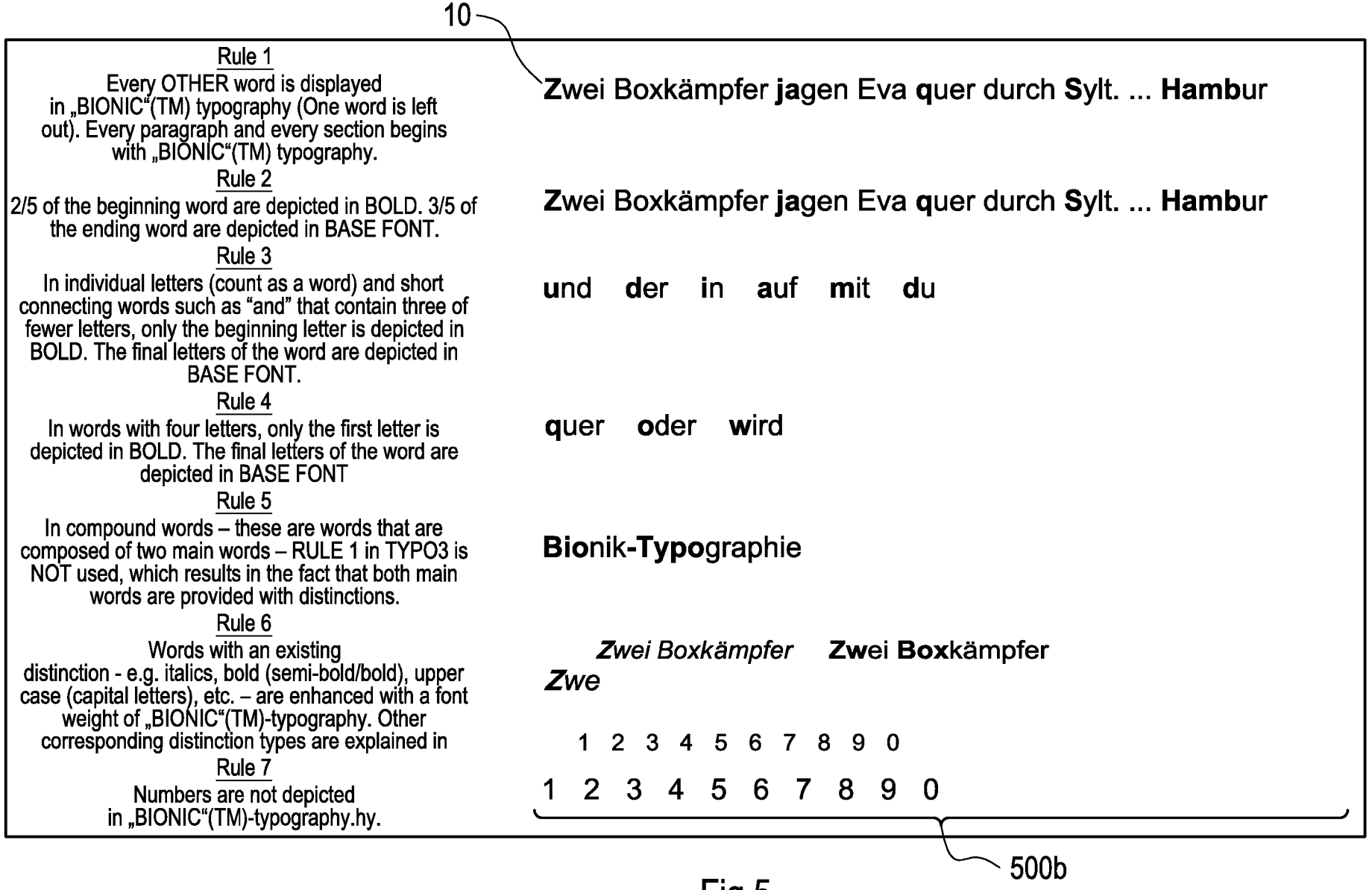

10
Rule 1
Every OTHER word is displayed in „BIONIC“(TM) typography (One word is left out). Every paragraph and every section begins with „BIONIC“(TM) typography.
Rule 2
2/5 of the beginning word are depicted in BOLD. 3/5 of the ending word are depicted in BASE FONT.
Rule 3
In individual letters (count as a word) and short connecting words such as “and” that contain three of fewer letters, only the beginning letter is depicted in BOLD. The final letters of the word are depicted in BASE FONT.
Rule 4
In words with four letters, only the first letter is depicted in BOLD. The final letters of the word are depicted in BASE FONT
Rule 5
In compound words – these are words that are composed of two main words – RULE 1 in TYPO3 is NOT used, which results in the fact that both main words are provided with distinctions.
Rule 6
Words with an existing distinction - e.g. italics, bold (semi-bold/bold), upper case (capital letters), etc. – are enhanced with a font weight of „BIONIC“(TM)-typography. Other corresponding distinction types are explained in
Rule 7
Numbers are not depicted in „BIONIC“(TM)-typography.hy.
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburg
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburg
und der in auf mit du
quer oder wird
Bionik-Typographie
Zwei Boxkämpfer Zwei Boxkämpfer
Zwe
1 2 3 4 5 6 7 8 9 0
1 2 3 4 5 6 7 8 9 0
500b
5/27
403

Fig.5

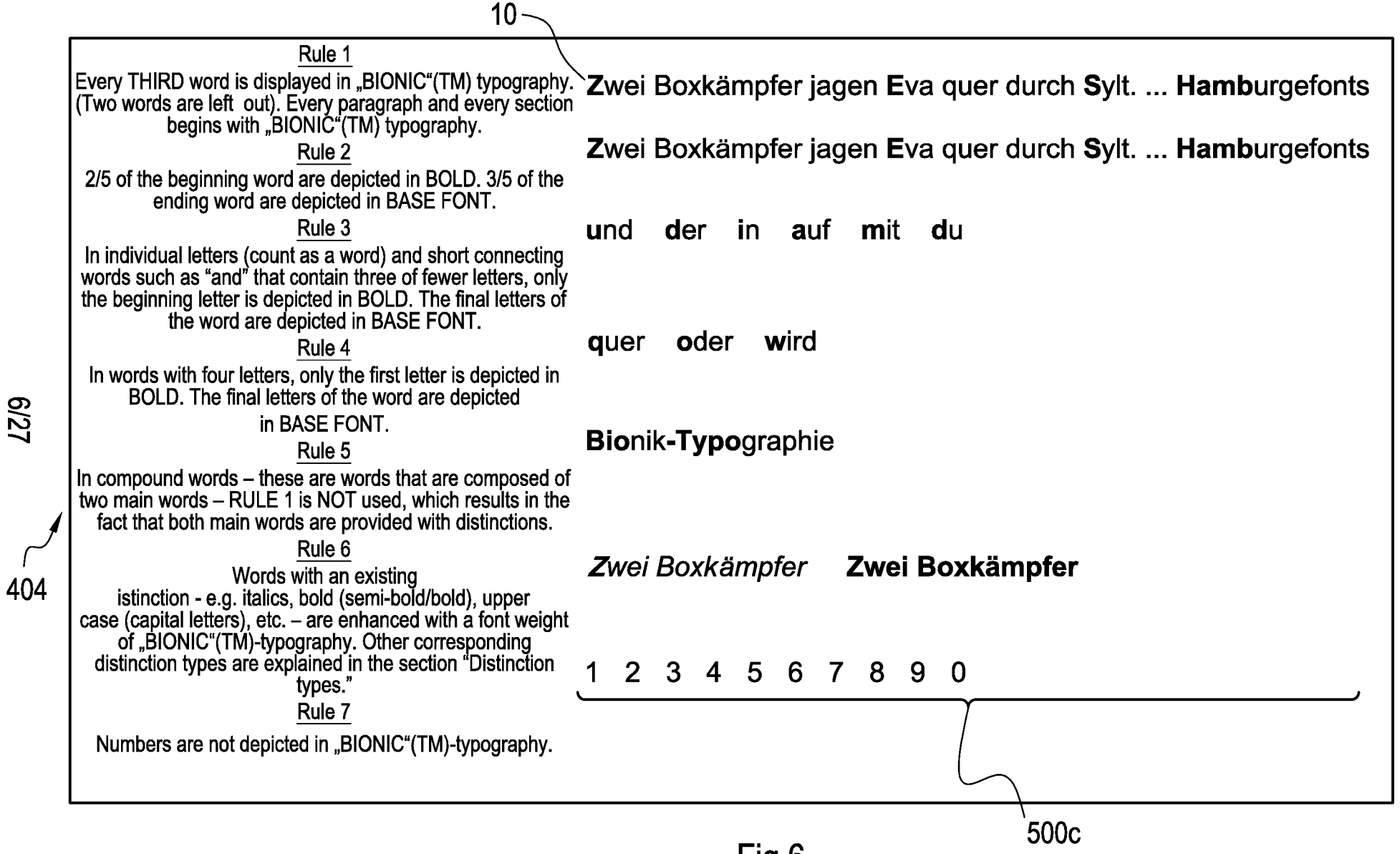
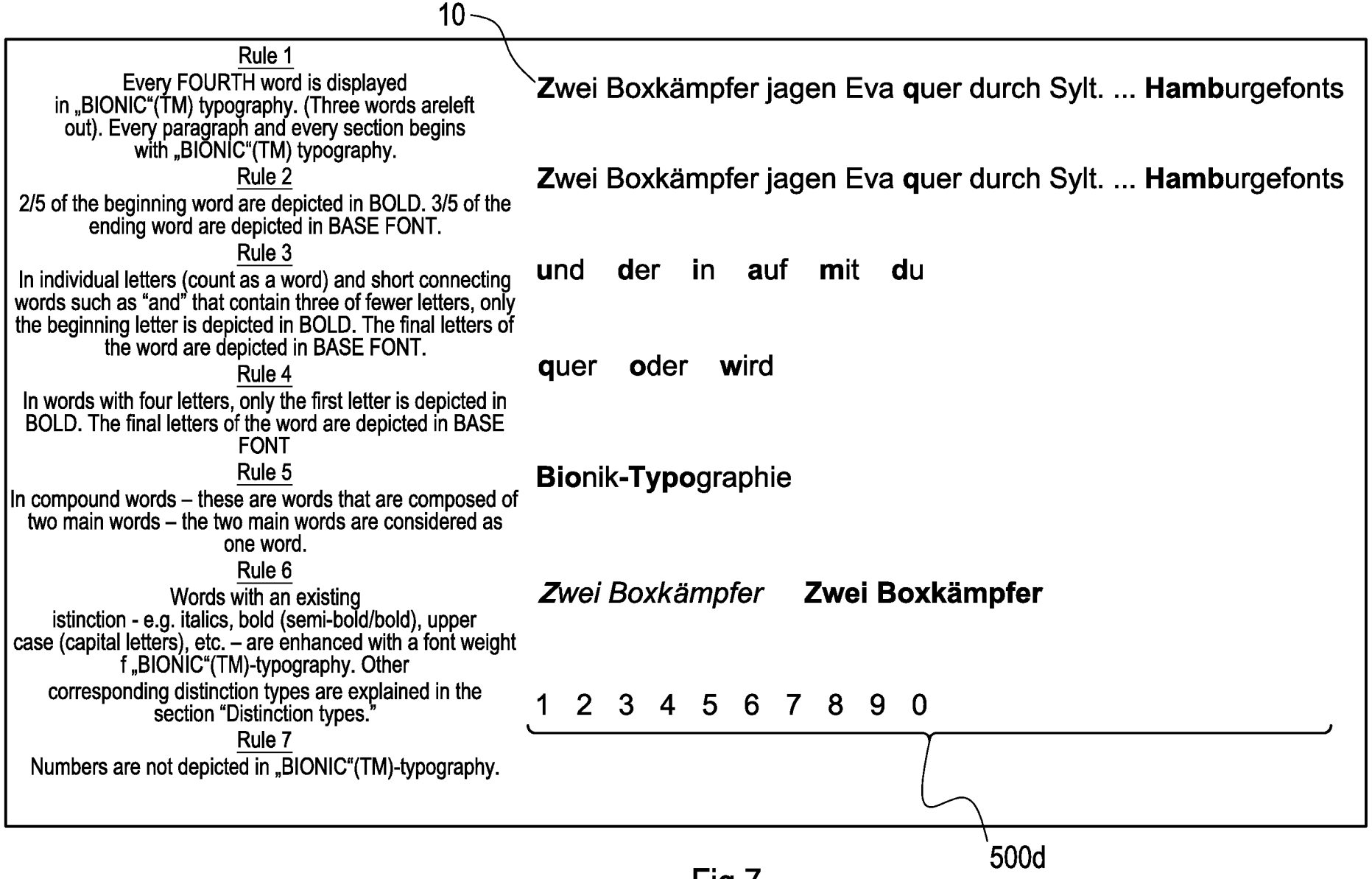

10
Rule 1
Every THIRD word is displayed in „BIONIC“(TM) typography. (Two words are left out). Every paragraph and every section begins with „BIONIC“(TM) typography.
Rule 2
2/5 of the beginning word are depicted in BOLD. 3/5 of the ending word are depicted in BASE FONT.
Rule 3
In individual letters (count as a word) and short connecting words such as “and” that contain three of fewer letters, only the beginning letter is depicted in BOLD. The final letters of the word are depicted in BASE FONT.
Rule 4
In words with four letters, only the first letter is depicted in BOLD. The final letters of the word are depicted in BASE FONT.
Rule 5
In compound words – these are words that are composed of two main words – RULE 1 is NOT used, which results in the fact that both main words are provided with distinctions.
Rule 6
Words with an existing istinction - e.g. italics, bold (semi-bold/bold), upper case (capital letters), etc. – are enhanced with a font weight of „BIONIC“(TM)-typography. Other corresponding distinction types are explained in the section “Distinction types.”
Rule 7
Numbers are not depicted in „BIONIC“(TM)-typography.
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburgefonts
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburgefonts
und der in auf mit du
quer oder wird
Bionik-Typographie
Zwei Boxkämpfer Zwei Boxkämpfer
1 2 3 4 5 6 7 8 9 0
500c
404

Fig.6


10
Rule 1
Every FOURTH word is displayed in „BIONIC“(TM) typography. (Three words areleft out). Every paragraph and every section begins with „BIONIC“(TM) typography.
Rule 2
2/5 of the beginning word are depicted in BOLD. 3/5 of the ending word are depicted in BASE FONT.
Rule 3
In individual letters (count as a word) and short connecting words such as “and” that contain three of fewer letters, only the beginning letter is depicted in BOLD. The final letters of the word are depicted in BASE FONT.
Rule 4
In words with four letters, only the first letter is depicted in BOLD. The final letters of the word are depicted in BASE FONT
Rule 5
In compound words – these are words that are composed of two main words – the two main words are considered as one word.
Rule 6
Words with an existing istinction - e.g. italics, bold (semi-bold/bold), upper case (capital letters), etc. – are enhanced with a font weight f „BIONIC“(TM)-typography. Other corresponding distinction types are explained in the section “Distinction types.”
Rule 7
Numbers are not depicted in „BIONIC“(TM)-typography.
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburgefonts
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburgefonts
und der in auf mit du
quer oder wird
Bionik-Typographie
Zwei Boxkämpfer Zwei Boxkämpfer
1 2 3 4 5 6 7 8 9 0
500d

405

Fig.7

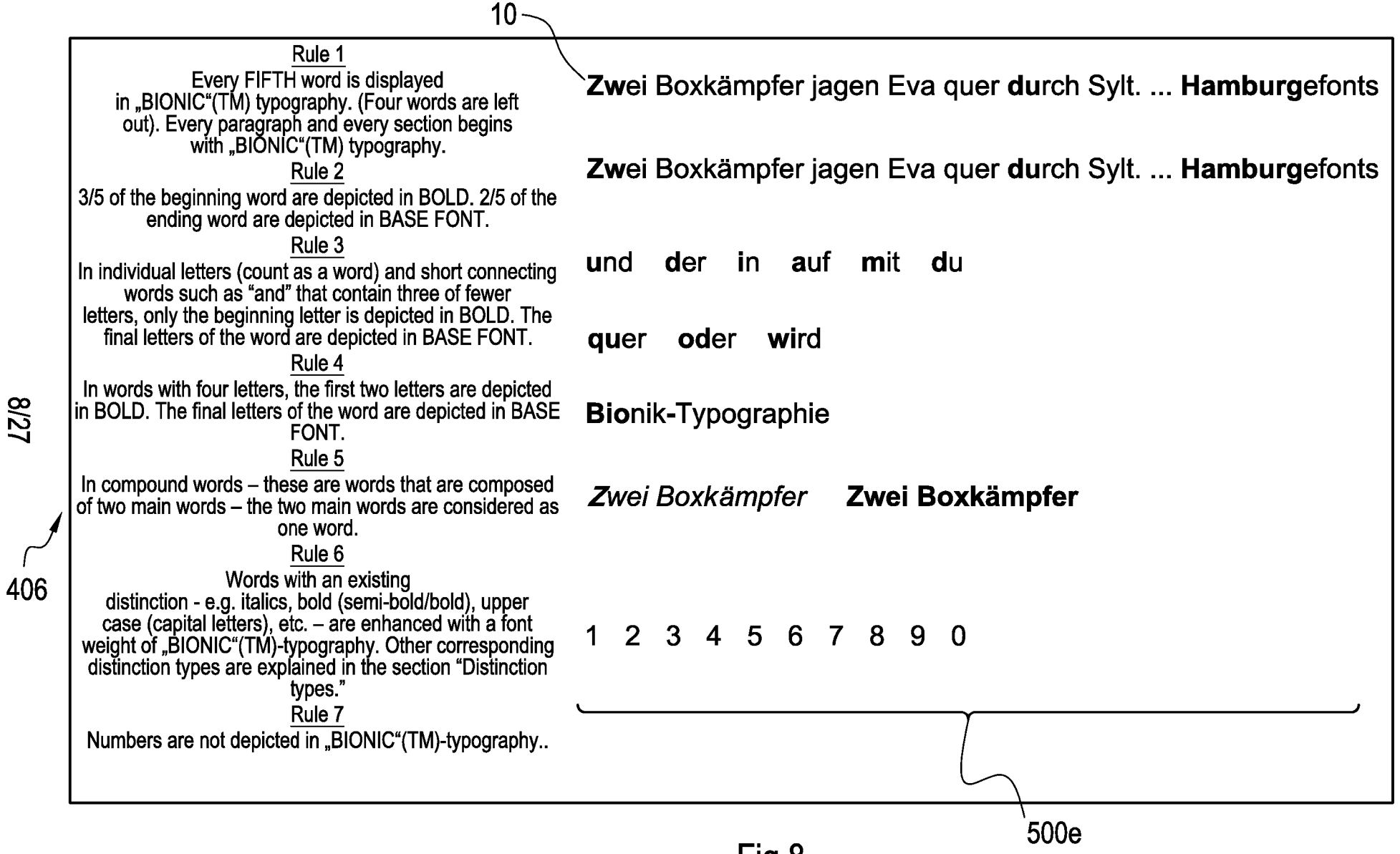
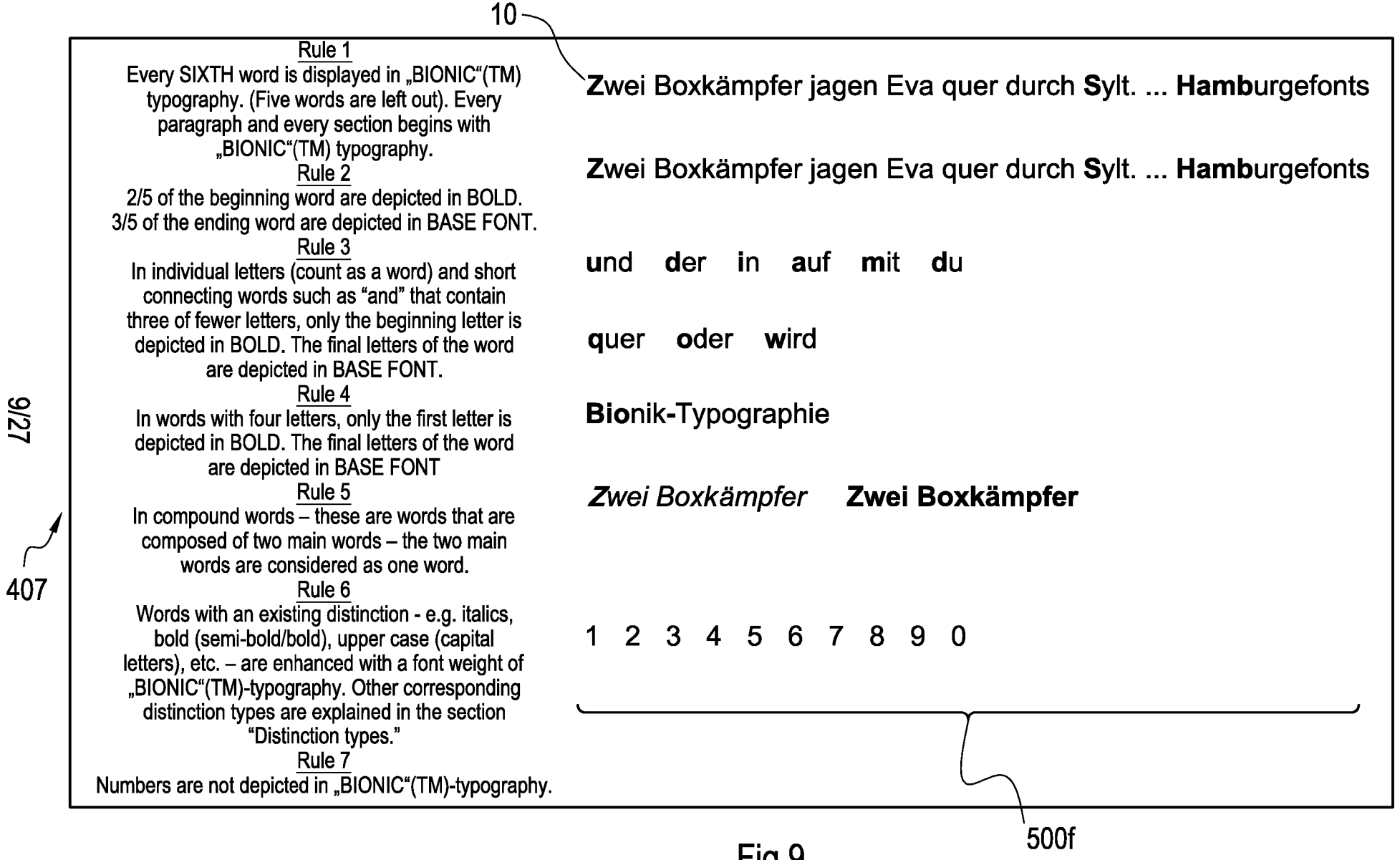
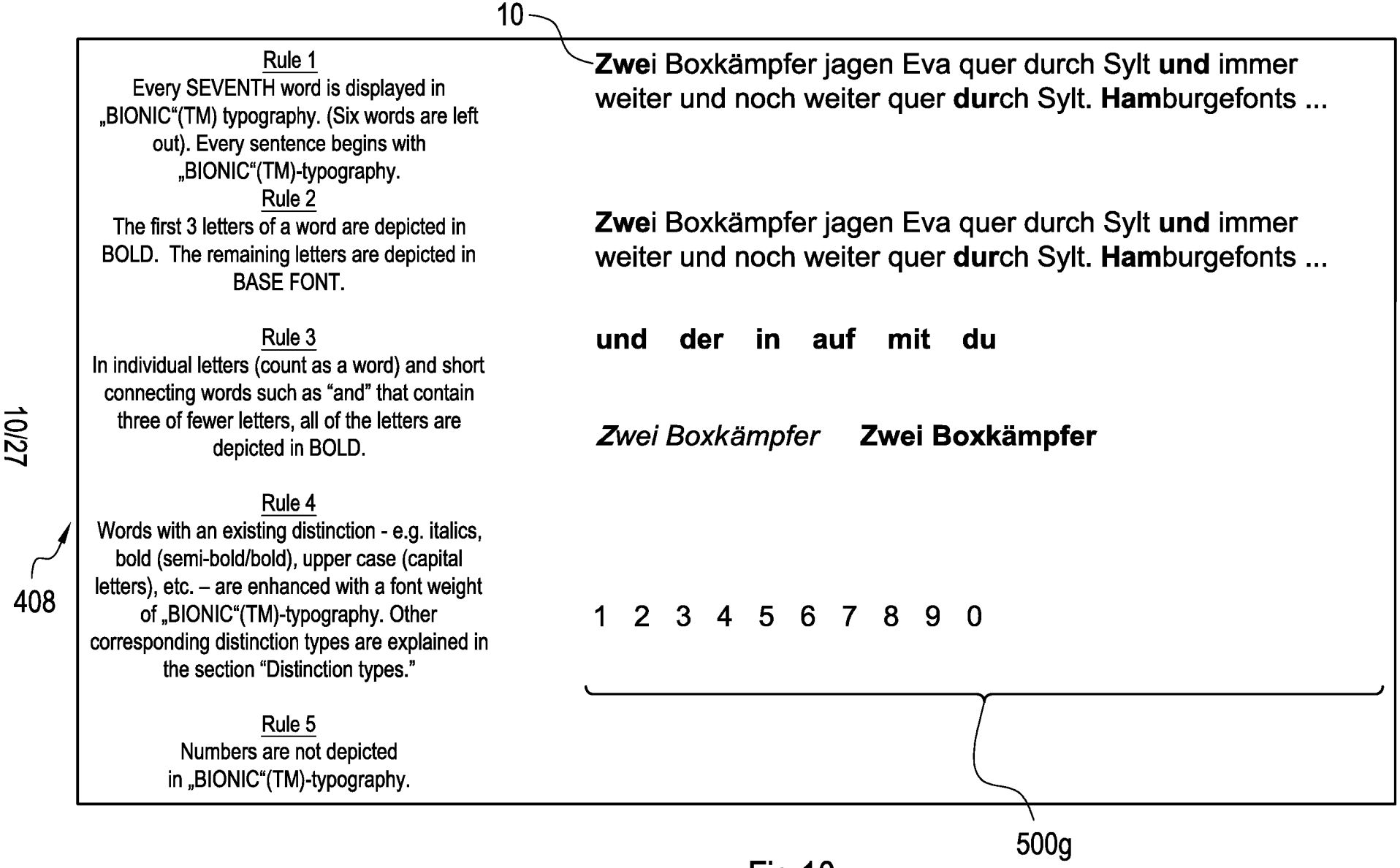

10
Rule 1
Every FIFTH word is displayed in „BIONIC“(TM) typography. (Four words are left out). Every paragraph and every section begins with „BIONIC“(TM) typography.
Rule 2
3/5 of the beginning word are depicted in BOLD. 2/5 of the ending word are depicted in BASE FONT.
Rule 3
In individual letters (count as a word) and short connecting words such as “and” that contain three of fewer letters, only the beginning letter is depicted in BOLD. The final letters of the word are depicted in BASE FONT.
Rule 4
In words with four letters, the first two letters are depicted in BOLD. The final letters of the word are depicted in BASE FONT.
Rule 5
In compound words – these are words that are composed of two main words – the two main words are considered as one word.
Rule 6
Words with an existing distinction - e.g. italics, bold (semi-bold/bold), upper case (capital letters), etc. – are enhanced with a font weight of „BIONIC“(TM)-typography. Other corresponding distinction types are explained in the section “Distinction types.”
Rule 7
Numbers are not depicted in „BIONIC“(TM)-typography..
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburgefonts
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburgefonts
und der in auf mit du
quer oder wird
Bionik-Typographie
Zwei Boxkämpfer Zwei Boxkämpfer
1 2 3 4 5 6 7 8 9 0
500e
406

Fig.8


10
Rule 1
Every SIXTH word is displayed in „BIONIC“(TM) typography. (Five words are left out). Every paragraph and every section begins with „BIONIC“(TM) typography.
Rule 2
2/5 of the beginning word are depicted in BOLD. 3/5 of the ending word are depicted in BASE FONT.
Rule 3
In individual letters (count as a word) and short connecting words such as “and” that contain three of fewer letters, only the beginning letter is depicted in BOLD. The final letters of the word are depicted in BASE FONT.
Rule 4
In words with four letters, only the first letter is depicted in BOLD. The final letters of the word are depicted in BASE FONT
Rule 5
In compound words – these are words that are composed of two main words – the two main words are considered as one word.
Rule 6
Words with an existing distinction - e.g. italics, bold (semi-bold/bold), upper case (capital letters), etc. – are enhanced with a font weight of „BIONIC“(TM)-typography. Other corresponding distinction types are explained in the section “Distinction types.”
Rule 7
Numbers are not depicted in „BIONIC“(TM)-typography.
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburgefonts
Zwei Boxkämpfer jagen Eva quer durch Sylt. ... Hamburgefonts
und der in auf mit du
quer oder wird
Bionik-Typographie
Zwei Boxkämpfer Zwei Boxkämpfer
1 2 3 4 5 6 7 8 9 0
500f

407

Fig.9


10
Rule 1
Every SEVENTH word is displayed in „BIONIC“(TM) typography. (Six words are left out). Every sentence begins with „BIONIC“(TM)-typography.
Rule 2
The first 3 letters of a word are depicted in BOLD. The remaining letters are depicted in BASE FONT.
Rule 3
In individual letters (count as a word) and short connecting words such as “and” that contain three of fewer letters, all of the letters are depicted in BOLD.
Rule 4
Words with an existing distinction - e.g. italics, bold (semi-bold/bold), upper case (capital letters), etc. – are enhanced with a font weight of „BIONIC“(TM)-typography. Other corresponding distinction types are explained in the section “Distinction types.”
Rule 5
Numbers are not depicted in „BIONIC“(TM)-typography.
Zwei Boxkämpfer jagen Eva quer durch Sylt und immer weiter und noch weiter quer durch Sylt. Hamburgefonts ...
Zwei Boxkämpfer jagen Eva quer durch Sylt und immer weiter und noch weiter quer durch Sylt. Hamburgefonts ...
und der in auf mit du
Zwei Boxkämpfer Zwei Boxkämpfer
1 2 3 4 5 6 7 8 9 0
500g

408

Fig.10

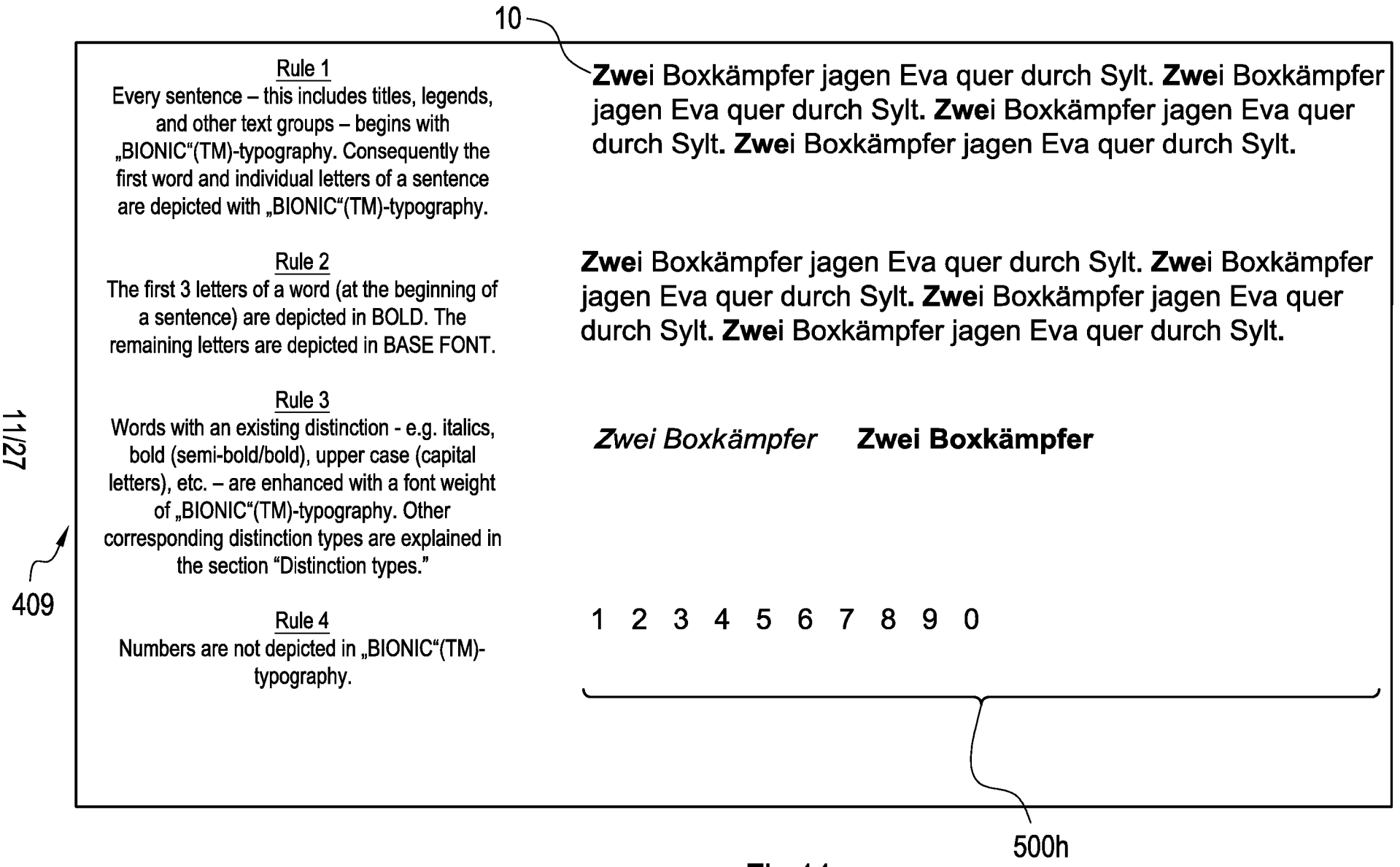
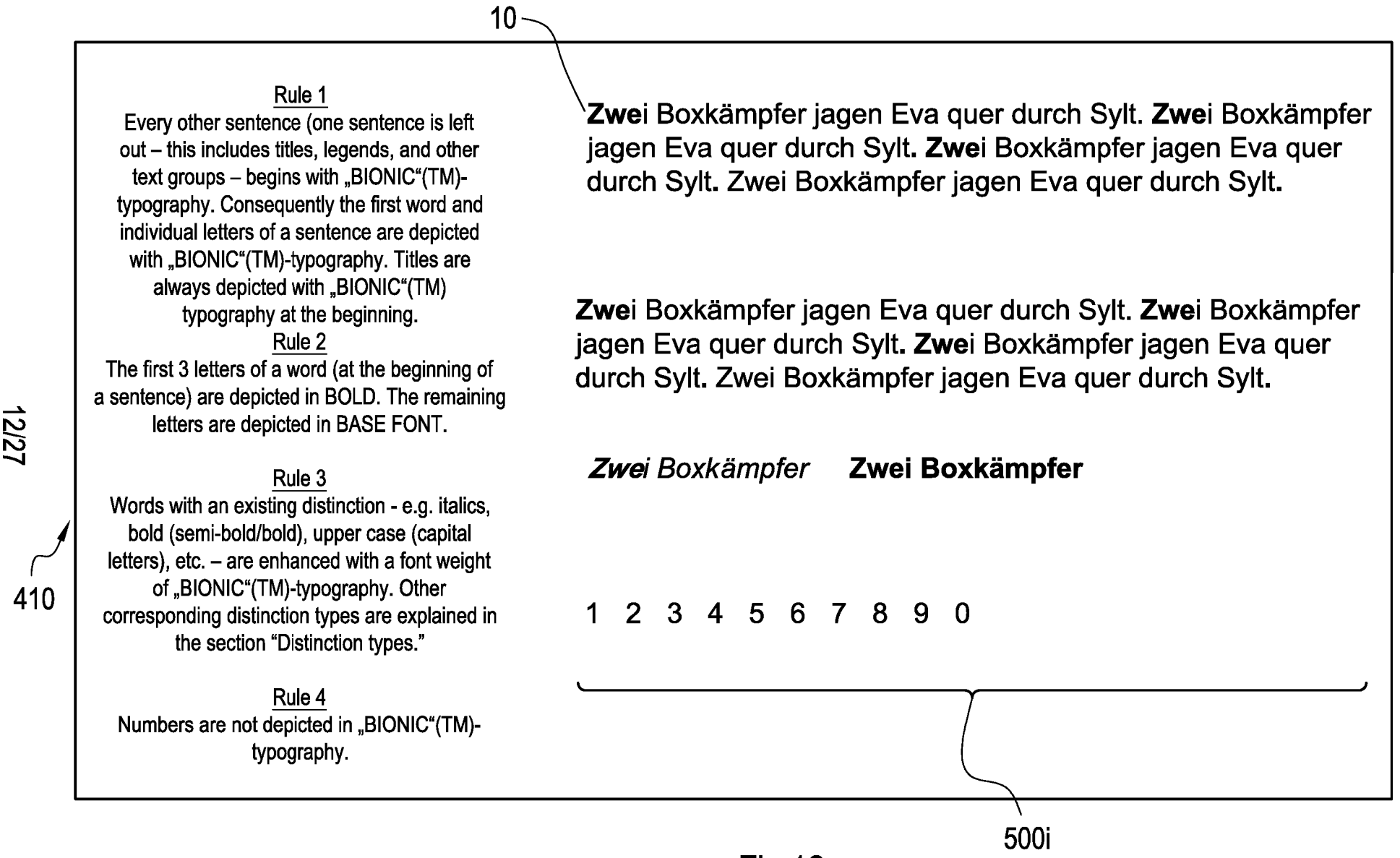

10
Rule 1
Every sentence – this includes titles, legends, and other text groups – begins with „BIONIC“(TM)-typography. Consequently the first word and individual letters of a sentence are depicted with „BIONIC“(TM)-typography.
Rule 2
The first 3 letters of a word (at the beginning of a sentence) are depicted in BOLD. The remaining letters are depicted in BASE FONT.
Rule 3
Words with an existing distinction - e.g. italics, bold (semi-bold/bold), upper case (capital letters), etc. – are enhanced with a font weight of „BIONIC“(TM)-typography. Other corresponding distinction types are explained in the section “Distinction types.”
Rule 4
Numbers are not depicted in „BIONIC“(TM)-typography.
Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt.
Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt.
Zwei Boxkämpfer Zwei Boxkämpfer
1 2 3 4 5 6 7 8 9 0
500h
11/27
409

Fig.11


10
Rule 1
Every other sentence (one sentence is left out – this includes titles, legends, and other text groups – begins with „BIONIC“(TM)-typography. Consequently the first word and individual letters of a sentence are depicted with „BIONIC“(TM)-typography. Titles are always depicted with „BIONIC“(TM) typography at the beginning.
Rule 2
The first 3 letters of a word (at the beginning of a sentence) are depicted in BOLD. The remaining letters are depicted in BASE FONT.
Rule 3
Words with an existing distinction - e.g. italics, bold (semi-bold/bold), upper case (capital letters), etc. – are enhanced with a font weight of „BIONIC“(TM)-typography. Other corresponding distinction types are explained in the section “Distinction types.”
Rule 4
Numbers are not depicted in „BIONIC“(TM)-typography.
Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt.
Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt. Zwei Boxkämpfer jagen Eva quer durch Sylt.
Zwei Boxkämpfer Zwei Boxkämpfer
1 2 3 4 5 6 7 8 9 0
500i

410

Fig.12

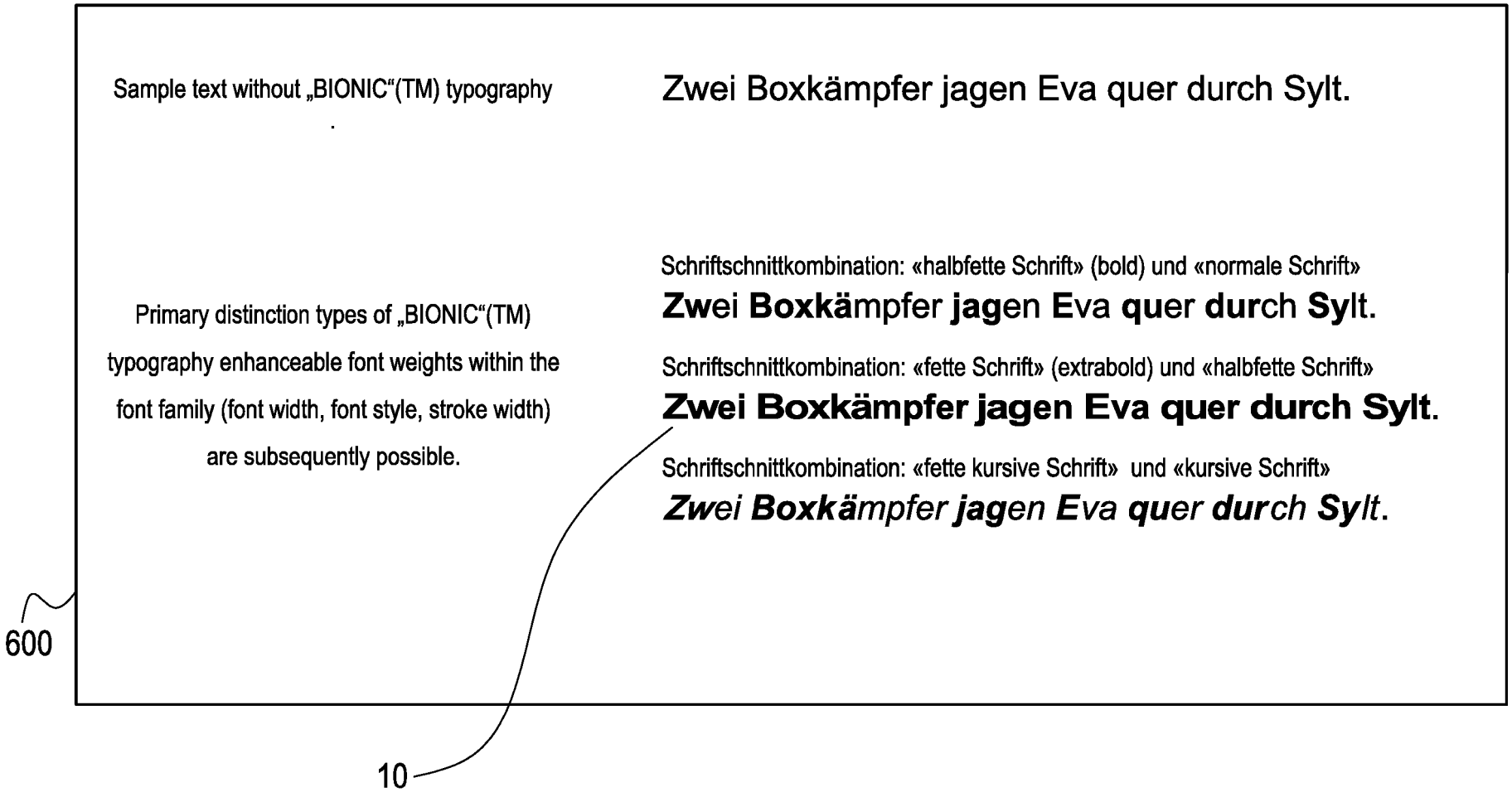

Sample text without „BIONIC“(TM) typography
Zwei Boxkämpfer jagen Eva quer durch Sylt.
Primary distinction types of „BIONIC“(TM) typography enhanceable font weights within the font family (font width, font style, stroke width) are subsequently possible.
Schriftschnittkombination: «halbfette Schrift» (bold) und «normale Schrift»
Zwei Boxkämpfer jagen Eva quer durch Sylt.
Schriftschnittkombination: «fette Schrift» (extrabold) und «halbfette Schrift»
Zwei Boxkämpfer jagen Eva quer durch Sylt.
Schriftschnittkombination: «fette kursive Schrift» und «kursive Schrift»
Zwei Boxkämpfer jagen Eva quer durch Sylt.
600
10

Fig.13

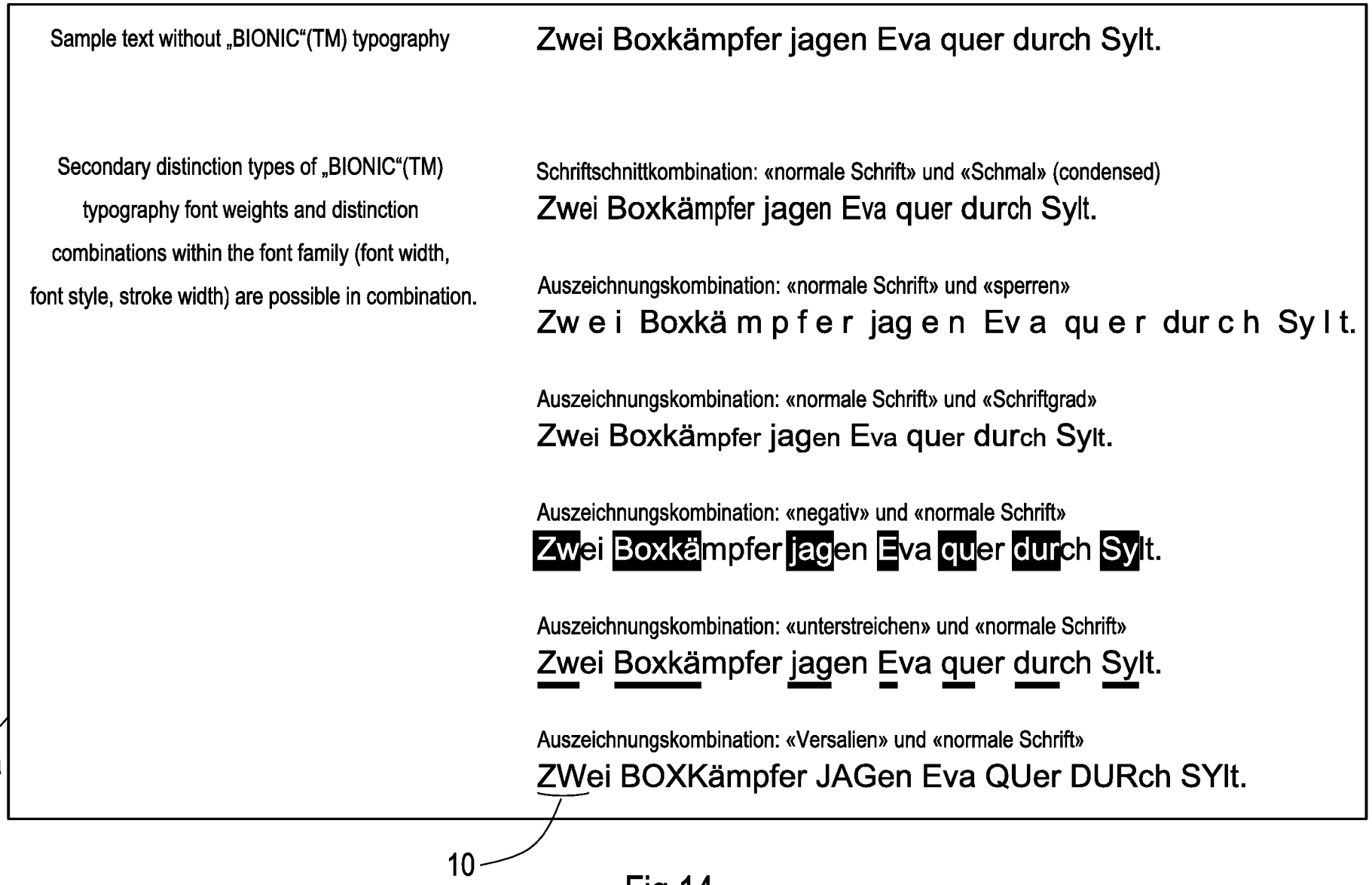

Sample text without „BIONIC“(TM) typography
Zwei Boxkämpfer jagen Eva quer durch Sylt.
Secondary distinction types of „BIONIC“(TM) typography font weights and distinction combinations within the font family (font width, font style, stroke width) are possible in combination.
Schriftschnittkombination: «normale Schrift» und «Schmal» (condensed)
Zwei Boxkämpfer jagen Eva quer durch Sylt.
Auszeichnungskombination: «normale Schrift» und «sperren»
Zw e i Boxkä m p f e r jag e n Ev a qu e r dur c h Sy l t.
Auszeichnungskombination: «normale Schrift» und «Schriftgrad»
Zwei Boxkämpfer jagen Eva quer durch Sylt.
Auszeichnungskombination: «negativ» und «normale Schrift»
Zwei Boxkämpfer jagen Eva quer durch Sylt.
Auszeichnungskombination: «unterstreichen» und «normale Schrift»
Zwei Boxkämpfer jagen Eva quer durch Sylt.
Auszeichnungskombination: «Versalien» und «normale Schrift»
ZWei BOXKämpfer JAGen Eva QUer DURch SYlt.
14/27
600a
10

Fig.14

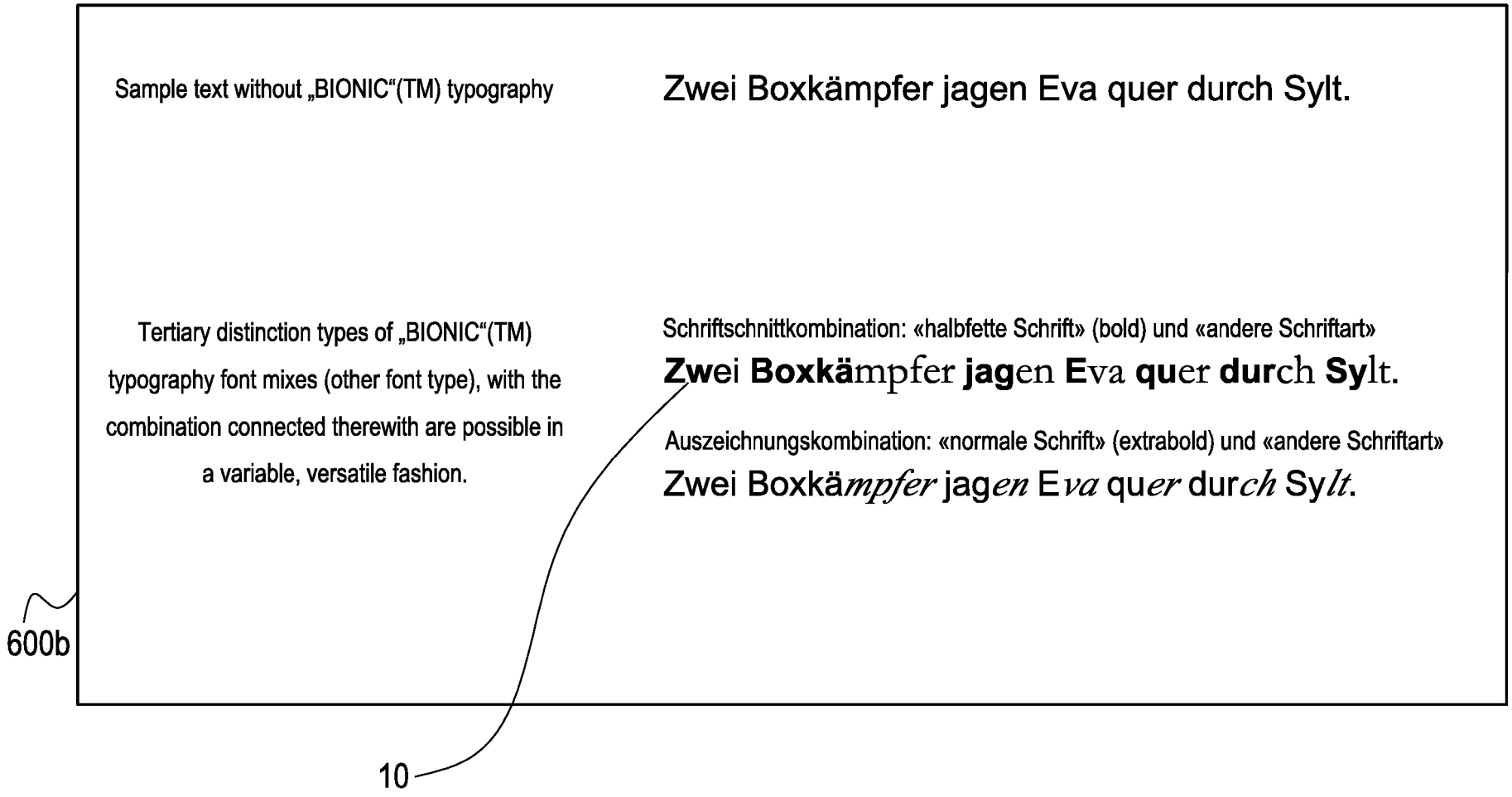

Sample text without „BIONIC“(TM) typography
Zwei Boxkämpfer jagen Eva quer durch Sylt.
Tertiary distinction types of „BIONIC“(TM) typography font mixes (other font type), with the combination connected therewith are possible in a variable, versatile fashion.
Schriftschnittkombination: «halbfette Schrift» (bold) und «andere Schriftart»
Zwei Boxkämpfer jagen Eva quer durch Sylt.
Auszeichnungskombination: «normale Schrift» (extrabold) und «andere Schriftart»
Zwei Boxkämpfer jagen Eva quer durch Sylt.
600b
10

Fig.15

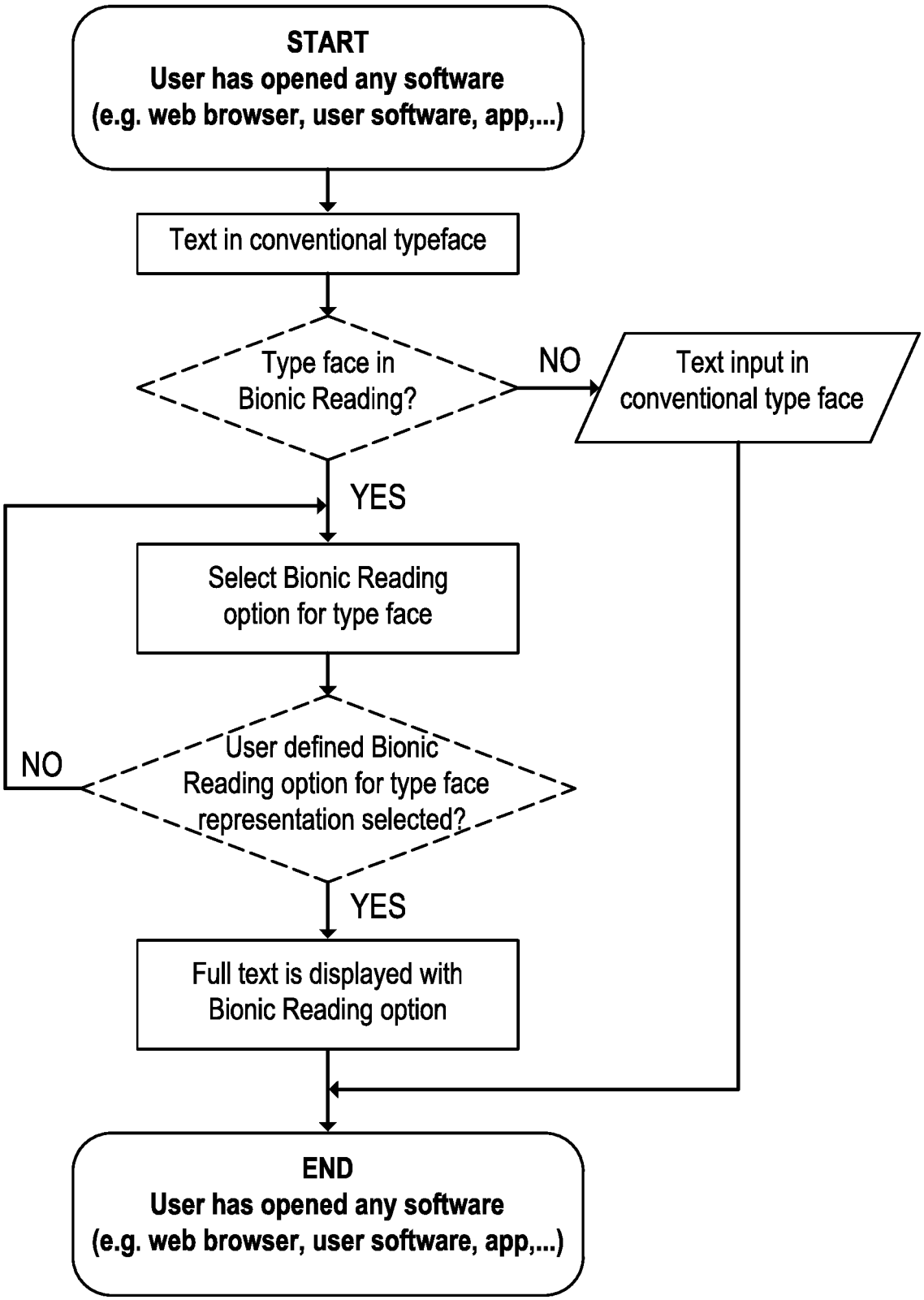

START
User has opened any software
(e.g. web browser, user software, app,...)
Text in conventional typeface
Type face in Bionic Reading?
NO
Text input in conventional type face
YES
Select Bionic Reading option for type face
User defined Bionic Reading option for type face representation selected?
NO
YES
Full text is displayed with Bionic Reading option
END
User has opened any software
(e.g. web browser, user software, app,...)

Fig.16

Body text without reading method «Weber»

Durch Training kann man seine Lesegeschwindigkeit verdoppeln. Nun ist das aber noch nichts Besonderes. Schnell lesen können schliesslich viele. Übungsmöglichkeiten gibt es dafür genug. Die Kunst besteht darin, gleichzeitig auch ein hervorragendes Textverständnis zu entwickeln und sich wesentliche Textpunkte zu merken – und zwar dauerhaft!

Neben der Frage «Wie schnell lesen Sie?» müssen auch immer die Fragen stehen: «Wie gut können Sie das Gelesene wiedergeben?» und «Wie gut haben Sie das Gelesene verstanden?». Gut ist, wenn Sie auch bei der Beantwortung letzterer Fragen eine hohe Punktzahl erzielen.

Insgesamt gibt es drei Typen ineffektiver Leser. Typ A liest zwar schnell, hat aber eine dürftige Texterinnerung. Typ B hat zwar eine gute Texterinnerung, liest aber nicht besonders schnell. Und dann gibt es noch Typ C, den unglücklichsten aller Leser, der sowohl langsam liest als auch nur mit Mühe und Not den Text wiedergeben kann. Letzterem fällt es meist schwer, sich zu konzentrieren. Die gute Nachricht: Durch gezieltes Training können sich alle drei Typen stark verbessern!

Was letztlich also zählt, ist nicht das eine oder andere, sondern das Verhältnis zwischen beidem – Geschwindigkeit und Erinnerung. Der goldene Messwert in unserem Training ist daher die sogenannte Effektivgeschwindigkeit: Sie drückt genau eben genanntes Verhältnis aus. Nach dem vollständigen ritter speed reading Training lesen Sie nicht nur doppelt so schnell wie bisher. Sie sind ausserdem in der Lage auch hochkomplexe Texte ausgezeichnet zu verstehen und wichtige Essenzen dauerhaft im Gedächtnis zu speichern.

Nun wird man bei solch einer Behauptung ja leicht skeptisch. Vielleicht fragen Sie sich auch schon: Wenn so etwas möglich ist, warum haben wir das dann nicht schon längst in der Schule gelernt? Naja, mit der Schule ist das eben so eine Sache. Wir haben es hier mit einem Lehrsystem zu tun, das in seiner Grundstruktur über 200 Jahre alt ist. Und es ändert sich nur schwerfällig und langsam, so wie ein Ozeandampfer nur langsam die Fahrtrichtung ändern kann. Neue Erkenntnisse der Hirnwissenschaft und Lernforschung gelangen nur schleppend in das Schulsystem. Das Schnell-Lesen gehört noch nicht dazu.

Wie ist es also möglich, schneller zu lesen und dabei mehr zu verstehen und zu behalten? Neurowissenschaftler haben im letzten Jahrzehnt vielfach demonstriert, wie enorm veränderungsfähig unser Gehirn ist. Eric Kandel erhielt 2000 den Nobelpreispreis für den Nachweis, dass unser Gehirn lebenslang zu grundlegenden Veränderungen fähig bleibt. Kandel wies als erster nach, dass sich durch Training sowohl die Struktur und Form der Gehirnzellen als auch die Stärke und Zahl der synaptischen Verbindungen verändert.

25 08 17

Fig.17A

Body text with reading method «Weber»
Number of words: 404
Number of characters including blanks: 2711
Font: Effra Regular
Font size/line spacing: 13/14 pt

durCH TraiNINg kaNN Man sEINe leSEGescHWIndiGKEit vERDoppELN. nun lST das ABEr noCH NichTS BesoNDEres. SCHnell LEsen KÖNnen SCHlieSSLich VIEle. üBUNgsmÖGLichKEIten GIBt es DAFür gENUg. diE KUnst BEStehT DArin, GLEichZEItig AUCh eiN HErvoRRAgenDES texTVErstÄNDnis ZU EntwlCKeln UND sicH WEsenTLIche TEXtpuNKTe zu MERken – UND zwaR DAuerHAFt!

nebEN Der fRAGe «wiE SChneLL LeseN Sie?» müSSEn auCH lmmeR Die frAGEn stEHEn: «wiE GUt köNNEn siE DAs geLESene WIEderGEBen?» uND «Wie gUT HabeN Sie daS GEIesENE verSTAndeN?». GUt isT, WEnn slE Auch BEI der BEAntwORTung LETzteRER fraGEN einE HOhe pUNKtzaHL ErziELEn.

insGESamt GIBt es DREi tyPEN ineFFEktiVER lesER. Typ a LIEst zWAR schNELI, haT Aber elNE dürFTIge tEXTeriNNErunG. TYp b hAT Zwar ElNe guTE TextERInneRUNg, liEST abeR Nicht BESondERS schNELI. unD Dann glBT es nOCH typ C, DEn unGLÜcklICHsteN ALIer LESer, dER SowoHL LangSAM lieST Als aUCH nur MIT mühE UNd noT DEn teXT WiedERGebeN KAnn. lETZterEM FälIT ES meiST SchwER, Sich ZU KonzENTrieREN. die GUTe naCHRichT: DUrch GEZielTES traINIng kÖNNen slCH allE DRei tYPEn stARK verBESserN!

was LETztlICH alsO ZÄhlt, IST nicHT Das elNE odeR ANderE, SOndeRN Das vERHältNIS zwiSCHen bEIDem – gESChwiNDIgkelT Und eRINnerUNG. der GOLdenE MEsswERT in uNSErem TRAiniNG Ist dAHEr diE SOgenANNte eFFEktiVGEschWIN-digKEIt: siE DRückT GEnau EBEn geNANnteS VEr häLTNis aUS. Nach DEM volLSTändlGEn riTTEr spEED reaDINg trAINing LESen slE NichT NUr doPPEIt sO SChneLL Wie bISHer. slE Sind AUSserDEM in dER Lage AUCh hoCHKompLEXe teXTE ausGEZeicHNEt zu VERsteHEN und WIChtiGE EsseNZEn daUERhafT IM gedÄCHtniS ZU spelCHern.

nun WIRd maN BEi soLCH einER BehaUPTung JA LeicHT SkepTISch. vIELleiCHT fraGEN sie SICh auCH SchoN: WEnn sO ETwas MÖGlicH ISt, waRUM habEN Wir dAS Dann NICht sCHOn läNGSt in DER schULE gelERNt? naJA, Mit dER SchuLE Ist dAS Eben SO Eine SAChe. wIR HabeN ES hieR Mit eiNEM lehRSYsteM ZU tun, DAS in sEINer gRUNdstRUKtur ÜBEr 200 JAhre ALT ist. UND es äNDErt slCH nur SCHwerFÄLlig UND lanGSAm, so WIE ein OZEandAMPfer NUR lanGSAm diE FAhrtRIChtuNG ÄndeRN Kann. NEUe erKENntnISSe deR HIrnwISSensCHAft uND LernFORschUNG gelANGen nUR SchlEPPend IN Das sCHUlsySTEm. daS SChneLL-LeseN GEhörT Noch nICHt daZU.

wie IST es aLSO mögLICh, scHNEIleR ZU lesEN Und dABEi meHR Zu veRSTeheN UNd zu BEHaltEN? NeurOWIsseNSChafTLEr haBEN im lETZten JAHrzeHNT vieLFAch dEMOnstRIErt, wiE EnorM VEränDERungSFÄhig UNSer gEHIrn iST. Eric KANdel ERHielT 2000 dEN NobeLPReisPREis fÜR Den nACHweiS, DAss uNSEr geHIRn leBENslaNG Zu grUNDlegENDen vERÄndeRUNgen FÄHig bLEIbt. kANDel wIES als ERSter NACh, daSS Sich DURch tRAIninG SOwohL Die stRUKtur UND forM DEr geHIRnzeLLEn alS AUch diE StärKE Und ZAHL der SYNaptISChen VERbinDUNgen VERändERT.

25 08 17

Fig.17B

Body text without reading method «Bionic Reading»

Das ritter speed reading Training baut direkt auf diesen Erkenntnissen auf. Durch das Training wird die Nervenkommunikation im Gehirn beschleunigt. Die Neuronen (Gehirnzellen) leiten Signale schneller und stärker weiter. Die Denkgeschwindigkeit wird erhöht, die Konzentration verstärkt. Dieser spezifische Trainingseffekt wurde unter anderem auch vom renommierten Hirnforscher Michael Merzenich nachgewiesen.

Somit ist beantwortet, wie eine Erhöhung der Lesegeschwindigkeit erklärt werden kann. Wie kommt es nun auch zu einer gleichzeitigen Erhöhung von Textverständnis und Erinnerung? Dafür gibt es drei Gründe: Erstens führt die beschleunigte Zellkommunikation zu stabileren synaptischen Verknüpfungen. Das allein bewirkt bereits eine verbesserte Erinnerung. Zweitens tendieren beschleunigte Neuronen dazu, sich mit einer vermehrten Zahl anderer Gehirnzellen zu verbinden. Auch das fördert die Erinnerung und verbessert die Informationsverarbeitung und somit das Textverständnis. Drittens führt eine beschleunigte Informationsverarbeitung zu einer erweiterten Kapazität des Arbeitsgedächtnisses. Dies wurde vom Kognitionswissenschaftler Stanislas Dehaene eindrucksvoll dargelegt. Die Erweiterung des Arbeitsgedächtnisses wiederum führt zu einer Erhöhung der fluiden Intelligenz (Teilbereich des IQs), was Ende 2007 von der Universität Bern experimentell belegt wurde.

Darüber hinaus lernen Teilnehmer unseres Trainingsprogramms, synästhetische Visualisierungen und optimale Wiederholungsfrequenzen so einzusetzen, dass sie wesentliche Textpunkte zuverlässig im Langzeitgedächtnis abspeichern. Studenten erfahren durch das Training insbesondere vier Vorteile: Kürzere Studienzeiten, bessere Zensuren, erleichtertes Lernen und eine erhöhte Verwertbarkeit des Wissens nach dem Studium. Für Berufstätige ergeben sich ebenfalls vier entscheidende Vorteile: Mehr Zeit, eine gesteigerte Lernfähigkeit, Entlastung im Angesicht der Informationsflut und grösserer Erfolg aufgrund vermehrten Wissens, welches besser verarbeitet und zweckmässiger eingesetzt werden kann.

Vergleichsweise gering ist dagegen die Trainingszeit, die zum Erlernen des Schnell-Lesens nötig ist. Ein karrierebewusster Mensch kann es sich wohl kaum mehr leisten, auf das Erlernen dieser Fähigkeit zu verzichten – ein Erfolgstool mit unermesslichen Vorteilen. Aus diesem Grund werden die ritter speed Seminare unter anderem auch an der Harvard Business School in den USA, am internationalen Max-Planck-Institut, an verschiedenen deutschen Universitäten, sowie in zahlreichen Unternehmen wie Daimler, Siemens, ProSiebenSatl, Ericsson, Kraft Foods und vielen mehr geschult.

Wie können auch Sie diese Fähigkeit erwerben? Machen Sie sich auf unserer Internetseite über die verschiedenen Möglichkeiten kundig: Besuchen Sie eines unserer Seminare, bestellen Sie sich das Audio-Seminar oder buchen Sie uns für Ihr Unternehmen. Gerne können Sie sich vorab auch den kostenfreien Basis-Kurs auf einer Audio-CD sowie den kostenfreien Online-Kurs bestellen.

Wir wünschen Ihnen viel Freude und Erfolg beim Erlernen des Schnell-Lesens.

25 08 17

Fig.18A

Body text with reading method «Bionic Reading»

Number of words: 380
Number of characters including blanks: 3088
Font: Effra Regular
Font size/line spacing: 13/13 pt

Das ritter speed reading Training baut direkt auf diesen Erkenntnissen auf. Durch das Training wird die Nervenkommunikation im Gehirn beschleunigt. Die Neuronen (Gehirnzellen) leiten Signale schneller und stärker weiter. Die Denkgeschwindigkeit wird erhöht, die Konzentration verstärkt. Dieser spezifische Trainingseffekt wurde unter anderem auch vom renommierten Hirnforscher Michael Merzenich nachgewiesen.

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Wie können auch Sie diese Fähigkeit erwerben? Machen Sie sich auf unserer Internetseite über die verschiedenen Möglichkeiten kundig: Besuchen Sie eines unserer Seminare, bestellen Sie sich das Audio-Seminar oder buchen Sie uns für Ihr Unternehmen. Gerne können Sie sich vorab auch den kostenfreien Basis-Kurs auf einer Audio-CD sowie den kostenfreien Online-Kurs bestellen.

Wir wünschen Ihnen viel Freude und Erfolg beim Erlernen des Schnell-Lesens.

25 08 17

Fig.18B

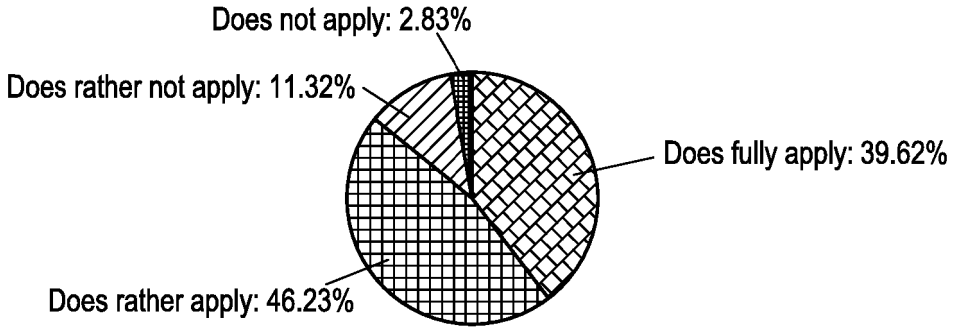

Fig.19A

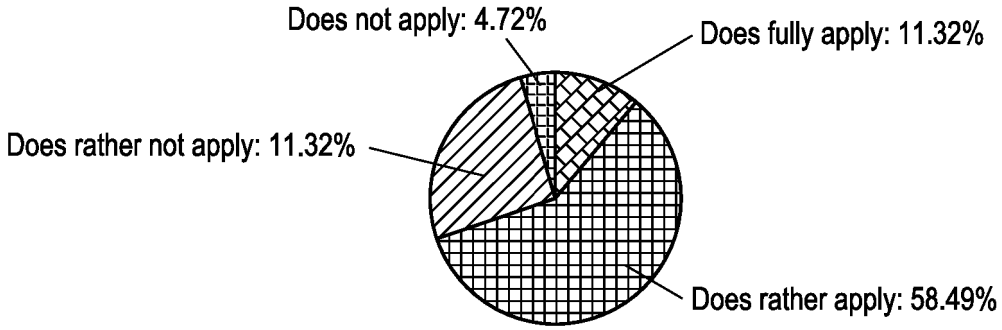

Fig.19B

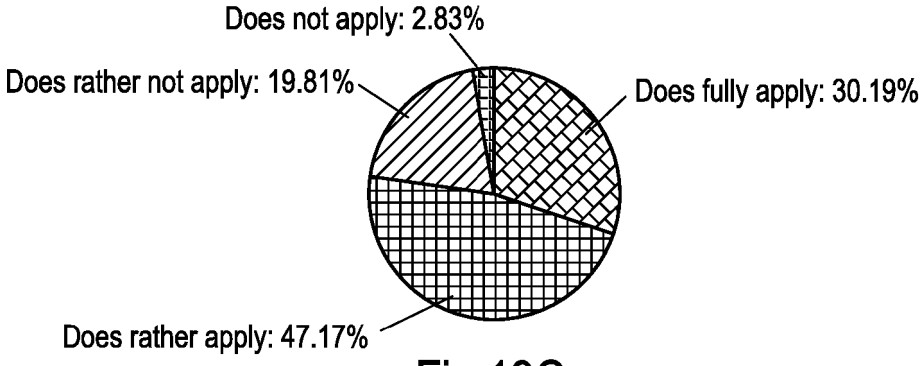

Fig.19C

25 08 17

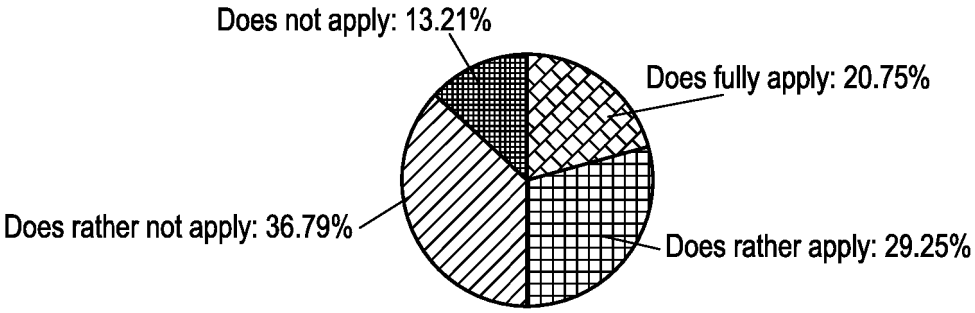

Fig.19D

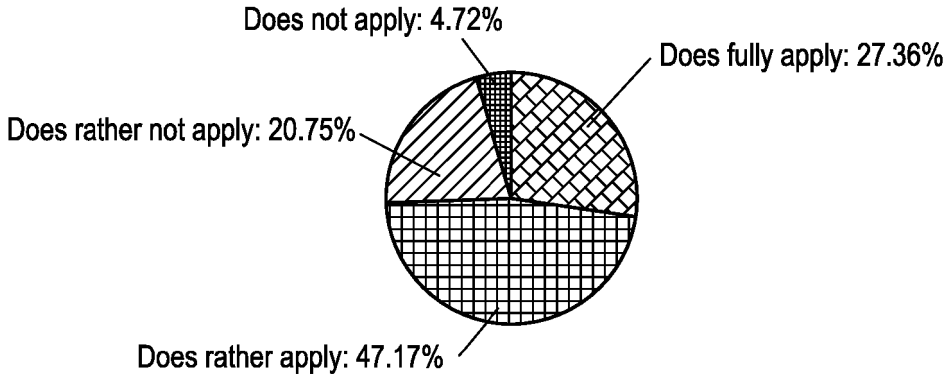

Fig.19E

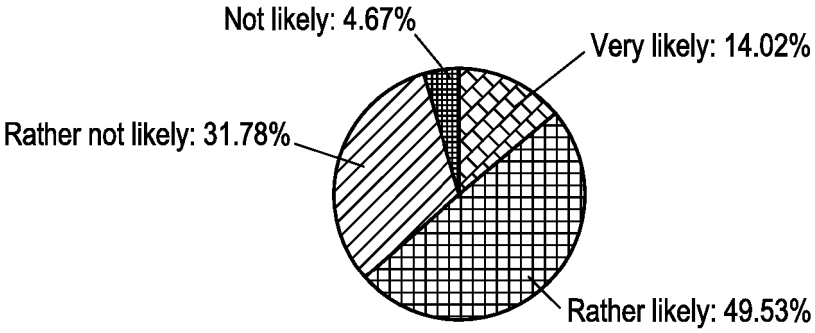

Fig.19F

25 08 17

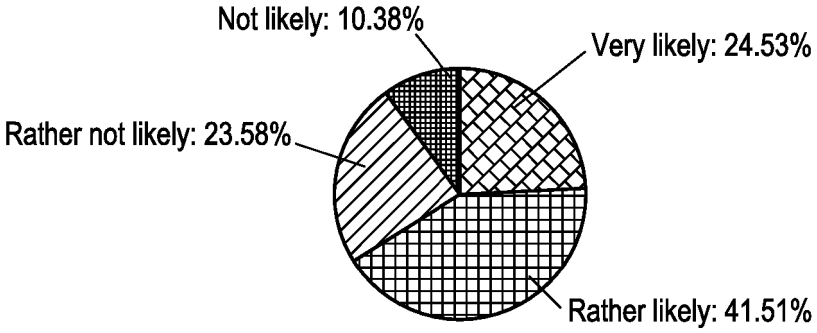

Fig.19G

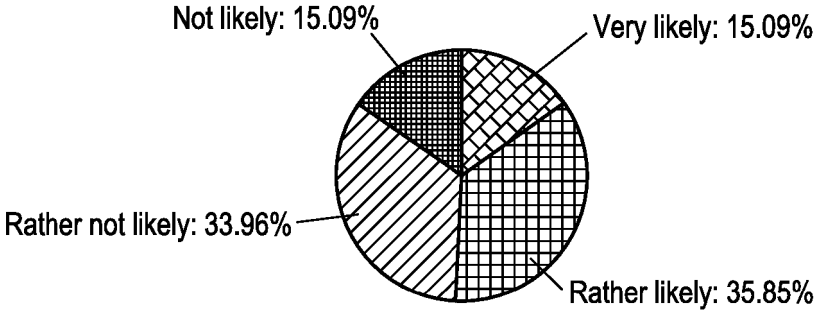

Fig.19H

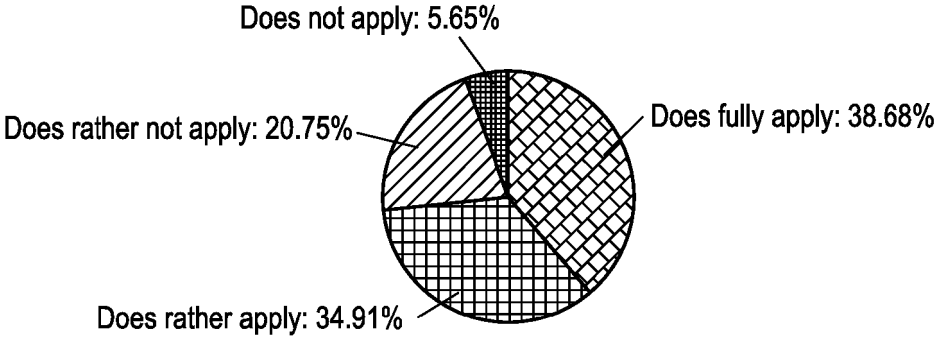

Fig.19I

25 08 17

25 08 17

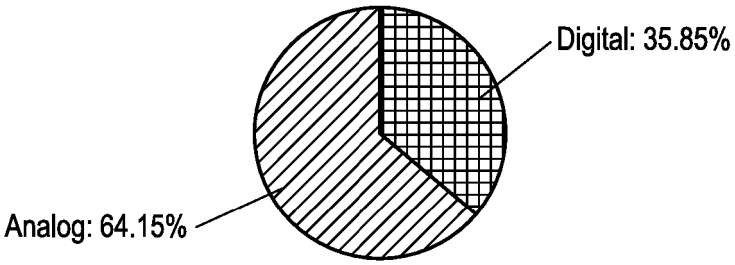

Fig.19J

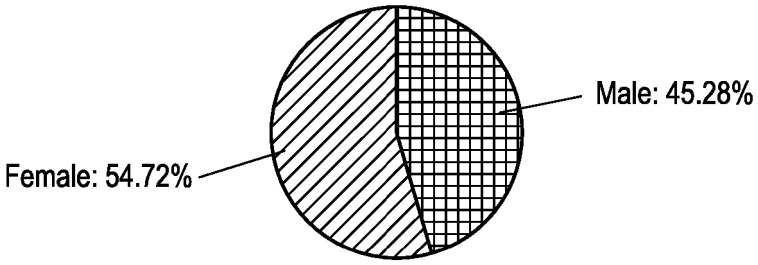

Fig.19K

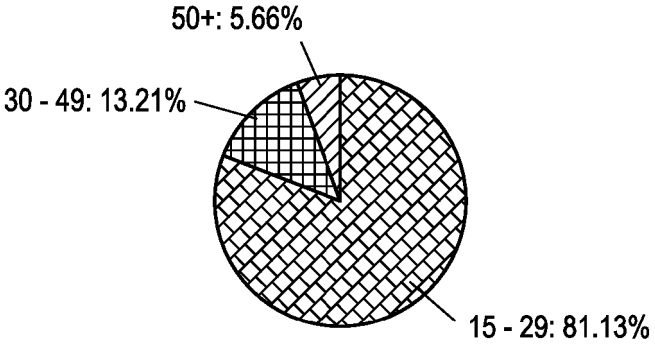

Fig.19L

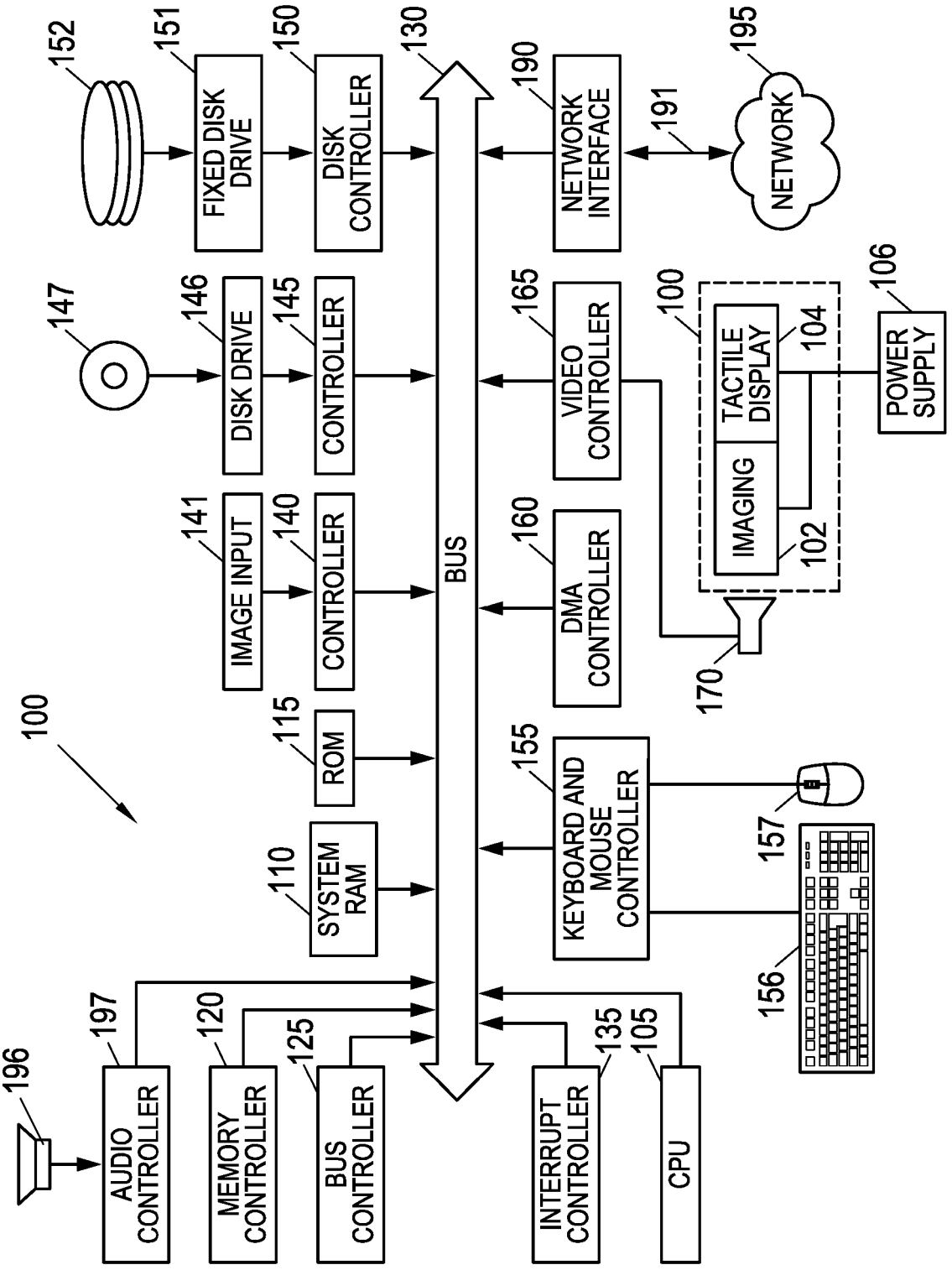
100
196
AUDIO CONTROLLER
197
MEMORY CONTROLLER
120
BUS CONTROLLER
125
INTERRUPT CONTROLLER
135
CPU
105
SYSTEM RAM
110
ROM
115
IMAGE INPUT
141
CONTROLLER
140
DISK DRIVE
146
CONTROLLER
145
FIXED DISK DRIVE
151
DISK CONTROLLER
150
152
147
BUS
130
KEYBOARD AND MOUSE CONTROLLER
155
DMA CONTROLLER
160
VIDEO CONTROLLER
165
NETWORK INTERFACE
190
191
NETWORK
195
TACTILE DISPLAY
104
IMAGING
102
100
170
POWER SUPPLY
106
157
156

Fig.20

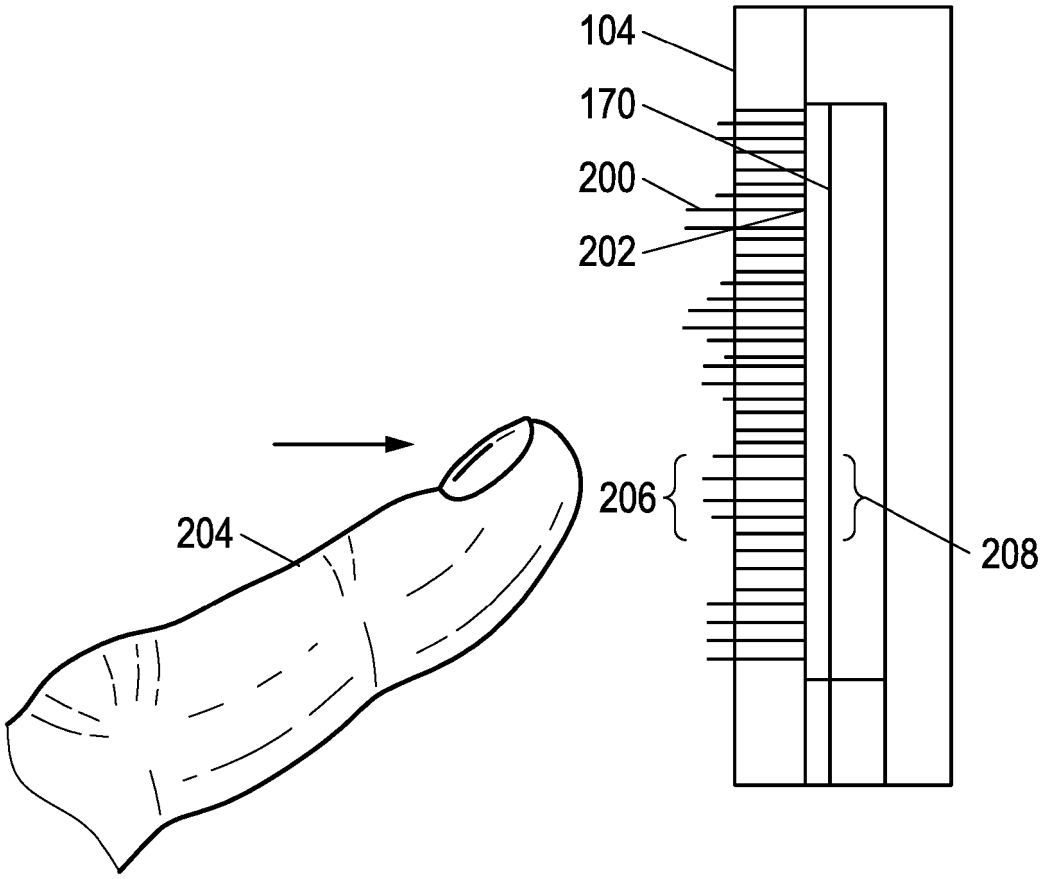

Fig.21A

25 08 17

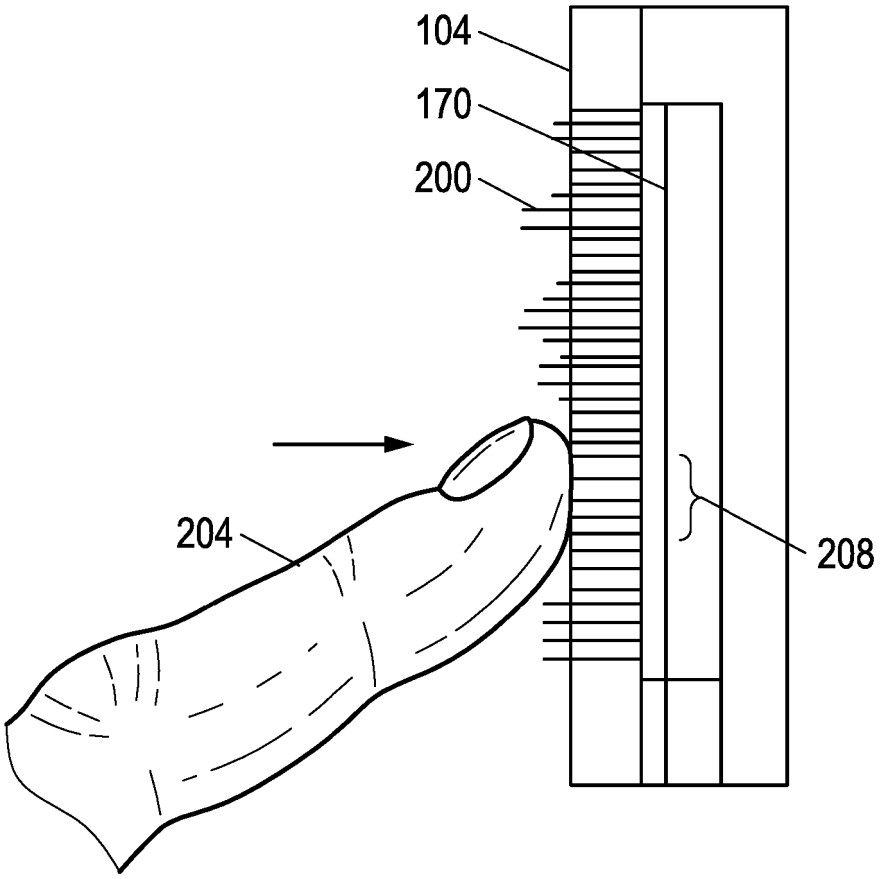

Fig.21B

The following terms are registered trade marks and should be read as such wherever they occur in this document:

Apple
MicroSoft
IBM
DelL
Kindle
Kobo
Tolino
Facebook
Twitter
Tumblr
Google
Yahoo
Bing
Samsung
Blackberry
Adobe
InDesign
Acrobat
Illustrator

SPEED READING SYSTEM AND METHOD

Cross reference to Related Application(s)

This application claims priority to EU application no. EP16001321.5, filed 10 June 2016, entitled SCHNELLLESEVERFAHREN UND -SYSTEM, and to US application no. 15/213,418, filed 19 July 2016, entitled SPEED READING SYSTEM AND METHOD, the contents of the entirety of both of which is explicitly incorporated herein by reference and relied upon to define features for which protection may be sought hereby as it is believed that the entirety thereof contributes to solving the technical problem underlying the invention, some features that may be mentioned hereunder being of particular importance.

Copyright and legal notice

A part of the disclosure of this patent specification includes material that is protected by copyright. The copyright holder will not raise any objection to the reproduction of the patent specification or patent disclosure in its original form – regardless of by whom –, as it appears in the patent record and in the documents of the Patent and Trademark Office, but otherwise reserves all copyrights. In addition, none of the references to patents or products of third parties contained in this document is to be taken as an admission that the present invention is not entitled to predate such material based on a prior invention.

Background of the invention

The invention relates to a method for improving the readability of digitized texts when they are reproduced on a variable display. The invention also relates to a software that is stored on a data carrier and is for carrying out the method.

The handling of large quantities of text – in commercial and public documents, emails, blogs, books, and prospectuses, to name only a few – has become an everyday problem. That which has been read is often quickly forgotten again or not even correctly perceived in the first place. Due to the overloading of the eye, in many cases, the observer is no longer able to read a text in a correct and lasting way.

It is already known that this problem can be at least partially remedied by improving the readability of texts (original texts) through measures that relate to their reproduction. The invention lies generally in the area of such measures. In particular, the invention relates to the subjects defined in the independent claims.

Summary of the Invention

A method is provided for improving the readability of digitized texts when they are reproduced on a variable display. The invention is implemented by software that is stored on a data carrier. (see first paragraph of Background above for support)

The present invention relates to a method for handling texts when they are reproduced on a display, in which a digitized text that is to be processed is selected; a software program is loaded, which includes at least one rule for the setting of at least one distinction that is perceptible when reproduced on the display, such distinction being incorporated into the digitized text; and the software program is executed so as to process the digitized text in order to make the at least one distinction in the text in accordance with the rule, the distinction improving the perceptibility of the text.

According to a preferred embodiment of the present invention, the software program effectively recognizes the text comprising words, wherein a word comprises one or more alphanumeric character(s). The term "word" is to be construed in its broadest sense for interpreting the present claims. In particular, it can only comprise one single letter, a number or a combination of letters and numbers ("H5N1"). Usually, words are separated from one another by a blank which makes their recognition easy. Thus, the software program effectively recognizes words in the text, preferably, by recognizing blanks thereinbetween.

Preferably, the software program effectively recognizes sentences, wherein a sentence comprises of one or more word(s). Preferably, sentences are recognized by a corresponding "end of sentence" sign, such as a "period", an exclamation mark or a question mark or the like. In order to resolve any ambiguousness with regard to other uses of the "period" such as in abbreviations, such other uses could be stored in a corresponding table and exclude the detection or recognition

of the end of a sentence. Even if no such sign is present, the end of a sentence could be recognized by a certain isolation of a number of words.

Advantageously, the software program effectively recognizes paragraphs or sections, wherein a paragraph or a section comprises one or more sentence(s). Preferably, paragraphs or sections can be recognized by one or more "new line" marks. They can also be recognized as titles or a hierarchy thereof or legends and the like.

According to a preferred embodiment of the present invention, the at least one rule comprises at least one frequency-based rule and at least one distinction-type rule. Thus, in this embodiment, the at least one rule is a combination of two distinct rules. Thereof, one is a rather stringent mathematical rule (the frequency-based rule) and provides for a certain regularity or underlying rhythm and in very general terms determines where a distinction is set; the other one (the distinction-type rule) is a generally more complex rule which, particularly, determines how a distinction is set but on high level, (i.e. not regarding a particular form of highlighting such as using a bold font, capitalization etc.) and still further can take linguistic aspects or content-related aspects into account.

Preferably, according to the at least one frequency-based rule, distinctions are set with a predetermined or user-selectable frequency in the text, said frequency being applied to the words or sentences, wherein said distinctions are set starting from the first word of a sentence or from the first sentence of a paragraph or section, and wherein said frequency corresponds to a period which is the number of words or sentences from a distinction up to a subsequent distinction, wherein the distinction is excluded and the subsequent distinction is included for determining the period, according to the at least one frequency-based rule. Thus, the period allows a simple definition of the frequency-based rule.

Preferably, according to the at least one frequency-based rule, said frequency is further modified in a predetermined manner or selectable and/or definable by the user by one or more of the following: compound-words being compounds comprising n words each separated by a respective separator are counted as a number k of words, k being an integer between 1 and n, for the purpose of the frequency; the frequency is only applied within a sentence or paragraph or

section and in a new sentence or paragraph or section, the frequency is re-applied; and the at least one frequency-based rule is overridden by the at least one distinction-type rule. Generally, it is contemplated in a preferred embodiment of the invention that the frequency-based rule is modified (in particular "overridden") by the distinction-type rule. However, a primary modification of the frequency-based rule going beyond a pure regularity based on word count is advantageously envisaged in the form of a modified frequency-based rule.

Advantageously, according to the at least one distinction-type rule, distinctions are set in words, wherein the distinction is set in a predetermined manner or selectable and/or definable by the user according to one or more of the following:

(a) for certain words a certain predetermined or user-selectable portion, such as a rounded or truncated fraction, of the beginning or the end of the word is made distinct;

(b) for words comprising p1, p2 ... to pn alphanumeric character(s), the distinction is set for a predetermined or user-selectable number of respective q1, q2 ... to qn alpha-numeric character(s) at the beginning or at the end of the words, wherein qi is an integer between 1 and pi, and n is a positive integer larger than 1, i being an integer between 1 and n;

(c) for compound-words being compounds comprising n words each separated by a respective separator are counted as a number k of words, k being an integer between 1 and n, wherein, if the number is 1, either each word or only the first word is made distinct;

(d) certain words or sentences are always made distinct;

(e) certain words or sentences are never made distinct;

(f) for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions,

(g) for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions; and

(h) if the at least one distinction-type rule is overridden by the at least at least one frequency-based rule.

It is noted that (a) to (h) constitute sub-rules of the distinction-type rule which can be applied individually or in combination. In the above "certain words" could be any type, kind, class or group of words such as certain word types according to grammar, words meeting certain length characteristics such as words having less or more than a predetermined number of characters, proper names, numbers, words comprised in a predetermined table or thesaurus, words of (a) certain language(s), technical terms, words having a predetermined occurrence in the text such as the most frequent word and so on. Similarly, "certain sentences" could be any type, kind, class or group of sentences such as a title, header or legend and so on. In the above the term "overriding" of one rule over the other means that, if according to one rule (the frequency-based rule or the distinction-type rule) a distinction is set, then according to the respective other "overriding" rule this distinction is unset. Further, it means that, if according to one rule (the frequency-based rule or the distinction-type rule) a distinction is not set, then according to the respective other "overriding" rule this distinction is set.

According to a preferred embodiment of the invention (referred to as "TYPO1" below, cp. **FIG. 2A**), the at least one frequency-based rule is that the period is one word, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words; and the at least one distinction-type rule is that 3/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first alphanumeric character is made distinct; in words with four alphanumeric characters the first two alphanumeric characters are made distinct and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

According to a preferred embodiment of the invention (referred to as "TYPO2" below, cp. **FIG. 2A**), the at least one frequency-based rule is that the period is one word, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words; and the at least one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters only the first alphanumeric character is made distinct, in words with four alphanumeric characters the first two alphanumeric characters are made distinct and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

According to a preferred embodiment of the invention (referred to as "TYPO3" below, cp. **FIG. 2A**), the at least one frequency-based rule is that the period is two words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein each word is made distinct, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section the frequency is re-applied; and the at least one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first alphanumeric character is made distinct, in words with four alphanumeric characters only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words each word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

According to a preferred embodiment of the invention (referred to as "TYPO4" below, cp. **FIG. 2A**), the at least one frequency-based rule is that the period is three words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section the frequency is re-applied; and the at least

one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first alphanumeric character is made distinct, in words with four alphanumeric characters only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words each word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

According to a preferred embodiment of the invention (referred to as "TYPO5" below, cp. **FIG. 2A**), the at least one frequency-based rule is that the period is four words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and the at least one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters only the first alphanumeric character is made distinct, in words with four alphanumeric characters, only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words only the first word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion this multiple highlighting, is maintained in the form of corresponding multiple distinctions.

According to a preferred embodiment of the invention (referred to as "TYPO6" below, cp. **FIG. 2A**), the at least one frequency-based rule is that period is five words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section the frequency is re-applied; and the at least one distinction-type rule is that 3/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters only the first alphanumeric character is made distinct, in words with four alphanumeric characters, only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words, only the first word is made distinct, wherein

for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

According to a preferred embodiment of the invention (referred to as "TYPO7" below, cp. **FIG. 2A**), the at least one frequency-based rule is that the period is six words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and the at least one distinction-type rule is that 3/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first alphanumeric character is made distinct, in words with four alphanumeric characters, only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words, only the first word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

According to a preferred embodiment of the invention (referred to as "TYPO8" below, cp. **FIG. 2A**), the at least one frequency-based rule is that the period is seven words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and the at least one distinction-type rule is for words comprising more than three alphanumeric characters, the distinction is made for three alphanumeric characters at the beginning of the words, whereas in words with up to three alphanumeric characters, all alphanumeric characters are made distinct, and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

According to a preferred embodiment of the invention (referred to as "TYPO9" below, cp. **FIG. 2A**), the at least one frequency-based rule is that the period is one sentence, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words, and the at least one distinction-type rule is for words comprising more than three alphanumeric characters, the distinction is made for three alphanumeric characters at the beginning of the words, whereas in words with up to three alphanumeric characters, all alphanumeric characters are made distinct, and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

According to a preferred embodiment of the invention (referred to as "TYPO10" below, cp. **FIG. 2A**), the at least one frequency-based rule is that the period is two sentences, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and the at least one distinction-type rule is for words comprising more than three alphanumeric characters, the distinction is made for three alphanumeric characters at the beginning of the words, whereas in words with up to three alphanumeric characters, all alphanumeric characters are made distinct, and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

Preferably, the user can select one of TYPO1 to TYPO10, as pre-defined sets of rules, to be applied to a text. Deviations from these TYPO-rules may be made. For example, numbers may be highlighted or distinguished.

Advantageous embodiments of the invention are defined in the claims which depend hereto.

Description of the drawings

Preferred embodiments of the invention will be explained in greater detail below in conjunction with the accompanying drawings. In the drawings,

FIG. 1 shows a flow chart for the analysis of the original text and its processing according to the invention;

FIG. 2A shows a flow chart for the selection of exemplary distinction rules;

FIG. 2B shows a set of seven exemplary rules;

FIG. 3 – 12 show sample texts resulting from application of the juxtaposed distinction rules (to the left thereof);

FIG. 13 - 15 show examples of various distinction types in which the left side describes the type of distinction and the right side displays an example of the text using the corresponding distinction type.

FIG. 16 shows a flow-chart illustrating the steps to be carried out by a user to make use of the "BIONIC READING"(TM) method according to the invention;

FIG. 17A and **FIG. 17B** show a sample text (without highlighting and with highlighting, respectively) with which the reading method "Weber", i.e. according to U.S. Patent Application Publication US 2002/0124026 has been tested. **FIG. 18A** and **FIG. 18B** show a sample text (without highlighting and with highlighting, respectively) with which the "BIONIC READING"(TM), i.e. the present invention, has been tested;

FIG. 19A to **19L** show the results of a survey among 106 (**FIG. 19F**: 107 participants) participants relating to the benefits of the "BIONIC READING"(TM) according to the present invention;

FIG. 20 is a schematic view of an alternate embodiment of the invention.

FIG. 21A is a side view of a portion of the tactile display of the alternate embodiment of the invention, in one state of operation.

FIG. 21B is a side view of a portion of the tactile display of the alternate embodiment of the invention, in another state of operation.

Detailed Description of the Preferred Embodiment

The brain center that is responsible for reading assists the eye through selective simplification. For example, when reading at the usual speed, no word is registered by the eye from the first letter to the last. The observer only absorbs the beginning letters of a word; the brain center then combines these with the ending letters of a word that the reader knows. Consequently, the eye and brain participate cooperatively in the reading process.

The original texts affected by this are usually homogeneously reproduced in conventional typography and do not contain any aids to improve the reading process. In printed texts, such aids had to already be provided during typesetting since a text can no longer be changed once it has been printed. The situation is different with digitized texts that are reproduced and read, for example, on a screen. In this case, a "subsequent" processing of the original text is possible that improves its readability and this constitutes an important focus of the invention.

When implementing the invention, the typeface of the original text is changed for the reproduction so that the eye is guided over the text by means of selectively produced fixation points 10. As a result, the content is read more quickly, consciously, and thus lastingly. The invention is therefore also referred to as "BIONIC"(TM) typography, as in the enclosed drawings.

The fixation points 10 are implemented according to the invention by means of distinctions (in the typographical sense), for example by reproducing letters that were in normal typeface in the original text (especially the beginning letters of words) in a bolder typeface.

In the context of the present application, the term "distinction pattern" (or "pattern" for short) means the choice of text positions in which a distinction is set and thus a fixation point 10 is established. The choice of the distinction used in this case is referred to as the "distinction type."

The visual perception occurs by means of fixations. During a fixation, the eye is directed at a fixation point 10 for about 0.3 seconds. It then jumps to another fixation point 10 in a quick, jerky movement (saccade). In the fixation phases, high-resolution detail visual images are captured via the fovea of the eye, but during saccades, no perception is possible. The sensation of seeing is maintained by means of the peripheral field of vision and the already stored visual impressions. The fixations serve to match internal mental images with reality. In this regard, perception differs from a computer input. An experienced person requires fewer fixations to recognize something than an inexperienced person. The number of fixations per second fluctuates only slightly and cannot be voluntarily influenced to any significant degree.

People read a text by allowing their eye to skip over the text along the reading direction to individual words or parts of words. During a fixation with a duration of 250 to 350 ms on average, partial perceptions are matched to stored data (visual word recognition).

If a word is unintelligible or unknown, frequently, the spelling-out method or sounding-out method are resorted to, which slows the reading process. If what has just been read makes no sense, regressions often occur (skipping back to passages of text that have already been read).

During reading, therefore, not every individual word is fixated upon. By contrast, depending on the existing visual vocabulary, long and unusual words require several fixations for a correct word recognition.

In preferred embodiments of the invention, the fixation points 10 (implemented in the form of distinctions) are set to selectable smaller or larger distances. For example, fixation points 10 are defined after every second, third, fourth, etc. word and the thus-defined distinction pattern 50 is applied to the entire text by means of an algorithm. In other embodiments, the first word of each sentence or of every other sentence is marked by distinction. The setting of fixation points 10 can follow a programmed preset pattern that the reader simply selects. Alternatively, it is possible for the reader to define his own pattern and to save it in the program. It is thus possible for each reader

to select his individually preferred pattern of distinctions (fixation points 10) in accordance with his reading behavior and to have it displayed visually by the software. This makes it possible to adapt the distinction pattern 50 to the reading habits and experience of the reader, the difficulty of the text, and other individual aspects of the interaction between the reader and reading material.

Whereas in the embodiment of the invention described above, the fixation points 10 are set in accordance with an established repetition frequency, in other embodiments, special criteria must be taken into account when setting the fixation points 10. It is thus possible to provide distinctions to especially longer words, foreign words, technical terms, or for example words beginning with capital letters. For such purposes, the software will contain a corresponding rule and may include a library function.

An example for the application of such special distinction rules is based on a word recognition for which the text is processed by means of a corresponding word recognition component of the software. For example, this word recognition component determines, in the text, those components (e.g. words) that exhibit a high repetition rate. This can relate to the entire text or to individual segments of text. Such particularly frequently occurring components are then not distinguished since they are not suitable for use as fixation points 10. The components that exhibit a low repetition rate are provided with a distinction according to the invention, for example in that the two first letters are reproduced in a bolder typeface than the subsequent letters. The repetition rate in question here can be defined in any way, for example based on the mean (average) repetition rate in comparison to all of the components occurring in the text, or based on a numerically defined number of repetitions in the text. For example, distinctions can be provided only to those components that occur only once or at most three times in the text. The distinction rule can, for example, take into account whether components begin with capital letters.

If one wishes to apply such a rule to the case described above, in which a fixed repetition frequency of the distinction is defined, then the components whose repetition frequency in the text is “high” are not taken into account in the application of the fixed repetition frequency. Then for example every other component is emphasized by distinction, but the components that occur with a “high” repetition frequency are not counted. As a result, every other component is then not emphasized by distinction on the display.

Referring now to **FIGS. 1** and **2A**, the software used according to the invention is based on rules 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410 stored therein that permit the depiction of the text to be adapted to the reading speed of the user. This is based on the selected increase in optical recognizability of text components in the body text that has been converted according to the invention. The user can execute a selection step 201, 202, 203, 204, 205, 206, 207, 208, 209, 210 to select a suitable rule 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410 from the rules preset by the system or can himself define a rule that is conducive to his optimum reading speed or his optimum text comprehension. The choice of the rule produces the conversion of the original text according to the selected pattern of fixation points 10 (that corresponds to the rule), for example the emphasis of certain word fragments through corresponding distinctions at certain text positions, with the remaining word fragments then being depicted in a less conspicuous and thus less visible fashion.

The user can download a corresponding software onto his digital medium (PC, laptop, tablet, e-reader, smartphone etc.), in particular from a corresponding provider on the Internet. After installation, the software can be used on any digital text to embody its reproduction on the display of the medium in accordance with a selected or user-defined distinction rule.

The fixation points 10 are based on the optical parameters of (typographical) distinction types. The distinction types can be combined with one another. It is thus possible, for example, to combine the distinction "extra bold" with the distinction "bold," for example by depicting the starting letter of a word in extra bold and the following letter in bold. It is likewise possible to also assign a distinction to the final letters in order to thus intensify the starting letters.

The invention is suitable for all of the font weights within font families and font superfamilies (hybrid fonts). The font standardization with font width (compressed, condensed, normal, extended, ...), font style (normal, italic), and stroke width (fine, narrow, normal, medium, bold, extra bold, ultra bold, ...) of the individual font is central to a font family. All fonts are defined by the font standardization and are thus assigned their independent depiction type (e.g. normal, bold, italic, ...). A font superfamily is the largest form of a collection of various font weights within the same font. Thus various features of a font can be combined within a font superfamily. If a font

is designed without serifs, then within the font superfamily, there can also be a font family that includes a font without serifs [sic – with serifs]. The structure of this is as follows: 1. font superfamily (includes a plurality of font families of different types {with serifs, without serifs}), 2. font family (includes a plurality of fonts of the same type), 3. font (i.e. the font with the corresponding font weight).

The invention can be used outside of font families; e.g. in font mixes, distinction types, and other atypical font combinations. For the distinction type 52 of individual letter combinations with the use of the invention, the following variants are particularly preferable: "bold" – within the stroke width "extra bold" –, "italics," "condensed," "expanded," "font size," "negative," "different font," "underline," and "all caps." In preferred embodiments, the reader can select both the distinction pattern 50 and the distinction type 52 from among a plurality of presets or can even define them as a rule himself.

In this connection, a text in the sense of the invention is in particular, but not exclusively, a "... thematic and/or functionally oriented, coherent linguistic or linguistic/figurative complex that has been produced with a particular [...] communication aim [...], fulfills a recognizable communicative function [...], and constitutes a closed unit in terms of its content and function." (Susanne Göpferich: Text Types in Natural Sciences and Technology. Pragmatic Typology – A Contrast *[Textsorten in Naturwissenschaften and Technik. Pragmatische Typologie – Kontrastierung]* – Translation. Forum for Foreign Language Research 27 *[Forum für Fremdsprachen-Forschung 27],* Narr, Tübingen 1995). A text is thus in particular a sequence of words that, in the syntactical context, constitute a substantial statement. Texts in the sense of the invention can include numbers, symbols, and the like. A table in the sense of the invention constitutes a text, even if it does not contain words. The software-determined rule for setting the fixation points 10 can be defined so that it only takes into account words (but no numbers, symbols, etc.). Alternatively, the rule can distinguish, for example, all (or individual) elements of a text that are not words.

The invention can be used independent of the language in which the text is written. In particularly preferred embodiments, the text involves languages that can be represented by

alphabetical characters. It is also possible, however, for syllabic writing systems and other symbolic systems to be handled according to the invention.

According to the invention, the source of an original text is not important. What is relevant is that it is in a digitized form so that the invention can be used on the text in order to produce the fixation points 10 and to legibly reproduce the text that has been changed in this way. The original text can be digital, for example like a text written on a PC, in an email, or the like. In lieu of this, the text can originally be in the form of a hardcopy text, for example a page of a book, a typescript, or even hand-written notes. In such cases, the digitization of the text as a rule precedes the processing according to the invention.

The changed text is reproduced by means of a display. A display in the sense of the invention is any device with which a set of digital data that correspond to the text can be reproduced so that it can be read by a person. Preferably, the display is a monitor or screen, for example that of a PC or tablet. The reproduction of the text that has been changed according to the invention is then visually perceptible. For example, however, the invention can also be used with tactilely readable text (for example texts in Braille, by means of a Braille display).

The technical implementation of the invention is carried out by means of suitable software-based devices. In this connection, these can be devices especially designed for implementing the invention. It is also possible, however, to implement the invention using existing devices that already have the necessary functional devices (modules) for other purposes. Possible instances of these include in particular known mobile phones (provided that they have a suitable display), tablets, PCs, e-readers, and the like. It is possible for the software that is required for the implementation of the invention to be embodied in the form of an "app" that the user downloads onto his device, for example via the Internet. The text that is distinguished according to the invention is then shown on the display of this device.

In preferred embodiments, such a device is equipped with an input module for recording data that correspond to a digitized text; a memory module for a processing program, which includes at least one rule for the setting of at least one distinction in a digitized text; a processing module that uses the at least one rule on the data in the input module in order to provide the digitized text

with the at least one distinction; and a display module 170 for showing the distinguished text on a display. Such modules are already contained in known devices such as the mobile phones, etc. mentioned above.

If the user is to be able to select from among different distinction patterns 50 and/or distinction types 52, then the device will include an input module 155 for defining and/or selecting a rule for the setting of distinctions. The devices mentioned above include input modules 155 that can be used for this function.

The implementation of the software that is required according to the invention can be oriented on publications that address the processing of texts. Examples of these include US 6 820 237 (Suhayya et al.), US 7 702 611 (Chi et al.), and US 2002 124026 (Weber), all of which – by virtue of being mentioned – are hereby incorporated into the disclosure content of the present application and are referred to in order to disclose functional aspects of the present invention.

Referring again in particular to **FIG. 1**, a schematic flow diagram 1000 of the workflow of the invention. The diagram 1000 shows the (software-executable) steps by which an original text is initially analyzed. Of course, authors 1002 must first prepare, via a writing step 1004, a basic electronic text 1006. This electronic text 1006 is unlocked via an unlock function 1008 and processed by software 1010 to yield a processed text 1012. Alternatively, a user having difficulty reading (visually, here represented with an eye symbol 1014 certain text 1016 may select via a drop down menu (not shown) or decision tree 1020 according to a selected rule or set of rules (see **FIG. 2**). The text 1016 is then unlocked via the unlock function 1008 and processed as above using the rule or rules selected to yield a processed text 1012, which may be made available to many readers 1014. The workflow may include speech recognition, text recognition, and typeface recognition steps.

Referring to schematic block 1030, speech recognition may be used to capture the electronic text. Text recognition may be used to convert printed text into electronic text. Typeface recognition may be used to select compatible typeface elements with the legacy typeface elements. Speech recognition typically uses the Latin alphabet composed in any number of languages, such as EN, GE, SP, PO, FR, IT ..., Japanese (Hiragana, Katakana), Chinese alphabet (Han characters),

Cyrillic alphabet, or Hindi alphabet (Hindi). Text recognition functionality identifies the beginning of a word, or letter combinations, body text, text distinction, titles, figure captions, etc. Access to definitions in different languages is useful. Recognition of typefaces functionality recognizes font weight of the basic font (normal becomes semi-bolded or extra bold and black is underlined or block-reversed). Already bolded (distinguished) texts are enhanced with an increased stroke thickness. The processing using the "BIONIC"(TM) typography of the invention results in text converted according to predetermined parameters, integrating text wrap rules (in which divisions are based on pre-existing rules, where a dictionary check may sometimes be required). In interpreting the processed text which is presented in WYSIWYG format, the text can be saved or used in some other way. Of course, the processed text may be saved in a newly created text document (content). In file formatting, this is based on the corresponding output devices. The different language of the device interpretation is finally saved.

Then comes the text processing 60 (conversion) according to the invention in which distinction pattern 50 and distinction type 52 are applied to the analyzed original text. The resulting changed text can be saved and/or output and can be saved as a file (file formatting). Various output formats of course are possible. It can be a browser plug-in, a Wordpress application, an App, a software plugin or add on for implementing in an existing software (for example, MS Word), an output format like PDFile, etc. The principle is, however, that a digital output is generated, which is converted and readable by a diverse applications (software).Referring now to **FIG. 2A**, a flow chart 2000 for the selection of rules 2002 is shown. Each rule is designated TYPO1 to TYPO10, but of course many more rules can be selected. Note that the rule name "TYPO" has nothing to do with the common meaning of a "typo" in the English language. The decision blocks 201, 202, 203, 204, 205, 206, 207, 208, 209, 210 are therein illustrated from among a total of 10 rules 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410 that correspond to particular distinction patterns and distinction types. In a first step 2020, the source text file is called up for processing. In a second step 2022, the "BIONIC"(TM) typography module of the invention is called up. In a third step 2024, the rules 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410 are called up and a selection is made among them typically using a yes-no decision block 201, 202, 203, 204, 205, 206, 207, 208, 209,

210. In a fourth step 2026, the selected rules are applied to the source text. In a fifth step 2030, the source file is displayed in "BIONIC"(TM) typographical format.

FIG. 3 shows the sample text 500 corresponding to the rules of **FIG. 2A**.

FIG. 4 – 12 show sample texts 500a, 500b, 500c, 500d, 500e, 500f, 500g, 500h, 500i resulting from application of the juxtaposed distinction rules (to the left thereof);

FIG. 13 - 15 show examples 600, 600a, 600b of various distinction types at fixation points 10 in which the left side describes the type of distinction and the right side displays an example of the text using the corresponding distinction type. **FIG. 17A** and **FIG. 17B** show a sample text (without highlighting and with highlighting, respectively) with which the reading method "Weber", i.e. according to U.S. Patent Application Publication US 2002/0124026 has been tested. **FIG. 18A** and **FIG. 18B** show a different sample text (without highlighting and with highlighting, respectively) with which the "BIONIC READING"(TM), i.e. the present invention, has been tested. It should be noted that the sample text shown in **FIG. 18A** and **18B** comprises more characters, and therefore, 5 to 6 lines more text (the text comprises longer words). Different sample texts were chosen for comparing the present invention to the "Weber" method in order not to influence the test by having read the text twice. Three test persons have read both texts shown in **FIG. 17B** and **18B**. When finished, for each text, the time is stopped and noted.

There were three test persons participating in the speed reading test. The first test person (test person 1) is a 24-year old schoolgirl. The second test person (test person 2) is a 52-year old male print-media processor. The third test person (test person 3) is 29-year old female administrative clerk.

Regarding the Weber reading method (sample text shown in **FIG. 17B**) the reading times (and the average reading speed in words per minute) were: Test person 1: 2min 52sec (less than 150 wpm); test person 2: 3min 30 sec (less than 150 wpm) and test person 3: 2min 21 sec (172 wpm).

Regarding the inventive "BIONIC READING"(TM) (sample text shown in **FIG. 18B**) the reading times (and the average reading speed in words per minute) were: Test person 1: 1min 53sec (220 wpm); test person 2: 2min 3 sec (200 wpm) and test person 3: 1min 49 sec (230 wpm).

In order to determine the average reading time in the above, the following evaluation table (Table 1) has been used which takes into consideration the amount of text of both body texts (**FIG. 17A** and **18A**, respectively) and corresponds to the effective determination of the reading speed (Source: HSB, Institut für Hochschulbildung; President: Prof. Dr. Stefan Schnobrich):

Measured reading time	**Reading speed in words per minute (wpm)**
0 min 15 sec	1,600
0 min 20 sec	1,200
0 min 25 sec	960
0 min 30 sec	800
0 min 35 sec	685
0 min 40 sec	600
0 min 45 sec	535
0 min 50 sec	480
0 min 55 sec	435
1 min 00 sec	400
1 min 05 sec	370
1 min 10 sec	340
1 min 15 sec	320
1 min 20 sec	300
1 min 25 sec	280
1 min 30 sec	265
1 min 35 sec	250
1 min 40 sec	240
1 min 45 sec	230
1 min 50 sec	220

1 min 55 sec	210
2 min 00 sec	200
2 min 05 sec	192
2 min 10 sec	184
2 min 15 sec	178
2 min 20 sec	172
2 min 25 sec	166
2 min 30 sec	160
2 min 35 sec	155
2 min 40 sec	150

Table 1

One can clearly see, by comparing the test results, that the absolute reading time has been reduced and the average reading speed is increased by the "BIONIC READING"(TM) in accordance with the present invention compared to the "Weber" prior art method.

In **FIG. 19A** the result of a survey among 106 participants is shown, wherein the participants were asked to comment on the statement „I have the impression to be able to read the text faster with "BIONIC READING"(TM)". In **FIG. 19B** the result of a survey among 106 participants is shown, wherein the participants were asked to comment on the statement „I have the impression to be able to better understand the text with "BIONIC READING"(TM)". In **FIG. 19C** the result of a survey among 106 participants is shown, wherein the participants were asked to comment on the statement „I have the impression to be able to more effectively absorb the text with "BIONIC READING"(TM)". In **FIG. 19D** the result of a survey among 106 participants is shown, wherein the participants were asked to comment on the statement „I like the type face of "BIONIC READING"(TM)". In **FIG. 19E** the result of a survey among 106 participants is shown, wherein the participants were asked to comment on the statement „I can imagine using "BIONIC READING"(TM)". In **FIG. 19F** the result of a survey among 107 participants is shown, wherein the participants were asked to answer the question „How likely would you use a "BIONIC READING"(TM) extension for your web browser (e.g. Chrome)?". In **FIG. 19G** the result of a survey among 106 participants is shown, wherein the participants were asked to answer the

question „How likely would you use a "BIONIC READING"(TM) application for the e-book?". In **FIG. 19H** the result of a survey among 106 participants is shown, wherein the participants were asked to answer the question „How likely would you buy a book optimized with "BIONIC READING"(TM)?". In **FIG. 19I** the result of a survey among 106 participants is shown, wherein the participants were asked to answer the question „Do you read often?". In **FIG. 19J** the result of a survey among 106 participants is shown, wherein the participants were asked to answer the question „Do you prefer reading digital or analog reading?". **FIG. 19K** relates to the result of a survey among 106 participants, wherein the biological gender of the participants is shown. **FIG. 19L** relates to the result of a survey among 106 participants, wherein the age of the participants is shown.

The application fields of the invention are innumerable; a selection of preferred application fields is listed below as "Application fields."

The reproduction of a text that has been changed according to the invention is then visually perceptible. The invention can, however, also be used for example with tactilely readable texts (for example texts in Braille by means of a Braille display). The disclosure of US 6636202, for Ishmael Jr., the application for which was filed on April 27, 2001, is included herein by reference and is referred to in order to describe essential aspects of the tactile display and the conversion of incident light from a visual image into electrical signals, which are proportional to the grayscale intensity of the incident light, which puts the method and device of the present invention in a position to produce a distinction by raising elements of the tactile display as described in the patent by Ishmael Jr.

Application fields

Application fields of digital media

Prerequisite: preinstalled online applications

- email (Apple, Microsoft, IBM, Dell)
- e-books (Kindle, Kobo, Tolino)

- social media (Facebook, Twitter)
- blogs (Tumblr, freelance journalism)
- service portals
- search engines (Google, Yahoo, Bing, DuckDuckGo)
- smartphones/tablets for communications applications (Samsung, Apple, HTC, Blackberry)
- websites (company content)
- e-papers (media landscape)
- Service portals (books on-demand)

Application fields of digital applications

Prerequisite: preinstalled DTP programs from publishers such as Adobe (InDesign, Acrobat, Illustrator, …), Microsoft (Word, Excel, …), Apple (Pages, TextEdit, …)

- desktop publishing (Adobe, Microsoft Dos, Apple)
- universities
- schools
- countries/territories (respective agencies), etc.

Products of analog media

- books

- periodicals (media landscape)
- users manuals
- operating instructions
- general terms and conditions
- business reports
- newspapers/magazines
- prospectuses
- brochures, etc.

In one embodiment, the apparatus comprises imaging means for converting incident light from a visual image into electronic signals that are proportional to the gray scale intensity of the incident light. The height of each pixel in the tactile display is dynamically variable in proportion to the electrical signals from the imaging means. (see col. 1, lines 59-67 of '202 patent).

Referring now to **FIG. 20**, an exemplary system architecture for a computer system **100** is shown.

FIG. 20 illustrates an exemplary system architecture for a computer system **100,** such as the personal computer system, on which the invention may be implemented. The exemplary computer system of **FIG. 20** is for descriptive purposes only. Although the description may refer to terms commonly used in describing particular computer systems, the description and concepts equally apply to other systems, including systems having dissimilar architectures. Computer system **100** includes a central processing unit (CPU) **105,** which may be implemented with a conventional microprocessor, a random access memory (RAM) **110** for temporary storage of information, and a read only memory (ROM) **115** for permanent storage of information. A memory controller **120** is provided for controlling RAM **110.** A bus **130** interconnects the components of computer system **100.** A bus controller **125** is provided for controlling bus **130.** An interrupt

controller **135** is used for receiving and processing various interrupt signals from the system components. Mass storage of data may be provided by a diskette, CD ROM **147,** or hard drive **152.** Data and software may be exchanged with computer system **100** via removable media **147** such as diskette of CD ROM. Removable media **147** is insertable into drive **146** that is, in turn, connected to bus **130** by a controller **145.** Hard disk **152** is part of a fixed disk drive **151** that is connected to bus **130** by controller **150.** User input to computer system **100** may be provided by a number of devices. For example, a keyboard **156** and mouse **157** are connected to bus **130** by controller **155.** Similarly, an image input device **141,** such as a scanner, is connected to bus **130** by controller **140.** An optional audio transducer **196,** which may act as both a microphone and a speaker, is connected to bus **130** by audio controller **197,** as illustrated. It will be obvious to those skilled in the art that other input devices, such as a pen and/or tablet may be connected to bus **130** and an appropriate controller and software, as required. Direct memory access **(DMA)** controller **160** is provided for performing direct memory access to RAM **110.** A visual display is generated by video controller **165** that controls video display **170.** Computer system **100** also includes a communications adaptor **190** that allows the system to be interconnected to a local area network **(LAN)** or a wide area network **(WAN),** schematically illustrated by bus **191** and network **195.** Operation of computer system **100** is generally controlled and coordinated by operating system software, such as the OS/2® operating system, available from International Business Machines Corporation, Boca Raton, Fla. or Windows 95® from Microsoft Corp., Edmond, Wash. The operating system controls allocation of system resources and performs tasks such as processing scheduling, memory management, networking, and 1/0 services, among things. In particular, an operating system resident in system memory and running on CPU **105** coordinates the operation of the other elements of computer system **100.** The present invention may be implemented with any number of commercially available operating systems including OS/2, UNIX Windows NT and DOS, etc. One or more applications, such as Lotus Notes, commercially available from Lotus Development Corp., Cambridge, Mass., may be executable under the direction of the operating system. If the operating system is a true multitasking operating system, such as OS/2, multiple applications may execute simultaneously. (see col. 4, line 22 to col. 5, line 19 of '202 patent). As shown in **FIGS. 21A** and **21B,** the tactile display **104** may be secured at a narrow gap from the surface of the touch screen **170** so that touching or pressing the individual pins **200** in the tactile display conveys or transmits a similar touching or pressing upon the touch screen **170.** By positioning the imaging

means or photometer in or near the end **202** of the pins **200,** the imaging/tactile device forms a true and complete interface, i.e., both input and output, between the touch screen **170** of the computing device and the operator's finger **204.** The interaction between the tactile display and the touch screen display relies upon the user's touch input and does not require any direct electronic attachments or communications with the computing device. **FIG. 21B** illustrates that pressing the finger **204** against the pins **200** in a region **206** of the tactile display **104** will cause the pins to touch the touch screen **170** in a region **208** that is directly behind the region **206.** The tactile display means may comprise a plurality of individually controlled miniature actuators, a plurality of miniature gear assemblies, and a plurality of rods. The miniature actuators, e.g., motors, piezoelectric materials, shape memory elements or solenoids, are oriented in a grid, wherein each of the motors or solenoids responds to a portion of the processed electrical signals. Apparatus using shape memory elements to for a tactile display are described in U.S. Pat. No. 5,244,288, which patent is incorporated by reference herein. (see col. 5, line 44 to col. 6, line 3 of '202 patent)

The apparatus **100** of the present invention has an imaging device **102** aligned with the video display **170**. The tactile display device **104** receives information in the form of light from the imaging device **102** and provides a tactile image in accordance with the information. In this embodiment, the apparatus **100** is shown coupled to an external power supply **106**, such as an electrical outlet. (see col. 5, lines 20 to 27 of '202 patent)

According to the invention, imaging means converts light received from the displayed visual image into electrical signals. An array of photometers of various types, such as photodiodes, may be used to form the imaging means. The tactile display means converts the electrical signals from the photometers into "tactile images" corresponding to the displayed visual image. Consequently, the tactile images can be perceived through the sense of touch by a person, such as a visually impaired person. Therefore, the tactile images are felt by the visually impaired person and enable them to interact with computers in a manner similar to how a sighted person would interact with graphical user interface. While the tactile display means is preferably of the same length and width dimensions as the image being processed, it is possible for the tactile display means to be scaled to a smaller or bigger size. (see col. 5, lines 28 to 43 of '202 patent)

The interaction between the tactile display and the touch screen display relies upon the user's touch input and does not require any direct electronic attachments or communications with the computing device. (see col. 5, lines 53 to 56 of '202 patent)

The tactile display means may comprise a plurality of individually controlled miniature actuators, a plurality of miniature gear assemblies, and a plurality of rods. The miniature actuators, e.g., motors, piezoelectric materials, shape memory elements or solenoids, are oriented in a grid, wherein each of the motors or solenoids responds to a portion of the processed electrical signals. (see col. 5, lines 61 to 67 of '202 patent)

As can be seen, the invention may utilize several tactile display means, including mechanical means, electrochemical means, electromagnetic means, and fluid pressure means. For example, a suitable mechanical means includes rods, racks and gears. Suitable electrochemical means includes use of a polar organic gel in combination with electrodes. Exemplary electromagnetic means include an electromagnet causing a pin to move upwardly. Fluid pressure means may include either air or hydraulic fluid moving a pin upwardly. These examples are not meant to limit the present invention in any way. Any tactile display means would be acceptable. (see col. 7, lines 38 to 49 of '202 patent)

In accordance with the present invention, the height of the pixels in the tactile display is variable in proportion to the gray scale intensity of light incident on the imaging means from a visual display screen. The term "gray scale intensity" refers to the magnitude of light per unit area without regard to the actual color. However, as with the gray scale images on black and white televisions, colors are represented as various shades of gray along with white and black. (see col. 7, line 64 to col. 8, line 4 of '202 patent)

Because the apparatus of the invention senses the gray scale intensity of images, the apparatus is compatible with a wide variety of displays, whether they emit light or merely reflect light. This ability allows the apparatus to work universally with color, monochrome, and LCD displays without customization of the apparatus. Also, because the apparatus senses the light incident from a visual display, there is no need for the apparatus to be in electronic communication with the device generating the visual display. (see col. 8, lines 11 to 19 of '202 patent)

When light is sensed that indicates that a letter is presented in bold (as shown in the **FIGS. 3** to **12**), then the actuators react in an appropriate manner to distinguish the bold letters from the lowercase letters, giving a blind person a hint of the meaning of the words through feeling the raised bolded letters that provide more information on the meaning of the word which is in part bolded.

In more detail in one embodiment, there is provided a plurality of individually controlled miniature motors oriented in a grid, each of which responds to a portion of the processed electrical signals. A plurality of miniature rack and pinion gear assemblies are also provided, each of which is operatively connected to one of the miniature motors so that rotational motion of a pinion connected to a shaft of a miniature motor is converted into linear motion of a rack. A plurality of rods form the surface of the tactile display, each of which is connected to one of the racks, so that when the racks move linearly, the rods move linearly as well. The relative linear motion of the individual rods forms a "tactile image." The motors could be formed by micro or nano-motors to produce very high resolution tactile images. (see col. 8, lines 47 to 60 of '202 patent)

The invention may be summarized as follows:

1. A method for handling texts when they are reproduced on a display, in which
   - a digitized text that is to be processed is selected;
   - a software program is loaded, which includes at least one rule for the setting of at least one distinction that is perceptible when reproduced on the display, such distinction being incorporated into the digitized text; and
   - the software program is executed so as to process the digitized text in order to make the at least one distinction in the text in accordance with the rule, the distinction improving the perceptibility of the text.

2. The method according to aspect 1, wherein the software program effectively recognizes the text comprising words, wherein a word comprises one or more alphanumeric character(s).

3. The method according to aspect 1 and/or 2, wherein the software program effectively recognizes sentences, wherein a sentence comprises of one or more word(s).

4. The method according to any one or more of aspects 1 to 3, wherein the software program effectively recognizes paragraphs or sections, wherein a paragraph or a section comprises one or more sentence(s).

5. The method according to any one or more of aspects 1 to 4, wherein the at least one rule comprises at least one frequency-based rule and at least one distinction-type rule.

6. The method according to aspect 5, wherein, according to the at least one frequency-based rule, distinctions are set with a predetermined or user-selectable frequency in the text, said frequency being applied to the words or sentences, wherein said distinctions are set starting from the first word of a sentence or from the first sentence of a paragraph or section, and wherein said frequency corresponds to a period which is the number of words or sentences from a distinction up to a subsequent distinction, wherein the distinction is excluded and the subsequent distinction is included for determining the period, according to the at least one frequency-based rule.

7. The method according to aspect 6, wherein, according to the at least one frequency-based rule, said frequency is further modified in a predetermined manner or selectable and/or definable by the user by one or more of the following:

- compound-words being compounds comprising n words each separated by a respective separator are counted as a number k of words, k being an integer between 1 and n, for the purpose of the frequency;

- the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section the frequency is re-applied; and

- the at least one frequency-based rule is overridden by the at least one distinction-type rule.

8. The method according to any one or more of aspects 5 to 7, wherein, according to the at least one distinction-type rule, distinctions are set in words, wherein the distinction is set

in a predetermined manner or selectable and/or definable by the user according to one or more of the following:

- for certain words a certain predetermined or user-selectable portion, such as a rounded or truncated fraction, of the beginning or the end of the word is made distinct;

- for words comprising p_1, p_2 ... to p_n alphanumeric character(s), the distinction is set for a predetermined or user-selectable number of respective q_1, q_2 ... to q_n alphanumeric character(s) at the beginning or at the end of the words, wherein q_i is an integer between 1 and p_i, and n is a positive integer larger than 1, i being an integer between 1 and n;

- for compound-words being compounds comprising n words each separated by a respective separator are counted as a number k of words, k being an integer between 1 and n, wherein, if the number is 1, either each word or only the first word is made distinct;

- certain words or sentences are always made distinct;

- certain words or sentences are never made distinct;

- for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions,

- for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion this multiple highlighting is maintained in the form of corresponding multiple distinctions; and

- if the at least one distinction-type rule is overridden by the at least at least one frequency-based rule.

9. The method according to aspect 8, wherein the at least one frequency-based rule is that the period is one word, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words; and

wherein the at least one distinction-type rule is that 3/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters only the first alphanumeric character is made distinct, in words with four alphanumeric characters the first two alphanumeric characters are made distinct and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

10. The method according to aspect 8, wherein the at least one frequency-based rule is that the period is one word, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words; and

wherein the at least one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters only the first alphanumeric character is made distinct, in words with four alphanumeric characters the first two alphanumeric characters are made distinct and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

11. The method according to aspect 8, wherein the at least one frequency-based rule is that the period is two words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein each word is made distinct, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and

wherein the at least one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first

alphanumeric character is made distinct, in words with four alphanumeric characters, only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words each word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

12. The method according to aspect 8, wherein the at least one frequency-based rule is that the period is three words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section the frequency is re-applied; and

wherein the at least one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first alphanumeric character is made distinct, in words with four alphanumeric characters, only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words each word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

13. The method according to aspect 8, wherein the at least one frequency-based rule is that the period is four words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and

wherein the at least one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first

alphanumeric character is made distinct, in words with four alphanumeric characters only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words, only the first word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

14. The method according to aspect 8, wherein the at least one frequency-based rule is that period is five words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and

wherein the at least one distinction-type rule is that 3/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first alphanumeric character is made distinct, in words with four alphanumeric characters only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words, only the first word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

15. The method according to aspect 8, wherein the at least one frequency-based rule is that the period is six words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and

wherein the at least one distinction-type rule is that 3/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first

alphanumeric character is made distinct, in words with four alphanumeric characters, only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words, only the first word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

16. The method according to aspect 8, wherein the at least one frequency-based rule is that the period is seven words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and

wherein the at least one distinction-type rule is for words comprising more than three alphanumeric characters, the distinction is made for three alphanumeric characters at the beginning of the words, whereas in words with up to three alphanumeric characters, all alphanumeric characters are made distinct, and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

17. The method according to aspect 8, wherein the at least one frequency-based rule is that the period is one sentence, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words, and

wherein the at least one distinction-type rule is for words comprising more than three alphanumeric characters, the distinction is made for three alphanumeric characters at the beginning of the words, whereas in words with up to three alphanumeric characters, all alphanumeric characters are made distinct, and numbers are not made distinct, wherein for

highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

18. The method according to aspect 8, wherein the at least one frequency-based rule is that the period is two sentences, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section the frequency is re-applied; and

wherein the at least one distinction-type rule is for words comprising more than three alphanumeric characters, the distinction is made for three alphanumeric characters at the beginning of the words, whereas in words with up to three alphanumeric characters all alphanumeric characters are made distinct, and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

19. The method according to any one or more of the preceding aspects, wherein active distinctions are shown using one or more of the following: semibold font, bold font, extrabold font, negative font, font size, font width, font style, capitalization, underlining, highlighting,

20. Software program for carrying out the method according to any one or more of aspects 1 to 19, in particular, comprising the at least one rule for setting at least one distinction, which is perceptible when reproduced on the display, in the digitized text.

21. Computer program for instructing a computer to perform the method according to any one or more of aspects 1 to 19.

22. Data carrier or computer or computer system having stored the software or computer program according to aspects 20 and/or 21.

23. A non-transitory computer readable medium encoded with software comprising computer executable instructions that, when executed by a processor, cause the processor to perform the method according to any one or more of aspects 1 to 19.

24. A method of use of a tactile display for distinguishing words according to the method of any one or more of aspects 1 to 19.

25. A device for carrying out the method according to any one or more of aspects 1 to 19, having an input module for receiving data that correspond to a digitized text; a memory module for a processing program that includes at least one rule for the setting of at least one distinction in a digitized text; a processing module that uses the at least one rule on the data in the input module in order to provide the digitized text with the at least one distinction, and a display module in order to show the digitized text with the at least one distinction on a display, and a software program according to aspect 20 implemented in the device.

26. The device according to aspect 25, which is implemented as part of a mobile phone, a tablet, a PC, or a digital reading device.

27. The device according to aspect 25 and/or 26, which includes an input module for defining and/or selecting a rule for the setting of distinctions.

28. The device according to any one or more of aspects 25 to 27, in which the user, in particular the author or reader of a text, can select or define a software rule, which corresponds to the particular meaning of text passages and in response thereto, the device provides the text with distinctions in accordance with the rule, which distinctions essentially permit a speed-reader to skip or jump over less important portions of text.

29. A method of use of a computer display for distinguishing words according to the method of any one or more of aspects 1 to 19.

As will be appreciated by skilled artisans, the present invention may be embodied as a system, a device, or a method. Moreover, the system contemplates the use, sale and/or distribution of any goods, services or information having similar functionality described herein.

The specification and figures should be considered in an illustrative manner, rather than a restrictive one and all modifications described herein are intended to be included within the scope of the invention claimed. Accordingly, the scope of the invention should be determined by the appended claims (as they currently exist or as later amended or added, and their legal equivalents) rather than by merely the examples described above. Steps recited in any method or process claims, unless otherwise expressly stated, may be executed in any order and are not limited to the specific order presented in any claim. Further, the elements and/or components recited in apparatus claims may be assembled or otherwise functionally configured in a variety of permutations to produce substantially the same result as the present invention. Consequently, the invention should not be interpreted as being limited to the specific configuration recited in the claims. Benefits, other advantages and solutions mentioned herein are not to be construed as critical, required or essential features or components of any or all the claims.

As used herein, the terms "comprises", "comprising", or variations thereof, are intended to refer to a non-exclusive listing of elements, such that any apparatus, process, method, article, or composition of the invention that comprises a list of elements, that does not include only those elements recited, but may also include other elements described in the instant specification. Unless otherwise explicitly stated, the use of the term "consisting" or "consisting of or "consisting essentially of is not intended to limit the scope of the invention to the enumerated elements named thereafter, unless otherwise indicated. Other combinations and/or modifications of the above-described elements, materials or structures used in the practice of the present invention may be varied or adapted by the skilled artisan to other designs without departing from the general principles of the invention. The patents and articles mentioned above are hereby incorporated by reference herein, unless otherwise noted, to the extent that the same are not inconsistent with this disclosure.

Other characteristics and modes of execution of the invention are described in the appended claims. Further, the invention should be considered as comprising all possible combinations of every feature described in the instant specification, appended claims, and/or drawing figures which may be considered new, inventive and industrially applicable.

Copyright may be owned by the Applicant(s) or their assignee and, with respect to express Licensees to third parties of the rights defined in one or more claims herein, no implied license is granted herein to use the invention as defined in the remaining claims. Further, vis-a-vis the public or third parties, no express or implied license is granted to prepare derivative works based on this patent specification.

Multiple variations and modifications are possible in the embodiments of the invention described here. Although certain illustrative embodiments of the invention have been shown and described here, a wide range of changes, modifications, and substitutions is contemplated in the foregoing disclosure. While the above description contains many specific details, these should not be construed as limitations on the scope of the invention, but rather exemplify one or another preferred embodiment thereof. In some instances, some features of the present invention may be employed without a corresponding use of the other features. Accordingly, it is appropriate that the foregoing description be construed broadly and understood as being illustrative only, the spirit and scope of the invention being limited only by the claims which ultimately issue in this application.

Claims:

1. A method for handling texts when they are reproduced on a display, in which
- a digitized text that is to be processed is selected;
- a software program is loaded, which includes at least one rule for the setting of at least one distinction that is perceptible when reproduced on the display, such distinction being incorporated into the digitized text; and
- the software program is executed so as to process the digitized text in order to make the at least one distinction in the text in accordance with the rule, the distinction improving the perceptibility of the text.

2. The method according to claim 1, wherein the software program effectively recognizes the text comprising words, wherein a word comprises one or more alphanumeric character(s).

3. The method according to claim 1 and/or 2, wherein the software program effectively recognizes sentences, wherein a sentence comprises of one or more word(s).

4. The method according to any one or more of claims 1 to 3, wherein the software program effectively recognizes paragraphs or sections, wherein a paragraph or a section comprises one or more sentence(s).

5. The method according to any one or more of claims 1 to 4, wherein the at least one rule comprises at least one frequency-based rule and at least one distinction-type rule.

6. The method according to claim 5, wherein, according to the at least one frequency-based rule, distinctions are set with a predetermined or user-selectable frequency in the text, said frequency being applied to the words or sentences, wherein said distinctions are set starting from the first word of a sentence or from the first sentence of a paragraph or section, and wherein said frequency corresponds to a period which is the number of words or sentences from a distinction up to a subsequent distinction, wherein the distinction is excluded and the subsequent distinction is included for determining the period, according to the at least one frequency-based rule.

7. The method according to claim 6, wherein, according to the at least one frequency-based rule, said frequency is further modified in a predetermined manner or selectable and/or definable by the user by one or more of the following:

- compound-words being compounds comprising n words each separated by a respective separator are counted as a number k of words, k being an integer between 1 and n, for the purpose of the frequency;

- the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section the frequency is re-applied; and

- the at least one frequency-based rule is overridden by the at least one distinction-type rule.

8. The method according to any one or more of claims 5 to 7, wherein, according to the at least one distinction-type rule, distinctions are set in words, wherein the distinction is set in a predetermined manner or selectable and/or definable by the user according to one or more of the following:

- for certain words a certain predetermined or user-selectable portion, such as a rounded or truncated fraction, of the beginning or the end of the word is made distinct;

- for words comprising p_1, p_2 ... to p_n alphanumeric character(s), the distinction is set for a predetermined or user-selectable number of respective q_1, q_2 ... to q_n alphanumeric character(s) at the beginning or at the end of the words, wherein q_i is an integer between 1 and p_i, and n is a positive integer larger than 1, i being an integer between 1 and n;

- for compound-words being compounds comprising n words each separated by a respective separator are counted as a number k of words, k being an integer between 1 and n, wherein, if the number is 1, either each word or only the first word is made distinct;

- certain words or sentences are always made distinct;

- certain words or sentences are never made distinct;

- for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions,

- for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion this multiple highlighting is maintained in the form of corresponding multiple distinctions; and

- if the at least one distinction-type rule is overridden by the at least at least one frequency-based rule.

9. The method according to claim 8, wherein the at least one frequency-based rule is that the period is one word, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words; and

wherein the at least one distinction-type rule is that 3/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters only the first alphanumeric character is made distinct, in words with four alphanumeric characters the first two alphanumeric characters are made distinct and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

10. The method according to claim 8, wherein the at least one frequency-based rule is that the period is one word, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words; and

wherein the at least one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters only the first alphanumeric character is made distinct, in words with four alphanumeric characters the first two alphanumeric characters are made distinct and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the

form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

11. The method according to claim 8, wherein the at least one frequency-based rule is that the period is two words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein each word is made distinct, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and

wherein the at least one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first alphanumeric character is made distinct, in words with four alphanumeric characters, only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words each word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

12. The method according to claim 8, wherein the at least one frequency-based rule is that the period is three words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section the frequency is re-applied; and

wherein the at least one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first alphanumeric character is made distinct, in words with four alphanumeric characters, only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words each word is made distinct, wherein for highlighted words

and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

13. The method according to claim 8, wherein the at least one frequency-based rule is that the period is four words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and

wherein the at least one distinction-type rule is that 2/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first alphanumeric character is made distinct, in words with four alphanumeric characters only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words, only the first word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

14. The method according to claim 8, wherein the at least one frequency-based rule is that period is five words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and

wherein the at least one distinction-type rule is that 3/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first alphanumeric character is made distinct, in words with four alphanumeric characters only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words, only the first word is made distinct, wherein for highlighted

words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

15. The method according to claim 8, wherein the at least one frequency-based rule is that the period is six words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as 1 word, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and

wherein the at least one distinction-type rule is that 3/5 of the beginning of each word are made distinct, whereas in words with up to three alphanumeric characters, only the first alphanumeric character is made distinct, in words with four alphanumeric characters, only the first alphanumeric character is made distinct and numbers are not made distinct, wherein in compound-words, only the first word is made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

16. The method according to claim 8, wherein the at least one frequency-based rule is that the period is seven words, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section, the frequency is re-applied; and

wherein the at least one distinction-type rule is for words comprising more than three alphanumeric characters, the distinction is made for three alphanumeric characters at the beginning of the words, whereas in words with up to three alphanumeric characters, all alphanumeric characters are made distinct, and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a

distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

17. The method according to claim 8, wherein the at least one frequency-based rule is that the period is one sentence, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words, and

wherein the at least one distinction-type rule is for words comprising more than three alphanumeric characters, the distinction is made for three alphanumeric characters at the beginning of the words, whereas in words with up to three alphanumeric characters, all alphanumeric characters are made distinct, and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

18. The method according to claim 8, wherein the at least one frequency-based rule is that the period is two sentences, wherein compound-words being compounds comprising n words each separated by a respective separator are counted as n words, wherein the frequency is only applied within a sentence or paragraph or section and in a new sentence or paragraph or section the frequency is re-applied; and

wherein the at least one distinction-type rule is for words comprising more than three alphanumeric characters, the distinction is made for three alphanumeric characters at the beginning of the words, whereas in words with up to three alphanumeric characters all alphanumeric characters are made distinct, and numbers are not made distinct, wherein for highlighted words and/or word portions, the highlighting is maintained in the form of a distinction of the words and/or word portions, and wherein for highlighted words and/or word portions, wherein there is more than one type of highlighting in a word or word

portion, this multiple highlighting is maintained in the form of corresponding multiple distinctions.

19. The method according to any one or more of the preceding claims, wherein active distinctions are shown using one or more of the following: semibold font, bold font, extrabold font, negative font, font size, font width, font style, capitalization, underlining, highlighting,

20. Software program for carrying out the method according to any one or more of claims 1 to 19, in particular, comprising the at least one rule for setting at least one distinction, which is perceptible when reproduced on the display, in the digitized text.

21. Computer program for instructing a computer to perform the method according to any one or more of claims 1 to 19.

22. Data carrier or computer or computer system having stored the software or computer program according to claims 20 and/or 21.

23. A non-transitory computer readable medium encoded with software comprising computer executable instructions that, when executed by a processor, cause the processor to perform the method according to any one or more of claims 1 to 19.

24. A method of use of a tactile display for distinguishing words according to the method of any one or more of claims 1 to 19.

25. A device for carrying out the method according to any one or more of claims 1 to 19, having an input module for receiving data that correspond to a digitized text; a memory module for a processing program that includes at least one rule for the setting of at least one distinction in a digitized text; a processing module that uses the at least one rule on the data in the input module in order to provide the digitized text with the at least one distinction, and a display module in order to show the digitized text with the at least one distinction on a display, and a software program according to claim 20 implemented in the device.

26. The device according to claim 25, which is implemented as part of a mobile phone, a tablet, a PC, or a digital reading device.

27. The device according to claim 25 and/or 26, which includes an input module for defining and/or selecting a rule for the setting of distinctions.

28. The device according to any one or more of claims 25 to 27, in which the user, in particular the author or reader of a text, can select or define a software rule, which corresponds to the particular meaning of text passages and in response thereto, the device provides the text with distinctions in accordance with the rule, which distinctions essentially permit a speed-reader to skip or jump over less important portions of text.

29. A method of use of a computer display for distinguishing words according to the method of any one or more of claims 1 to 19.