BBN–ANG–183 Typography
Lecture 3: Electronic texts

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outline

encoding characters

- ASCII
- nonASCII
- alternatives
- Unicode

encoding form

- markup
- physical vs. logical markup
- logical markup at its best
- the rationale of markup

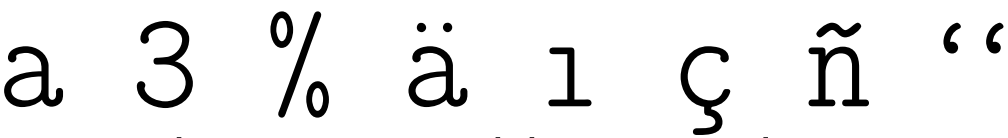
WYSIWYG

- comparison of markup vs. WYSIWYG

encoding

- text is not encoded as an image (dot-by-dot)
- but as characters
- that is, the following

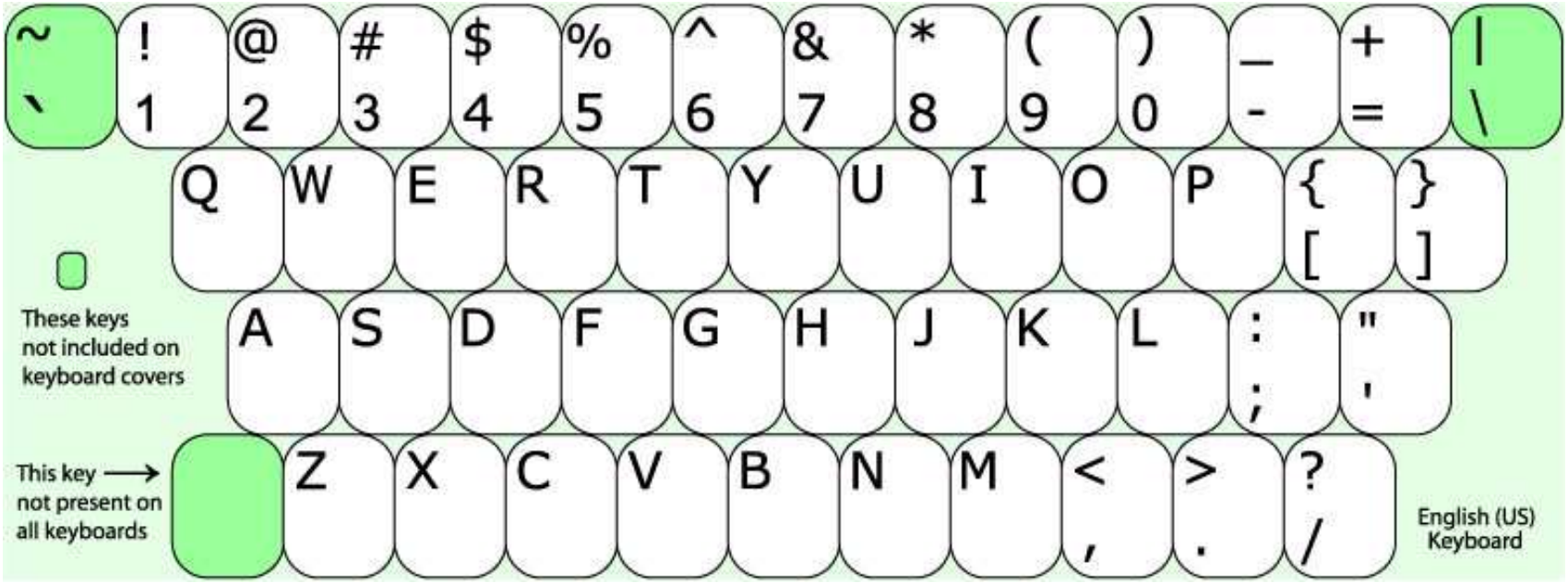
  are all encoded as an ‘a’
- the following characters (and most others)



  are each represented by a number

encoding characters: ASCII

32– 47	␣	!	"	#	$	%	&	’	(	)	*	+	,	–	.	/
48– 63	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
64– 79	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
80– 95	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
96–111	‘	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
112–126	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	



encoding characters: outside ASCII

character	windows-1250	ibm850	IBM437
ä	228	132	132
ı	—	213	—
ç	231	135	135
ñ	241	164	164
“	147	—	—

encoding characters: alternatives

character	HTML	TEX/LATEX
ä	&auml;	\"a
ı	ı or ı	\i
ç	&ccedil;	\c c
ñ	&ntilde;	\~n
“	&ldquo;	‘‘

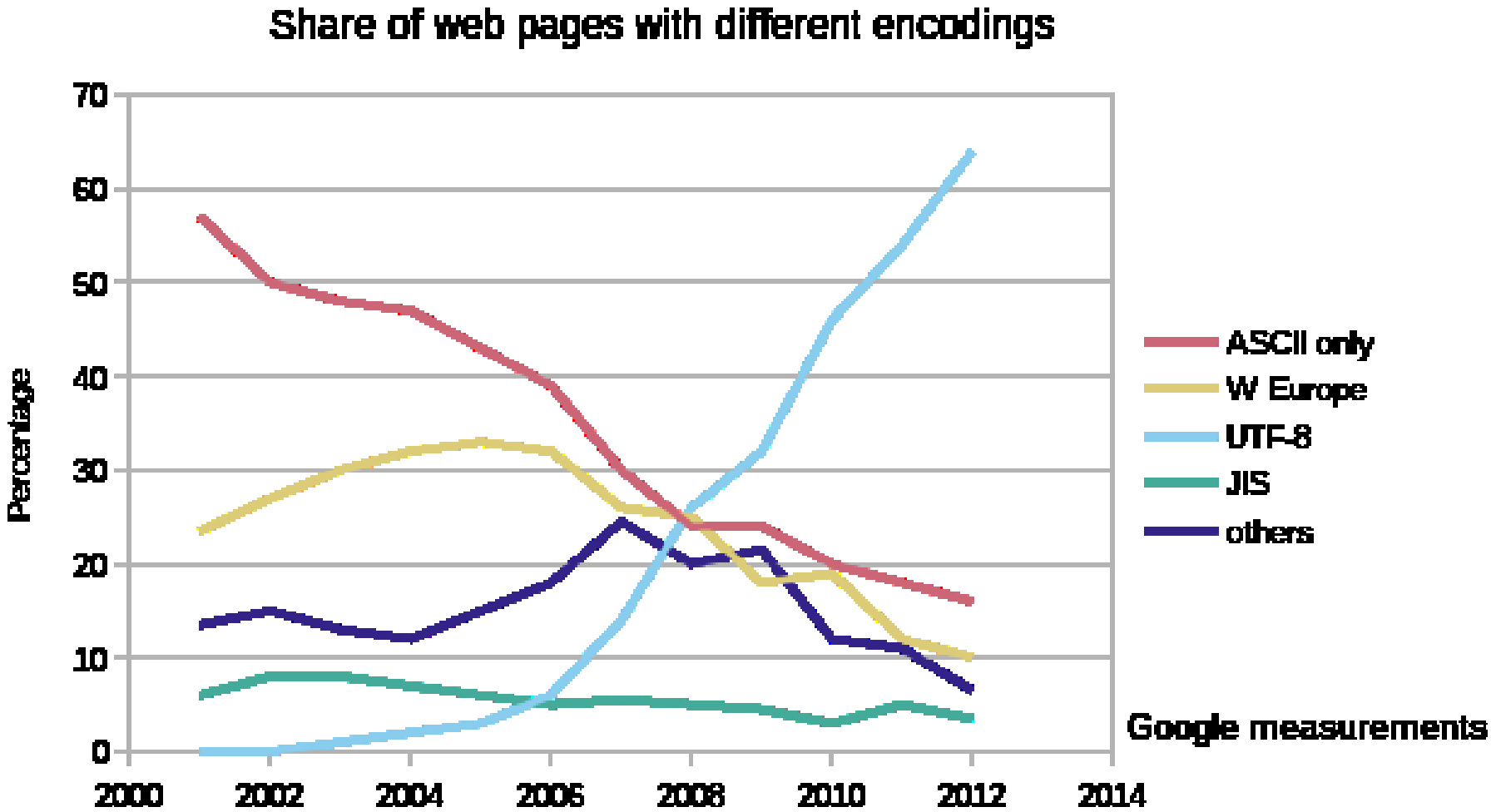
Unicode

Unicode uses more than a single byte to represent characters (much like digraphs in writing)

number of bytes	possiblities
1	256
2	65,536
3	16,777,216
4	4,294,967,296

character	hexadecimal	decimal	size in bytes
á	0xE1	225	1 byte
Ł	0x141	321	2 bytes
ə	0x259	601	2 bytes
я	0x44F	1103	2 bytes
ボ	0x30DC	12508	2 bytes
😍	0x1F60D	128525	3 bytes

the growth of Unicode



encoding form

- 
- an A is an A is an A. . . well, not exactly
- how to mark font types?

markup

- sample text:

  This example contains *italics* and **boldface,** as well as a formula: $2^3 < 3^2$.

- marked up versions
  - HTML

    ```
    This example contains <i>italics</i> and
    <b>boldface,</b> as well as a formula:
    2<sup>3</sup><3<sup>2</sup>.
    ```

  - TEX

    ```
    This example constains {\it italics} and {\bf boldface,}
    as well as a formula:  $2^3<3^2$.
    ```

  - Wiki markup (http://en.wikipedia.org/wiki/Help:Wiki_markup)

    ```
    This example constains ''italics'' and '''boldface,'''
    as well as a formula:  <math>2^3<3^2</math>.
    ```

types of markup

- physical markup describes the appearance of the marked text
  "this bit is in italics, that bit is in boldface"
  e.g., `<i>sample word</i>, <b>section title</b>`
- logical markup describes the function of the marked text
  "this bit is a sample word to be **em**phasized, that bit is a section **h**eading of level **2**"
  e.g., `<em>sample word</em>, <h2>section title</h2>`

comparison of markup types

logical

- depends heavily on later interpretation (esp. in web documents)
- interpretation of markup has to be customized
- flexible on format: e.g., `\emph{}` produces italics in a roman context, and roman in an italic context
- style easily modifiable later

physical

- firmer control over output
- less customization necessary
- (often) premature stance on format
- style modifiable by extensive replacement of markup

a chunk of SGML code

```
<szocikk>
 <admin>
  <szerk></szerk>
  <forr>OL</forr>
  <statusz st="nyers">
 </admin>
 <foalak>
  <cszo>quiz</cszo>
  <kiejt>kw&pisc;z</kiejt>
 </foalak>
 <joszt>
  <nytan>
   <szf>n</szf>
  </nytan>
  <gralak>
   <anev>pl</anev>
   <alak>quizzes</alak>
  </gralak>
  <jvalt>
   <jarny>
    <jel>
     <ekv>találós játék</ekv>
     <ekv>rejtvény</ekv>
    </jel>
   </jarny>
   <jarny>
    <jel>
     <ekv><min>r</min>tréfa</ekv>
     <ekv>móka</ekv>
     <ekv>ugratás</ekv>
    </jel>
   </jarny>
  </jvalt>
  <jvalt>
   <jarny>
    <jel>
     <ekv><min>US</min><min>isk</min>
     <min>biz</min>szóbeli
     <elh> vizsga</elh></ekv>
     <ekv>vizsgáztatás</ekv>
    </jel>
   </jarny>
```

the entry for *quiz* printed

quiz [kwɪz] **I.** *fn tsz* **quizzes 1. a)** találós játék, rejtvény **b)** *rég* tréfa, móka, ugratás **2. a)** *US, okt, biz* szóbeli (vizsga), vizsgáztatás **b)** *US, okt, biz* osztálykérdezés **3.** fogas/nehéz (vizsgai) kérdés **4.** ~ **(game/programme/show)** vetélkedő **5.** *rég* furcsa figura, fura szerzet **6.** *rég* tréfacsináló **II. -zz- A.** *tsi* **1. a)** fogas/nehéz kérdéseket tesz fel *[osztálynak]*, vizsgáztat *[osztályt]* **b)** kérdez, faggat, vizsgáztat *[vizsgázót]* **2.** megtréfál, ugrat **3. a)** *GB, rég* kihívóan/kíváncsian/feltűnően/fürkészve néz/bámul/mustrál, szemüvegen/lornyonon át vizsgálgat **b)** *GB, rég* gúnyosan/csúfondárosan néz (vkt, vkre) **B.** *tni* bolondozik, másokat beugrat

Figure: the printed entry for *quiz* in Ország–Magay's English–Hungarian dictionary

why have markup?

- separation of contents and form
- easily modifiable form
- the form of a text is for *humans*, but
- electronic text is not read only by humans, but also by machines (e.g., search engines, for blind people)

WYSIWYG

- "What You See Is What You Get"
- e.g., Microsoft Word, Open Office Writer (now called Libre Office)
- the screen shows (more or less) what comes out of the printer
- BUT
  - our eyes are not that perfect
  - we don't want to print all our documents!

properties of texts

- inherent properties of text
  - characters
  - potential breaking points (to be discussed next week)
  - emphasis
  - structure (sections, subsections)
- noninherent properties of text
  - paper size, margin widths
  - actual breaking points
  - paragraph shape
  - font properties (family, size)
- yet WYSIWYG technology forces decisions in the case of the latter items, too

comparison of markup and WYSIWYG

markup

- daunting at first sight
- powerful
- persuades user more effectively to use logical markup
- uses less computer resources
- user sees everything in the file

WYSIWYG

- intuitive, easy at first sight
- "what you see is **all** you get"
- allows user to use primitive formatting techniques
- uses huge computer resources
- data in the file are hidden from user

a horrendous example

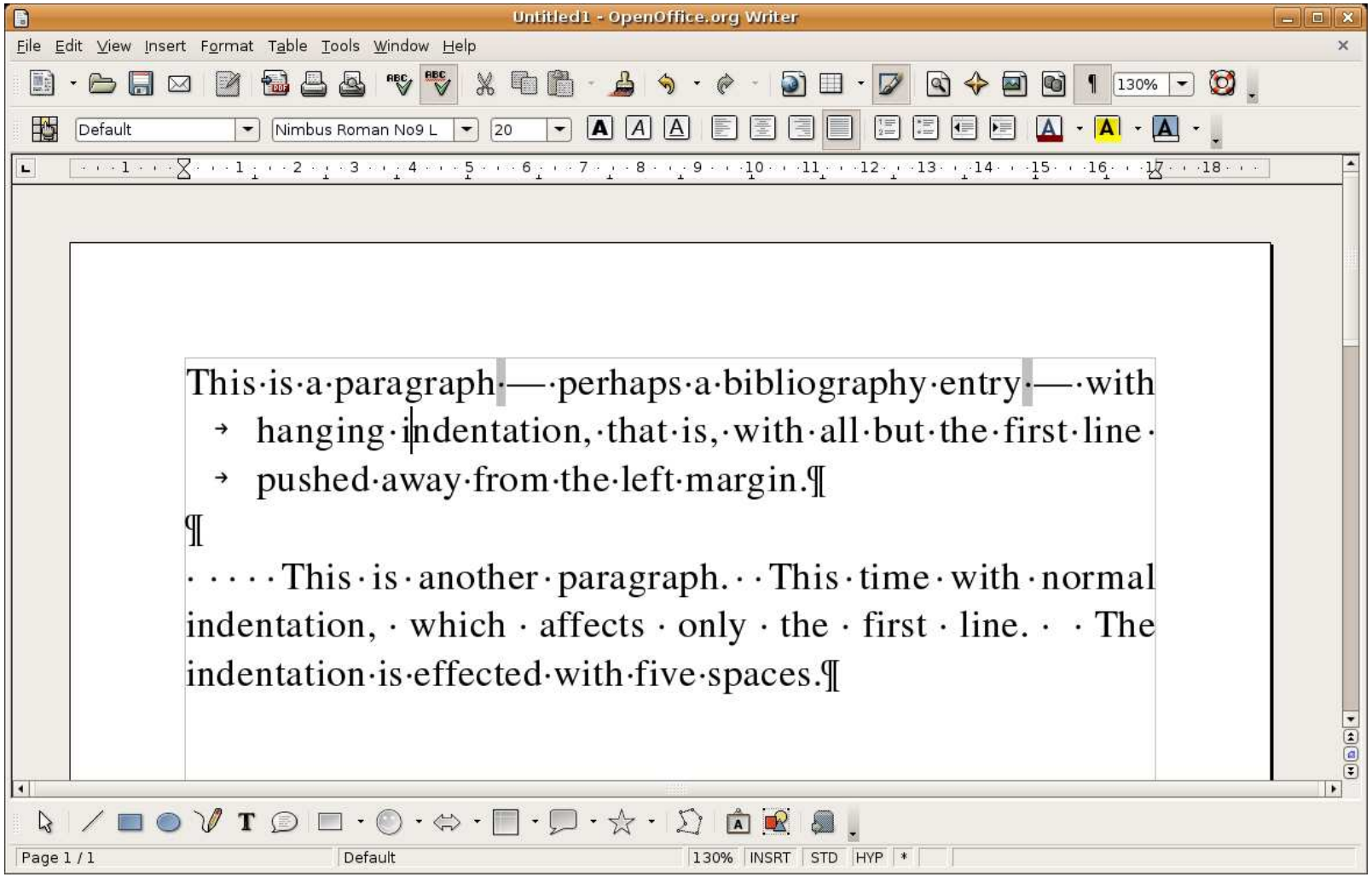


Figure: hanging and normal indentation: never do it this way!