

# BBN-ANG-183 Typography

## Lecture 5A: Breaking text

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# outline

## problems with WYSIWYG

the importance of document structure

## breaking text

into lines

into pages

footnotes

## text and illustration

## types of illustration

**breaking** text into lines and pages is the central issue in typesetting (cf. Hungarian *tördelés, tördelő*) — today, we're going to see

- ▶ why this is so
- ▶ how to do it smartly

# the perils of WYSIWYG

## WYSIWYG word processing is dangerous for two reasons

1. **the structure of the document will not be specified**  
a section title will not be specified as a section title, it will simply be set in a larger/emboldened/whatever font, with extra space above and below
2. **line and page breaks will be chosen during writing the text**  
as a consequence, any subsequent change (or simply reading the file by another word processor) may result in undesired line and page breaks

both dangers can be avoided, but generally users of word processors fall into these traps: WYSIWYG technology notoriously guides users into them

# the importance of document structure

## why is it a problem if the structure of the document is not specified?

the main points of producing electronic documents are

- ▶ **reusability:** (parts of) a document should be used on several occasions, it is rarely useful to create documents for the sake of a single printing
- ▶ **machine-parsability:** the document should be correctly interpretable by artificial intelligence, too (e.g., blind people may want to have it read, we may want to convert it to another format — e.g., HTML for web publishing)

both aims are easy/possible to achieve only if the structure of the document is specified

## breaks and reusability

### where a line is broken depends on

- ▶ the width of the column (line, textblock)
- ▶ the font's properties: face, weight, size
- ▶ the shape of the paragraph (e.g., justified or not)

### options

- ▶ normally these are **not inherent** properties of the text, when any of them changes, the places of line breaks change
- ▶ if these properties are inherent in the text, create an image file of your text (e.g., a JPEG file) and store your text in that (**you will not be able to modify the text though!**) — this is like printed text: lacking the versatility of electronic text

# the rule of breaking text

## text

here means the flowing text of the document, not including illustrations (pictures, charts, tables, etc.), which are usually less rigidly positioned in documents

## breaking text

must be done “blindly”, i.e., without knowing where the breaks will actually be in a specific version of the text, i.e., we must specify places where text **may** and where it **may not** be broken

while sentences and paragraphs are primarily logical units, lines and pages are rigid typographical units, which text must fit

# points of breaking text into lines

## a line of text

is a string of two types of element:

- ▶ characters
- ▶ whitespace (`SPACE`, `TAB`, `NEWLINE`)

### `SPACE`

is a universal breaking point: lines may be broken at a `SPACE`

### `TAB`

is not uniform in its behaviour wrt line breaking, but it is not used in text

### `NEWLINE`

breaks the line obligatorily; in word processors, it ends the paragraph, in text formatters two or more `NEWLINE`s represent a paragraph division



## human intervention










### explicit specification of breaking points

is necessary when automatic breaking points are not appropriate, i.e.,

- ▶ a line should not be broken at an automatic breaking point
- ▶ a line should be broken, but there is no automatic breaking point

### do not break at breaking point: nonbreaking space

a.k.a. hard space, is like `SPACE` except that it is not a breaking point

- ▶ symbols: `&nbsp;` (HTML), `~` (T<sub>E</sub>X, L<sub>A</sub>T<sub>E</sub>X), in word processors usually shown as a grey space: 
- ▶ examples of use: Henry  VIII, VIII  Henrik, G.  B.  Shaw,  
2  +  2  =  4
- ▶ longer stretches: `<nobr>text not to be broken</nobr>`

## other breaking points in lines

### other points where lines may automatically be broken

are software specific; they may include the following

- ▶ hyphen (“-”)
- ▶ slash (“/”); closing parenthesis, bracket, brace (“)”, “]”, “}”)

it was not a very bright idea to let lines break automatically at a slash or closing parens (e.g., *they say that Michael Moore's film, Fahrenheit 9/11, is rather biassed*)

### inhibiting breaking

if the line is automatically broken at a hyphen, this can be inhibited by a nonbreaking (a.k.a. hard) hyphen: `-`, e.g.,

- ▶ talking about the suffix `-ing`, 1969-07-20
- ▶ rajzolhatunk-e?

## breaking lines elsewhere

if lines were broken only at spaces many lines would be too loose (large spaces between words); the solution is

### hyphenation

- ▶ it is language specific, in fact, it is a typographical convention of individual publishers, cf. British *Eng-lish* vs. American *En-GLISH*
- ▶ some technically correct hyphen positions are
  - ▶ esthetically displeasing: e.g., *a-roma*, *Indi-a*, (small bits of words are not hyphenated off)
  - ▶ morphologically misleading: e.g., *elő-döng* vs. *el-ődöng* 'saunter about' (it is better to hyphenate between morphemes)
- ▶ even the best hyphenation algorithms occasionally fail

## soft hyphen

### a soft/optional/discretionary hyphen

is manually inserted at positions where the hyphenation algorithm fails, it only appears if the position occurs at the end of the line —

`&shy;` (in HTML), `\-` (in  $\text{T}_{\text{E}}\text{X}$ ,  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ ), `appendix` (in word processors)

## tricky hyphenation conventions

- ▶ Polish *kung-fu* → *kung- -fu*
- ▶ Hungarian *vissza* → *visz- sza*
- ▶ Norwegian *bussjåfør* → *buss- sjåfør*
- ▶ Dutch *omaatje* → *oma- tje*
- ▶ German *Becker* → *Bek- ker* (the new orthography dictates *Be- cker*)

### discretionary

such patterns are difficult to deal with, but T<sub>E</sub>X/L<sup>A</sup>T<sub>E</sub>X provide a way, e.g.,  
`vi\discretionary{sz-}{sz}{ssz}a`,  
`oma\discretionary{-}{}{a}tje` give the correct output, but still all such patterns must be marked

## widow/orphan word

### widow/orphan word

many consider it ugly to leave (part of) a single (especially short) word in the last line of a paragraph (it is esthetically displeasing)

### examples

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## breaking text into pages

- ▶ text is broken into lines that form paragraphs
- ▶ paragraphs are broken into pages
- ▶ page breaking is the vertical analogue of line breaking

### default page breaks

the best place to break text into pages is between two paragraphs (the analogue of `SPACE`)

### except

between a section title and the first paragraph of the section!  
(most word processors and text formatters take care of this after paragraphs marked as a heading: another advantage of marking document structure)

## breaks within a paragraph

usually page breaks fall within a paragraph (the analogue of hyphenation)

### paragraphs

in the default case, can be broken between any two lines

### restrictions

avoid breaking a paragraph

- ▶ after a line that ends in a hyphenated word, esp. on a recto page
- ▶ before the last line (creating a widow or orphan line)
- ▶ after the first line (creating a club line)

(cf. the inhibition of hyphenating off small bits of words)



# widow and club lines

## a widow line

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## a club line

## breaking footnotes

- ▶ a footnote must appear on the page it is referred to
- ▶ if this is impossible, it must begin on the page it is referred to
- ▶ in the latter case, the footnote has to be broken between pages
- ▶ it is better to break a footnote on a verso page than on a recto page; **why?** because the reader does not have to turn the page this way
- ▶ before the break in a footnote the text should end abruptly (by a hyphenated word, not by the end of a sentence), so that the reader is warned that the footnote did not end
- ▶ a footnote continued on a following page is sometimes marked by a line above it

# breaking footnotes

## 6 *Parlo Acquisitive*

is set aside, it appears that existential quantification is a way for Italian N-words too to respect the ISC. Consider (17):

- (17) a. Non ho dato un voto a tutti gli studenti.  
 'I didn't give a mark to all students.'  
 b. %Non ho dato nessun voto a tutti gli studenti.  
 'I didn't give any mark to all students.'  
 c. Non ho dato nessun di questi voti a tutti gli studenti.  
 'I didn't give any of these marks to all students.'

The simple indefinite *un voto* in (17a) may be interpreted in the scope of the negated universal quantifier: it's not to every student that I gave a mark (i.e., some remained without a mark).<sup>4</sup> This reading is totally unavailable in (17b); the dicitic, however, is meant to indicate that an alternative reading might rescue the sentence, although this interpretation is extremely unnatural: none of the marks was such that it was given to the totality of the students. The scope order here is NOT-EXIST-ALL ( $\neg \lambda x: \text{mark}(x) \& \forall y [\text{student}(y) \rightarrow \text{give}(me, x, y)]$ ). The reading is unnatural because typically one speaks of the mark given to each choice of students, not of the number of students who got each mark. But if a partitive makes it clearer that the assertion is about individual members of the set of marks, as in (17c), the sentence is acceptable. Two things are interesting in this respect: first, the acceptability depends on the availability (and naturalness) of existential quantification, although the linear order is the same in (17b-c), which exactly parallels Lindberger's observations about English polarity items; second, both *nessun voto* and *nessuno di questi voti* are N-words, hence the abstract raising which, we are assuming, allows an existentially quantified item to be in the immediate scope of negation has nothing to do with a hypothetical mixing of all formally negative expressions into the specifier of NegP (the Neg Criterion of Haegeman & Zanuttini 1991).

Examples may be multiplied to the benefit of empirical detail but to the expense of space.<sup>5</sup> Therefore, just one more illustration is provided:

- (18) a. Non ho messo tutti i fiori in un vaso.  
 'I didn't put all the flowers in a vase.'  
 b. %Non ho messo tutti i fiori in nessun vaso.  
 'I didn't put all the flowers in any vase.'

The two readings of the perfective *acceptable* (18a) are transparent: not all flowers were put in a vase (which entails that some flowers remained out of a vase), or not all flowers were put in the same vase (which does not entail that some remained out of a vase). The scope of the operators

<sup>4</sup> Recall that throughout we must ignore the reading where the universal has widest scope ('for all students, it was/wasn't the case that ...'). The intended reading paraphrased in the text is perhaps more complexified if *nessun* 'not' is added to (17b): *non ho dato alcun voto a tutti gli studenti* 'I haven't yet given a mark to all the students'.

<sup>5</sup> One thing to note, for instance, is that intensional like *qualche* 'some' is just incompatible with negation, i.e., a positive polarity item, regardless of N-words. Secondly, a partitive like *di questi* may indicate that availability of existential quantification is independent from morphosyntactic class. *nessun* 'discourse' cannot be existentially quantified no matter whether it appears as a bare plural in the *known* form *nessi* (e.g. *non ho dato*

## Italian polarity items 7

is, respectively, NOT-ALL-EXIST and NOT-EXIST-ALL. (18b) has the awkward flavour we are familiar with by now. The reason is that the first reading is completely unavailable: (18b) cannot mean 'my flower-potting was not exceptional', 'the flowers I put in a vase were not all'. In so far as the sentence is acceptable, the reading must be 'there is no vase I put all the flowers in', where the N-word is existentially quantified past the scope of the universal operator: it is not the case that there exists a vase *x* such that I put all the flowers in *x*.

This section has not just shown that Italian N-words too are subject to the ISC and may be existentially quantified in order to respect it. It has also brought out that sentences where such mixing applies to N-words are less acceptable than the same structures involving a simple indefinite (cf. (18)). The degrading effect is reminiscent of that of weak islands, and is caused not by existential quantification itself (for otherwise simple indefinites would display that too), but by that 'something else' characterizing N-words but not simple indefinites. We will now see that new data support the first conclusion (existentially quantifiable polarity items can respect the ISC where others cannot) and shed light on the second (there is a weak island-like, syntactic effect peculiar to polarity items).

## 4 INTERVENING COMPLEMENTIZERS

4.1 When a polarity item and its licensor are separated by a clausal boundary, a new dimension of variation is added. Just as for overt movement, the choice of the embedding verb and the position of the polarity item affect the grammaticality of the structure. In addition, it is well known that some adverbial predicates taking clausal complements are themselves licensors for polarity items in the embedded CP (for illustrations and discussion in English and other languages, see Laka 1990, *Progress* 1994 and Giromakidou 1997). In Italian only a small selection of such predicates license polarity items, and then only in a limited way: N-words are excluded (*dobbiamo* 'to do/must' marginally allows them, but not for all speakers) and the acceptability of dependent item varies:

concessions' or as an emphatic N-word:

- (i) \*Non ho fatto scenti a ogni candidato.  
 'I didn't make concessions to every candidate.'  
 (ii) \*Non ho fatto nessuno scenti a ogni candidato.  
 'I didn't make any concession to every candidate.'

But if we replace the partitive *nessuno* di *queste* domande 'none of these questions' in (ii), the sentence becomes more acceptable under the reading 'not a single one of the relevant questions was asked to every candidate':

- (iii) \*Non ho fatto nessuno di queste domande a ogni candidato.  
 'I didn't ask any of these questions to every candidate.'

An usual, *tutti* instead of *ogni* further improves the structure.

Another observation, for which I have no explanation ready, is that sentences with the licensor NOT-ALL-N-Word are just worse than sentences with the order NOT-NO-WORD-ALL, even though they might have the same scope relation. The ISC is not a sufficient explanation, although I claim it is necessary.

# texts and illustrations

## documents typically contain

- ▶ text (section titles and paragraphs)
- ▶ illustrations (images, charts, tables, lists, etc.)

## illustrations

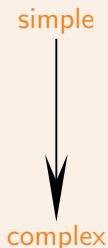
are like islands floating in the sea of text: their location is not as rigidly fixed as that of text; they serve two purposes:

- ▶ to enhance the comprehension of the text
- ▶ to entertain and/or esthetically please the reader

# types of illustration

## types of illustration

- ▶ blockquote
- ▶ list
- ▶ display: theorem, principle, equation, etc.
- ▶ table
- ▶ chart/graph
- ▶ diagram
- ▶ map
- ▶ image: photo, drawing



## blockquote

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## blockquote

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# lists

## unordered list

- first item
  - second item
    - ★ first subitem within second item, now this is a long one, so that it illustrates the hanging indentation typical of such lists
    - ★ second subitem within second item
  - third item
- 
- ▶ some typical item markers: ●, ○, ·, —, ►, \*, ☆, 🖐, 📱, ✌, 📝
  - ▶ item markers may differ or may be the same (increasing indentation distinguishes levels anyway)



# lists

## ordered list

1. first item
2. second item
  - 2.1 first subitem within second item, now this is a long one, so that it illustrates the hanging indentation typical of such lists
  - 2.2 second subitem within second item
3. third item

levels are indicated by decimal numbering

# lists

## ordered list

1. first item
2. second item
  - a. first subitem within second item, now this is a long one, so that it illustrates the hanging indentation typical of such lists
  - b. second subitem within second item
3. third item

levels are indicated by different types of numbers and letters (Arabic, Roman, uppercase letters, lowercase letters, Greek letters)

# lists

## description list

term 1 is described first

term 2 is described next

subterm 2.1 is described within term 2

subterm 2.2 is also described within term 2

term 3 is described last

in a description list, the item labels are longer chunks of text

## displays

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam justo quam, porta et, lacinia vel, molestie ac, arcu. Curabitur in urna. Donec eu sapien. Vestibulum suscipit. Etiam lorem. Donec purus. Etiam odio nisi, semper nec, feugiat eget, faucibus vel, turpis. Nam tincidunt placerat felis.

Commandment 7

All animals are equal.

Phasellus ac ante nec nunc lobortis malesuada. Donec ac massa. Morbi id tellus. Cras vel felis. Pellentesque lacus pede, pretium at, elementum in, ullamcorper in, pede. Cras neque nunc, dapibus ut, sodales sit amet, cursus at, velit. In vitæ velit sit amet metus vulputate consectetur. Fusce eu nibh.

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$$2 + 2 = 5$$

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## tables

Sample Table		
col head	col head	col head
Left	centered	right
aligned	items	aligned
items	items	items
Left items	centered	right aligned

multiplication

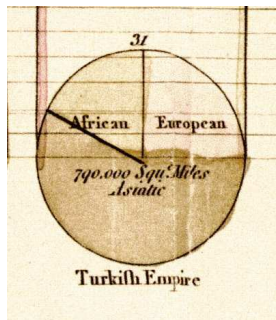
*	1	2	3
1	1	2	3
2	2	4	6
3	3	6	9

Sydney	OG4G	Thu Oct 10	Mon Oct 21 or 28	11 or 18 days	999
Melbourne	OG6B	Thu Oct 17	Mon Oct 21 or 28	4 or 11 days	999
Perth	OG7A	Sun Oct 13	Mon Oct 21 or 28	8 or 15 days	999
Darwin	OG9Q	Sun Oct 20	Mon Oct 28	8 days	999

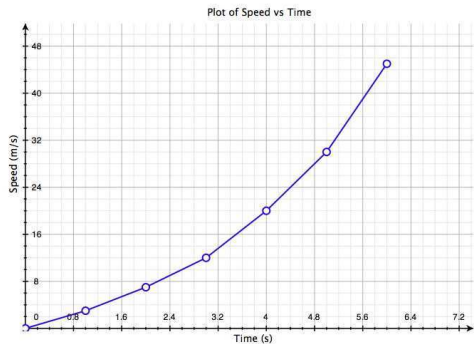
## departure board at Dulles Airport

DEPARTURE	CARRIER - FLIGHT - PARTNER	GATE	TIME	STATUS	DEPARTURE	CARRIER - FLIGHT - PARTNER	GATE	TIME	STATUS
Albany	UNITED UA 7472 QR 5605	A2	5:23P	On Time	Dallas /Ft	AMERICAN AA 1783	B71	4:26P	On Time
Albuquerque	UNITED UA 783 BD 6646	D18	5:34P	On Time	Dallas /Ft	SOUTHWEST QF 4594	B71	4:36P	On Time
Almont	UNITED UA 8851	A8	5:35P	On Time	Dallas /Ft	UNITED UA 7681 US 7618	A7G	4:50P	On Time
Altoona, PA	UNITED UA 6937	A5	5:37P	On Time	Dayton	UNITED UA 7989 QR 5648	C26	5:38P	On Time
Amsterdam	UNITED UA 946 LO 6601	C14	5:58P	On Time	Daytona Beach	DELTA DL 1440	B7E	4:38P	On Time
Atlanta	DELTA DL 915	B7E	2:35P	On Time	Denver	UNITED UA 517 US 6257	C23	2:40P	On Time
Atlanta	DELTA DL 1449	B7E	4:09P	On Time	Denver	UNITED UA 803 US 6258	C19	4:22P	On Time
Atlanta	UNITED UA 7209 BD 4618	D12	4:46P	On Time	Denver	UNITED UA 937 LH 9058	C4	5:28P	On Time
Atlanta	DELTA DL 1489	B7E	5:25P	On Time	Denver	SOUTHWEST WN 2683	B56	5:40P	On Time
Austin	UNITED UA 7281 QR 5611	C18	5:08P	On Time	Detroit	DELTA NW 3721	B72	4:45P	On Time
Birmingham	UNITED UA 6842	A5	5:34P	On Time	Detroit	UNITED UA 7349 US 7608	A3	5:09P	On Time
Boston	UNITED UA 7157 NH 7160	A5	2:21P	Now 4:00P	Frankfurt	UNITED UA 916 LH 9051	D3	5:28P	On Time
Boston	DELTA B6 1256	B7D	4:18P	On Time	Frankfurt	UNITED LH 419 UA 8932	B49	5:30P	On Time
Boston	UNITED UA 822 LH 8352	D10	4:58P	On Time	Frankfurt	UNITED LH 418 UA 8932	B51	5:50P	On Time
Brussels	UNITED UA 956 LO 6611	C37	5:37P	On Time	FL Lauderdale	DELTA B6 309	B62	3:15P	Delayed
Buffalo	UNITED UA 7009 BD 4656	C24R	1:02P	Departed	Geneva	UNITED UA 474 LX 3293	C6	5:41P	On Time
Buffalo	UNITED UA 7832 QR 5629	A5	5:35P	On Time	Greensboro	UNITED UA 7842 BD 4628	A4	4:46P	On Time
Burlington	UNITED UA 8021 BD 4656	C23	5:08P	On Time	Greenville	UNITED UA 7954 BD 4438	C28	5:28P	On Time
Charleston	UNITED UA 7982 OB 7845	C20R	4:55P	On Time	Harrisburg PA	UNITED UA 7952 US 7402	C09	5:25P	On Time
Charleston	UNITED UA 6885	A6	5:38P	On Time	Hartford-BOL	UNITED UA 312 US 6161	D21	5:22P	On Time
Charlotte, NC	UNITED USA 28	3:47P	On Time	Houston	CONTINENTAL CO 3051	B25	7:35P	On Time	
Charlotte, NC	UNITED UA 7189 NH 7152	C24	5:20P	On Time	Houston	UNITED UA 865 US 6191	C9	5:22P	On Time
Charlotte, NC	UNITED US 2643	Z7	8:06P	On Time	Huntsville AL	UNITED UA 7343 BD 4642	A4	4:58P	On Time
Charlotte/Asheville	UNITED UA 6878	A4	4:55P	On Time	Indianapolis	UNITED UA 7317 US 7150	A2	4:45P	On Time
Chicago	SOUTHWEST WN 456	B56	1:50P	On Time	Jacksonville	UNITED UA 7422 NH 7550	A2	12:15P	Now 3:31P
Chicago	SOUTHWEST WN 2883	B50	5:40P	On Time	Jacksonville	UNITED UA 7451 BD 4238	C28	4:45P	On Time
Chicago	UNITED UA 395 J7 7351	D11	2:33P	On Time	Johannesburg	UNITED UA 298 UA 9416	B14	5:40P	On Time
Chicago	UNITED UA 951 OS 7915	C5	5:14P	On Time	Johannesburg	UNITED UA 6937	A5	5:32P	On Time
Chicago	DELTA DL 6134	B7E	5:00P	On Time	Kansas City	UNITED UA 7411 US 7962	A1	3:38P	On Time
Cincinnati	UNITED UA 7983 AC 4783	A4	5:09P	On Time	Knoxville	UNITED UA 7983 US 7406	A6	4:50P	On Time
Cleveland	UNITED UA 7135 NH 7126	A7	4:50P	On Time	Las Vegas	SOUTHWEST WN 3874	B56	4:15P	On Time
Cleveland	CONTINENTAL CO 8647	B31	5:35P	On Time	Las Vegas	UNITED UA 777 LH 9358	D11	3:15P	On Time
Columbia	UNITED UA 7279 OS 7911	A6	5:28P	On Time	London-LHR	UNITED UA 938 CO 8550	C1	5:40P	On Time
Columbia, OH	UNITED UA 7644 BK 8885	A4	5:09P	On Time	London-LHR	BA 216	B44	8:15P	On Time
Dakar, Senegal	UNITED BA 298 UA 9416	B14	3:40P	On Time	Los Angeles	UNITED UA 268 US 6503	C19	7:41P	On Time
Dallas /Ft	SOUTHWEST QF 4594	B71	7:20P	On Time	Los Angeles	UNITED UA 967 NZ 9029	D4	4:45P	On Time
Dallas /Ft	AMERICAN AA 501	B73	2:20P	On Time	Los Angeles	SOUTHWEST VX 057	B75	4:50P	On Time
TUESDAY NOVEMBER 17, 2009 1:53P					TUESDAY NOVEMBER 17, 2009 1:53P				

## charts

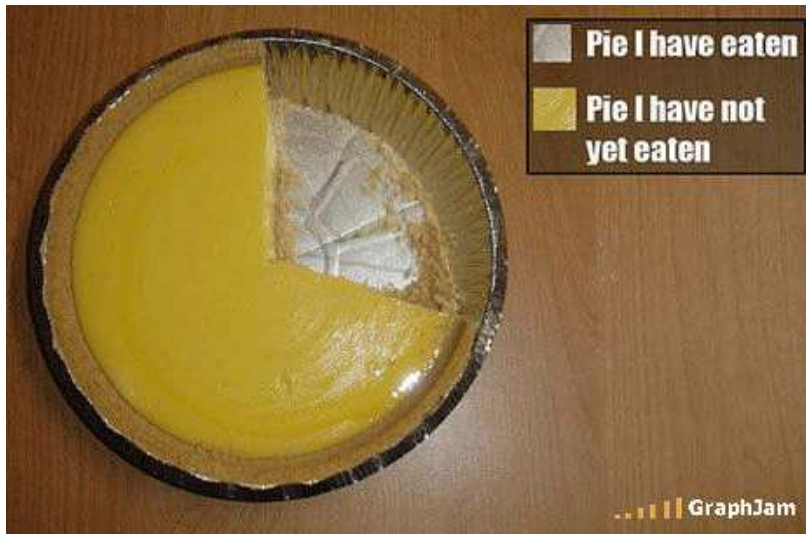


pie chart (1801)



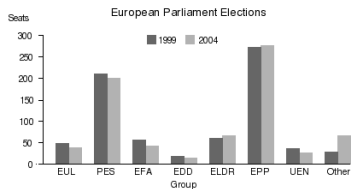
line chart

## the real pie chart

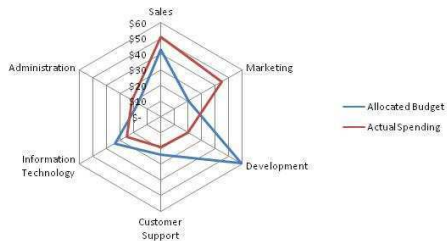




## charts

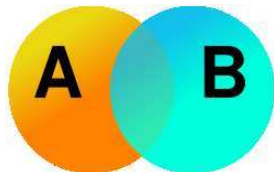


bar chart

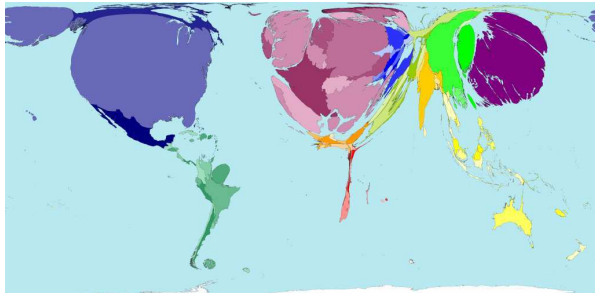


spider chart

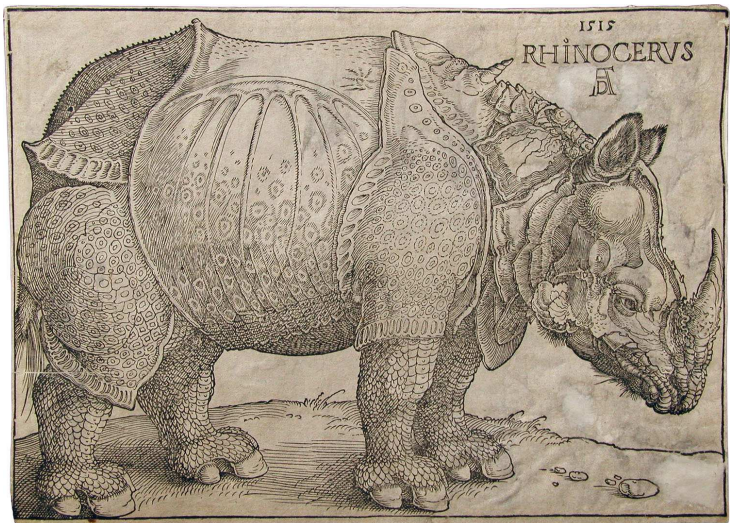
## diagrams



Venn diagram

cartogram (country areas by GDP)  
from <http://www.worldmapper.org>

# drawings



Albrecht Dürer's Rhinoceros (1515)

## photos



“Tank Man” stops the advance of a column of tanks on 5 June 1989 in Beijing.  
Photo by Jeff Widener (Associated Press)

## photos



“Tank Man” stops the advance of a column of tanks on 5 June 1989 in Beijing.  
Photo by Jeff Widener (Associated Press)

## floating elements

- ▶ most kinds of illustration are typically floating: they do not have a fixed place in the document
- ▶ where they are placed mostly depends on common sense
  - ▶ if an illustration is closely related to a given location in the text
    - ▶ it should be near that location (right there, on the same page, on the recto of the following page, on the verso of the preceding page, etc.)
    - ▶ else it must be labelled (as *Figure 7*, *Plate XVII*, *Table V*) and a reference to the label must be made in the text
    - ▶ it is a good idea to label all illustrations anyway to make reference to them easier
  - ▶ other illustrations may be located where most convenient wrt text breaking
- ▶ their placement may also depend on whether they must be printed on special paper (in which case they have to be separated from the text)
- ▶ a **caption** briefly describing the illustration is very useful