DEVS306 – Tables & Graphs

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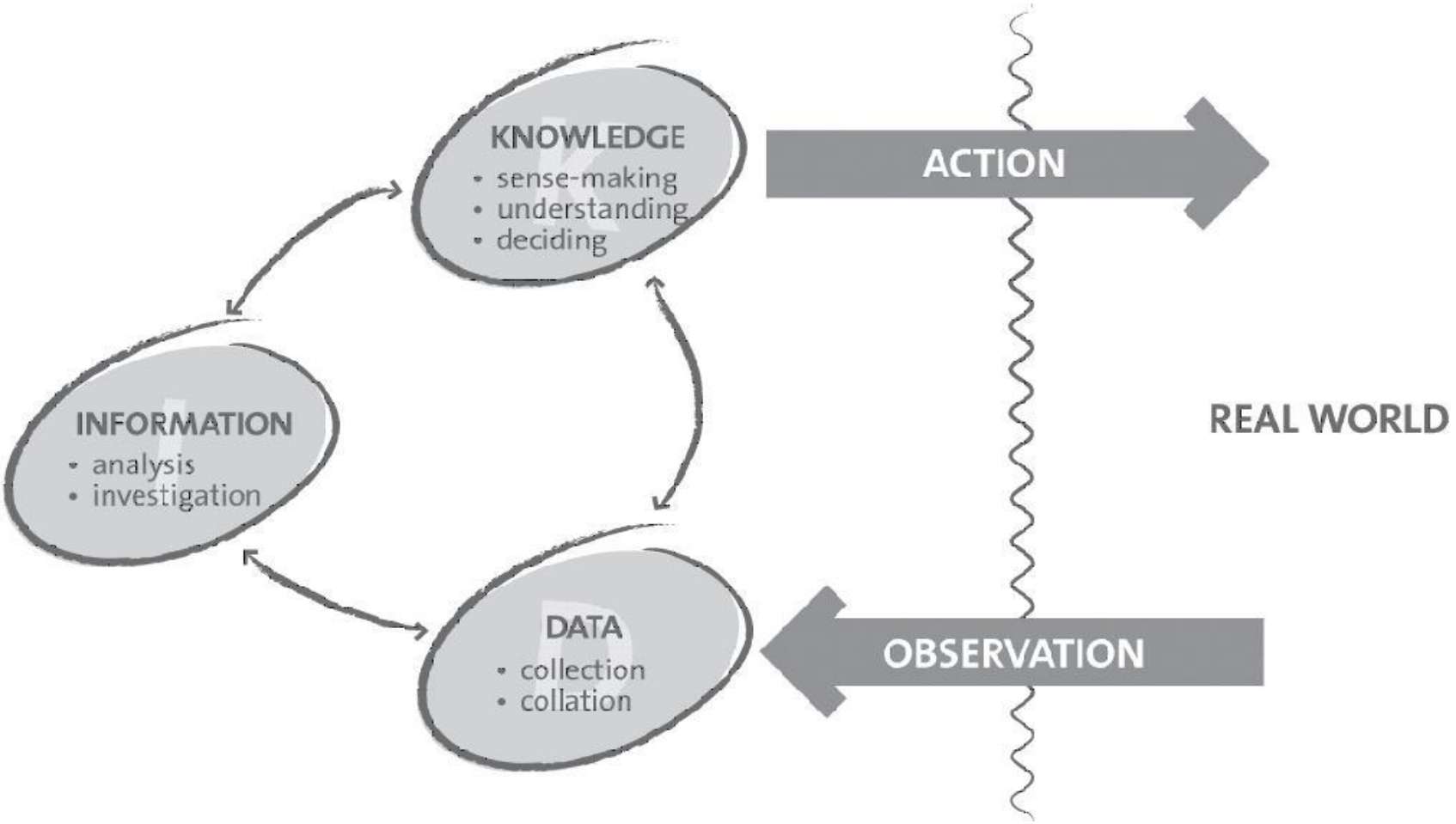
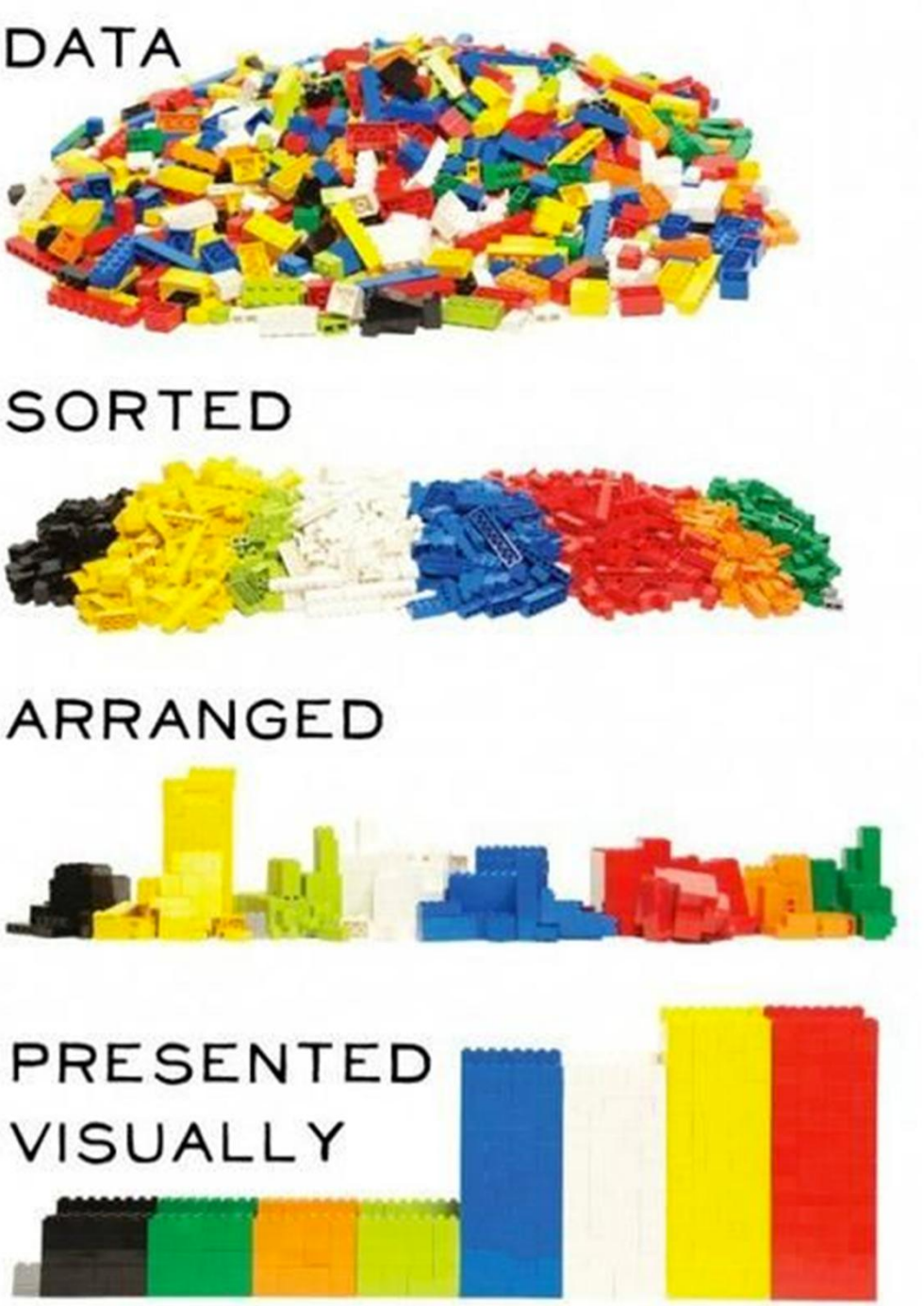
Creating tables & graphs


KNOWLEDGE
• sense-making
• understanding
• deciding
ACTION
INFORMATION
• analysis
• investigation
REAL WORLD
DATA
• collection
• collation
OBSERVATION


DATA
SORTED
ARRANGED
PRESENTED
VISUALLY

Year	Your salary, € yearly	Inflation rate, annual %	Mean salary in the country, € yearly
2020	30 000	3%	50 000
2021	40 000	1%	80 000
2022	50 000	15%	130 000
2023	60 000	20%	180 000

General rules (I)

- *Any* Table or Figure must be able to stand alone and be interpretable. It should be:
  - sufficiently clear
  - well-labeled
  - described by its legend
- **Table legends** go above the body of the Table and are left justified. Tables are read from the top down.
- **Figure legends** go below the graph. Graphs and other types of Figures are usually read from the bottom up.

General rules (II)

- Size your figures and tables to be easy to read (figures usually half page)
- Never use *color* simply because it is pretty! (what if printed in grey scale? Color has to mean something)
- NEVER leave a table or figure unedited (especially if copied from other programs)!

- **When would you use a table in your text?**

Tables (I)

- Typically:
  - Created manually (by Text editing program)
  - Copied from other program (Excel, SPSS, etc.) or text
- Do not put too much information into one table!
- Do not make a table with one row!
- Do not leave empty grids in the table (unless you explain it in footnotes)

Tables (II)

- Line up decimal points (if there are any). Whole numbers should line up on the right
- Column titles should be brief and descriptive
- Units are specified in column headings (in brackets) wherever appropriate (N, %, etc)
- Lines are used to set *legend*, *headers*, *data*, and *footnotes* apart from one another

Tables (III)

- The legend should tell what the table is about and how it is organized
- Footnotes are used to *clarify points* in the table or to denote *statistical differences* among groups
- Large tables (over one page) are usually put in the end as appendixes and not in the text

Table 4 Selected labour market indicators of the G7 for those aged 25 to 64

	United States	United Kingdom	Canada	Japan	France	Germany	Italy
Educational attainment[1]				%			
1991							
Below upper secondary	16	35	30	..	49	18	72
Upper secondary and postsecondary	54	49	42	..	36	60	22
Tertiary	30	16	28	..	15	22	6
2002							
Below upper secondary	13	16	17	16	35	17	54
Upper secondary and postsecondary	49	57	40	47	41	60	36
Tertiary	38	27	43	36	24	23	10
Employment rate by educational attainment							
1991							
Below upper secondary	52	61	55	..	58	51	54
Upper secondary and postsecondary	74	78	75	..	78	74	74
Tertiary	85	86	82	..	85	86	87
2002							
Below upper secondary	57	53	55	67	58	51	50
Upper secondary and postsecondary	74	79	76	74	77	70	72
Tertiary	83	88	82	80	83	84	82
Overall unemployment rate							
1993	6.9	10.0	11.4	2.5	11.1	7.7	10.1
1998	4.5	6.2	8.3	4.1	11.1	9.1	11.7
2003	6.0	5.0	7.6	5.3	9.4	9.6	8.6
Average actual hours worked per week				Hours			
1993	35.1	33.1	33.0	36.6	30.5	29.6	31.2
1998	35.4	33.3	33.7	35.4	29.7	28.6	31.2
2003	34.5	32.2	33.0	34.6	27.5	27.8	30.6

Source: OECD
1 Levels have been classified according to an international coding system.
Note: The selection of years was largely based on what was currently available from the OECD.

Tables (IV)

- Tables should be:
  - Centered on the page.
  - Numbered in the order they appear in the text.
  - Referenced in the order they appear in the text.
  - Labeled with the table number and descriptive title *above* the table.
  - Labeled with column and/or row labels that describe the data, including units of measurement.
  - Set apart from the text itself; text does not flow around the table.

No

Year	Sales
2009	34
2010	38

Region	% adults taking a holiday
East Anglia	50
East Midlands	64
Greater London	56
Humberside and Yorkshire	64
North	54
North West	59
South East	60
South West	61
West Midlands	56

No

number of women to rise to 40% in the european boards of directors by 2020, in order to get closer and closer to a perfect equality of representation between me and women.

Part des femmes au parlement européen

	Nombre de femmes 2009 - 2014	Part de femmes (%) 2009 - 2014	Nombre de femmes 2004 - 2009	Part de femmes (%) 2004 - 2009	Ecart entre les deux législatures en points
Finlande	8	61,5	5	35,7	+ 25,8
Suède	10	55,6	11	57,9	- 2,3
Pays-Bas	12	48	12	44,4	+ 3,6
Danemark	6	46,2	5	35,7	+ 10,5
France	32	44,4	34	43,6	+ 0,8
Autriche	7	41,2	7	38,9	+ 2,3
Bulgarie	7	41,2	-	-	-
Slovaquie	5	38,5	5	35,7	+ 2,8
Allemagne	37	37,4	31	31,3	+ 6,1
Belgique	8	36,4	7	29,2	+ 7,2
Hongrie	8	36,4	8	33,3	+ 3,1
Portugal	8	36,4	6	25	+ 11,4
Roumanie	12	36,4	-	-	-
Espagne	18	36	18	33,3	+ 2,7
Royaume-Uni	24	33,3	19	24,4	+ 8,9
Grèce	7	31,8	7	29,2	+ 2,6
Italie	16	22,2	15	19,2	+ 3
Pologne	11	22	7	13	+ 9
République tchèque	4	18,2	5	20,8	- 2,6
Union européenne	257	34,9	222	30,3	+ 4,6

Source : Insee. Communautés européennes, service Europarlementaire.

No In this context, it seems important to describe and analyze the representation of women in politics, especially in the European Parliament and in the signatary member-states. Despite the fact that the European Union and its member-states fight to obtain equality with reference to political representation, perfect parity is hard to reach.

As an example, in this chart[4] we can see that the percentage of women elected in the European parliement raises at every elections, but slowly. It

The total amout of identified and presumed victims of human trafficking from 2008 until 2010 has increased significantly (See table 2). According to the Eurostat the amount of victims has nearly tripled from 29 victims to 79 victims. The ombundsman for minorities (2010) has investigated the number of clients in the assistance system for victims of human trafficking between 2006 and 2013. The number of victims in the assistance systems has increased nearly tenfold from 6 victims to 56 victims.

Table 2. The amount of victims of human trafficking in Finland

	Eurostat[1] (all victims)	The Ombundsman of minorities[2] (assisted victims)
2006	-	6
2007	-	2
2008	29	13
2009	64	17
2010	79	44
2011	-	52
2012	-	48
2013	-	56
Change	~ tribled	~ tenfolded

(1. Source Eurostat, both indentified and presumed (not formally indentified) victims counted)
(2. Source National rapporteur on trafficking in human beings 2014)

No

Even though the only explanation for the increased amout of the victims in the assistance system is not the opening of the boarders. In both cases the amount of the victims of human trafficking have 10 increased significantly the further away from the year 2001 were gone. That can be explained by the increased awareness of the easier moving from a country to another. The easier moving has also facilitated moving to a better living place. Therefore, the easier movement as an effect of globalization from a country to another is supported by the data and it may be one of the reasons for increasing human trafficking in Finland.

Leicester City F.C	31	20	13
Everton F.C	33	14	8

Criteria – In this category fits teams which have big amount of foreign players. A foreign player is a player who is not from England.

Table 2 - "Foreign teams in EPL"

Team	Squad capacity	Foreign players	"Home grown

			players"
Arsenal F.C	30	22	7
Chelsea F.C	26	21	3
Liverpool F.C	29	16	9
Manchester City F.C	26	21	7
Manchester United F.C	34	19	11
Newcastle United F.C	36	25	8
Tottenham Hotspur F.C	30	21	6

Criteria – Teams which manager and owner is not from England.

No

Table 3 - "Business teams"

Team	Manager nationality	Owner nationality
Arsenal F.C	French	American
Chelsea F.C	Portuguese	Russian

No title

Non-standard format of text

No footnote to explain the symbols */**/***

Text is too small

Species	Feeding	Moving	Climbing	Jumping	Sleeping
1	56	38	14	39	17
2	57	47*	62	48	18
3	87	37	75**	37	23***
4	83	27	26	94	21
5	25	23	75	26	26
6	64	85	30	85	20

Too many lines

No explanation of the coloured rows

- **When would you use a graph in your text?**

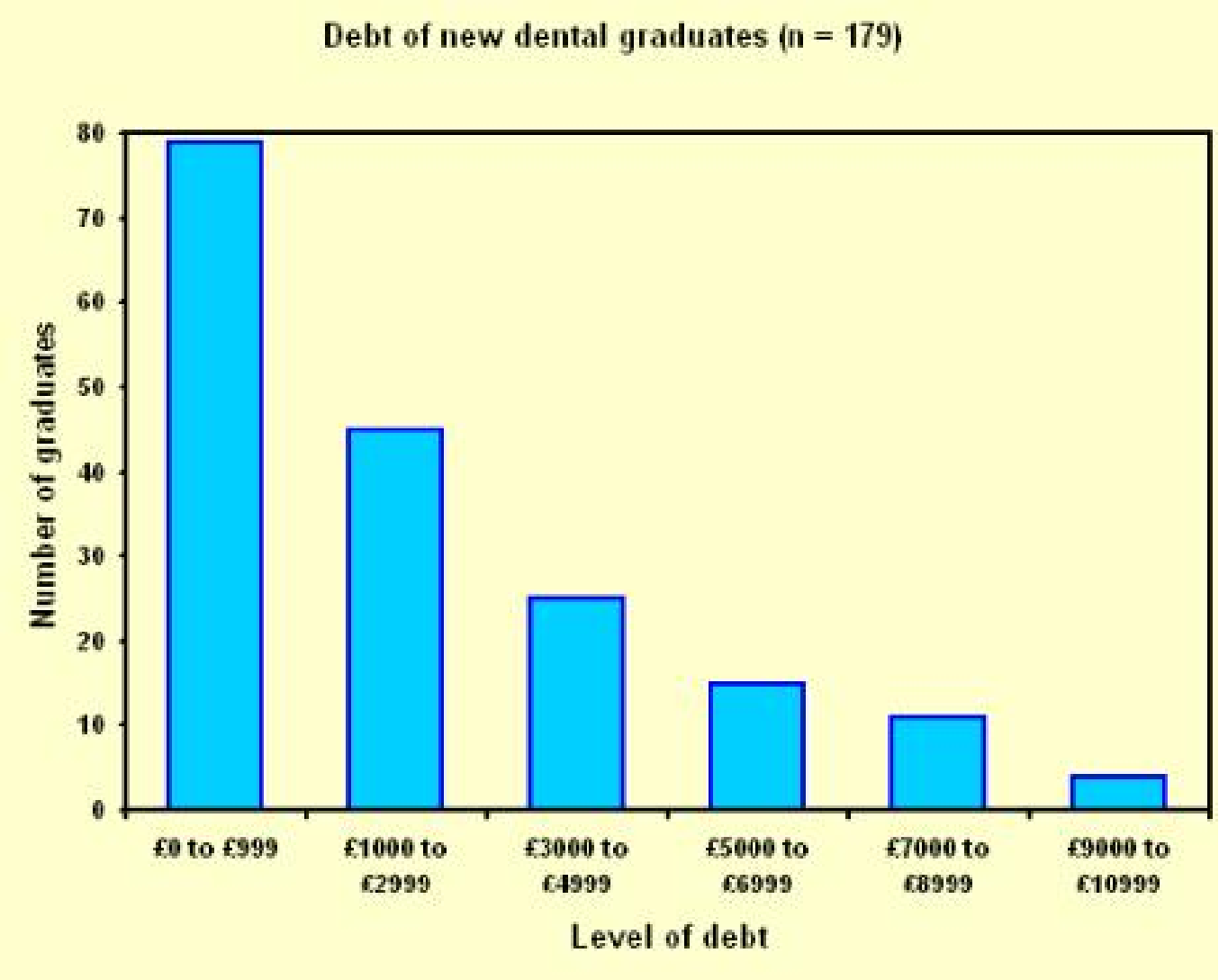
Graphs (I)

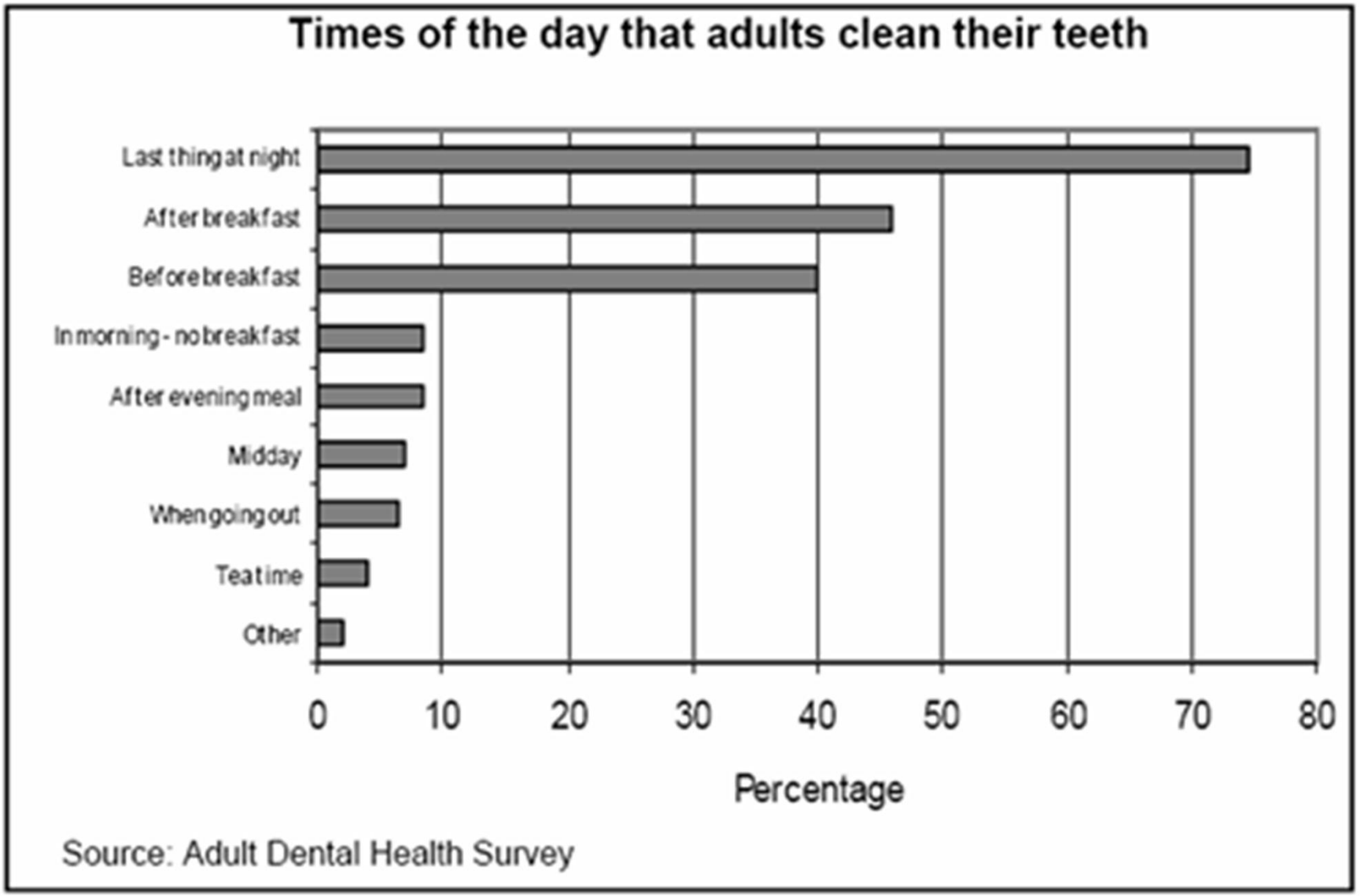
- Typically:
  - Created directly by the text editing program (Excel data needed)
  - Copied from other program (Excel, SPSS, etc.) or text
- Do not put unedited graphs directly into a text!
- The most important consideration for figures is simplicity
- Graphs should include proper *labels*, a *legend* explaining symbols, and vertical or horizontal *tick marks*.

Graphs (II)

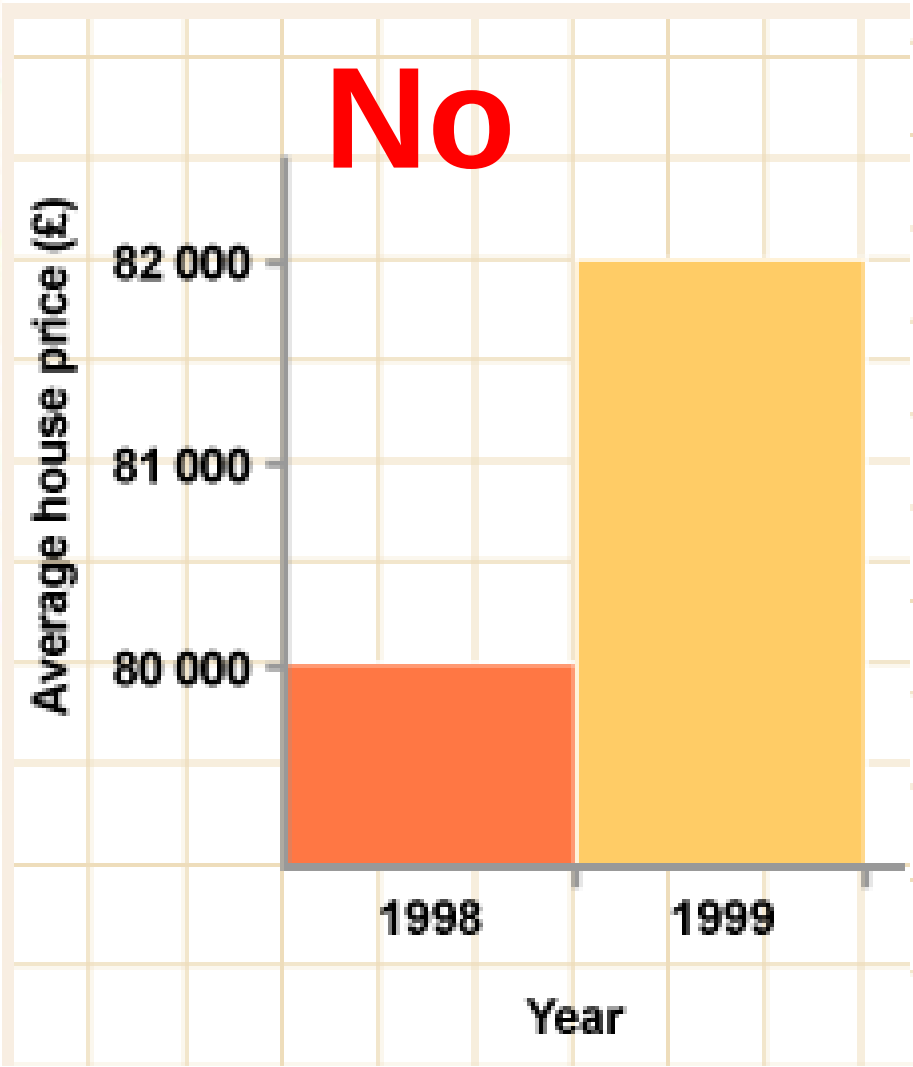
- Figures should be:
  - Centered on the page.
  - Labeled (*under* the figure) with the figure number and appropriate descriptive title
  - Numbered in the order they appear in the text.
  - Referenced in the order they appear in the text (i.e. Figure 1 is referenced in the text before Figure 2 and so forth).
  - Set apart from the text; text does not flow around figures.

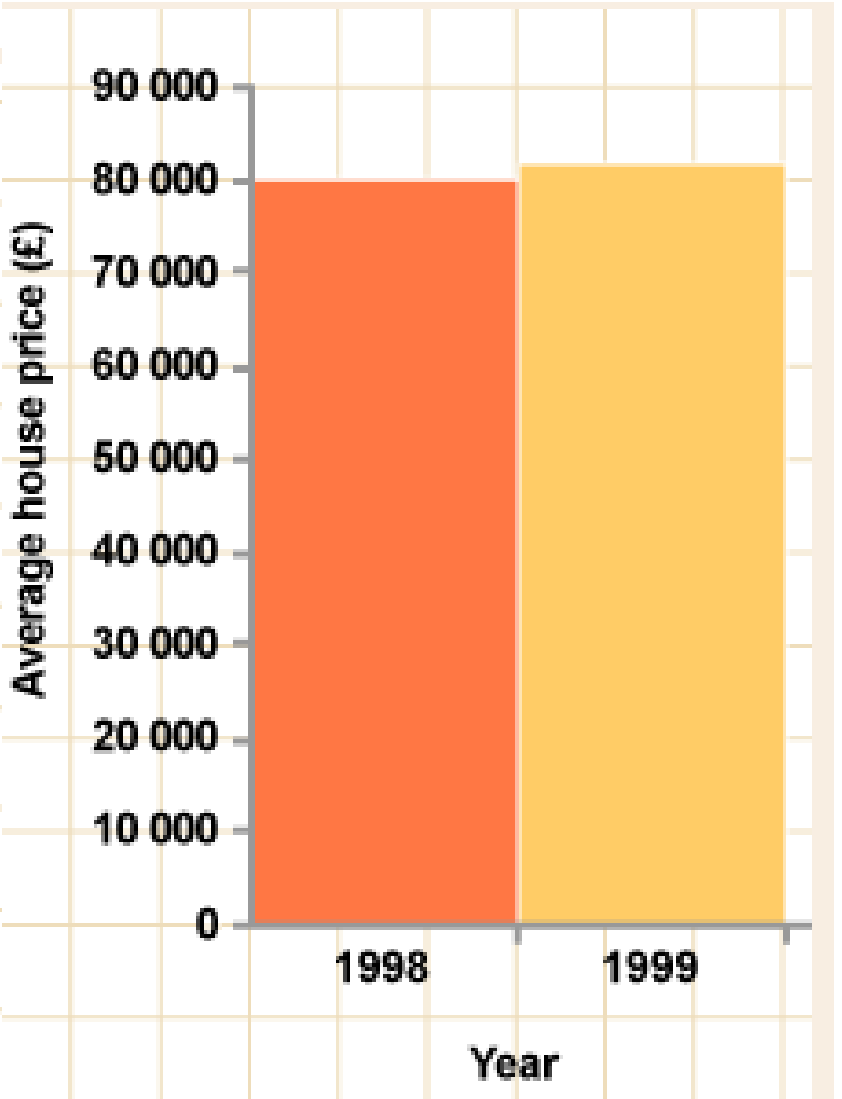
Bar charts


Debt of new dental graduates (n = 179)
Number of graduates
80
70
60
50
40
30
20
10
0
£0 to £999
£1000 to £2999
£3000 to £4999
£5000 to £6999
£7000 to £8999
£9000 to £10999
Level of debt


Times of the day that adults clean their teeth
Last thing at night
After breakfast
Before breakfast
In morning - no breakfast
After evening meal
Midday
When going out
Tea time
Other
0
10
20
30
40
50
60
70
80
Percentage
Source: Adult Dental Health Survey

No





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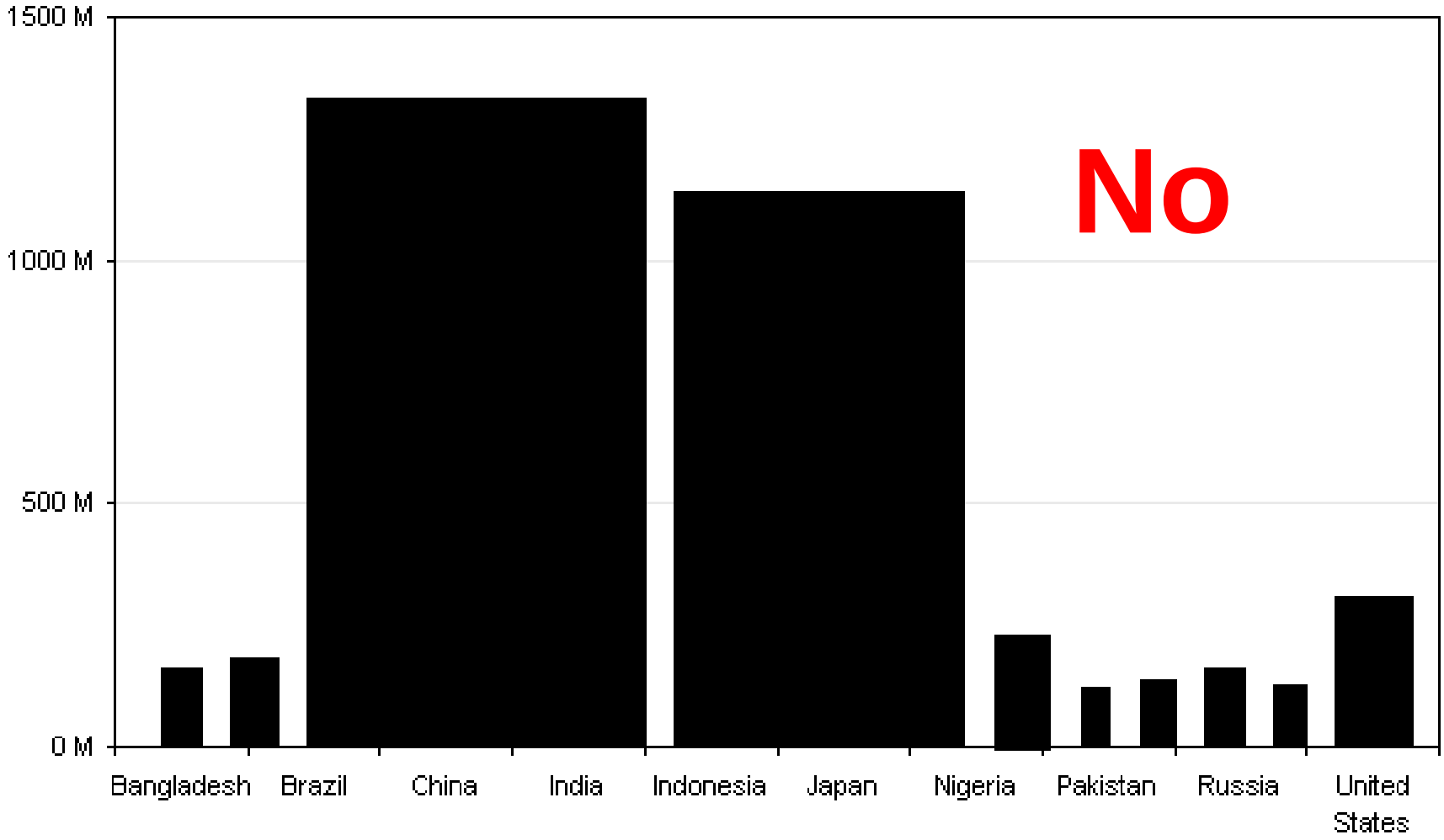
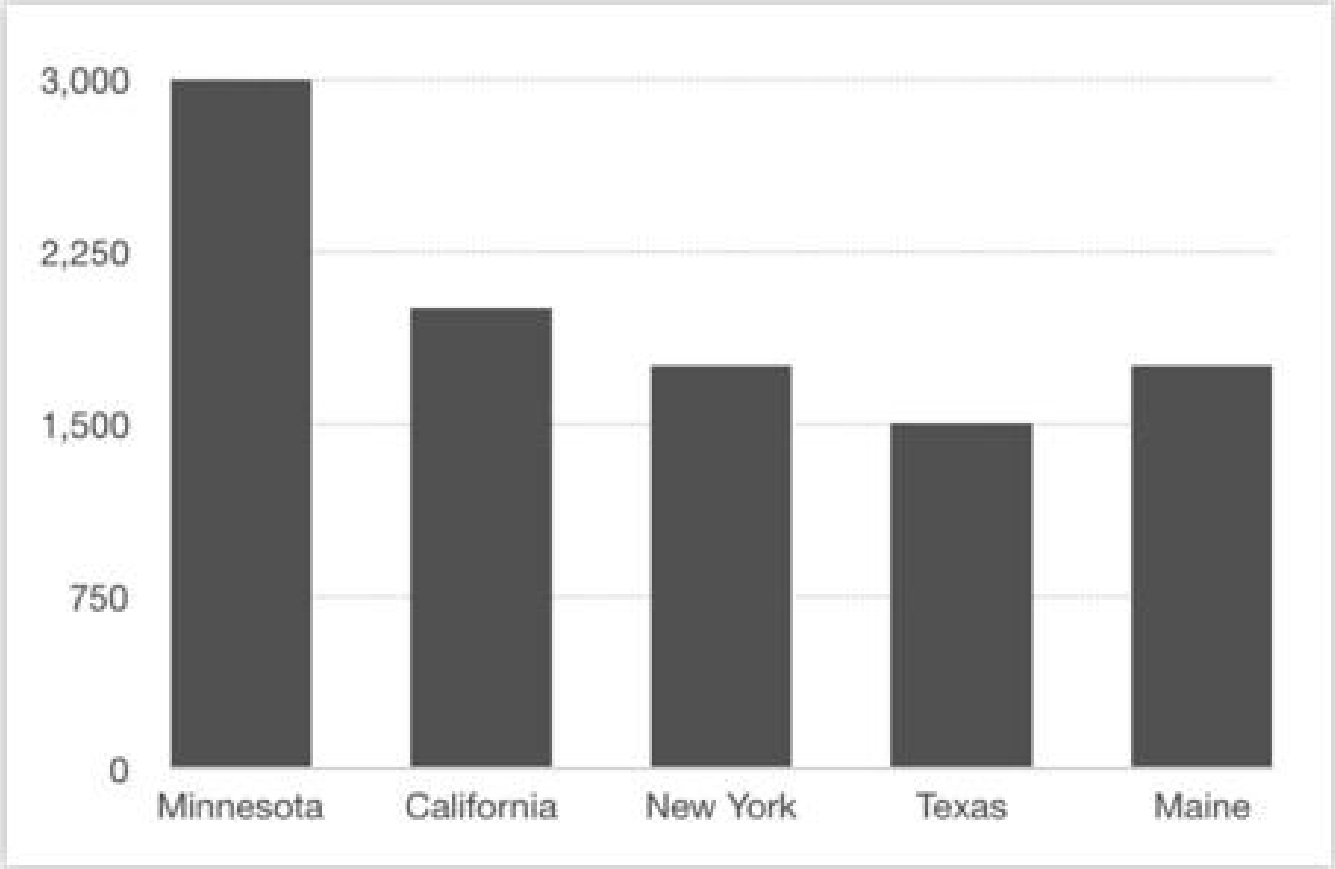

1500 M
1000 M
500 M
0 M
Bangladesh
Brazil
China
India
Indonesia
Japan
Nigeria
Pakistan
Russia
United States

No



15,000

11,250

7,500

3,750

0

Minnesota California New York Texas Maine

No

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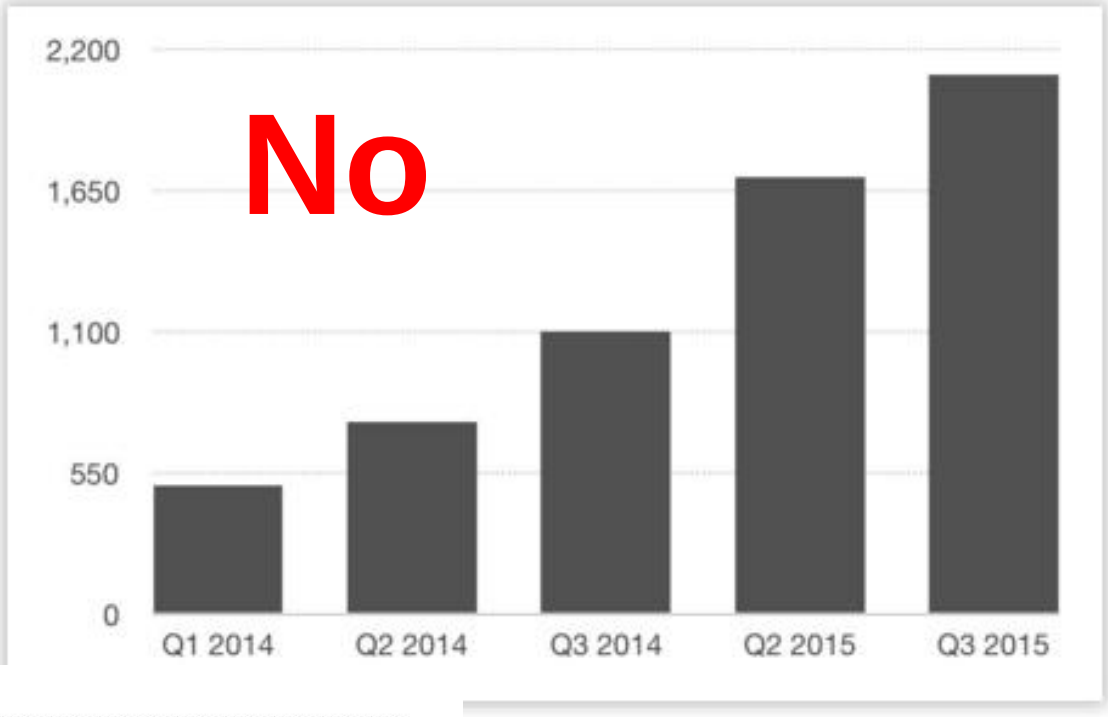

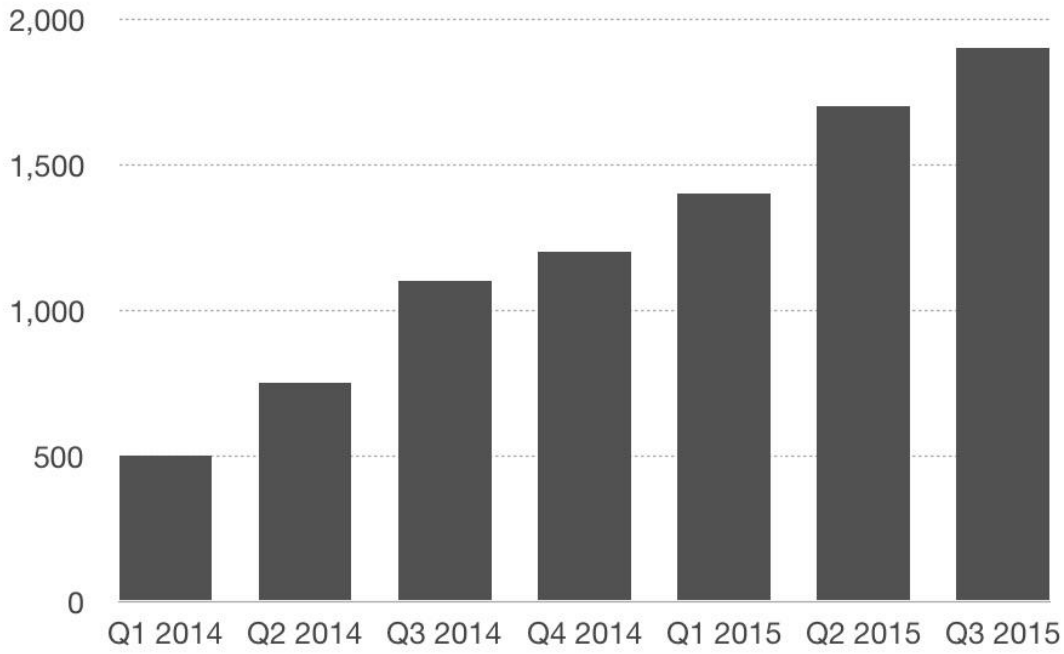

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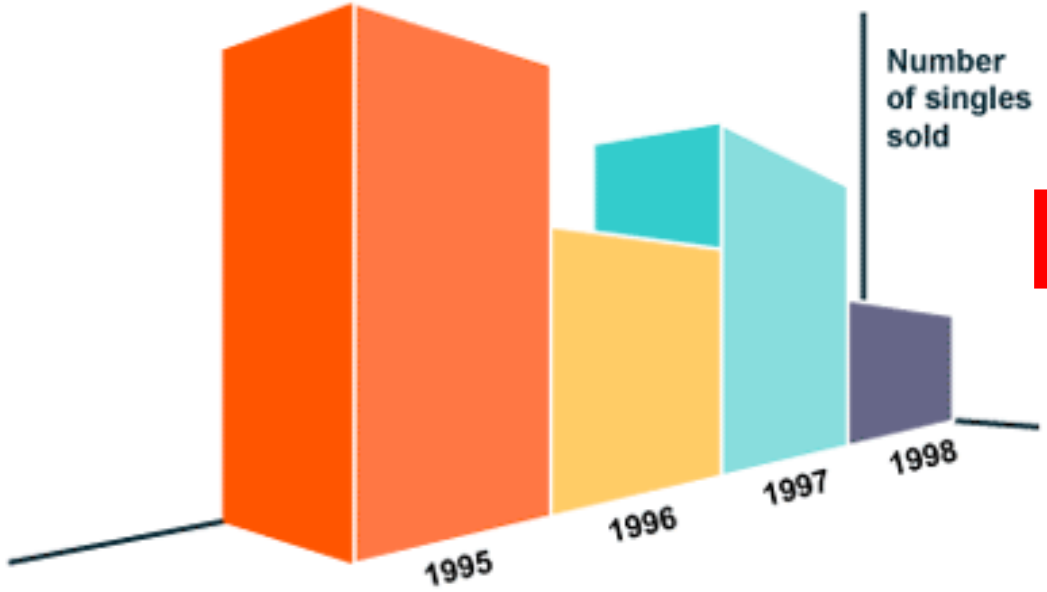

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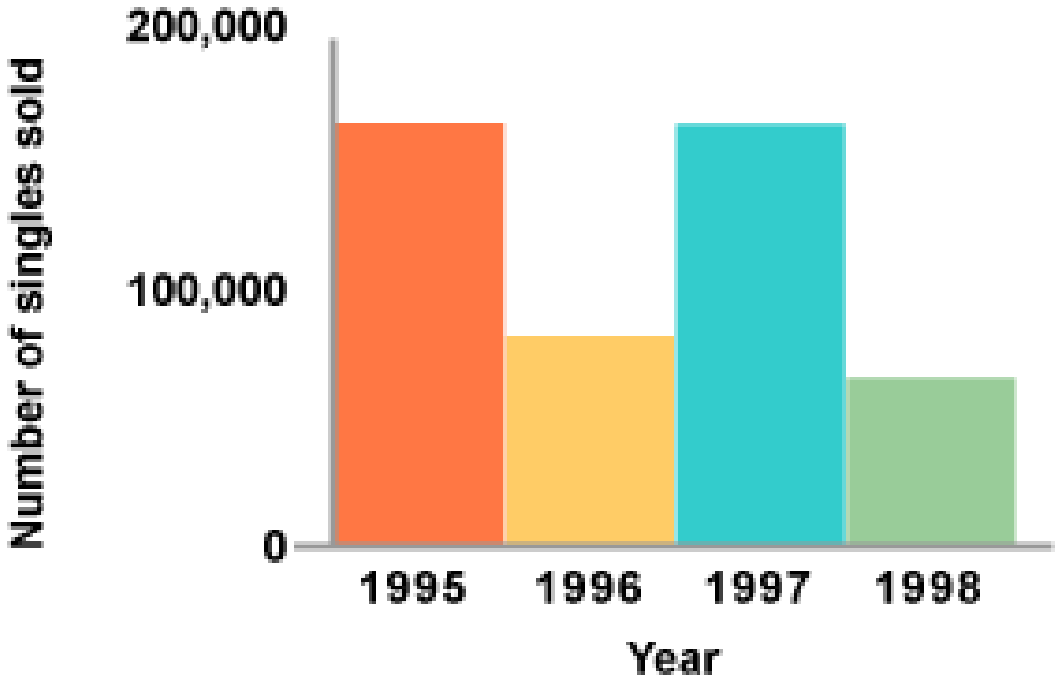

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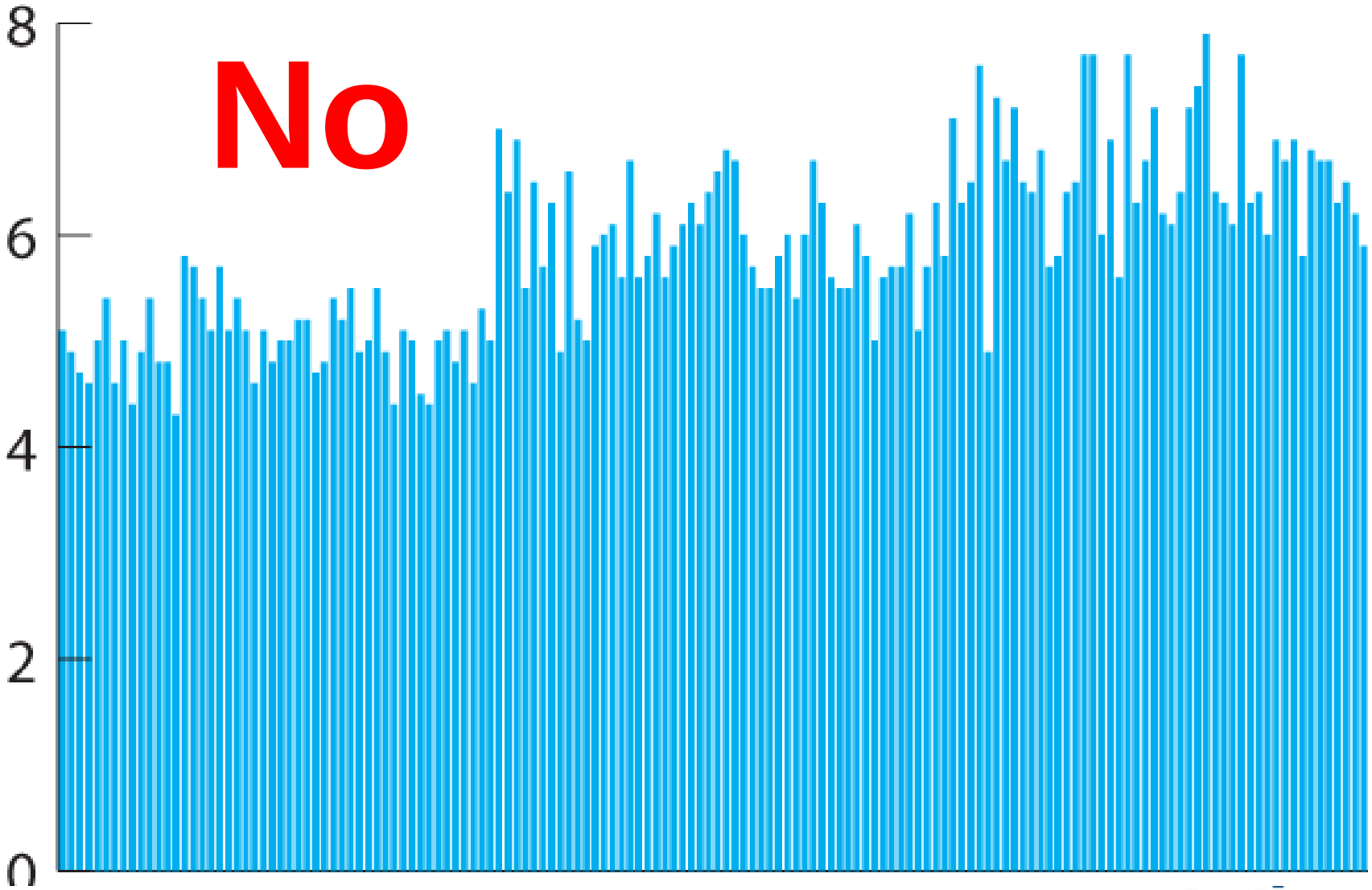
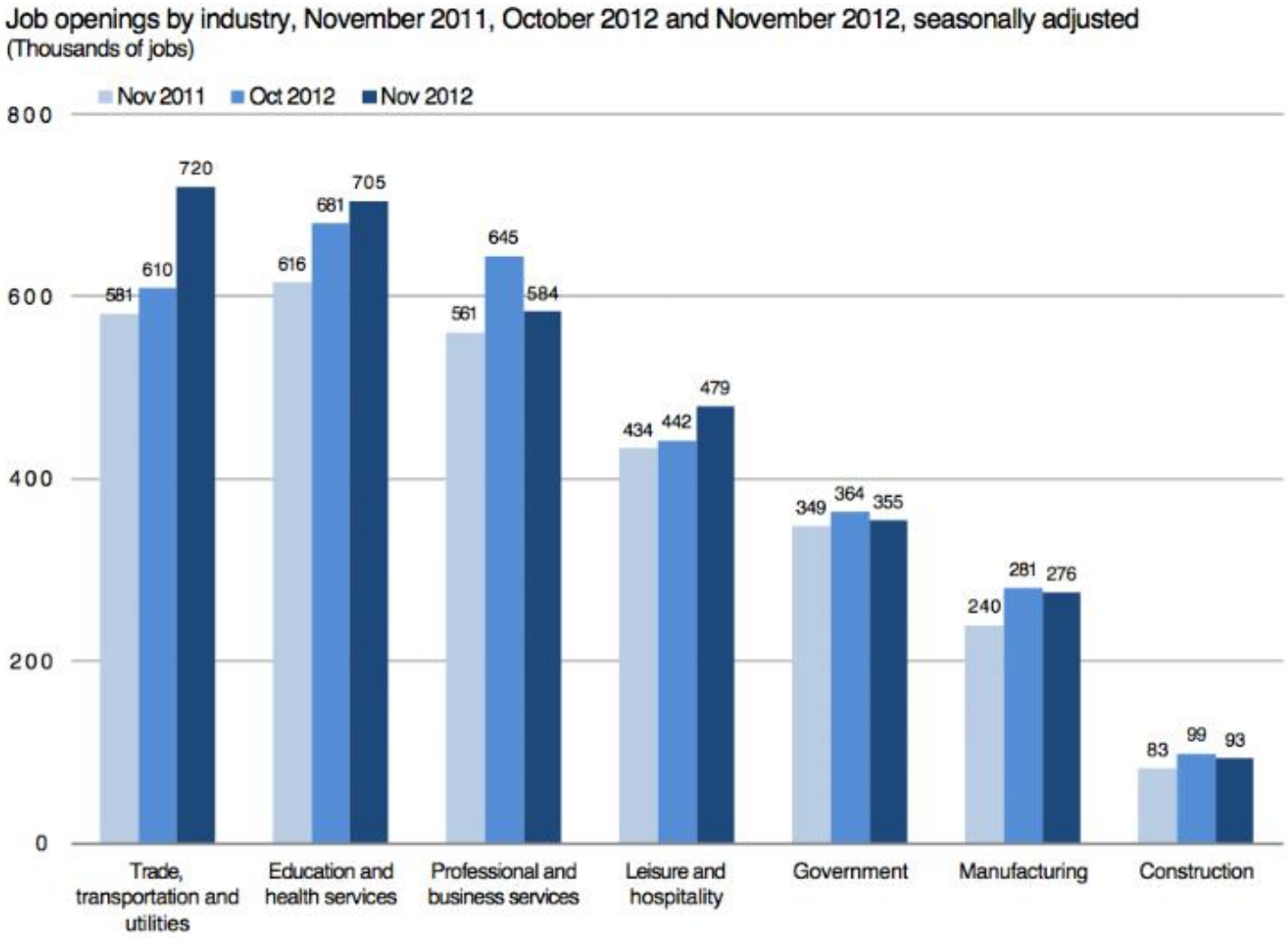

No
8
6
4
2
0

Grouped/clustered bar charts



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No

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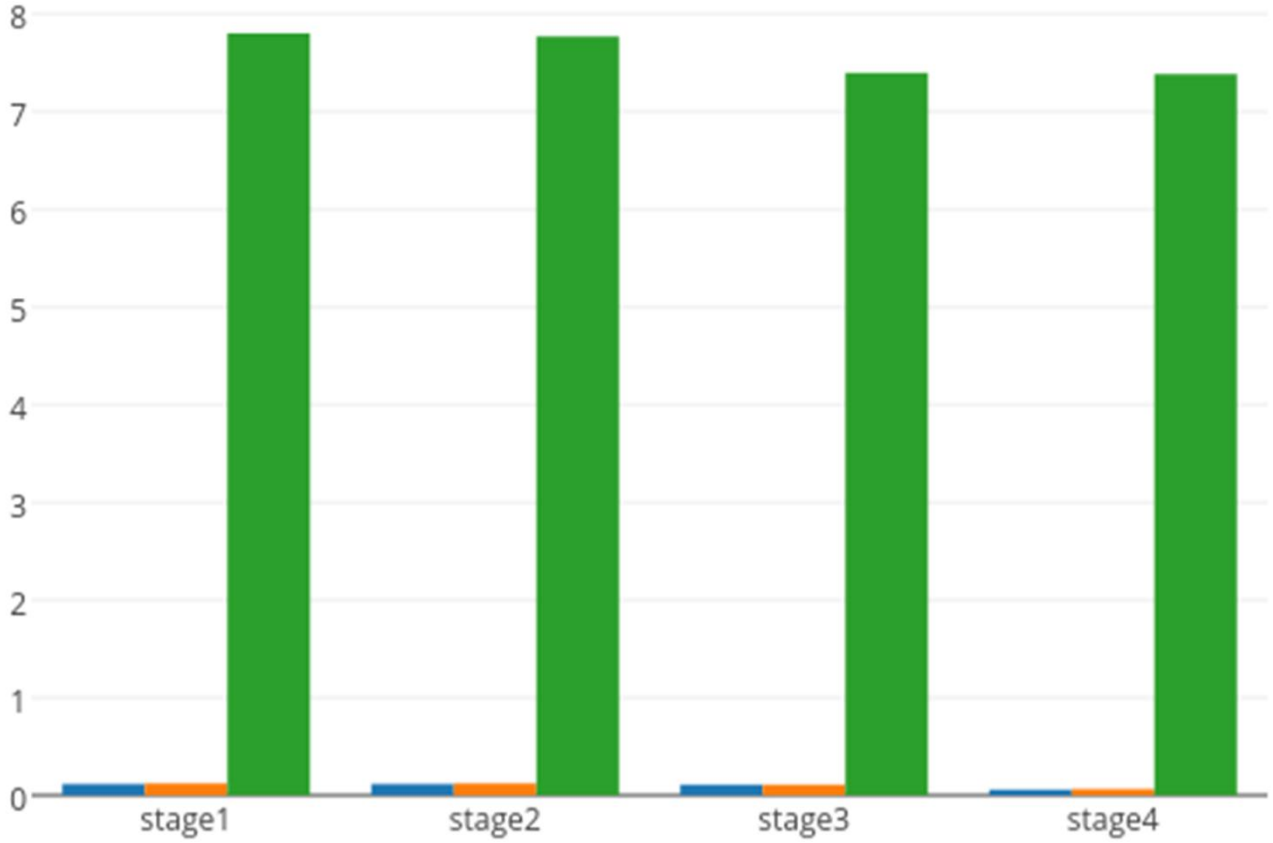
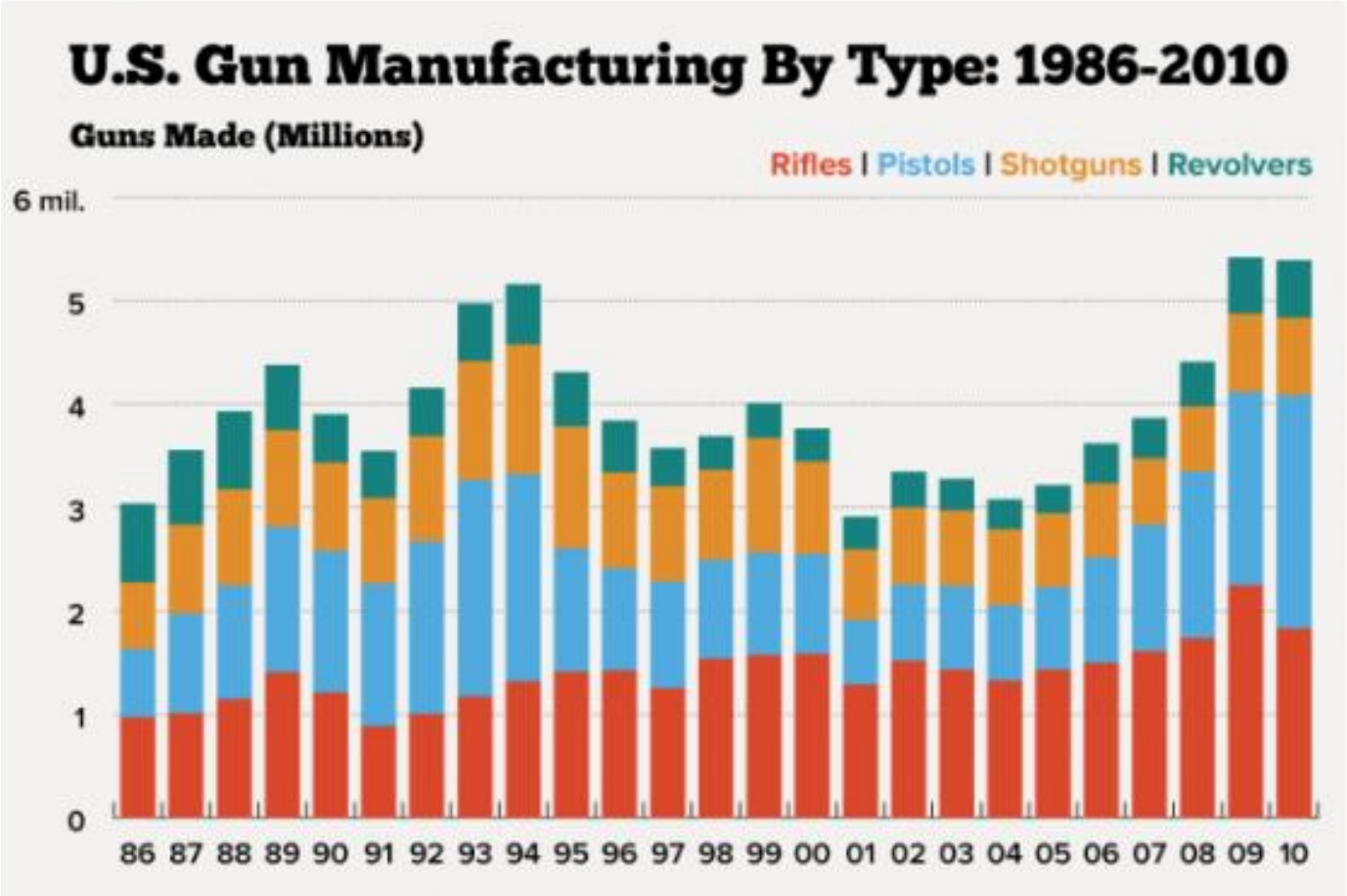
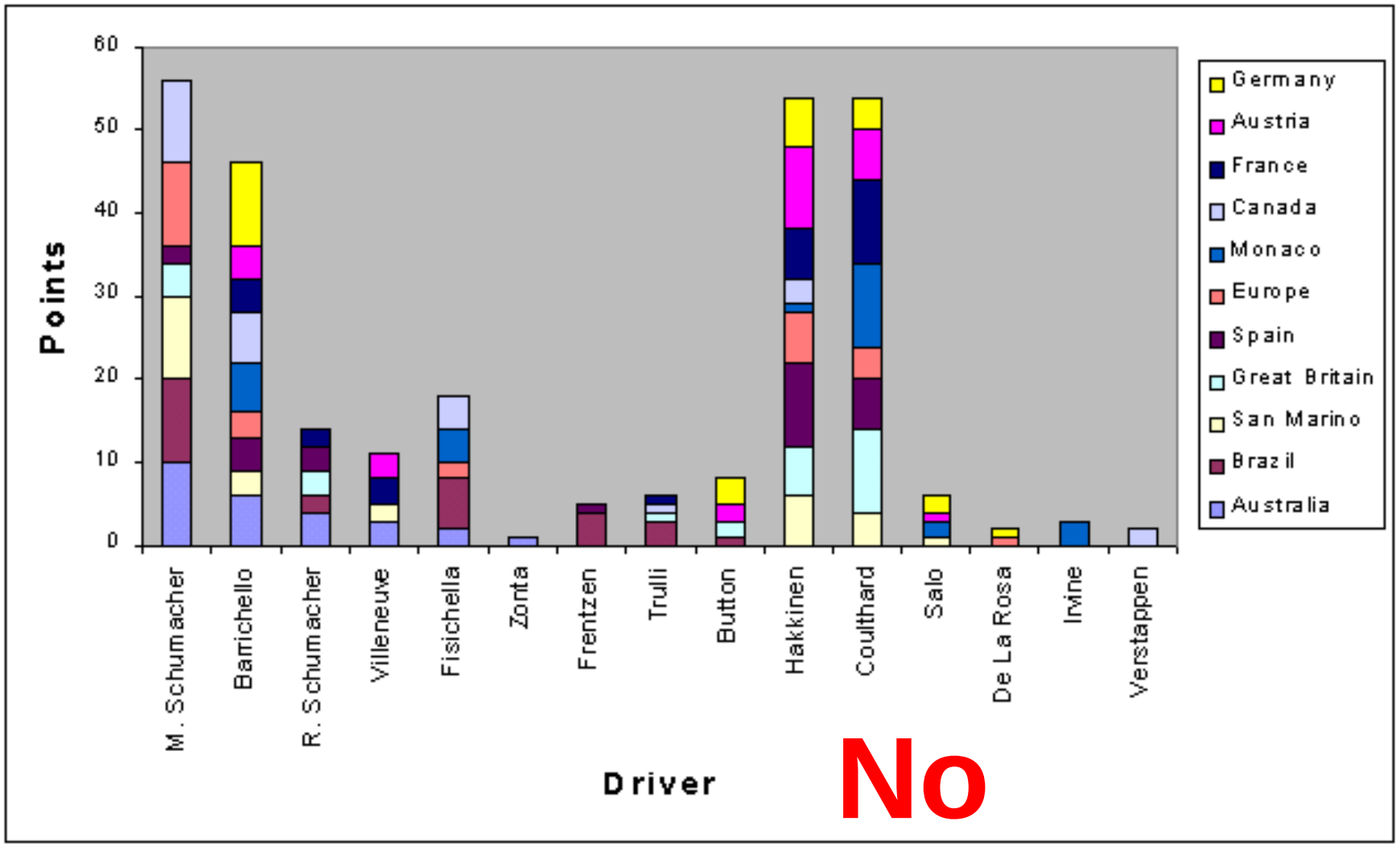
No



Stacked bars




Points
60
50
40
30
20
10
0
M. Schumacher
Barrichello
R. Schumacher
Villeneuve
Fisichella
Zonta
Frentzen
Trulli
Button
Hakkinen
Coulthard
Salo
De La Rosa
Irvine
Verstappen
Driver
Germany
Austria
France
Canada
Monaco
Europe
Spain
Great Britain
San Marino
Brazil
Australia
No

Centrally divided horizontal bar charts

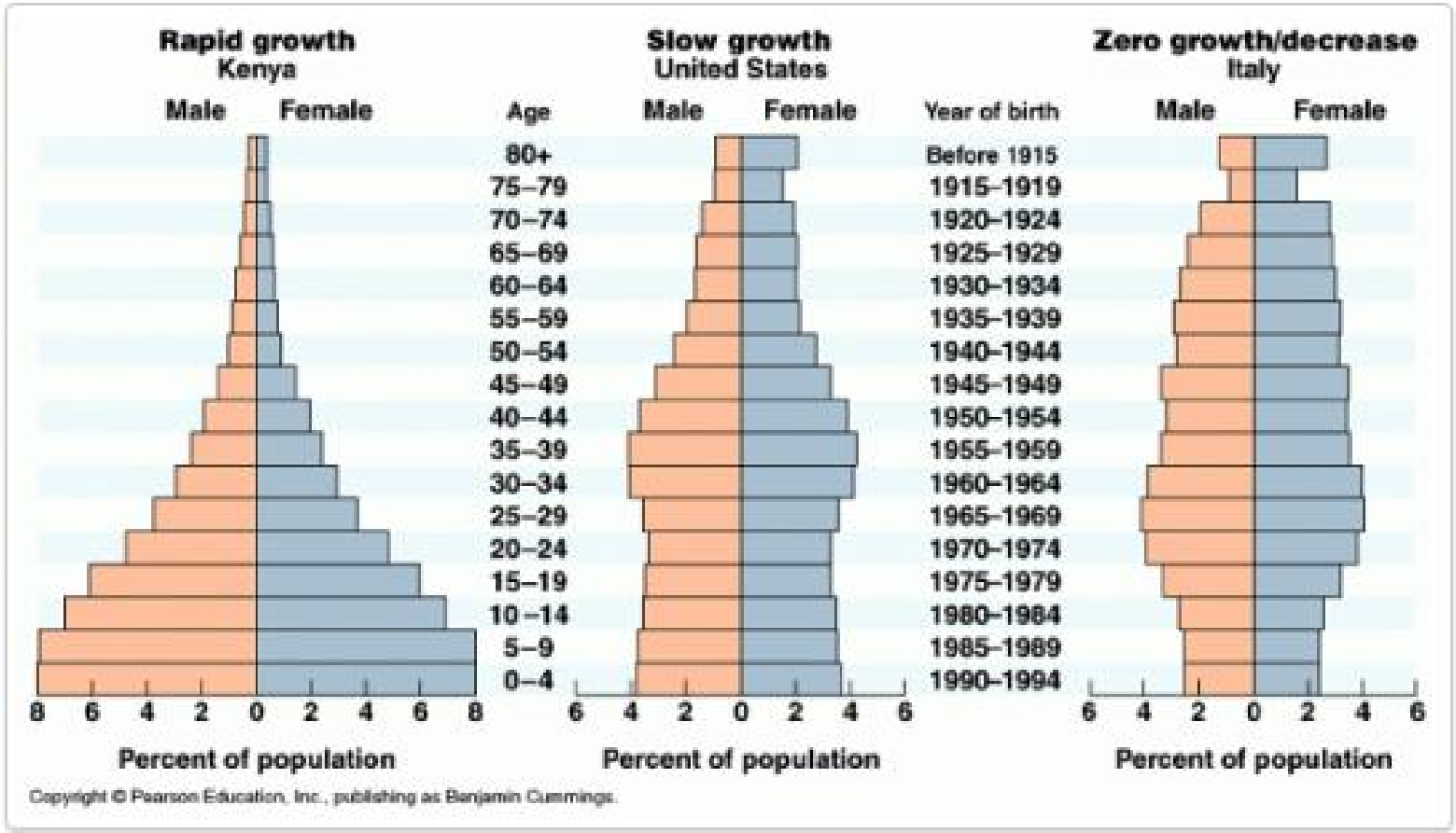


Figure 7. Example of population pyramids

Line graphs

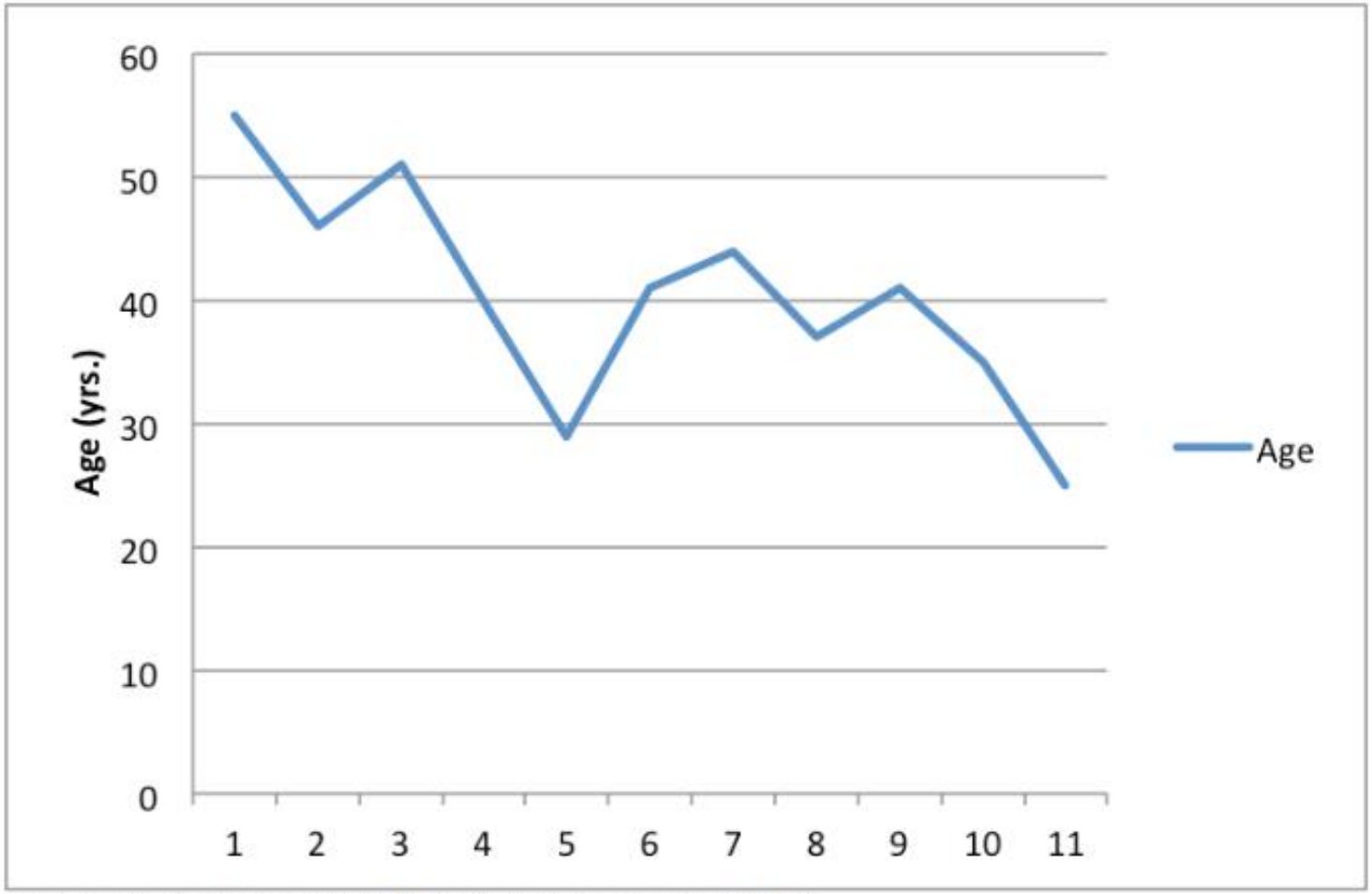
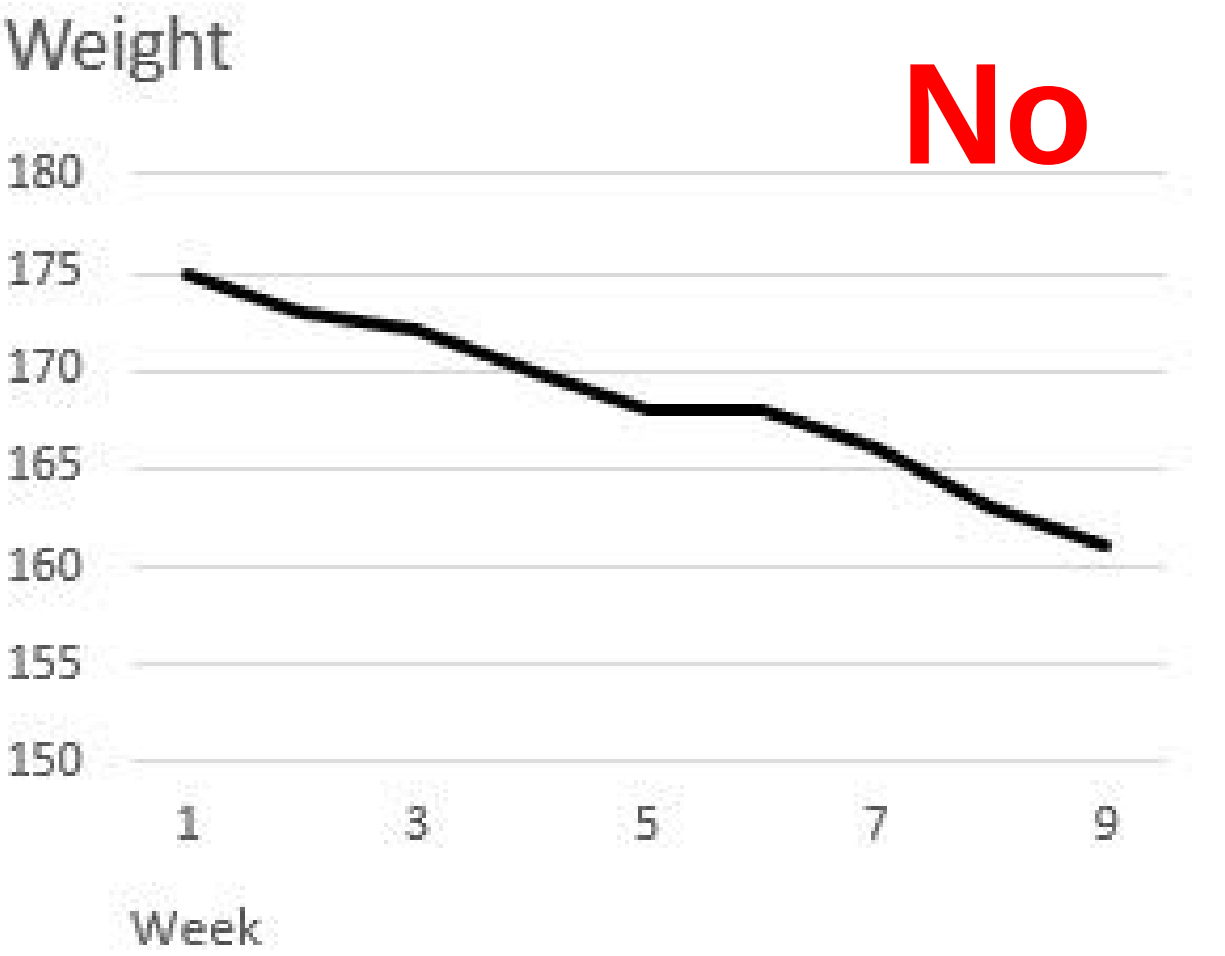


Figure 5. Age of the actor of each Doctor Who regeneration (1-11)



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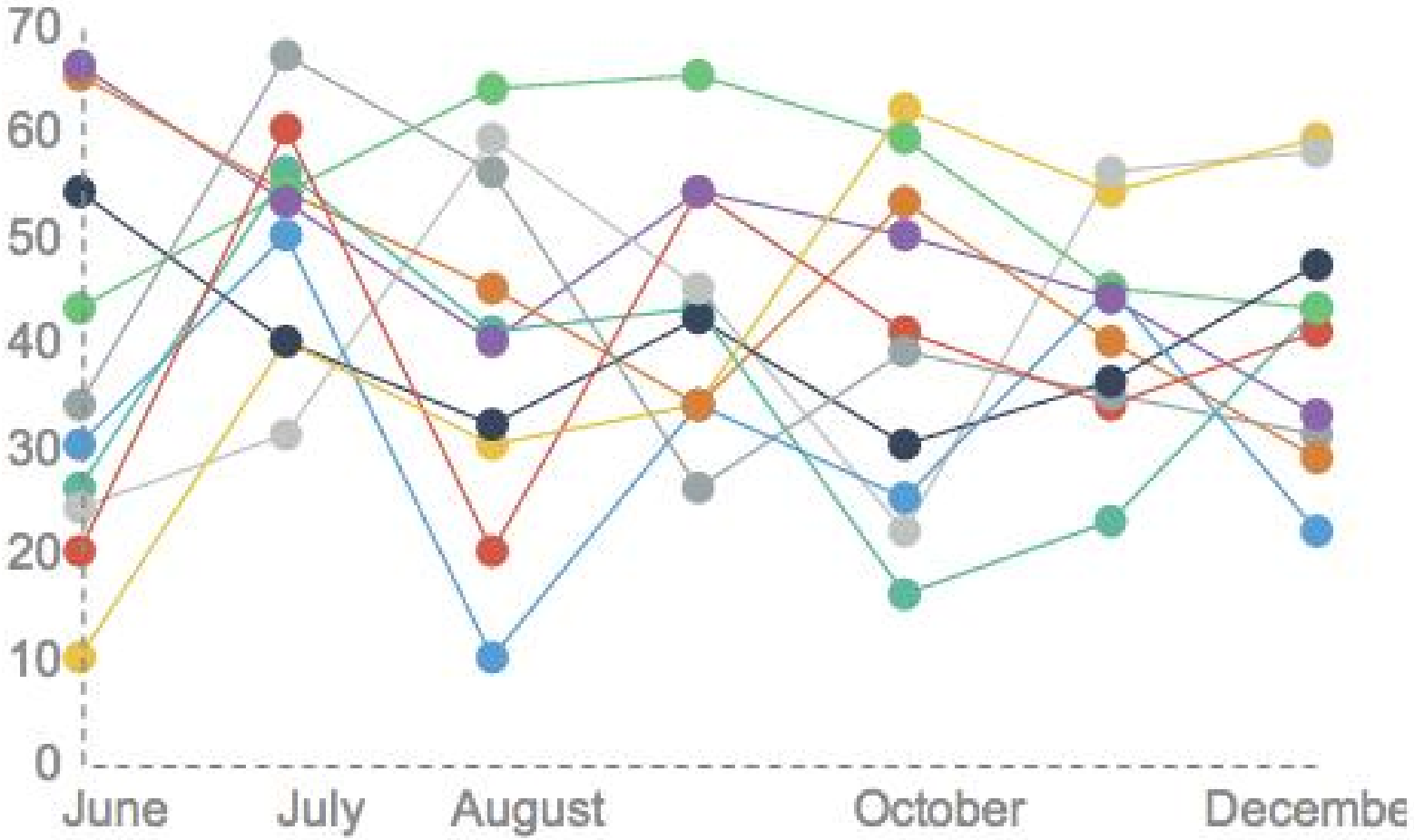
No



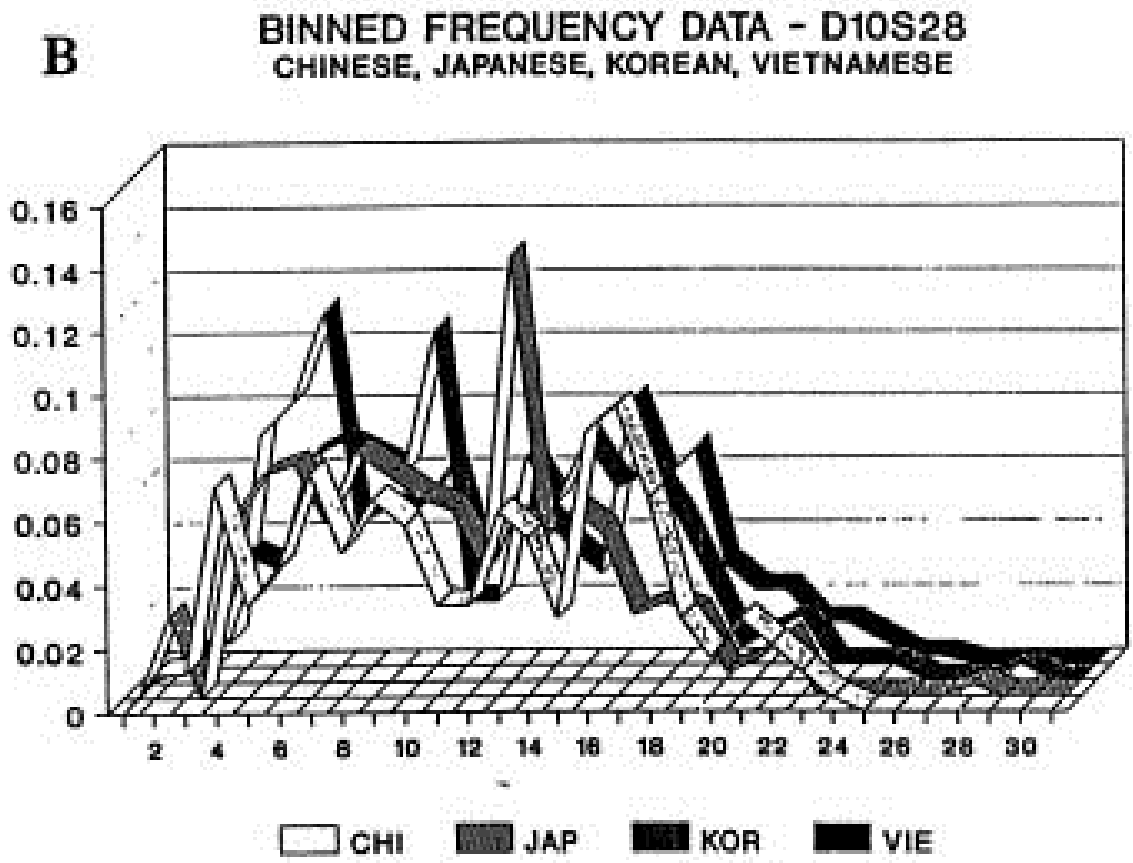
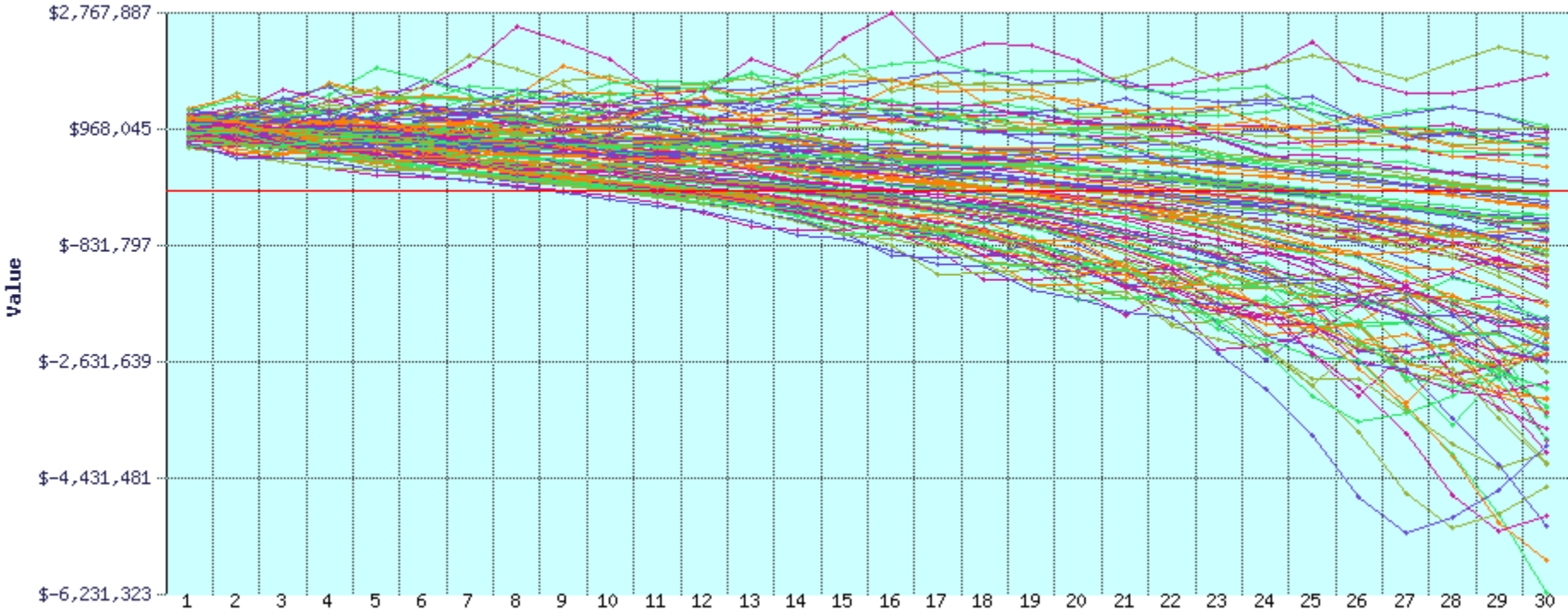


FIG. 4. *Fixed bin distribution (histogram) for two loci and four Asian subpopulations (used with permission from John Hartmann): the boundaries of the 30 bins (vertical axis) are determined by the FBI; these bins are not of equal length. Sample sizes (numbers of individuals) for Chinese, Japanese, Korean and Vietnamese are 103, 125, 93 and 215 for D4S139 and 120, 137, 100 and 193 for D10S28. The horizontal axis is the bin number; bins are not of equal length.*

No

No



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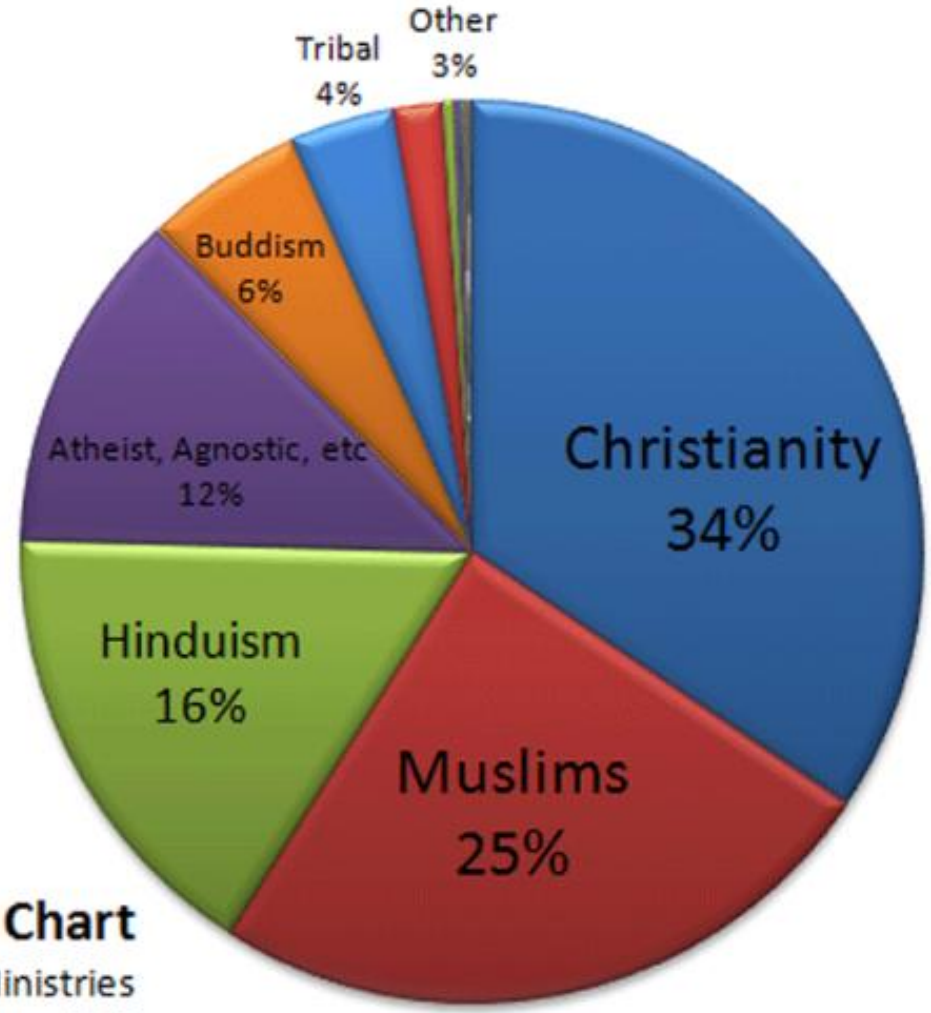
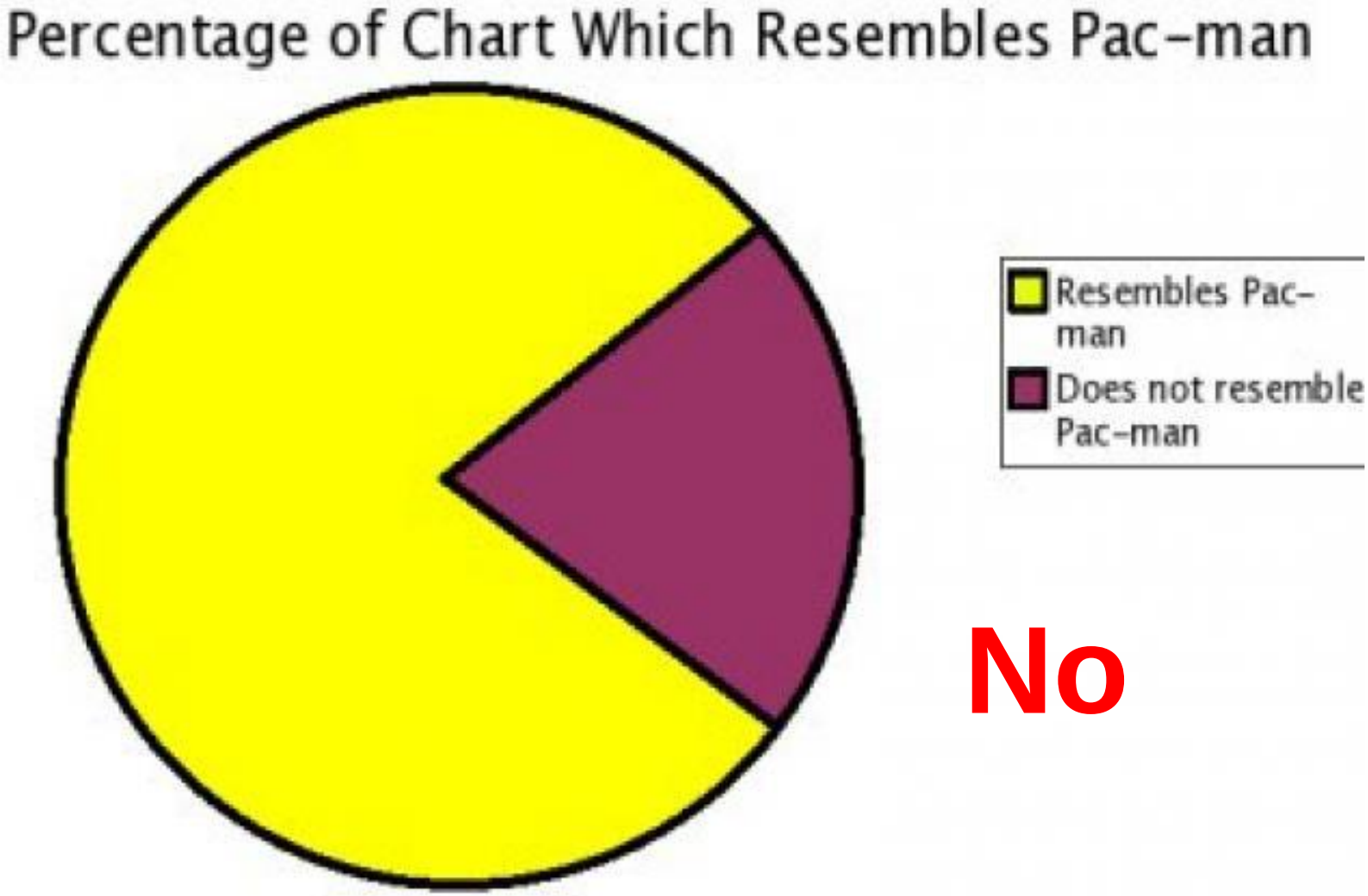
Pie charts



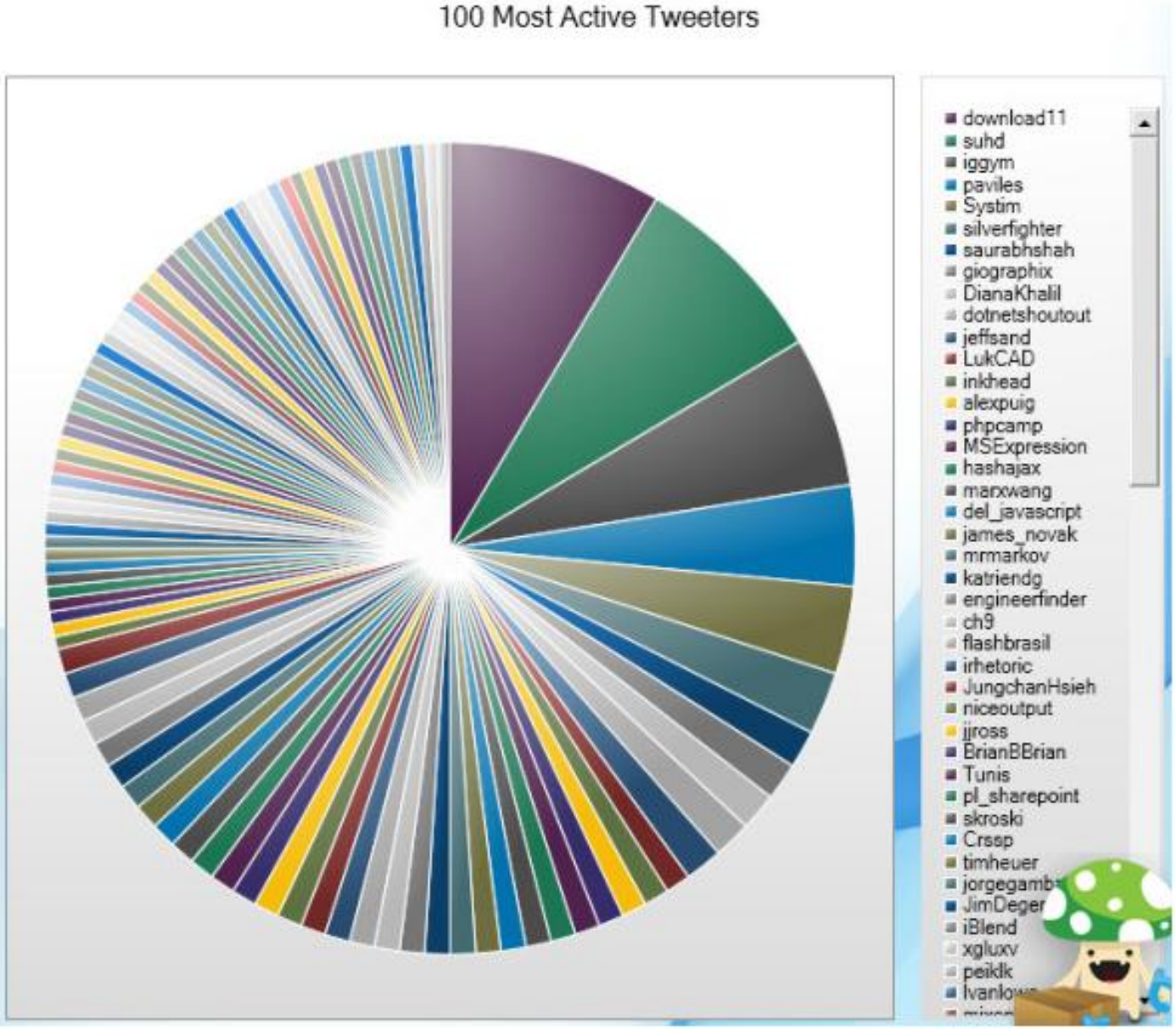
World Religions Chart

Reclaiming the Mind Ministries

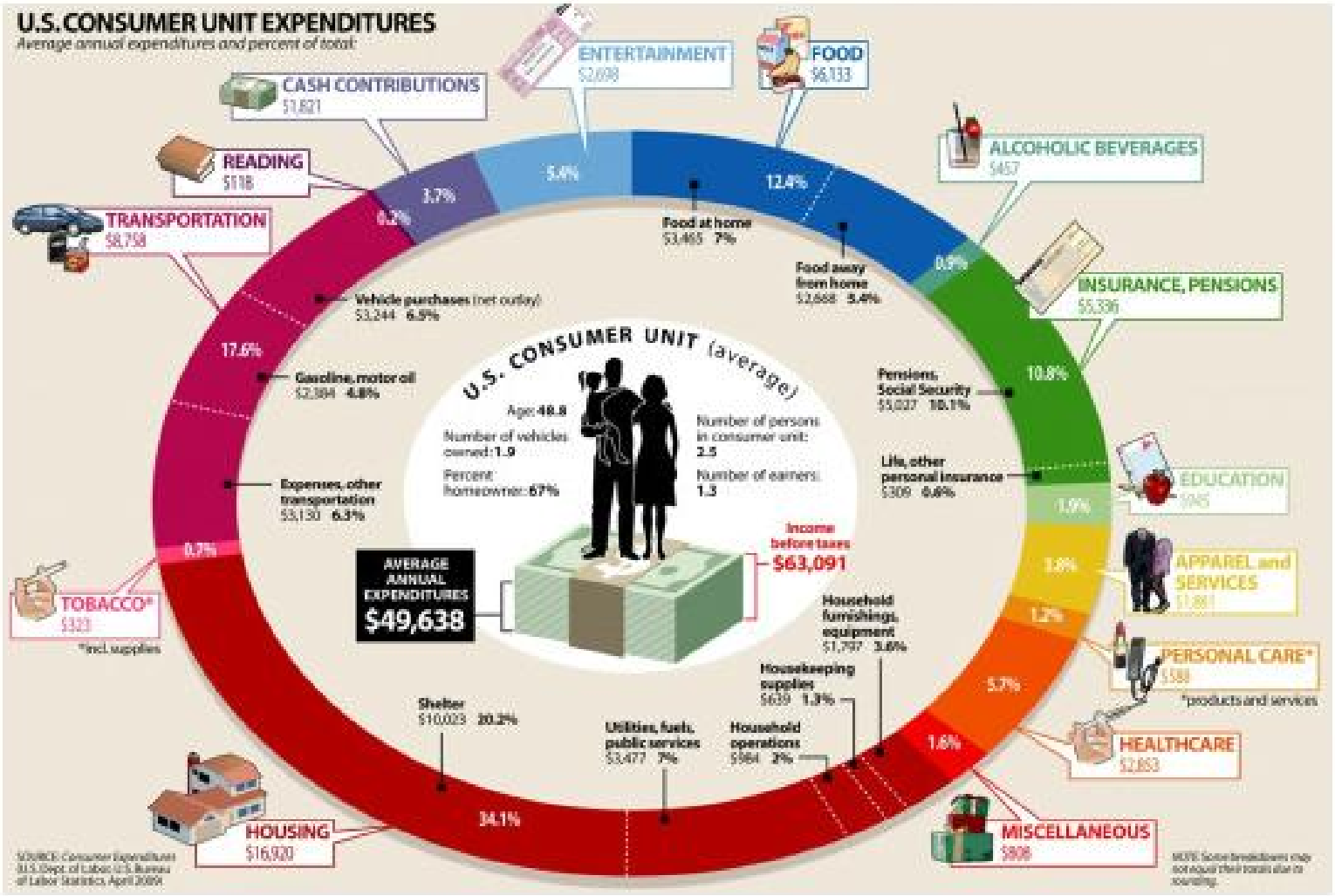
2009


Percentage of Chart Which Resembles Pac-man
Resembles Pac-man
Does not resemble Pac-man

No


100 Most Active Tweeters
download11
suhd
iggym
paviles
Systim
silverfighter
saurabhshah
giographix
DianaKhalil
dotnetshoutout
jeffsand
LukCAD
inkhead
alexpuig
phpcamp
MSExpression
hashajax
marxwang
del_javascript
james_novak
mrmarkov
katriendg
engineerfinder
ch9
flashbrasil
irhetoric
JungchanHsieh
niceoutput
jjross
BrianBBrian
Tunis
pl_sharepoint
skroski
Crssp
timheuer
JimDeger
iBlend
xgluxv
peikik

No



No

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Scatter plots

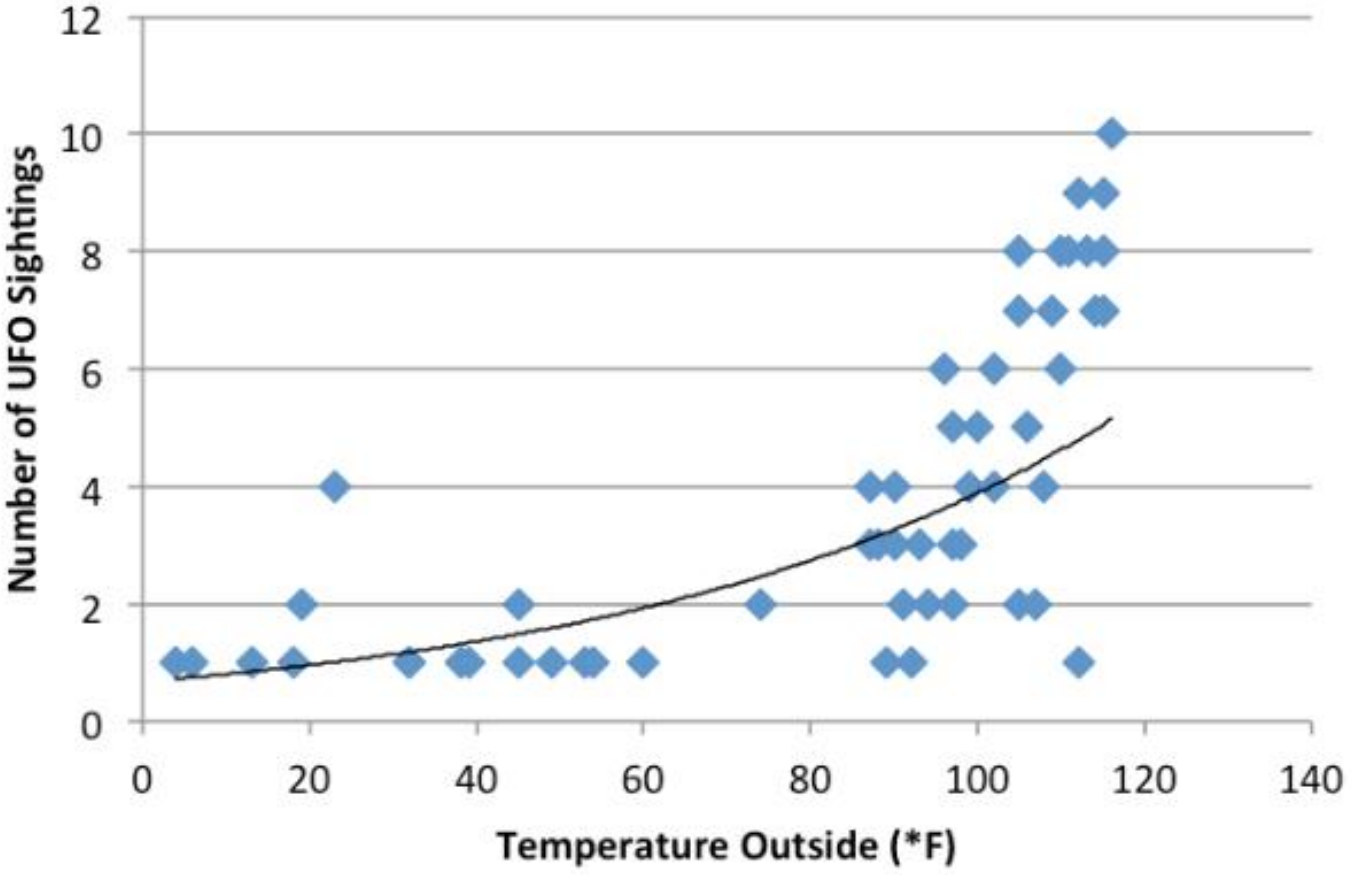
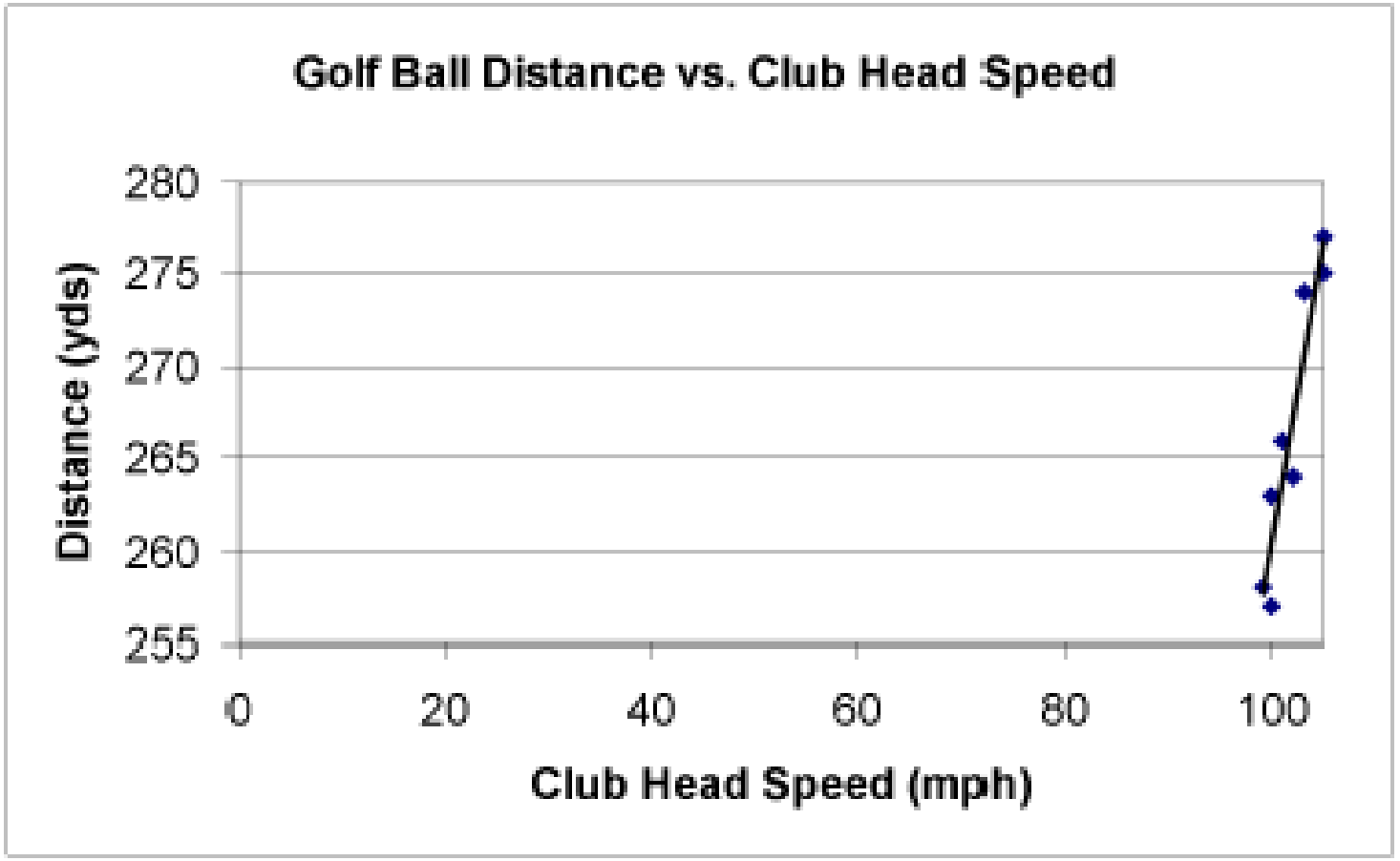


Figure 4. The effect of weather on UFO sightings



No

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Compound figures

- Use a compound figure when you have multiple graphs, or graphs and others illustrative materials that are interrelated
- Compound figures are counted as one figure and share a common legend
- Each figure must be clearly identified by capital letter (A, B, C, etc) and is identified by that letter in a text, e.g., "...(Fig. 1b)“
- The legend of the compound figure must also identify each graph and the data it presents by letter

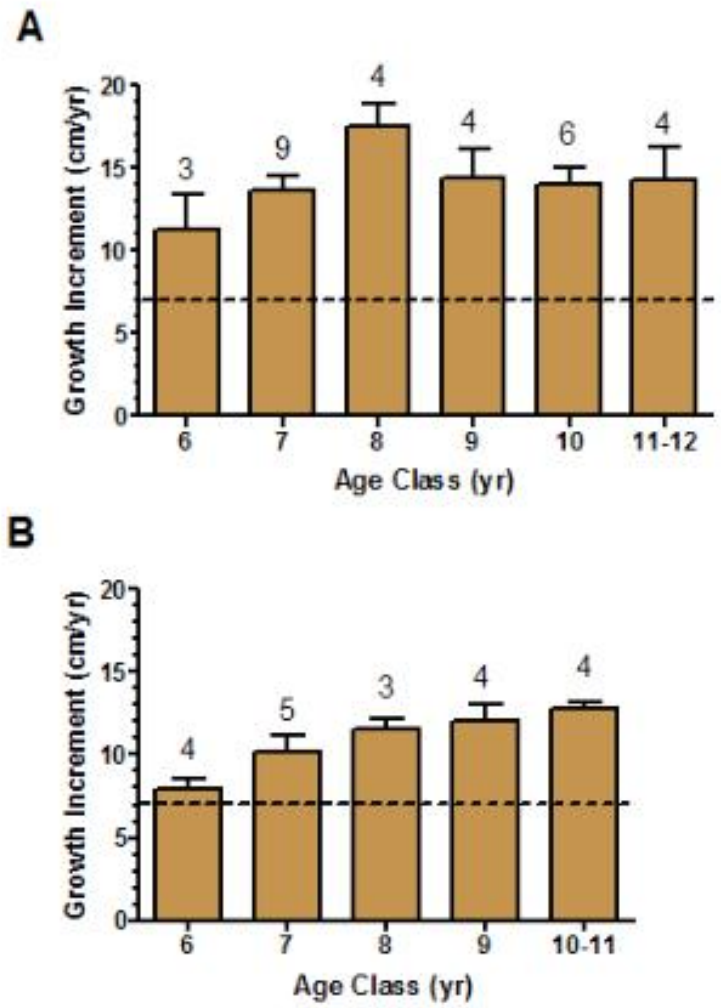

Figure 5. Mean (+SEM) annual stem growth of white pine seedlings over growing seasons 2006-2008 following a selective harvest in 2006 in (A) a selectively harvested area, and, (B) a non-harvested area. The data are based on direct internode length measurements. The dashed line indicates the previous, long-term annual growth increment of seedlings prior to the release based on analysis of a representative sample of 308 seedlings in 2007. Numbers over bars indicate sample size.

Group task

- Create a table and a graph from the given data
  - Decide what should be presented in the table and what is better to present in the graph
  - Decide what type of graph is best for the chose data
  - Create a table and a graph
  - **Edit them properly**