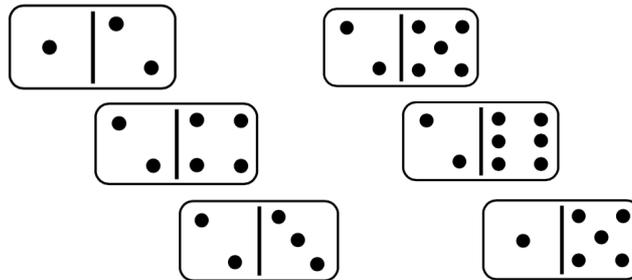


The Light-before-Heavy Principle

<http://sana.aalto.fi/awe/cohesion/infostrux/light/index.html>



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ELEC-L0901 / March 14, 2017
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Limits of Human Information Processing: **7±2 items**

Let's test how it works. Try to remember the following information.

- 1.
- 2.
- 3.
- 4.

Miller. (1956). The magical number seven, plus or minus two: some limits on our capacity for processing information. *Psychological Review*, 101(2), 343–352. <http://doi.org/10.1037/h0043158>

Limits of Human Information Processing: **7±2 items**

Let's test how it works. Try to remember the following information.

1 2 3 4 5 6 7 8 9 10

8 3 7 6 4 1 9 2 5 3

A B C D E F G H I J

X Q J F Y P Å C A L

Sequencing information and familiar patterns support understanding.



Miller. (1956). The magical number seven, plus or minus two: some limits on our capacity for processing information. *Psychological Review*, 101(2), 343–352. <http://doi.org/10.1037/h0043158>

Limits of Human Information Processing: **7±2 items**

Counting: Reading individual words in a sentence.

1 2 3 4 5

Linux is an operating system.

1 2 3 4 5 5 6 7 8 9

Seminar room Riihi is located in the Electrical engineering building.

Use light subjects (+ topical info)



Superconductivity **is** a phenomenon of exactly zero electrical resistance and expulsion of magnetic flux fields occurring in certain materials when cooled below a characteristic critical temperature.

Subject = 1 word

BETTER:

Light

Heavy

A familiar pattern for sentence definitions.

The main message becomes clear within first 10 words.



How about this sentence?

A systematic comparison of frequently utilized design and management frameworks that are used to develop solutions to problems by involving the user perspective in every phase of a problem-solving process in two Finnish technology companies is performed.

Where is the main verb?

Pseudo-scientific writing

A systematic comparison of frequently utilized design and management frameworks that are used to develop solutions to problems by involving the user perspective in every phase of a problem-solving process in Finnish technology companies **is performed** in this report.

Subject = 34 tokens

It is easy to construct impressive sounding abstract **pseudo-science** top-heavy sentences using passive voice and generic verbs, such as *perform* or *implement*.

However, they can be hard to read and sometimes impossible to understand.



A better option

This paper **compares** three frequently used design and management frameworks in Finnish technology companies: 1, 2, and 3.

Subject = 2 words

Organize information for readers.



Commas, subjects and counting

Processing and Counting

Where to start counting?



1	2	3	4	5	6	7	8	1	2	
At the IEEE conference held last June in Honolulu, we presented										
3	4	5	6	7	8	9	10	11		
our design for an economical AM/FM receiver that is both affordable for the average consumer and profitable for the company.										

Introductory Phrases:

Up to **comma [,]** → processed as **one unit**

LIGHT **HEAVY** , **LIGHT** **HEAVY**

Balancing Information Elements

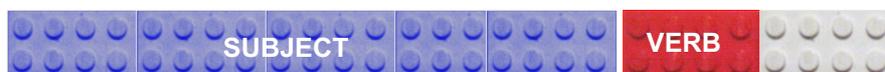
BEST!



ACCEPTABLE *(if subject not too long)*



BAD!



WORST!!



Strategies to reorder information

(... and to avoid **end-verbs**)

1. Passive-Active Shift
2. Equative Shift
3. Animate-Inanimate Shift
4. Personal-Impersonal Shift
5. Means-Purpose Shift
6. Introductory *"It"*
7. Existential *"There"*
8. Resultative -ing clause
9. Purpose clause
10. Split relative clause
11. Nominalization
12. When + -ing
13. Reorder clauses
14. Default subject