



FACULTY
OF INFORMATICS

Masaryk University

Analisis de señales

Clase 1 - Introducción

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Outline for Section 1

- 1. Dark Frames
 - 1.1 Blind Text
 - 1.2 Structuring Elements
 - 1.3 Numerals and Mathematics
 - 1.4 Figures and Code Listings
 - 1.5 Citations and Bibliography

Jabberwocky

Lewis Carroll

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.

“Beware the Jabberwock, my son!
The jaws that bite, the claws that catch!
Beware the Jubjub bird, and shun
The frumious Bandersnatch!”



Lists and locales

Lorem ipsum dolor sit amet

- Nulla nec lacinia odio.
Curabitur urna tellus.
 - Fusce id sodales dolor. Sed
id metus dui.
 - » Cupio virtus licet mi vel
feugiat.
- 1. Donec porta, risus porttitor
egestas scelerisque video.
 - 1.1 Nunc non ante fringilla,
manus potentis cario.
 - 1.1.1 Pellentesque servus
morbi tristique.

The quick, brown fox jumps over a lazy dog. DJs flock by when MTV
ax quiz prog. “Now fax quiz Jack!”

Text blocks

*In plain, example, and **alert** flavour*

This text is highlighted.

A plain block

This is a plain block containing some **highlighted text**.

An example block

This is an example block containing some **highlighted text**.

An alert block

This is an alert block containing some **highlighted text**.

Definitions, theorems, and proofs

All integers divide zero

Definition

$$\forall a, b \in \mathbb{Z} : a \mid b \iff \exists c \in \mathbb{Z} : a \cdot c = b$$

Theorem

$$\forall a \in \mathbb{Z} : a \mid 0$$

Proof

$$\forall a \in \mathbb{Z} : a \cdot 0 = 0$$



Numerals and Mathematics

Formulae, equations, and expressions

$$1234567890 \quad 1234567890 \quad \hat{x}, \check{x}, \tilde{a}, \bar{a}, \dot{y}, \ddot{y} \iiint f(x, y, z) \, dx dy dz$$

$$\frac{1}{1 + \frac{1}{2 + \frac{1}{3 + x}}} + \frac{1}{1 + \frac{1}{2 + \frac{1}{3 + x}}}$$

$$F : \begin{vmatrix} F''_{xx} & F''_{xy} & F'_x \\ F''_{yx} & F''_{yy} & F'_y \\ F'_x & F'_y & 0 \end{vmatrix} = 0$$

$$\iint_{\mathbf{x} \in \mathbb{R}^2} \langle \mathbf{x}, \mathbf{y} \rangle \, d\mathbf{x}$$

$$\overline{\overline{a\alpha^2 + \underline{b\beta} + \overline{\overline{d\delta}}}}$$

$$]0,1[+ \lceil x \rceil - \langle x, y \rangle$$

$$e^x \approx 1 + x + x^2/2! + x^3/3! + x^4/4!$$

$$\binom{n+1}{k} = \binom{n}{k} + \binom{n}{k-1}$$

Figures

Tables, graphs, and images

Faculty	With T _E X	Total	%
Faculty of Informatics	1 716	2 904	59.09
Faculty of Science	786	5 275	14.90
Faculty of Economics and Administration	64	4 591	1.39
Faculty of Arts	69	10 000	0.69
Faculty of Medicine	8	2 014	0.40
Faculty of Law	15	4 824	0.31
Faculty of Education	19	8 219	0.23
Faculty of Social Studies	12	5 599	0.21
Faculty of Sports Studies	3	2 062	0.15

Cuadro: The distribution of theses written using T_EX during 2010–15 at MU

Figures

Tables, graphs, and images

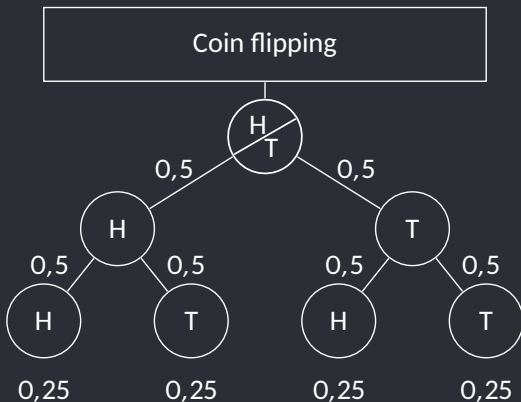


Figura: Tree of probabilities – Flipping a coin¹

¹A derivative of a diagram from example.net by cis, CC BY 2.5 licensed

Code listings

An example source code in C

```
#include <stdio.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/wait.h>

// This is a comment
int main(int argc, char **argv)
{
    while (--c > 1 && !fork());
    sleep(c = atoi(v[c]));
    printf("%d\n", c);
    wait(0);
    return 0;
}
```

Citations

T_EX, *ΛT_EX*, and Beamer

T_EX is a programming language for the typesetting of documents. It was created by Donald Erwin Knuth in the late 1970s and it is documented in *The T_EXbook* [1].

In the early 1980s, Leslie Lamport created the initial version of ΛT_EX, a high-level language on top of T_EX, which is documented in *ΛT_EX: A Document Preparation System* [2]. There exists a healthy ecosystem of packages that extend the base functionality of ΛT_EX; *The ΛT_EX Companion* [3] acts as a guide through the ecosystem.

In 2003, Till Tantau created the initial version of Beamer, a ΛT_EX package for the creation of presentations. Beamer is documented in the *User's Guide to the Beamer Class* [4].

Bibliography

T_EX, L^AT_EX, and Beamer

- [1] Donald E. Knuth. *The T_EXbook*. Addison-Wesley, 1984.
- [2] Leslie Lamport. *L^AT_EX: A Document Preparation System*. Addison-Wesley, 1986.
- [3] M. Goossens, F. Mittelbach, and A. Samarin. *The L^AT_EX Companion*. Addison-Wesley, 1994.
- [4] Till Tantau. *User's Guide to the Beamer Class Version 3.01*. Available at <http://latex-beamer.sourceforge.net>.
- [5] A. Mertz and W. Slough. Edited by B. Beeton and K. Berry. *Beamer by example* In TUGboat, Vol. 26, No. 1., pp. 68-73.