

Lesson 0

Introduction to L^AT_EX and some of its tools



Politecnico di Torino
26 October 2019

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Guess What! (Appetizer)

This is a short test to check whether you're typography-savvy and how well you know \LaTeX .

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We'll see the solutions at the end of the lesson.

1: Mathematical formulae and diagrams

De Giorgi e la moderna Teoria Geometrica della Misura 73

Figure 3.3: Multiplicità algebrica

$\varphi(A, \pi)$ è esprimibile mediante un integrale superficiale nel modo seguente:

$$\varphi(A, \pi) = \int_{A \cap \Gamma} \langle n, \pi_n \rangle d\sigma_x,$$

ove n è il vettore normale di Γ . Quindi ciascuna di queste funzioni fornisce, localmente, una stima per difetto dell'area.

Nel caso in cui $\Gamma = \partial E$, scegliendo $\pi = \pi_x$, otteniamo

$$\int_{\partial E} \frac{\partial E}{\partial x} d\mathcal{H}^2 = \int_E g d\varphi(\cdot, \pi_x) \quad \forall g \in C_c(\mathbb{R}^n).$$

Nella terminologia moderna $\varphi(\cdot, \pi_x)$ è quindi la derivata nel senso delle distribuzioni della funzione caratteristica χ_E lungo la direzione x (e analogamente $\varphi(\cdot, \pi_x)$ e $\varphi(\cdot, \pi_y)$).

2: Frontispiece of a proceedings volume, published by Olschki



3: Multilingual parallel texts, from the same volume

beam in terms of thickness and matter mean both equal and similar in Arabic. There is a clear preference in Arabic mathematical texts for using the first for equal and the second for similar. Thus, Knorr translated them in this manner (KNORR 1982, p. 139). In the given context it is clear though that similarity is not meant literally, but in the sense of having the same property. This ambiguity reflects the use of ῥῶς and ῥῶσις for respective concepts in Greek.

5.2. Investigation 2

Liber de Canonico, Proposition II

Si fuerit proportio ponderis in termino minoris portionis suspensae, ad superhabundantiam ponderis maioris portionis ad minorem, sicut proportio longitudinis totius canonis ad diametrum longitudinis minoris portionis, erit canonium parallelum epipedo orizontis (MOODY & CLAGETT 1952, p. 66).

If the proportion of the weight suspended at the end of the smaller portion to the surplus of the weight of the greater portion to the smaller will be like the proportion of the length of the entire beam to the double of the length of the smaller portion, the beam will be parallel to the surface of the horizon (Cl. MOODY & CLAGETT 1952, p. 67).

Again, the content of both theorems is the same and the two enunciations are similar, but not identical. Their difference is greater than in the previous case, because the *Liber de canonico* does not repeat the description of the properties of the beam and the suspended weight and thus has to integrate the latter into the description of the proportion. It differs from the *ziyāda* also in regard to the placement of the term *weight* in the description of the second term of the proportion. The *Liber de canonico* uses the term only once between *superhabundantiam* and *maioris*. The *ziyāda* uses it twice, once before the surplus and once before the shorter part. While the formulation of the *Liber de canonico* is imprecise, but comprehensible, the formulation of the *ziyāda* is comprehensible, but false. It is most likely the result of a scribal error as

MS Beirut, *ziyāda*, Proposition 4

إذا كان عمود متساوي النظم متشابه أطوره وقسم
بشئين مختلفين وتعلق بثقله طرف القسم الأصغر نقل
وجعلت أسية النقل إلى نقل عمل القسم الأطول على
نقل القسم الأصغر كشئاً عدول طول العمود كما
الطول القسم الأصغر فإن العمود يتعدل على موازات
الاق.

(KNORR 1982, p. 154).

If there is a beam, (which is) equal in itself in thickness, equal in itself in substance and partitioned in two different parts and (if) a weight is suspended at the end of the shorter part and the ratio of the weight to the weight of the surplus of the longer part over the weight of the shorter part is made like the ratio of half of the length of all of the beam to the length of the shorter part, then the beam equalbeats itself in parallelness to the horizon.

4: Automatic line numbering, from the same volume

PAOLA MANNI
SULLA TERMINOLOGIA DELLE MACCHINE IN LEONARDO:
TRADIZIONE, INNOVAZIONE E SVILUPPI FUTURI¹

Qui si dimostra la natura della vite e di sua lieva,
e chome ella debbe più tosto ess(er)le adop(er)ata <in is-
in tirare che in ispingere. E chom'ella fa più fo-
ça a essere semplice che doppia, e sottile che grossa,
essendo mossa da parti lungheça di lieva e parti forza.
3 E chosì si farà un pecho di discorso in quatro li modi si
pò adop(er)are, e di qual(n)te sorte si pò fare viti sança
fine. E qua(n)ti moti son fatti sança vite, che fa(in)-
no p(ro)pio officio di vite. E in che modo la vite
sança fine v'achompagni cholle ruote dentate, e
10 chome molte viti si debbono insieme adop(er)are.
E s'ei dirà della natura delle sue madri, e s'ei so(n)
più utili cho^o molti denti o nno. E si dirà delle
viti retrose e delle viti che p(re)ci un meccanismo tir-
rare spingano e tirano il peso, e di viti che
15 p(re)ci una sola volta che se le dia, farà fugire la sua
madre molte delle sue volte circolati. E così
medesimasi sua effetti, e varie fatiche, e fiortçe,
e tardità, e p(ro)stçe. E s'ei p(ro)verrà ragio(n)te² <di ur-
20 di tutti loro offi e nature, e marcie, e lieve,
e utilità. E s'ei dirà in che modo si debbono fare,
e del modo del metterle in op(er)la;
e di chi è stato inganato p(er) mo(n) cognoscer lor natura.
E molti strame(n)ti si figurar(ino) in qua(n) parte sança
25 le loro armadure, o altra cosa che avessi a inpe-

¹ Le trascrizioni dai codici leonardiani sono fatte seguendo le norme stabilite da Arrigo Castellani per l'edizione dei testi manoscritti, già utilizzate in MANNI 2009 e in MANNI e BIRI 2011. Alle pagine introduttive di quest'ultimo (pp. XXX-XXXII) si rimanda per una loro esposizione dettagliata e ulteriori riferimenti bibliografici. Nel caso di citazioni brevi inserite nel corpo del testo, si omettono le parentesi tonde che segnalano lo scioglimento delle abbreviazioni. Con la sigla Madrid 1 si indica il primo codice di Madrid (Biblioteca Nacional de España, cod. 8937).

² La *e* non chiara, corretta su altra lettera.

5: Diagrams from the critical edition of Francesco Maurolico's *Musica*

MATHESIS DE MUSICA. 1647

17^{ma}, 18^{ma}, 19^{ma}, 20^{ma}. Regge diciturque fere potius in inflexione.

18^{ma} Hinc patet origo motus huius vocum hexachordum constitutum, scilicet ut et in aliis. Choro octavo littera T a d e f g notatur tantum, ut vocem unquamque vocem quaque loco repetita dignetur componitur in proportionibus dupli semper reddere, quod sonum in angulis chordis hexachordi dispositi, dicitur vocem dicitur constituitur et quare, ut videtur. ¹⁸ g littera, quae vocem, dicitur hexachordum 1 quod et dicitur a, quoniam nulla inter septem et novem, dicitur hexachordum vocem et dicitur generis f, quoniam septi quae septem et novem, dicitur hexachordum 1 novem et circumstanti generis.

19^{ma} Continetur autem vocem in angulis huius proportionibus et constituto irregulariter in angulis proportionibus, hinc ut dicitur in dictione compositionum Regum, ut dicitur quodam obliquatione, ut patet in notis.

The diagrams illustrate pitch contours and intervals. The top diagram shows two large, rounded shapes representing pitch contours, labeled 'dispositio' and 'dictionem'. Below them are smaller diagrams showing intervals: a triangle with vertices labeled 'a', 'b', 'c' and 'd', 'e', 'f', 'g', 'a'; and a trapezoid with vertices labeled 'a', 'b', 'c', 'd', 'e', 'f', 'g', 'a'. The bottom diagram shows a sequence of intervals labeled 'a', 'b', 'c', 'd', 'e', 'f', 'g', 'a'.

[¹⁸] In quibus constat quod dicitur proportio est in his numeris 210 — 210. Videtur est una proportio vocem vocem vocem vocem. In proportio 9 — 8 facti sunt, dicitur 9 in 210 vocem in 210 et facti sunt numeris 210, 210, quoniam proportio est vocem 210 — 210, scilicet dicitur. Item dicitur 210 in et facti sunt. Et quare sunt 9 — 8, ut 2101 — 2100. Quare proportio 2101 — 2100 facti sunt semper proportio 2101 — 2107 facti sunt, ut videtur in notis, representat proportio 2107 — 2108, vocem vocem vocem vocem.

[¹⁹] Differentia vocem dicitur et significat dicitur vocem, quod dicitur per obliquationem vocem proportionibus ab illa, ut infra patet.]

Item T ab alia d. a g littera — dictionem generis in hinc ut vocem d. a que ipa d. [per pat.]

6: More diagrams from the critical edition of Francesco Maurolico's *Musica*

UNIVERSITA' DI NAPOLI - 70

³⁸ Considero autem quod dicitur inter est, quare ita concordia dicitur inter quoniam quoniam et Apertione autem inter, quare quoniam concordia, inter quare quoniam.
³⁹ Quia et ratio consistit ratio concordia et inter quare inter concordia suadent, quare ratio ea longae et multorum figurarum calculo concordia per hunc legem Boetium et Falsam in musica dicitur.

OCTO CONCORDIAE DISTRICTAE PER TONUM ET DIAPAS

di	diap	di	diap	di	diap	di	diap	di	diap	(sum)	diap
1	4	8	16	Nine	14	21					1 st
2	7	14	28	Pentaco	20	30					2 nd
3	10	20	40	Hexaco	24	36					3 rd
4	13	26	52	Missa	30	45					4 th
5	16	32	64	Libellae	36	54					5 th
6	19	38	76	Peripatit	42	63					6 th
7	22	44	88	Hypoco	48	72					7 th
8	25	50	100	Pentadectimono	54	81					8 th

Dicitur C. 30 distinctioribus 1500.
 et sunt generati per 4
 1^a figuram: 4 - Falsitas in musica dicitur.
 [39]

Abstract



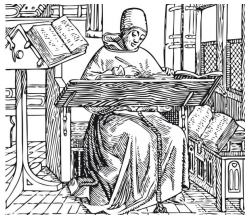
Abstract



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T_EX comes in *distributions*.

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Leslie Lamport wrote a macro package (L^AT_EX) to allow authors, not only typographers, to typeset professionally-looking documents. L^AT_EX shifted the paradigm from page description to document structure description.

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L^AT_EX File Format: the Healing Text

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Now you can save your Unicode-encoded `.tex` files and check at least whether a file has been corrupted or not (of course with false negatives).

Compiling a \LaTeX document

The normal compilation with \LaTeX is performed via command line (in a terminal):

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Macro packages like `pdf \LaTeX` issue a PDF document.

Guess What! (First Serving)

Some other pages.

7: A page from a book on the development of mathematical logic

Libroeleotica 10 dicembre 2012 14:27 Page 22

48 *Spicchi di un'idea matematica*

affermazione della definizione di limite e "da quelle successive" a tali definizioni Cantor accenna soltanto, ma si possono svolgere in modo naturale, come nelle esposizioni precedenti.

L'uguaglianza, la relazione d'ordine e le operazioni sono definite per punti (posteriori). L'uguaglianza è definita da Cantor, come abbiamo visto, e comporta che se $b = \lim a_n$ e $b' = \lim a'_n$, allora $b = b'$ se e solo se

$$\forall \varepsilon > 0 \exists n_0 \forall n > n_0 (|a_n - a'_n| < \varepsilon).$$

Se $b = \lim a_n$ e $b' = \lim a'_n$, allora $b = b'$ ($a_n = a'_n$), dopo aver dimostrato che $\{a_n\}$ è di Cauchy; come caso particolare, se $b = \lim a_n$ e $r \in \mathbb{Q}$ allora $b = r = \lim (a_n + r)$, dopo aver dimostrato che $\{a_n + r\}$ è di Cauchy.

Analogamente $b < b'$ se e solo se $\exists n_0 \forall n > n_0 (a_n < a'_n)$; in particolare $b \leq r$ se e solo se da un certo punto in poi $a_n \leq r$.

La relazione $<$ deve essere definita come " \leq e \neq ", che equivale a dire, se $b = \lim a_n$ e $b' = \lim a'_n$,

$$b < b' \text{ se e solo se } \exists \varepsilon > 0 \exists n_0 \forall n > n_0 (a'_n - a_n < \varepsilon).$$

Se $b = \lim a_n$ e $r \in \mathbb{Q}$, $b < r$ se e solo se esiste un $\varepsilon > 0$ tale che da un certo punto in poi $r - a_n < \varepsilon$.

Si dimostra la tricotomia, vale a dire che per $b = \lim a_n$ o razionali o simboli di irrazionali associati a successioni di Cauchy

$$b = b' \text{ o } b < b' \text{ o } b' < b.$$

Ora per ogni razionale r , scriviamo (r) per indicare la successione costante (r, r, \dots) . Sia $b = \lim a_n$ e per ogni n fissato confrontiamo b con la successione (r, n) . Si vuole dimostrare che per ogni $\varepsilon > 0$ (ci si può restringere a ε razionali), almeno da un certo punto in poi $|b - (r, n)| < \varepsilon$, che coinvolge solo relazioni e operazioni algebriche già definite per i nuovi numeri. $|b - (r, n)| < \varepsilon$ significa che

$$\exists m_0 \forall n > m_0 (|a_n - (r, n)| < \varepsilon).$$

Siccome la successione (r, n) è di Cauchy, per ogni $\varepsilon > 0$ razionale

$$\exists m_1 \forall n > m_1 \forall m > m_1 (a_n - a_m < \varepsilon),$$

quindi

$$\exists m_2 \forall n > m_2 \forall m > m_2 (|a_n - (r, n)| < \varepsilon).$$

che è quello che si voleva dimostrare.

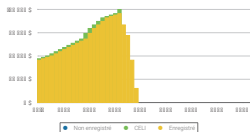
Si noti che viceversa, se $b = \lim a_n$ e la successione (r'_n) è tale che $\forall \varepsilon > 0 \exists n_0 \forall n > n_0 (|b - r'_n| < \varepsilon)$ allora, prendendo $\varepsilon/2$ qui e in $\lim a_n$, si ha per n sufficientemente grande $|a_n - r'_n| < \varepsilon$, da cui $\lim r'_n = b$.

9: Graphics from a financial report

RETRAITE (SUITE)

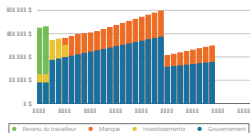
❶ L'outil d'analyse de placements utilise la « valeur future de la monnaie » pour représenter le résultat probable en tenant compte des données variables fournies par l'utilisateur. Important: Toute projection produite par l'outil Kinoss ASB est hypothétique. Elle ne reflète pas les résultats réels et n'est pas garantie des résultats futurs.

Encaissement*



Ce graphique présente une estimation de vos actifs à partir d'aujourd'hui et jusqu'à votre retraite. Tous les REER sont convertis en FERR à l'âge de 65 ans et sont sujets à des retraites minimales.

Décaissement*



Ce graphique montre de quelle façon vos actifs seront utilisés pour atteindre vos objectifs de revenus à la retraite. Tous les REER seront convertis en FERR à l'âge de 65 ans et seront sujets à des retraites minimales. L'ordre de décaissement est le suivant: placement non enregistré, CELI et placement enregistré.

*Voir annexe B pour les détails de l'encaissement et du décaissement.


10: A page from an EDUSC series

"MCEmb2" - 2014/6/5 - 13:24 - page 41 - 841


JUAN ANDRÉS MERCADO

Pressa di Cartago Nova, 209 a.C.

attacco dalla laguna



attacchi alla porta principale



attacchi dal mare

Scipione avviò subito un programma di preparazione delle truppe per rendere più elastica la formazione classica erede della falange, che basava la sua efficacia nella forza d'urto e richiedeva di ampie pianure per rendere al meglio. Il giovane capitano si preparava a emulare le manovre avvincenti dispiegate dalle truppe di Annibale trovandosi ad addestrare un esercito abituato a lottare in un altro modo. Oltre a migliorare la tecnica di difesa contro acceri e frombolieri, Publio divise la legione in piccole unità (manipoli) in grado di incalzare il nemico con attacchi in profondità ma anche in grado di ritornare agilmente sui propri passi. A questo si aggiunsero l'adozione della spada Iberica, più corta e adatta al combattimento uno contro uno, nei quali i guerrieri iberici erano noti per il loro furor. Probabilmente sviluppò anche la formazione della coorte, unità intermedia fra la legione e il manipolo, in grado di replicare la forza d'urto dello schieramento completo e capace di cambiare rapidamente la formazione.

L'allenamento seguiva un calendario preciso che combinava la corsa in tenuta di battaglia, pulizia e manutenzione delle armi, riposo e pratica con le armi. Scipione ordinò altresì la ripresa delle attività normali nella città e il riatta-

Disciplina e
mistica di un
copo

12: One page from Free Software Magazine n. 7 (camera ready for Lulu.com)

USER SPACE

but not always possible on lesser terminals like that built into a PDA, phone or even some basic telnet interfaces.

Conclusion

Today we are all familiar with using a GUI interface for the majority of our work, from web browsers to office applications and email. However, there are times when text based is what you need. In my case, the only service I could get to work at one point last week was a dial-up connection through a bulletin board to my hosted server, using a mobile phone while in an airport in Europe; all for the benefit of discussing a project with a client in the US. A terminal based solution wouldn't be my first choice, but a quick test of a few applications showed there is a lot of choice out there. Fortunately, a terminal based application does not mean limited or restricted. In fact, there's very little I found I couldn't do with these text-based packages, especially for basic and straightforward discussions.

As to choices, in an ideal world with a nice large monitor I'd choose CenterIQ, only because it would simplify the

connectivity to other applications. However, for a good alternative IRC only client that could download and use pretty much everywhere, I'd pick Rhapsody.

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About the author

Martin "MC" Brown is a freelance writer and consultant, he works with Microsoft as an SME, is a featured blogger for ComputerWorld, a founding member of AnswerSquad.com, Technical Director of Foodware.net and, and has written books on topics as diverse as Microsoft Certification, iMacs, and free software programming.



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Questions about your computer, the Internet, the programs you're writing, or even just the common-sense applications you're stuck working with every day? You've tried searching the Internet for solutions, with minimal results. You've asked people on various mailing lists, just to be flamed or answered with "YIKES!" You've tried tech support at Microsoft, Apple, Adobe or Macromedia, just to be overwhelmed by their cost. And here you are, still puzzled, still stuck, and still having to emulate your computing environment rather than enjoy it.

Get roadside assistance with the AnswerSquad!

We're a group of best-selling authors and tech experts who are creating new, innovative and more efficient ways to help you find your computer answers, having everything work the way you want, when you want, and how you want.

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AnswerSquad.com





The Structure of a L^AT_EX Document (part I)

A L^AT_EX document contains the whole text to be typeset along with the instructions necessary to typeset it.

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A L^AT_EX document contains the whole text to be typeset along with the instructions necessary to typeset it.

The document is composed by:

- 1 a preliminary part of code—the preamble (approximately like C preprocessor directives)
- 2 the document content—the main body (approximately like the C functions)

The Structure of a L^AT_EX Document (part II)

```
\documentclass[a4paper,11pt]{article}
\usepackage{mdwlist}
\begin{document}
\begin{itemize*}
\item Hello, world!
\item \textit{Hello, world!}
\item \textbf{Hello, world!}
\item \textsc{Hello, world!}
\item \textsl{Hello, world!}
\item \textsf{Hello, world!}
\item \texttt{Hello, world!}
\end{itemize*}
\end{document}
```

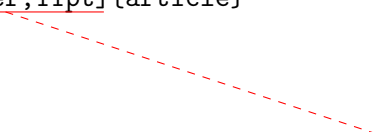
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\item \texttt{Hello, world!}  
\end{itemize*}  
\end{document}
```

Command that starts
the preamble

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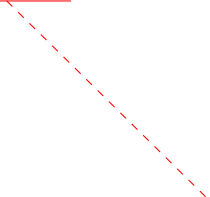
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\end{document}
```



Some of its optional arguments

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Its mandatory argument

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\item \textsf{Hello, world!}
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\end{itemize*}
\end{document}
```

List here the packages you load (possibly including those about encodings and languages) and your custom commands

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\item \texttt{Hello, world!}
\end{itemize*}
\end{document}
```

You may probably want to add data about document title, author and date

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\begin{document}
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\item \texttt{Hello, world!}
\end{itemize*}
\end{document}
```

This command begins the document *environment* and opens the main body.

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\end{itemize*}
\end{document}
```

A begun environment must end. This one closes the main body and, subsequently, the L^AT_EX document.

Spaces, Special Characters and Diacritic Marks

Hello, `_`world! → Hello, world!

Spaces, Special Characters and Diacritic Marks

Hello, \world! → Hello, world!

Hello, \world! → Hello, world!

Spaces, Special Characters and Diacritic Marks

Hello, \world! → Hello, world!

Hello, \world! → Hello, world!

Hello, ~world! → Hello, world!

Spaces, Special Characters and Diacritic Marks

Hello,␣world! → Hello, world!

Hello,␣␣␣world! → Hello, world!

Hello,~world! → Hello, world!

Hello,␣\␣world! → Hello, world!

Spaces, Special Characters and Diacritic Marks

Hello,␣world! → Hello, world!

Hello,␣␣␣world! → Hello, world!

Hello,~world! → Hello, world!

Hello,␣\␣world! → Hello, world!

Hello,\,world! → Hello, world!

Spaces, Special Characters and Diacritic Marks

Hello, `_`world! → Hello, world!

Hello, `_ _ _`world! → Hello, world!

Hello, `\~`world! → Hello, world!

Hello, `_ _ _ _`world! → Hello, world!

Hello, `\, _`world! → Hello, world!

A blank line starts a new paragraph. `\ \` starts a new line, just like `\newline`. Both maintain the broken line left aligned while `\linebreak` justifies it. `\newpage` starts a new page.

Spaces, Special Characters and Diacritic Marks

Hello,␣world! → Hello, world!

Hello,␣␣␣world! → Hello, world!

Hello,~world! → Hello, world!

Hello,␣\␣world! → Hello, world!

Hello,\,world! → Hello, world!

A blank line starts a new paragraph. \\ starts a new line, just like \newline. Both maintain the broken line left aligned while \linebreak justifies it. \newpage starts a new page.

Dash (aka hyphen): - - En-dash: -- - Em-dash: --- —

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Quotes: `` ` " " ' ' << « >> »`

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Ellipsis: `\ldots ...`

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Quotes: `` ` " " ' ' << « >> »`

Ellipsis: `\ldots ...`

Diacritic marks: `\`a à` (but of course directly entering `à` is possible).


Altering the Text Look and Font

```
\documentclass[a4paper,11pt]{article}
\usepackage{mdwlist}
\begin{document}
\begin{itemize*}
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\item \textbf{Hello, world!}
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\end{itemize*}
\end{document}
```

This command italicizes the text. The alternative command `\emph{}` emphasizes the text.

Altering the Text Look and Font

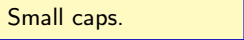
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Boldface.

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Small caps.

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\end{itemize*}
\end{document}
```

This one slants the text.

Altering the Text Look and Font

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\end{itemize*}
\end{document}
```

Writes the specified text in sans serif (the command `\textrm{}` writes the specified text in serif).

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\item \texttt{Hello, world!}
\end{itemize*}
\end{document}
```

Writes the specified text in teletype (or typewriter typeface, or monospace).

Altering the Text Look and Font

The commands we've just seen are *transitory* because they change the default text property (normally upright normal roman) for the specified text.

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`texttt` → `ttfamily`

`textup` → `upshape`

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`textbf` → `bfseries` (`mdseries` to revert it)

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`textsl` → `slshape`

Changing Text Shape and Page Format

\LaTeX justifies text by default.

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L^AT_EX justifies text by default.

We can permanently change the default behavior using the commands `\centering`, `\raggedright` (to left align) and `\raggedleft` (to right align) or can transitorily change the default behavior using the environments `center`, `flushleft` and `flushright`.

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While we can change the page geometry assigning different values to L^AT_EX internal variables, it's much easier to use the package `geometry`.

Special Features

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to add source code: `verbatim`;
to typeset lists: `itemize` (bulleted), `enumerate` (numbered),
`description` (labeled).

Special Features

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\end{itemize*}
\end{document}
```

This environment encloses a bulleted list. The starred version is only possible using the package mdwlist.

Special Features

```

\documentclass[11pt,a4paper]{article}
\usepackage[french,english]{babel}
\usepackage{imakeidx}
\newcommand\italics[1]{\textit{#1}}
\renewcommand\italics[1]{\textbf{#1}}
\hyphenation{Gian-lu-ca, Mas-si-mi-lia-no}
\begin{document}
\tableofcontents
\section{\label{sec:first} First section}
\section{Second section}
In the section~\ref{sec:first} (page~\pageref{sec:first})...

```

With L^AT_EX we can...

```
This hard-to-hy\phen\-ate \index{Word}word...
```

```

\foreignlanguage{french}{«Je suis l'inspecteur Clouseau de la Sûreté!»}
\printindex
\end{document}

```


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```

define new commands
and redefine existing
ones;

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```

add a table of contents;

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```

add labels to cross reference chapters, section, figures, footnotes, pages;

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```

add labels to index terms and automatically compile an index (Enrico Gregorio's `imakeidx` is far better than the original `makeidx`);

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```

add arbitrary hyphenations (in a specific point with \- or textwide with hyphenation{word list});

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```

manage multilingual documents.

```
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Floating Bodies: Figures and Tables

\LaTeX has environments (figure and table) to avoid that an author inserts those elements into fixed positions in a document.

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We'll probably insert already made images into the `figure` environment with `\includegraphics` (`graphicx` package)—Agostino De Marco's lesson will show you more complex ways—

Floating Bodies: Figures and Tables

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We'll probably insert already made images into the `figure` environment with `\includegraphics` (`graphicx` package)—Agostino De Marco's lesson will show you more complex ways—and tabular material into the `table` environment.

Colors and Other Special Characters

Thanks to the (x)color package(s) we can:

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color text;

Colors and Other Special Characters

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color pages (`\pagecolor{color}`; `\nopagecolor` to halt the process).

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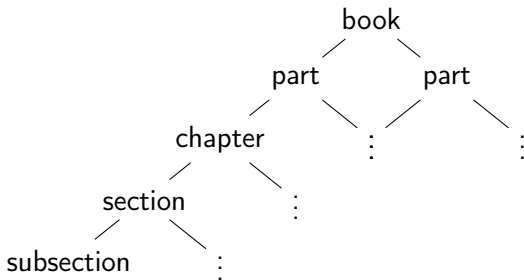
highlight text ;

color pages (`\pagecolor{color}`; `\nopagecolor` to halt the process).

Some characters are reserved. We can use them thanks to special commands: e.g., `\$`, `\&`, `\textbackslash` → `$`, `&`, `\`.

Document Structure

Since L^AT_EX was born to help authors writing coherent documents, the document structure is fundamental. E.g.,



Splitting Big Documents

If your document is large, you don't need to write a large file.

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If your document is large, you don't need to write a large file.
You can write a master file and include in it several small slave files.

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You can write a master file and include in it several small slave files.

Inclusion 1: `\include{<filename>}`

Inclusion 2: `\input{<filename>}`

Help, I Need a Symbol

An important document lists the symbols we can typeset with LaTeX: *The Comprehensive L^AT_EX Symbol List* by Scott Pakin.

Help, I Need a Symbol

An important document lists the symbols we can typeset with LaTeX: *The Comprehensive L^AT_EX Symbol List* by Scott Pakin. It's thick and has too much symbols. Can we easily locate a specific one?

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[Detexify](#) allows us to draw a symbol and get back the list of possible L^AT_EX commands that show that symbol or character.

Guess What! (Dessert)

Last pages.

13: Another page from Free Software Magazine n. 7

How to recover from a broken RAID5

How GNU/Linux saved our data

Edmundo Carmona

In this article I will describe an experience I had that began with the failure of some RAID5 disks at the Hospital of Pediatric Especialidades, where I work. While I wouldn't wish such an event on my worst enemy, it was something that made me learn about the power of knowledge—a deep knowledge, which is so important in the hacking culture.

Friday, April 29, 2005

A 5-disk (18GB each) RAID5 was mounted on a HP Net-server Rack Storage/12. Due to a power outage yesterday, it would no longer recognize the RAID. As a matter of fact, there were two more RAID5 on the rack that were recovered... but this one (holding about 60GB of data) just wouldn't work.

The IT manager decided to call in some "gurus" to try to get the data back on-line. I (the only GNU/Linux user at the IT department) thought that something could be done with GNU/Linux. My first thought was: "If I get images of the separate disks, maybe I can start a software RAID on GNU/Linux. All I need is enough disk space to handle all of the images". I told my crazy (so far) idea to the IT manager and he decided to give it a try... but only once the gurus gave up.

Monday, May 2, 2005

The gurus are still trying to get the data back on-line.

Tuesday, May 3, 2005

The gurus are still trying to get the data back on-line.

Wednesday, May 4, 2005

These guys are stubborn, aren't they?!

Thursday, May 5, 2005

The IT manager called me late in the afternoon. I was given the chance to *Save the Republic*. One of the disks of the array had been removed. I put the disks on a computer as separate disks (no RAID), booted with Knoppix (the environment of the IT department is Windows-based, apart for my desktop, which has the XP that came with the HP box and Mandriva, which is where the computer normally stays) and made the four images of the four disks left from the original five:

```
# for i in a b c d \;
do dd if=/dev/sd01 of=image${i}.net.bz4kz done
```

I got all the files in a single HD and left the office.

Friday, May 6, 2005

I wanted to start a software RAID, fooling the kernel into thinking that the files were HDs. Just having the images was not enough to bring the RAID on-line. RAID5

15: A page from the journal *Prospettiva Persona*

"Prospettiva Persona 00" — 2018/0/0 — 15-41 — page 00 — #00

PROSPETTIVA A 0702

come che in un certo modo non si confonde mai totalmente con la colpa e con il momento della colpa passata, e reggere con il passato in generale¹⁵. Il perdono non può, come visto, essere perennemente attuale. È fatto di aver fatto. E tuttavia il perdono è capace di scagliare il legame tra l'agente e il fatto da lui compiuto, non nel senso di indebolire la responsabilità di quanto, che resta, quanto piuttosto nel senso di non confinare l'agente a quel solo agire. La persona dell'agente, pur essendo detritta dal male commesso, grazie al processo del perdono, viene sciolta dal nodo che la lega indissolubilmente a ciò che ha fatto e a ciò che è stato, al passato, per aprire un futuro che non sia la mera ripetizione del già stato, ma la ripresa di sé in libertà, il recupero della propria dignità umana. Essere ripentato all'incirca da cui si discioglie. Afferra la libertà:

«... sono perdono, liberati dalle conseguenze di ciò che abbiamo fatto, la nostra capacità di agire sarebbe per così dire sciolta e in grado di agire da noi senza potremmo mai riprenderci; rimaniamo per sempre vittime delle sue conseguenze, come l'epidemia emerge che non aveva la ferocia magica per sempre l'incantesimo»¹⁶.

Ma il tempo interviene anche nella manifestazione vera del perdono. Perdonare non è qualcosa di magico, ma un processo che richiede tempo e fatica. Questo processo può avere inizio soltanto quando, superata una prima fase di smentimento e affermata personale, ingenua e profonda, la persona, armata di una volontà, fase di ricerca, orientamento, se non altro, giunge ad una terza fase, in cui ricompaie un certo controllo sui propri vissuti nella propria sofferenza: non il nega, ma ricopre se nella sua sofferenza¹⁷. Si riprende dal colpo subito e si fa quindi capace di andare oltre l'accaduto, perché guarda all'offensore come capace di essere di più del male commesso. Sostanzialmente il perdono prescinde, andando oltre l'accaduto passato, guarda al futuro nella condizione umana che l'altro, l'offensore, non è ricominciato al male commesso. Il perdono, nel gesto di intenzionalità incondizionata che lo esprime una fiducia nell'altro che apre alla speranza, che può affermare «ma val molto di più delle tue azioni»¹⁸, tu puoi essere all'incirca di te stesso e di quello che vali.

PERDONO E RICONCILIAZIONE

Queste considerazioni, tuttavia, non ci devono spingere a confondere perdono con riconciliazione. Il perdono, lo abbiamo visto, non incondizionato e, se accettato, può riportare la persona dell'offensore all'incirca di se stesso e della sua dignità. Ma potrebbe anche accadere che tutto il gioco del senso di colpa più o meno presto in rapido come potrebbe non



Immagine 14: Garçonzo Bertini, *Emulocelo davanti*, 1620, Parigi, Museo del Louvre

¹⁵ *Ibid.* p. 10. ¹⁶ *Handi-Hand, Più volte. Le condizioni sono, Bergamo, Milano 1994, pp. 104-105.* ¹⁷ *Matteucci, La parola commovente*, p. 10. ¹⁸ *Ricchi, La umanità, la vita, Edizioni*, p. 104.

98 101

17: A parallel translation (Armenian-Italian) published in Augustinianum

300	A. ORLANDO	CONFRONTO TRA LA LEGGAZIONE CANONICA ARMINA	307
ՀԱՅՐԱՅՈՒՆՆԵՐՍԻՍԿՈՒՅՑՑԻՔԻՔ		DI QUESTA LEGGAZIONE CANONICA ARMINA FANNO PARTE VENTI CAPITOLO ¹	
Ա. Կազմակերպչու քերթըրթնի քանակ Բ. Քառասնի քերթըրթնի քանակ Գ. Հասցեագրչու Դ. Ինչ քանի ԿՊՊ քերթըրթնի Ե. Անկախագրչու Զ. Կազմակերպչու Է. Անկախագրչու Ը. Կազմակերպչու Թ. Ինչ քանի քերթըրթնի Վ. Ինչ քանի քերթըրթնի Մ. Ինչ քանի քերթըրթնի Ծ. Ինչ քանի քերթըրթնի ՎՁ. Ինչ քանի քերթըրթնի ՎՂ. Ինչ քանի քերթըրթնի ՎՃ. Ինչ քանի քերթըրթնի ՎԴ. Ինչ քանի քերթըրթնի ՎԵ. Ինչ քանի քերթըրթնի ՎԶ. Ինչ քանի քերթըրթնի ՎԸ. Ինչ քանի քերթըրթնի ՎԹ. Ինչ քանի քերթըրթնի ՎՔ. Ինչ քանի քերթըրթնի ՎՊ. Ինչ քանի քերթըրթնի	I. Sul numero che viene scoperto a compiere altri tempi. II. Sul numero che viene scoperto a compiere altri tempi. III. Sull'ufficio. IV. Su chi ripulisca la moglie. V. Su chi ripulisca la moglie sterile. VI. Sulla moglie che abbandonò il marito. VII. Sui casti di donna. VIII. Sull'impiego. IX. Su chi frequentò gli indovini. X. Su chi parca incantazioni e così similmente. XI. Su chi piange disperatamente un amico. XII. Su chi pensa con la sua lingua. XIII. Su chi opera una parentela. XIV. Su chi ha un carattere ostinato della casa. XV. Su chi vuol diventare monaco. XVI. Su chi diventa veneno pagano. XVII. Sulle reliquie dei martiri. XVIII. Sul verberare che ammontava un discepolo. XIX. Su un sacerdote sospeso tra i casti. XX. Sul numero che è conoscenza di determinate colpe.		

¹ Questo è il titolo che apparve nell'edizione curata dalla Bibliotheca Augustina, con una parte della traduzione manoscritta presente in modo diretto, con un'esplicita riferimento a Bologna.

² Il titolo stesso del manoscritto latino recita: "Inventio" anche se in alcune copie non vengono indicati né il numero né il titolo. Si veda, ad esempio, il manoscritto di Bologna, n. 149, e il manoscritto di Padova, n. 149.

³ Il titolo stesso del manoscritto latino recita: "Inventio" anche se in alcune copie non vengono indicati né il numero né il titolo. Si veda, ad esempio, il manoscritto di Bologna, n. 149, e il manoscritto di Padova, n. 149.

⁴ Il titolo stesso del manoscritto latino recita: "Inventio" anche se in alcune copie non vengono indicati né il numero né il titolo. Si veda, ad esempio, il manoscritto di Bologna, n. 149, e il manoscritto di Padova, n. 149.

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Even a Web site allows users to collaboratively edit L^AT_EX documents: Overleaf.

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Even a Web site allows users to collaboratively edit \LaTeX documents: Overleaf.

The only WYSIWYG editor seems to be \TeX macs. Inspired by Emacs and \TeX , it is declared totally unrelated to them.

LyX, the WYSIWYG (?) Editor that \LaTeX s Your Documents

LyX is more a WYSIWYM editor than a WYSIWYG one.

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Guess What! (The Bill, Please!)

Now that we reached the end of this lesson, let's see the test results.

Guess What! (The Bill, Please!)

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Did somebody of you answer 17 As?

Guess What! (The Bill, Please!)

Now that we reached the end of this lesson, let's see the test results.

Did somebody of you answer 17 As?

Did somebody of you answer 17 Bs?

Guess What! (The Bill, Please!)

Now that we reached the end of this lesson, let's see the test results.

Did somebody of you answer 17 As?

Did somebody of you answer 1 or more Bs?

Did somebody of you answer 17 Bs?

Guess What! (The Bill, Please!)

Now that we reached the end of this lesson, let's see the test results.

Did somebody of you answer 17 As?

Did somebody of you answer 1 or more Bs?

Did somebody of you answer 17 Bs?

Only those of you who answered 17 Bs “won” the test. The others now know that L^AT_EX is more powerful and versatile than you may figure out.

The end

This very 0th lesson should have given you all (at least those of you who are not yet proficient with \LaTeX) the chance to understand the subsequent lessons.

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This very 0th lesson should have given you all (at least those of you who are not yet proficient with \LaTeX) the chance to understand the subsequent lessons.

Of course, reading the related paper will be much more helpful.

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Any questions?

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Any questions?

Thank you for your attention. Enjoy the next lessons.