

# **T<sub>E</sub>X in University Education**

**Tomáš Hála**

**BachoT<sub>E</sub>X / Poland**

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# Abstract

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This talk describes the experience with teaching ConT<sub>E</sub>Xt to students of different study programmes at Mendel University in Brno, Czech Republic.

It focuses on teaching process, different goals, writing thesis etc., positive features as well as troubles will be mentioned, too. Finally, former and current topics based on ConT<sub>E</sub>Xt for students' thesis will be briefly presented.



# questions



## common questions

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**whom**

**what**

**why**

**when**

**how**

**(where)**



## common questions

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$\text{T}_{\text{E}}\text{X}$ ?  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ ? Con $\text{T}_{\text{E}}\text{X}$ t?

in Linux? in  $\text{T}_{\text{E}}\text{X}$ Works for W.? online?

prerequisites from high schools?

basics of typography?

theory first? or practice first?



# teaching



## **courses**

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- Design Studio 2 (2016(?)–2020)
- Bachelor Seminar [for Computer Science programmes] (old: 2016(?)–2021; new: 2022–)
- Bachelor Seminar [for Economists] (2022–2023)
- Introduction to Document Design (2019–)
- Advanced Document Design (2023–2023)
- (Programming Language Lua; 2022–)
- Club for Modern Typesetting Technologies (2017–)



# Design Studio 2

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Faculty of Forestry and Wood Technology

Field: Design of Furniture (artistic study programme)

Selected students

Basic of typography from Design Studio 1

Last semester

**Aim:** Design of documents dealing with furniture production.

**Use of ConT<sub>E</sub>Xt:** Only for writing bachelor thesis.

**Experience:** Tutor needed for help with computer skills.

Big students' interest in the final design.





# Bachelor Seminar (for Computer Science)

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Faculty of Business and Economy

Field: Computer Science

Penultimate term

In most cases no previous knowledge of typography

**Aim:** Theory and practice of writing thesis.

**Use of ConT<sub>E</sub>Xt:** Only for writing bachelor thesis.

**Experience:** Tutor needed for help with typographic issues.



# Introduction to Document Design

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Faculty of Business and Economy

Primarily for Erasmus Students

Duration: 6 or 7 weeks

Field & semester: No restrictions, no prerequisites

Almost always no previous knowledge of typography

**Aim:** Theory and practice of writing thesis.

**Use of ConT<sub>E</sub>Xt:** Only for writing bachelor thesis.

**Experience:** With online application faster progress.



# Club for Modern Typesetting Technologies

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Faculty of Business and Economy (but open for everybody)

Field: Any, but Computer Science is preferred

Semester: Any

Syllabus: No fix planes

**Aim:** learn ConT<sub>E</sub>Xt and related typesetting technologies etc.

**Use of ConT<sub>E</sub>Xt:** for any purpose

**Added value:**

- Students' projects
- Recruitment for bachelor topics
- 'Guinea-pigs' (tasks, testers, ...; very usefull feed-back for me)



## Club – Students' Projects

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- Writing pieces of documentation
- Localisation (`lang-def.mkiv`, `lang-txt.lua`)  
(Later done by students Introduction to Document Design)
- Bookmarks [invitation to workshop]
- Tamara's memory book
- and plenty of others...



# free software



## some new knowledge

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- their first encounter with free software ⇒
- no knowledge of the development
- no knowledge of the communities
- surprising that people help each other



# new language settings in ConT<sub>E</sub>Xt

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typographic part (lang-def.mkiv)

```
\installlanguage
[\s!cs]
[\c!spacing=\v!packed,
 \c!leftsentence={\nobreakspace\endash\thickglue\penalty\zerocount\relax},
 \c!rightsentence=\c!leftsentence,
 \c!leftsubsentence=\c!leftsentence,
 \c!rightsubsentence=\c!rightsentence,
 \c!leftquote=\lowerleftsinglesixquote,
 \c!rightquote=\upperrightsinglesixquote,
 \c!leftquotation=\lowerlefthdoublesixquote,
 \c!rightquotation=\upperrightdoublesixquote,
 \c!date={\v!day,{.\fourperemspace}},\v!month,\space,\v!year},
\s!lefthyphenmin=2,
\s!righthyphenmin=3]
```



# new language settings in ConT<sub>E</sub>Xt

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language part (lang-txt.lua)

```
...
["texts"]={
  ["april"]={
    ["labels"]={
      ["cs"]="dubna",
      ["en"]="April",
      ["ja"]="4",
      ["nl"]="april",
      ["pl"]="kwietnia",
      ["ua"]="квітня",
    },
  },
},
...
```





# new language settings in ConT<sub>E</sub>Xt

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Students' work:

2018--2019:

be Belarussian (new language; Darya Hryshkavets),  
bg Bulgarian (new language; Vladislav Hinkin + Aleš Ďurčanský),  
mk Macedonian (new language; Jakub Loula; simultaneously  
with Stojan Trajanovski)

2022:

hy Armenian (new language; Kristina Nazarjanová)  
  
ca Catalanian (additions; Javier Gambin Monzo + Samuel Conca Coles)  
cs Czech (additions; TH)  
es Spanish (additions; Javier Gambin Monzo + Samuel Conca Coles)  
fi Finnish (additions; Ossi Salo)  
fr French (additions; Arnaud Pierre Henri De Barbentane + Adrien Patton)  
sk Slovak (additions; TH)



# new language settings in ConT<sub>E</sub>Xt

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2023:

pt Portuguese (additions; Joana Sophia Bogas Carneiro)

2024 (spring):

id Indonesian (new language; Keiko Budhi Saputra)

ms Malay (new language; Sin Huei Ong)

lt Lithuanian (additions; Ignas Vaičiulėnas)

ro Romanian (additions; Valentina Badrajan)

sq Albanian (new language; Vullkan Hana)

2024 (autumn):

cnr Montenegrin (Теодора Шушкавчевић)

cnr-latn Montenegrin (Teodora Šušlavčević)

gr Greek (additions; Evangelia Baltzi)

sl Slovenian (additions; Lea Buljeta)

ua Ukrainian (additions; Bohdan Kyianytsia

& Mykhailo Vitaliyovych Kryvda)



# new language settings in ConT<sub>E</sub>Xt

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2025:

fa Persian (additions; Arman Rahimi)  
THESIS section added

2025 -- plan:

new language: Amhar  
additions: Russian

2025 -- BachoT<sub>E</sub>X challenge (?):

additions to Dutch?  
additions to German?  
additions to Japanese?  
additions to Polish?



# writing thesis



# thesis

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**Aims:** very fast markup, high typographic quality,

**Style:** **ctx-thesis-v0.996.tex**

**First three languages:** Czech, Slovak, English (2010)

**Development method:** snowball

⇒ **available at [thala.cz/styles/thesis/](http://thala.cz/styles/thesis/)**



# ctx-thesis- example of a frontmatter

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```
\setupthesis[en,mendelu,pef,none][ % language,university,faculty,department
  type={bp}, % bp=bachelor, dp=diploma, pp=PhD, zp=final thesis, sp=seminar
  authorname={Amy}, % your name
  authorsurname={Smith}, % your surname
  authordegree={}, % your academic degree
%  authorgender={M}, % M=male, F=female; not necessary for English
  supervisor={Harry Potter, PhD.}, % name, surname and degree of your thesis supervisor
  titleen={New trends in magic}, % title in English
  title={Nové trendy v magii}, % title in the second language
  keywordsen={key TeX words, separated, by comma}, %
  keywords={klíčová slova, oddělujeme, čárkou}, %
  acknowledgement={I thank my grandmother for baking me buns for the trip.}, %
  abstracten={}, % abstract in English
  abstract={}, % abstract in the second language
  location={Brno}, % location
%  year={2021}, % year, the default is the current year
%  thesisassignmentform={img/file001.png,img/file002.png}, % file(s) with thesis assignment
]
```



## current state

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*works; ca 20 languages; new version ahead*

Language structure identical with ConT<sub>E</sub>Xt language structure; thanks to Hans for merging.

Documentation:

*Czech documentation almost completed  
English in the embryonic development :-)*



# references

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**style:** **bib-v2.80.sty**

**aims:** very fast markuping, shield users from referencing rules

*works, incomplete, documentation exists*

⇒ **available at [thala.cz/styles/biblio/](http://thala.cz/styles/biblio/)**





# bib.sty – an example

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## Example:

```
\publA{  
  \autor{Knuth, D.}  
  \nazev{The \TeX{}}book}  
  \nakl{Boston}{Addison Wesley}  
  \vyd{1}  
  \rok{1986}  
  \isbn{0-201-13448-9} \rozsah{483\stran}  
}
```

**Experience:** Quite popular, filling a form is very easy

**Advantages:** correct hyphenation of URLs; error preview; only a few problems to be solved manually

**Slight restriction:** only one citation style supported



## ctx-thesis / positives v negatives

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+ Aims (fast+quality) achieved

— TeXWorks

non-informatic students (eg. designers) need a tutor

unified design, to be solved

‘one-purpose’ users



bachelor's  
and/or  
master's topics



## areas of topics

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tools for user-friendly work

on-line applications

fonts – digitisation of ancient fonts

modules for ConT<sub>E</sub>Xt



# tools for user-friendly work

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Adam Hanuš:

ConT<sub>E</sub>Xt source code checker

*submitted, presented in Nasbinals 2015, not published yet*

Dominik Makeš:

**Typochecker for ConT<sub>E</sub>Xt sources**

*submitted, presented in Nasbinals 2015, not published yet*

Daniil Svirin:

some extensions for Emacs

*submitted in 2009, not published, not continued*



# online IDE

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Zdeněk Svoboda:

**c-o-w ConT<sub>E</sub>Xt on Web**

Web application for designing the ConT<sub>E</sub>Xt documents  
(JavaScript, React, ConT<sub>E</sub>Xt source, some XML)

*operated since 2022 / 2023*

Martin Kellner:

some new extensions

*operated since April 2025*

⇒ **context-on-web.eu**

**Testers are welcome!**



## topics: fonts

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**Dominik Makeš: Black letter digitisation. 2013**

*submitted, not published; revision needed*

A	B	C	D	E
F	G	H	I	K
L	M	N	O	P
Q	R	S	T	U
V	W	X	Y	Z

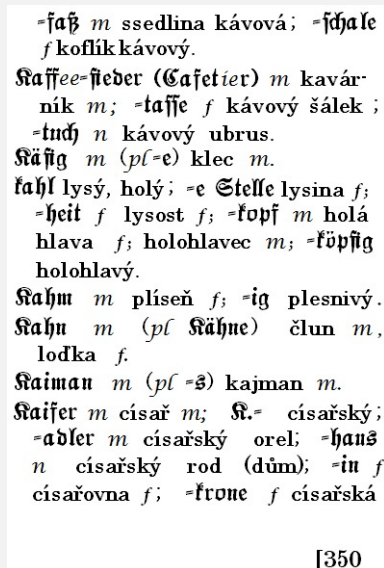
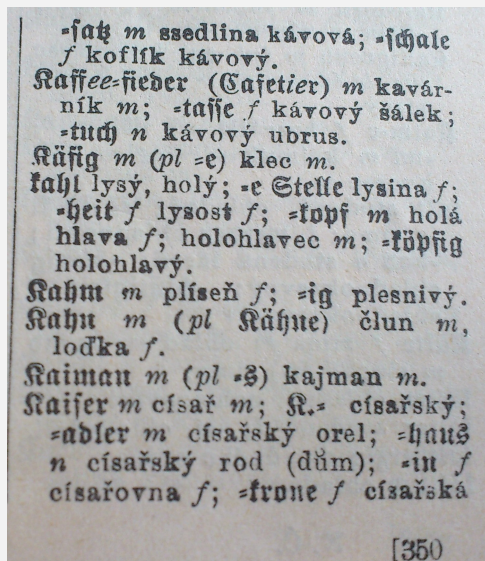
a	b	c	d	e	f	g
h	i	j	k	l	m	n
o	p	q	r	s	t	u
v	w	x	y	z		

ch d d ff fi ff fl ff ll llh k



# topics: fonts

## Dominik Makeš: Black letter digitisation. 2013





# font designing

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Tomáš Przybek:

**Spanish rotunda: digitization font  
using FontForge program. 2013**

*submitted, not published; revision probably not needed*



quem dixere chaos rudis indigestaque moles  
nec quicquam nisi pondus iners congestaque  
non bene iunctarum discordia semina rerum  
nullus adhuc mundo praebebat lumina titan

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# topics / ConT<sub>E</sub>Xt modules

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Marek Treták:

**Creation of vexillographic module with the use of MetaPost and Lua languages. 2016**

**structure:** ConT<sub>E</sub>Xt interface, implemented by Lua computations and MetaPost drawings.





Albánie



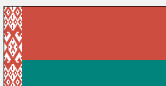
Arménie



Ázerbájdžán



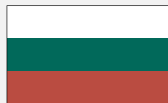
Belgie



Bělorusko



Bosna a Hercegovina



Bulharsko



Česká republika



Dánsko



Estonsko



Evropská unie



Finsko



Francie



Gruzie



Chorvatsko



# Topics / ConT<sub>E</sub>Xt modules

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Martin Šebela:

**Creation of music engraving module for system ConT<sub>E</sub>Xt.**  
2019

**Structure:** MusicXML + Lua + MetaPost → PDF

*submitted, short documentation, not published;  
some parts missing, currently being tested and extended*



## Echigo Jishi

Y. Nagai  
K. Kohatake

Musical score for Echigo Jishi, measures 1-8. The score is written in treble clef, 4/4 time, with a key signature of one sharp (F#). The melody begins with a forte (*f*) dynamic. Measures 1-4 show a series of eighth and quarter notes. Measures 5-8 continue the melody with some rests and a mezzo-forte (*mf*) dynamic marking.

Transcription donated to the public domain, 2005 by Tom Potter

Musical score for Echigo Jishi, measures 9-16. The score continues in treble clef, 4/4 time, with a key signature of one sharp. Measures 9-12 feature a piano (*pp*) dynamic marking. The melody includes various rests and note values, with some measures showing a change in the bass line. Measures 13-16 conclude the section with a final chord.


Copyright © 2002 MakeMusic, Inc.



Sheet music for piano, featuring a treble and bass staff. The key signature is one sharp (F#) and the time signature is 3/4. The music includes a piano (p) dynamic marking.



Sheet music for piano, featuring a treble and bass staff. The key signature is one sharp (F#) and the time signature is 3/4. The music includes a piano (p) dynamic marking.



just copyright



# Topics / ConT<sub>E</sub>Xt modules

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Tamara Kocurová, Adriana Kašparová

**Module for drawing statistical charts**

⇒ **current version at [thala.cz/manuals/statcharts/](http://thala.cz/manuals/statcharts/)**

*submitted, works, published 2020, maintained  
detail documentation available*





back to  
questions



# questions

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**whom** – informatics v non-informatics

Erasmus v local

**what** // ConT<sub>E</sub>Xt, what else...

**why** // hard to explain why typographic quality is important,  
not appreciated very much

**when** // penultimate v last semester for thesis  
for other purposes earlier

**how** // practical first seems better, then theory, but not for the designers ;  
online application very helpful for Introduction to Document Design;  
searching for methods is neverending process



# T<sub>E</sub>X in University Education

**Tomáš Hála**