

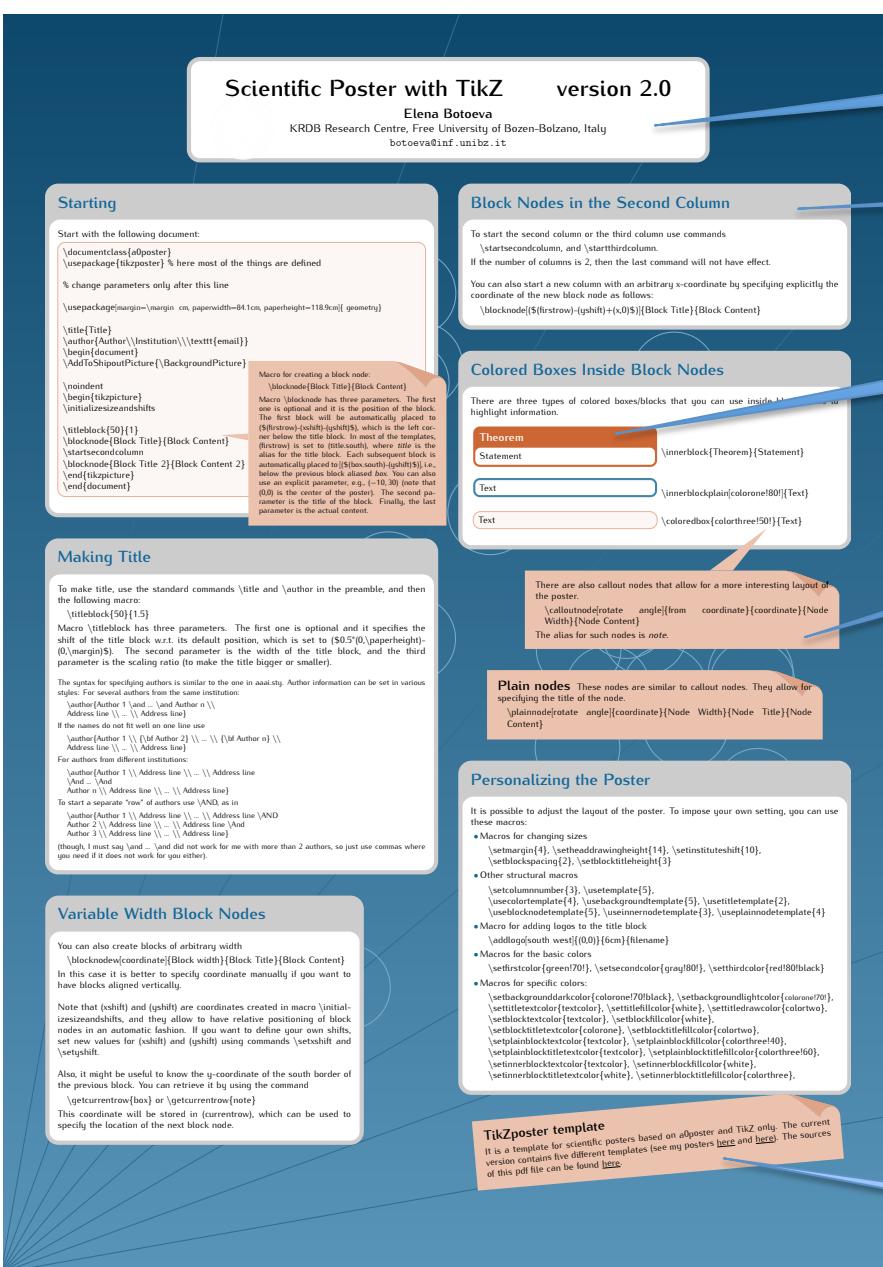
## 1. Template

For me, template defines the complete look of a poster, the background, the title, the way nodes are drawn.

In general, I think that the average user does not have to bother himself with adjusting the templates. So the predefined templates should be ready to be used and look nice from the design point of view (like templates in Powerpoint).

But we could also have a template based on what you have already in your tikzposter, so that the user can set up everything himself, things like: rounded, shadow, draw his own nodes, background, etc.

## 2. Nodes (blocks)

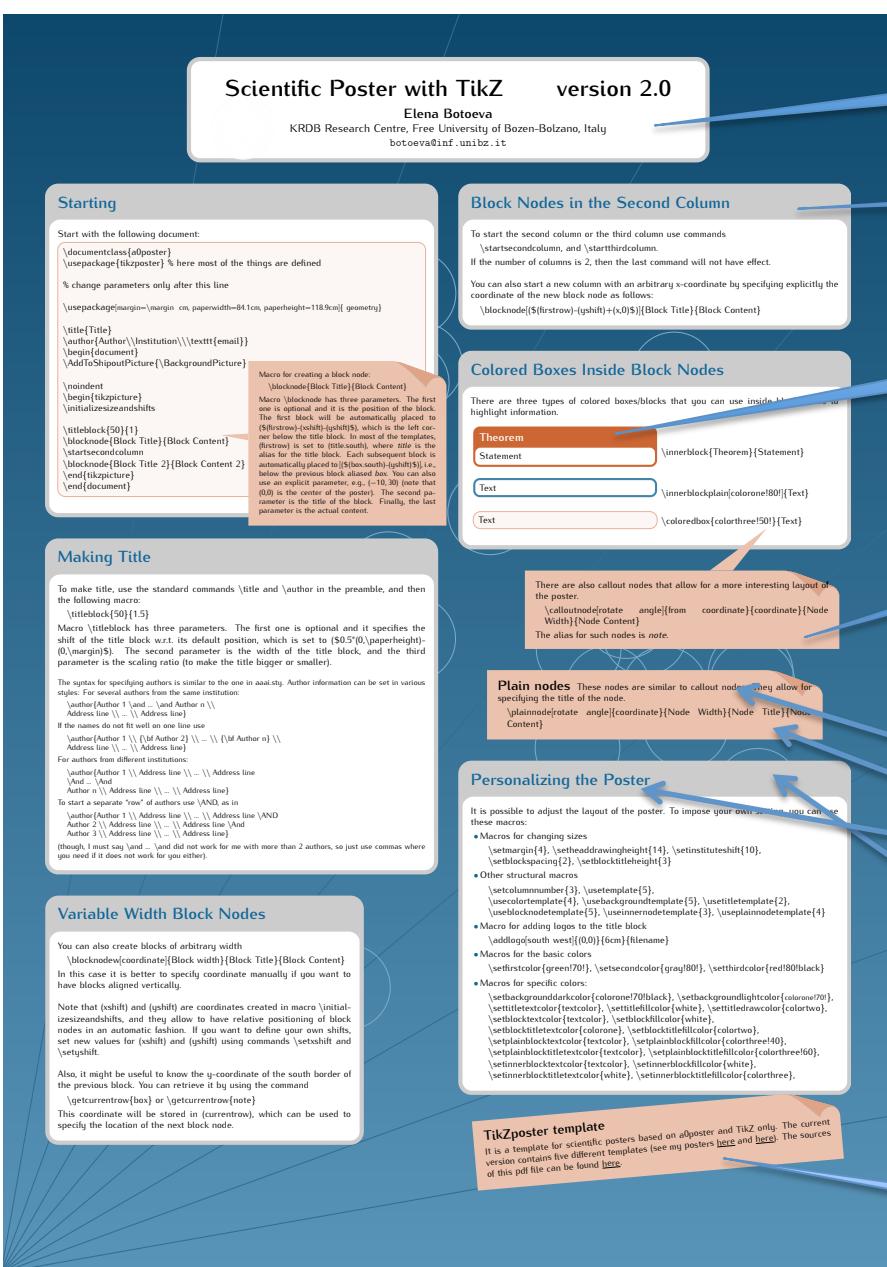


**Titleblock** and **blocknode** can be placed automatically (i.e., coordinate is optional), **calloutnode** and **plainnode** require explicit coordinates and can be rotated. These four nodes are on the level of TikZ with slightly different sets of parameters.

I think it is **IMPORTANT** that each node can have *arbitrary position* and *width*, just the same way as if I had a graphical interface to do so (like Powerpoint). Moreover, after a node is drawn, it might be useful to have the alias of that node (e.g., to relatively place a callout node). In general, with these nodes one should have the full power of TikZ, in my opinion.

**Innerblock** behaves like a normal latex environment. Should be similar to Theorem or Block in Beamer.

## 2. Nodes' color schemes



## 2. Nodes' templates (themes)

### Scientific Poster with TikZ

version 2.0



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**Starting**

Start with the following document:

```
\documentclass[a0poster]{tikzposter}
```

% Here most of the things are defined

```
\usepackage{tikzposter}
```

% change parameters only after this line

```
\usepackage[margin=1cm, paperwidth=84.1cm, paperheight=118.9cm]{geometry}
```

```
\title{Title}
```

```
\author{Author \institution{\texttt{[email]}}}
```

```
\begin{document}
```

```
\AddToShipoutPicture{\BackgroundPicture}
```

```
\end{document}
```

Macro for creating a block node:  
\blocknode[50]{[Block Content]}

Macro has three parameters: The first one is optional and it is the position of the block. The first block will be automatically placed to [titleblock]. The second parameter can be used to define the title of the block, which is positioned below the title block. In most of the templates, [firstrow] is set to [titlecontent], where title is the title of the block and content is the content of the block. The third parameter is the width of the block, which is automatically placed to [\boxwidth]. I.e., below previous block and above this one. You can also use the explicit parameter, e.g. [x,10,20]. Note that (0,0) is the center of the poster. The second parameter is the title of the block. Finally, the last parameter is the actual content.

### Block Nodes in the Second Column

To start the second column or the third column use commands  
\startsecondcolumn, and \startthirdcolumn.  
If the number of columns is 2, then the last command will not have effect.

You can also start a new column with an arbitrary x-coordinate by specifying explicitly the coordinate of the new block node as follows:

```
\blocknode[$(firstrow)+(x,0)]{[Block Title]{[Block Content]}}
```

### Colored Boxes Inside Block Nodes

There are three types of colored boxes/blocks that you can use inside block nodes:

**Theorem**  
Statement  
Text  
Text

```
\innerblock[Theorem]{Statement}
```

```
\innerblockplain[colormode80]{Text}
```

```
\coloredbox[colorthree|50!]{Text}
```

### Making Title

To make title, use the standard commands \title and \author in the preamble, and then the following macro:

```
\titleblock[50]{[1]}
```

Macro \titleblock has three parameters: The first one is optional and it specifies the shift of the title block w.r.t. its default position, which is set to [0.5\*(0,paperheight)-(0,paperheight)]. The second parameter is the width of the title block, and the third parameter is the scaling ratio (to make the title bigger or smaller).

The syntax for specifying authors is similar to the one in a0aaf.sty. Author information can be set in various styles. For several authors from the same institution:

```
\author{Author 1 \and ... \and Author n}
```

```
\AddressLine{...} \AddressLine{...}
```

If the names do not fit well on one line use

```
\AddressLine{...} \AddressLine{...} \AddressLine{...} \AddressLine{...} \AddressLine{...}
```

For authors from different institutions:

```
\author{Author 1 \and Address line \and \AddressLine{...}}
```

```
\Author{n} \AddressLine{...} \AddressLine{...}
```

To start a separate "row" of authors use \AND, as in

```
\author{Author 1 \and Address line \and \AddressLine{...} \and \AddressLine{...}}
```

```
\Author{Author 2 \and Address line \and \AddressLine{...} \and \AddressLine{...}}
```

(though, I must say \and ... \and did not work for me with more than 2 authors, so just use commas where you need if it does not work for you either.)

### Variable Width Block Nodes

You can also create blocks of arbitrary width with

```
\blocknode[width]{[Block Title]{[Block Content]}}
```

In this case it is better to specify coordinate manually if you want to have blocks aligned vertically.

Note that (xshift) and (yshift) are coordinates needed in macro \settitlecontentshift and they allow to have relative positions of block nodes in an automatic fashion. If you want to define your own shifts, set new values for (xshift) and (yshift) using commands \setxshift and \setyshift.

Also, it might be useful to know the y-coordinate of the south border of the previous block. You can retrieve it by using the command

```
\getcurrentrow[box] or \getcurrentrow[note]
```

This coordinate will be stored in (currentrow), which can be used to specify the location of the next block node.

There are also callout nodes that allow for a more interesting layout of the poster.

```
\calloutnode[rotate angle]{from coordinate}{coordinate}{Node Width}{Node Title}{Node Content}
```

**Plain nodes** These nodes are similar to callout nodes. They allow for specifying the title of the node

```
\plainnode[rotate angle]{coordinate}{Node Width}{Node Title}{Node Content}
```

### Personalizing the Poster

It is possible to adjust the layout of the poster. To impose your own setting, you can use these macros:

- Macros for changing sizes:  
\setmargin[4], \setheadlineheight[14], \settitleheight[10],  
\settitlewidth[12], \setblocktitleheight[3]
- Other structural macros:  
\setcolumnnumber[3], \usetemplate[5],  
\usecolortemplate[4], \usebackgroundtemplate[5], \usetitletemplate[2],  
\useblocknodetemplate[5], \useinnermodetemplate[3], \useplainmodetemplate[4]
- Macro for adding logos to the title block  
\addlogos[south west]{[0,0]}{filename}
- Macros for the basic colors:  
\firstcolor{green!70!}, \secondcolor{gray!80!}, \thirdcolor{red!80!black}
- Macros for specific colors:  
\backgrounddarkcolor{colorone!70!black}, \backgroundlightcolor{colorone!70!},  
\titlefirstcolor{textcolor}, \titlesecondcolor{white}, \titlethirdcolor{colortwo},  
\blockfirstcolor{textcolor}, \blocksecondcolor{colorone}, \blockthirdcolor{colortwo},  
\plainsinblockfirstcolor{textcolor}, \plainsinblocksecondcolor{colorthree!40},  
\plainsinblockthirdcolor{textcolor}, \plainsinblockfirstcolor{colorthree!60},  
\plainsinblocksecondcolor{textcolor}, \plainsinblockthirdcolor{white},  
\innerblockfirstcolor{textcolor}, \innerblocksecondcolor{white}, \innerblockthirdcolor{colorthree!}

**TikZposter template**  
It is a template for scientific posters based on a0poster and TikZ only. The current version contains five different templates (see my posters [here](#) and [here](#)). The sources of this pdf file can be found [here](#).

The title block

Blocknode

Innerblock

Calloutnode

I have

- 5 different **blocknode** templates,
- 4 different **plainnode/calloutnode** templates,
- 2 different **innerblock** templates.

Note that for some of the node templates you should NOT be able to change roundedness, shadows, etc.

The code for some of the nodes is a bit dirty (I was using some tricks to draw, e.g., the plainnodes/calloutnodes on this slide)

Plainnode

### 3. Colors

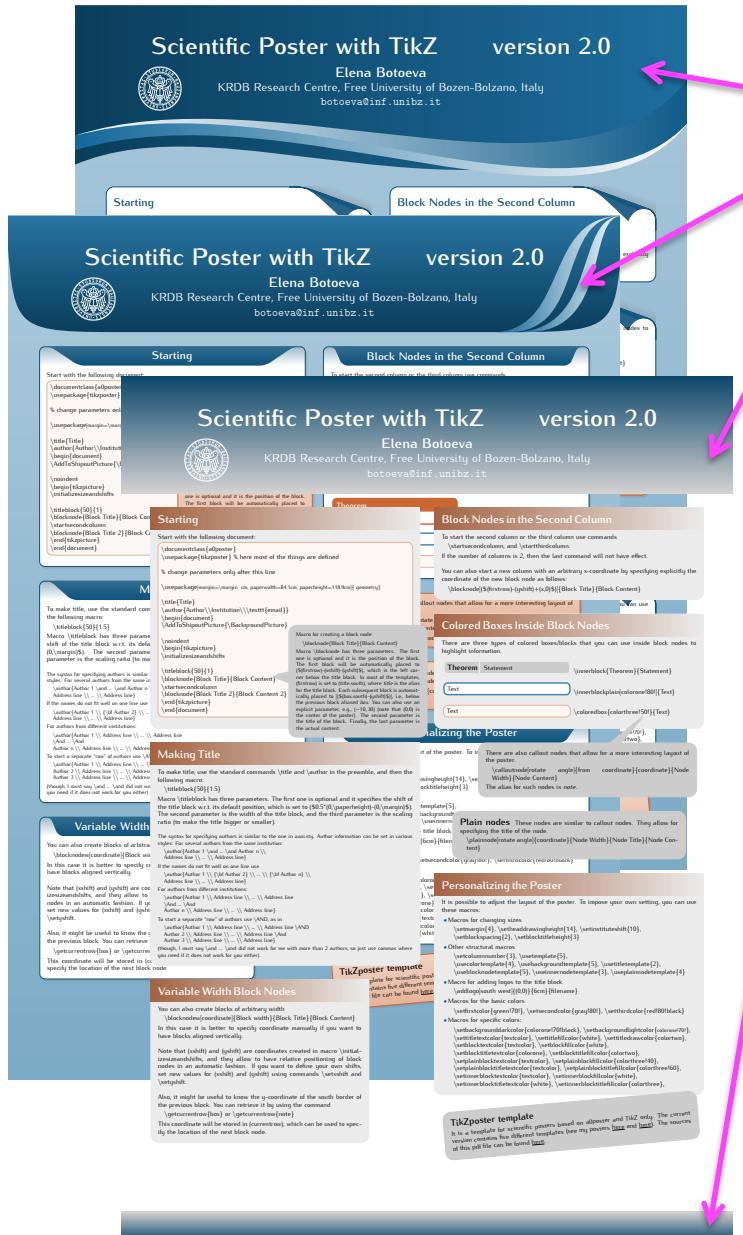
In my implementation I have THREE basic colors, called very simply :-) **colorone** (default blue), **colortwo** (default gray) and **colorthree** (default orange). We could call them similarly to beamer, they have **structure**, etc.

In my opinion there should not be more than 3 basic colors (bear in mind white and black). This number of colors should be enough for a good design.

All other colors (like titlefillcolor of nodes, the colors of the background, etc.) are defined from the basic three colors. So by changing these three colors, the user can quickly change the colors of the whole poster.

Then the individual colors can be adjusted in arbitrary ways.

## 4. Background



In my implementation the header (or footer) drawing is a part of the background

# 5. Structure

## Scientific Poster with TikZ version 2.0

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botoeva@inf.unibz.it

### Starting

Start with the following document:

```
\documentclass[a0poster]{tikzposter}
\usepackage{tikz} % here most of the things are defined
% change parameters only after this line
\usepackage[margin=1cm, paperwidth=84.1cm, paperheight=118.9cm]{geometry}

\title{Title}
\author{Author \\\ Institution \\\ texttt{email}}
\begin{document}
\addtoshout{BackgroundPicture}

\noindent
\begin{tikzpicture}
\initializesizeandshifts
\titleblock{50}{1}
\blocknode{Block Title}{Block Content}
\startsecondcolumn
\blocknode{Block Title 2}{Block Content 2}
\end{tikzpicture}
\end{document}
```

Macro for creating a block node:  
\blocknode{Block Title}{Block Content}

Macro \blocknode has three parameters. The first one is optional and it is the position of the block. The first block will be automatically placed to (firsrtrow)-(shift)-(yshift), which is the left corner below the title block. In most of the templates, (firsrtrow) is set to (title south), where *title* is the alias for the title block. Each subsequent block is automatically placed to (box.south)-(yshift\$), i.e., below the previous block aliased *box*. You can also use an explicit parameter, e.g., (-10,30) (note that (0,0) is the center of the poster). The second parameter is the title of the block. Finally, the last parameter is the actual content.

### Making Title

To make title, use the standard commands \title and \author in the preamble, and then the following macro:  
\titleblock{0.15}

Macro \titleblock has three parameters. The first one is optional and it specifies the shift of the title block w.r.t. its default position, which is set to (0.5\*(0,paperheight)-(0,margin\$)). The second parameter is the width of the title block, and the third parameter is the scaling ratio (to make the title bigger or smaller).

The syntax for specifying authors is similar to the one in aaii.sty. Author information can be set in various styles: For several authors from the same institution:

```
\author{Author 1 \and ... \and Author n \\\
Address line \\\ ... \\\ Address line}
If the names do not fit well on one line use
\author{Author 1 \\\ \bf{Author 2} \\\ ... \\\ \bf{Author n} \\\
Address line \\\ ... \\\ Address line}
```

For authors from different institutions:

```
\author{Author 1 \\\ Address line \\\ ... \\\ Address line \AND
\And ...
\And
Author n \\\ Address line \\\ ... \\\ Address line}
```

To start a separate "row" of authors use \AND, as in

```
\author{Author 1 \\\ Address line \\\ ... \\\ Address line \AND
Author 2 \\\ Address line \\\ ... \\\ Address line \And
Author 3 \\\ Address line \\\ ... \\\ Address line}
```

(though, I must say \and ... \and did not work for me with more than 2 authors, so just use commas where you need if it does not work for you either.)

### Variable Width Block Nodes

You can also create blocks of arbitrary width  
\blocknode[width]{Block width}{Block Title}{Block Content}

### Block Nodes in the Second Column

To start the second column or the third column use commands \startsecondcolumn, and \startthirdcolumn. If the number of columns is 2, then the last command will not have effect.

You can also start a new column with an arbitrary x-coordinate by specifying explicitly the coordinate of the new block node as follows:

```
\blocknode[($firsrtrow)-(yshift)+(x0$)]{Block Title}{Block Content}
```

### Colored Boxes Inside Block Nodes

There are three types of colored boxes/blocks that you can use inside block nodes to highlight information.

**Theorem**

```
\innerblock{Theorem}{Statement}
```

**Text**

```
\innerblockplain{color}{!80!}{Text}
```

**Text**

```
\coloredbox{colorthree!50!}{Text}
```

### Plain nodes

These nodes are similar to callout nodes. They allow for specifying the title of the node.

```
\plainnode[rotate angle]{coordinate}{Node Width}{Node Title}{Node Content}
```

The alias for such nodes is *note*.

### Personalizing the Poster

It is possible to adjust the layout of the poster. To impose your own setting, you can use these macros:

- Macros for changing sizes
  - \setmargin{4}, \setheaddrawingheight{14}, \setinstituteshift{10}, \setblockspacing{2}, \setblocktitleheight{3}
- Other structural macros
  - \setcolumnnumber{3}, \usetemplate{5}, \usecolortemplate{4}, \usebackgroundtemplate{5}, \useitemtemplate{2}, \useblocknodedetemplate{5}, \useinnermodetemplate{3}, \useplainnodedetemplate{4}
- Macro for adding logos to the title block
  - \addlogo[south west]{(0,0)}{6cm}{filename}
- Macros for the basic colors

In my implementation I have the following 'structural' parameters

## 1) Margin

## 2) Blockspacing

## 3) Headdrawingheight

The default positions of nodes and their widths are calculated automatically taking into account these parameters.

# Examples of my posters

# Description Logic Knowledge Base Exchange

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## Data Exchange vs. Knowledge Base Exchange

Knowledge Base Exchange is a special case of Data Exchange with incomplete information.

Each database instance is complete.  
Logic fact is either true or false, therefore, represents exactly one possible instance (itself).

### Data Exchange Example

Let  $M = \{v_1 : \text{Author}(a_1), \dots, v_2 : \text{Book}(b_1, a_1)\}$ ,  
 $L = \{v_1 : \text{Author}(a_1), \dots, v_2 : \text{Book}(b_1, a_1), v_3 : \text{Book}(b_2, a_1)\}$ .  
 Then  $A = \{\text{Author}(a_1), \text{Book}(b_1, a_1), \text{Book}(b_2, a_1)\}$   
 is a unique  $\text{Book}(b_1, a_1)$ -t老实者,  $\text{Book}(b_2, a_1)$ -t老实者.

A Description Logic (DL) Knowledge Base consists of a set of axioms given by an interpretation of a set of structured rules computing data given as a TBox, therefore, it is a compact representation of (possibly infinitely) many actual instances.

### Knowledge Base Exchange Example

Let  $T_1 = \{\exists \text{Author} \sqsubset \text{Author}, M = \{ \text{Author} \text{Of} \sqsubseteq \text{WrittenBy}, \text{Author} \text{Of} \sqsubseteq \text{Title}, \text{WrittenBy} \sqsubseteq \text{Title}, \text{WrittenBy} \sqsubseteq \text{ISBN}, \text{Title} \sqsubseteq \text{Book}, \text{ISBN} \sqsubseteq \text{Book}\} \}$ ,  
 $A_1 = \{\text{Author}(\text{Orion}), \text{Author}(\text{Orion}), \text{WrittenBy}(\text{Orion}, \text{Orion}), \text{WrittenBy}(\text{Orion}, \text{Orion}), \text{ISBN}(\text{Orion})\}$ .  
 Then  $A_2 = \{\text{Author}(\text{Orion}), \text{Author}(\text{Orion}), \text{WrittenBy}(\text{Orion}, \text{Orion}), \text{WrittenBy}(\text{Orion}, \text{Orion}), \text{ISBN}(\text{Orion}), \text{ISBN}(\text{Orion})\}$   
 is a universal solution.

Mapping is a set of DL inclusions from the source signature to the target signature.

We consider logics from the DL-Lite family of lightweight DLs.

Here,  $m_1, m_2, m_3$  and  $m_4$  are are abbreviations for the inclusions between sample Aboxes (without nulls) and extended Aboxes (with nulls).

## Computational Problems. Summary of Results

We study the computational complexity of two decision problems associated to each kind of solution:

- The membership problem: has as input a mapping  $M$ , and source and target KBs  $K_1$  and  $K_2$  (or TBoxes  $T_1$  and  $T_2$ ).
- The non-emptiness problem: has as input a mapping  $M$ , and a source KB  $K_1$  (or TBox  $T_1$ ).

Below are results for DL-Lite, a prominent member of the DL-Lite family.

Membership	Simple Abox	Extended Abox	Non-emptiness	Simple Abox	Extended Abox
Universal solutions	in NP	in EXPTime	?-hard	in NP	in EXPTime
Universal UQ-solutions	7-hard	7-hard	?	Universal UQ-solutions	in EXPTime
UQ-representations	in EXPTime	PSpace-hard	?	UQ-representations	in ?
UQC-solutions	NLocSpace-complete	NLocSpace-complete	UQC-representations	NLocSpace-complete	PSpace-hard

We are interested in three kinds of solutions:

universal solutions exactly represent the space of models

universal UQC-solutions give the same answers as to UQs

UQC-representations give the same answers to UQs, independently of the Abox (Bases).

## Publications

[1] M. Arenas, E. Botova, and D. Calvanese. Knowledge base exchange. In Proc. of DL 2011, volume 745 of CEUR-ws.org, 2011.

[2] M. Arenas, E. Botova, D. Calvanese, V. Rybalko, and E. Sherkunov. Exchanging description logic knowledge bases. In Proc. of KR 2012, 2012.

[3] M. Arenas, E. Botova, D. Calvanese, V. Rybalko, and E. Sherkunov. Representability in dl-lt knowledge base exchange. In Proc. of the 25th Int. Workshop on Description Logics (DL 2012), 2012.

[4] E. Botova. Description logic knowledge base exchange. In Proc. of the 6th International Conference on Web Reasoning and Rule Systems (RR 2012), pages 266–271, 2012.

# On Flexibility

While, I agree, it is very useful to have a structured poster with all the functionality concerning columns, automatic coordinates, width and so on, I believe that the user should have the possibility to have an unstructured poster, for instance like this one

## Extracting Topics of Debate between Users on Web Discussion Boards

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**Undergraduate Poster SIGMOD Conference 2010 **

**1 Problem definition**  
Extraction of the topics users discuss about: Given the small size of posts and the casual style of the language used, it is hard to indicate topics from the information of a post solely.

**2 Thread posts**  
A typical forum post shows the quoted text, the username of the post author, the timestamp etc.

**3 Our approach**  
A clustering algorithm that creates sets of posts sharing same thematic context.

**4 Database**  
All forum data are downloaded with a web crawler...  
...and an HTML tag cleaning is applied.

**5**  
For every post (#i) of the thread we obtain its neighboring nodes on the graph G:  
Start from node i  
Add all nodes connected with i, in set N  
For every node in set N, as j:  
For every node connected with j, as k:  
If the total weight of the edges between i and k is more than w: Note: w is not fixed  
    Continue  
Else:  
    Add k in the end of set N  
Set all visited nodes as neighbors of i

**6**  
Term extraction on every post (individually)  
Post text → AlchemyAPI Online term extraction service → Post terms → TFIDF → Author of post #i → Set contains all neighbors of post #i → Topic is extracted using terms from this cluster of posts. Topics are represented as sets of topic terms (~10).

**7**  
In the current state every post has been paired with its neighbors and topic terms.

**8**  
Topics are extracted for every post and linked with the corresponding users.

**9**  
Users sharing many common terms have discussed about the same topic.

**10**  
Thread Graph G  
Vertices: posts  
Edges: connections  
Weighted using two metrics:

- Post distance
- Time distance

Post distance: The distance in nodes between two connected posts.  
Time distance: The distance in minutes between two connected posts.

**11**  
Post Distance Distribution

**12 Future work**  
Knowledge of user agreement can be used to estimate opinion relations on the extracted topics.

**13 Acknowledgments:** I am grateful to my colleague Manos Karvounis<sup>1</sup> and my advisor Yannis Ioannidis<sup>1</sup> for their precious help.

**14**  
ARE YOU COMING TO BED?  
I CAN'T TELL YOU SOMETHING IS WRONG ON THE INTERNET.  
