Seminar Natural Language Processing (NLP) — Part 4

#### **Basics of Scientific Presentation**

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#### Outline

#### Literature research

Types, quality, reading, acquisition, and organization



#### Oral presentations

Content, structure, style, talking, and timing



#### Written presentations

Content, structure, style, citations, and plagiarism





#### Doing literature research

#### Literature research

- Fundamental task in science
- Time-intensive and tedious but necessary
- Often, the first task to be done



#### General goals

- Obtain all information relevant to the scope of a given problem
- Obtain background information
- Obtain evidence for your or others' claims

#### Specific goals for own research

- Find out if your approach to a problem is new (don't reinvent the wheel!)
- Find alternative approaches or perspectives
- You are rarely the first to work on a problem what if?

#### Selecting literature

#### Types of literature (and similar)

- 1. Books. Theory, basics, approved techniques
- 2. Scientific journal papers. Completed research lines
- 3. Conference papers. State-of-the-art research In our field, major publication type
- 4. Workshop papers. New ideas, ongoing research
- 5. Preprints. Papers inofficially published on web platforms
- 6. Conference/Online tutorials. Easy access to basics and techniques
- 7. Popular science magazines. Easy access to research lines
- 8. Other websites. Anything

#### What type to prefer (in our field)

- Generally, literature should be peer-reviewed (mostly holds for Type 1–4)
- Rule of thumb: books > journals > conferences > workshops
   > tutorials > magazines > other
   preprints?
- But, for example: top conferences ➤ average journals

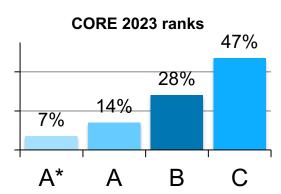
  The symbol ➤ stands for "preferred over" here



## Assessing quality of literature

#### Conference and journal rankings

- Best conferences ranked A\* or A; B still reasonable
- One of the key conference rankings is CORE core.edu.au/conference-portal
- Journals are ranked into four categories, Q1–Q4
- Unranked conferences/journals may be doubtful Rather new venues may simply not be covered yet, though



#### Number of citations

- Roughly indicates importance
- Notice: Newer papers naturally tend to have fewer citations
- Rather for relative comparisons within a topic
- Good resource for citation numbers is Google Scholar <u>scholar.google.de</u>

#### Disclaimer

- Good and bad research appears at all places
- Often, only reading helps

## Reading and finding literature

#### Reading papers efficiently

- 1. Read abstract, introduction, and conclusion
- 2. Look at figures and tables
- Decide whether worth reading everything
- 4. Read goal-driven

  Specify questions to be answered during reading



#### Finding the next paper

- Follow promising references at the end of a paper
- Find promising papers citing a paper
- Learn to identify the best search terms
   Rule of thumb: As specific as possible, but as abstract as needed

#### Getting started in the seminar

- 1. First read the literature that we provide
- 2. Then find further literature

## Acquiring literature

#### Obtaining papers

- Many papers freely available online
- Others might be free from a university network
- If neither, maybe your advisors can help



#### Important sources

- ACL Anthology for NLP papers <u>aclweb.org/anthology</u>
- ACM Digital Library for many important computer science papers dl.acm.org
- DBLP for any literature related to computer science <u>dblp.dagstuhl.de</u>
- Google Scholar for any scientific literature <a href="scholar.google.de">scholar.google.de</a>

... along with general web search

#### Accessing books

- Check whether available in the library (physically or digitally)
- Some accessible online, for example, on Google Books books.google.de

Purchasing books can make sense when of continuous importance to you

#### Organizing literature

#### Literature organization

- Maintain overview, start from the beginning
- "Extra" effort will pay off

#### Create logical folder structure

- Build your own view of the field
- Logically subdivide topics, but don't over-engineer
  For instance, ./literature/computational-sociolinguistics/social-bias/ but maybe not deeper

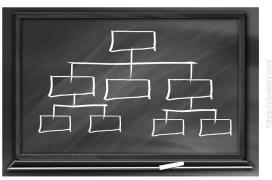
#### Rename all literature consistently

- Simplifies browsing and finding
- We use <1stauthor><2digityear>-<full-title-lower-case-no-special-chars>.pdf
   For example: ajjour17-unit-segmentation-of-argumentative-texts.pdf

#### Organizing meta-information

- Bibliographical information needed when citing literature
- Store bibtex of literature whenever available

  Learn more on <a href="mailto:en.wikipedia.org/wiki/BibTeX">en.wikipedia.org/wiki/BibTeX</a>; many pages such as dblp provide bibtex entries





## Content of your talk

#### Scientific presentation is storytelling

- Tell a coherent story with a central theme
- But: Avoid irrelevant information, stay on topic
- Plan what points to make and how to get there
- Don't be complete, be selective

  See below: partly different for articles (and specific talks like lectures)
- Make it exciting, show importance
- Avoid surprise: Clarify why you tell something

#### Science needs to be understood

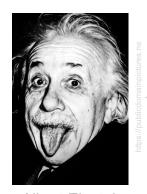
- Adjust complexity to audience
- Leave out formal things, unless needed
   See below: partly different for articles (and specific talks like lectures)
- Be precise and clear
- Introduce terms, use consistently
- Figures and examples help

## "Sometimes **reality** is too complex.



Stories give it a form."

Jean-Luc Godard



Albert Einstein

'Everything should be as **simple** as possible, but **not simpler**. "

#### **Figures**

#### Figures

- Charts, diagrams, graphs, pictures, drawings, ...
- Slides are visual
- Rule of thumb. (Almost) No slide without figure

#### What to use figures for

- Primary. Replace text; visually explain concepts, ...
- Secondary. Support your message with pictures
   (as often done in this presentation)

#### Formatting

- Vector graphics whenever possible
- Others: Optimize sharpness, scale down smartly Avoid scaling > 100%; 50% better than 53%
- Never squeeze or stretch the aspect ratio
   If needed, cut figures on any side instead
- Check readability of text in figures

# "a **picture** is worth a **1000 words** "





#### Colors

#### Colors in general

- Presentations are visual, make use of colors
- Fewer colors create a more clear style
- But natural colors have an appeal, too



#### Font colors for important points

- Use colors consistently
- Not too colorful
- I use dark blue here for highlighting
   And a cyan-like color for quotes



Joan Miro

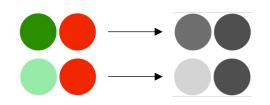
"I try to apply colors like words that shape poems, like notes that shape music."

#### Support your messages

- Always the same color for the same concept
- Can create connections even across slides

#### Color vs. brightness

Think of color blind people — contrast helps



## Tables (and matrices)

#### Tables for what?

- Presenting numerical results
- Comparing alternative ideas, approaches, or similar
- Listing attribute values of multiple instances

... and similar

|--|

#	Dimension	τ	best	worst
1	PageRank	0.28	15	3
2	Number	0.19	6	1
3	Sentiment	0.12	12	4
4	Frequency	0.10	11	9
5	Similarity	0.02	9	10
6	Random	0.00	8	7

#### Table style

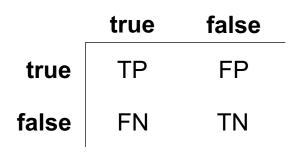
 Amount. Show only important rows and columns, to keep a table easy to digest

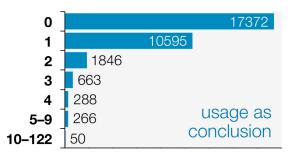
In articles and lectures, comprehensiveness may be preferred

- Alignment. Text left, numbers right
- Lines. Recommended to use only horizontal lines
   Except for matrices

#### Tables vs. charts

- Prefer tables if exact numbers are important
- Prefer charts if relations should be stressed





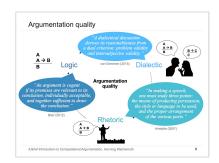
#### Structure of your slides

#### Overall stucture of presentation

- Title slide. Title, authors, maybe date
- Outline slides. Only for longer talks (min. ~20 minutes)
- Content slides. Your story
- Conclusion slide(s). Always! Takeaways, outlook
- References. Prepare, but only show when asked for

#### Structure of content slides

- Header. Clear unique title, should match content of body Interesting observation: Titles often not read by the audience
- Body. Bullet points, figures, tables, etc.
- Footer. Title, presenter, no date, always page no./progress



#### Space for separation

- Leave space between different slide parts
- Leave space to slide borders
   Harder to read there + border sometimes clipped

#### Style of your slides

#### General slide style

- Decide what to put on slide and what to say
- Vary slides to maintain attention
- Animations only when useful, use consistently
   Avoid playful ones, unless they really match your message
- Clarify what is from you and what from others!
   See notes on citations and plagiarism below

# Argument and argumentation Argument a copport If a gramment a copport

#### Text style

- Avoid grammar and spelling errors
- Write key points rather than full sentences
   May be different in specific talks like lectures
- AIA & AUA
   Always introduce acronyms & Avoid unnecessary acronyms

# Grammar. The difference between knowing your shit and knowing you're shit.

#### Amount of text

- Some say 7x7 maximum 7 bullet points per slide, 7 words per point
- I'd rather say 3x3 3 top-level points with 3 sub-points

#### **Fonts**

#### Fonts

- Sans-serif fonts (Arial, Verdana, ...) much more readable on slides
   Ambiguity speaks against Arial ("III") ... but Arial available on all machines
- Serif fonts (Times, Garamond, ...) are made for printing I use them on slides for example texts only
- Prefer simple fonts
- Don't use too narrow fonts just to save space

#### Font size

- This text is written in 26 pt for titles and stressing
- This text is written in 24 pt
- This text is written in 21 pt
- This text is written in 18 pt minimum for text that should be read
- This text is written in 16 pt
- This text is written in 14 pt
- This text is written in 12 pt minimum for extra information that may be skipped
- This text is written in 10 pt
- This text is written in 8 pt
- This text is written in 6 pt maybe for texts that should on purpose not be readable.

## Talking and timing

#### Giving a talk

- Match words on slides, but complement them
- Avoid fully pre-phrased sentences
- Look at audience, speak to everybody
- Don't be too formal, but be serious, avoid slang
   Occasional jokes may be nice, if you know how to use them

#### Timing

- Use your time, but stick to time limit
- Expect ≥ 2 minutes per (animated) content slide
- Rule of thumb: Audience can read slide twice

#### Practice your complete talk!

- How much time do you need?
- Does your story work?
- Can you explain everything well?









#### Content of articles

#### Most hints on talks also hold for articles

- Science is storytelling
   Seminar: No scientific novelty expected, rather summarize and discuss
- Science needs to be understood





#### Articles more complete

- Tell the whole story, avoid gaps in argumentation
- But again: Include only relevant content
- Don't expect too much prior knowledge
- But: Avoid details on knowledge that can be presupposed

## "Don't make me think."



Steve Krug

#### Articles should be sound

- Need to be more precise than in talks
- Use logical arguments, from broad context to deep details
- Formalize concepts if needed/helpful

#### Structure of articles

#### **High-level stucture**

- Title and author information
- **Abstract**
- Usually 4–7 sections
- References

... and sometimes appendices (not in seminar article!)

#### Section structure

- Often numbered subsections (2.1, 2.2, ...)
- Subsubsections unnumbered, if any
- Always have text before sub\*sections

#### The Impact of Modeling Overall Argumentation with Tree Kernels

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Arabic Language Technologies henning.wachsmuth@uni-weimar.de

#### Bauhaus-Universität Weimar Bauhaus-Universität Weimar

Faculty of Media VR Group dora.kiesel@uni-weimar.de Abstract

Several approaches have been proposed to model either the explicit sequential structure of an argumentative text or its implicit hierarchical structure. So far, the adequacy of these models of overall argumentation remains unclear. This paper asks what type

of structure is actually important to tackle downstream tasks in computational argumentation. We analyze patterns in the overall argumentation of texts from three cor

pora. Then, we adapt the idea of positional tree kernels in order to capture sequential and hierarchical argumentative structure to-

gether for the first time. In systematic ex-

periments for three text classification tasks

we find strong evidence for the impact of

both types of structure. Our results suggest that either of them is necessary while their

Argumentation theory has established a number

of major argument models focusing on different spects, such as the roles of an argument's units

(Toulmin, 1958), the inference scheme of an areu-

ment (Walton et al., 2008), or the support and attack

relations between arguments (Freeman, 2011). The common ground of these models is that they con-

ceptualize an argument as a conclusion (in terms of

a claim) inferred from a set of pro and con premises

(reasons), which in turn may be the conclusions of

other arguments. For the overall argumentation of

a monological argumentative text such as the one in

Figure 1(a), this results in an implicit hierarchical structure with the text's main claim at the lowest

depth. In addition, the text has an explicit linguistic

structure that can be seen as a regulated sequence of

speech acts (van Eemeren and Grootendorst, 2004).

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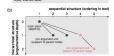


Figure 1: (a) Example text with five argument units taken from the Arg-Microtexts corpus introduced in Section 3. (b) Graph visualization of the sequential and hierarchical overall argumentation of the text.

#### combination may be beneficial. Figure 1(b) illustrates the interplay of the two types of overall structure in form of a tree-like graph 1 Introduction

Natural language processing research has largely adopted the outlined hierarchical models for mining arguments from text (Stab and Gurevych, 2014; Habernal and Gurevych, 2015; Peldszus and Stede, 2016). However, the adequacy of the resulting overall structure for downstream analysis tasks of com-(see Section 2 for details). In fact, a computational approach that can capture patterns in hierarchical overall argumentation is missing so far. Even more, our previous work indicates that a sequential model of overall structure is preferable for analysis tasks such as stance classification or quality assessment

In this paper, we ask and investigate what model of (monological) overall argumentation is important to tackle argumentation-related analysis tasks To this end, we consider three corpora with fully

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Proceedings of the 2017 Conference on Empirical Whitedos in Natural Language Processing, pages 2369–2379
Copenhagen, Denmark, September 7–11, 2017. ©2017 Association for Computational Linguistics

#### Headings

- Sections. In NLP, often structural: "Introduction", "Approach", ...
- Sub+sections. Often more topic-specific and self-descriptive

#### **Abstract**

#### Abstract

- A concise high-level summary of the paper
- Usually 5–10 sentences

#### My view of a good abstract

- Motivation and context (1 sentence)
- Problem and why not solved (1–2 sentences)
- Question addressed in the paper (1 sentence)
- Approach in general, some details (2–3 sentences)
- Evaluation, results, conclusion (1–3 sentences)

May differ a bit for seminar articles, since you present others' work

#### My PhD advisor's view

- What is the problem? Why is it a problem?
- What is the solution? Why is it a solution to the problem?

Notice that this view is NOT in conflict with mine

#### **Abstract**

Several approaches have been proposed to model either the explicit sequential structure of an argumentative text or its implicit hierarchical structure. So far, the adequacy of these models of overall argumentation remains unclear. This paper asks what type of structure is actually important to tackle downstream tasks in computational argumentation. We analyze patterns in the overall argumentation of texts from three corpora. Then, we adapt the idea of positional tree kernels in order to capture sequential and hierarchical argumentative structure together for the first time. In systematic experiments for three text classification tasks, we find strong evidence for the impact of both types of structure. Our results suggest that either of them is necessary while their combination may be beneficial.

#### Sections

#### Introduction

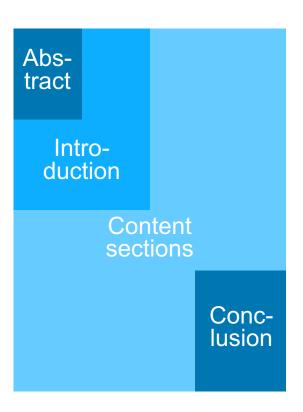
- The abstract in more detail
- Tells the whole story, from context to conclusion
- High-level, understandable for computer scientists

#### Content sections

- The introduction in more detail
- Elaborate on related work, concepts, models, data, approaches, experiments, and results
- More technical, for researchers from the area

#### Conclusion

- The introduction in less detail
- Summarize story in retrospective, give outlook
- Semi-technical



## Style of articles

#### Scientific writing style

- Write clearly, unambiguously, and concisely
- Use "we" form (only) to clarify what is from you
- Use 3rd person or impersonal form otherwise
- Avoid pronouns with unclear references



- English sentences are short, one statement per sentence
- Again: Avoid grammar and spelling errors
   Seminar: Too many of them will negatively affect your grade
- Don't make things complex

Common misunderstanding!

#### Article format in the seminar

- Provided template predefines layout and its usage
- 4 two-column pages of content, 1–2 pages of references



#### Tables, figures, terms, and footnotes

#### Tables and figures

- In articles, just number increasingly Figure 1, 2, ... Table 1, 2, ... (NOT: Figure 2.1, 2.2, ...)
- Explain in text and in caption
   Rule of thumb: tables/figures should be clear from the caption

#### Technical terms

- Introduce where needed, don't overformalize
- Use well-defined terms, AIA & AUA
- Don't use synonyms for terms
   Reader is misled to check whether intentional differences exist

#### Footnotes

- Reduce readability, should be the exception
- In NLP: Don't cite literature using footnotes
- Only for secondary information

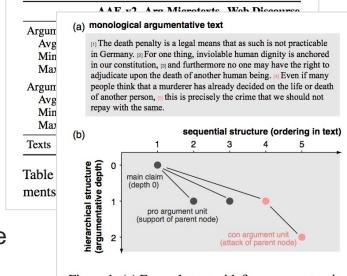


Figure 1: (a) Example text with five argument units, taken from the *Arg-Microtexts* corpus introduced in Section 3. (b) Graph visualization of the sequential and hierarchical overall argumentation of the text.

wards its parent in the associated tree. This stance can be derived in all corpora.<sup>3</sup> All other unit and relation types from the specific models are ignored, since there is no clear mapping between them.

<sup>&</sup>lt;sup>3</sup>Alternatively, the stance towards the main claim could be modeled. We decided against this alternative to avoid possibly wrong reinterpretations, e.g., it is unclear whether a unit that attacks its parent always supports a unit attacked by the parent.

#### Citation

#### Citation

- In-text reference to a bibliographic source
- We use ACL-style: Author names + year
   Other communities may use numbers [1] or acronyms [ACW17]

stance of texts. For myside bias, Stab and Gurevych (2016) use features derived from discourse structure, whereas Faulkner (2014) and Sobhani et al. (2015) model arguments to classify stance. Ong et al. (2014) and we ourselves (Wachsmuth et al., 2016) do similar to assess the quality of persuasive essays, and Beigman Klebanov et al. (2016).

#### What to cite

- Any reuse, paraphrase, summary, or translation of content from some source Content: Text, figures, and tables
- Better one citation too much than one too less
- Rule of thumb: Always clarify what is from you and what from others
   Also cite yourself if you reuse your own sources

#### How to cite

- Direct reuse. Put in quotes (possibly shorten with [...]), give source Example: Unit segmentation is "[...] the splitting of a text into argumentative segments" (Ajjour et al., 2017).
- Other citations. Give source close-by

  Example: As Ajjour et al. (2017) point out, segmentation is the first task of an argument mining pipeline.
- Large text portions. Give source once in the beginning
   Example: In the following paragraph, we summarize the segmentation approach of Ajjour et al. (2017).

#### References

#### List of references

- Bibliographical information at end of paper
- Exactly those references cited in the text
- Information should be complete and consistent

#### Needed meta-information

- All literature. Author, year, title
- Conferences/Workshops. Proceedings, pages
- Journals. Journal name, issue, number, pages
- Books. Edition if any, publisher
- Online only. Give URL with access date
   Other meta-information optional, but should be consistently used

## Aristotle. 2007. On Rhetoric: A Theory of Civic Discourse (George A. Kennedy, translator). Clarendon Aristotle series. Oxford University Press.

- Beata Beigman Klebanov, Christian Stab, Jill Burstein, Yi Song, Binod Gyawali, and Iryna Gurevych. 2016. Argumentation: Content, structure, and relationship with essay quality. In *Proceedings of the Third Workshop on Argument Mining (ArgMining2016)*, pages 70–75. Association for Computational Linguistics.
- Stefanie Brüninghaus and Kevin D. Ashley. 2003. Predicting outcomes of case based legal arguments. In *Proceedings of the 9th International Conference on Artificial Intelligence and Law*, pages 233–242.
- Chih-Chung Chang and Chih-Jen Lin. 2011. LIB-SVM: A library for support vector machines. *ACM Transactions on Intelligent Systems and Technology*, 2(3):27:1–27:27.

#### Bibtex

LaTeX handles references automatically using bibtex

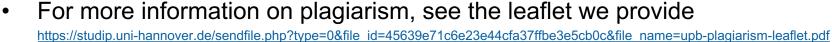
#### **Plagiarism**

#### Plagiarism

- To sell another's ideas or expressions as one's own
   See en.wikipedia.org/wiki/Plagiarism
- On purpose or due to lack of giving sources
- Plagiarism not a trivial offense

In some countries considered as crime



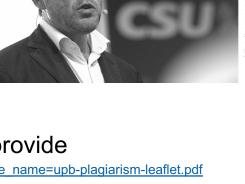


#### Consequences in the seminar

- Major cases lead to failing the seminar (and report to examination committee)
- Minor cases can still negatively affect your grade

#### My former group...

- Does research on plagiarism detection
- See the tool picapica <u>www.picapica.org</u>





## Use of ChatGPT-like technologies

- We do not forbid the use of ChatGPT-like technologies
  - However, we require you to be authors of your slides and articles
  - If you used help from such technologies, you need to indicate this
  - If your contribution is small, justify this
  - Н

Dear ChatGPT, how could I start the motivation of my seminar talk on prompt engineering?

- We do not generally encourage the use of such technologies
  - Using such technologies entails various risks that may have harmful effects
  - Our intended learning effects may not happen when you use them
- We encourage learning a responsible use of such technologies
  - Useful to support writing and illustration tasks
  - Not useful to take over such tasks, let alone for other tasks like search
  - Ask your advisor, if you are unsure about if/how to use them

## Sum up

#### Take aways

#### Literature research

- Fundamental part of scientific work
- Literature varies in quality and suitability
- Find, read, and organize literature efficiently





- Science is storytelling, needs to be understood
- Several best practices for content, structure, and style
- Proper citation is a must
- Practice presenting early

#### For the seminar

- Consider hints in this presentation
- Notice that some are subjective, much is missing
- Develop your own way of presenting







#### References

#### Some slides reuse content from:

- Engels (2010). Gregor Engels. Einführung in wissenschaftliches Schreiben und Präsentationstechniken. Presentation within the Seminar "Information-Driven Software Engineering". Paderborn, 2010. <a href="https://cs.uni-paderborn.de/fileadmin/informatik/fg/dbis/Lehre/ws10\_11/PG\_IDSE/Dokumente/2010-04-15\_Schreiben\_Praesentieren.pdf">https://cs.uni-paderborn.de/fileadmin/informatik/fg/dbis/Lehre/ws10\_11/PG\_IDSE/Dokumente/2010-04-15\_Schreiben\_Praesentieren.pdf</a>
- Becker (2012). Steffen Becker. Scientific Working. Presentation within the Seminar "Model Driven Software
  Engineering with Eclipse. Paderborn, 2010.<a href="www.hni.uni-paderborn.de/fileadmin/Fachgruppen/Softwaretechnik/Lehre/Proseminar\_Model\_Driven\_Software\_Engineering/Prosem\_MDSD\_Guidelines.pdf">www.hni.uni-paderborn.de/fileadmin/Fachgruppen/Softwaretechnik/Lehre/Proseminar\_Model\_Driven\_Software\_Engineering/Prosem\_MDSD\_Guidelines.pdf</a>

#### Examples are taken from:

- Ajjour et al. (2017). Yamen Ajjour, Wei-Fan Chen, Johannes Kiesel, Henning Wachsmuth, and Benno Stein. Unit Segmentation of Argumentative Texts. In Proceedings of the Fourth Workshop on Argument Mining, pages 118–128, 2017. <a href="http://aclweb.org/anthology/W17-5115">http://aclweb.org/anthology/W17-5115</a>
- Wachsmuth et al. (2017f). Henning Wachsmuth, Giovanni Da San Martino, Dora Kiesel, and Benno Stein. The Impact of Modeling Overall Argumentation with Tree Kernels. In Proceedings of the 2017 Conference on Empirical Methods in Natural Language Processing, pages 2369–2379, 2017. <a href="http://aclweb.org/anthology/D17-1252">http://aclweb.org/anthology/D17-1252</a>