Part 6

Further Challenges and Outlook
Many remaining challenges – from Logos to Ethos and Pathos

- Argumentation involves Logos, Pathos, and Ethos
- Existing work are typically focused on Logos
- Modeling Pathos and Ethos opens a new set of intriguing and important problems
- Towards **Persuasive** NLG?
Many remaining challenges – from Logos to Ethos and Pathos

- Emotion analysis in Computational Argumentation
- Humans typically mix rational and emotions to guide their decisions and actions
- Real world Computational Argumentations systems will need to model emotions, social context, and bias
- Initial attempts are already underway (cf. Benlamine et al, IJCAI-15)
Many remaining challenges – cont.

• **Understanding and Modeling ‘Argument Quality’**
  
  Can we automatically predict that one claim is more persuasive than another in a given context?
  
  Can we automatically predict that a particular premise is more persuasive than another in a given context?
  
  Can we automatically predict that one argument is more persuasive than another in a given context?
  
  Several works are trying to pursue such questions (cf. Tan et al, WWW, 2016)
Many remaining challenges – cont.

- **Argument Mining and Synthesis over multiple domains and corpora**
- Different corpora have quite different characteristics
  - Student essays / Wikipedia articles / news reports / Editorials / More…
- Can we use models learned in Wikipedia to detect argumentative content in newspapers?
- Cross-domain Argument Mining (Al-Khatib et. al, NAACL 2016)
- Argument Synthesis over multiple massive corpora has greater probability of automatically generating new persuasive content – i.e., new arguments
Many remaining challenges – cont.

- Modeling heuristics in debate practice
- Identify claims and evidence in spontaneous speech?
- Going beyond single arguments to strategies of persuasion?
- Modeling the space of controversial topics and their inter-relations
Computational Argumentation as an emerging community

- Unifying several communities with lots of potential interaction
  - Series of Arg. Mining workshops
  - AI and Law – ICAIL and JURIX conferences
  - Computational Models - COMMA conferences, CMNA workshops, …
  - More …

- Rapidly growing attention by major CL, NLP, and AI conferences
  - NAACL-16 with an Argumentation dedicated session
  - COLING-16, EMNLP-16 - ‘Computational Argumentation’ topic
  - ACL-16 – this tutorial + 3rd Workshop on Argument Mining, this Friday

- Dedicated international events
  - Frontiers and Connections between Argumentation Theory and NLP, Bertinoro, Italy, 2014
  - Debate Technologies, Dagstuhl, Germany, 2015
  - Natural Language Argumentation, Dagstuhl, Germany, 2016
  - More…
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Thank you…