Natural Language Processing (NLP) for Discussion Platforms

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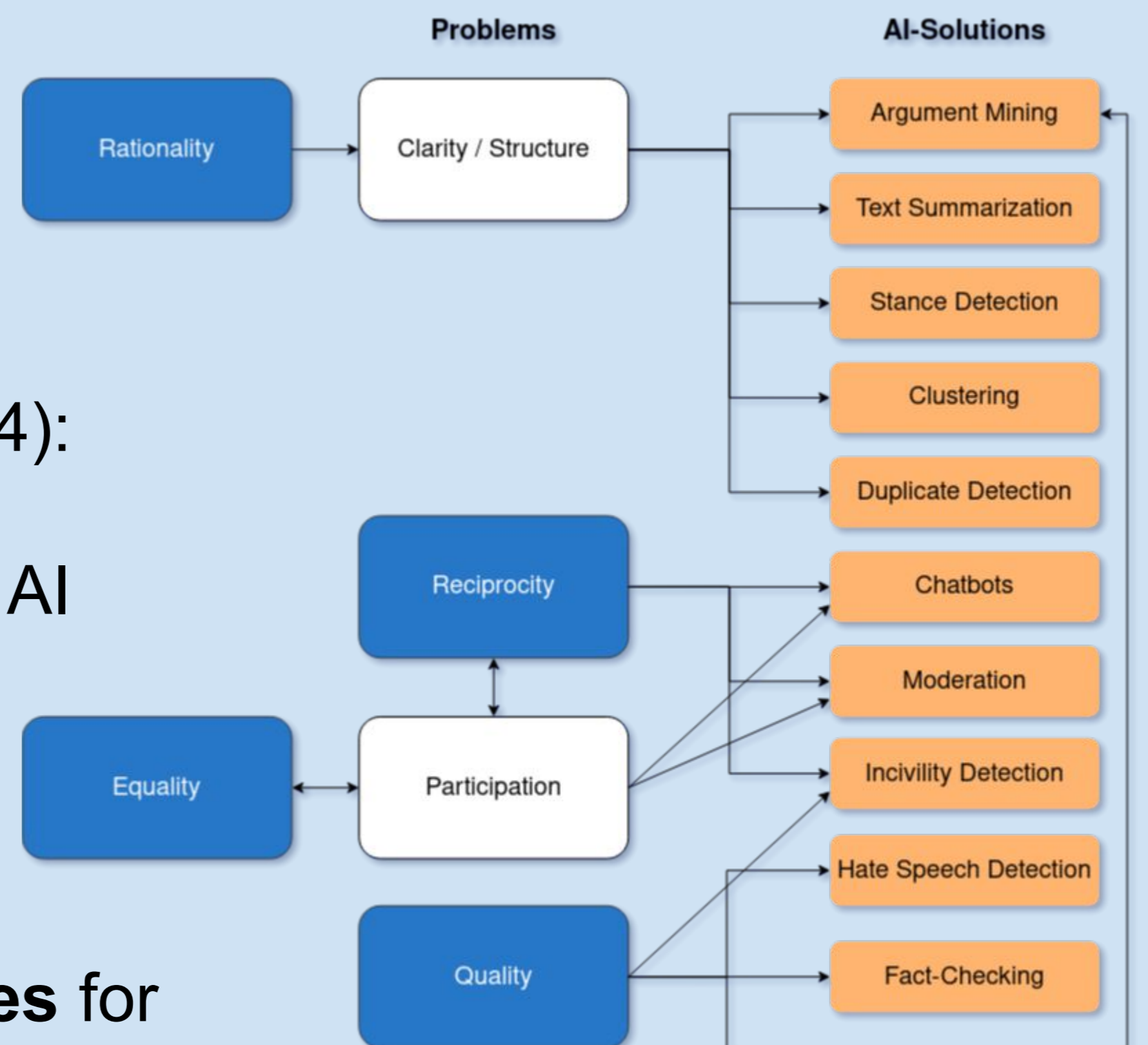
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1 — Research Questions

- What **problems/ challenges** do we face in online discussions?
- How can we **support** online discussions with NLP?
- How is artificial intelligence (AI) **perceived** in online discussions?

2 — UPEKI Project

- Collaboration of **political science, communication science** and **computer science**
- **First Phase** (2019-2021): Support **individual** political decision making through **AI**
- **Second Phase** (2022-2024): Support **political** decision making of **groups** through AI
- Focus on **citizen councils** and other **deliberative processes**
- **Goal** of doctoral thesis: **Develop novel approaches** for NLP tasks to **support discussions**

Problems: Rationality → Clarity / Structure; Reciprocity; Equality → Participation; Quality

AI-Solutions: Argument Mining, Text Summarization, Stance Detection, Clustering, Duplicate Detection, Chatbots, Moderation, Incivility Detection, Hate Speech Detection, Fact-Checking
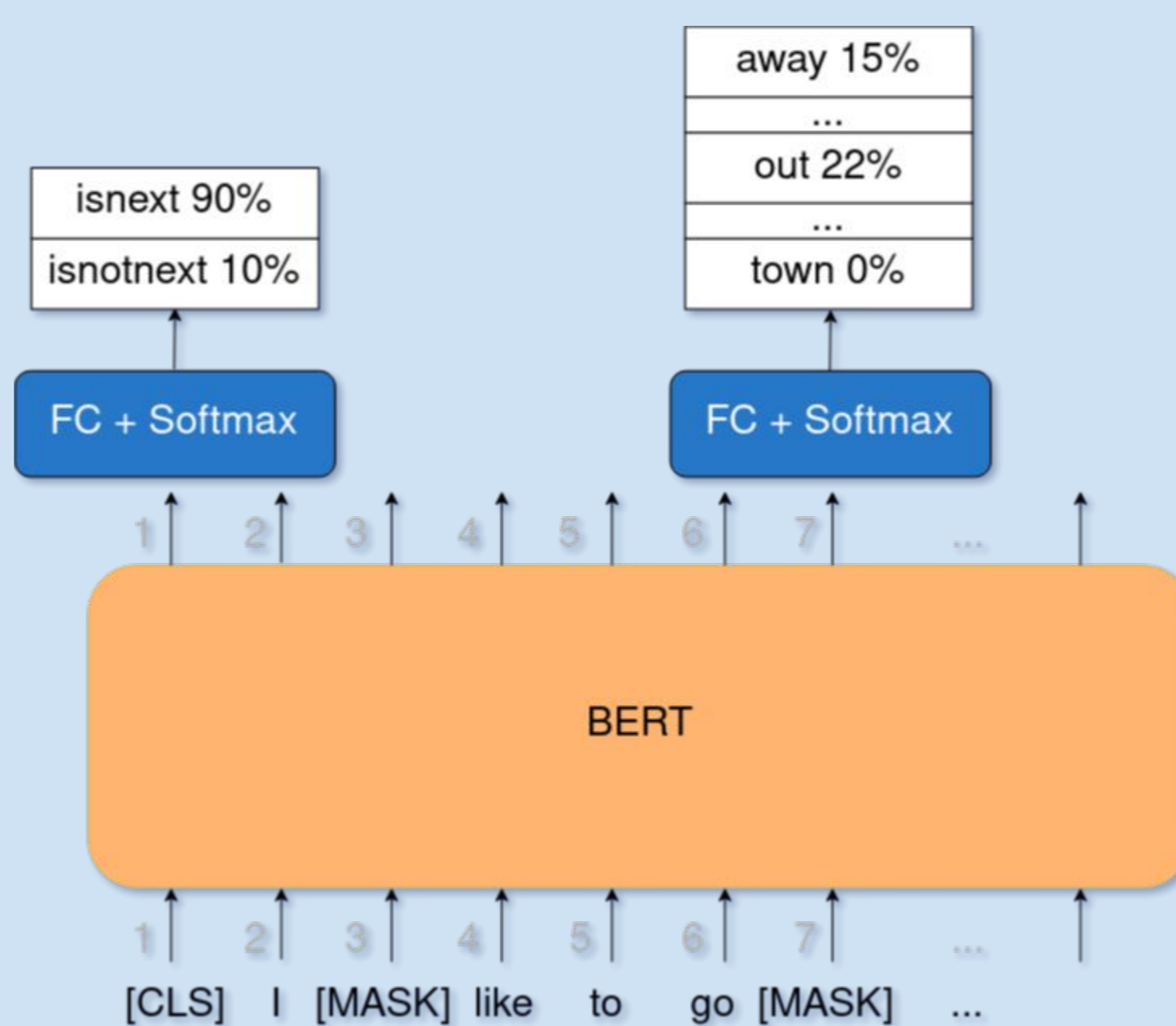
3 — Goals

- **Main Goal:** Examine how **group decisions** can be supported through **AI**
- **Develop** own **discussion platform**
- Let group of people **discuss a political topic** and come to a **decision**
- Let one group be **supported through AI**
- Let the other group discuss **without AI support**
- Examine if decisions can be **facilitated** through AI

4 — How does a computer understand language?

One example: BERT [1]
- Pre-trained language model
- Pre-training objectives: **next sentence prediction** & **masked language modeling**

isnext 90% / isnotnext 10% — FC + Softmax

away 15% ... out 22% ... town 0% — FC + Softmax

BERT

[CLS] I [MASK] like to go [MASK] ...

5 — References

[1] Jacob Devlin, Ming-Wei Chang, Kenton Lee, and Kristina Toutanova. 2019. BERT: Pre-training of Deep Bidirectional Transformers for Language Understanding. In Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies, Volume 1 (Long and Short Papers), pages 4171–4186, Minneapolis, Minnesota. Association for Computational Linguistics.

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