

Language Technology II

Language-Based Interaction

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Course website:
www.coli.uni-saarland.de/courses/late2



Language-based Interaction

- Applications
- History and state of the art
- Current research questions
- Topics addressed in this course



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Dialog Applications

- Man-machine Interfaces
 - In-car, in-house
- Telephone dialogue
 - Travel information systems, call centers, banking
- Interactive Information Access
- Tutorial Systems
- Embodied Agents



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Dialogue Systems: First Generation

- Restricted vocabulary, keywords, rigid system-initiated and controlled dialogue structure
- Optimising for robustness and effectiveness (to make good for poor speech recognition quality)
- Since late Eighties, early Nineties



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Dialogue Systems: Second Generation

- Flexible, adaptive, cooperative dialogue systems
- Optimising for efficiency and user satisfaction
- Research since mid-nineties, first commercial systems in the last years



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Current research questions

- Adaptive and cooperative systems using ISU technology
- Multi-modal interaction
- Modular structure of dialogue systems supporting quick adaptation to new domains and languages



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Topics

- Dialogue phenomena, and how to model them
- Approaches to dialogue management
- Spoken-dialogue systems for various applications, architectures, standards
- Multimodal dialogue, embodied conversational agents
- Usability testing and evaluation, user modeling
- Natural language processing technologies in computer-assisted learning



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Some Dialogue Phenomena

- Turn-taking: when to speak, when to stop
- Utterances in context, e.g. "Nine hundred"
 - Propositional content
 - Dialogue act: assertion, question, ...
- Establishing common ground
 - Verification, clarification, correction
 - Misunderstandings, and recovering from them
- Collaborative behavior
 - relevant information, helpful suggestions, ...



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Practical Exercises

- Trying out existing systems
- Analysis of dialogues
- Implementation of a small system

