

Discourse and Dialogue Processing

Institut für Linguistik - Universität Potsdam - Summer 2004
Instructor: Dr. Maite Taboada

Course Syllabus

Course description

This course provides an introduction to how discourse and dialogue are processed, both by humans and by machines. Discourse here is defined as the study of the organization of language above the sentence level, but also as any manifestation of language in context. Dialogue is defined as an instance of language that involves interaction between two or more people. The course will provide an overview of the phenomena included in the study of discourse and dialogue, from linguistic, psycholinguistic and computational points of view. Students will read original and recent work in these areas, and will be encouraged to collect, analyze and process their own data. Some of the topics to be covered include: coherence relations, cohesion, pronoun interpretation, turn-taking, speech act assignment and discourse markers.

Course structure and evaluation

Topics will be introduced by the instructor, but students will be in charge of presenting readings. Presentations can be individual or in pairs. The schedule of presentations will be decided at the beginning of the semester. There will be four assignments, and a final paper. The paper can be theoretical (compare and contrast different theories, discuss a particular approach to discourse and dialogue processing), or practical (research and implement a computational system).

Topics and required readings

The following list is subject to change, depending on students' interests. They are suggestions, and students are encouraged to consult other readings, especially when preparing for a presentation. Readings are available on-line (click on the link), or from Fr. Annett Eßlinger (II.35.107).

1. INTRODUCTION

- ┆ Cole, R., J. Mariani, H. Uszkoreit, G. Batista Varile, A. Zaenen, A. Zampolli and V. Zue (eds.) (1997) [Survey of the State of the Art in Human Language Technology](#). Chapter 6. Discourse and dialogue 199-222.
- ┆ Jurafsky, D. and J. Martin (2000) *Speech and Language Processing*. Upper Saddle River, NJ: Prentice-Hall. Chapters 18 and 19. Dialogue and conversational agents. 718-761.

2. DISCOURSE DATA

- ┆ Du Bois, J., S. Schuetze-Coburn, S. Cumming and D. Paolino (1993) Outline of discourse transcription. In J. Edwards and M. Lampert (eds.) *Talking data: Transcription and coding in discourse research*. Hillsdale, NJ: Lawrence Erlbaum. 45-89.
- ┆ Hatch, E. and A. Lazaraton (1991) *The research manual: Design and statistics for applied linguistics*. Boston: Heinle & Heinle. Chapter 5. Coding and displaying frequency data. 129-158.

3. ISSUES IN DISCOURSE

3.1 Pragmatics & Speech acts

- ┆ Grice, H. P. (1975) Logic and conversation. In P. Cole and J. Morgan (eds.) *Syntax and Semantics*. Vol. 3. New York: Academic Press. 41-58.
- ┆ Schmitz, B. and J. Quantz (1995) [Dialogue acts in automatic dialogue interpreting](#). In *Proceedings of the 6th International Conference on Theoretical and Methodological Issues in Machine Translation*. 33-47.

3.2 Cohesion & Anaphora

- ┆ Martin, J. (2001) Cohesion and texture. In D. Schiffrin, D. Tannen and H. Hamilton (eds.) *The Handbook of Discourse*

Analysis. Malden, Mass: Blackwell. 35-53.

- | Grosz, Barbara J., Aravind K. Joshi and Scott Weinstein (1995) [Centering: A Framework for Modeling the Local Coherence of Discourse](#). Computational Linguistics 21 (2). 203-225.

3.3 Discourse structure & Coherence relations

- | Grosz, B. and C. Sidner (1986) [Attention, intentions, and the structure of discourse](#). Computational Linguistics 12 (3). 175-203.
- | Mann, W. C. and S. A. Thompson (1988). Rhetorical Structure Theory: Toward a functional theory of text organization. Text 8 (3). 243-281.
- | Knott, A. and R. Dale (1994) Using Linguistic Phenomena to Motivate a Set of Coherence Relations. Discourse Processes 18. 35-62.

3.4 Discourse markers

- | Fraser, B. (1999) [What are discourse markers?](#) Journal of Pragmatics 31. 931-52.

- † Tsui, A. (1989) Beyond the adjacency pair. *Language in Society* 18. 545-564.

4.3 Intonation

- † Chafe, W. (1994) Chapter 5 of *Discourse, Consciousness, and Time: The Flow and Displacement of Conscious Experience in Speaking and Writing*. Chicago: University of Chicago Press.
- † Pierrehumbert, Janet, and Julia Hirschberg (1990) The Meaning of Intonational Contours in the Interpretation of Discourse. In Philip Cohen, Jerry Morgan, and Martha Pollack (eds.) *Intentions in Communication*. Cambridge, MA: MIT Press. pp. 271–312.
- † Steedman, M. (1996) [Representing Discourse Information for Spoken Dialogue Generation](#). Proceedings of International Symposium on Spoken Dialogue, International Conference on Spoken Language Processing (held in conjunction with ICSLP-96), Philadelphia. 89-92.
- † Hirschberg, Julia (2004) Pragmatics and Intonation. In Laurence R. Horn and Gregory Ward (eds.) *The Handbook of Pragmatics*. Malden, MA: Blackwell. 515-537.

5. DIALOGUE AND DISCOURSE SYSTEMS

5.1 Tutoring systems

- † Graesser, Arthur G., Kurt VanLehn, Carolyn P. Rose, Pamela W. Jordan, and Derek Harter (2001). [Intelligent tutoring systems with conversational dialogue](#). *AI Magazine* 22(4): 39-52.
- † Litman, Diane, and Kate Forbes (2003) [Recognizing Emotions from Student Speech in Tutoring Dialogues](#). In Proceedings of the IEEE Automatic Speech Recognition and Understanding Workshop (ASRU), St. Thomas, Virgin Islands, November-December, 2003.

5.2 Conversational agents

- † Allen, J., D. Byron, M. Dzikovska, G. Ferguson, L. Galescu, A. Stent (2001) [Towards conversational human-computer interaction](#). *AI Magazine* 22(4): 27-38.
- † Rich, Charles L., Candance L. Sidner, and Neal Lesh (2001) [COLLAGEN: Applying collaborative discourse theory to human-computer interaction](#). *AI Magazine* 22(4): 15-26.
- † Greaves, M., H. Holmback, J. Bradshaw (1999) [What is a conversation policy?](#) Proceedings, Autonomous Agents '99.
- † Tim Bickmore, Justine Cassell (2004) [Social Dialogue with Embodied Conversational Agents](#). In J. van Kuppevelt, L. Dybkjaer, and N. Bernsen (eds.), *Natural, Intelligent and Effective Interaction with Multimodal Dialogue Systems*. New York: Kluwer Academic.
- † Litman, Diane L., and Shimei Pan (2002) [Designing and Evaluating an Adaptive Spoken Dialogue System](#). *User Modeling and User-Adapted Interaction*. Vol. 12, No. 2/3, pp. 111-137.

5.3 Database interfaces

- † Bos, Johan and Julia Heine (2000) Discourse and Dialog Semantics for Translation. In W. Wahlster (ed.) *Verbmobil: Foundations of Speech-to-Speech Translation*. Berlin: Springer. 337-348.
- † Echihabi, Abdessamad, Ulf Hermjakob, Eduard Hovy, Daniel Marcu, Eric Melz, Deepak Ravichandran (to appear). [How to select an answer string?](#) In Tomek Strzalkowski and Sanda Harabagiu (eds.) *Advances in Textual Question Answering*. Dordrecht: Kluwer
- † Lin, Jimmy, Dennis Quan, Vineet Sinha, Karun Bakshi, David Huynh, Boris Katz, David R. Karger (2003) [The Role of Context in Question Answering Systems](#). In Proceedings of the 2003 Conference on Human Factors in Computing Systems (CHI 2003), April 2003, Fort Lauderdale, Florida.

5.4 Essay scoring

- † Higgins, D., Burstein, J., Marcu, D., & Gentile, C. (in press). Evaluating multiple aspects of coherence in student essays. In Proceedings of the Annual Meeting of HLT/NAACL, Boston, MA, May 2004.
- † Miltsakaki, Eleni, and Karen Kukich (2004) [Evaluation Of Text Coherence For Electronic Essay Scoring Systems](#). *Natural Language Engineering* 10 (1): 25-55.

5.5 Summarization

