

Einführung in die Pragmatik und Texttheorie

Übungsblatt: Discourse Coherence, Anaphora

Question 1. *Explain the three aspects of discourse structure according to the theory of Grosz and Sidner (1986).*

Solution . . .

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Question 2. *Explain what are focus spaces according to the theory of discourse structure of Grosz and Sidner (1986). How are focus spaces managed during discourse processing? How does the mechanism of focus space maintenance constrain anaphoric reference?*

Solution . . .

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Question 3. *According to the theory of Grosz and Sidner (1986), discourse structure can be signalled linguistically. Give some examples of linguistic reflexes/signals of discourse structure. Explain.*

Solution . . .

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Question 4. *According to the theory of Grosz and Sidner (1986), there can be two types of relations between discourse segments, grounded in two types of relations between discourse segment purposes at the intentional level. Explain the difference and illustrate it with a simple example.*

Solution . . .

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Question 5. *Following the theory of Grosz and Sidner (1986), analyze the discourse structure of a text sample, such as a fragment of any of the texts of the RST website, or the example dialog between a customer and a travel agent (discussed for speech acts and conversation structure.)*

Solution *Hint: Provide discourse segments, determine discourse segment purposes, assign focus spaces and explain how the focus-space stack dynamically evolves. . . .*

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Question 6. *Explain the basic assumptions and principles of Rhetorical Structure Theory (Mann and Thompson 1987). How does RST define text structure?* Solution *Hint: Relations, Schemas and their application, Structures. . . .*

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Question 7. *How does Rhetorical Structure Theory (Mann and Thompson 1987) define rhetorical relations (also called coherence relations or discourse relations)? Give an example of a rhetorical relation definition, and illustrate its application.*

Solution *Hint: Nucleus, Satellite, Constraints, Effect. . . .*

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Question 8. *How do rhetorical relations contribute to the meaning of text according to Rhetorical Structure Theory (Mann and Thompson 1987).*

Solution . . .

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Question 9. *Given the repertoire of rhetorical relations according to Rhetorical Structure Theory (Mann and Thompson 1987), analyze a text sample, such as a fragment of any of the texts of the RST website.*

Solution *Hint: Identify spans that are related, determine the relations, determine the Nucleus and Satellite in each relation. . . .*

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Question 10. *Representing discourse structure according to Rhetorical Structure Theory (Mann and Thompson 1987) or according to the theory of Grosz and Sidner (1986), can be useful for natural language processing tasks, such as summarization information extraction. Explain how.*

Solution *Hint: Leave out embedded/satellite segments when summarizing. ...*

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Question 11. *Representing discourse structure can be useful for anaphoric reference resolution. Explain how.*

Solution *Hint: Search space for pronominal anaphors restricted to segments along an accessibility path in a discourse tree. ...*

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Question 12. *Generation of referring expressions*

- *What is the goal of generating referring expressions?*
- *Describe Dale & Reiter's incremental algorithm.*
- *Use the incremental algorithm to generate a referring expression for object d from the set of objects a, b, c, d , given the following set of properties P (listed in preference order):*

$P = \{ \text{car}(abcde), \text{convertible}(ab), \text{luxury}(cde), \text{german}(ac), \text{english}(bde), \text{darkgreen}(ade), \text{blue}(bc), \text{silver}(a), \text{expensive}(ac), \text{terribly_expensive}(bd), \text{aluminium_frame}(), \text{metal}(abcde), \text{minibar}(d) \}$

- *Discuss some limitations of the incremental algorithm.*

Solution ...

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Question 13. *What is anaphoric reference? What types of anaphoric expressions do we distinguish? What types of anaphoric links?*

Solution . . .

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Question 14. *Why are anaphoric expressions a challenge for natural language processing? Why do we need to worry about anaphora resolution, and why is it difficult?*

Solution . . .

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Question 15. *What features of referring expressions and their potential antecedents can be used in anaphora resolution? Explain which features are used in constraints and which in preferences. What is the difference?*

Solution . . .

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Question 16. *The simplest algorithm for anaphora resolution would be one which keeps a linear record of discourse entities, and performs a linear search backwards in the list when looking for an antecedent. Discuss some limitations of such algorithm.*

Solution *Hint: e.g., parallelism (non-linearity); embedding (inaccessibility)*

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