Mariusz Urbański   Logic & Cognition
Readings: 1. Lance Rips, "Logical Approaches to Human Deductive Reasoning"
(ch. 9 of J. E. Adler & L. Rips (eds.) *Reasoning. Studies of Human Inference and Its Foundations.*, Cambridge UP, 2008)
2. Philip N. Johnson-Laird, "Mental Models and Deductive Reasoning"
(ch. 10 of J. E. Adler & L. Rips (eds.) *Reasoning. Studies of Human Inference and Its Foundations.*, Cambridge UP, 2008)

1.1 Devise an argument based on one of the rules of table 2 (pp. 193–195). Prepare a proof diagram for this argument.

1.2 Devise an argument based on a rule which is not deductively valid. Prepare a diagram for this argument.

1.3 Identify PSYCOP assumptions: about memory, about inference rules, about control. How do they work in your exemplary proof diagrams (1.1 and 1.2)?

1.4 Explain the role of suppositions and subgoals in the proof diagrams.

1.5 What are the main claims of the mental logic theory of human reasoning? How are they supported?

2.1 What are the main claims of the mental models theory of human reasoning? How are they supported?

2.2 What is the intuitive interpretation of a mental model for a given assertion?

2.3 What is the difference between the two ways in which an inference can fail to be valid?

2.4 Explain the five strategies in reasoning identified by the author.

2.5 Devise a mental model 'proof' of an argument from 1.1. What's the difference between this and the proof diagram?

Additional materials

- Philip N. Johnson-Laird (2010) "Mental models and human reasoning", *PNAS*, 107(43), pp. 18243–18250.

- Philip N. Johnson-Laird, Geoffrey P. Goodwin, and Sangeet S. Khemlani (2017) "Mental models and reasoning".

- The Mental Models and Reasoning website.

- David P. O'Brien, Maria G. Dias, and Antonio Roazzi (1998). "A case study in the mental models and mental-logic debate: Conditional syllogisms". In M. D. S. Braine & D. P. O'Brien (Eds.), "Mental logic" (pp. 385-420). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.