PHI 201: Lecture 2

Supposing & Hypothetical Reasoning

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Deducing versus Supposing

- A new kind of rule
- A new kind of proof format

A simple example

Argument

1. If P then Q
2. If Q then R
3. Therefore, if P then R

- How do we reason to a conditional?
- Hypothetical thinking: Supposing

How to prevent mistakes when supposing

- Repaying your debts
- If P then Q
- If Q then R

Keeping track of assumptions

Rule of Assumptions (A)

Form of the rule

$n \quad (n)\ P \qquad \mathrm{A}$

Explanation

- On line (n), you may write any formula φ.
- The dependency of line (n) is its own line number n.
- The justification is marked A (Assumption).

$\wedge$-Introduction ($\wedge$I)

Form of the rule

Δ	(m)	P	
Γ	(n)	Q	
Δ, Γ	(k)	$P \wedge Q$	$m, n \ \wedge \mathrm{I}$

Explanation

- If you have P on line m (with dependencies Δ), and Q on line n (with dependencies Γ), then you may infer $P \wedge Q$.
- The new line k depends on all assumptions of both lines, i.e. the union of Δ and Γ.
- The justification cites both lines: $m, n \wedge \mathrm{I}$

Dependency numbers

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Or Elimination

damned if you do, damned if you don't

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