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Logic, First Course, Winter 2020. Week 6, Section Meeting. Back to course website

Simple examples of proofs

In this section meeting, we just focus on doing some simple examples of proofs, and practice inputting them into the proof-checker.

Example 1.

```
exercise
(a \land (b \land c)), (d \land e) \vdash (b \land e)
1. a \land (b \land c) : assumption
2. d \land e : assumption
```

Example 2.

```
exercise
(a \land (b \land c)), (f \rightarrow (d \land e)) \vdash (f \rightarrow (b \land e))
1. \ a \land (b \land c) : assumption
2. \ f \rightarrow (d \land e) : assumption
```

Example 3.

```
exercise
(a \rightarrow (b \rightarrow c)), a, b \vdash c
1. a \rightarrow (b \rightarrow c) : assumption
2. a : assumption
3. b : assumption
```

Example 4.

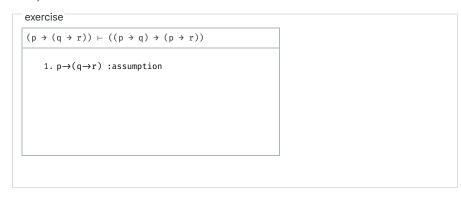
```
exercise
(a \rightarrow b), (b \rightarrow c), (c \rightarrow d) \vdash (a \rightarrow d)
1. \ a \rightarrow b : assumption
2. \ b \rightarrow c : assumption
3. \ c \rightarrow d : assumption
```

Example 5.

```
exercise
(a \rightarrow (b \land d)), (b \rightarrow c) \vdash (a \rightarrow (c \land d))
1. \ a \rightarrow (b \land d) : assumption
2. \ b \rightarrow c : assumption
```

Example 6.

Example 7.



Example 8.

```
exercise  \frac{((p \land q) \Rightarrow (r \Rightarrow t)) \vdash ((p \land r) \Rightarrow (q \Rightarrow t))}{1. (p \land q) \rightarrow (r \rightarrow t) : assumption }
```

Example 10.

```
exercise  (q \to t), (r \to s) \vdash ((q \land r) \to (s \land t)) 
 1. \ q \to t : assumption 
 2. \ r \to s : assumption
```

This is a practice problem set for this course. It is run on the Carnap software, which is an:

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