

# Logig, Language, and Learning (SS05)

## Assignment 8

Deadline: **Tuesday, 05.07.05, 10:00 am**

**General remarks:** Please note: You can either hand in your solutions on paper sheet into the postbox in building 051 (“Nordeingang”), ground floor, middle top most row, labeled with `logic`, `language`, and `learning` or send it by EMAIL to `torge@informatik.uni-freiburg.de` with subject: `LLL_tutorial`.

### Exercise 1 (8pt)

Define an **ideal** and an **optimal** specialization operator for the hypothesis language of strings  $\Sigma^*$ , where  $g \preceq s$  if and only if  $g$  is a substring of  $s$ . For the specified operators, please, give reasons for being ideal and optimal, resp.

### Exercise 2 (8pt)

In chapter 4.7 of the book (handed out in the lecture) a complete general-to-specific algorithm is described and applied to the running example (see Example 4.24). There exists also a dual algorithm, that searches specific-to-general and applies generalization rather than specialization.

Describe the dual algorithm and illustrate it at work on the same data set and hypothesis language (as in Example 4.24), but use the constraint  $(\text{freq}(h, D) \leq 2)$ .