

Advanced Data Modeling

Summer Semester 2008

- Exercises VIII -

- 1) Let slowsort be the program shown below ($x.y$ denotes a list with the head x):

```
sort(x,y) ← perm(x,y), sorted(y).
sorted(nil) ←.
sorted(x.nil) ←.
sorted(x.y.z) ← x <= y, sorted(y, z).
perm(nil, nil) ←.
perm(x.y, u.v) ← delete(u, x.y, z), perm(z, v).
delete(x, x.y, y) ←.
delete(x,y.z,y.w) ← delete(x, z, w).
0 <= x ←.
f(x) <= f(y) ← x <= y.
```

Find an sld resolution for $\text{sort}(3.54.12.7.23,y)$.

- 2) Describe how slow sort works. Prolog's selection function always returns the leftmost literal, which has not yet been evaluated. Why can this be a problem? Propose an optimization for slowsort.