Serie 1 Gruppe 10

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Aufgabe 1

1.A

unify(f(g(2, 3), Y), f(X, f(2))) $\theta = \{\}$
unify(f(g(2, 3), Y), f(X, f(2))) $\theta = \{X = g(2,3)\}$
unify(f(g(2, 3), Y), f(g(2, 3), f(2))) $\theta = \{X = g(2,3), Y = f(2)\}$
unify(f(g(2, 3), f(2)), f(g(2, 3), f(2))) $\theta = \{X = g(2,3), Y = f(2)\}$
$\theta = \{X = g(2,3), Y = f(2)\}$ (Allgemeinster Unifikator)

1.B

unify{g(X), f(X)} $\theta = \{\}$ - Nicht unifizierbar, da die Funktoren unterschiedlich sind.

1.C

unify(f(X, g(Y, Y)), f(g(Y, Y),X)) $\theta = \{\}$
unify(f(X, g(Y, Y)), f(g(Y, Y),X)) $\theta = \{X = g(Y,Y)\}$
unify(f(g(Y,Y), g(Y, Y)), f(g(Y, Y),g(Y,Y)) $\theta = \{X = g(Y,Y)\}$
unify(f(g(Y,Y), g(Y, Y)), f(g(Y, Y),g(Y,Y)) $\theta = \{X = g(Y,Y)\}$
$\theta = \{X = g(Y,Y)\}$ (Allgemeinster Unifikator)

1.D

unify(f(X, g(Y, Y)), f(g(Y, Y), Y)) $\theta = \{\}$
unify(f(X, g(Y, Y)), f(g(Y, Y), Y)) $\theta = \{X = g(Y,Y)\}$
unify(f(g(Y, Y), g(Y, Y)), f(g(Y, Y), Y)) $\theta = \{X = g(Y,Y)\}$
- Nicht unifizierbar, da Y im Term g(Y, Y) auftaucht. Beim unifizieren würde dies zu einer Endlosschleife führen.

Aufgabe 2

2.B

```
[1]  ?- a2b.
ableitung(3*x+2, x, R)
R =   3

ableitung(3*x*x, x, R)
R =  3*x+3*x*1

ableitung(y,x,R)
R =  0

ableitung((3*x+2)*(2*x), x, R)
R =  3*(2*x)+(3*x+2)*2

ableitung((x*x+2*x+3)/(3*x), x, R)
R =  ((1*x+x*1+2+0)*(3*x)-(x*x+2*x+3)*3)/(3*x*(3*x))

true.

[1]  ?-
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