17) a) $f(A, h(B, 100))$
$f(g(X,Y), h(Z,W))$

A — $g(X,Y)$ — $A/g(X,Y)$

$h(B,100)$ — B — B/Z
Z

$h(Z,W)$ — 100 — $W/100$
W

$\sigma = \{A/g(X,Y), B/Z, W/100\}$

$\sigma(t_1) = \sigma(t_2) = f(g(X,Y), h(Z,100))$

b) $f(X, g(Y,a), g(Y,b))$
$f(X, g(Y,b), Z)$ ↯

$\equiv$

c) $f(g(X), Y)$
$f(X, h(Z))$

$g(X)$ — X — $\{X/g(X)\}$

Y
$h(Z)$

$f(g(X), Y) \xrightarrow[X/g(X)]{} f(g(g(X)), Y)$

$g(g(g(\ldots \text{ oft } (X)\ldots)$

d) $f(a, b, X, g(Y,d))$
$f(Z, X, b\ g(h(a), W))$

$\sigma = \{Z/a, X/b, Y/h(a), W/d\}$

vn([hund, katze], X)

| X/hund

v(hund, X1), vn([katze], X2)

v(hund, dog),
vn([katze], X2)

|

v(katze, X3),
vn([], []).

;

v(hund, hound),
vn([katze], X2)

X = [dog, cat] ? ;

X = [hound, cat] ? ;

no.

Übung 5
Aufgabe 7e)

FULP 01.12.

diff $(x^2+x^3+x^4, x, A)$.

| diff $(F+G, X, DF+DG)$:- diff (F, X, DF), diff (G, X, DG)
| $\sigma = \{F/x^2+x^3, G/x^4, X/x, A/DF+DG\}$

diff (x^2+x^3, x, DF), diff (x^4, x, DG).

| diff $(F'+G', X', DF'+DG')$:- diff (F', X', DF'), diff (G', X', DG')
| $\sigma = \{F'/x^2, G'/x^3, X'/x, DF/DF'+DG'\}$

diff (x^2, x, DF'), diff (x^3, x, DG'), diff (x^4, x, DG)

| diff $(X^2, X, 2*x)$
| $\sigma = \{X/x, DF'/2x\}$

$\emptyset$, diff (x^3, x, DG'), diff (x^4, x, DG)

| diff $(X^N, X, N*X^{Nminus1}) :-$ $N>2$, Nminus1 is $N-1$
| $\sigma = \{X/x, N/3, Nminus1/2, DG'/3\cdot x^2\}$

$\emptyset$, $3>2$, 2 is 2, diff (x^4, x, DG)

| (wie oben)
| $\sigma = \{X/x, N/4, Nminus1/3, DG/4\cdot x^3\}$

$\emptyset$ ✓

Final: $\sigma = \{DG/4x^3, DG'/3x^2, DF'/2x, DF/2x+3x^2, A/2x+3x^2+4x^3\}$