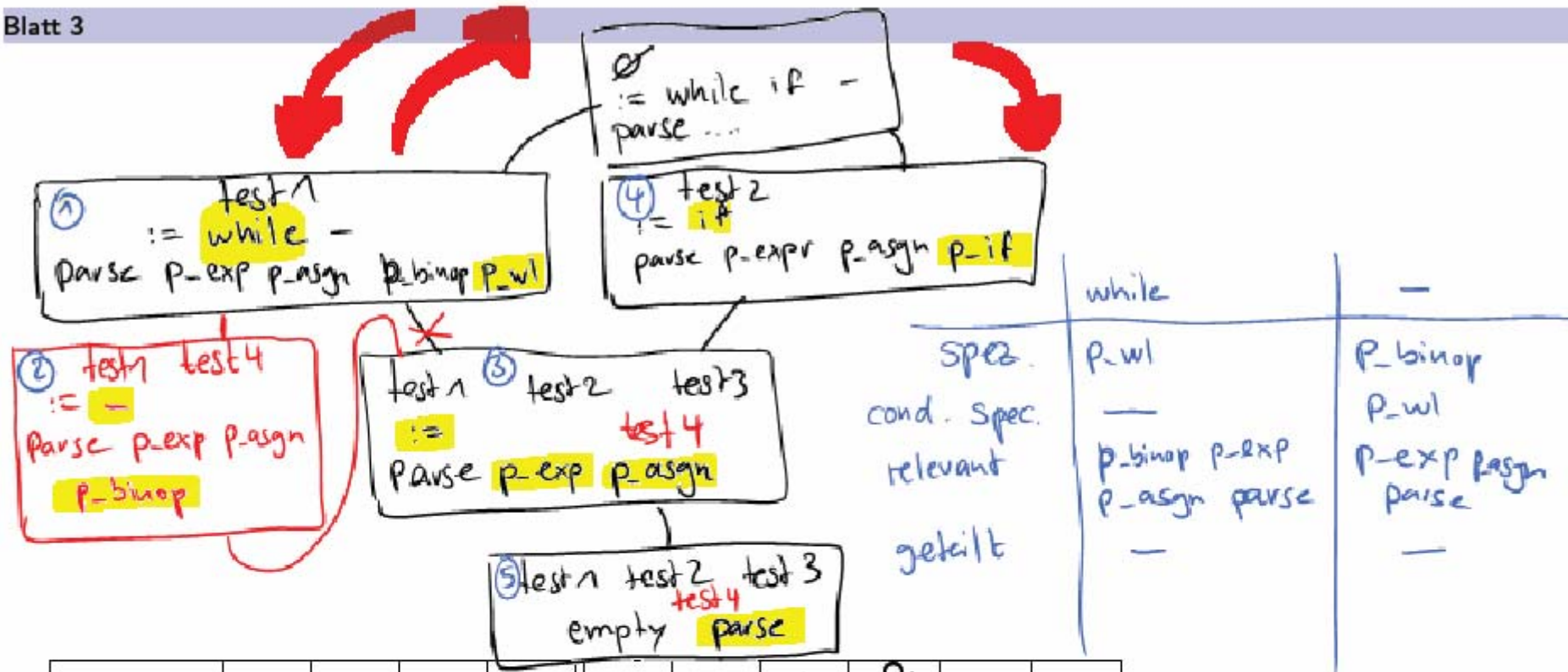


## **Aufgabe 3.1 Begriffsanalyse und Merkmalsuche**

test1:    a := 0; while a do a := a - 1;  
 test2:    a := 0; if a then a := 1;  
 test3:    a := 0;  
 empty:    das leere Programm  
 test4:    a := a - 1;

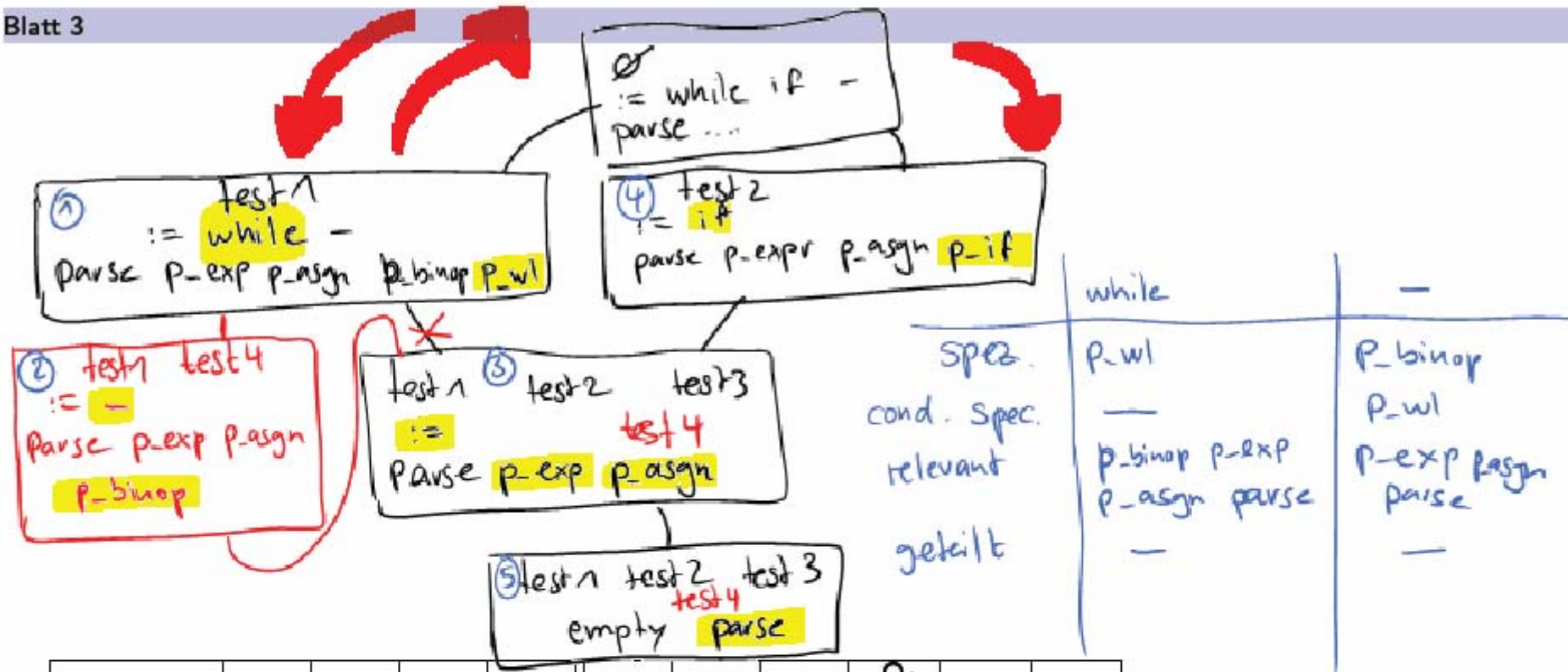
	:=	while	if	-	parse	p_expr	p_asgn	p_binop	p_wl	p_if
test1	×	×		×	×	×	×	×	×	
test2	×		×		×	×	×			×
test3	×				×	×	×			
empty					×					
test4	×			×	×	×	×	×		



	::=	while	if	-	parse	p_exp	p_asn	p_binop	p_wl	p_if
test1	x	x		x	x	x	x	x	x	
test2	x		x		x	x	x			x
test3	x				x	x	x			
empty					x					
test4	x			x	x	x	x	x		

test1:    a := 0; while a do a := a - 1;  
 test2:    a := 0; if a then a := 1;  
 test3:    a := 0;  
 empty:    das leere Programm  
 test4:    a := a - 1;

	:=	while	if	-	parse	p_expr	p_asgn	p_binop	p_wl	p_if
test1	×	×		×	×	×	×	×	×	
test2	×		×		×	×	×			×
test3	×				×	×	×			
empty					×					
test4	×			×	×	×	×	×		



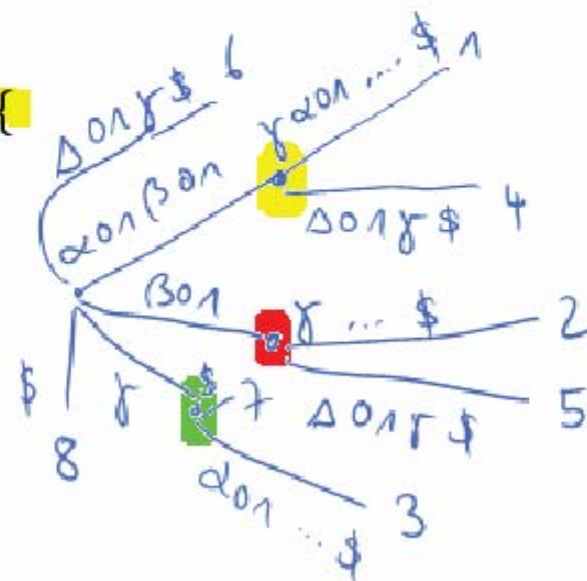
	::=	while	if	-	parse	p_exp	p_asn	p_binop	p_wl	p_if
test1	x	x		x	x	x	x	x	x	
test2	x		x		x	x	x			x
test3	x				x	x	x			
empty					x					
test4	x			x	x	x	x	x		

# Kloneerkennung nach Baker

```

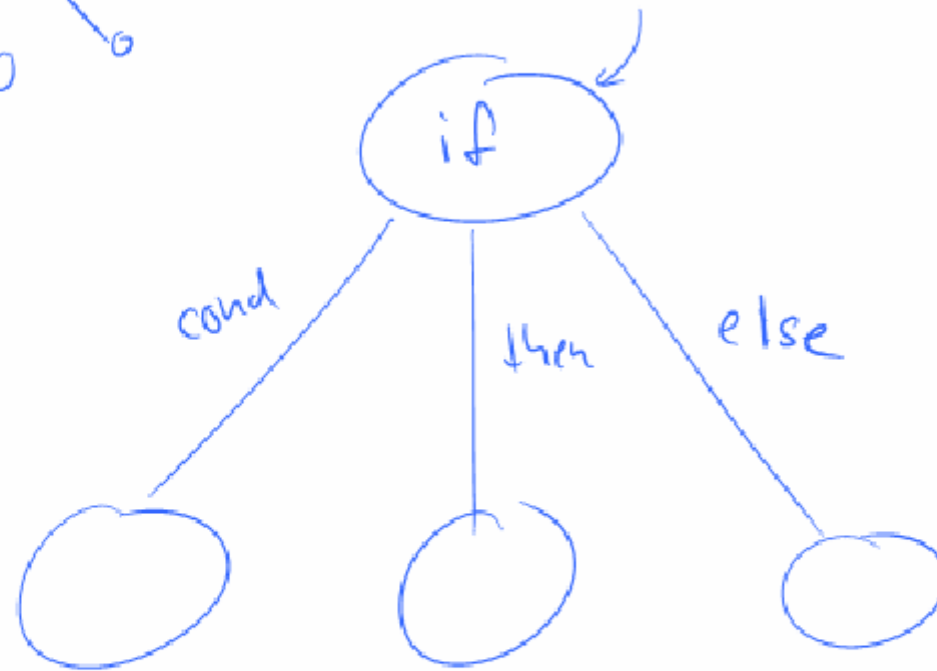
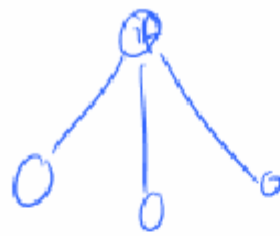
1
2 for (; c > 0; c--) {
3     *p = *p + 1;
4 }
5
6 for (; i > 0; i--) {
7     *s = *s + 1;
8     *p = *p * 1;
9 }

```



$\alpha c c \beta p p \gamma \alpha i i \beta s s \Delta p p \gamma \$$   
 $\alpha 0 1 \beta 0 1 \gamma \alpha 0 1 \beta 0 1 \Delta 9 1 \gamma \$$  1  
 $\beta 0 1 \gamma \alpha 0 1 \beta 0 1 \Delta 9 1 \gamma \$$  2  
 $\gamma \alpha 0 1 \beta 0 1 \Delta 0 1 \gamma \$$  3  
 $\alpha 0 1 \beta 0 1 \Delta 0 1 \gamma \$$  4  
 $\beta 0 1 \Delta 0 1 \gamma \$$  5  
 $\Delta 0 1 \gamma \$$  6  
 $\gamma \$$  7  
 $\$$  8

## **Aufgabe 3.3 Hash-Funktion für ASTs**



$$h(n) = f(\text{type}(n), h(n_1), \dots, h(n_i))$$

$n_1 \dots n_i$  kindes van  $n$

$$h(n) = \text{type}(n) + h(n_1)^2 + h(n_2)^3 + \dots$$