

Jagamine

$$A_1 \text{ ja } A_2 > 0; \quad A_1 < A_2 \Rightarrow \frac{A_1}{A_2} = 0, x_1 x_2 \dots x_k$$

$$x_1 = 1 \Rightarrow \text{jagatis } 0,5 \Rightarrow A_1 = 0,5 A_2 \Rightarrow$$

$$\Rightarrow 2A_1 - A_2 \Rightarrow 2A_1 - A_2 = 0$$

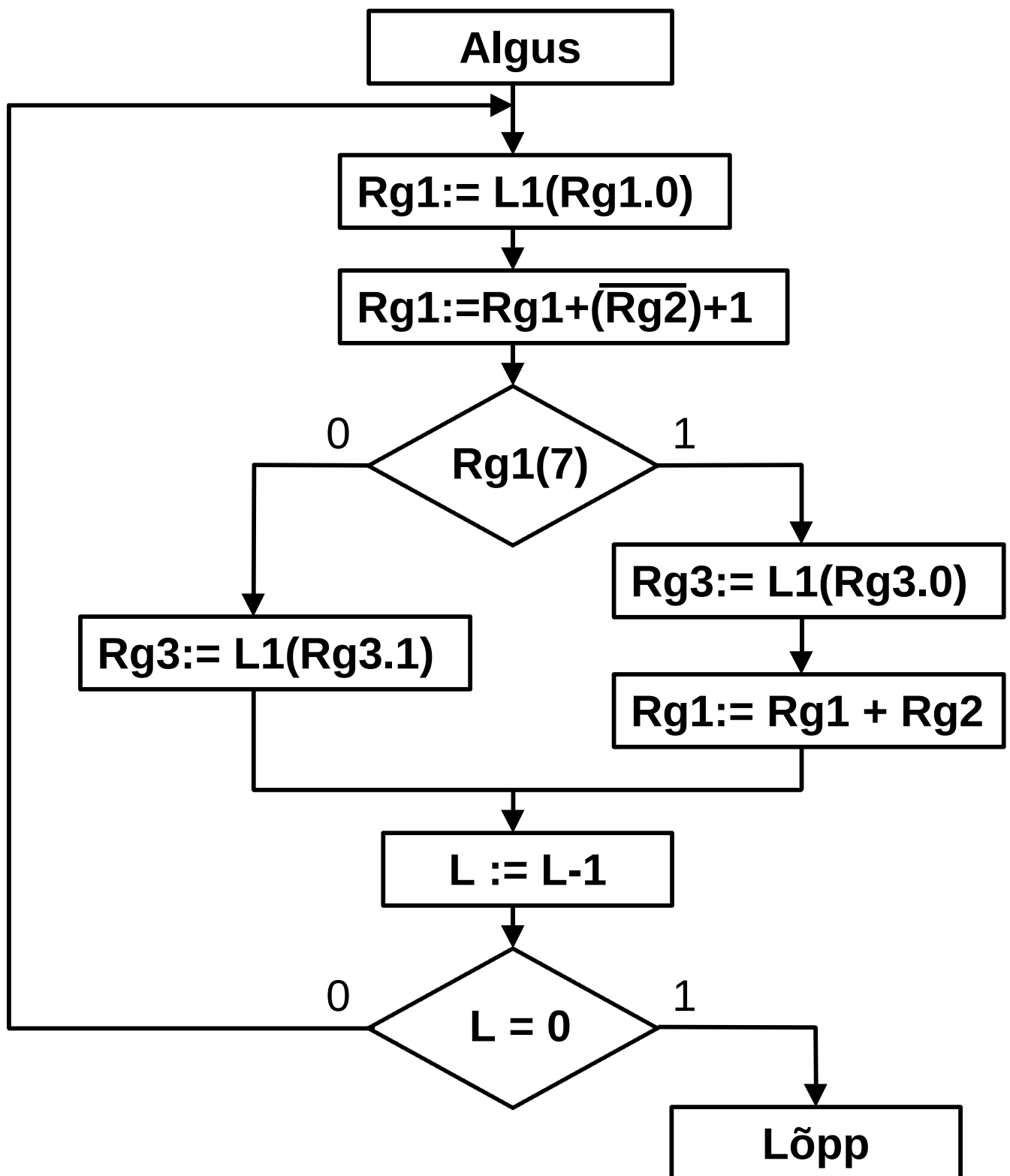
$$x_1 = 0 \Rightarrow 2A_1 - A_2 < 0$$

Rg1 : jagatav (A_1)

Rg2 : jagaja (A_2)

Rg3 : jagatis (A_1/A_2)

L : järkude arv



Rg1 := 0,01110 jagatav
Rg2 := 0,10110 jagaja
Rg3 := 0,00000 jagatis
L := 5

Rg1 := 0,11100 (2*A)
Rg2+1 := 1,01010 (-A₂)
Rg1 := 0,00110 (Rg1 > 0)
Rg3 := 0,00001
L := 4

Rg1 := 0,01100
Rg2+1 := 1,01010
Rg1 := 1,10110 (Rg1 < 0)
Rg3 := 0,00010
Rg1 := 0,01100 (jäägi taastamine)
L := 3

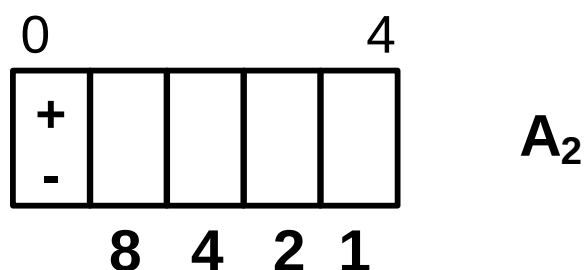
Rg1 := 0,11000
Rg2+1 := 1,01010
Rg1 := 0,00010 (Rg1 > 0)
Rg3 := 0,00101
L := 2

Rg1 := 0,00100
Rg2+1 := 1,01010
Rg1 := 1,01110 (Rg1 < 0)
Rg3 := 0,01010
Rg1 := 0,00100 (jäägi taastamine)
L := 1

Rg1 := 0,01000
Rg2+1 := 1,01010
Rg1 := 1,10010 (Rg1 < 0)
Rg3 := 0,10100
Rg1 := 0,01000 (jäägi taastamine)
L := 0

Rg1 := 0,4375
Rg2 := 0,6875
Rg3 := 0,6363 (0,625)

Täisarvude jagamine



$$\frac{A_1}{A_2} \quad 8 \Rightarrow A_1 \quad 8 \cdot A_2 \Rightarrow A_1 - 8A_2 \quad 0$$

N: 0 1110 A_1 (+14)

0 0011 A_2 (+3)

0 0100 $\frac{A_1}{A_2}$ (+4)

0 0010 jääk (+2)

Jagamine jäägi taastamiseta

$$1. \quad 2A_1 - A_2 < 0 \Rightarrow 2A_1 - A_2 + A_2$$

$$2. \quad 2A_1 - A_2 < 0 \Rightarrow L1 \Rightarrow 4A_1 - 2A_2$$

$$\text{Vaja on} \quad 4A_1 - A_2$$

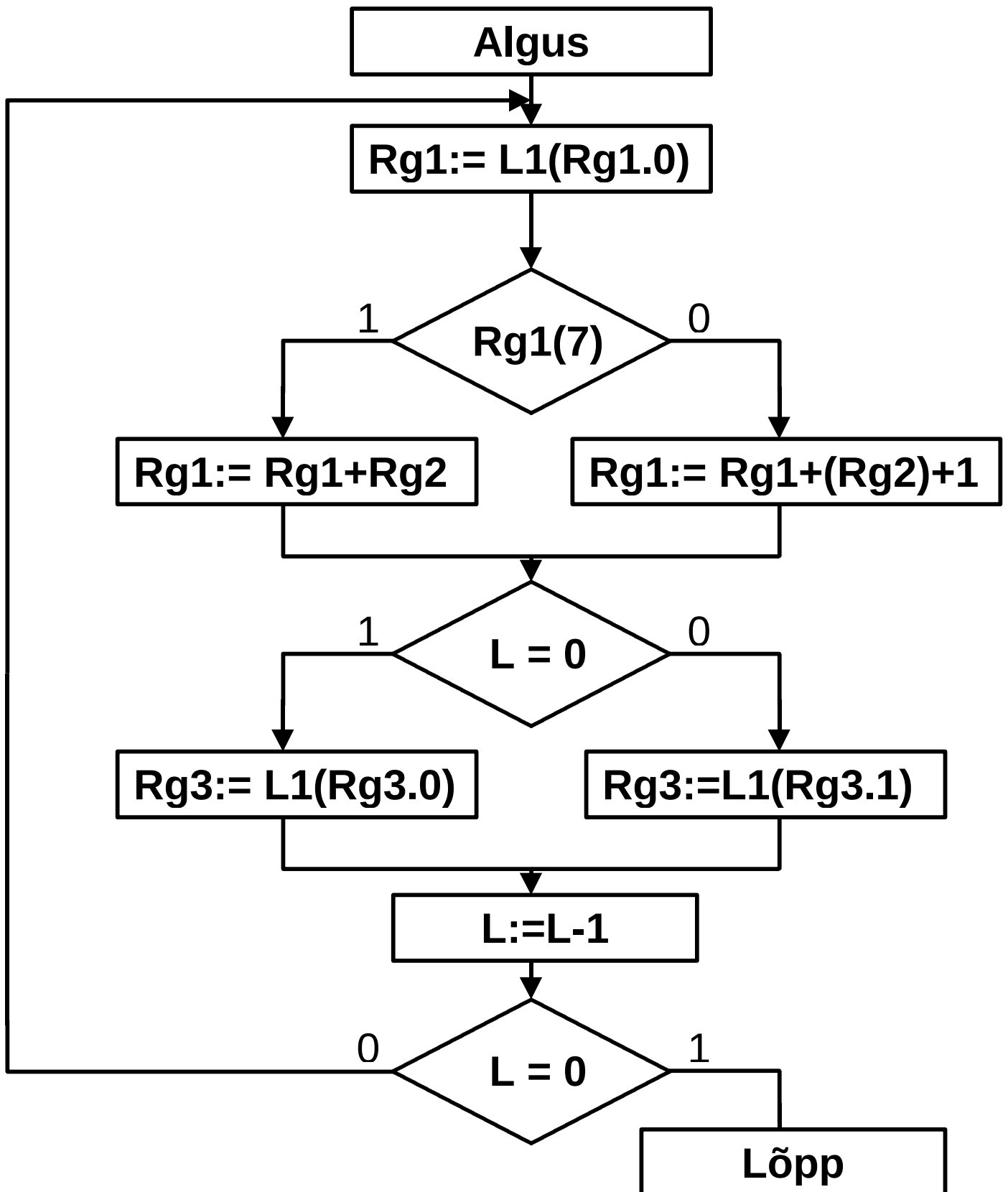
$$\text{Seega} \quad 4A_1 - 2A_2 + A_2$$

Rg1 - jagatav

Rg2 - jagaja

Rg3 - 0 (jagatis)

L - järkude arv



Rg1 := 0,01110

Rg2 := 0,10110

Rg3 := 0,00000

L := 5

(Rg2)_t = 1,01010

Rg1 := 0,11100

(Rg1>0)

(Rg2)_t := 1,01010

Rg1 := 0,00110

(Rg1>0)

Rg3 := 0,00001

L := 4

Rg1 := 0,01100

(Rg1>0)

(Rg2)_t := 1,01010

Rg1 := 1,10110

(Rg1<0)

Rg3 := 0,00010

L := 4

Rg1 := 1,01100

(Rg1<0)

Rg2 := 0,10110

Rg1 := 0,00010

(Rg1<0)

Rg3 := 0,00101

L := 2

Rg1 := 0,00100

(Rg1<0)

(Rg2)_t := 1,01010

Rg1 := 1,01110

(Rg1<0)

Rg3 := 0,01010

L := 1

Rg1 := 10,11100

(Rg1<0)

Rg2 := 0,10110

Rg1 := 11,10010

(Rg1>0)

Rg3 := 0,10100

L := 0

Negatiivsete arvude jagamine

$2A_1 - A_2$	A_2	x_{-i}	A_2 saatmine
+	+	1	- A_2
-	+	0	+ A_2
+	-	0	+ A_2
-	-	1	- A_2

Tulemus : pöördkoodis

Lisandub : 0. tsükkel - märk

$$|A_1| < |A_2|$$

- 1) $A_1 > 0 \quad A_2 > 0$
 $A_1 - A_2 < 0 \Rightarrow \text{märk} = 0$
 $2(A_1 - A_2) + A_2 = 2A_1 - A_2$
- 2) $A_1 < 0 \quad A_2 > 0$
 $A_1 + A_2 > 0 \Rightarrow \text{märk} = 1$
 $2(A_1 + A_2) - A_2 = 2A_1 + A_2$
- 3) $A_1 > 0 \quad A_2 > 0$
 $A_1 + A_2 < 0 \Rightarrow \text{märk} = 1$
 $2(A_1 + A_2) - A_2 = 2A_1 + A_2$

$$\begin{aligned}
4) \quad & A_1 < 0 \quad A_2 < 0 \\
& A_1 - A_2 > 0 \Rightarrow \text{märk} = 0 \\
& 2(A_1 - A_2) + A_2 = 2A_1 - A_2
\end{aligned}$$

Rg1 := 11,0111 (**- 0,1001**)
Rg2 := 00,1110
Rg3 := 00,0000
L := 4

0. tsükkel: **11,0111** (**Rg1**)
 00,1110 (**+Rg2**) ←
 00,0101 **Rg3:=0,0001**

1. tsükkel: **00,1010** (**2(Rg1+Rg2)**)
 11,0010 (**- Rg2**)
 11,1100 **Rg3:=0,0010**
 ↙
 2*Rg1 + Rg2

2. tsükkel: **11,1000** (**L1**)
 00,1110 (**+Rg2**)
 00,0110 **Rg3:=0,0101**

3. tsükkel: 00,1100 (L1)
 11,0010 (- Rg2)
 11,1110 Rg3:=0,1010

4. tsükkel: 11,1100 (L1)
 00,1110 (+Rg2)
 00,1010 Rg3:=1,0101

N: Rg1 := 00,1001
 Rg2 := 11,0010
 Rg3 = ?

0. tsükkel: 00,1001 (Rg1)
 11,0010 (+Rg2)
 11,1011 Rg3:=0,0001

1. tsükkel: 11,0110 2*(Rg1+Rg2)
 00,1110 (- Rg2)
 00,0100 Rg3:=0,0010

2. tsükkel: 00,1000 (L1)
 11,0010 (+Rg2)
 11,1010 Rg3:=0,0101

jne.

Kiire jagamine

$$Q = \frac{D}{S} \quad D, S - \text{murrud}$$

$$Q = \frac{D \cdot f_0 \cdot f_1 \cdot f_2 \cdot \dots}{S \cdot f_0 \cdot f_1 \cdot f_2 \cdot \dots}$$

Eesmärk : kui nimetaja $\rightarrow 1$, siis lugeja = Q

S - murrud $\Rightarrow S = 1-x$, kus $|x| < 1$

Valime $f_0 = 2 - S = 2 - (1 - x) = 1 + x$

$$S \cdot f_0 = (1 - x)(1 + x) = 1 - x^2$$

$1 - x^2$ on lähemal "1"-le

$$f_1 = 1 + x^2 = 1 + (1 - S \cdot f_0) = 2 - S \cdot f_0$$

$$S \cdot f_0 \cdot f_1 = (1 - x^2)(1 - x^2) = 1 - x^4 \quad \text{t.k.}$$

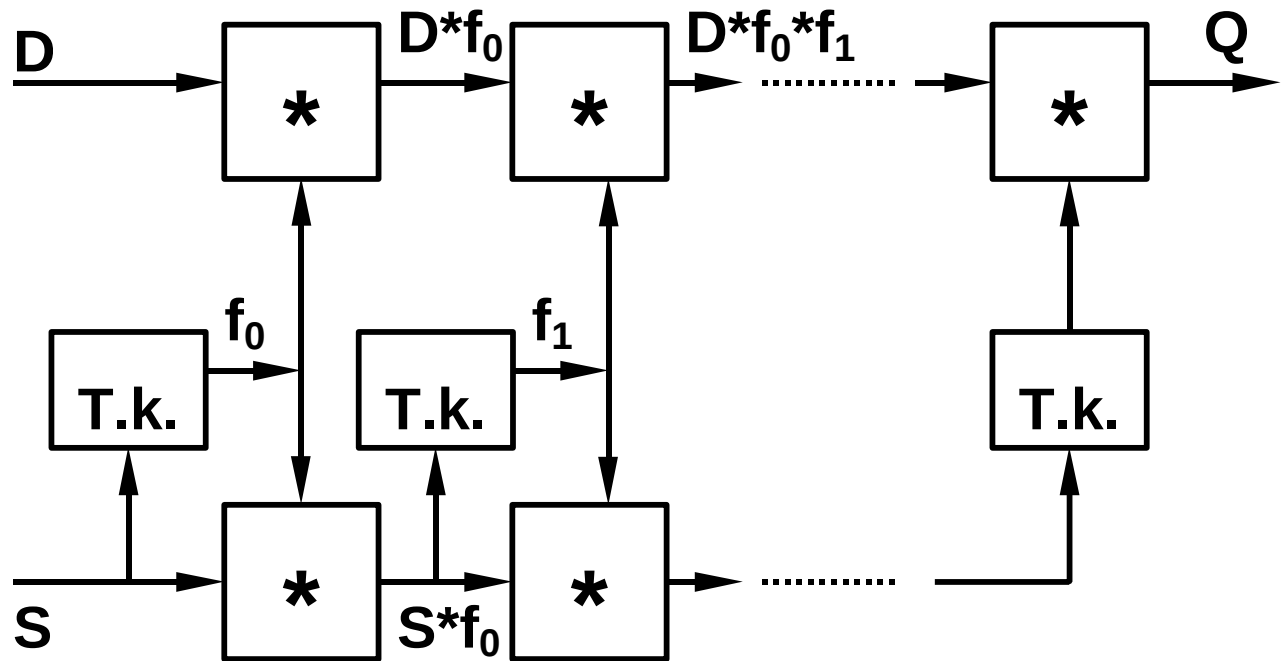
$$f_2 = 1 + x^4 = 1 + (1 - S \cdot f_0 \cdot f_1)$$

$$S \cdot f_0 \cdot f_1 \cdot f_2 = (1 - x^4)(1 + x^4) = 1 - x^8$$

jne.

$$S \cdot f_0 \cdot f_1 \cdot f_2 \cdot \dots \cdot f_k = ???$$

Koondub kiiresti



$$f_0 = 2 - S$$

$$f_1 = 2 - S * f_0$$

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$$Q = D * f_0 * f_1 * f_2 * \dots$$

$$f_4 = 1 - x^{32}$$

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Normaliseeritud mantisside puhul
koondub kiiresti.

Kui $S \rightarrow 0$, on otstarbekas muuta $f_0, f_1, \dots$