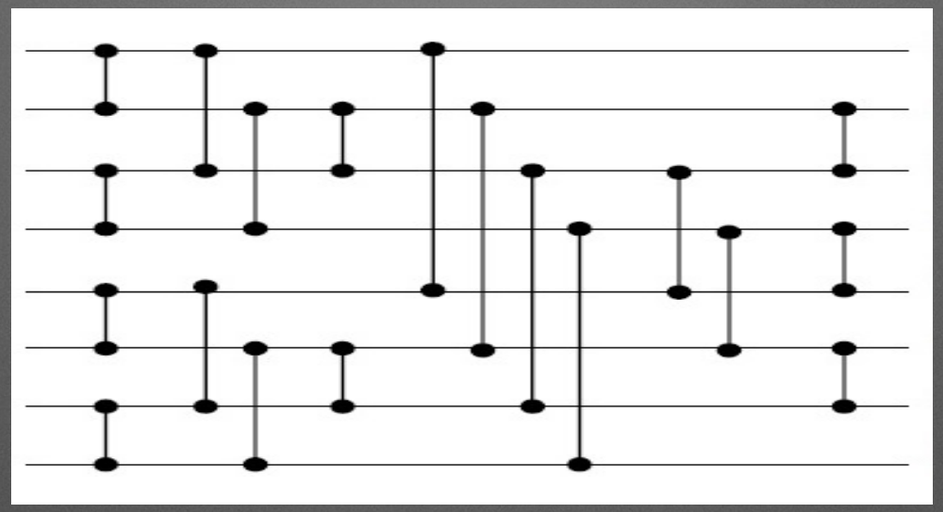
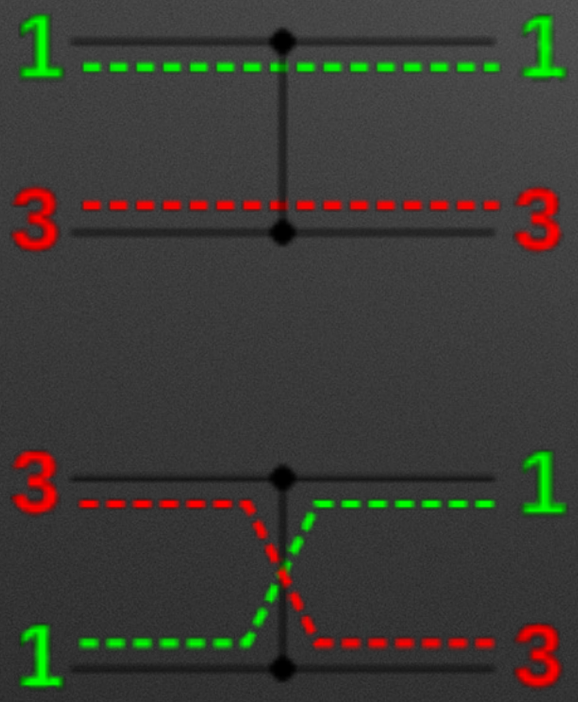
Sorteernetwerken van Optimale Grootte

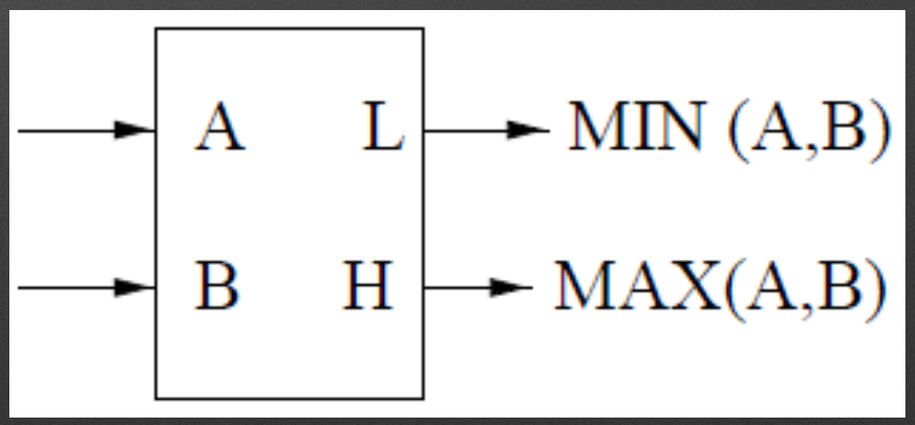
Mathias Dekempeneer
Vincent Derkinderen

Begeleider: Tom Schrijvers

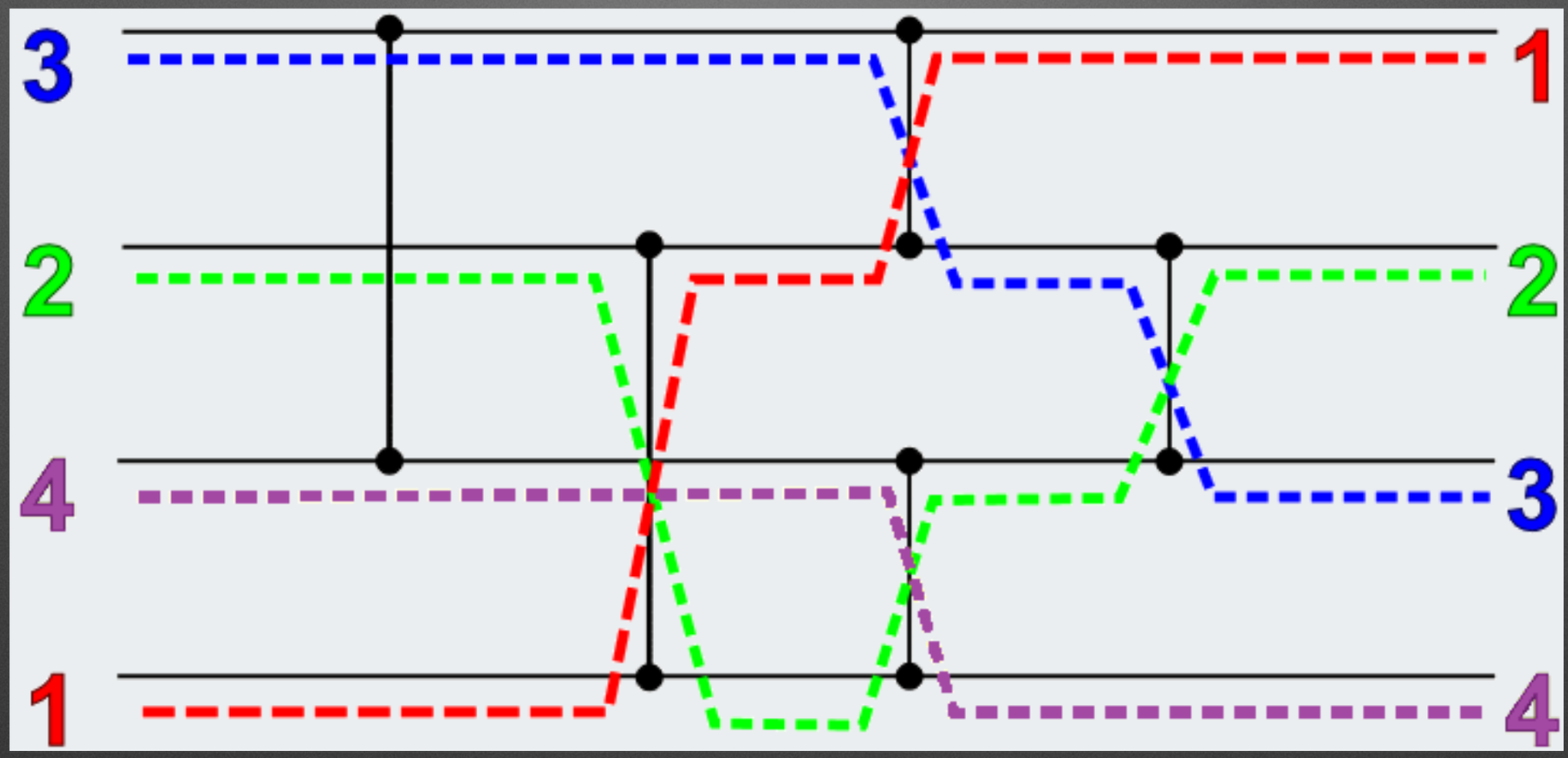
Comparator Netwerk







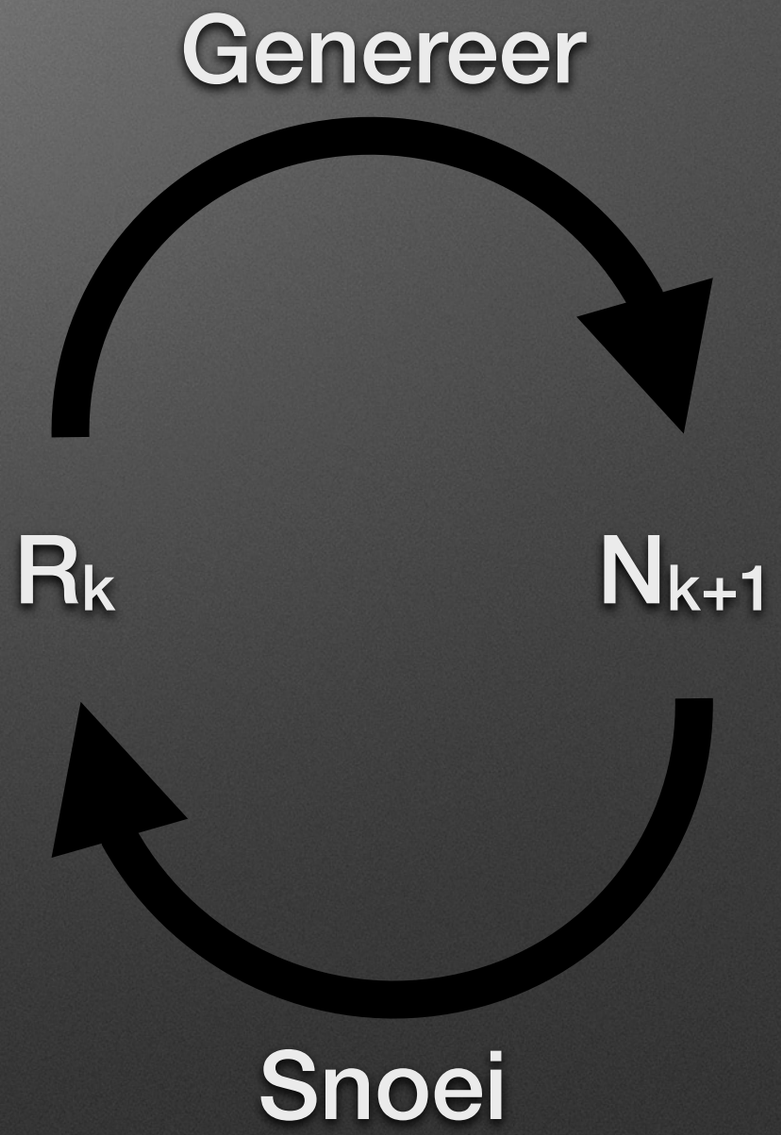
Sorteernetwerk



TODO Vincent: Paint skills

Genereer & Snoei

- Genereer:
  toevoegen alle mogelijke comparatoren
- Snoei:
  subsumes principe



Genereer & Snoei

R_0

$N_1 - R_1$

$N_2 - R_2$

N_3

Genereer & Snoei

R_0

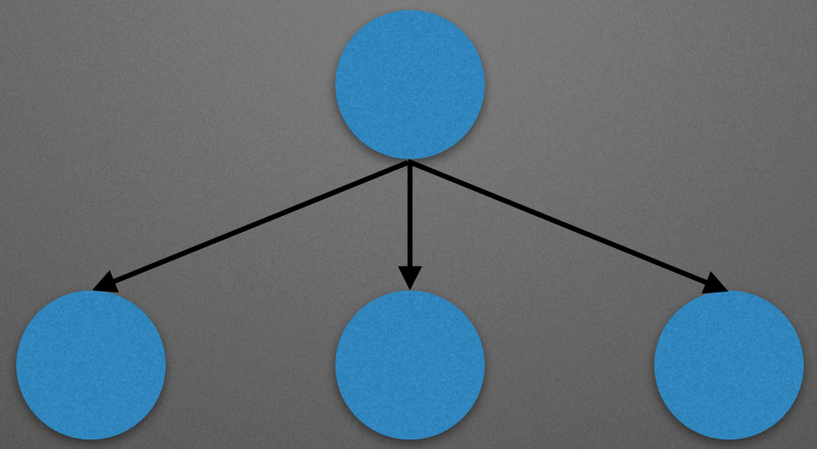
$N_1 - R_1$

$N_2 - R_2$

N_3

Genereer & Snoei

R_0



$N_1 - R_1$

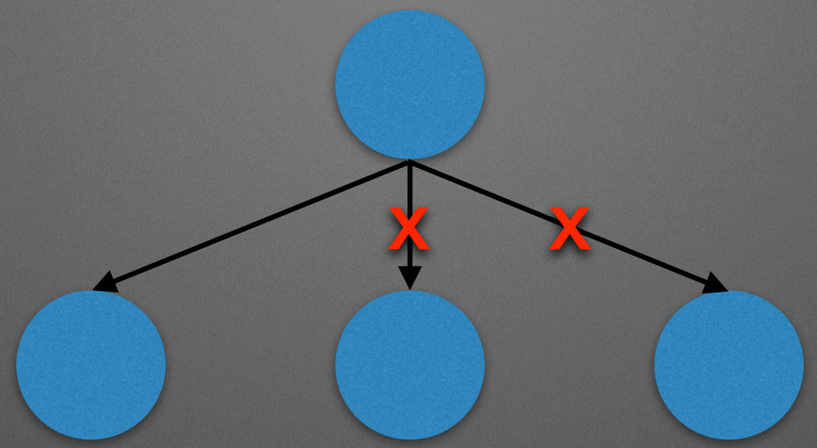
$N_2 - R_2$

N_3

Genereer & Snoei

R_0

$N_1 - R_1$



$N_2 - R_2$

N_3

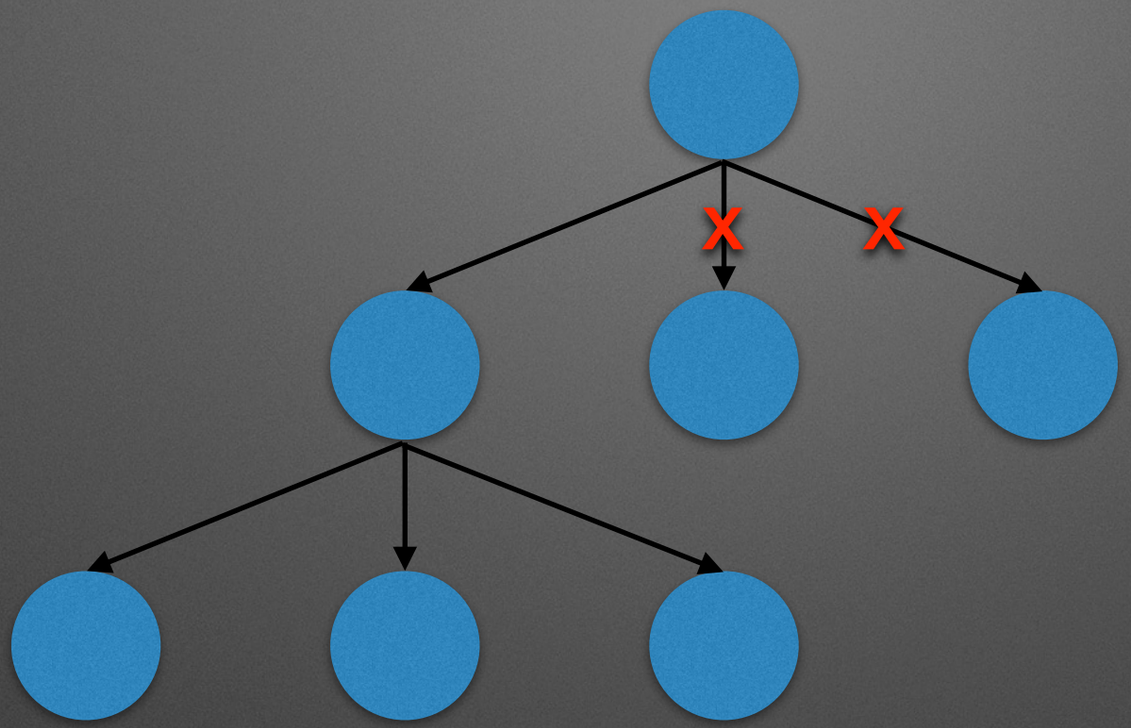
Genereer & Snoei

R_0

$N_1 - R_1$

$N_2 - R_2$

N_3



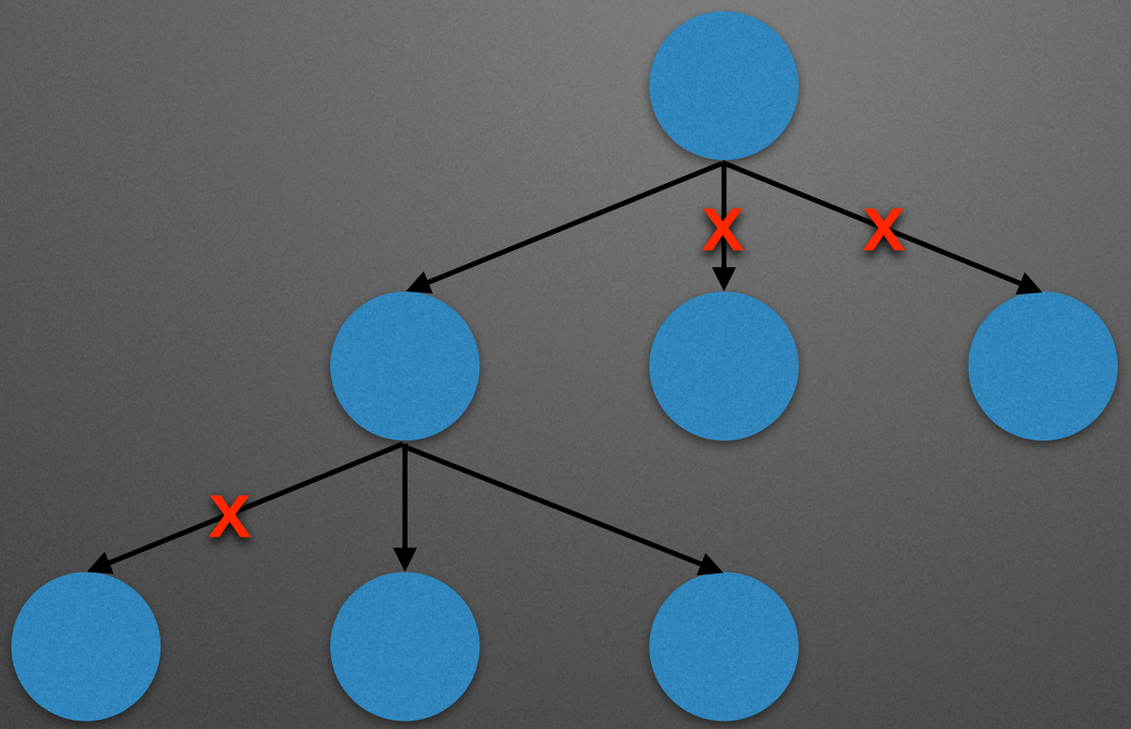
Genereer & Snoei

R_0

$N_1 - R_1$

$N_2 - R_2$

N_3



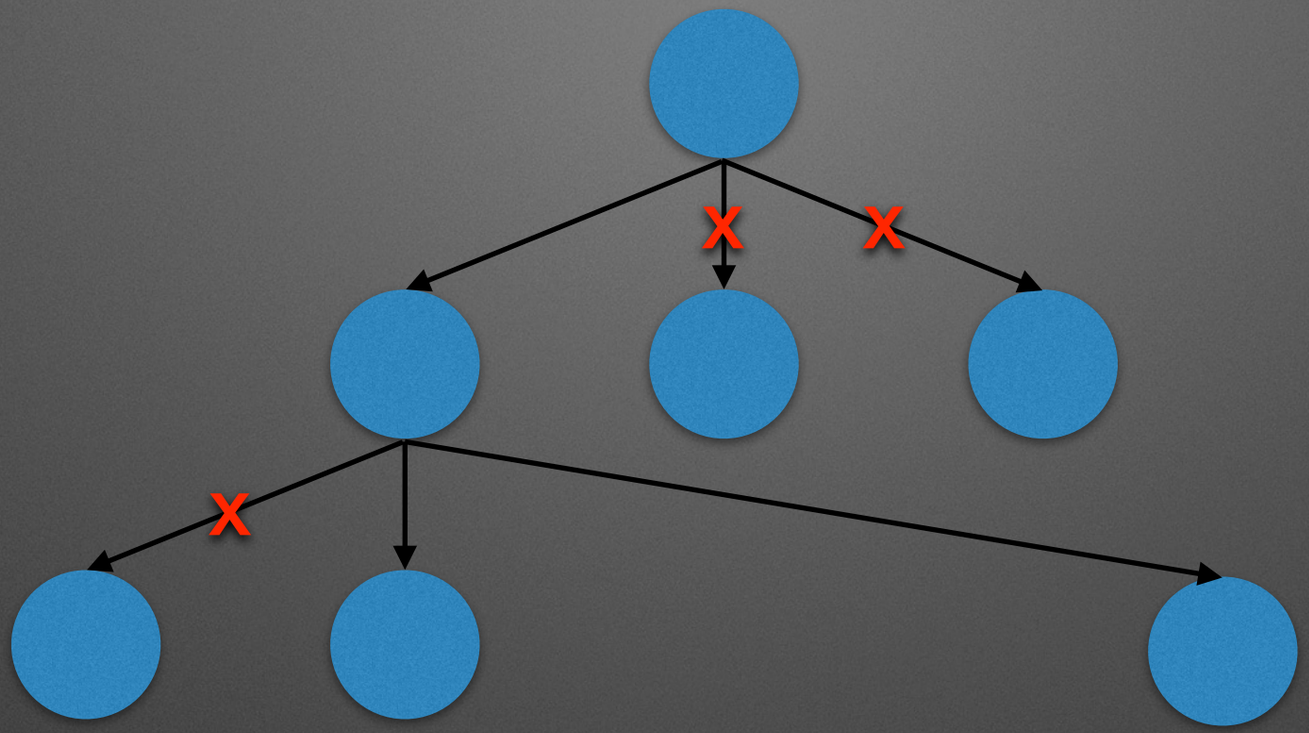
Genereer & Snoei

R_0

$N_1 - R_1$

$N_2 - R_2$

N_3



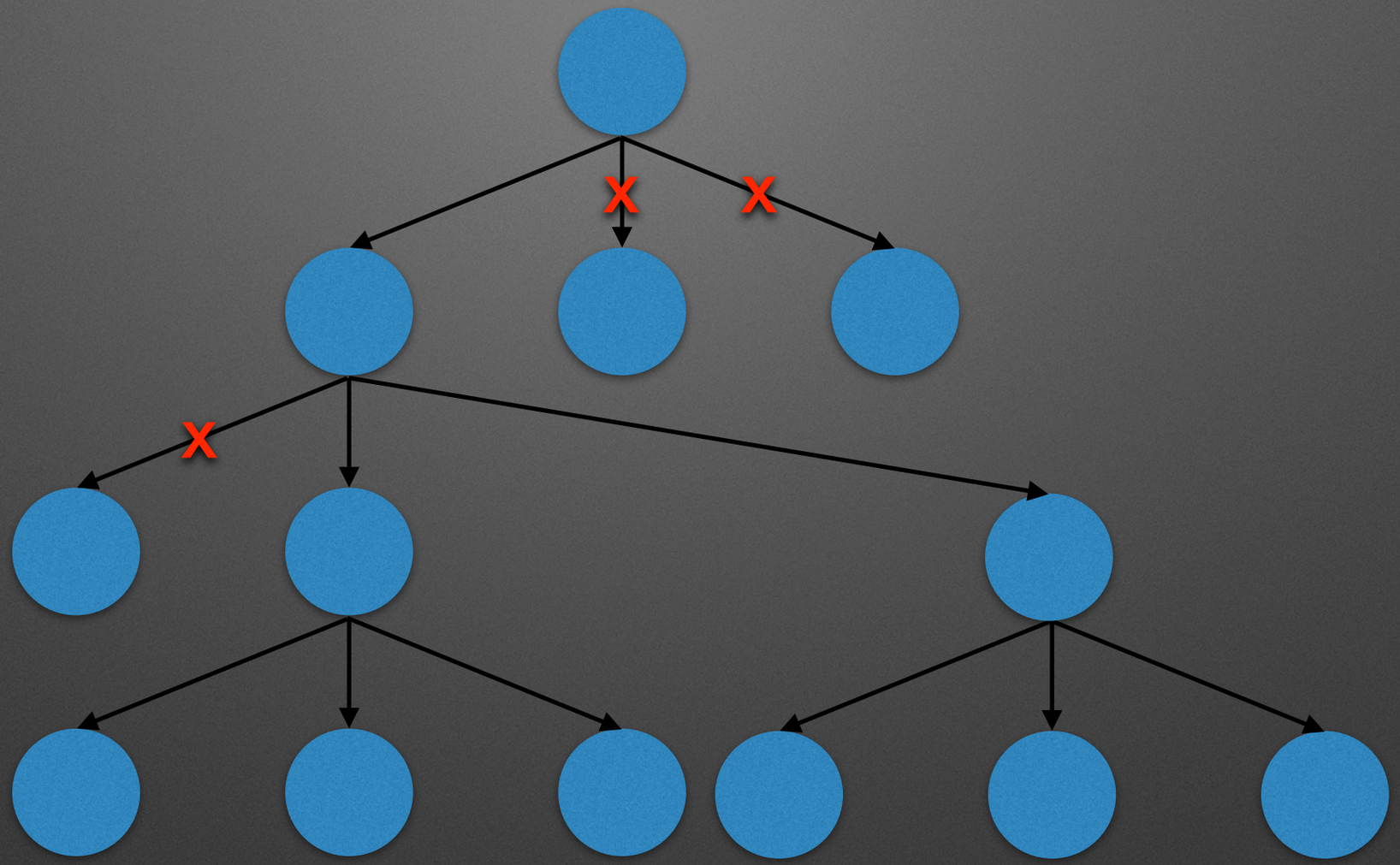
Genereer & Snoei

R_0

$N_1 - R_1$

$N_2 - R_2$

N_3



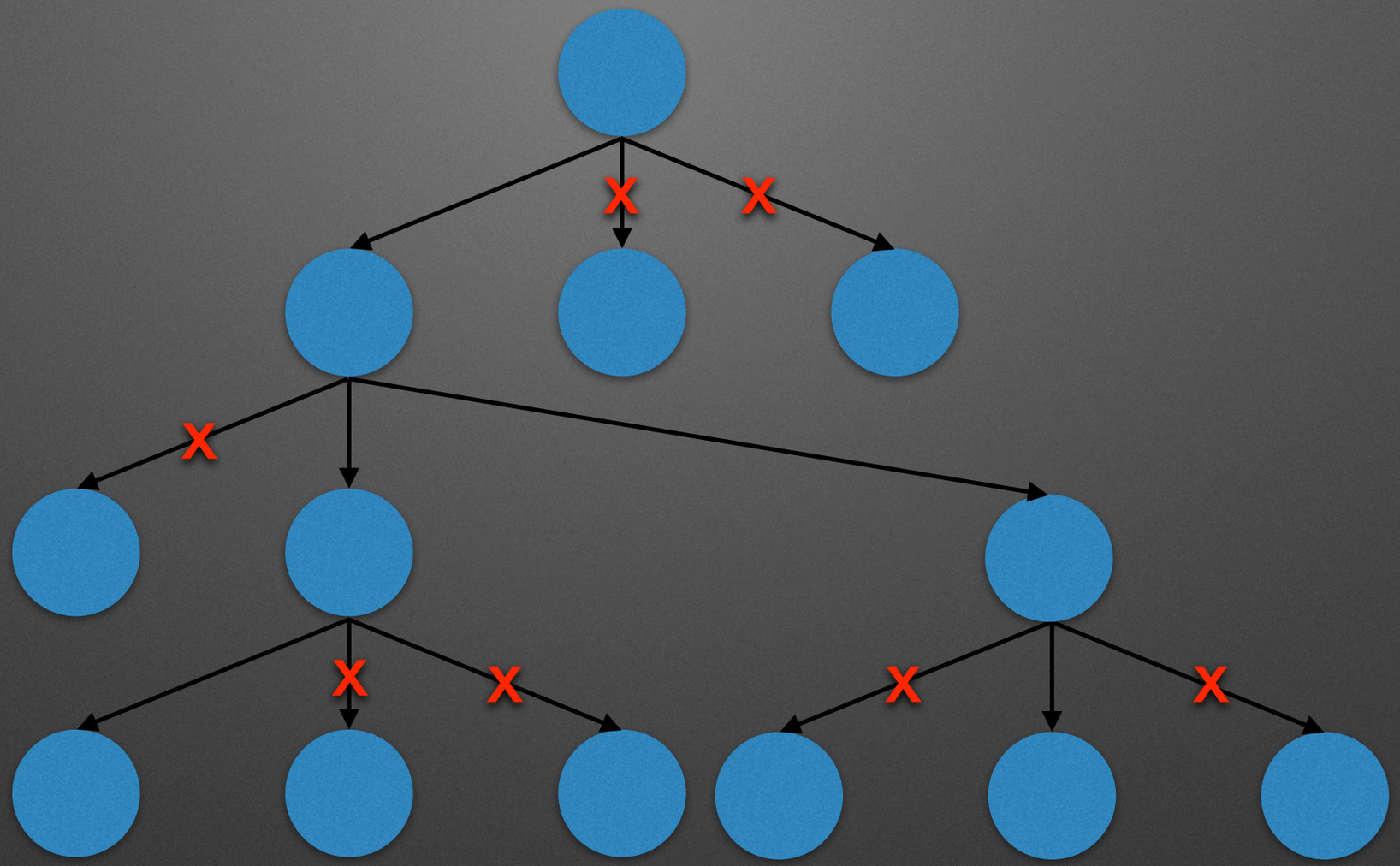
Genereer & Snoei

R_0

$N_1 - R_1$

$N_2 - R_2$

N_3



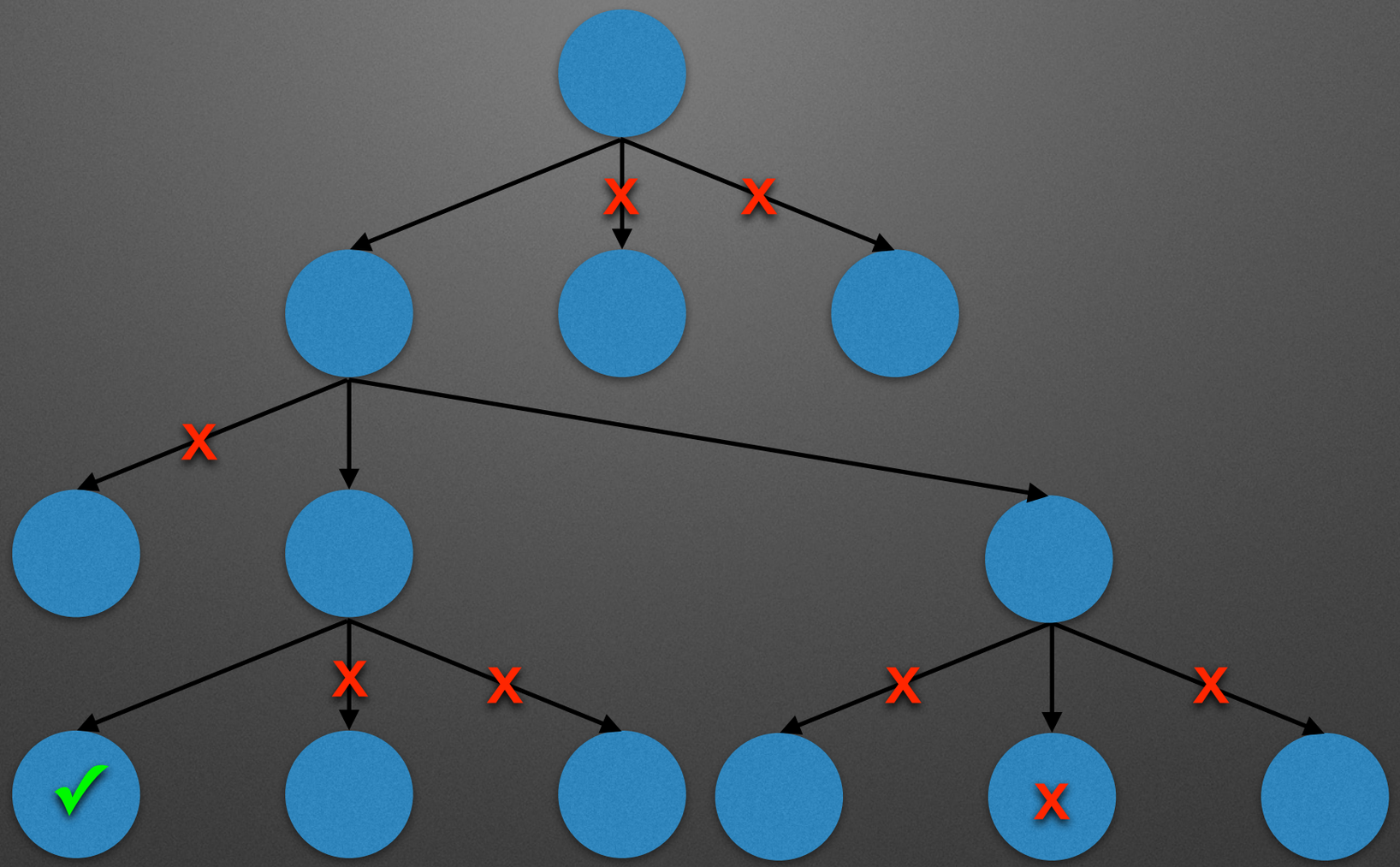
Genereer & Snoei

R_0

$N_1 - R_1$

$N_2 - R_2$

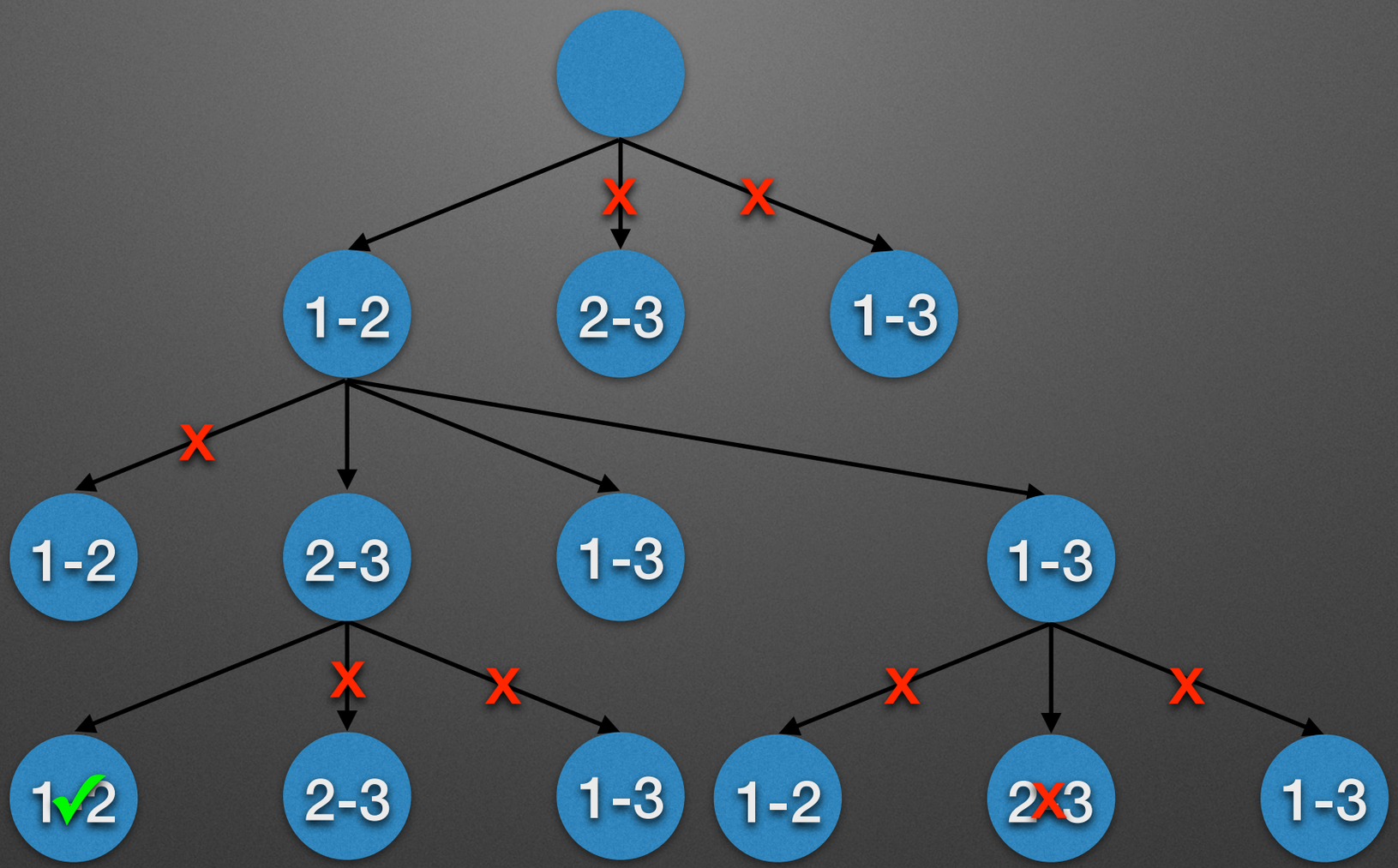
N_3



Subsumes

- Beschreven in “Twenty-Five Comparators is Optimal when Sorting Nine Inputs (and Twenty-Nine for Ten)” *(Codish et al.)*
- C_a subsumes $C_b \Leftrightarrow C_a$ wordt gedekt door C_b
- Verwijder de netwerken die anderen dekken

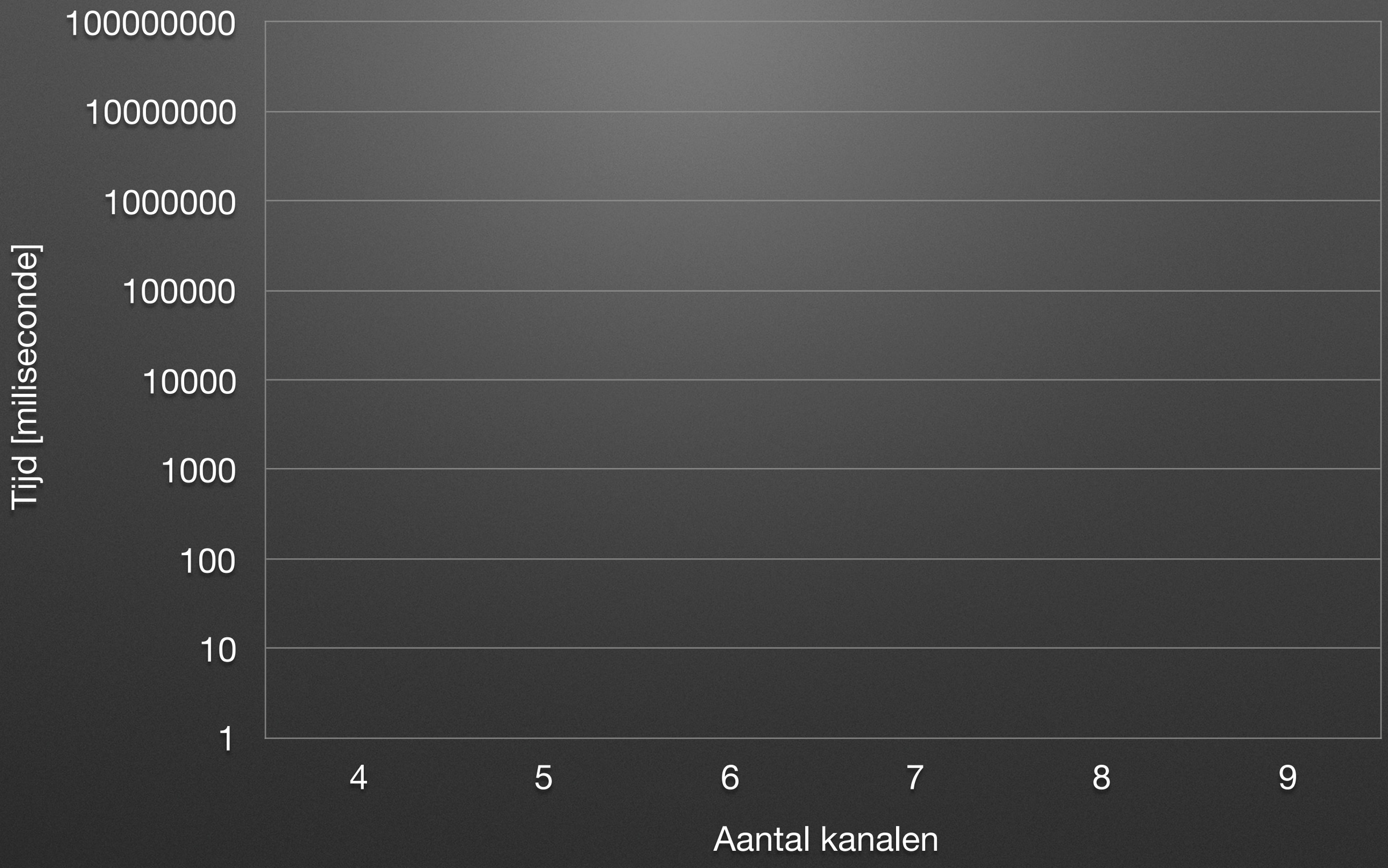
Genereer & Snoei



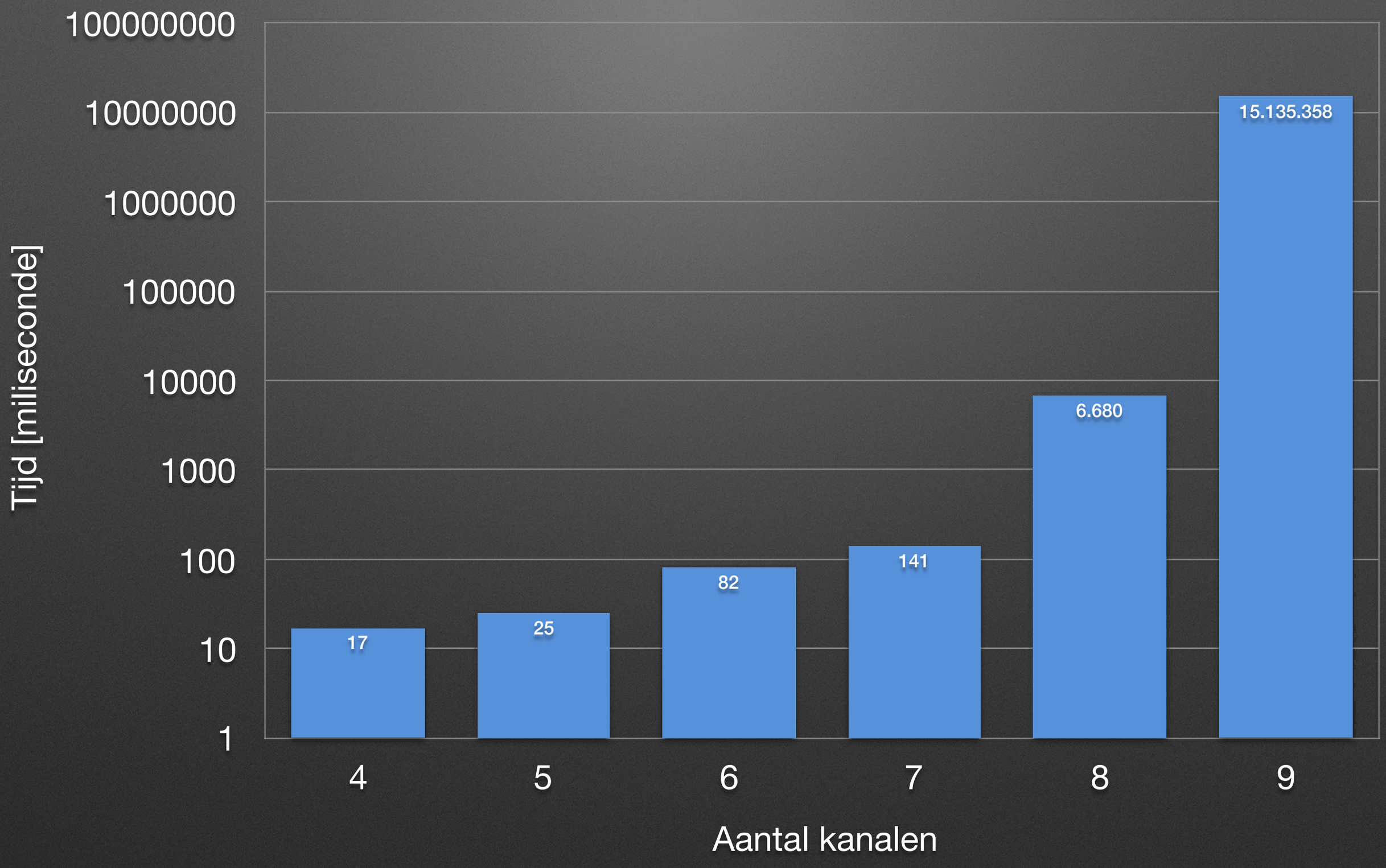
Gevonden sorteernetwerk: (1-2) (2-3) (1-2)

Resultaten

Resultaten

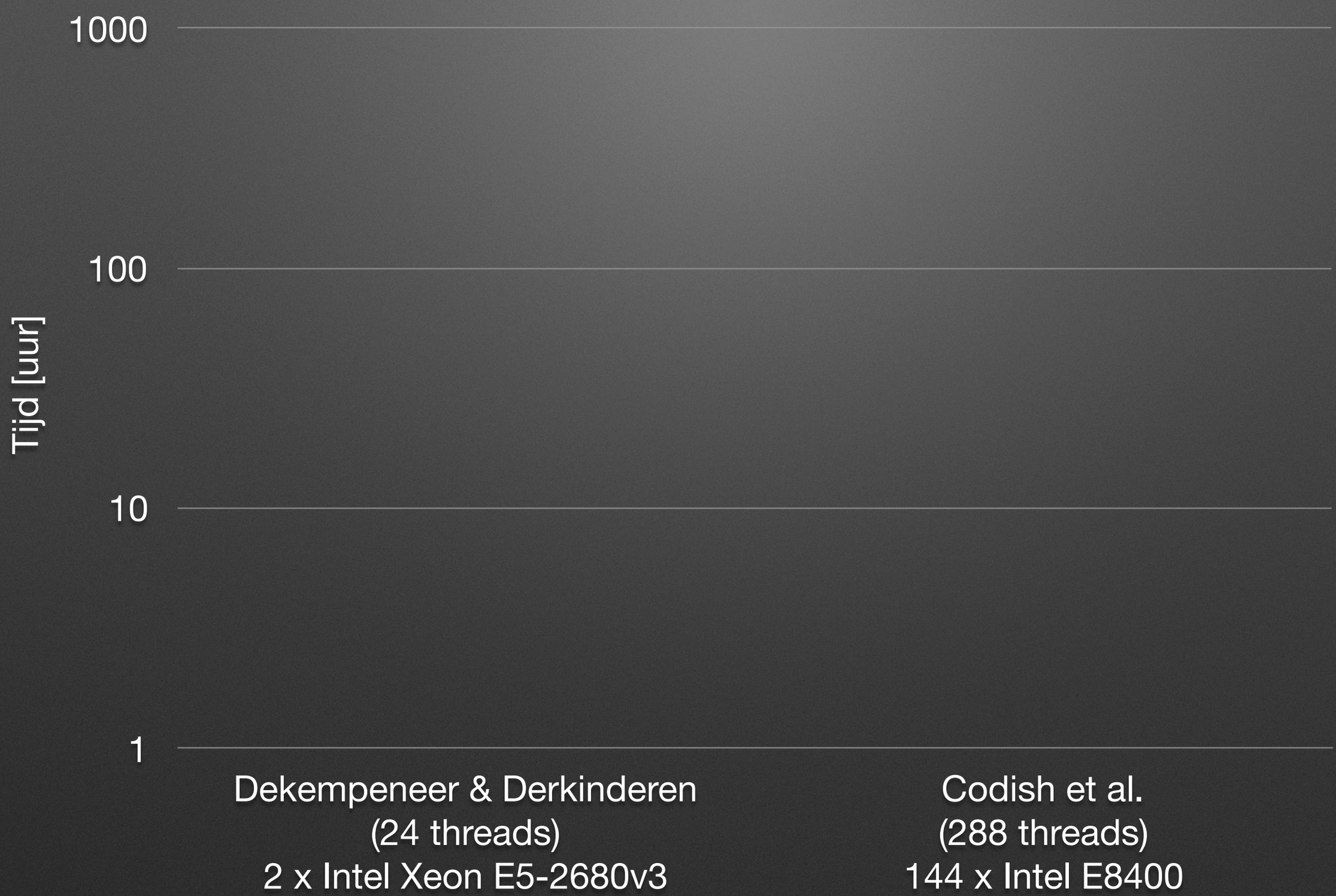

100000000
10000000
1000000
100000
10000
1000
100
10
1
Tijd [milisecon
4
5
6
7
8
9
Aantal kanalen

Resultaten

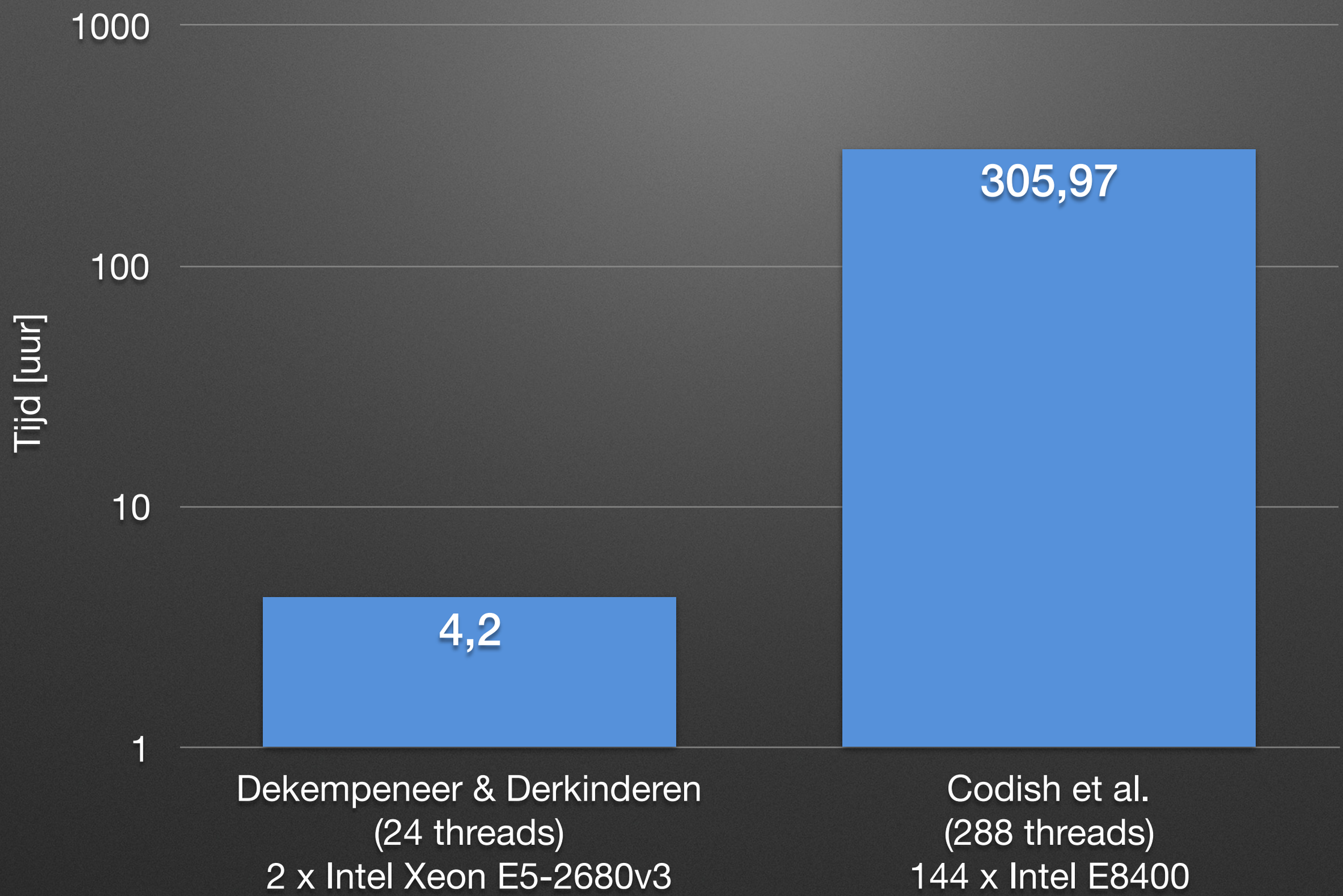

100000000
10000000
1000000
100000
10000
1000
100
10
1
Tijd [miliseconde]
15.135.358
6.680
141
82
25
17
4
5
6
7
8
9
Aantal kanalen

Resultaten

Resultaten


1000
100
10
1
Tijd [uur]
Dekempeneer & Derkinderen
(24 threads)
2 x Intel Xeon E5-2680v3
Codish et al.
(288 threads)
144 x Intel E8400

Resultaten


1000
100
10
1
Tijd [uur]
305,97
4,2
Dekempeneer & Derkinderen
(24 threads)
2 x Intel Xeon E5-2680v3
Codish et al.
(288 threads)
144 x Intel E8400

Conclusie

Conclusie

WAT?
Resultaten van de paper gereproduceerd

Conclusie

WAT?
Resultaten van de paper gereproduceerd

WAT VOLGT?
Bekijken reden van verbetering
Implementatie voor meerdere nodes
Verbeteringen voor het algoritme zoeken