

## Aufgabe 7-1

$\epsilon = 1.1$   
minPts = 2

$\epsilon = 1.1$   
minPts = 3

$\epsilon = 1.1$   
minPts = 4

$\epsilon = 2.1$   
minPts = 4

$\epsilon = 4.1$   
minPts = 5

$\epsilon = 4.1$   
minPts = 4

## Aufgabe 7-2

# Data Mining Tutorial

## Clusteranalyse – DBSCAN

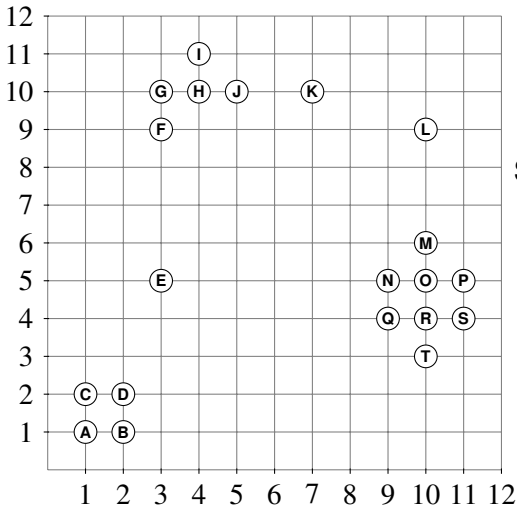
Ludwig-Maximilians-Universität München

21. und 22.12.17 — KDD Übung

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 2$ 

Seed list:

## Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

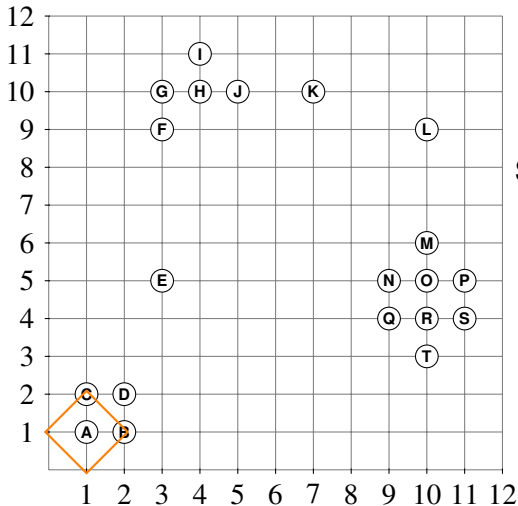
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

## Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

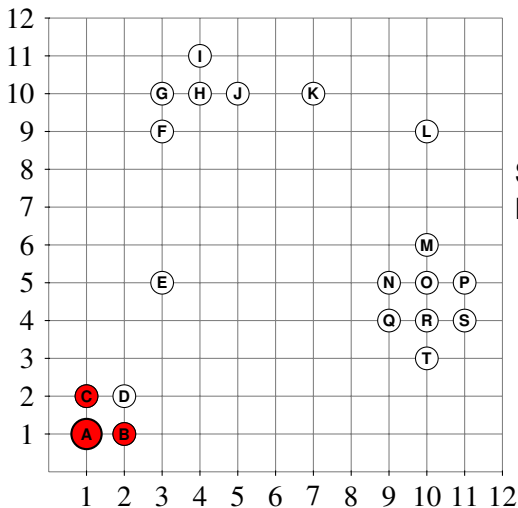
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 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

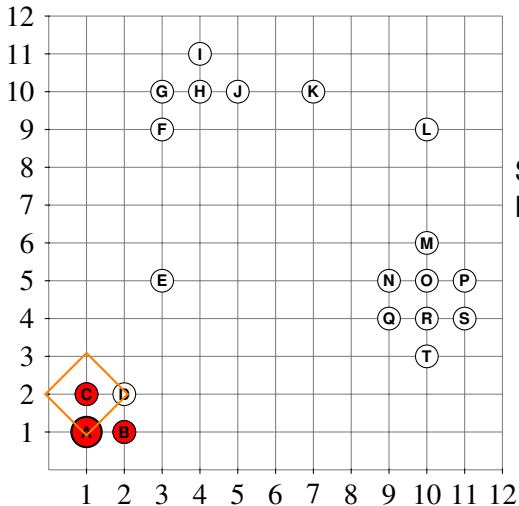
$minPts = 2$

Seed list:  
BC

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $minPts = 2$ 

Seed list:

B

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

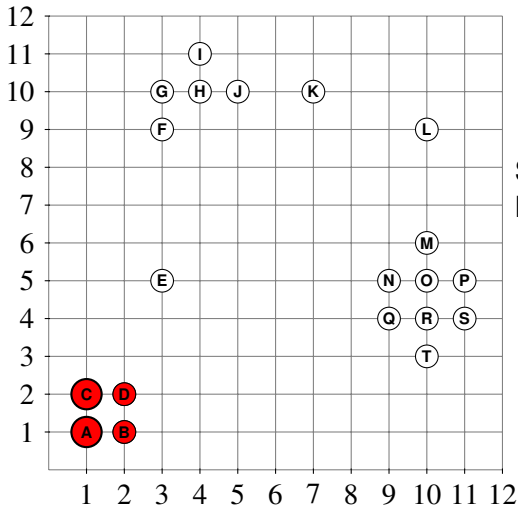
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:  
BD

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

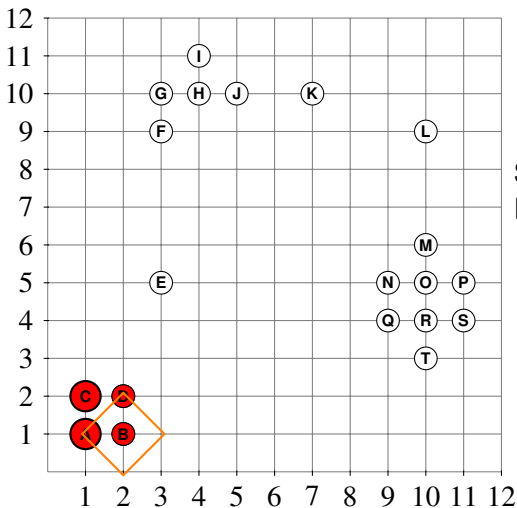
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$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

D

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

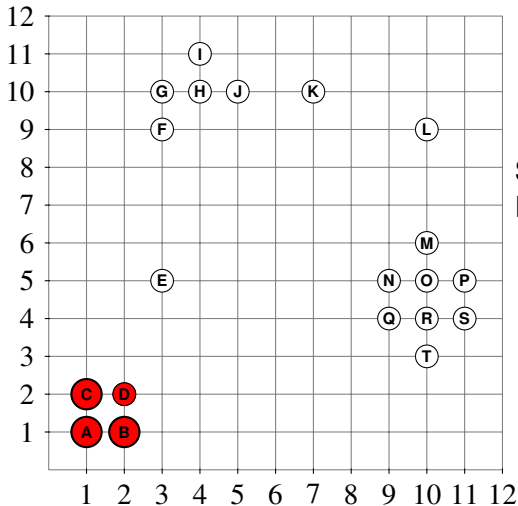
$\epsilon = 1.1$   
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$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

D



Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

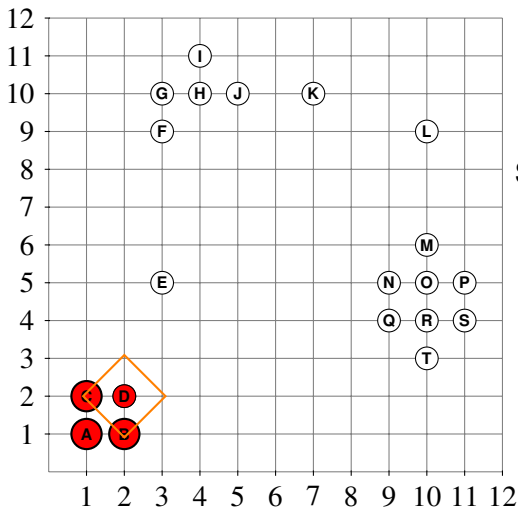
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

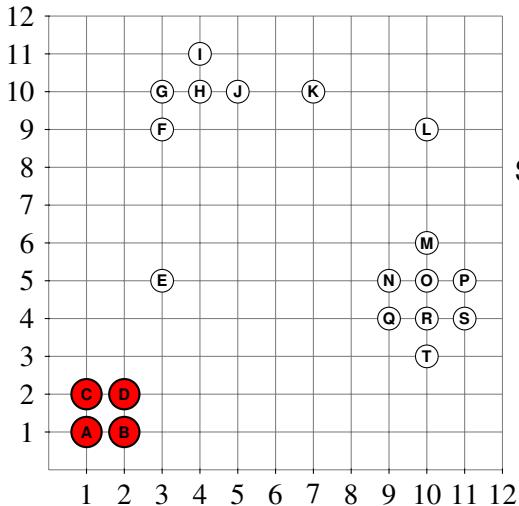
$minPts = 2$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $minPts = 2$ 

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

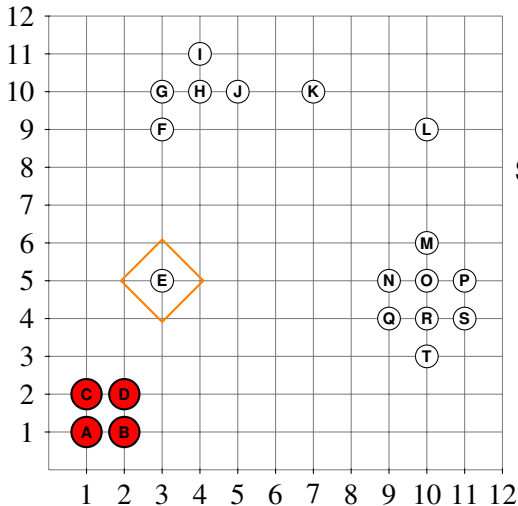
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

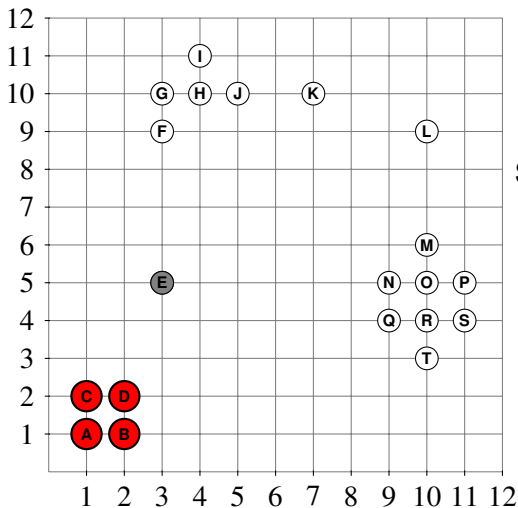
$\epsilon = 1.1$   
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$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

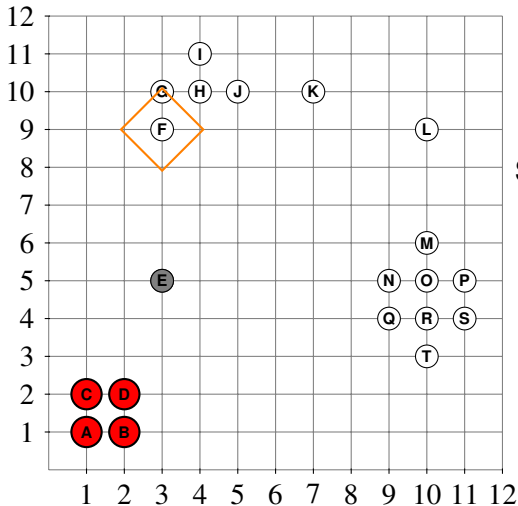
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

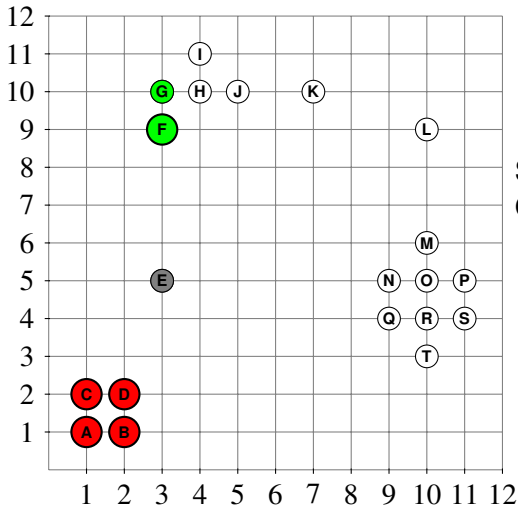
$minPts = 2$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $minPts = 2$ 

Seed list:

G

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

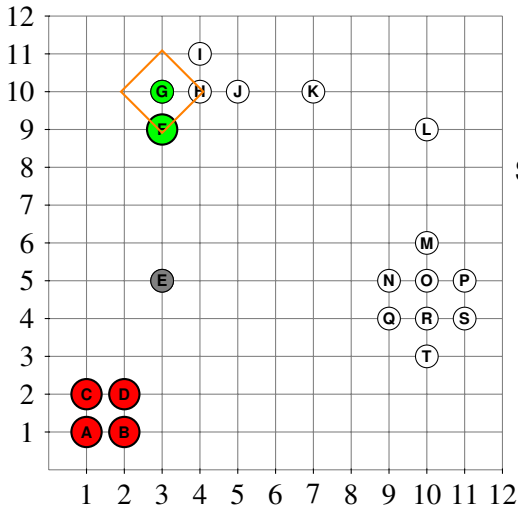
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

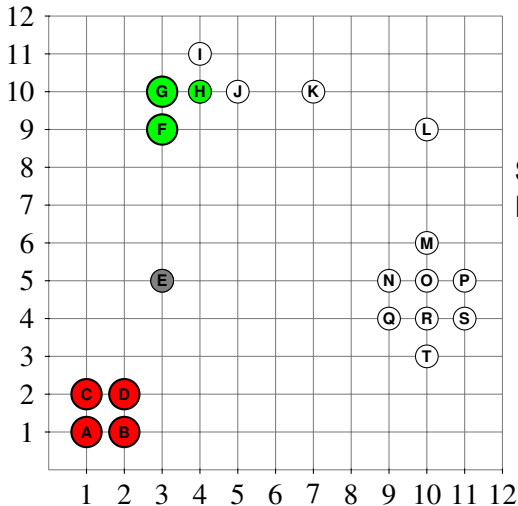
$minPts = 2$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

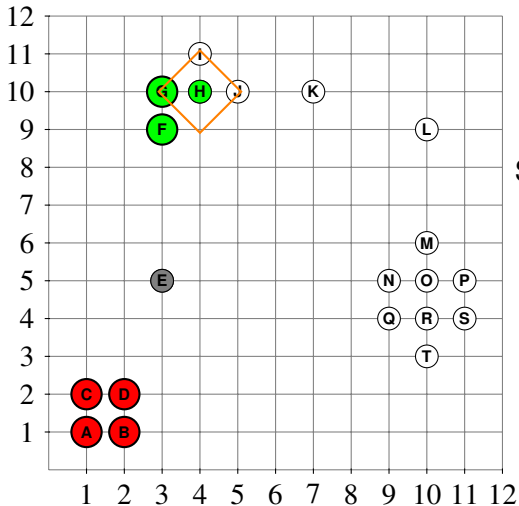
 $\epsilon = 1.1$  $\text{minPts} = 2$ Seed list:  
H



## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

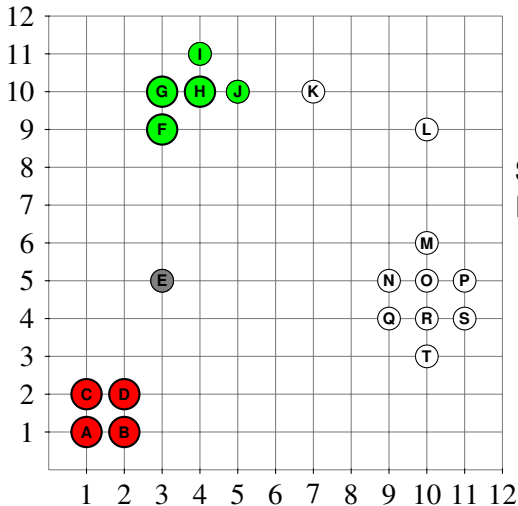
 $\epsilon = 1.1$  $minPts = 2$ 

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 2$ 

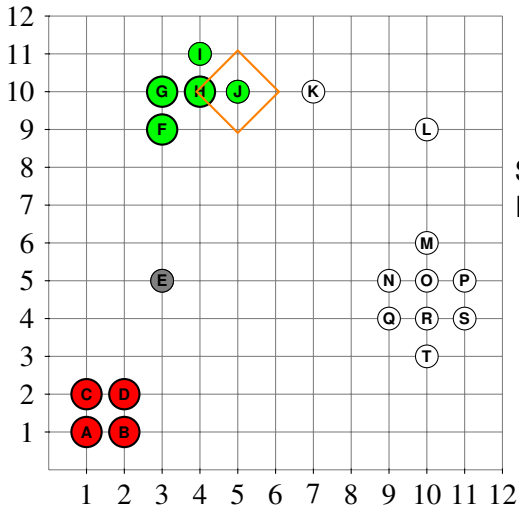
Seed list:

IJ

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $minPts = 2$ 

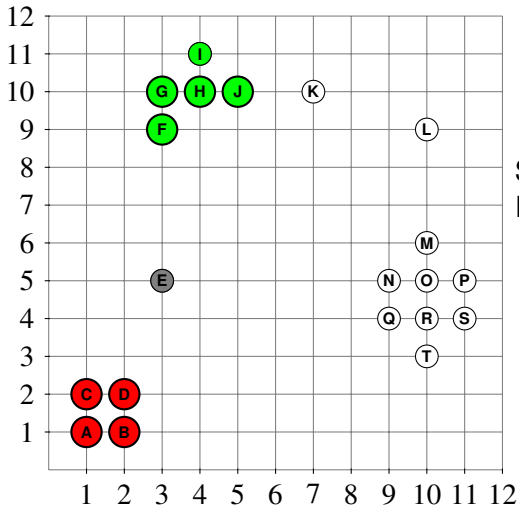
Seed list:

I

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 2$ 

Seed list:

I

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

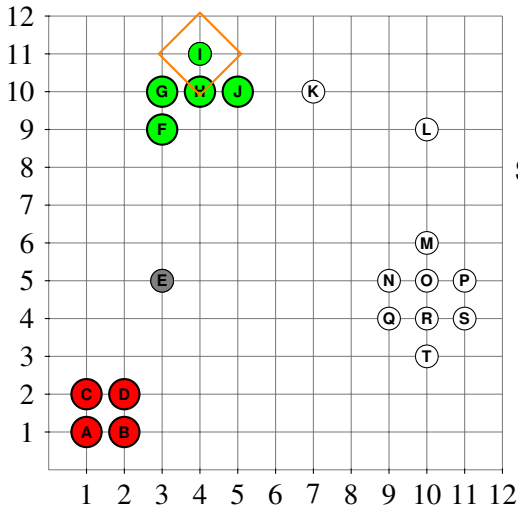
$\epsilon = 1.1$   
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$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

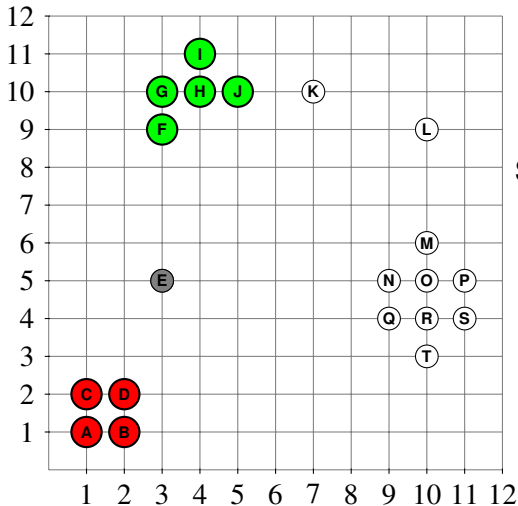
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$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

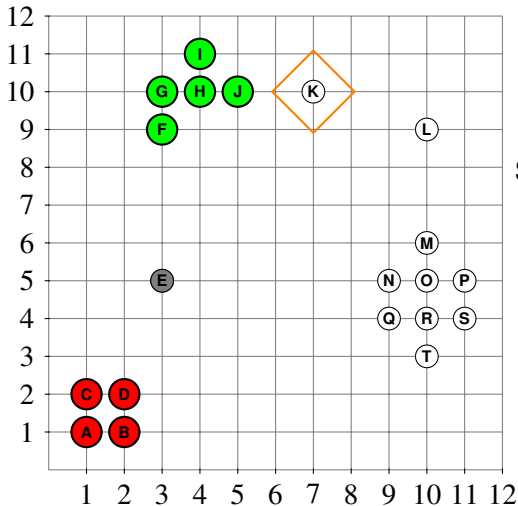
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$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

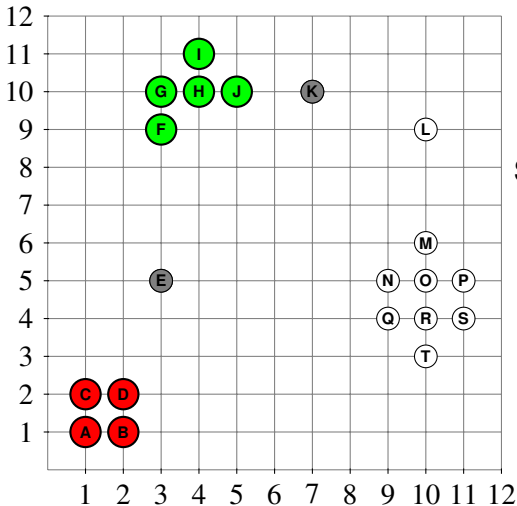
$\epsilon = 1.1$   
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$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
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$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:



Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

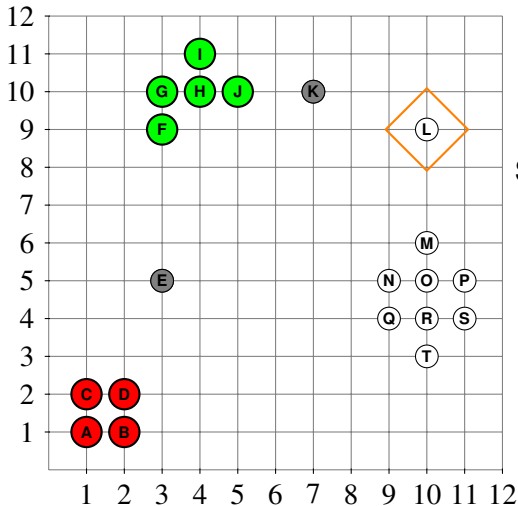
$\epsilon = 1.1$   
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$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

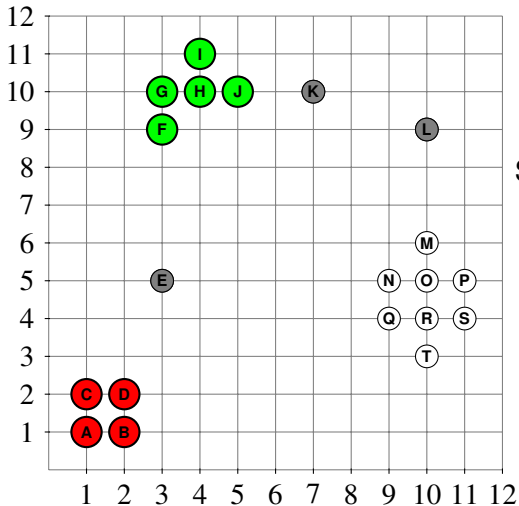
$minPts = 2$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

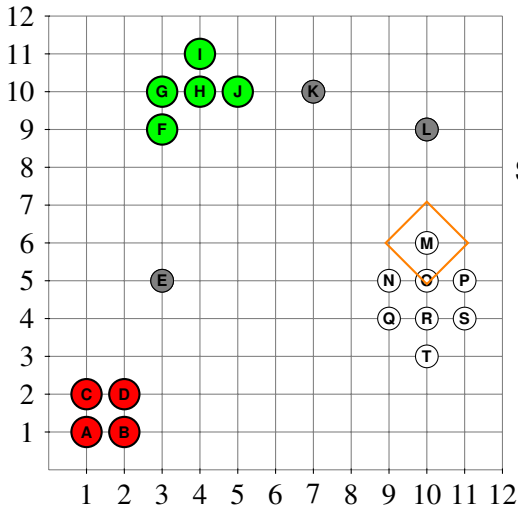
 $\epsilon = 1.1$  $minPts = 2$ 

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

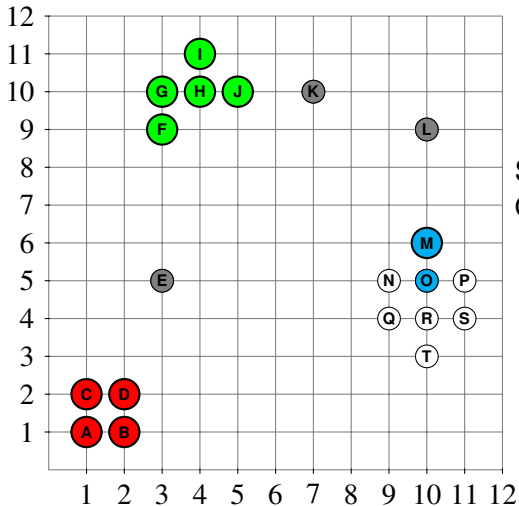
 $\epsilon = 1.1$  $minPts = 2$ 

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 2$ 

Seed list:

O

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

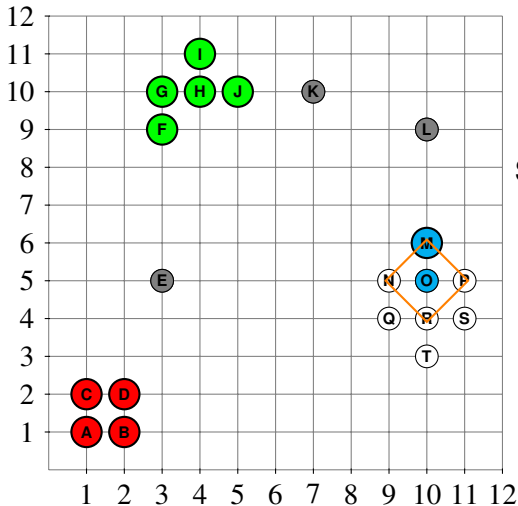
$\epsilon = 1.1$   
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$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

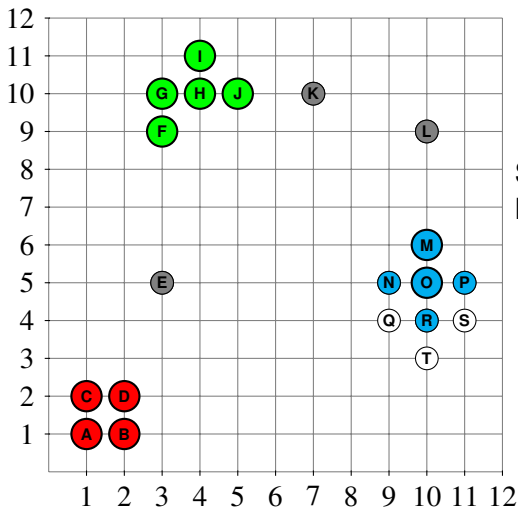
$\epsilon = 1.1$   
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$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:  
NPR

## Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

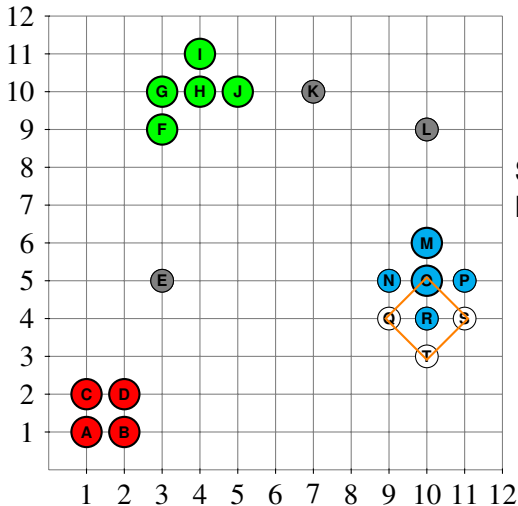
$\epsilon = 1.1$   
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$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

## Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

NP

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

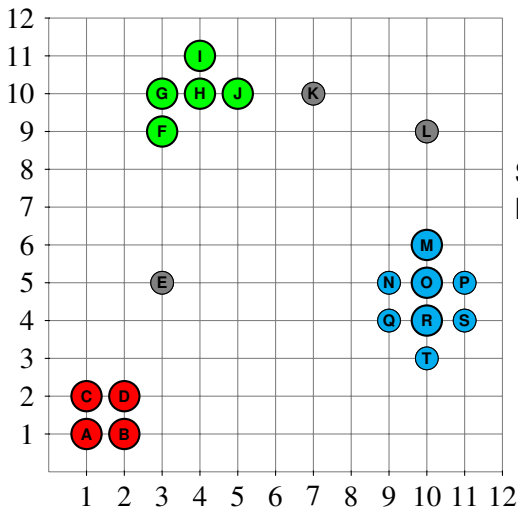
$\epsilon = 1.1$   
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$\epsilon = 2.1$   
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$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:  
NPQST



Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

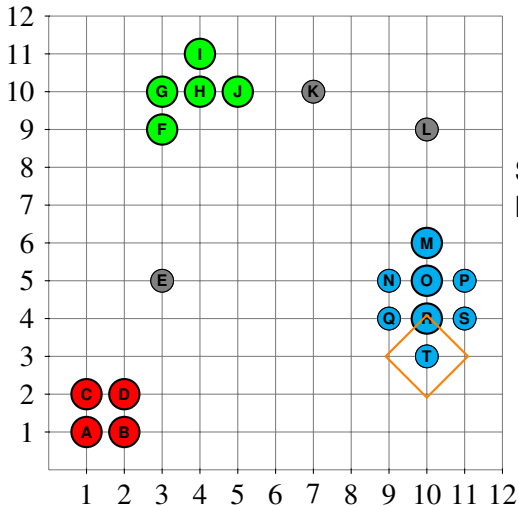
$\epsilon = 1.1$   
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$\epsilon = 2.1$   
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$\epsilon = 4.1$   
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$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:  
NPQS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

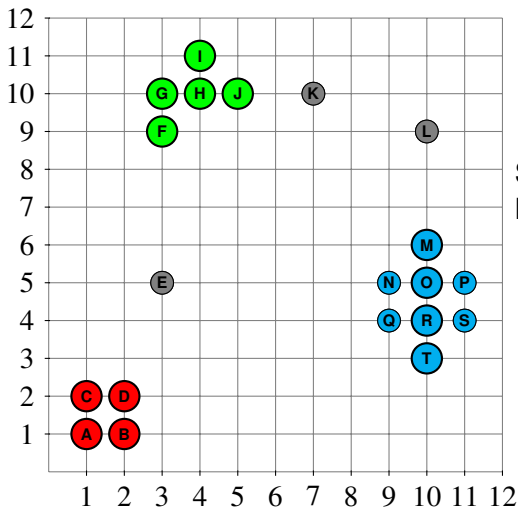
$\epsilon = 1.1$   
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$\epsilon = 2.1$   
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$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:  
NPQS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

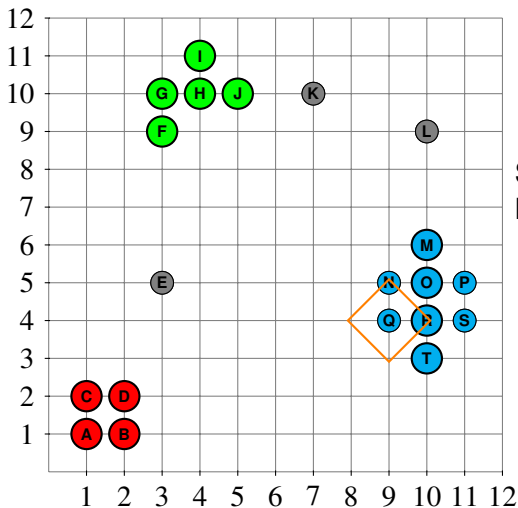
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:  
NPS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

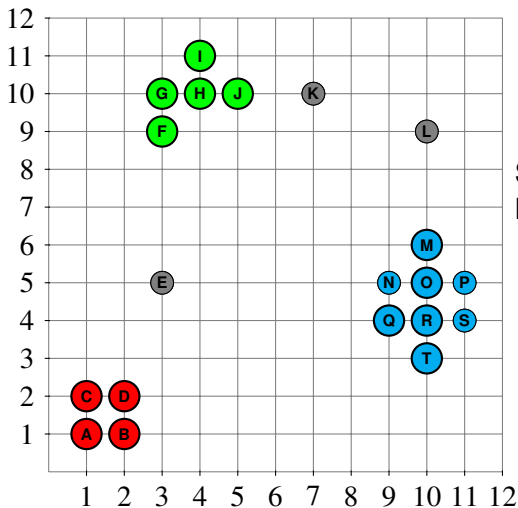
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:  
NPS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

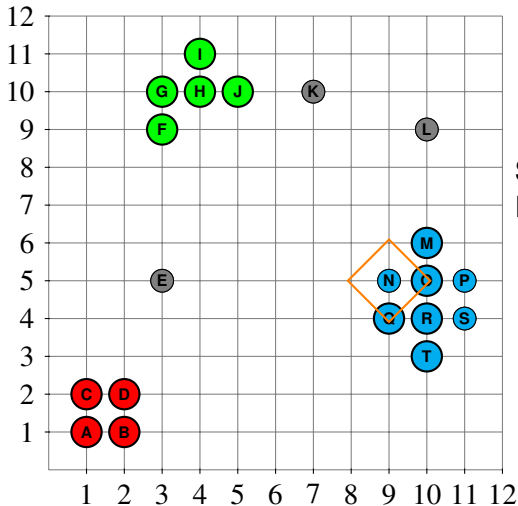
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:  
PS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

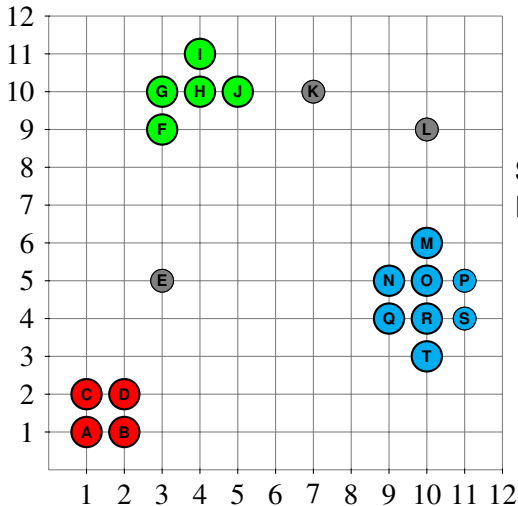
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:  
PS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

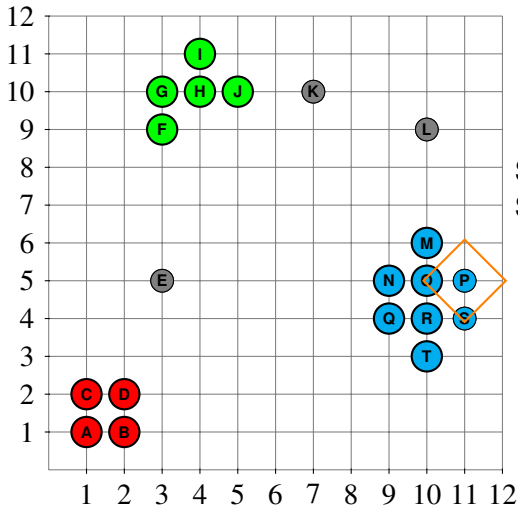
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:  
S

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

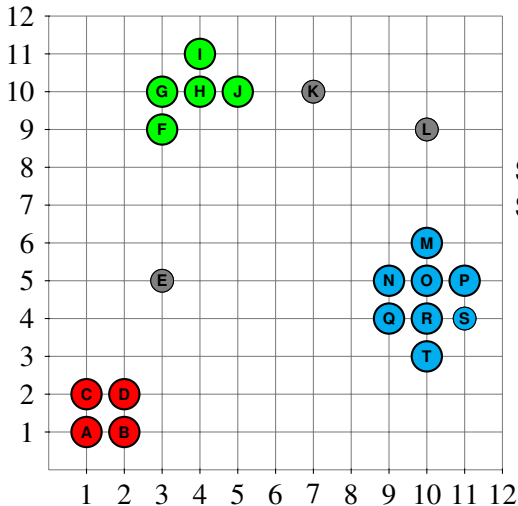
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:  
S



Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

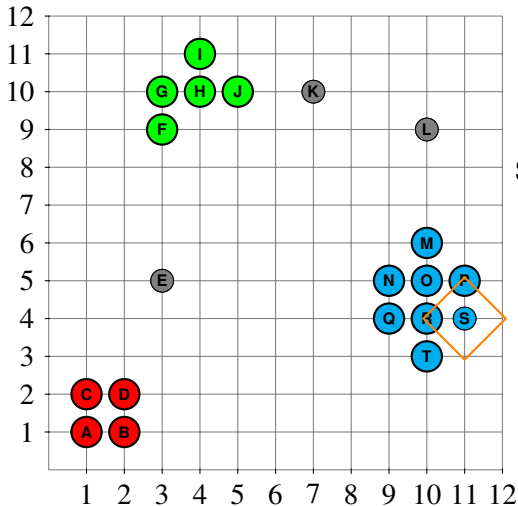
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

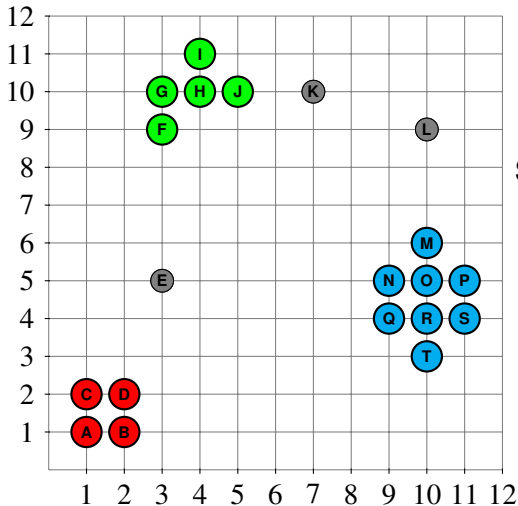
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

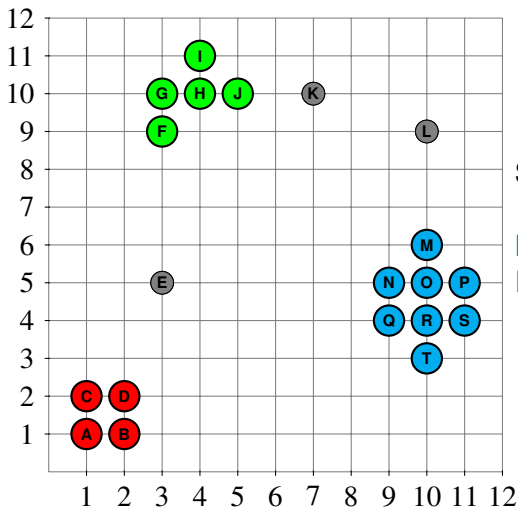
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 2$

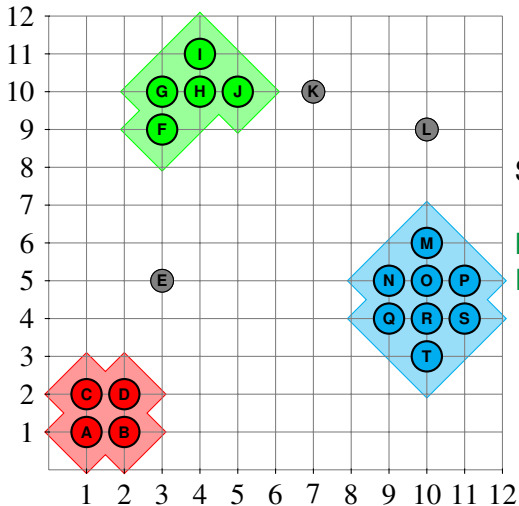
Seed list:

Keine  
Randpunkte!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 2$ 

Seed list:

Keine  
Randpunkte!

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

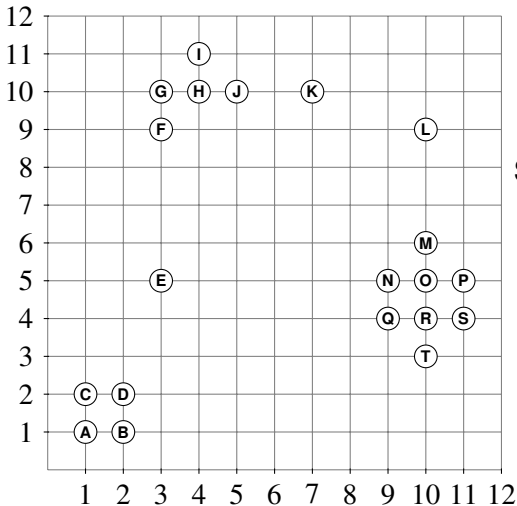
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

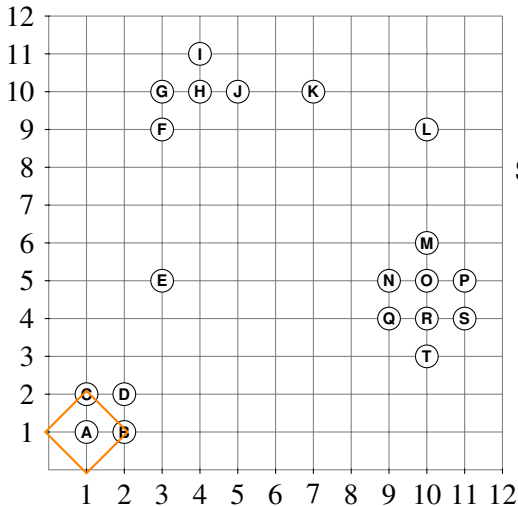
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

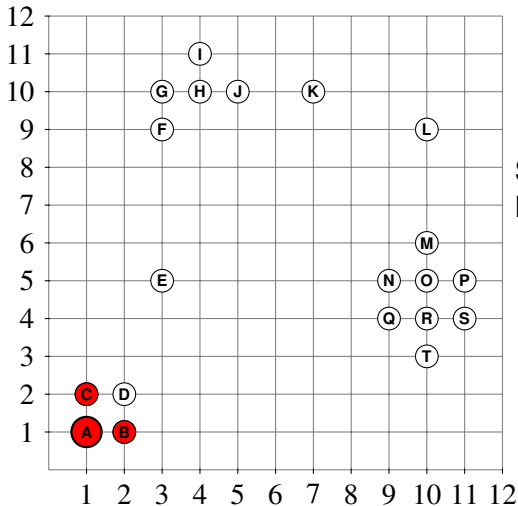
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

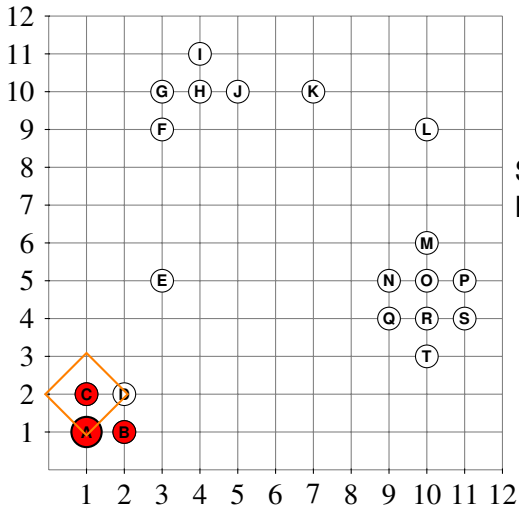
$minPts = 3$

Seed list:  
BC

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 3$ 

Seed list:

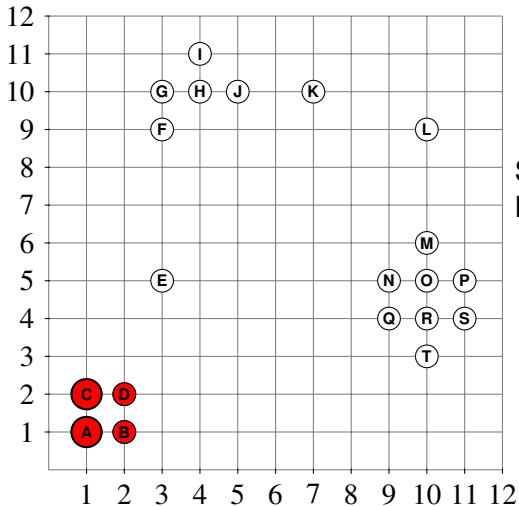
B



## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 3$ 

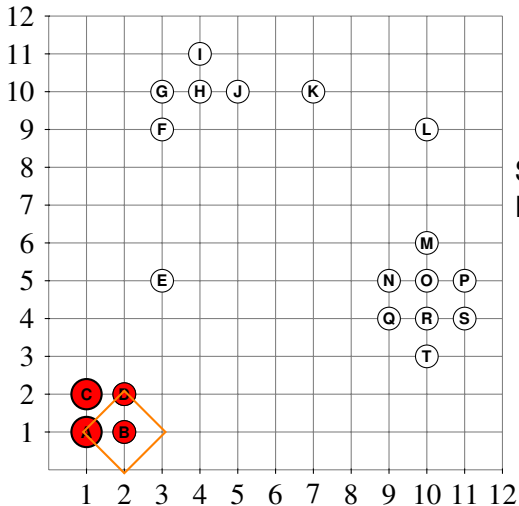
Seed list:

BD

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 3$ 

Seed list:

D

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

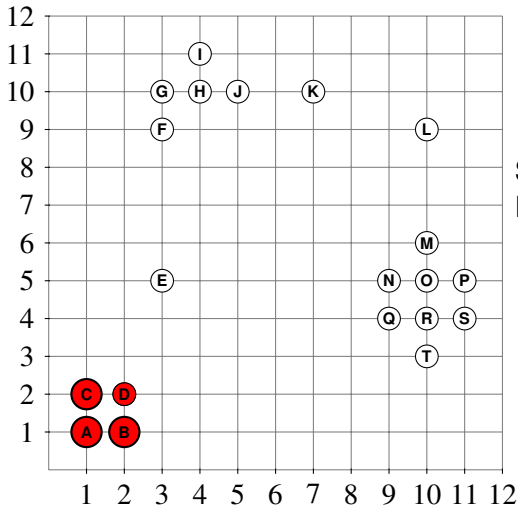
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

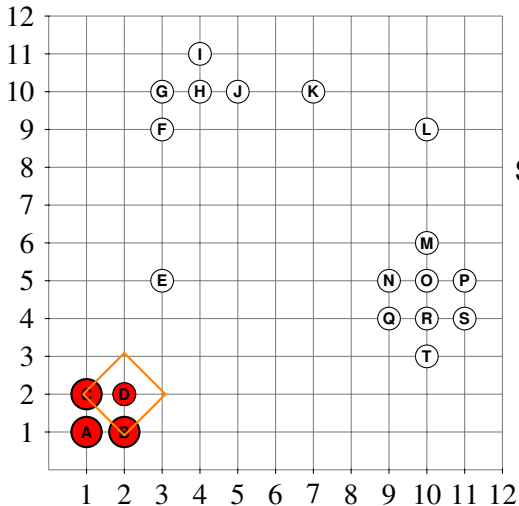
Seed list:

D

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 3$ 

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

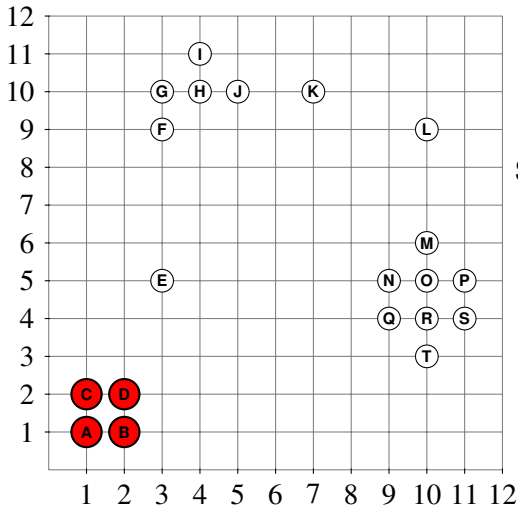
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

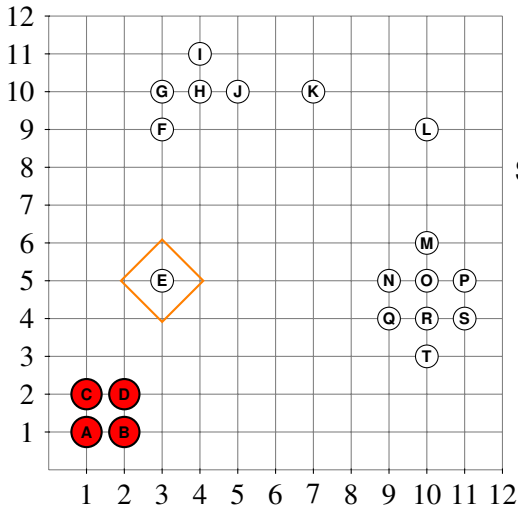
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

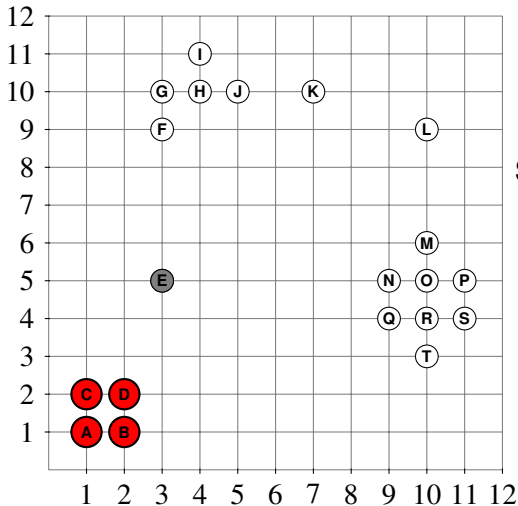
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

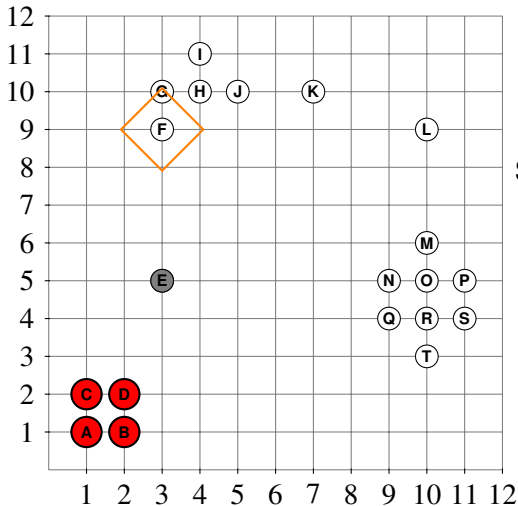
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:



## Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

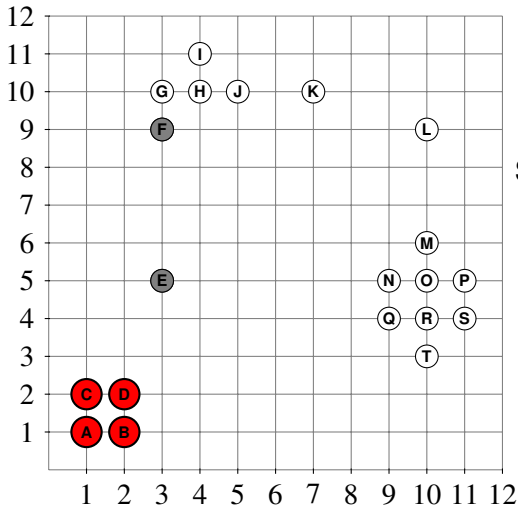
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

## Aufgabe 7-2



$\epsilon = 1.1$

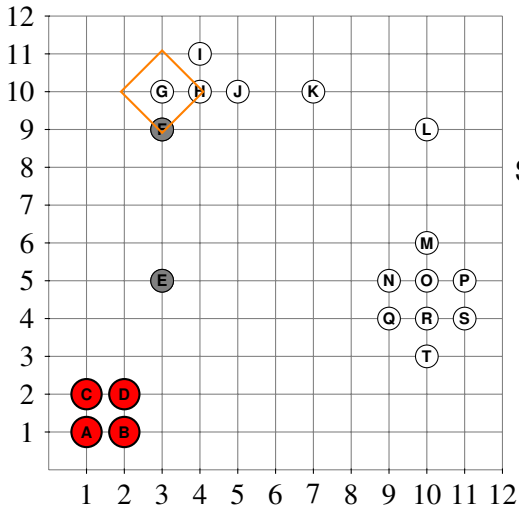
$minPts = 3$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 3$ 

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

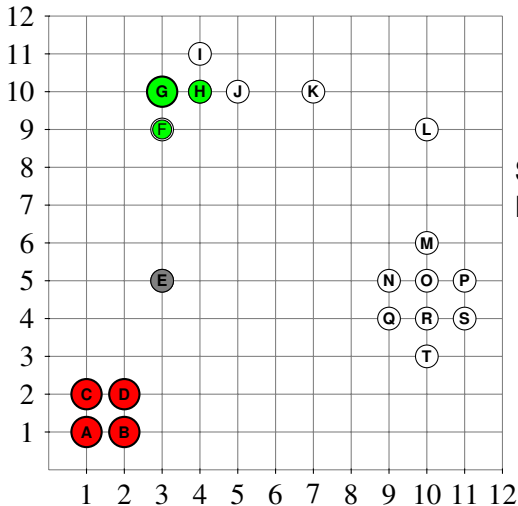
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

H

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

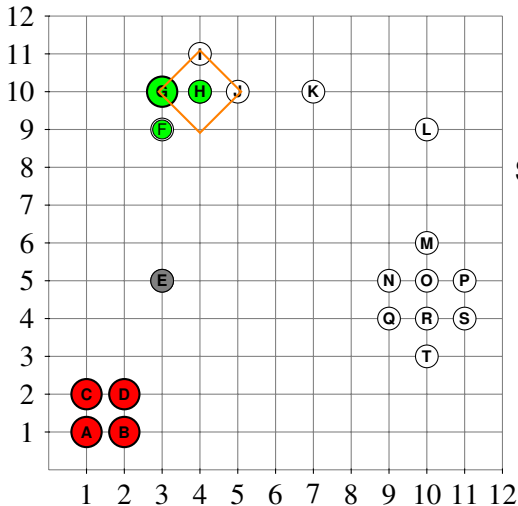
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

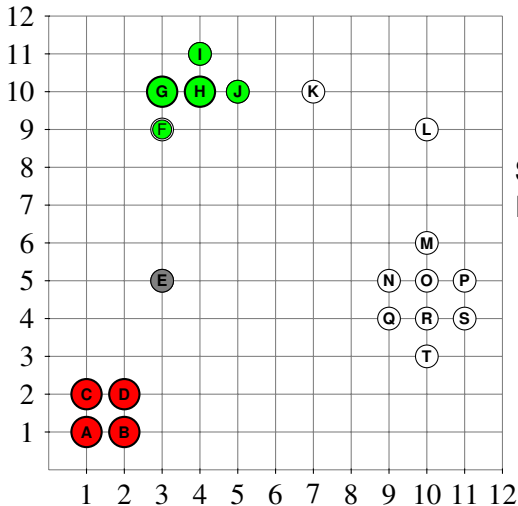
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

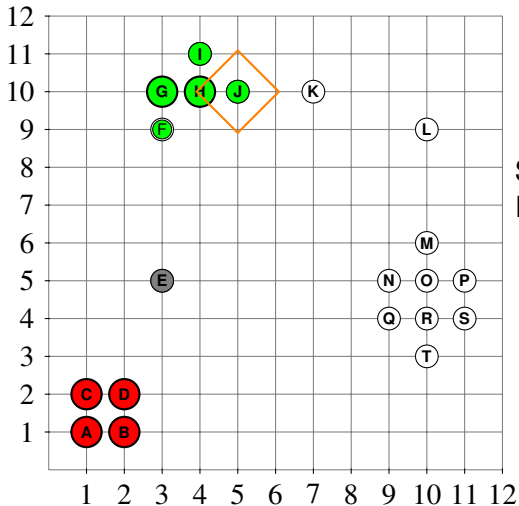
Seed list:

I, J

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 3$ 

Seed list:

I

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

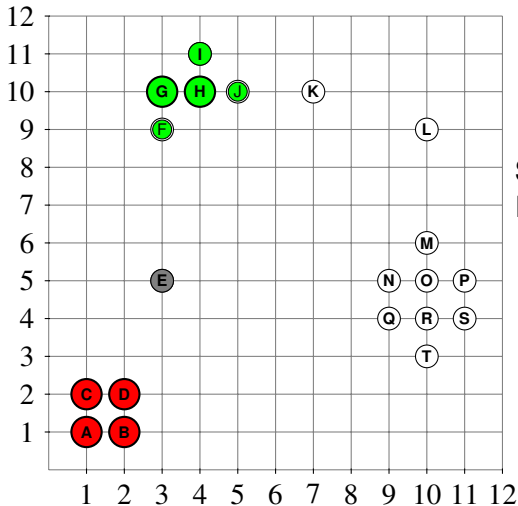
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

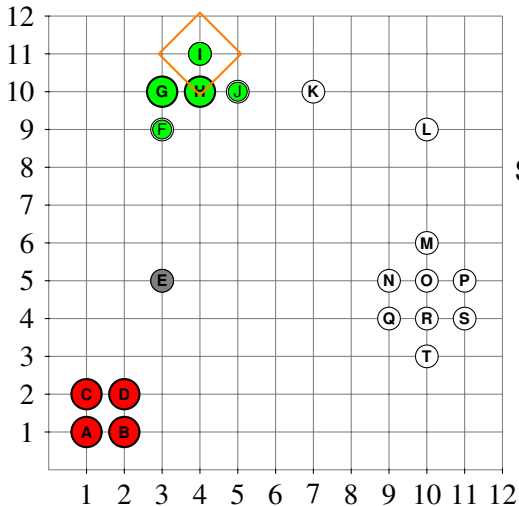
Seed list:

I

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 3$ 

Seed list:



Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

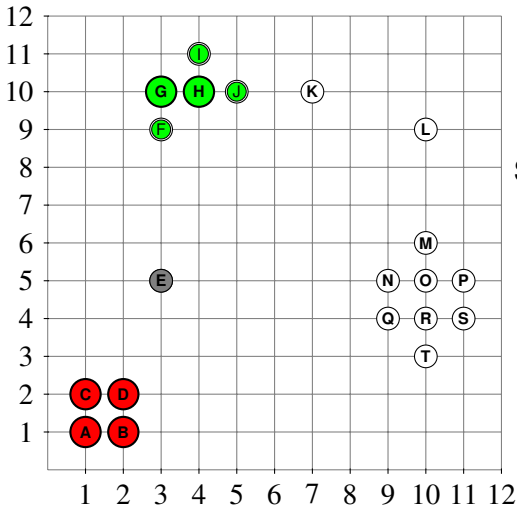
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

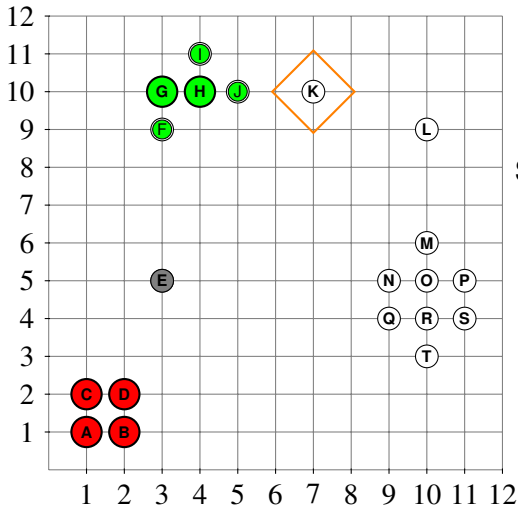
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

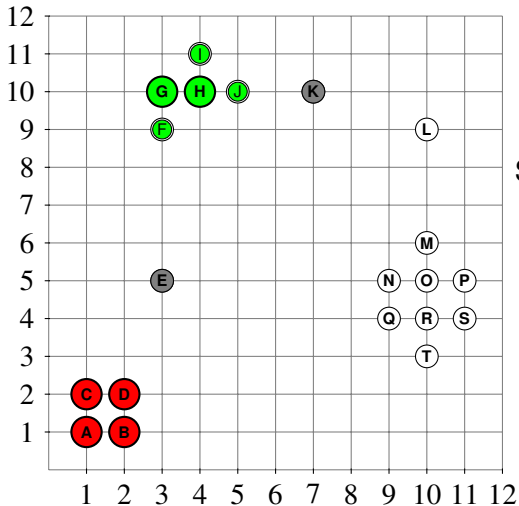
$minPts = 3$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 3$ 

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

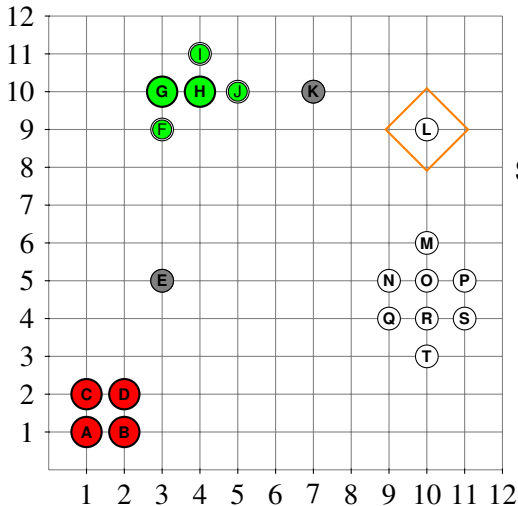
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

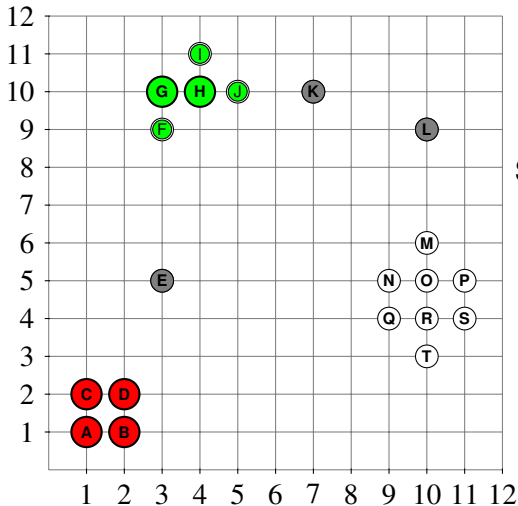
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

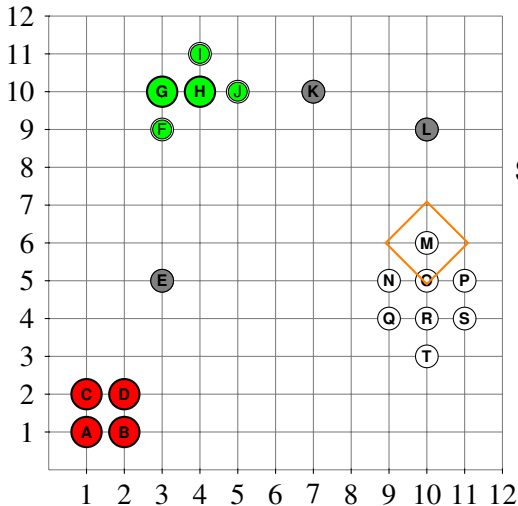
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

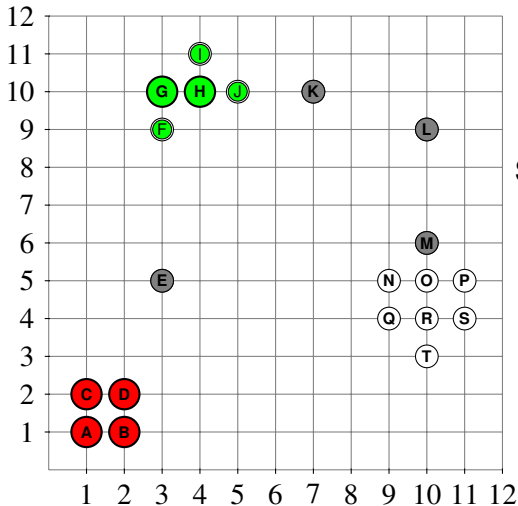
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

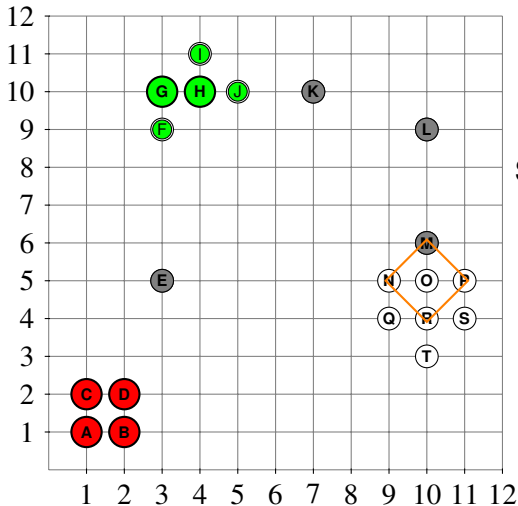
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:



Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

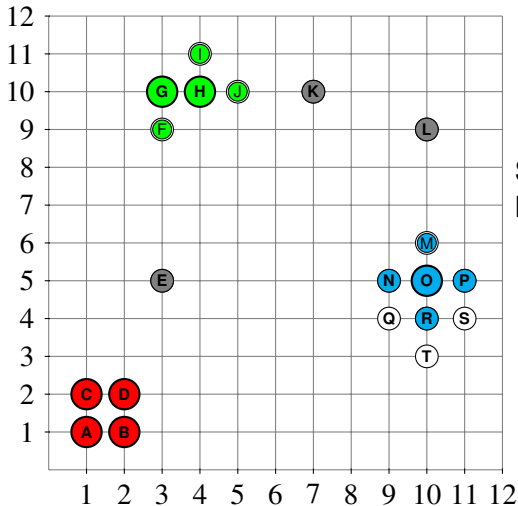
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

NPR

## Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

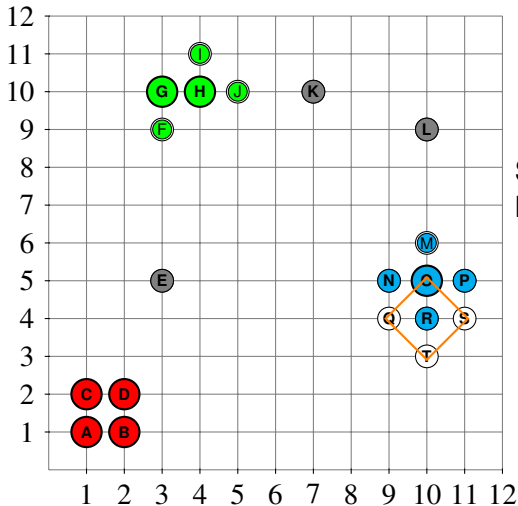
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

## Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

NP

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

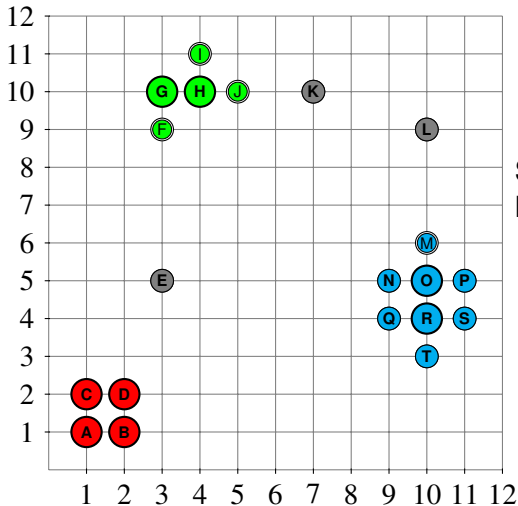
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:  
NPQST

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

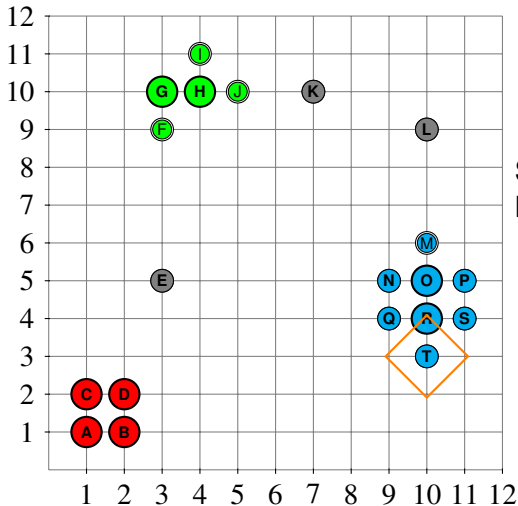
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

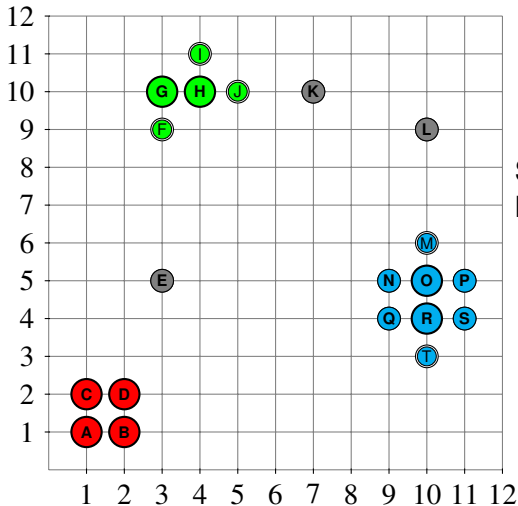
$minPts = 3$

Seed list:  
NPQS

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 3$ Seed list:  
NPQS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

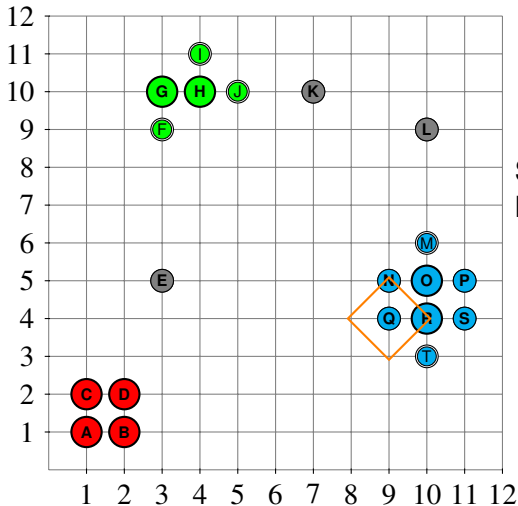
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:  
NPS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

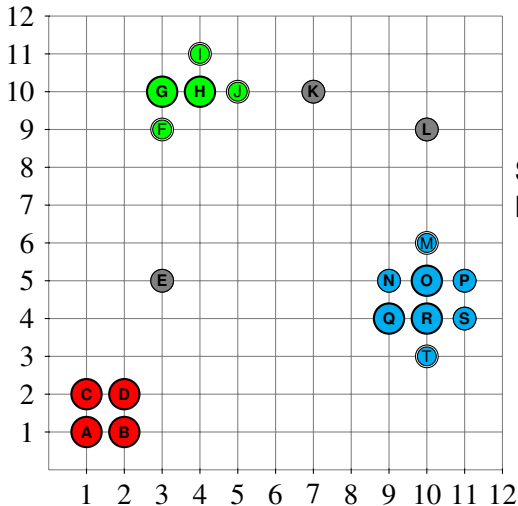
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:  
NPS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

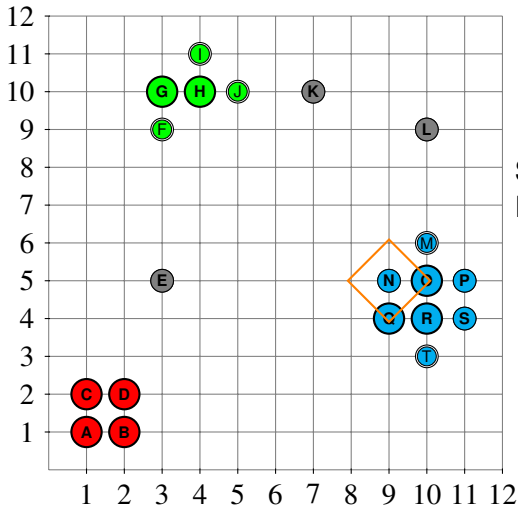
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:  
PS



Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

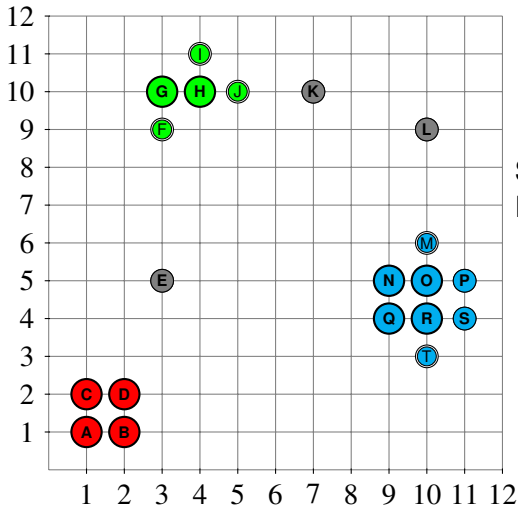
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:  
PS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

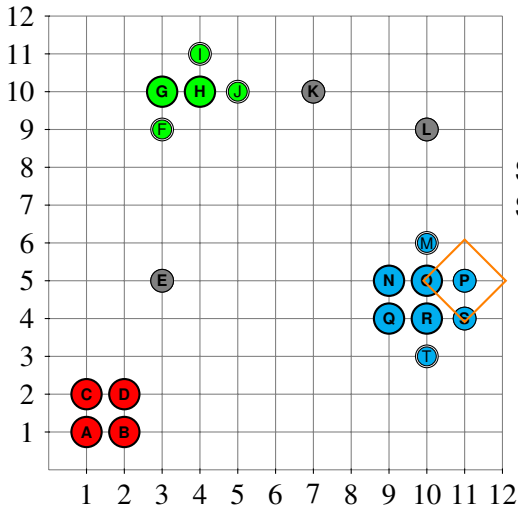
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:  
S

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

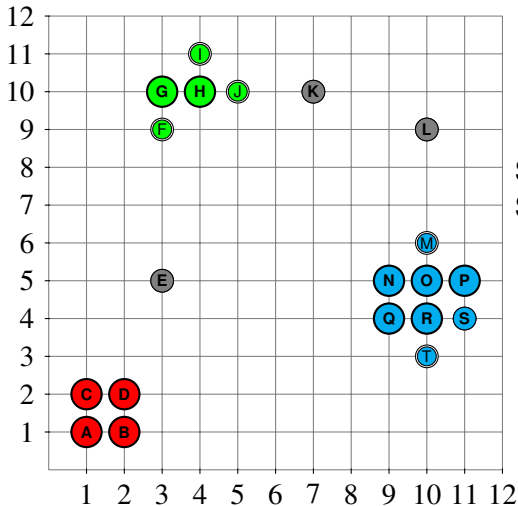
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:  
S

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

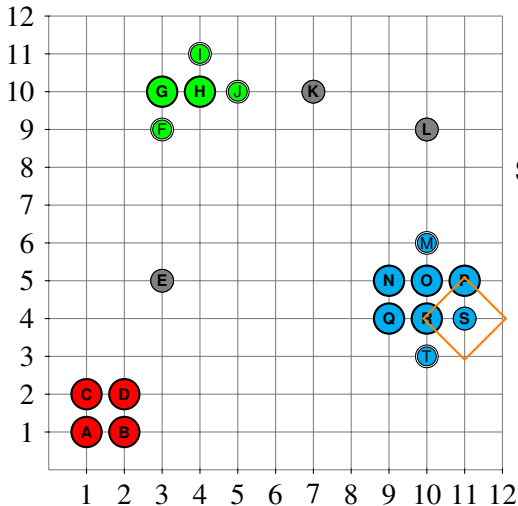
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

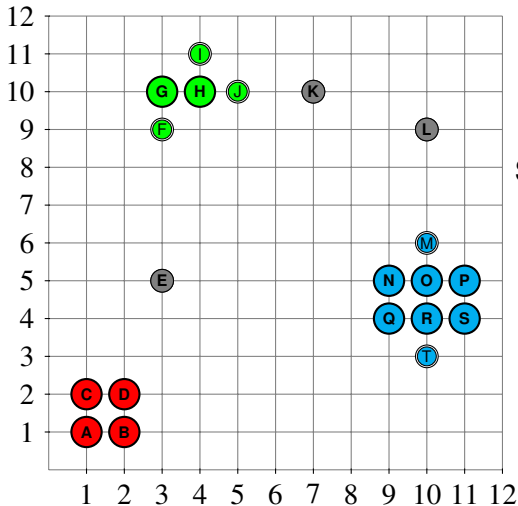
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 3$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

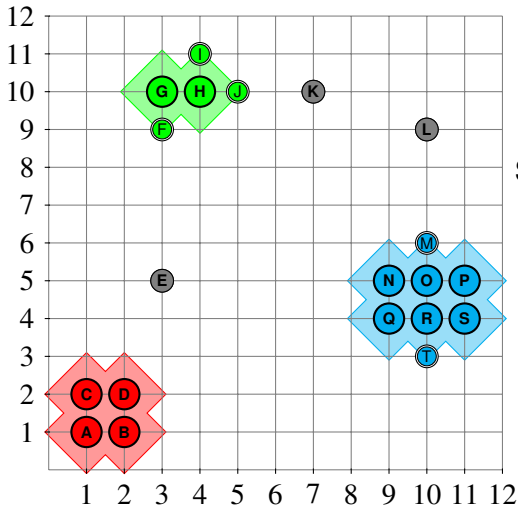
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

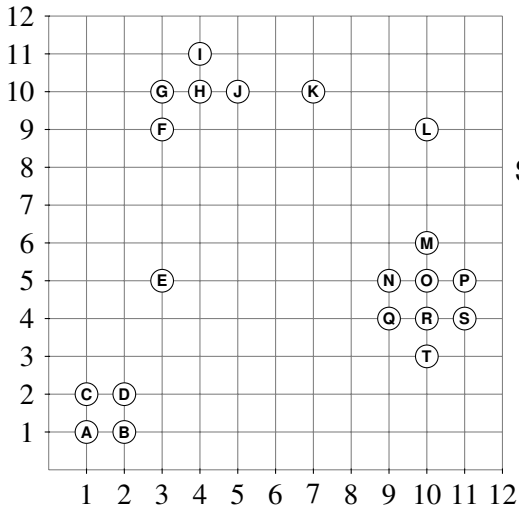
$minPts = 3$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 4$ 

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$

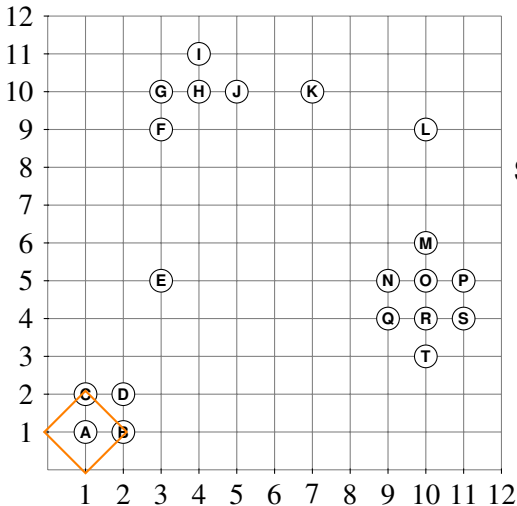
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:



Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$

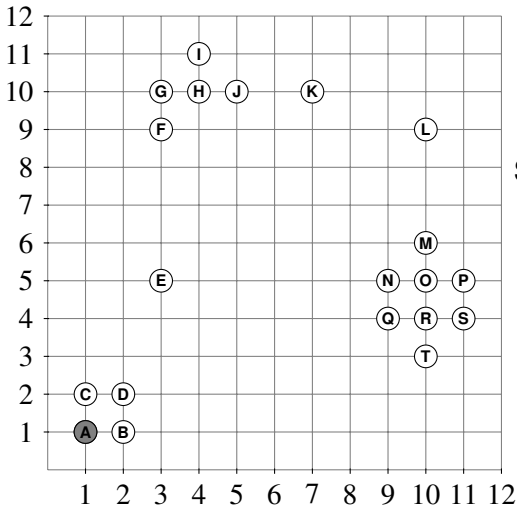
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

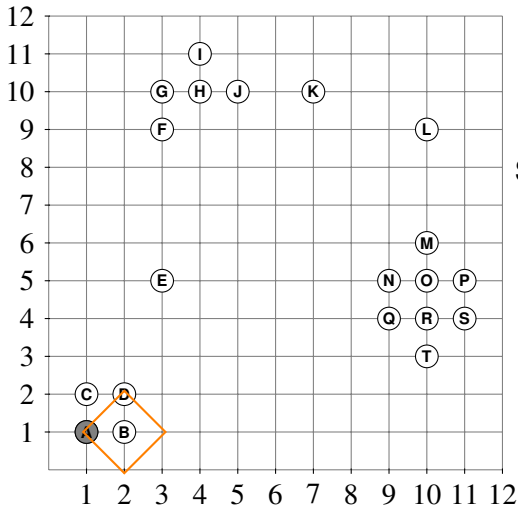
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$

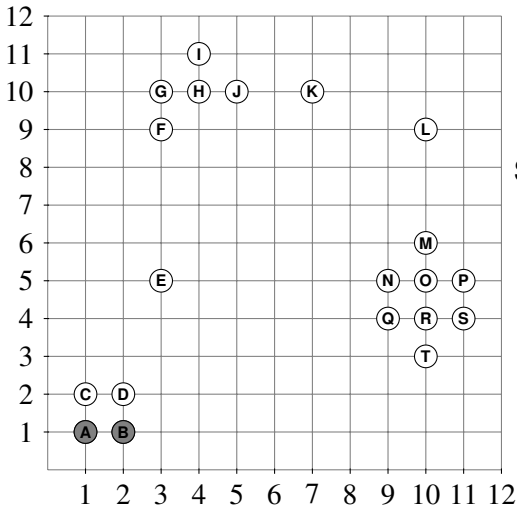
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

## Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

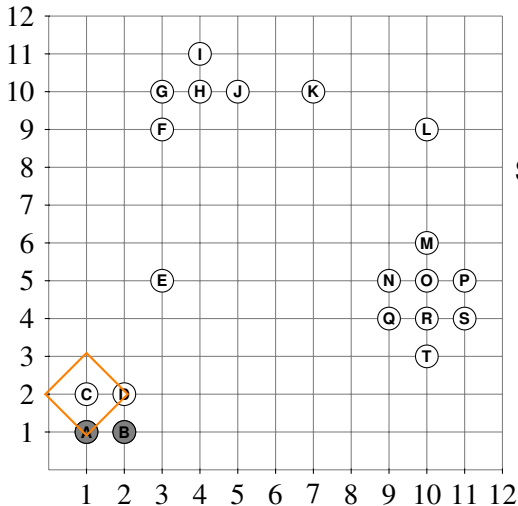
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

## Aufgabe 7-2



$\epsilon = 1.1$

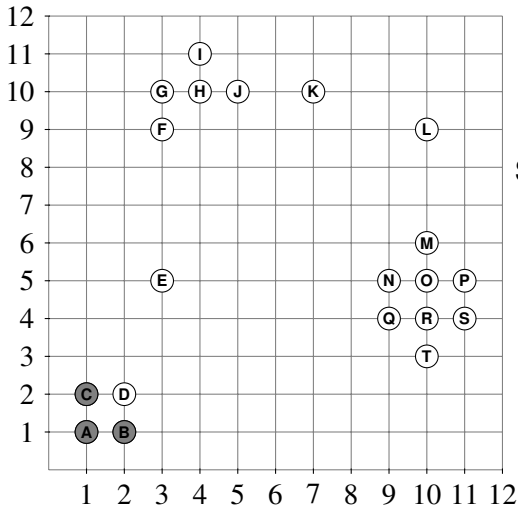
$minPts = 4$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 4$ 

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

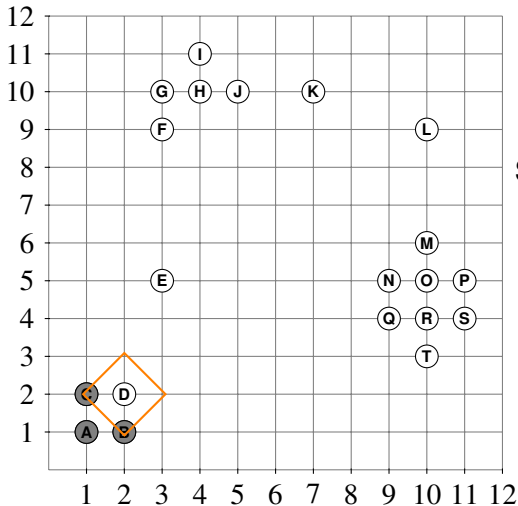
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$

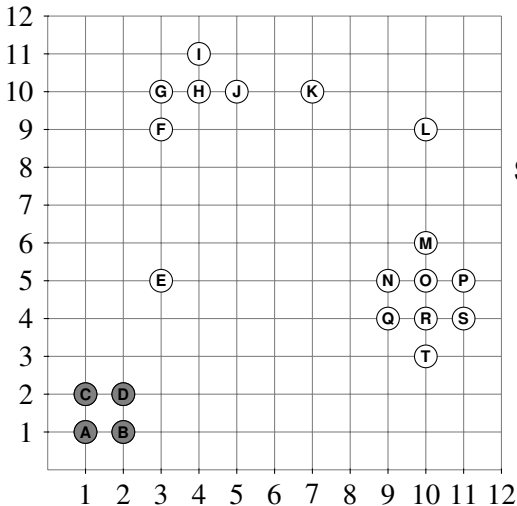
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$ 

minPts = 2

 $\epsilon = 1.1$ 

minPts = 3

 $\epsilon = 1.1$ 

minPts = 4

 $\epsilon = 2.1$ 

minPts = 4

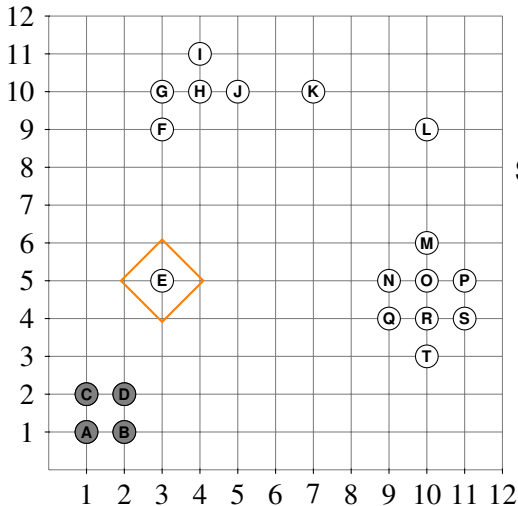
 $\epsilon = 4.1$ 

minPts = 5

 $\epsilon = 4.1$ 

minPts = 4

## Aufgabe 7-2

 $\epsilon = 1.1$ 

minPts = 4

Seed list:



## Aufgabe 7-1

$\epsilon = 1.1$   
minPts = 2  
 $\epsilon = 1.1$   
minPts = 3

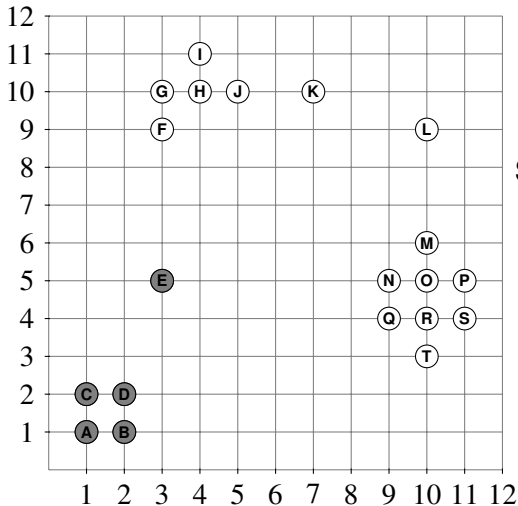
$\epsilon = 1.1$   
minPts = 4

$\epsilon = 2.1$   
minPts = 4

$\epsilon = 4.1$   
minPts = 5

$\epsilon = 4.1$   
minPts = 4

## Aufgabe 7-2



$\epsilon = 1.1$

*minPts = 4*

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

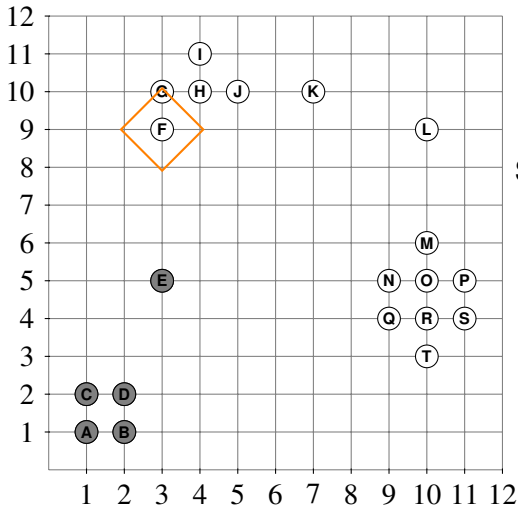
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

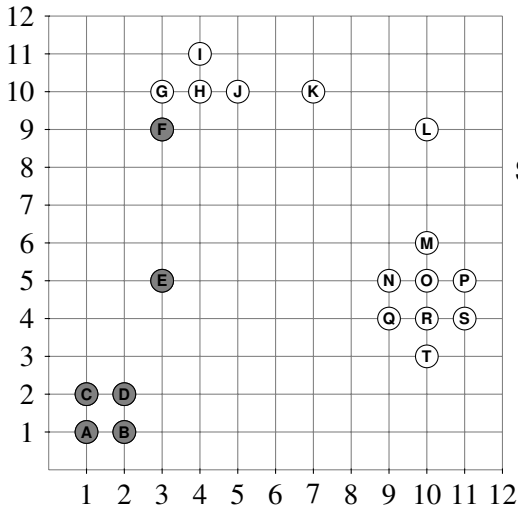
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

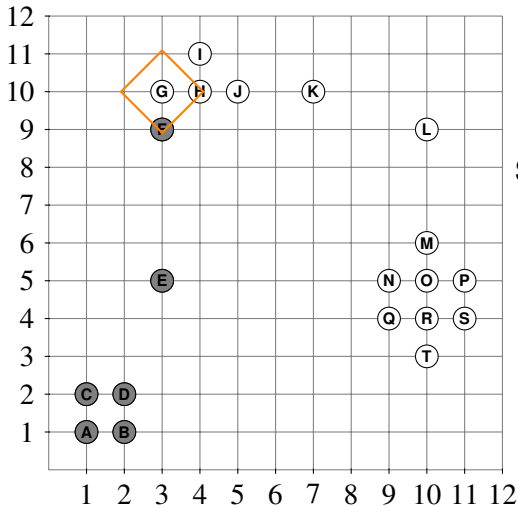
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$

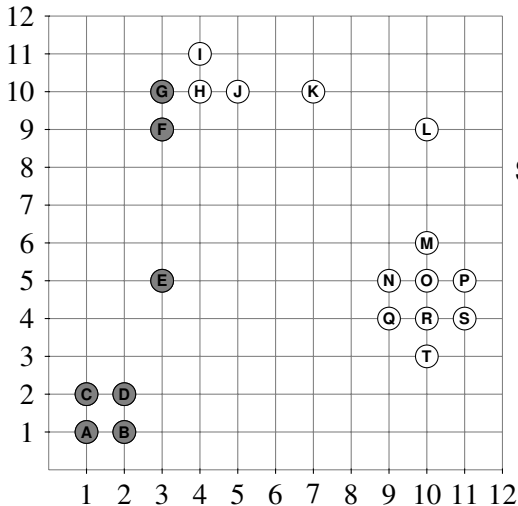
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

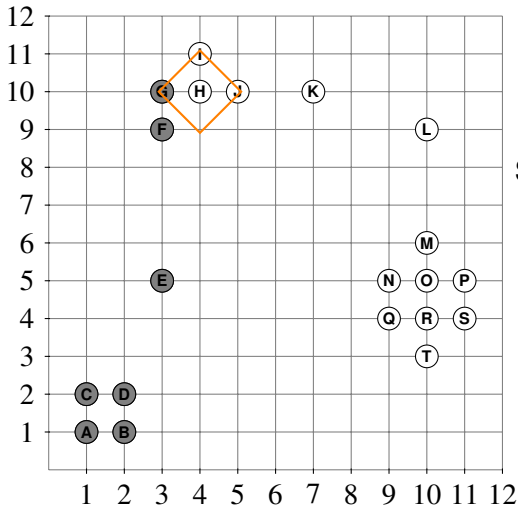
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

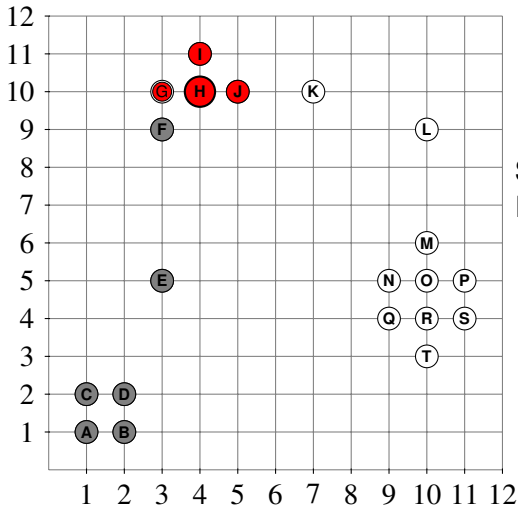
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

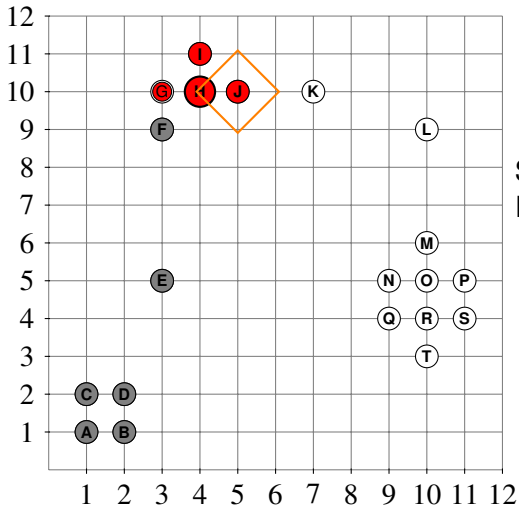
Seed list:

I, J

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 4$ 

Seed list:

I



### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

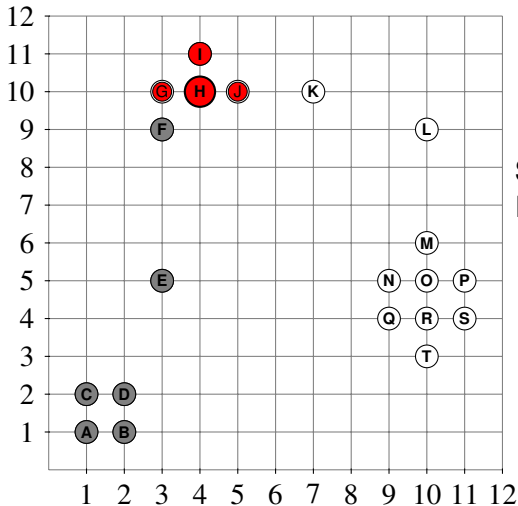
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

I

Aufgabe 7-1

$\epsilon = 1.1$   
minPts = 2  
 $\epsilon = 1.1$   
minPts = 3

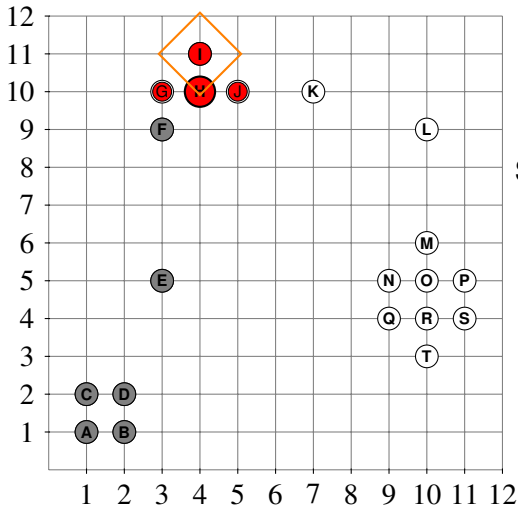
$\epsilon = 1.1$   
minPts = 4

$\epsilon = 2.1$   
minPts = 4

$\epsilon = 4.1$   
minPts = 5

$\epsilon = 4.1$   
minPts = 4

Aufgabe 7-2



$\epsilon = 1.1$

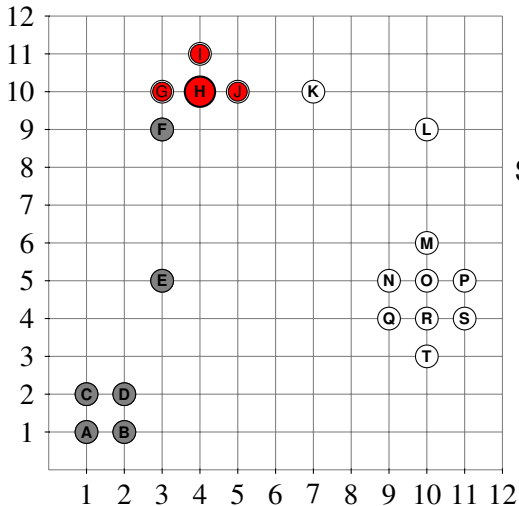
minPts = 4

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 4$ 

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

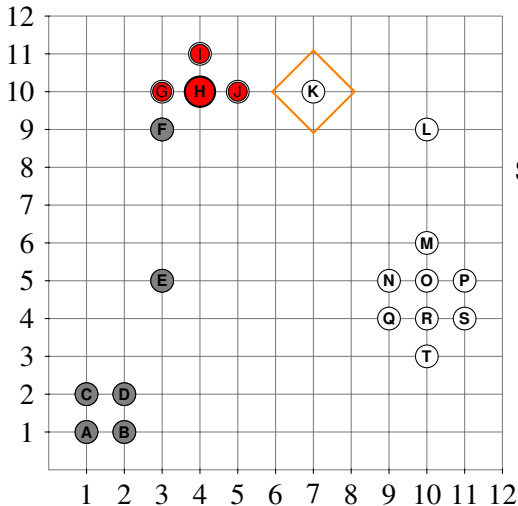
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

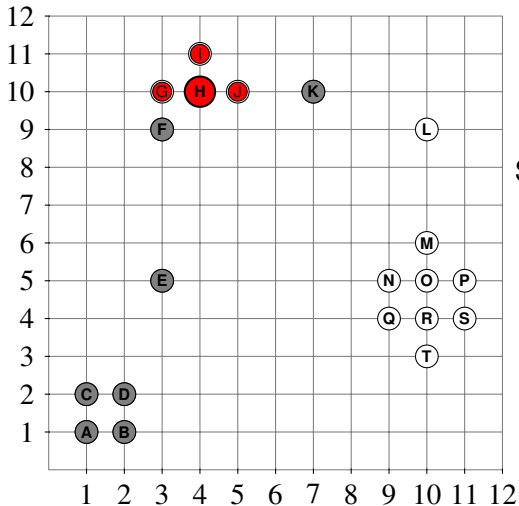
$minPts = 4$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 4$ 

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
minPts = 2  
 $\epsilon = 1.1$   
minPts = 3

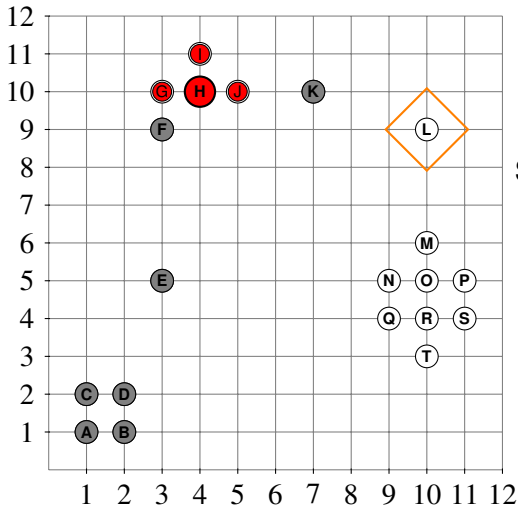
$\epsilon = 1.1$   
minPts = 4

$\epsilon = 2.1$   
minPts = 4

$\epsilon = 4.1$   
minPts = 5

$\epsilon = 4.1$   
minPts = 4

### Aufgabe 7-2



$\epsilon = 1.1$

minPts = 4

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

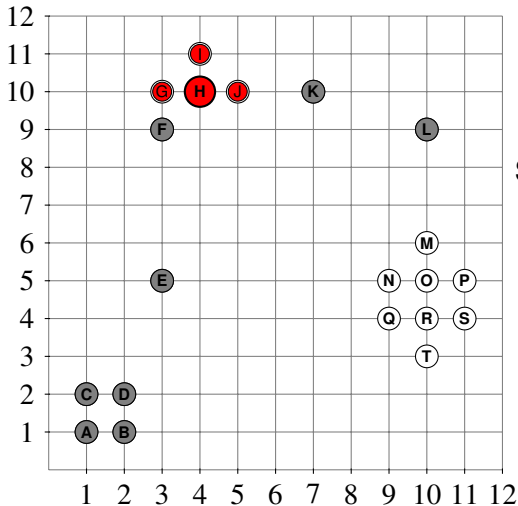
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

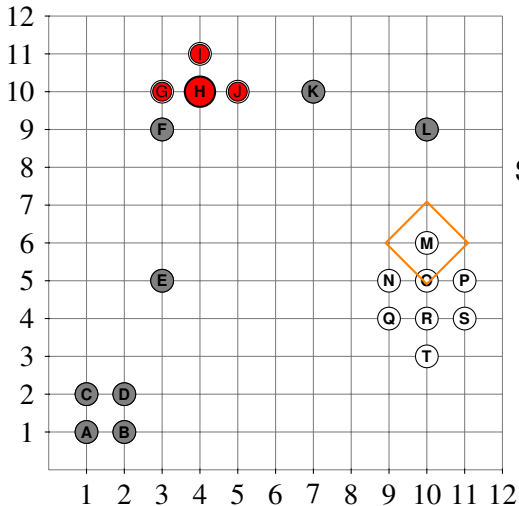
$minPts = 4$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 4$ 

Seed list:



Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

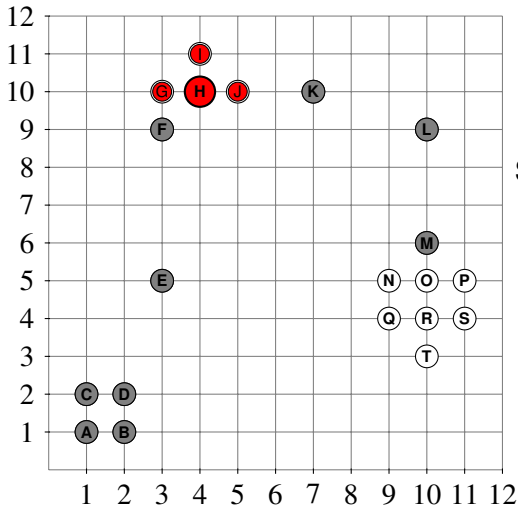
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$ 

minPts = 2

 $\epsilon = 1.1$ 

minPts = 3

 $\epsilon = 1.1$ 

minPts = 4

 $\epsilon = 2.1$ 

minPts = 4

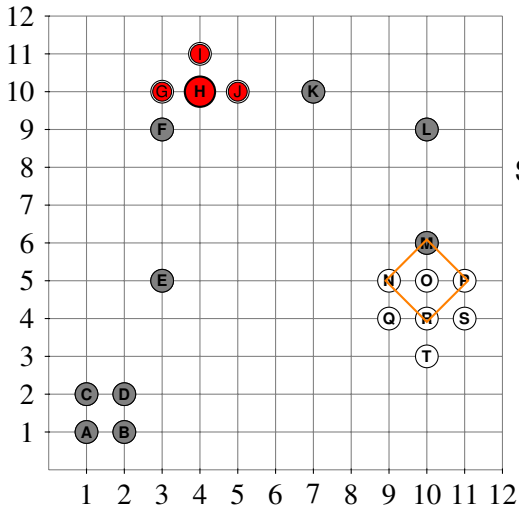
 $\epsilon = 4.1$ 

minPts = 5

 $\epsilon = 4.1$ 

minPts = 4

## Aufgabe 7-2

 $\epsilon = 1.1$ 

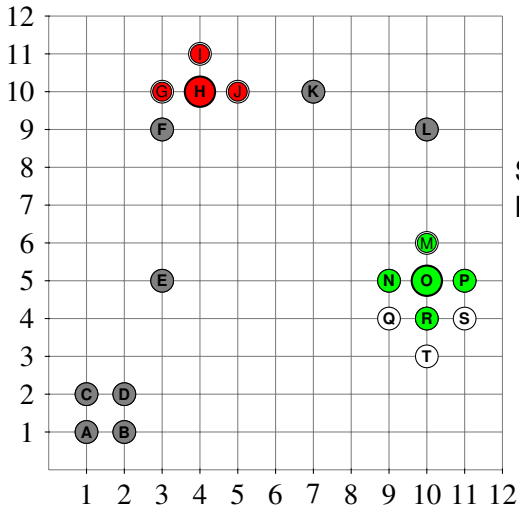
minPts = 4

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 1.1$  $\text{minPts} = 4$ 

Seed list:

NPR

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

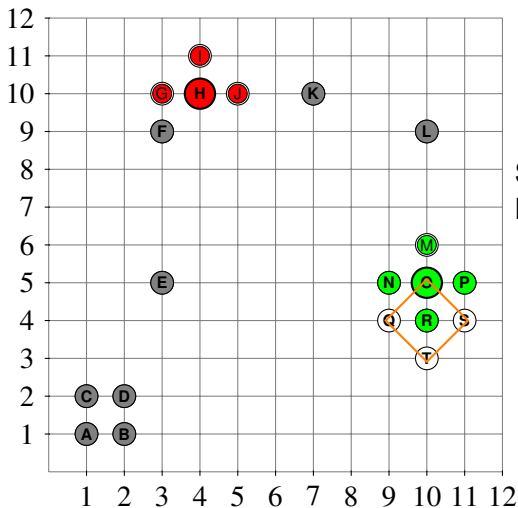
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

NP

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

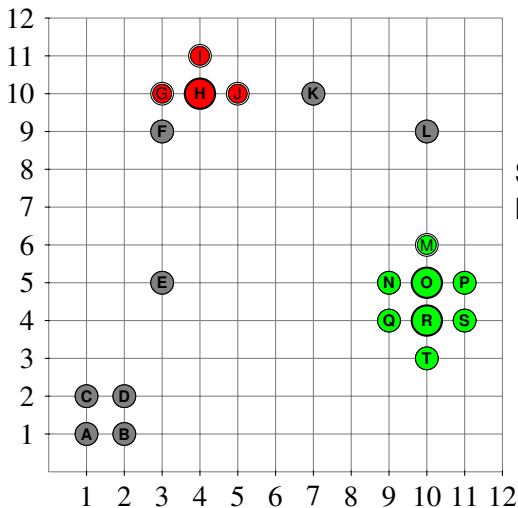
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:  
NPQST

### Aufgabe 7-1

$\epsilon = 1.1$   
minPts = 2  
 $\epsilon = 1.1$   
minPts = 3

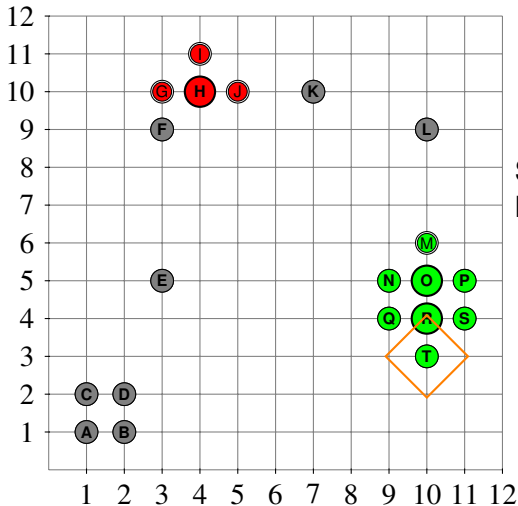
$\epsilon = 1.1$   
minPts = 4

$\epsilon = 2.1$   
minPts = 4

$\epsilon = 4.1$   
minPts = 5

$\epsilon = 4.1$   
minPts = 4

### Aufgabe 7-2



$\epsilon = 1.1$

minPts = 4

Seed list:  
NPQS

## Aufgabe 7-1

 $\epsilon = 1.1$ 

minPts = 2

 $\epsilon = 1.1$ 

minPts = 3

 $\epsilon = 1.1$ 

minPts = 4

 $\epsilon = 2.1$ 

minPts = 4

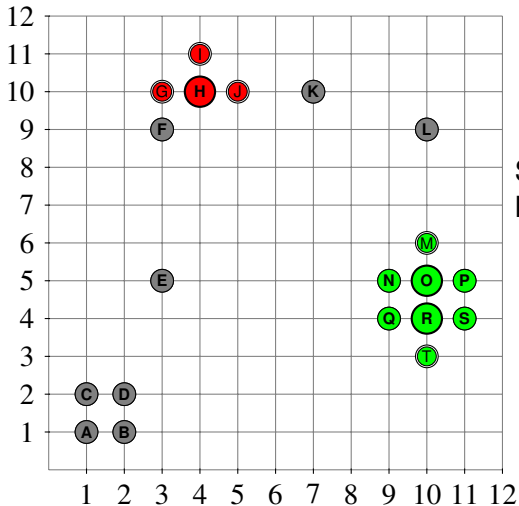
 $\epsilon = 4.1$ 

minPts = 5

 $\epsilon = 4.1$ 

minPts = 4

## Aufgabe 7-2

 $\epsilon = 1.1$ 

minPts = 4

Seed list:  
NPQS

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

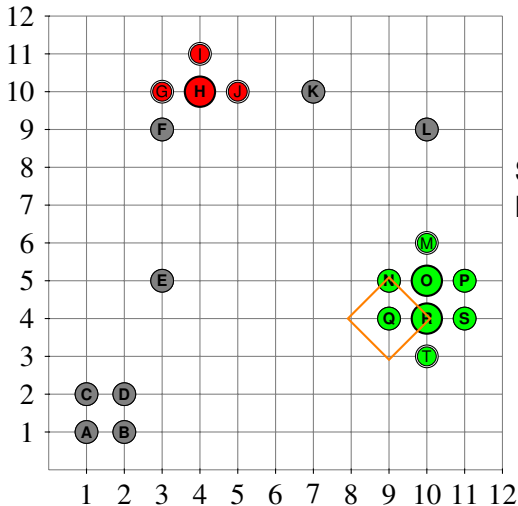
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:  
NPS



### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

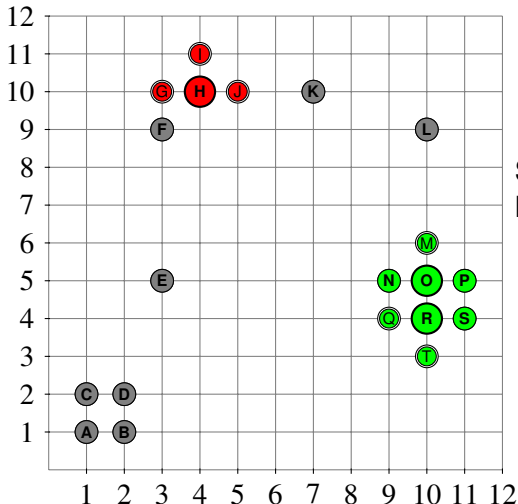
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:  
NPS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

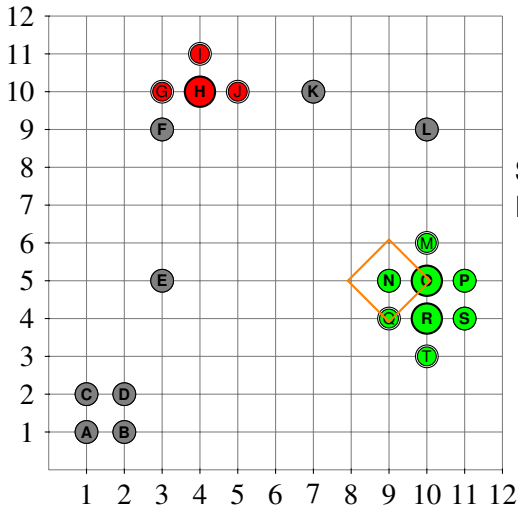
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:  
PS

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

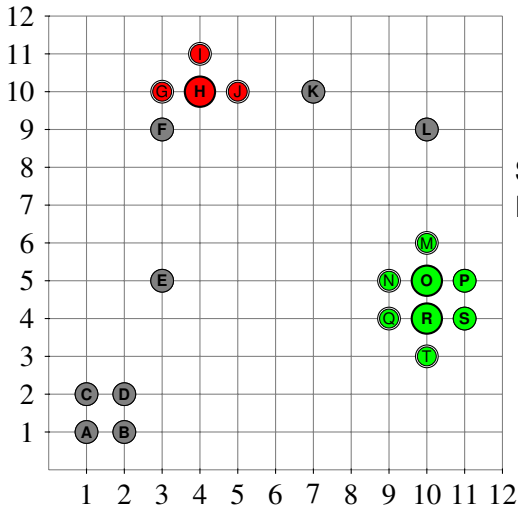
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:  
PS

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

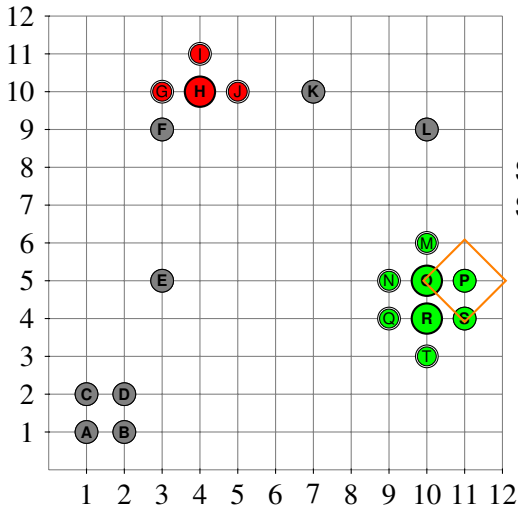
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

S

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

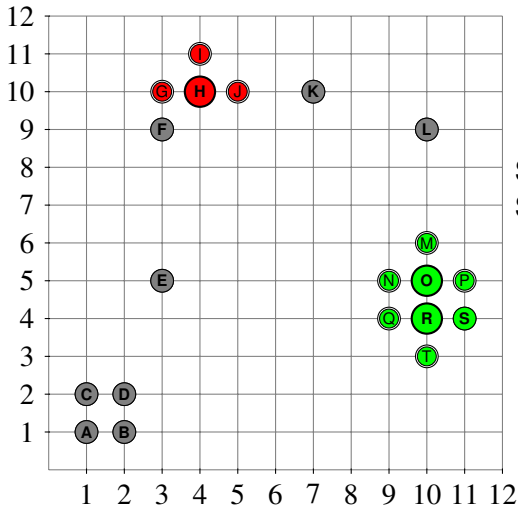
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:  
S

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

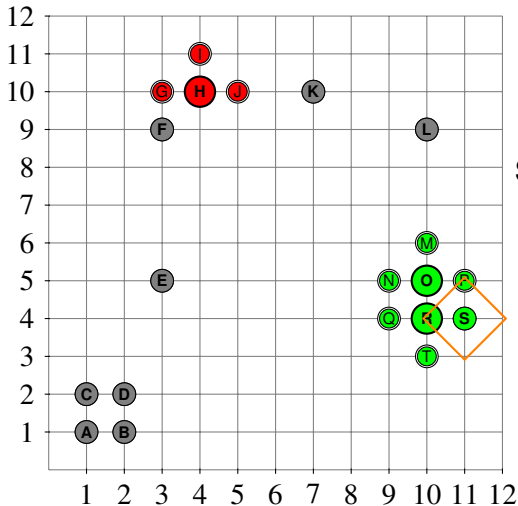
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 1.1$

$minPts = 4$

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
minPts = 2  
 $\epsilon = 1.1$   
minPts = 3

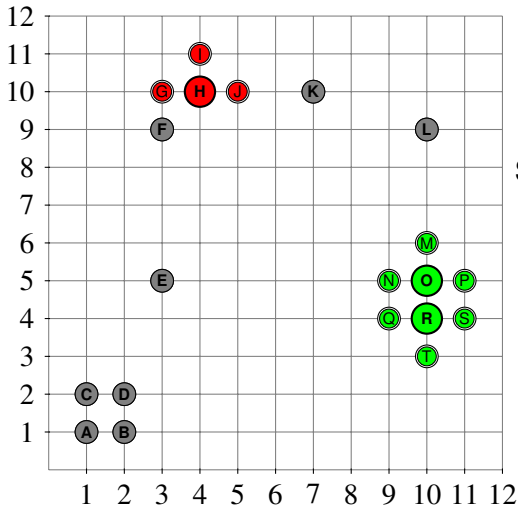
$\epsilon = 1.1$   
minPts = 4

$\epsilon = 2.1$   
minPts = 4

$\epsilon = 4.1$   
minPts = 5

$\epsilon = 4.1$   
minPts = 4

Aufgabe 7-2



$\epsilon = 1.1$

minPts = 4

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
minPts = 2  
 $\epsilon = 1.1$   
minPts = 3

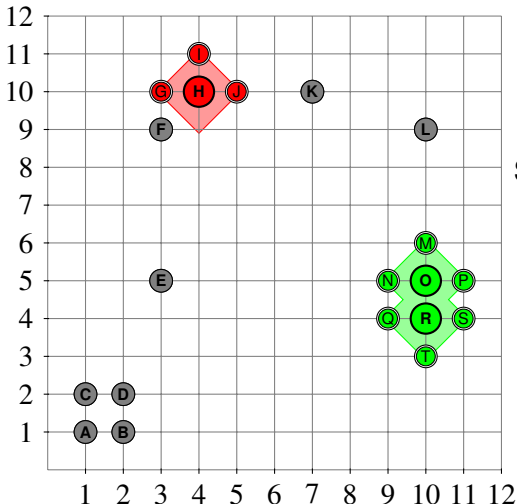
$\epsilon = 1.1$   
minPts = 4

$\epsilon = 2.1$   
minPts = 4

$\epsilon = 4.1$   
minPts = 5

$\epsilon = 4.1$   
minPts = 4

Aufgabe 7-2



$\epsilon = 1.1$

minPts = 4

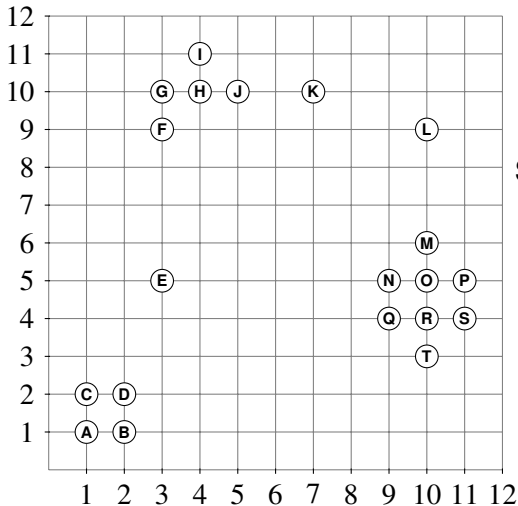
Seed list:



## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

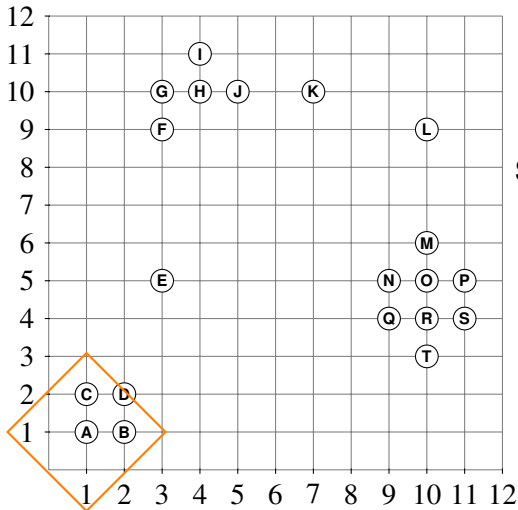
 $\epsilon = 2.1$  $\text{minPts} = 4$ 

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

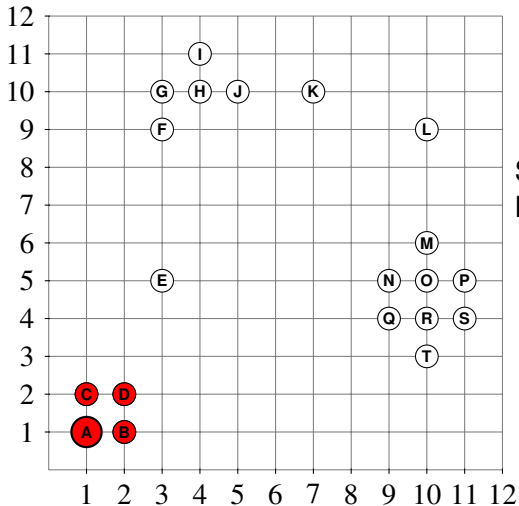
 $\epsilon = 2.1$  $\text{minPts} = 4$ 

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 2.1$  $\text{minPts} = 4$ Seed list:  
BCD

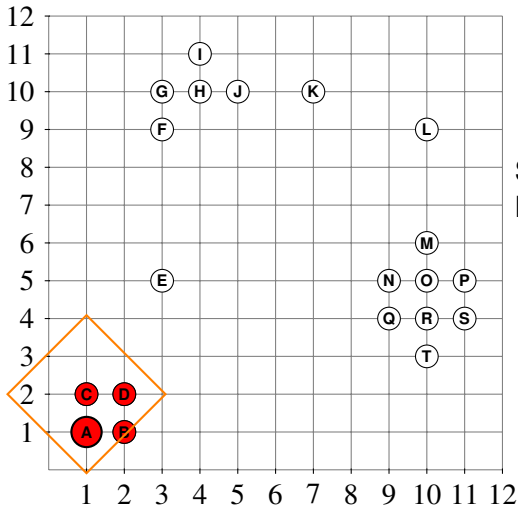
## Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$   
 $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$   
 $\epsilon = 4.1$   
 $minPts = 4$

## Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:  
BD

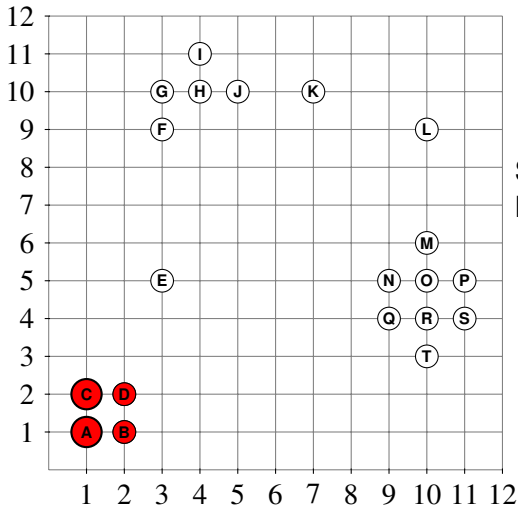
Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$   
 $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$   
 $\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

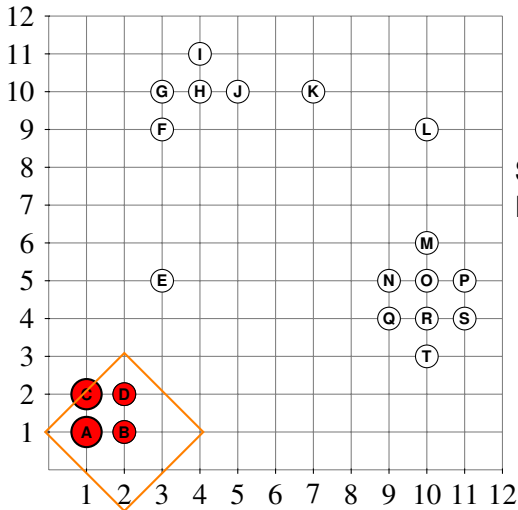
$minPts = 4$

Seed list:  
BD

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 2.1$  $\text{minPts} = 4$ 

Seed list:

D

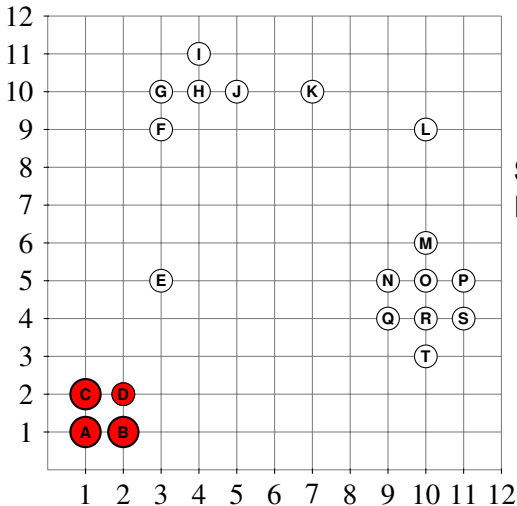
### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$   
 $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$   
 $\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 2.1$

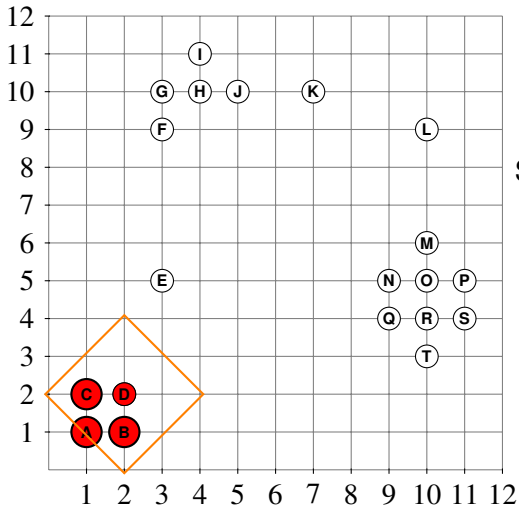
$minPts = 4$

Seed list:  
D

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 2.1$  $\text{minPts} = 4$ 

Seed list:



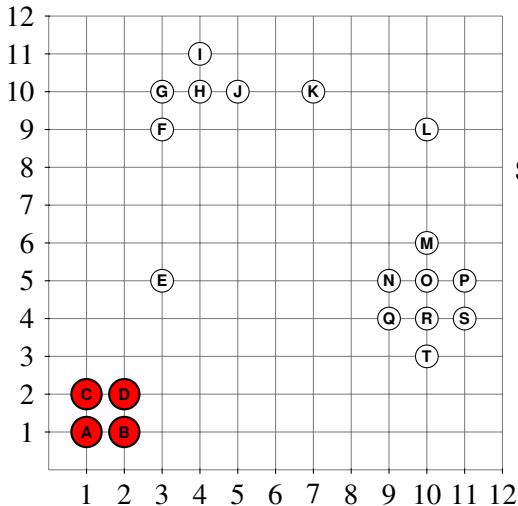
## Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$   
 $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$   
 $\epsilon = 4.1$   
 $minPts = 4$

## Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:

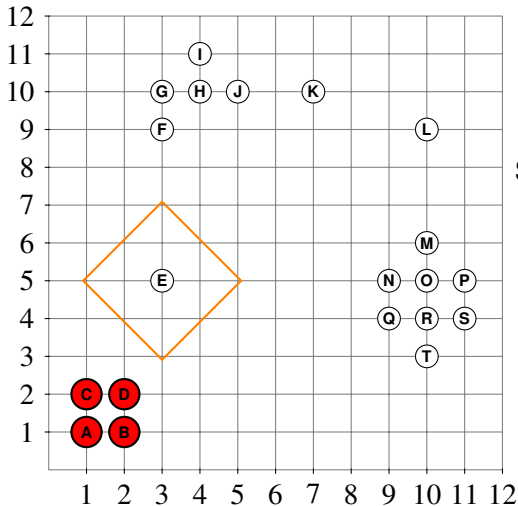
Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$   
 $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$   
 $\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

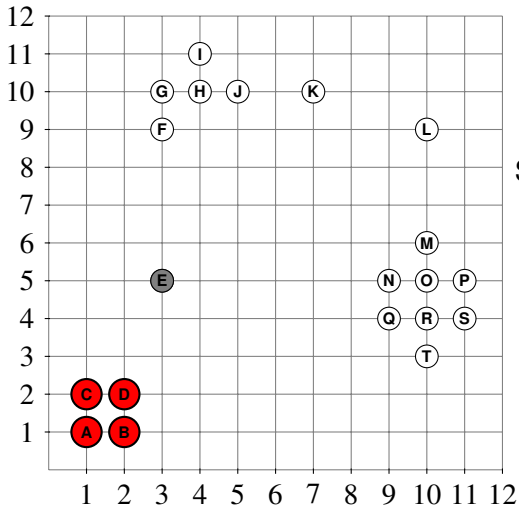
$minPts = 4$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

 $\epsilon = 2.1$  $minPts = 4$ 

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

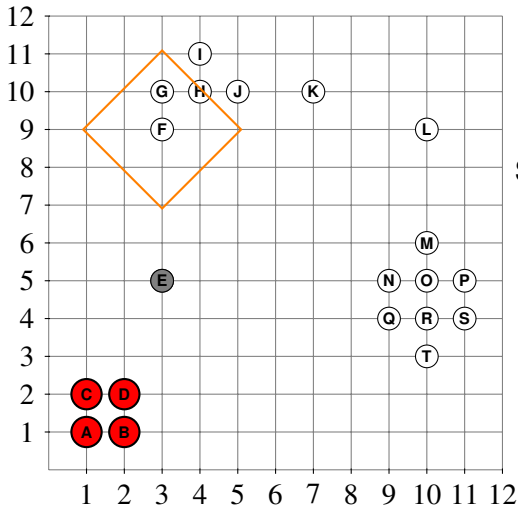
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

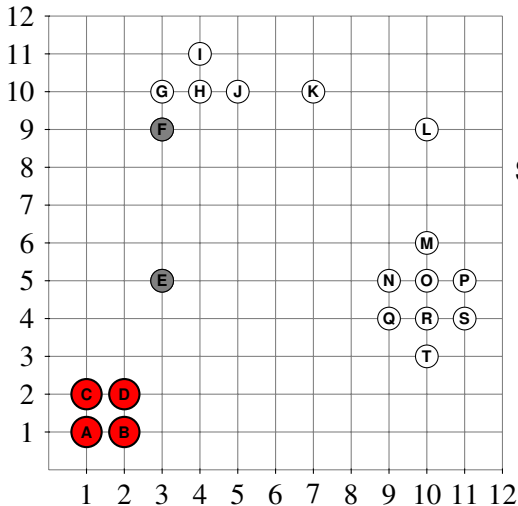
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:

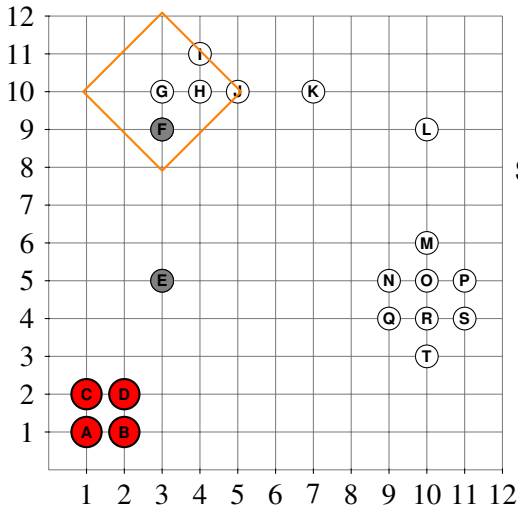
Aufgabe 7-1

- $\epsilon = 1.1$   
 $minPts = 2$
- $\epsilon = 1.1$   
 $minPts = 3$
- $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

- $\epsilon = 4.1$   
 $minPts = 5$
- $\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:

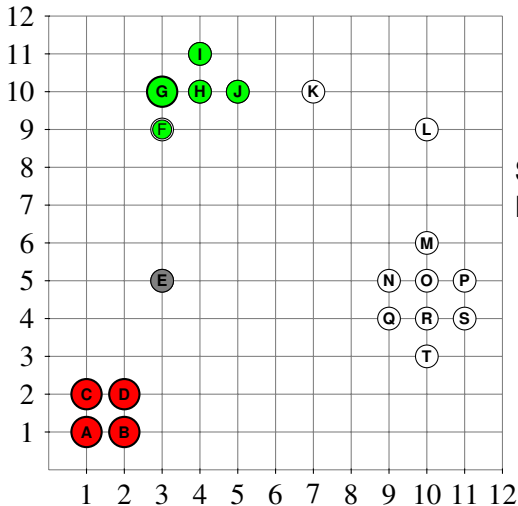
### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$   
 $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$   
 $\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:  
HIJ

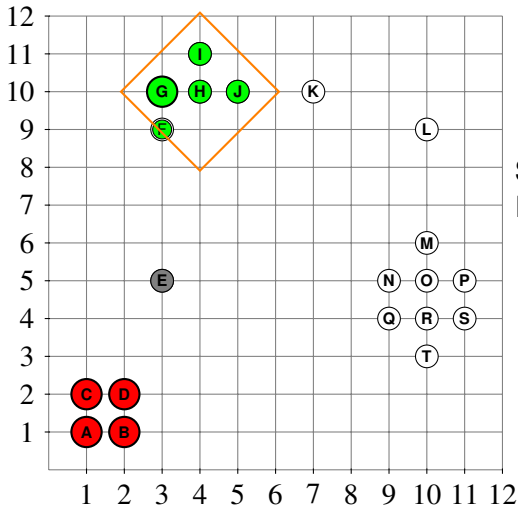
Aufgabe 7-1

- $\epsilon = 1.1$   
 $minPts = 2$
- $\epsilon = 1.1$   
 $minPts = 3$
- $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

- $\epsilon = 4.1$   
 $minPts = 5$
- $\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:

I, J



### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

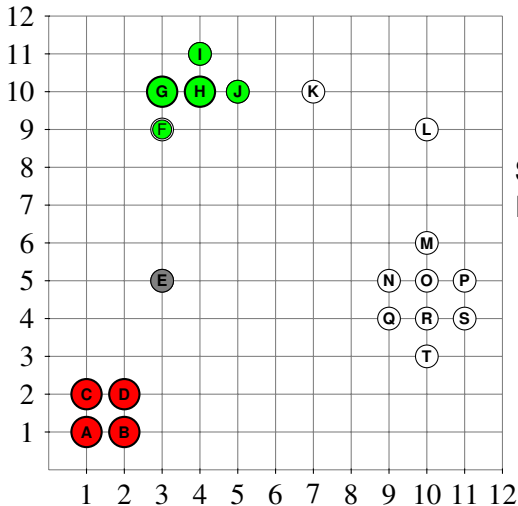
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:

I, J

## Aufgabe 7-1

 $\epsilon = 1.1$ 

minPts = 2

 $\epsilon = 1.1$ 

minPts = 3

 $\epsilon = 1.1$ 

minPts = 4

 $\epsilon = 2.1$ 

minPts = 4

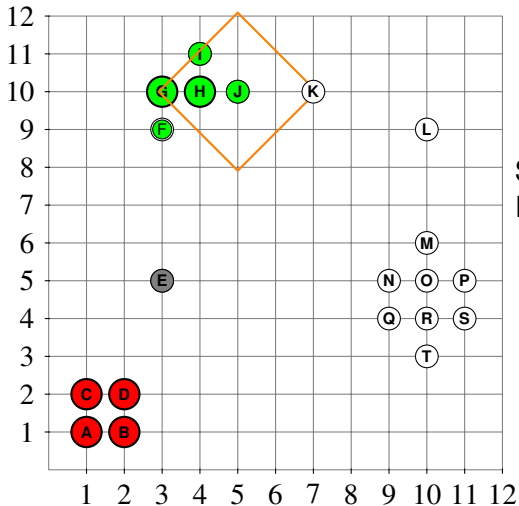
 $\epsilon = 4.1$ 

minPts = 5

 $\epsilon = 4.1$ 

minPts = 4

## Aufgabe 7-2

 $\epsilon = 2.1$ 

minPts = 4

Seed list:

I

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

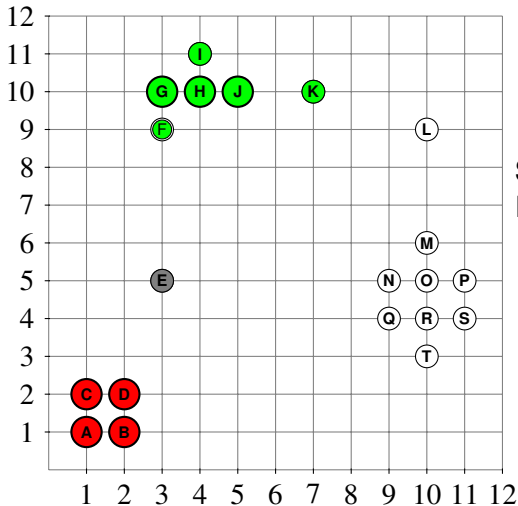
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 2.1$

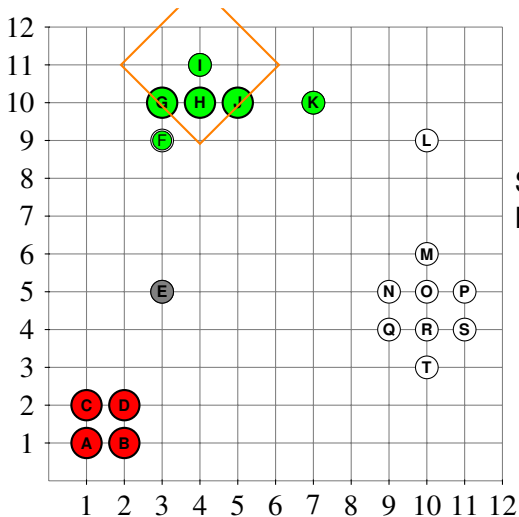
$minPts = 4$

Seed list:  
IK

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

 $\epsilon = 2.1$  $minPts = 4$ Seed list:  
K

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

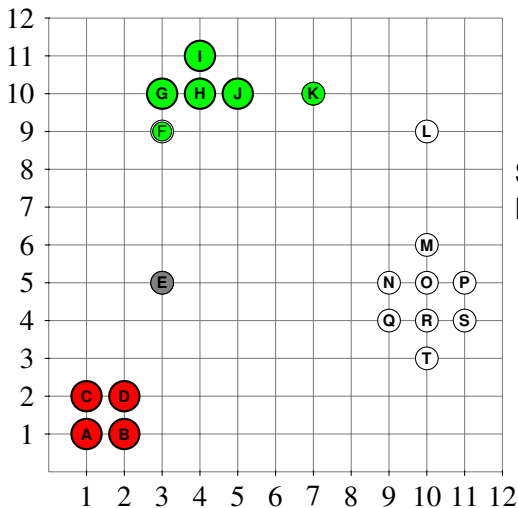
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

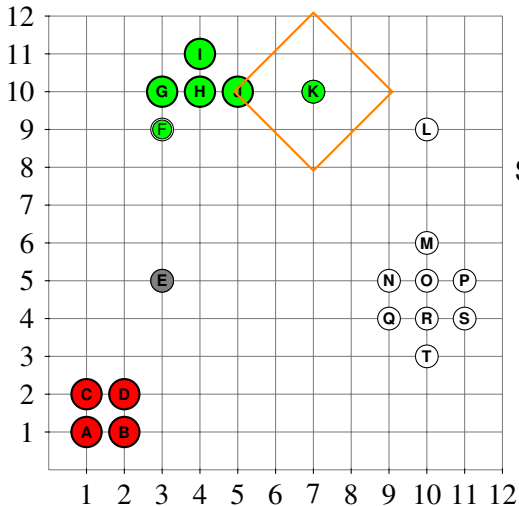
$minPts = 4$

Seed list:  
K

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

 $\epsilon = 2.1$  $minPts = 4$ 

Seed list:

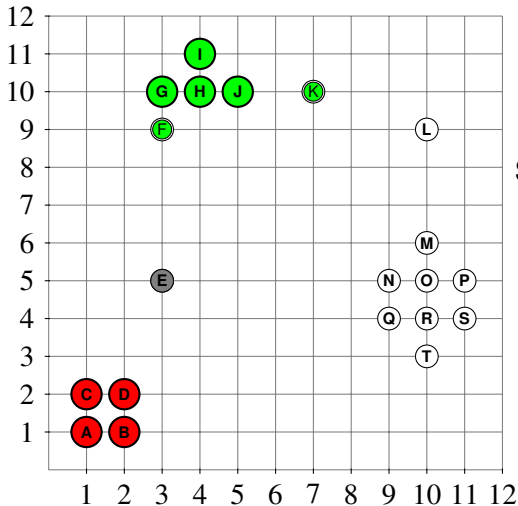
Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$   
 $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$   
 $\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:

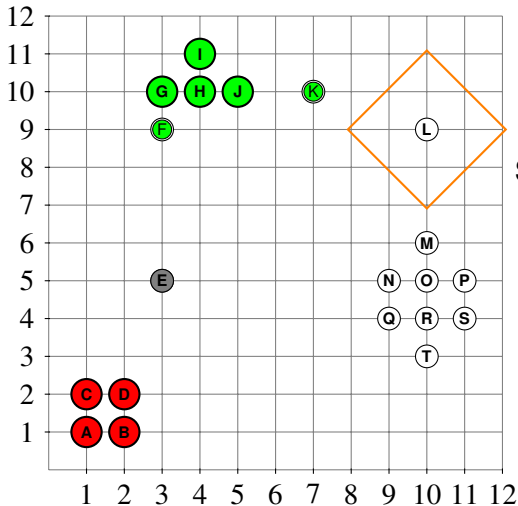
### Aufgabe 7-1

$\epsilon = 1.1$   
minPts = 2  
 $\epsilon = 1.1$   
minPts = 3  
 $\epsilon = 1.1$   
minPts = 4

$\epsilon = 2.1$   
minPts = 4

$\epsilon = 4.1$   
minPts = 5  
 $\epsilon = 4.1$   
minPts = 4

### Aufgabe 7-2



$\epsilon = 2.1$

minPts = 4

Seed list:



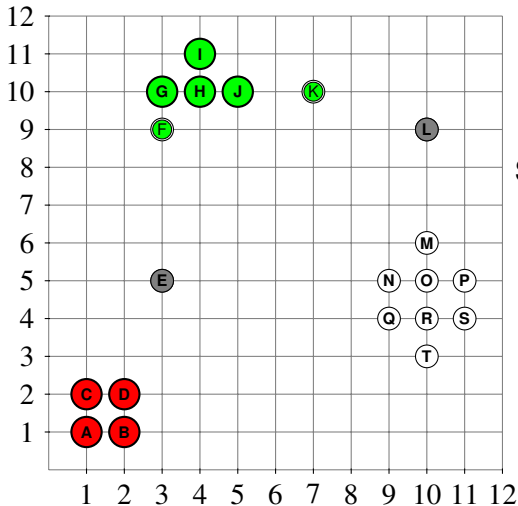
Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$   
 $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$   
 $\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:

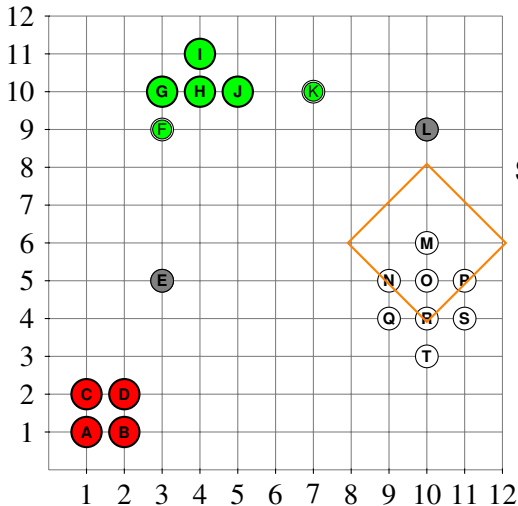
Aufgabe 7-1

- $\epsilon = 1.1$   
 $minPts = 2$
- $\epsilon = 1.1$   
 $minPts = 3$
- $\epsilon = 1.1$   
 $minPts = 4$

- $\epsilon = 2.1$   
 $minPts = 4$

- $\epsilon = 4.1$   
 $minPts = 5$
- $\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

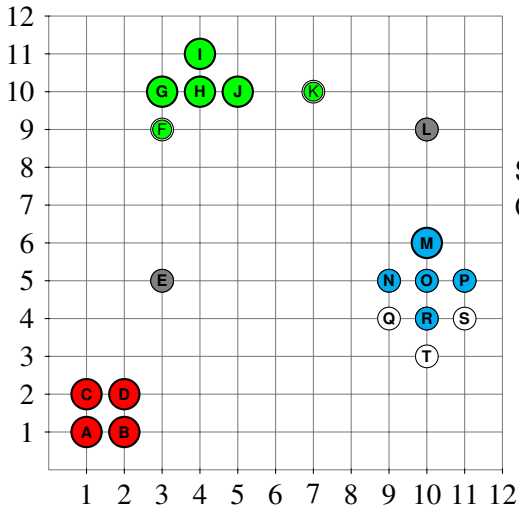
$minPts = 4$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

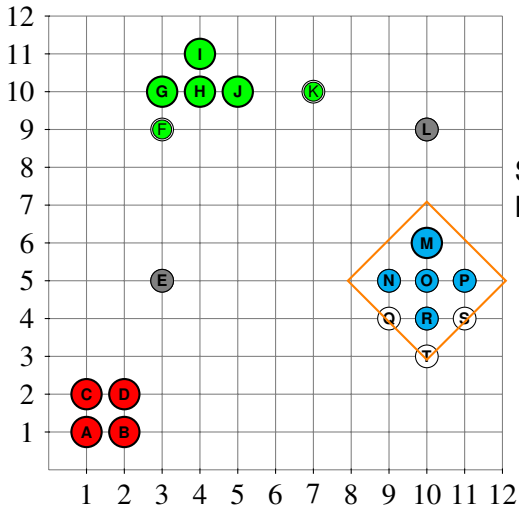
## Aufgabe 7-2

 $\epsilon = 2.1$  $minPts = 4$ Seed list:  
ONPR

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

 $\epsilon = 2.1$  $minPts = 4$ 

Seed list:

NPR

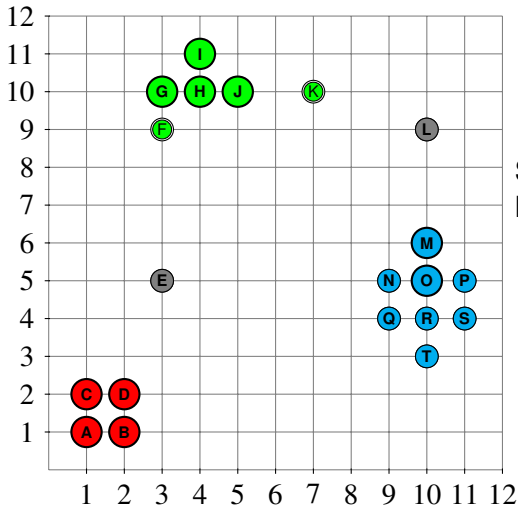
Aufgabe 7-1

- $\epsilon = 1.1$   
 $minPts = 2$
- $\epsilon = 1.1$   
 $minPts = 3$
- $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

- $\epsilon = 4.1$   
 $minPts = 5$
- $\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

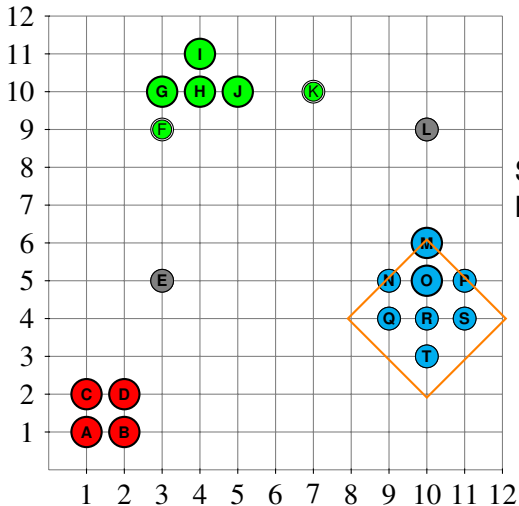
$minPts = 4$

Seed list:  
NPRQST

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

 $\epsilon = 2.1$  $minPts = 4$ Seed list:  
NPQST

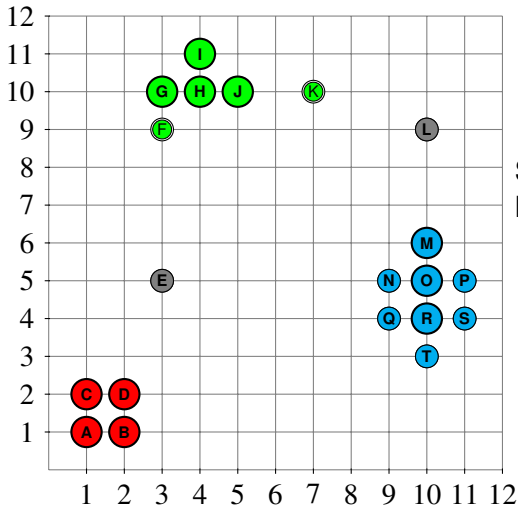
Aufgabe 7-1

- $\epsilon = 1.1$   
 $minPts = 2$
- $\epsilon = 1.1$   
 $minPts = 3$
- $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

- $\epsilon = 4.1$   
 $minPts = 5$
- $\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

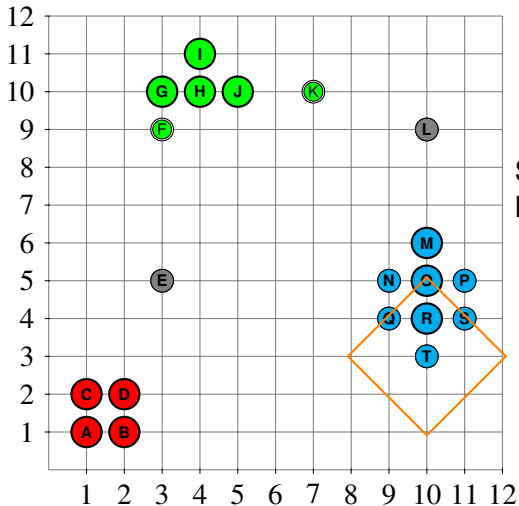
$minPts = 4$

Seed list:  
NPQST

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $minPts = 2$  $\epsilon = 1.1$   
 $minPts = 3$  $\epsilon = 1.1$   
 $minPts = 4$  $\epsilon = 2.1$   
 $minPts = 4$  $\epsilon = 4.1$   
 $minPts = 5$  $\epsilon = 4.1$   
 $minPts = 4$ 

## Aufgabe 7-2

 $\epsilon = 2.1$  $minPts = 4$ Seed list:  
NPQS



## Aufgabe 7-1

 $\epsilon = 1.1$ 

minPts = 2

 $\epsilon = 1.1$ 

minPts = 3

 $\epsilon = 1.1$ 

minPts = 4

 $\epsilon = 2.1$ 

minPts = 4

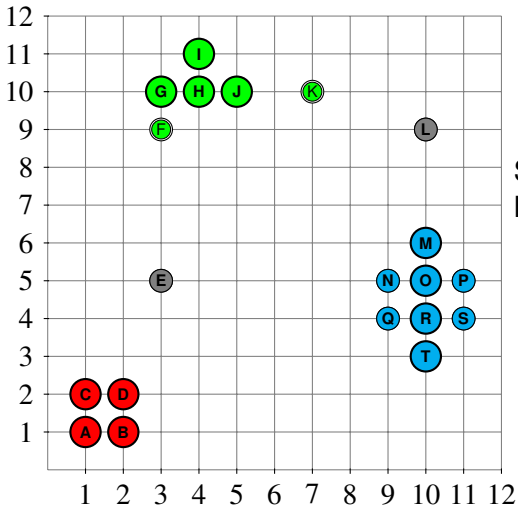
 $\epsilon = 4.1$ 

minPts = 5

 $\epsilon = 4.1$ 

minPts = 4

## Aufgabe 7-2

 $\epsilon = 2.1$ 

minPts = 4

Seed list:  
NPQS

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

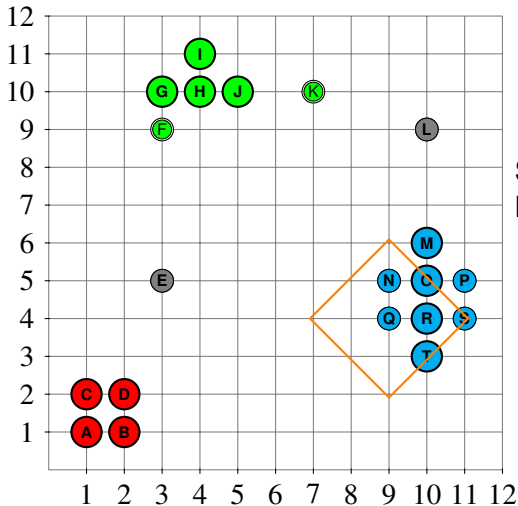
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:  
NPS

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

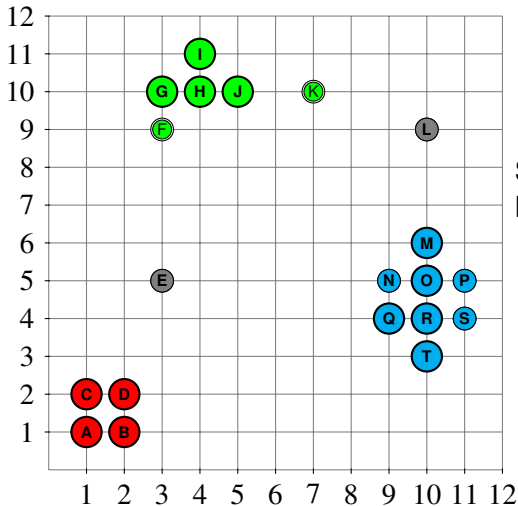
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:  
NPS

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

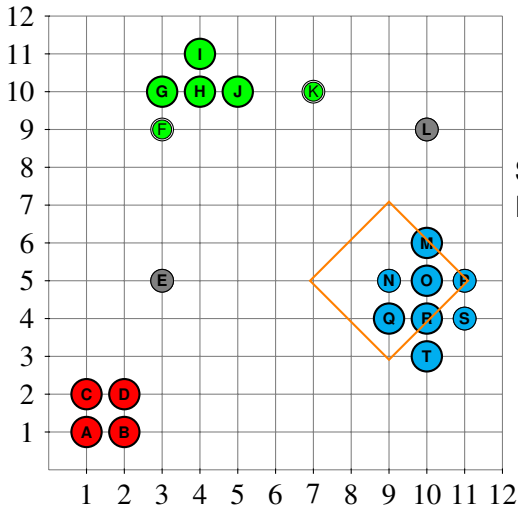
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:  
PS

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

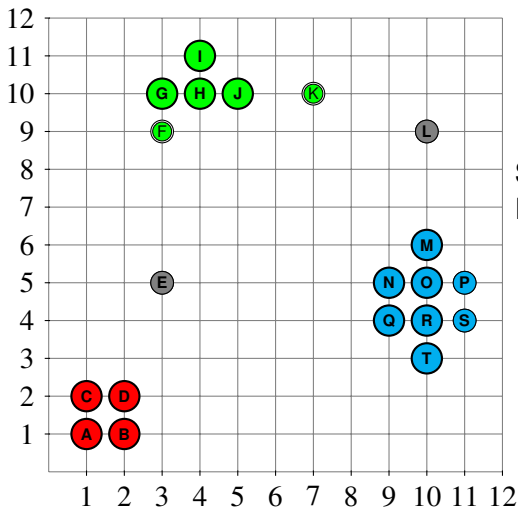
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:

PS

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

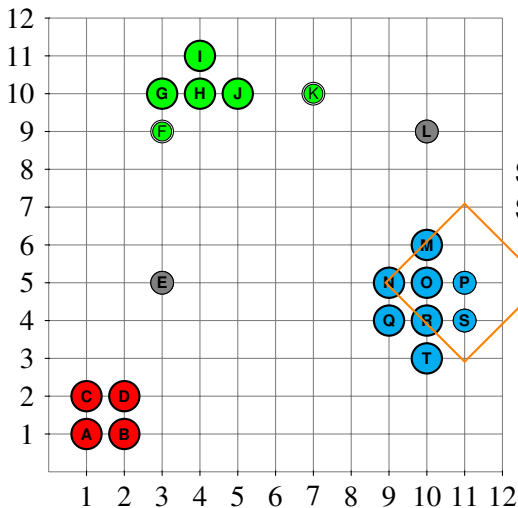
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:

S

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

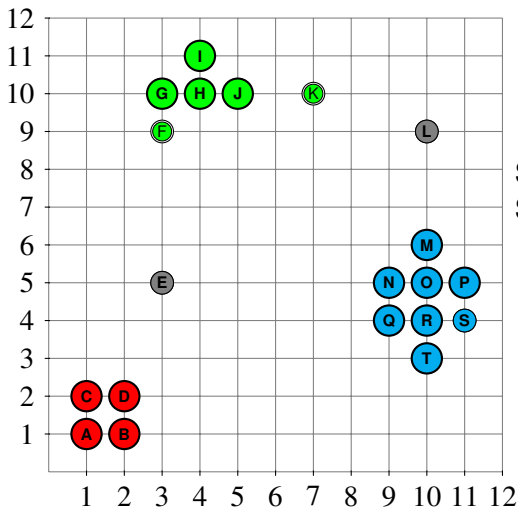
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:  
S

## Aufgabe 7-1

 $\epsilon = 1.1$ 

minPts = 2

 $\epsilon = 1.1$ 

minPts = 3

 $\epsilon = 1.1$ 

minPts = 4

 $\epsilon = 2.1$ 

minPts = 4

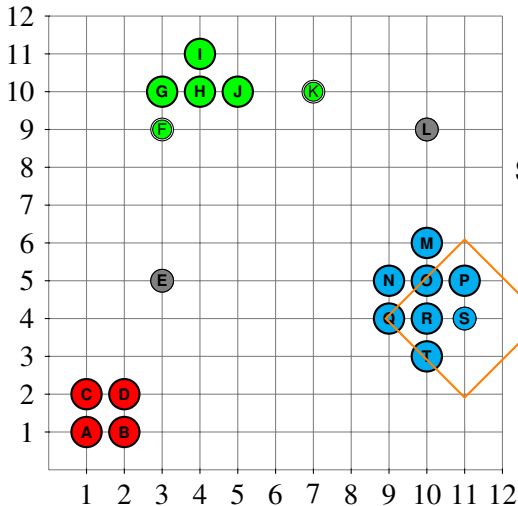
 $\epsilon = 4.1$ 

minPts = 5

 $\epsilon = 4.1$ 

minPts = 4

## Aufgabe 7-2

 $\epsilon = 2.1$ 

minPts = 4

Seed list:



### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

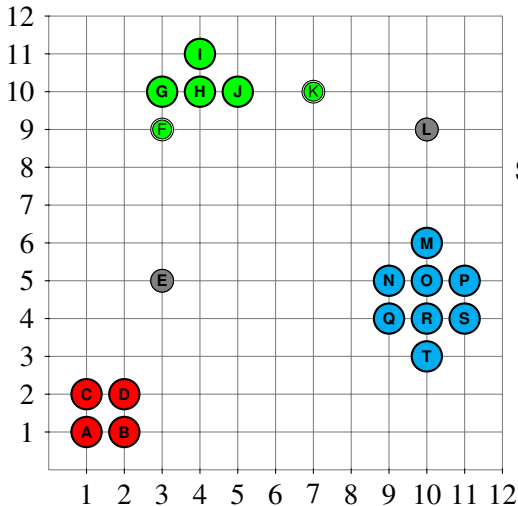
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 2.1$

$minPts = 4$

Seed list:

## Aufgabe 7-1

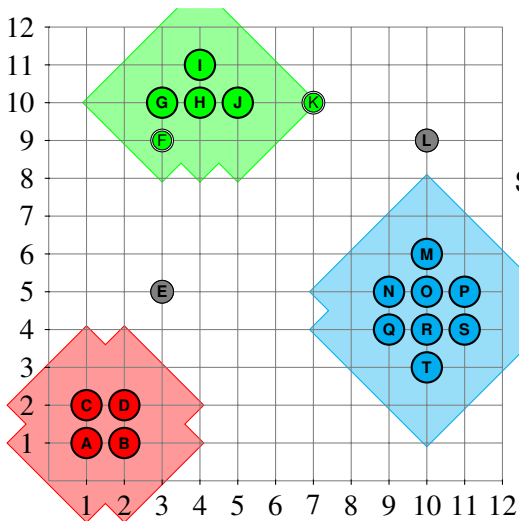
$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$   
 $\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

## Aufgabe 7-2

 $\epsilon = 2.1$  $minPts = 4$ 

Seed list:

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

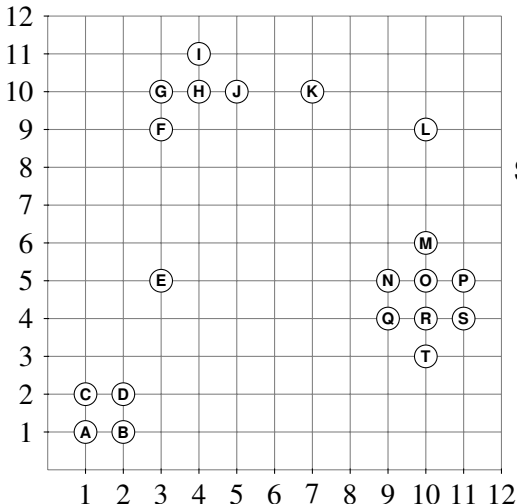
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 4.1$

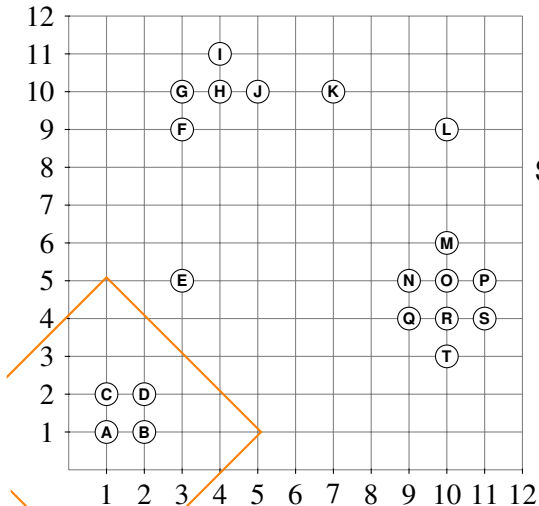
$minPts = 5$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

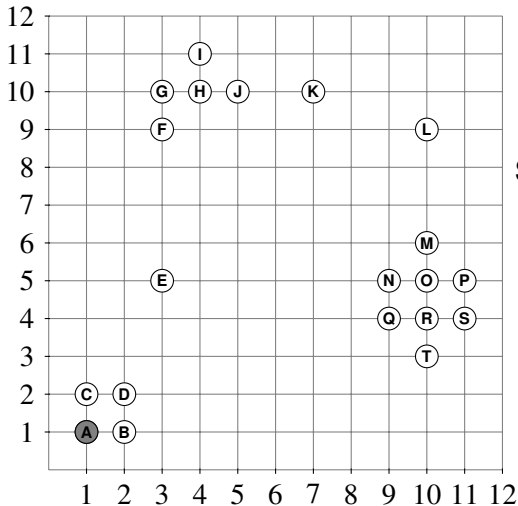
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

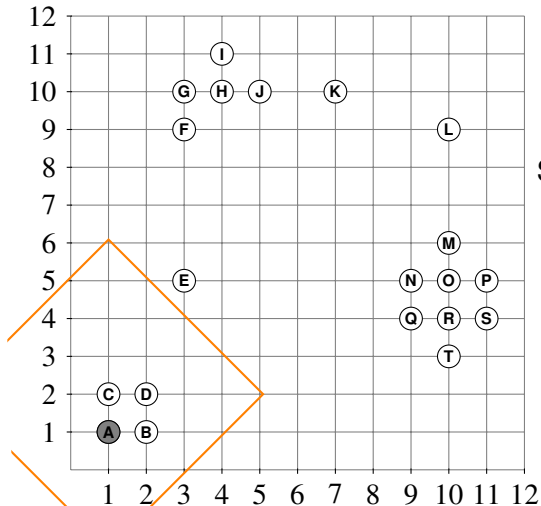
$minPts = 5$

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

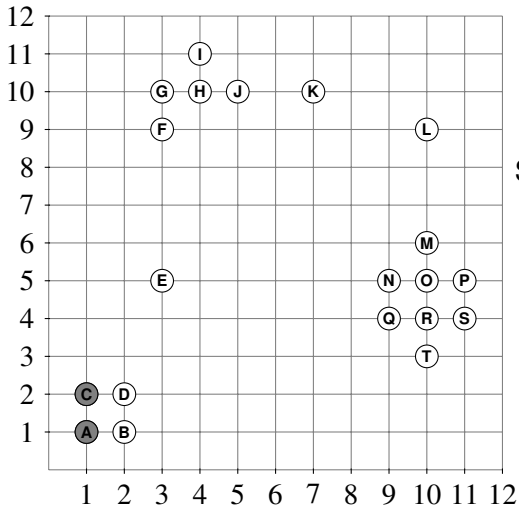
 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

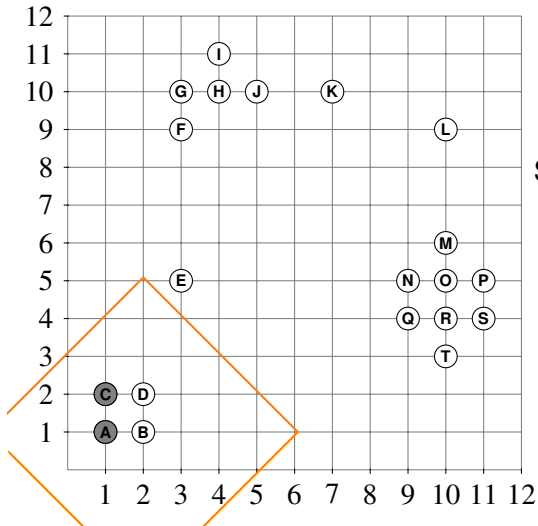
 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

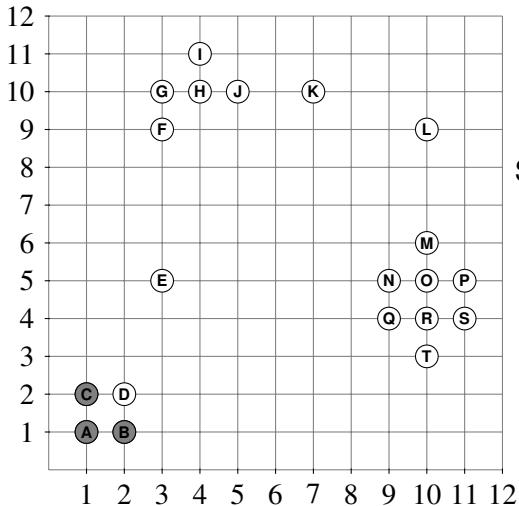
Seed list:



## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

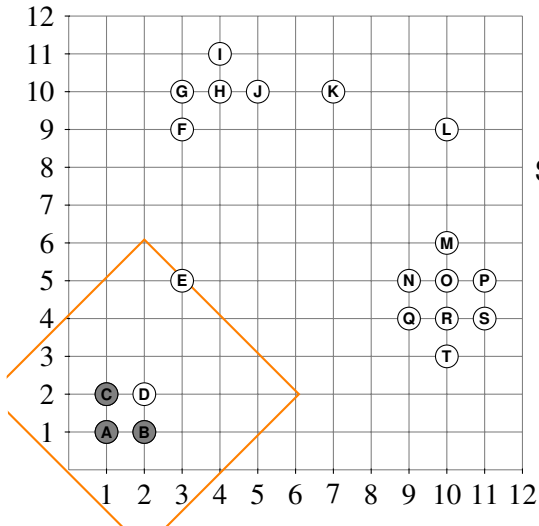
 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

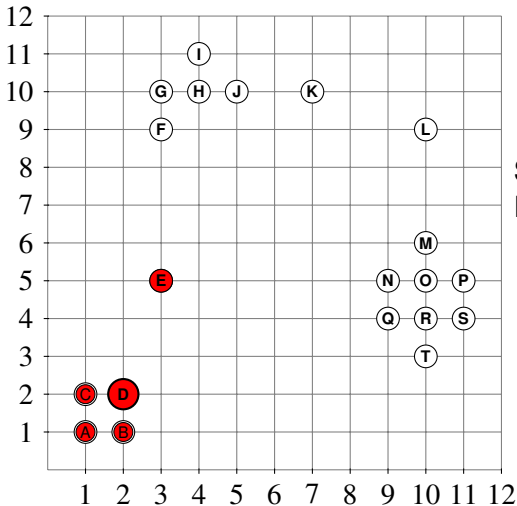
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

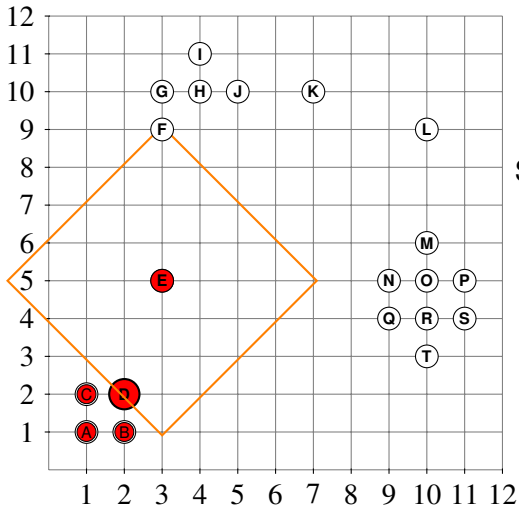
$minPts = 5$

Seed list:  
E

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

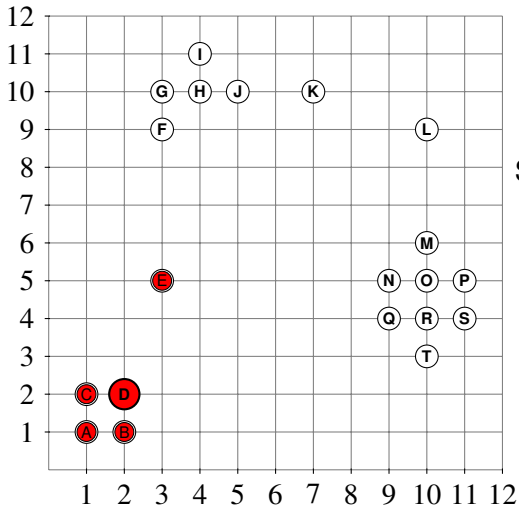
 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

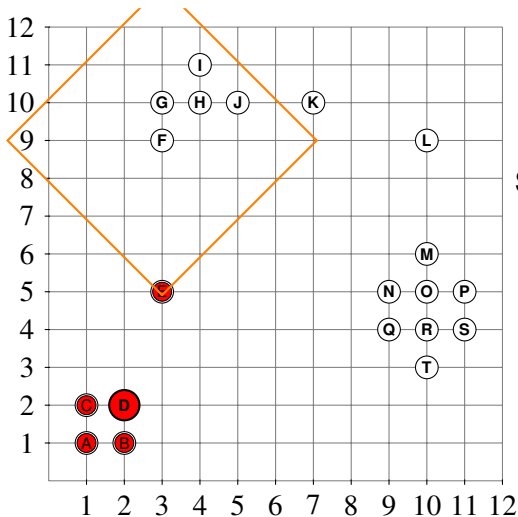
 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

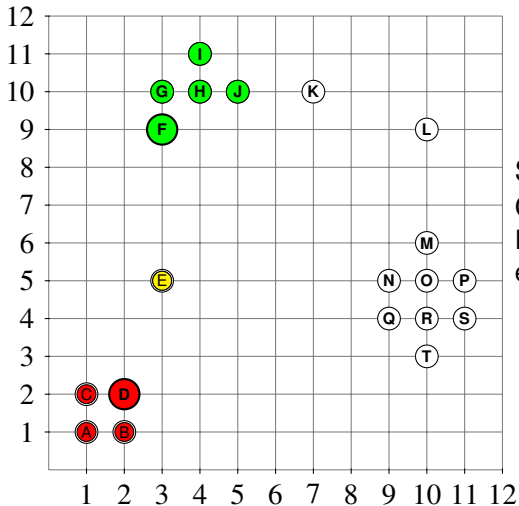
 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

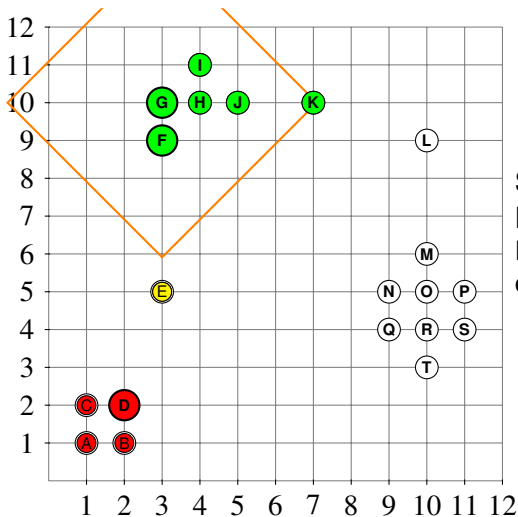
GHIJ

E nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

HIJ

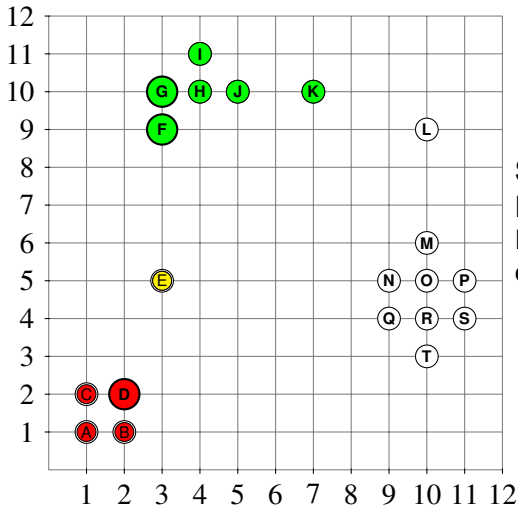
E nicht  
eindeutig!



## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

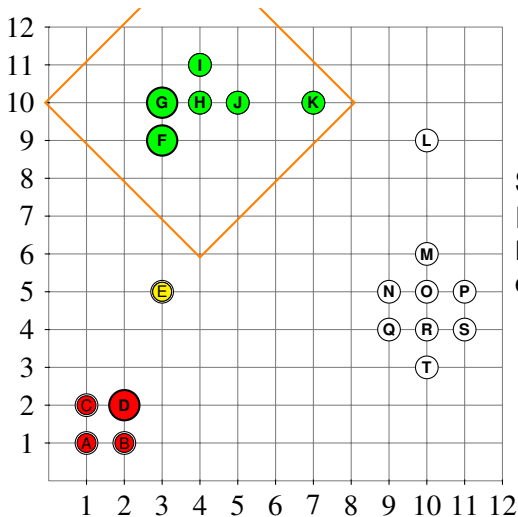
HIJK

E nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

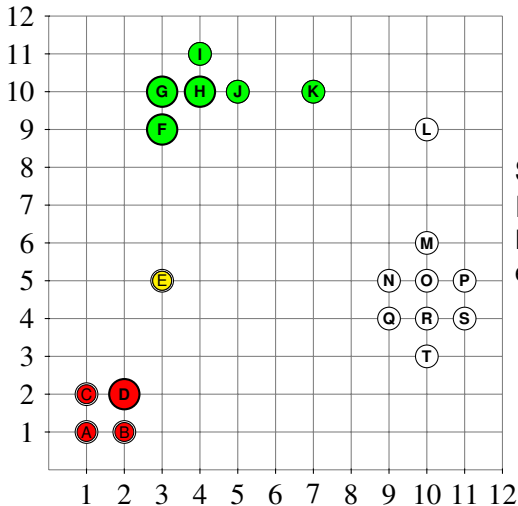
IJK

E nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

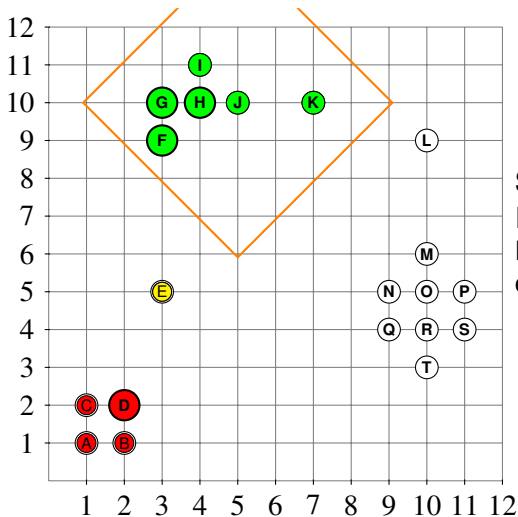
IJK

E nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

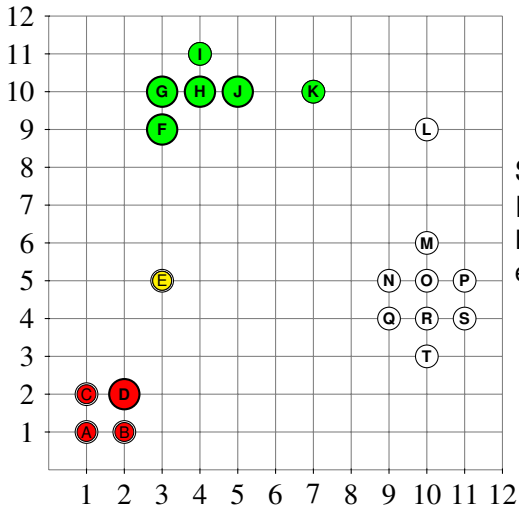
IK

E nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

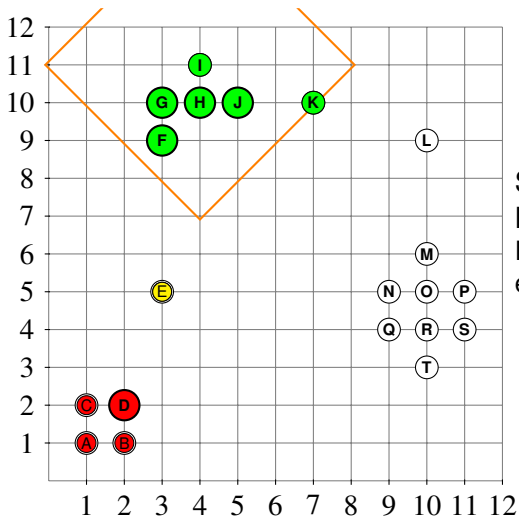
IK

E nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

K

E nicht  
eindeutig!

Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

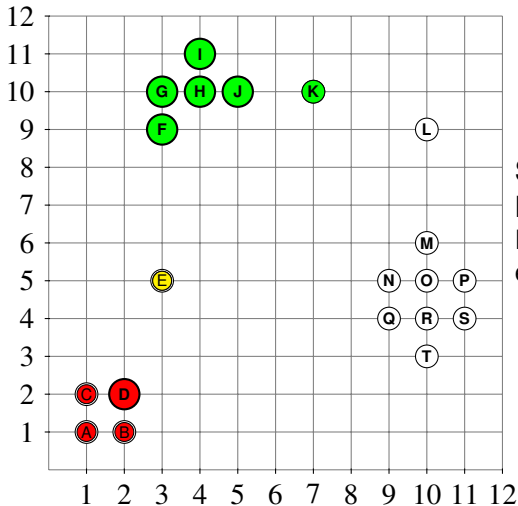
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

Aufgabe 7-2



$\epsilon = 4.1$

$minPts = 5$

Seed list:

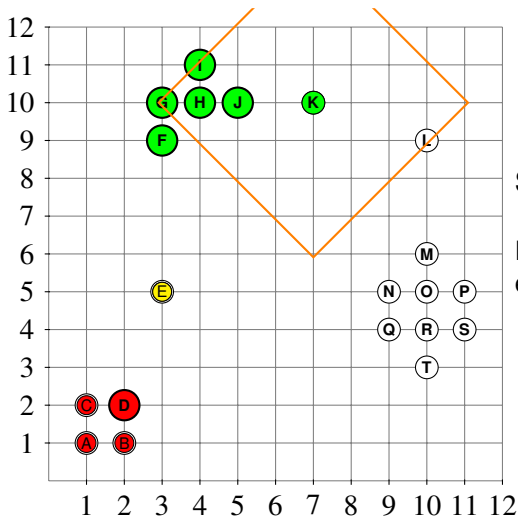
K

E nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

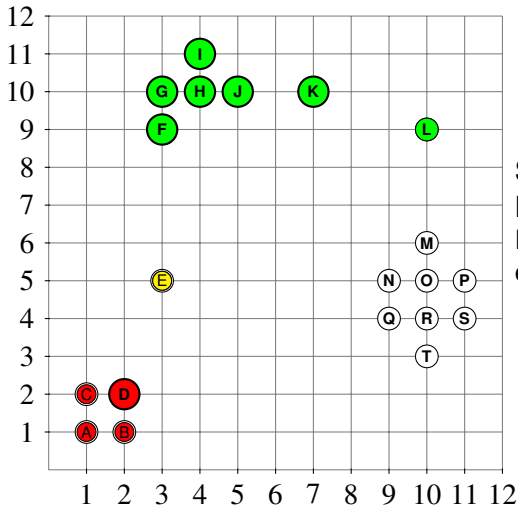
E nicht  
eindeutig!



## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

L

E nicht  
eindeutig!

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

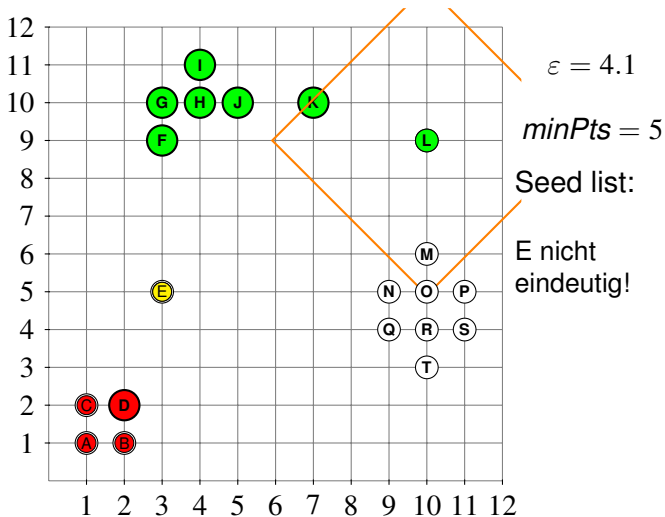
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

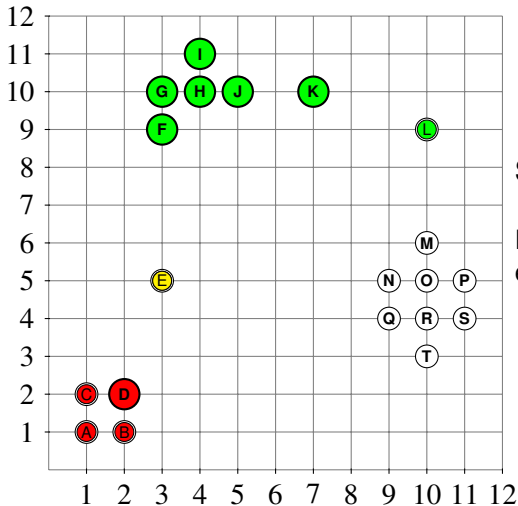
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

$minPts = 5$

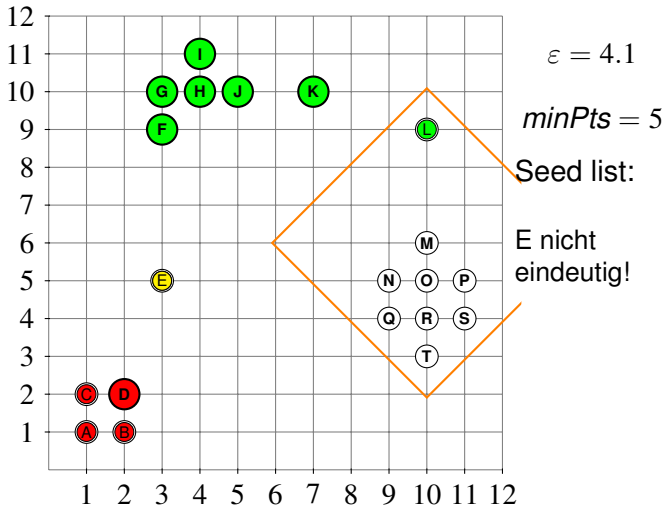
Seed list:

E nicht  
eindeutig!

### Aufgabe 7-1

- $\epsilon = 1.1$   
 $\text{minPts} = 2$
- $\epsilon = 1.1$   
 $\text{minPts} = 3$
- $\epsilon = 1.1$   
 $\text{minPts} = 4$
- $\epsilon = 2.1$   
 $\text{minPts} = 4$
- $\epsilon = 4.1$   
 $\text{minPts} = 5$
- $\epsilon = 4.1$   
 $\text{minPts} = 4$

### Aufgabe 7-2



### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

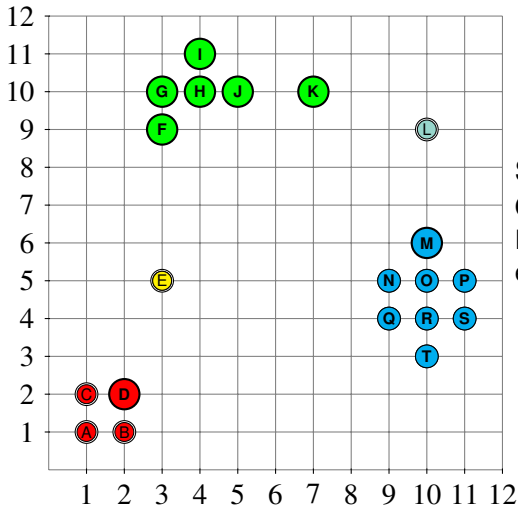
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

$minPts = 5$

Seed list:  
ONPRQST  
E und L nicht  
eindeutig!

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

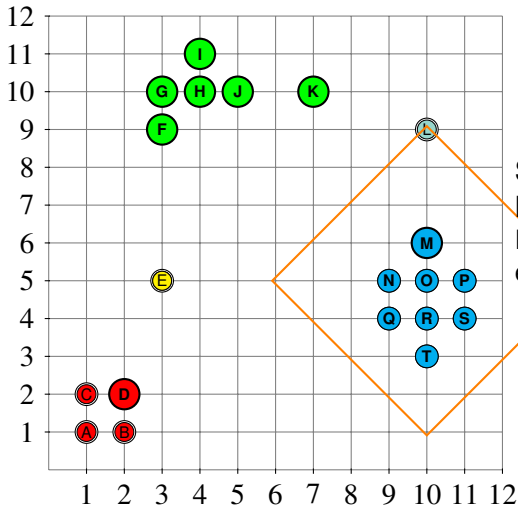
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

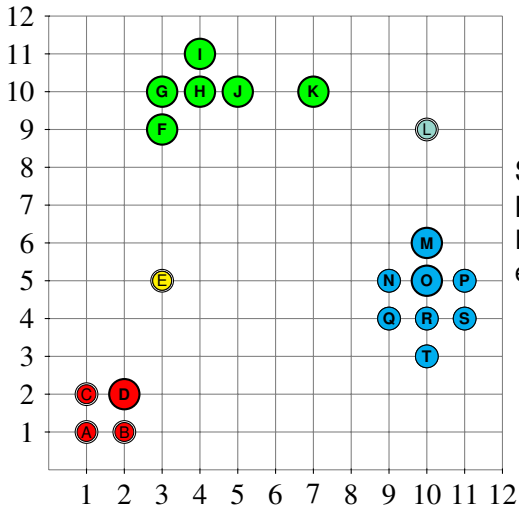
$minPts = 5$

Seed list:  
NPQST  
E und L nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

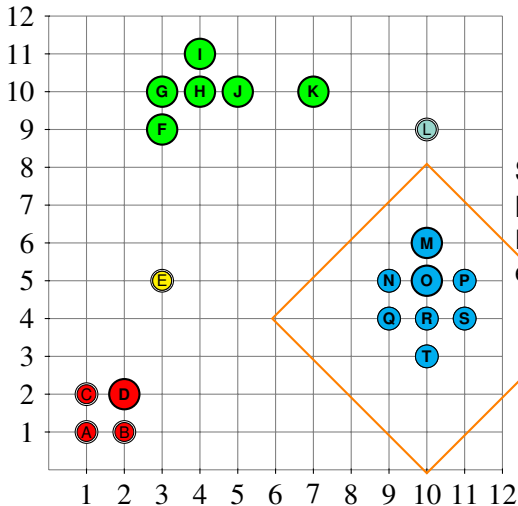
 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:  
NPQST  
E und L nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

NPQST

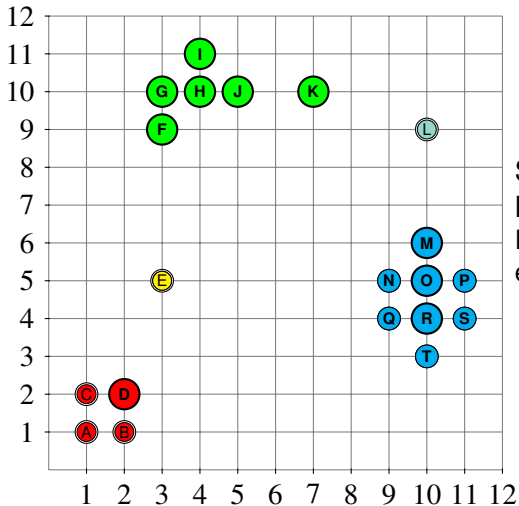
E und L nicht  
eindeutig!



## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:  
NPQST  
E und L nicht  
eindeutig!

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

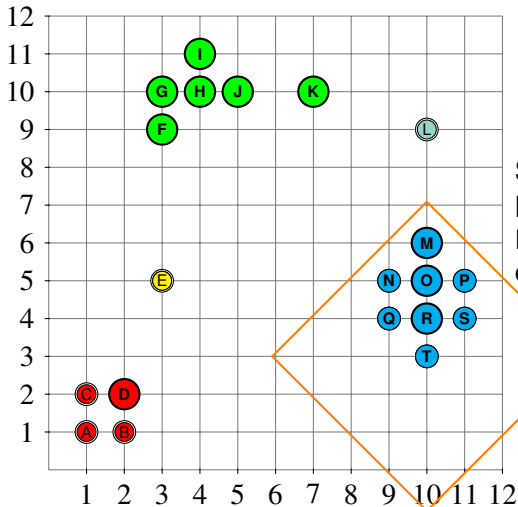
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

$minPts = 5$

Seed list:  
NPQS  
E und L nicht  
eindeutig!

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

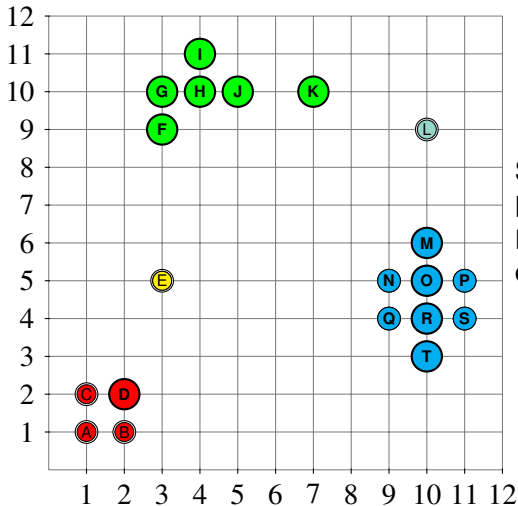
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

$minPts = 5$

Seed list:

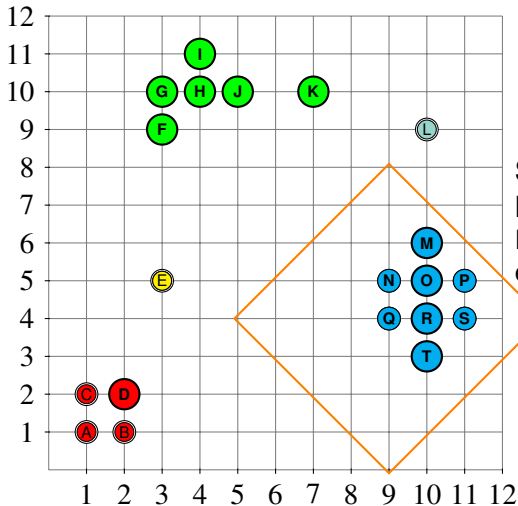
NPQS

E und L nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

NPS

E und L nicht  
eindeutig!

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

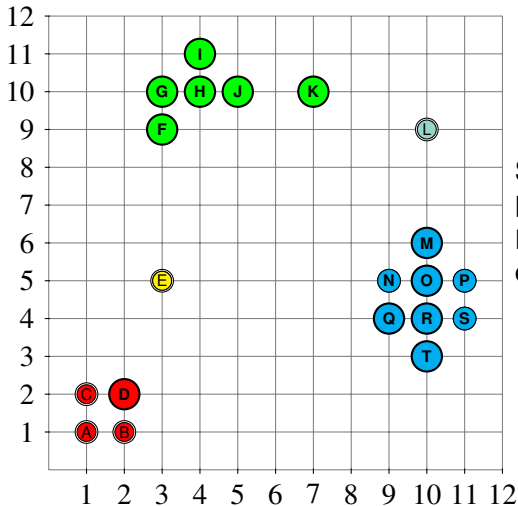
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

$minPts = 5$

Seed list:

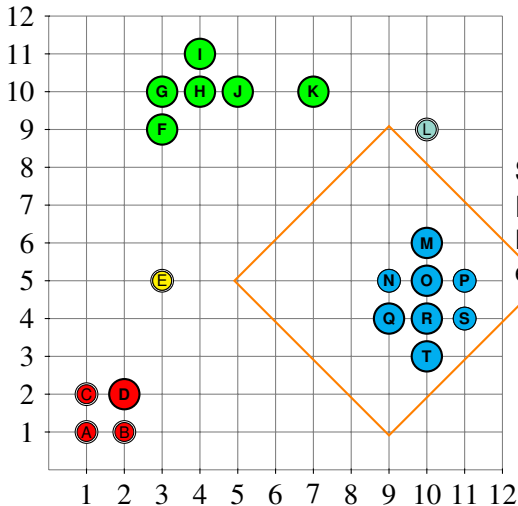
NPS

E und L nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

Seed list:

PS

E und L nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$ 

minPts = 2

 $\epsilon = 1.1$ 

minPts = 3

 $\epsilon = 1.1$ 

minPts = 4

 $\epsilon = 2.1$ 

minPts = 4

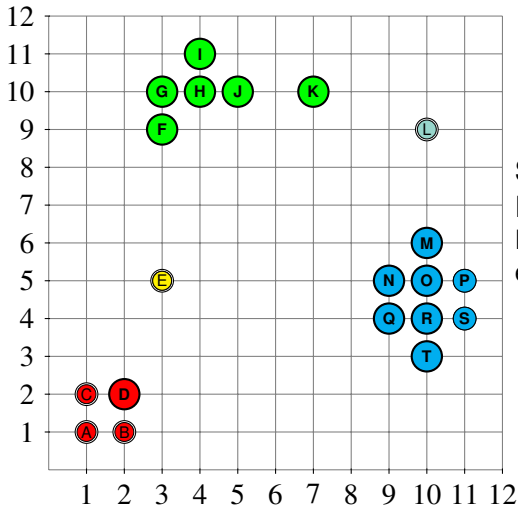
 $\epsilon = 4.1$ 

minPts = 5

 $\epsilon = 4.1$ 

minPts = 4

## Aufgabe 7-2

 $\epsilon = 4.1$ 

minPts = 5

Seed list:

PS

E und L nicht  
eindeutig!

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

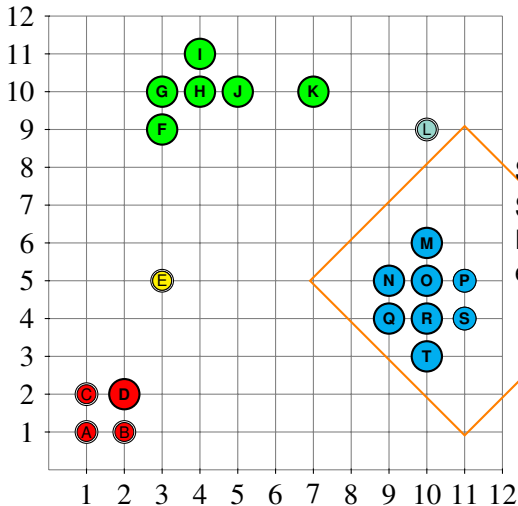
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

$minPts = 5$

Seed list:  
S  
E und L nicht  
eindeutig!



### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

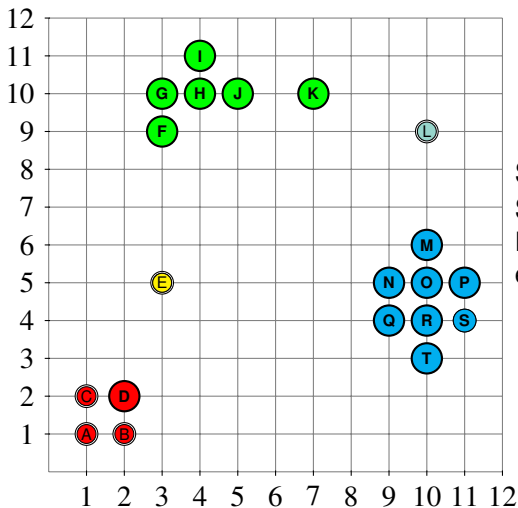
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

$minPts = 5$

Seed list:

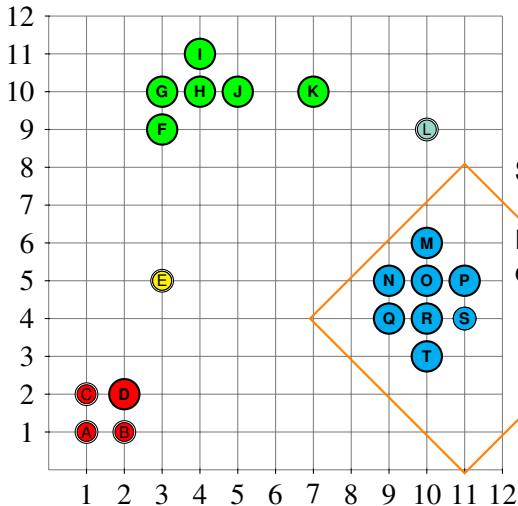
S

E und L nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

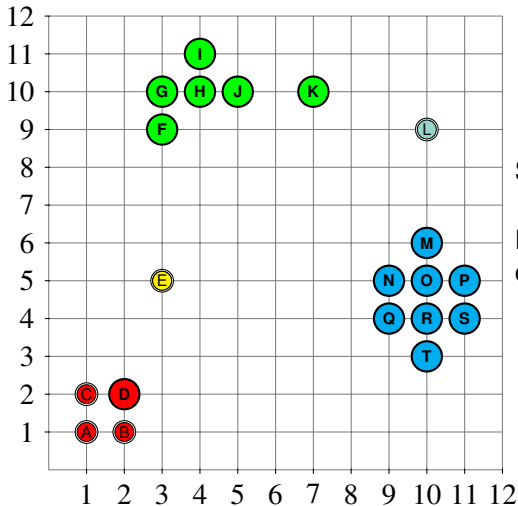
Seed list:

E und L nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

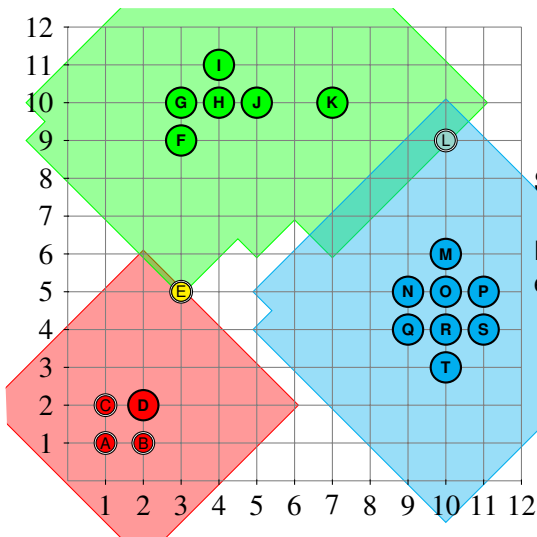
Seed list:

E und L nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 5$ 

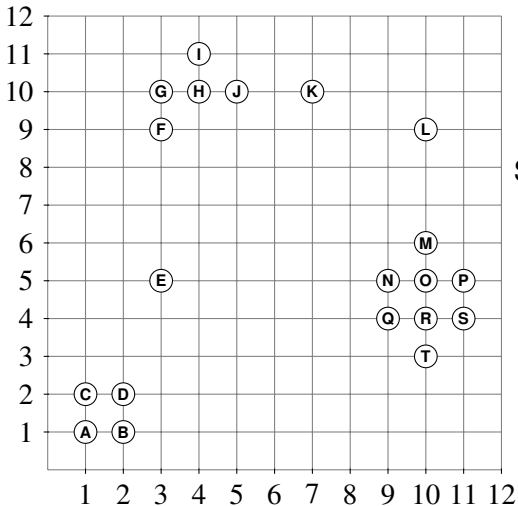
Seed list:

E und L nicht  
eindeutig!

## Aufgabe 7-1

$\epsilon = 1.1$   
 $\text{minPts} = 2$   
 $\epsilon = 1.1$   
 $\text{minPts} = 3$   
 $\epsilon = 1.1$   
 $\text{minPts} = 4$   
 $\epsilon = 2.1$   
 $\text{minPts} = 4$   
 $\epsilon = 4.1$   
 $\text{minPts} = 5$   
 $\epsilon = 4.1$   
 $\text{minPts} = 4$

## Aufgabe 7-2



$$\epsilon = 4.1$$

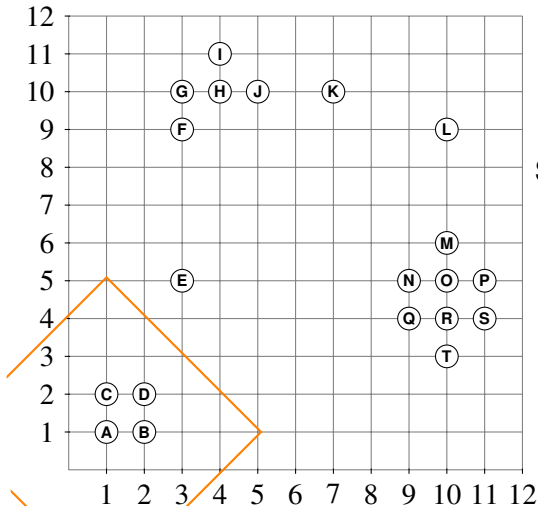
$$\text{minPts} = 4$$

Seeds:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

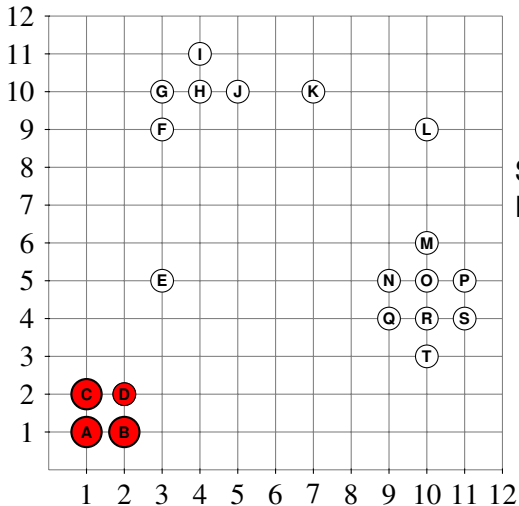
 $\epsilon = 4.1$  $\text{minPts} = 4$ 

Seeds:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 4$ 

Seeds:

D

## Aufgabe 7-1

 $\epsilon = 1.1$ 

minPts = 2

 $\epsilon = 1.1$ 

minPts = 3

 $\epsilon = 1.1$ 

minPts = 4

 $\epsilon = 2.1$ 

minPts = 4

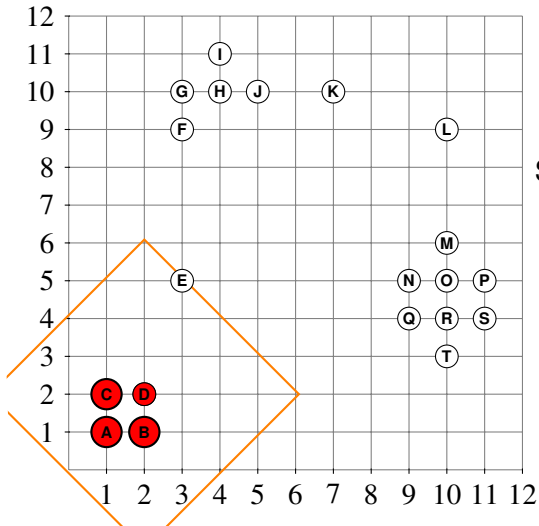
 $\epsilon = 4.1$ 

minPts = 5

 $\epsilon = 4.1$ 

minPts = 4

## Aufgabe 7-2

 $\epsilon = 4.1$ 

minPts = 4

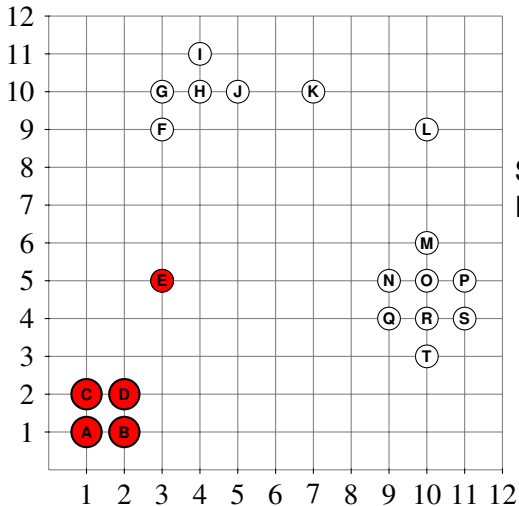
Seeds:



## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 4$ 

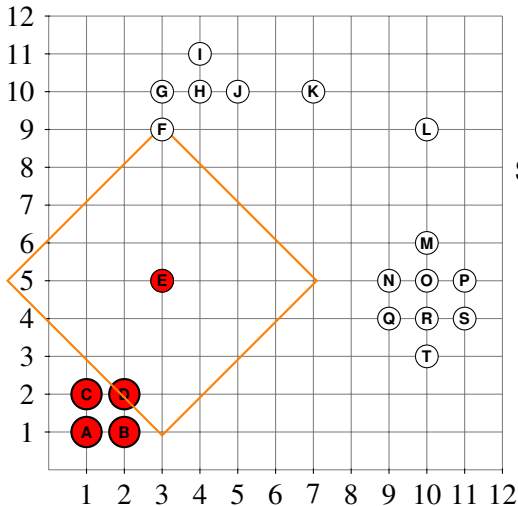
Seeds:

E

### Aufgabe 7-1

- $\epsilon = 1.1$   
 $minPts = 2$
- $\epsilon = 1.1$   
 $minPts = 3$
- $\epsilon = 1.1$   
 $minPts = 4$
- $\epsilon = 2.1$   
 $minPts = 4$
- $\epsilon = 4.1$   
 $minPts = 5$
- $\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

$minPts = 4$

Seeds:

### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

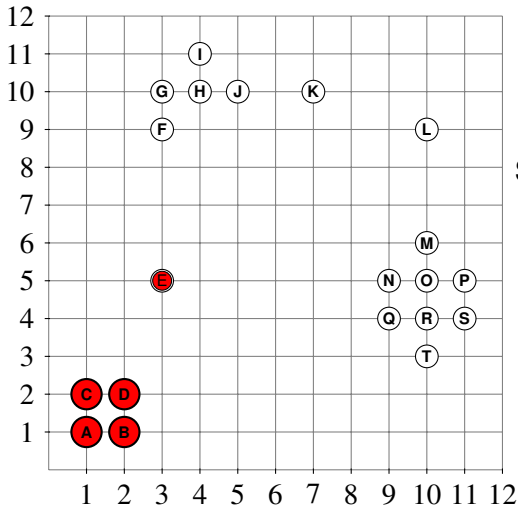
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

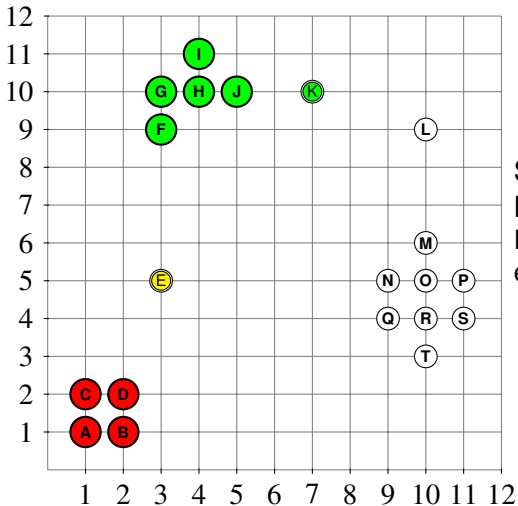
$minPts = 4$

Seeds:

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 4$ 

Seeds:

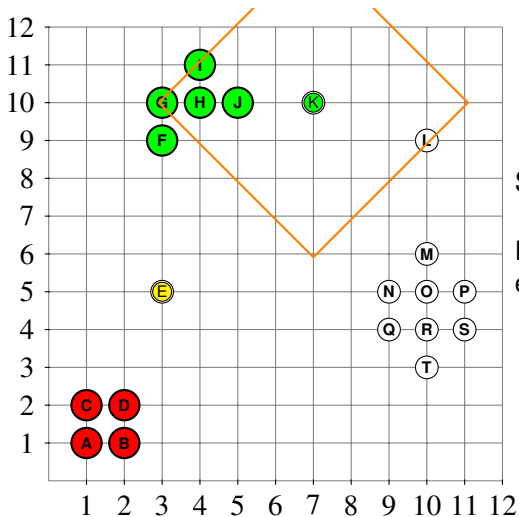
K

E nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 4$ 

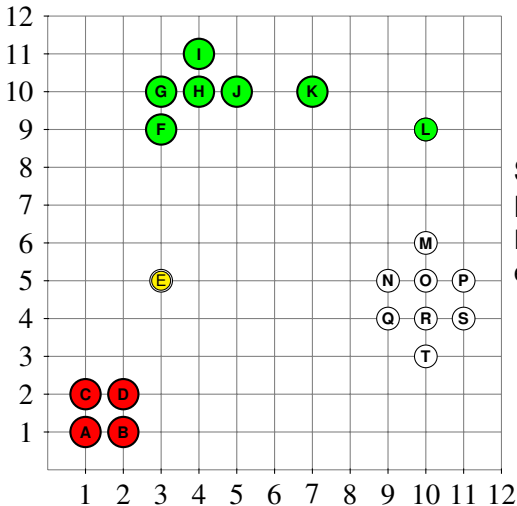
Seeds:

E nicht  
eindeutig!

### Aufgabe 7-1

- $\epsilon = 1.1$   
 $minPts = 2$
- $\epsilon = 1.1$   
 $minPts = 3$
- $\epsilon = 1.1$   
 $minPts = 4$
- $\epsilon = 2.1$   
 $minPts = 4$
- $\epsilon = 4.1$   
 $minPts = 5$
- $\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

$minPts = 4$

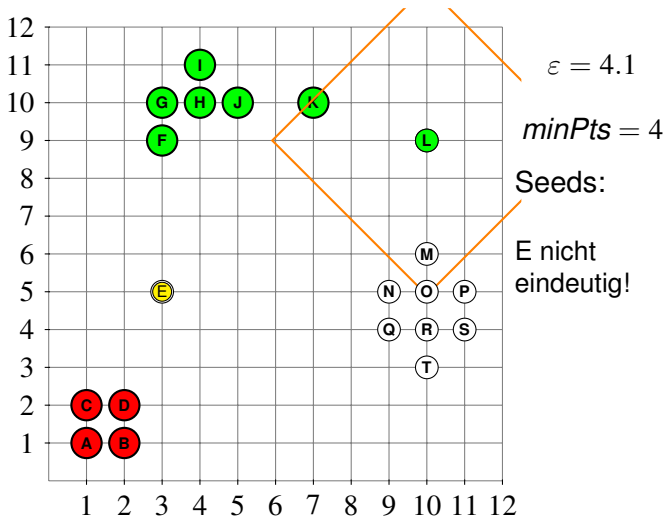
Seeds:

L  
E nicht  
eindeutig!

## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

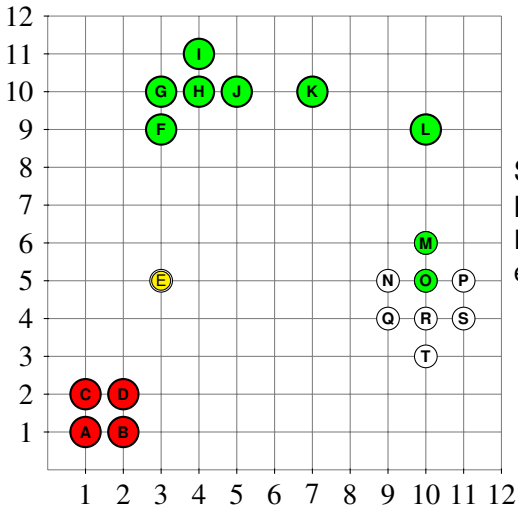
## Aufgabe 7-2



## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2

 $\epsilon = 4.1$  $\text{minPts} = 4$ 

Seeds:

MO

E nicht  
eindeutig!



### Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$

$\epsilon = 1.1$   
 $minPts = 3$

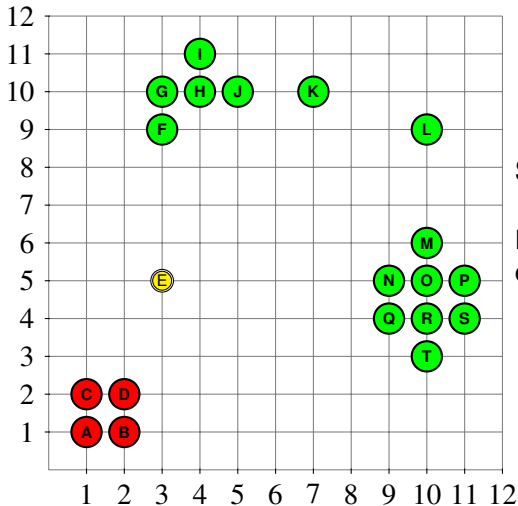
$\epsilon = 1.1$   
 $minPts = 4$

$\epsilon = 2.1$   
 $minPts = 4$

$\epsilon = 4.1$   
 $minPts = 5$

$\epsilon = 4.1$   
 $minPts = 4$

### Aufgabe 7-2



$\epsilon = 4.1$

$minPts = 4$

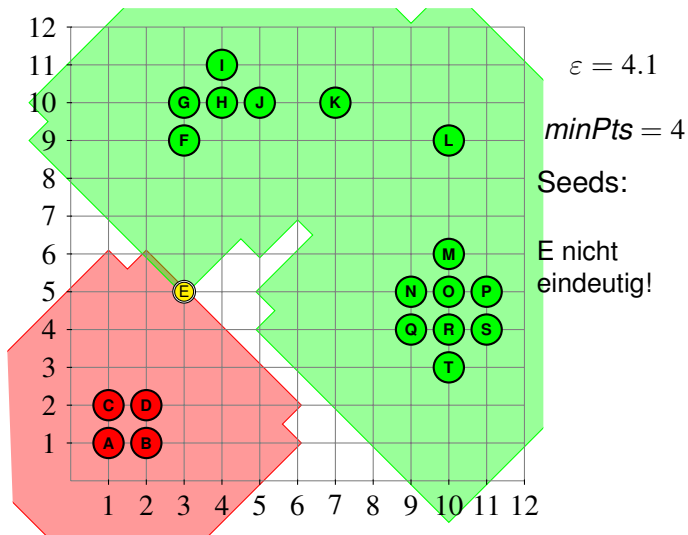
Seeds:

E nicht  
eindeutig!

## Aufgabe 7-1

$\epsilon = 1.1$   
 $\text{minPts} = 2$   
 $\epsilon = 1.1$   
 $\text{minPts} = 3$   
 $\epsilon = 1.1$   
 $\text{minPts} = 4$   
 $\epsilon = 2.1$   
 $\text{minPts} = 4$   
 $\epsilon = 4.1$   
 $\text{minPts} = 5$   
 $\epsilon = 4.1$   
 $\text{minPts} = 4$

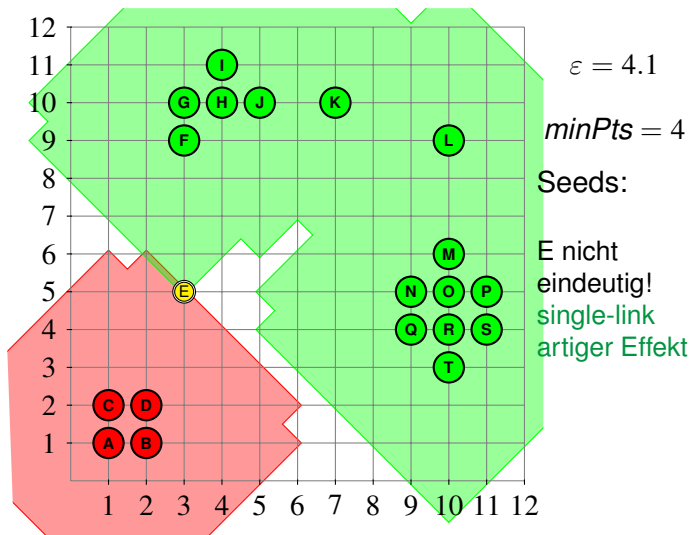
## Aufgabe 7-2



## Aufgabe 7-1

 $\epsilon = 1.1$   
 $\text{minPts} = 2$  $\epsilon = 1.1$   
 $\text{minPts} = 3$  $\epsilon = 1.1$   
 $\text{minPts} = 4$  $\epsilon = 2.1$   
 $\text{minPts} = 4$  $\epsilon = 4.1$   
 $\text{minPts} = 5$  $\epsilon = 4.1$   
 $\text{minPts} = 4$ 

## Aufgabe 7-2



## Aufgabe 7-1

$\epsilon = 1.1$   
 $minPts = 2$   
 $\epsilon = 1.1$   
 $minPts = 3$   
 $\epsilon = 1.1$   
 $minPts = 4$   
 $\epsilon = 2.1$   
 $minPts = 4$   
 $\epsilon = 4.1$   
 $minPts = 5$   
 $\epsilon = 4.1$   
 $minPts = 4$

## Aufgabe 7-2

Diskutieren Sie folgende Fragen / Aussagen zu DBSCAN:

- ▶ Bei  $minPts = 2$ , was passiert mit Randpunkten?
- ▶ Das Ergebnis von DBSCAN ist determiniert auf Kern- und Noise-Punkten, aber nicht Randpunkten!
- ▶ Ein Cluster in DBSCAN kann weniger als  $minPts$  Punkte enthalten
- ▶ Hat der Datensatz  $n$  Objekte, so stellt DBSCAN stets genau  $n$  Nachbarschaftsanfragen.
- ▶ Auf gleichverteilten Daten wird DBSCAN in der Regel fast alles in einen Cluster clustern, oder alles als Noise klassifizieren.  
 $k$ -means hingegen wird in der Regel die Daten in  $k$  etwa gleich große Partitionen aufteilen.