

## Lecture outline

Distributed CSPs

## The example:

<u>Assignments</u>	<u>Local Views</u>	<u>New Nogoods</u>
(B,B,B)	((),{},{})	X: {{X1=R,X2=R},{X1=B,X2=B},...}, X2=...
(B,R,R)	((),{X1=B},{X1=B,X2=B})	X3: {X1=B,X2=R}
(R,R,R)	((),{X1=B},{X1=B,X2=R})	X2: {X1=B,X2=R}
(R,B,B)	((),{X1=R},{X1=R,X2=R})	X2: {X1=B}
(R,B,B)	((),{X1=R},{X1=R,X2=B})	X1: {X1=B}
		X3: {X1=R,X2=B}
		X2: {X1=R,X2=B}
		X1: {X1=R,X2=B}
		X1: {} FAIL

Market-based optimization

- Contract nets
- The assignment problem and LP
  - o Assignment problem, example
  - o Its LP
  - o Competitive eqm, example
  - o Comp Eqm  $\Leftrightarrow$  optimality
  - o The naïve algorithm, example
  - o The problem, example
  - o The modified algorithm
- The scheduling problem and IP
  - o Scheduling problem, example
  - o Its IP
  - o Generalized competitive eqm, example
  - o Comp eqm  $\Rightarrow$  optimality (but not  $\Leftarrow$ )
  - o The naive algorithm, example
  - o The problems, examples