Preference Aggregation by Voting:
Algorithmics and Complexity

Präferenzaggregation durch Wählen: Algorithmik und Komplexität

Pingo

Wintersemester 2020/2021
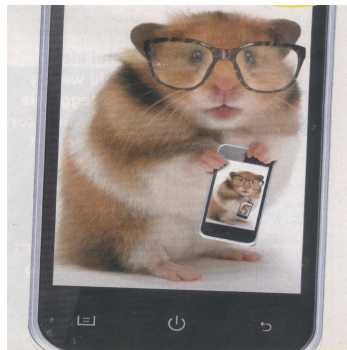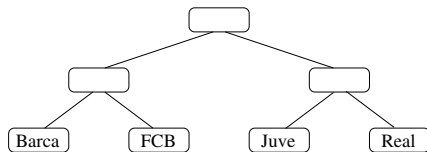
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Website

$$\text{https://pingo.coactum.de/}$$

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Question 1

Anna:	Barca	Real	Juve	FCB
Belle:	Juve	Real	FCB	Barca
Chris:	Barca	FCB	Real	Juve
David:	FCB	Real	Barca	Juve
Edgar:	Real	FCB	Barca	Juve

Who wins this regular cup protocol?

A Barca

B FCB

C Juve

D Real

Question 2

Anna:	Barca	Real	Juve	FCB
Belle:	Juve	Real	FCB	Barca
Chris:	Barca	FCB	Real	Juve
David:	FCB	Real	Barca	Juve
Edgar:				
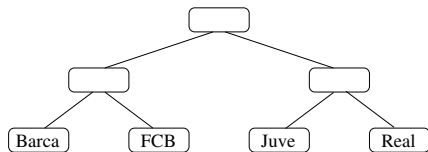
How should Edgar vote to help the Bayern win?

A Barca   FCB   Juve   Real

B FCB   Barca   Real   Juve

C Barca   Real   Juve   FCB

D Real   FCB   Barca   Juve

Question 3

Anna:	Barca	Real	Juve	FCB
Belle:	Juve	Real	FCB	Barca
Chris:	Barca	FCB	Real	Juve
David:	FCB	Barca	Real	Juve
Edgar:	Real	FCB	Barca	Juve
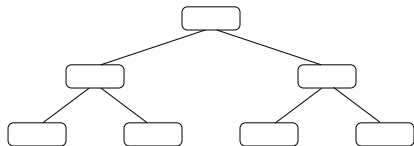
Assigning which teams to which leaves makes the Bayern win?

A Barca   FCB   Juve   Real

B FCB   Real   Barca   Juve

C FCB   Juve   Barca   Real

D FCB   Barca   Real   Juve

Question 4

Anna:	a	b	c	d
Belle:	b	a	d	c
Chris:	c	d	a	b
David:	d	a	b	c
Edgar:	d	b	c	a

Who wins this Copeland election?

A a

B b

C c

D d

Question 5

Anna:	a	b	c	d
Belle:	b	a	d	c
Chris:	c	d	a	b
David:	d	a	b	c
Edgar:	d	b	c	a

Who wins this maximin election?

A a

B b

C c

D d

Question 6

Anna:	a	b	c	d
Belle:	b	a	d	c
Chris:	c	d	a	b
David:	d	a	b	c
Edgar:	d	b	c	a

If Belle votes strategically under maximin to make b win (perhaps nonuniquely), what would be her preference?

A a   c   d   b

B b   d   c   a

C b   c   d   a

D b   d   a   c

Question 7

Anna:	a	b	c	d
Belle:	**b**	**c**	**d**	**a**
Chris:	c	d	a	b
David:	d	a	b	c
Edgar:	d	b	c	a

Who wins this manipulated election under Copeland?

A a

B b

C c

D d

Question 8

For an NP algorithm to accept its input, it is required that ...

A ... all paths of the computation tree are accepting

B ... at least half of the paths in the computation tree are accepting

C ... at most one of the paths in the computation tree are accepting

D ... at least one of the paths in the computation tree are accepting