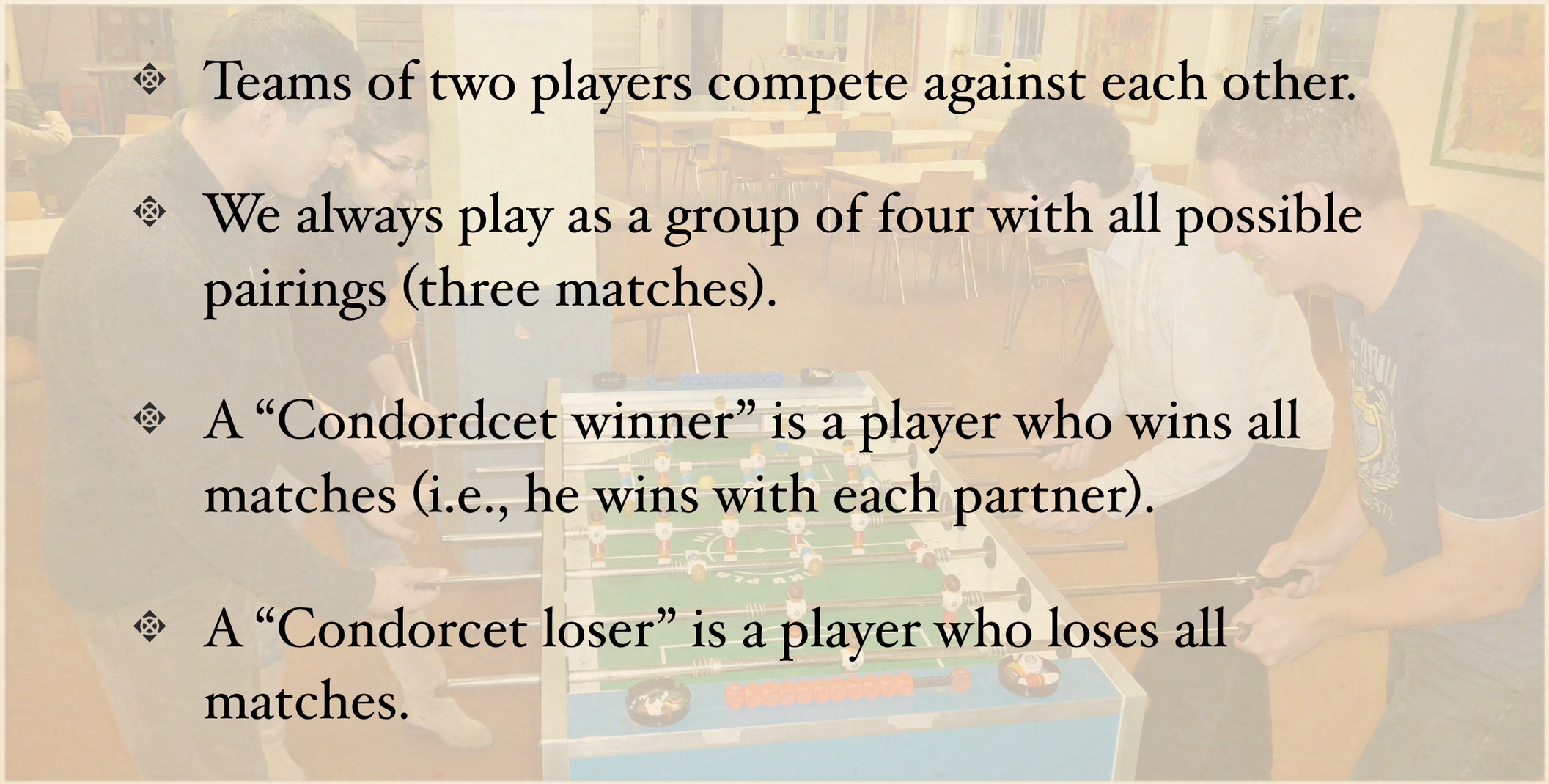
THE KICKER THEOREM

PREFERENCE AGGREGATION IN MULTIAGENT SYSTEMS

Felix Brandt, March 2010

PRELIMINARIES

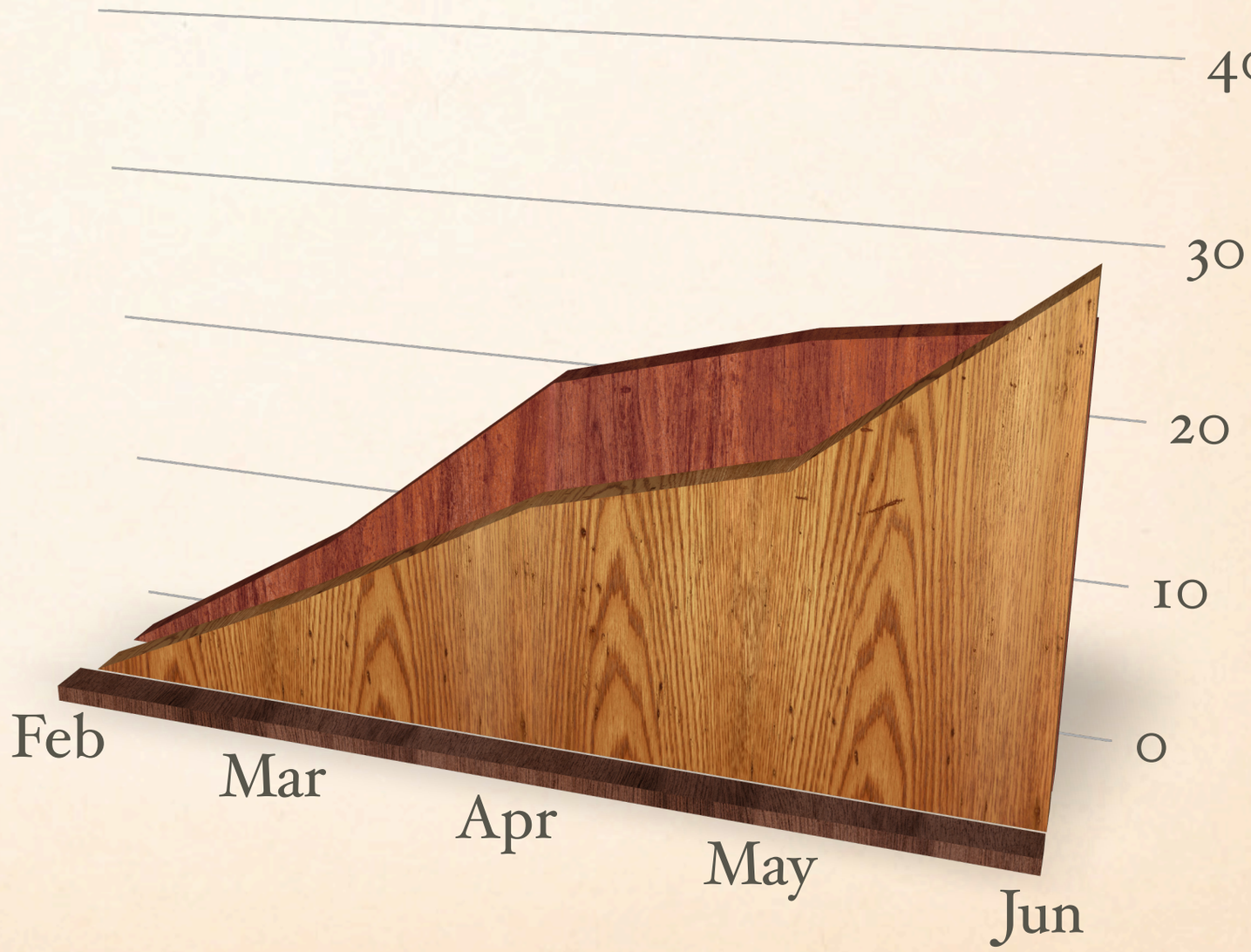
Kicker (🇩🇪) ✣ Foosball (🇬🇧)



- Teams of two players compete against each other.
- We always play as a group of four with all possible pairings (three matches).
- A “Condordcet winner” is a player who wins all matches (i.e., he wins with each partner).
- A “Condorcet loser” is a player who loses all matches.

EXPERIMENTAL DATA

- none
- Condorcet winner
- Condorcet loser



ANALYTIC INVESTIGATION

- **Conjecture** (Fischer, 2007): Every Kicker Tournament either admits a Condorcet winner or a Condorcet loser.

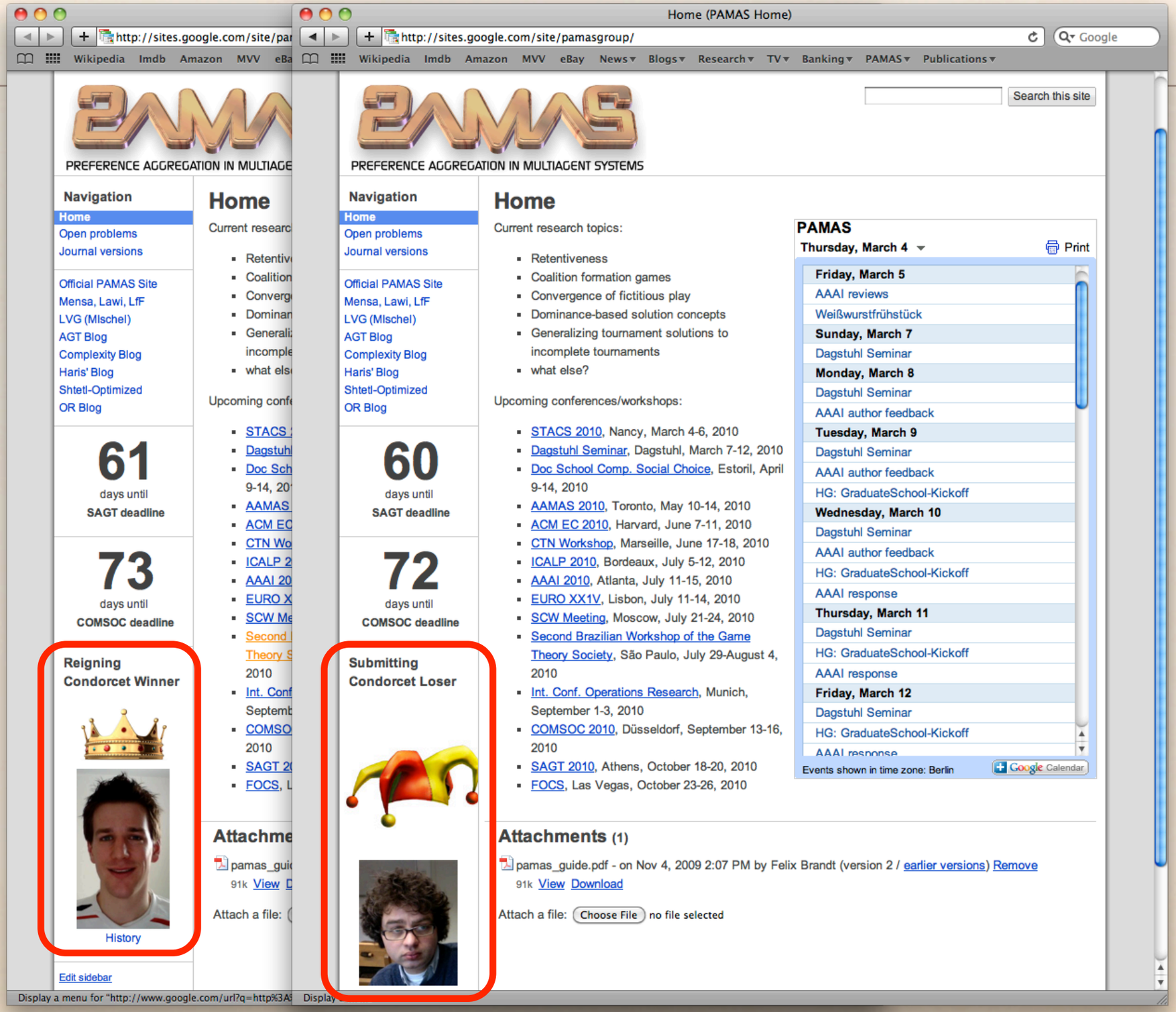
- **Proof** (Harrenstein, about 5 minutes later):

  ab > cd
  wlog ac > bd
  Case 1: ad > bc (⇒ a is Condorcet winner)
  Case 2: ad < bc (⇒ d is Condorcet loser) □

- The potential Condorcet winner (a) and the potential Condorcet loser (d) always play together in the last match.

- **Corollary**: It also works for Tennis doubles and Bridge!

IMPACT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Complexity Blog
Haris' Blog
Shtetl-Optimized
OR Blog
61 days until SAGT deadline
73 days until COMSOC deadline
Reigning Condorcet Winner
History
Edit sidebar
Home
Current research topics:
Retentiveness
Coalition formation games
Convergence of fictitious play
Dominance-based solution concepts
Generalizing tournament solutions to incomplete tournaments
what else?
Upcoming conferences/workshops:
STACS 2010, Nancy, March 4-6, 2010
Dagstuhl Seminar, Dagstuhl, March 7-12, 2010
Doc School Comp. Social Choice, Estoril, April 9-14, 2010
AAMAS 2010, Toronto, May 10-14, 2010
ACM EC 2010, Harvard, June 7-11, 2010
CTN Workshop, Marseille, June 17-18, 2010
ICALP 2010, Bordeaux, July 5-12, 2010
AAAI 2010, Atlanta, July 11-15, 2010
EURO XX1V, Lisbon, July 11-14, 2010
SCW Meeting, Moscow, July 21-24, 2010
Second Brazilian Workshop of the Game Theory Society, São Paulo, July 29-August 4, 2010
Int. Conf. Operations Research, Munich, September 1-3, 2010
COMSOC 2010, Düsseldorf, September 13-16, 2010
SAGT 2010, Athens, October 18-20, 2010
FOCS, Las Vegas, October 23-26, 2010
PAMAS
Thursday, March 4
Print
Friday, March 5
AAAI reviews
Weißwurstfrühstück
Sunday, March 7
Dagstuhl Seminar
Monday, March 8
Dagstuhl Seminar
AAAI author feedback
Tuesday, March 9
Dagstuhl Seminar
AAAI author feedback
HG: GraduateSchool-Kickoff
Wednesday, March 10
Dagstuhl Seminar
AAAI author feedback
HG: GraduateSchool-Kickoff
AAAI response
Thursday, March 11
Dagstuhl Seminar
HG: GraduateSchool-Kickoff
AAAI response
Friday, March 12
Dagstuhl Seminar
HG: GraduateSchool-Kickoff
Events shown in time zone: Berlin
Google Calendar
60 days until SAGT deadline
72 days until COMSOC deadline
Submitting Condorcet Loser
Attachments (1)
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OPEN PROBLEM

- We were unable to generalize this in any meaningful sense, e.g.,
  - more players,
  - more players per team,
  - matches of more than two teams, etc.