Breaking the rules

Jules Hedges
based on joint discussions in the pub with
Viktor Winschel & Philipp Zahn

"That's a good rule"
— Viktor Winschel

7.B What Is a Game?

A *game* is a formal representation of a situation in which a number of individuals interact in a setting of *strategic interdependence*. By that, we mean that each individual's welfare depends not only on her own actions but also on the actions of the other individuals. Moreover, the actions that are best for her to take may depend on what she expects the other players to do.

To describe a situation of strategic interaction, we need to know four things:

(i) *The players:*   Who is involved?

(ii) *The rules:*   Who moves when? What do they know when they move? What can they do?

(iii) *The outcomes:* For each possible set of actions by the players, what is the outcome of the game?

(iv) *The payoffs:* What are the players' preferences (i.e., utility functions) over the possible outcomes?

Mas-Colell & Whinston & Green — *Microeconomic theory*

"Game-theoretic techniques require clear and distinct '*rules of the game*'. Analysis of free-form competition … is not within the realm of the techniques provided…

… if game theory is necessarily so limited, then it is extremely limited as a tool of analysis for some important economic problems…

… And I would prefer that we not give up hope, but instead think in terms of how we might adapt the theory so it is better able to cope with ambiguous protocols."
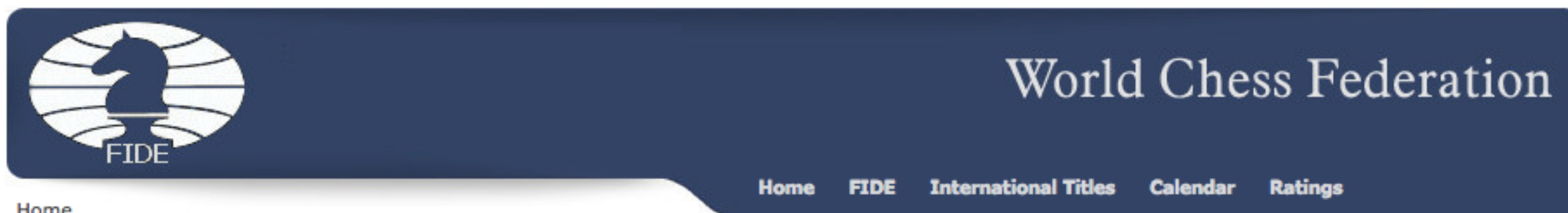
Kreps — *Game theory and economic modelling*

"If the players in this game are so smart, why are they playing this silly game? Why don't they change the rules and play a game where they can do better?"
— Abba Schwartz

Combinatorial game theory

Combinatorial game theory?

World Chess Federation

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Dubai bans Georgian Chess Champion Caught Cheating at Dubai Open Chess Tournament

Tuesday, 14 April 2015 07:19

Dubai bans Georgian Chess Champion Caught Cheating at Dubai Open Chess Tournament

Gaioz Nigalidze, winner of the Georgian championship in 2013 and 2014, used a smart phone hidden in a toilet to consult moves with a chess computer

search..

FIDE President
Kirsan Ilyumzhinov

FIDE **TOP 100**
CHESS RATINGS
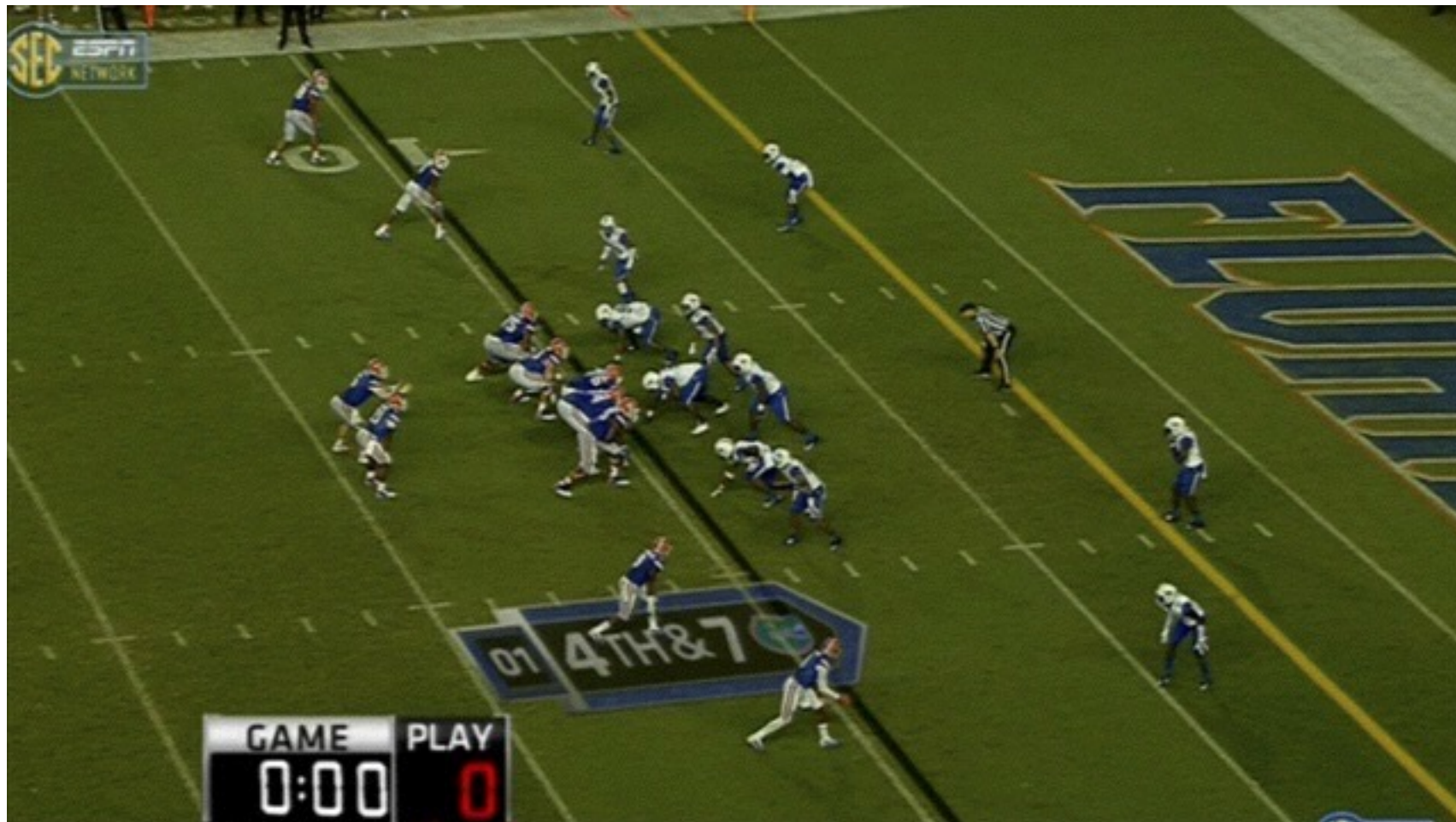
Combinatorial game theory???

Football 🇬🇧 — fouls

Football 🇬🇧 —
taking one for the team

Football 🇬🇧 — diving

Football 🇺🇸 — delay of game

Changing laws

Lobbying

But we do pride ourselves on the strength of our connections with the Conservative Party

"What's the constitution for changing the constitution?"
— Viktor Winschel

"The Congress, whenever two thirds of both houses shall deem it necessary, shall propose amendments to this Constitution … shall be valid to all intents and purposes, as part of this Constitution"
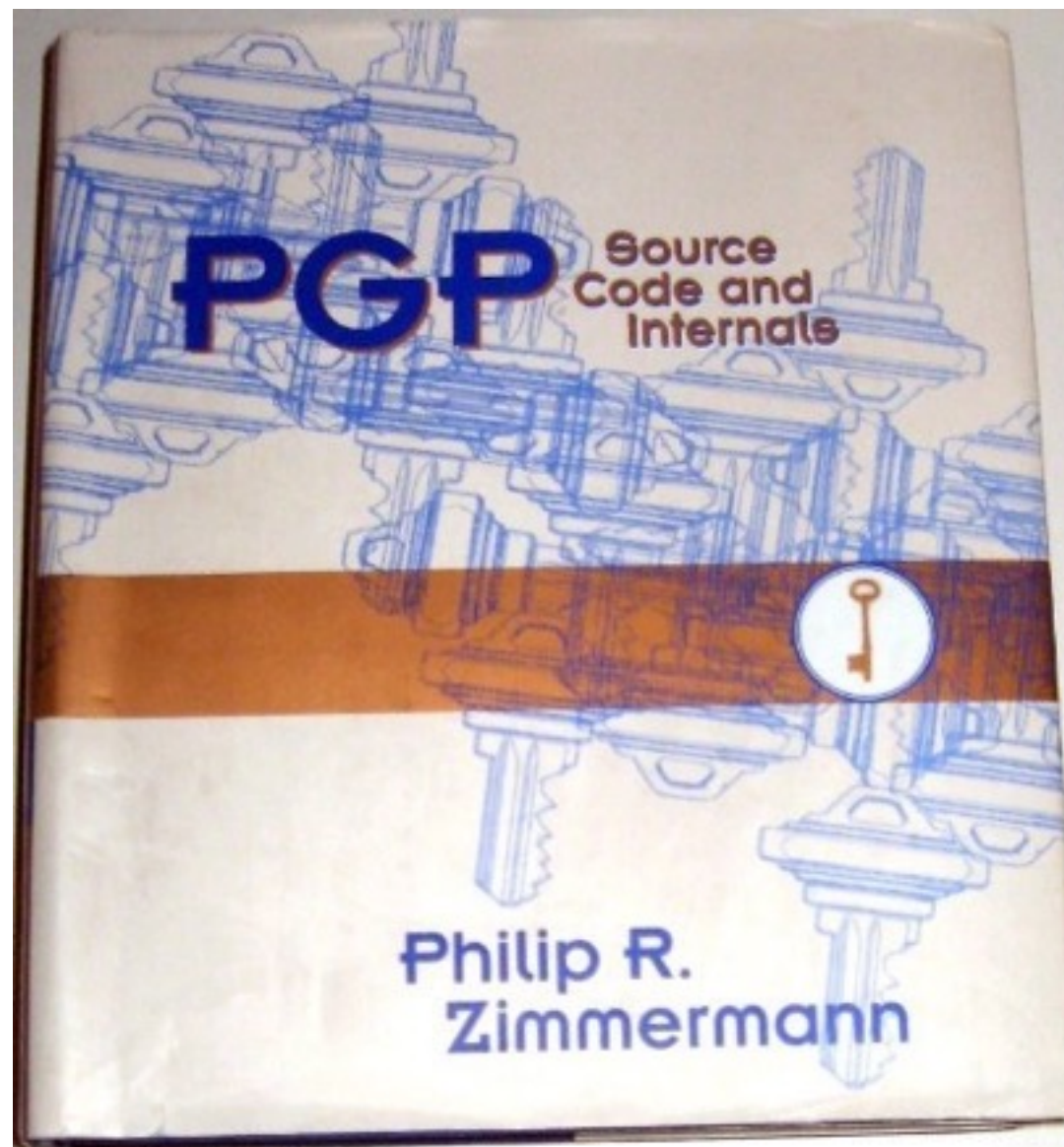— Article V of the U.S. Constitution

```c
#include <stdio.h>
static char *text[] =
{
  "Export of this program from the USA is governed by the US",
  "Munitions List from the ITAR (International Traffic in Arms",
  "Regulations). This list gives the specific categories of",
  "restricted exports and includes cryptographic exports. Traffic",
  "entirely external to, entirely internal to, or into the USA is",
  "not restricted.",
  "To obtain a copy of the program, email to nathan@inmos.co.uk",
  "with a subject \"IOCCC request\". If you know that your 'From'",
  "line is incorrect, add a single line",
  "\"replyto you@your.correct.address\" to the body of the message.",
  "A deamon will autoreply.",
  "WARNING: You must not re-export this out of the USA, or else",
  "the men in black might get you.",
  NULL
};
int main()
{
  char **ptr;

  for(ptr = text; *ptr; ptr++)
    printf("%s\n", *ptr);
  return 0;
}
```

IOCCC — Worst Abuse of the Rules (1992)

"A book comprised entirely of thousands of lines of source code looks pretty dull. But then so does a nondescript fragment of concrete — unless it happens to be a piece of the Berlin Wall"
— Phil Zimmerman

Side Channel Attack

| Input Ciphertext | Decryption → | Output Plaintext |

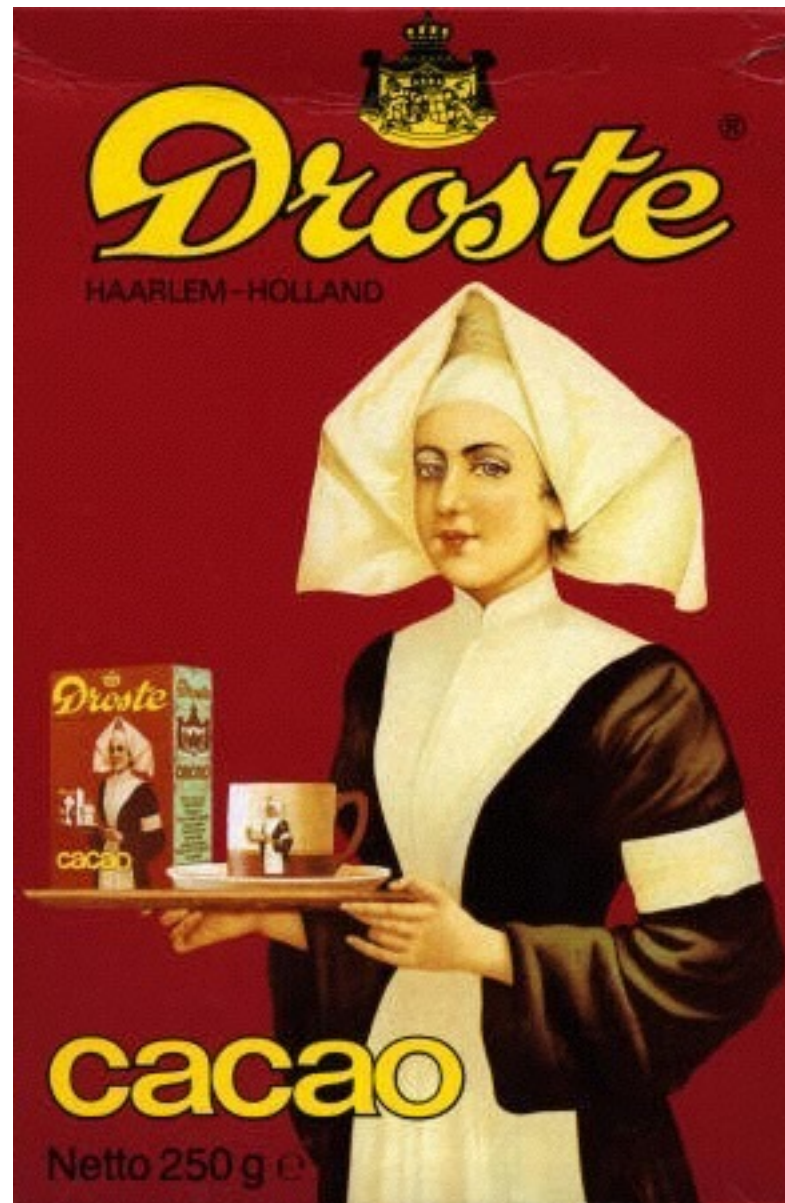**Side Channel Information :**

Power Consumption
Electromagnetic Radiation
Injection of Faults
Acoustic Sounds

Side Channel Analysis

"Fort Knox has never been robbed. Statistical analysis using high-level, aggregated data would therefore indicate that the probability of a robbery is independent of the resources spent on guards. The policy implication from such analysis would be to eliminate the guards and save those resources."

Wikipedia — *Lucas critique*

Reflexivity

Thank you