

Multimedia Requirements Engineering



The banner features a green background with a logo on the left that says '2008 RE' and 'www.re08.org'. The text in the center reads '16th IEEE International Requirements Engineering Conference' and 'September 08-12th, 2008 Barcelona, Catalunya, Spain'. On the right, there is a photograph of a harbor with a bridge and buildings.

Third International Workshop on

Multimedia and Enjoyable Requirements Engineering (MERE'08) —
Beyond Mere Descriptions and with More Fun and Games

Tuesday, 9th of September 2008

Oliver Creighton, Siemens AG Corporate Technology

Olly Gotel, Pace University Department of Computer Science

Thanks to the Reviewers:

- ★ **Len Bass**, Carnegie Mellon University, Software Engineering Institute, USA
- ★ **Bernd Brügge**, Technische Universität München, Germany
- ★ **David Callele**, University of Saskatchewan, Canada
- ★ **Jane Cleland-Huang**, DePaul University, USA
- ★ **Paul Grünbacher**, Johannes Kepler University Linz, Austria
- ★ **Heinrich Hußmann**, Ludwig-Maximilians-Universität München, Germany
- ★ **Filippo Lanubile**, University of Bari, Italy
- ★ **Seok-Won Lee**, University of North Carolina at Charlotte, USA
- ★ **Stephen Morris**, City University, UK
- ★ **Martin Purvis**, University of Otago, Dunedin, New Zealand
- ★ **Asarnusch Rashid**, FZI Forschungszentrum Informatik Karlsruhe, Germany
- ★ **Renel Smith**, Pace University, USA

Goals of the First Workshop at RE'06

1. “Abolish” text-based requirements
2. Redefine the “look” of requirements;
Provide specialized “views” for all stakeholders
3. Sketch out a research proposal
 - a. State-of-the art, our contributions
 - b. Research questions
 - c. Goals and milestone plan
4. Form a community for Multimedia RE

What About the Fun and Games?

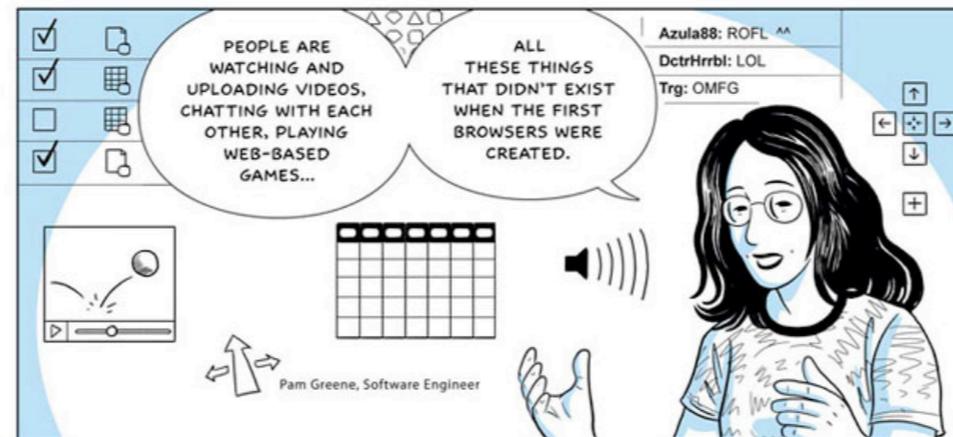
- ★ RE'07
- ★ Olly presenting Renel Smith's work at REET'07
- ★ Oliver completing a course on SE Game Design
- ★ Wanted a workshop where you try crazy things out and play
- ★ Wanted to be in a workshop we enjoyed being in
- ★ Will this work? -- it is up to you!
- ★ We have to start somewhere...

We Must Keep Ahead of Google!



TODAY, MOST OF WHAT WE USE THE WEB FOR ON A DAY-TO-DAY BASIS AREN'T JUST WEB PAGES, THEY'RE APPLICATIONS.

Brian Rakowski,
Product Manager



Pam Greene, Software Engineer

WOULDN'T IT BE GREAT, THEN, TO START FROM SCRATCH --



-- AND DESIGN SOMETHING BASED ON THE NEEDS OF TODAY'S WEB APPLICATIONS AND TODAY'S USERS?



Program

09:00 – 09:30 Opening Notes:

Welcome to MERE'08 and Program Overview – Oliver Creighton and Olly Gotel
Getting you Primed for Some Fun and Games -- Olly Gotel

09:30 – 10:30 Session 1: Short Papers and Cool Proposals

- Amanda Williams and Thomas Alspaugh -- Articulating Software Requirements Comic Book Style (*Short Paper --20 mins*)
- Per Pascal Grube and Klaus Schmid -- Selecting Creativity Techniques for Innovative Requirements Engineering (*Short Paper -- 20 mins*)

10:30 – 11:00 Coffee/Tea Break

11:00 – 13:00 Session 2: Let's Talk and Play Games

- Yuhui Shan, Lin Liu and Fei Peng -- Use Media to Enhance Goal-Oriented Requirement Elicitation: From A Chinese Culture Related Perspective (*Short Paper -- 20 mins*)
- Eric Knauss, Kurt Schneider and Kai Stapel -- A Game for Taking Requirements Engineering More Seriously (*Short Paper and Gameplay -- 30 mins*)
- David Callele, Eric Neufeld and Kevin Schneider --Requirements in Conflict: Player vs. Designer vs. Cheater (*Full Paper, Facilitated Discussion and Role Play – 1 hour*)

13:00 – 14:00 Lunch

Program

14:00 – 15:00 Session 3: Time for Some Fun -- Experience Improvisation Theater

- Anne Hoffmann. Teaching Soft Facts in Requirements Engineering Using Improvisation Theatre Techniques (*Interactive Session – 1 hour*)

15:00 – 15:30 Session 4a: Do Some Video-Based Requirements Engineering and Take Home a Movie

- Bernd Brügge, Oliver Creighton, Max Reiss and Harald Stangl -- Video Scenario based Software Development (*Mini-tutorial and Hands-on Team Sessions – Intro -- 30 mins*)

15:30 – 16:00 Coffee/Tea Break

16:00 – 17:00 Session 4b: Do Some Video-Based Requirements Engineering and Take Home a Movie

- Bernd Brügge, Oliver Creighton, Max Reiss and Harald Stangl -- Video Scenario based Software Development (*Mini-tutorial and Hands-on Team Sessions – Shooting and Annotating 40 mins*)
- Report Back from the Teams and Video Viewing (20 mins)

17:00 – 17:30 End Notes:

- Exploring an RE Compendium of Games -- Olly Gotel and Renel Smith (*Light-hearted Discussion on the Role and Potential of Gaming in RE – will squeeze time to accommodate movie making*)
- MERE'08 – It's a Wrap (Oliver Creighton and Olly Gotel)

INTERACT / PARTICIPATE / ASK QUESTIONS!!!

- Is what the presenter describing ... fun?
- If not - does it have the potential to be fun? Do you have any suggestions for them?
- What was the most fun you ever had doing RE? What made it fun? Did you do a better job?
- If you are an academic, do your students enjoy RE classes? What do they like the most / least? Do they learn best when they are happy or bored?
- If you are a practitioner, do your colleagues think that what you do is cool? Does everyone covet your job?
- RE is a serious topic when we think of its contribution to project failures – so what are the real barriers and drawbacks of making it a more enjoyable activity and experience? People won't take it / you seriously? Customers will not trust you? What are the real pros and cons?
- Is too much fun dangerous? We all know where improvisation and creativity leads in the comedy clubs! Does it / will it translate to better quality work in the end? Where's the evidence?
- Games for education and training – have you created any games, used any pre-existing games, with what results?

INTERACT / PARTICIPATE / ASK QUESTIONS!!!

more...

- Games for serious work – do they have a place in a project setting? Where, when and what could / would you use them for?
- Does the use of media really add value to RE tasks or is it just a gimmick?
- RE on Utube? RE podcasts? RE twittering? Do we gain anything from all this?
- What do you think of Google's comic – love it or loathe it?
- What benefits / problems does more use of multimedia bring further down the line in software development?
- Does the use of multimedia come into its own for global projects or does it simply exacerbate the problems?
- Do we all need to go and get 2nd degrees in art, movie making, music, theatre?

...more

Let's Give it a Whirl...

RE CAN be more enjoyable and fun

... but only if YOU make it so!

Tracing Whodunit, RE-O-Poly & ... ?

Olly Gotel & Renel Smith
Pace University, New York City

👁️ Work hard

👁️ Play harder









Tricky

- Traceability
- Estimating & prioritising
- Negotiation & diplomacy
- Risk assessment & management
- Writing requirements
- Long-term strategy
- ... simply raising awareness of good practices

& much more...

Problem

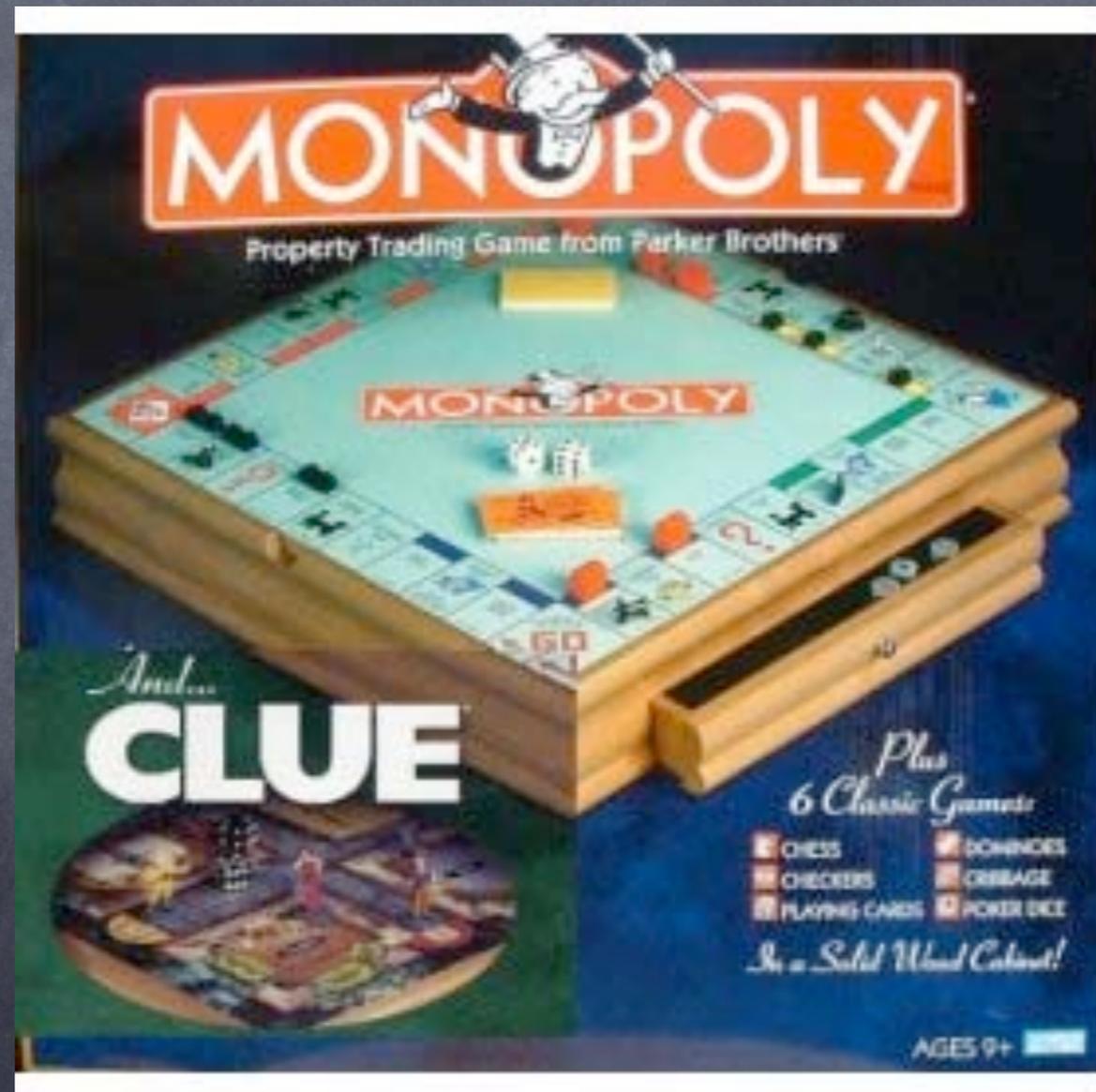
- Difficult topics – awareness of value, practice and reinforcement
- Grab attention early, find ways to keep topics in focus often
- Perception -- boring and irrelevant 'to me'
- Narrow modes
- Individualistic

Idea

- Compendium of games for RE



Reality



Vision



Stepping back

- Simple objective
- Bring folks together
- Quick to implement / deploy / try out
- Cheap
- Re-purpose familiar games
- Addendum

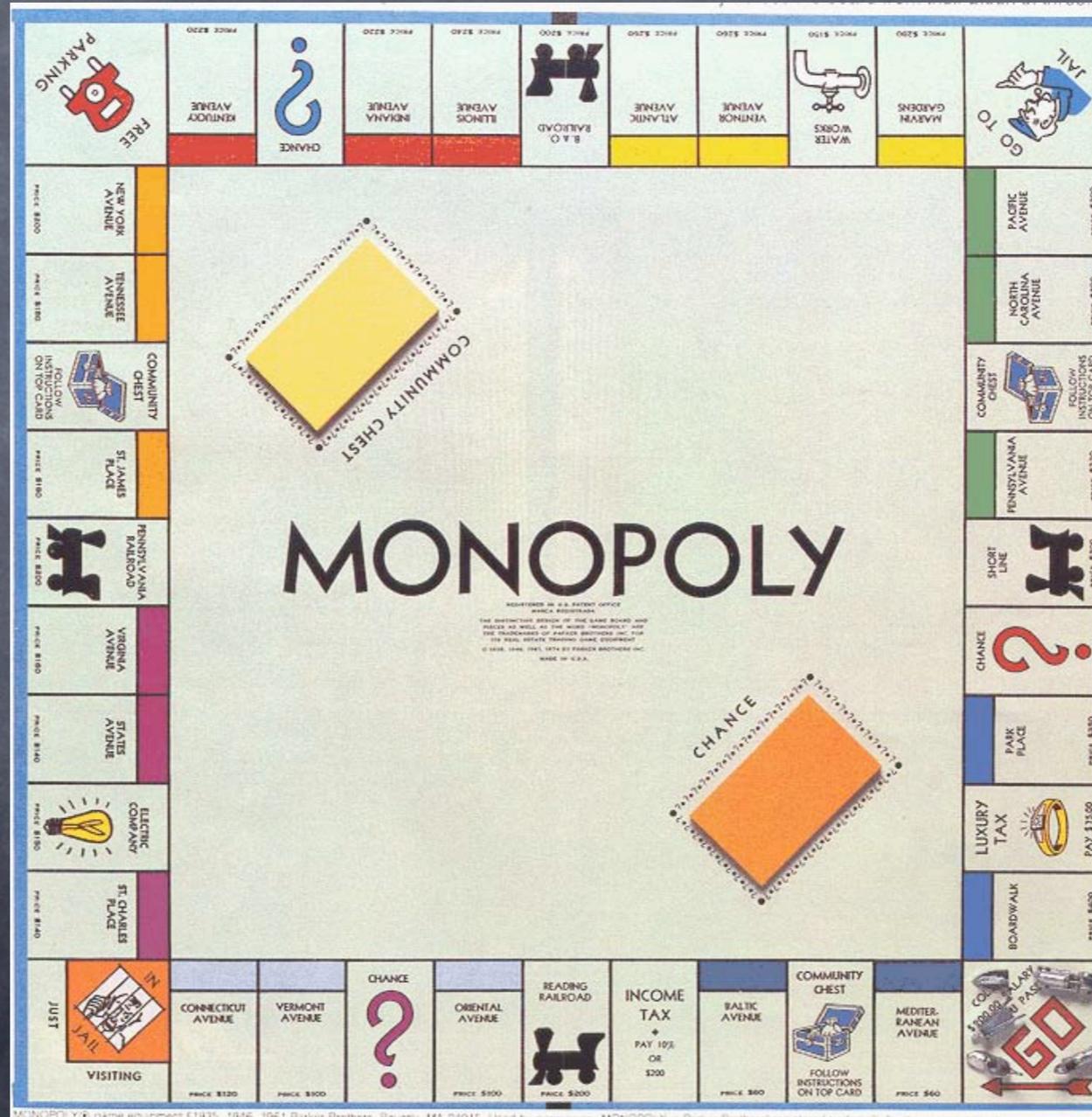
Objective

- Raise awareness of RE good practices:
 - 10 practices targeted
 - teach
 - reinforce
 - practice
 - reach agreement
 - reward

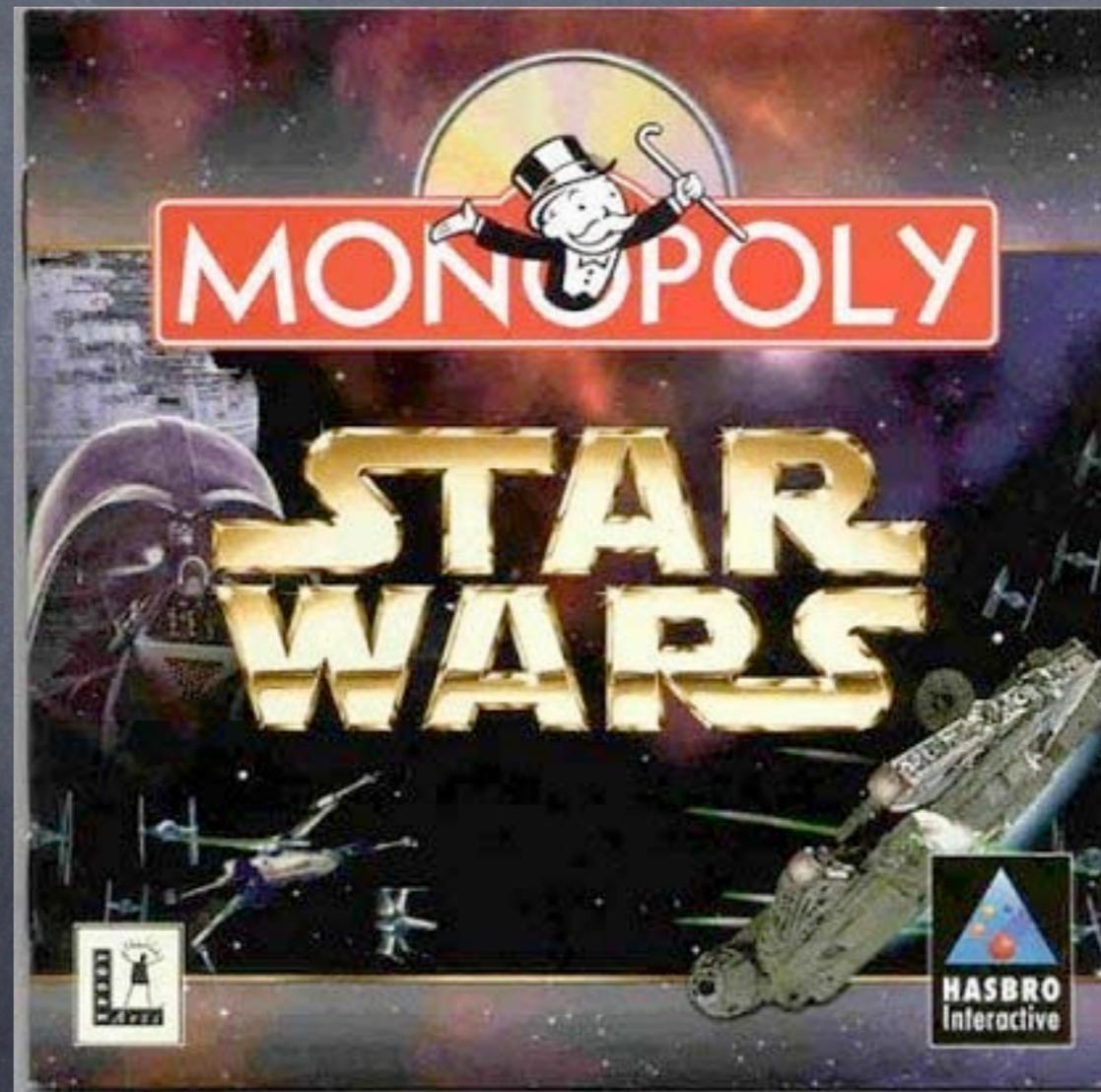
Inspiration



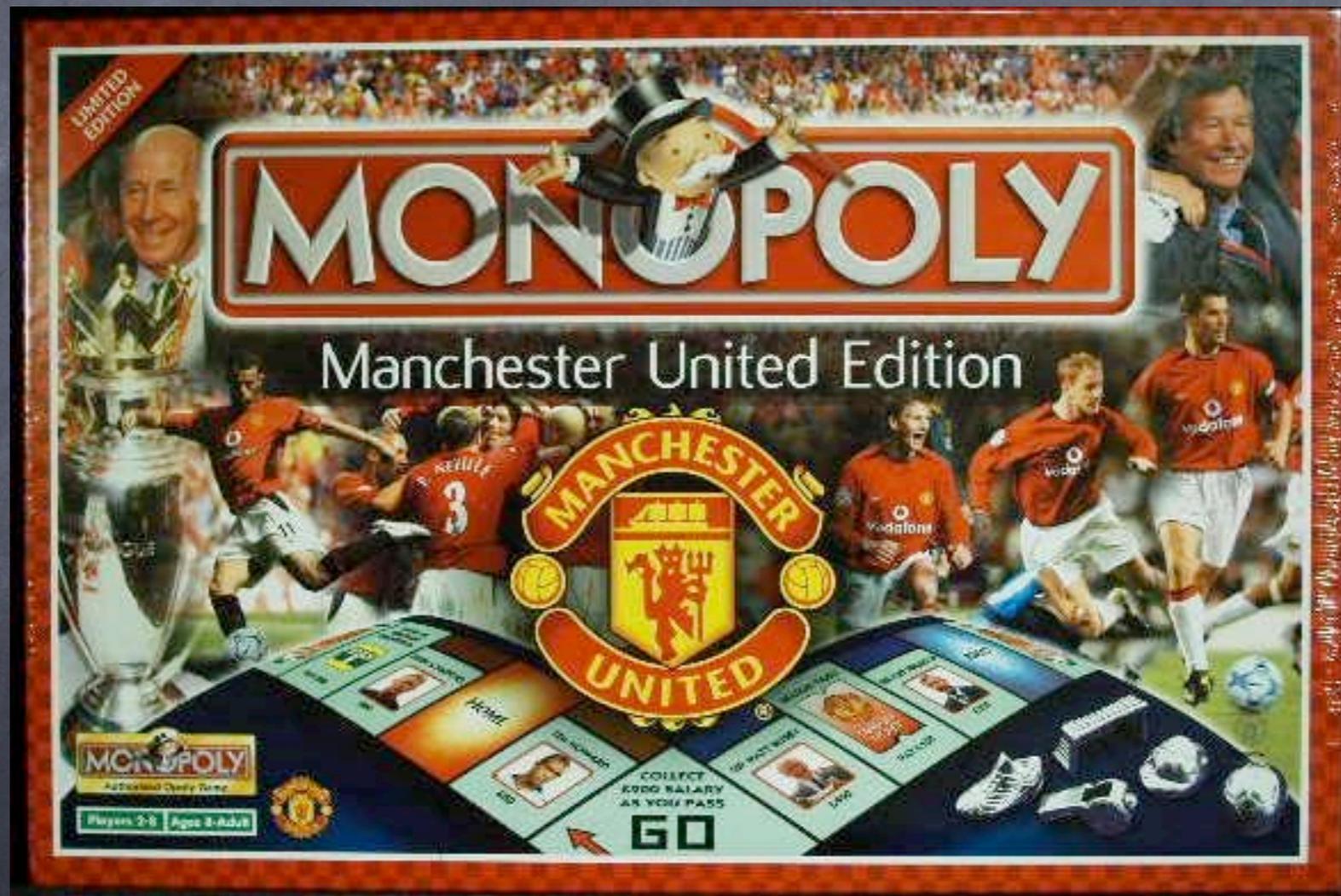
Monopoly



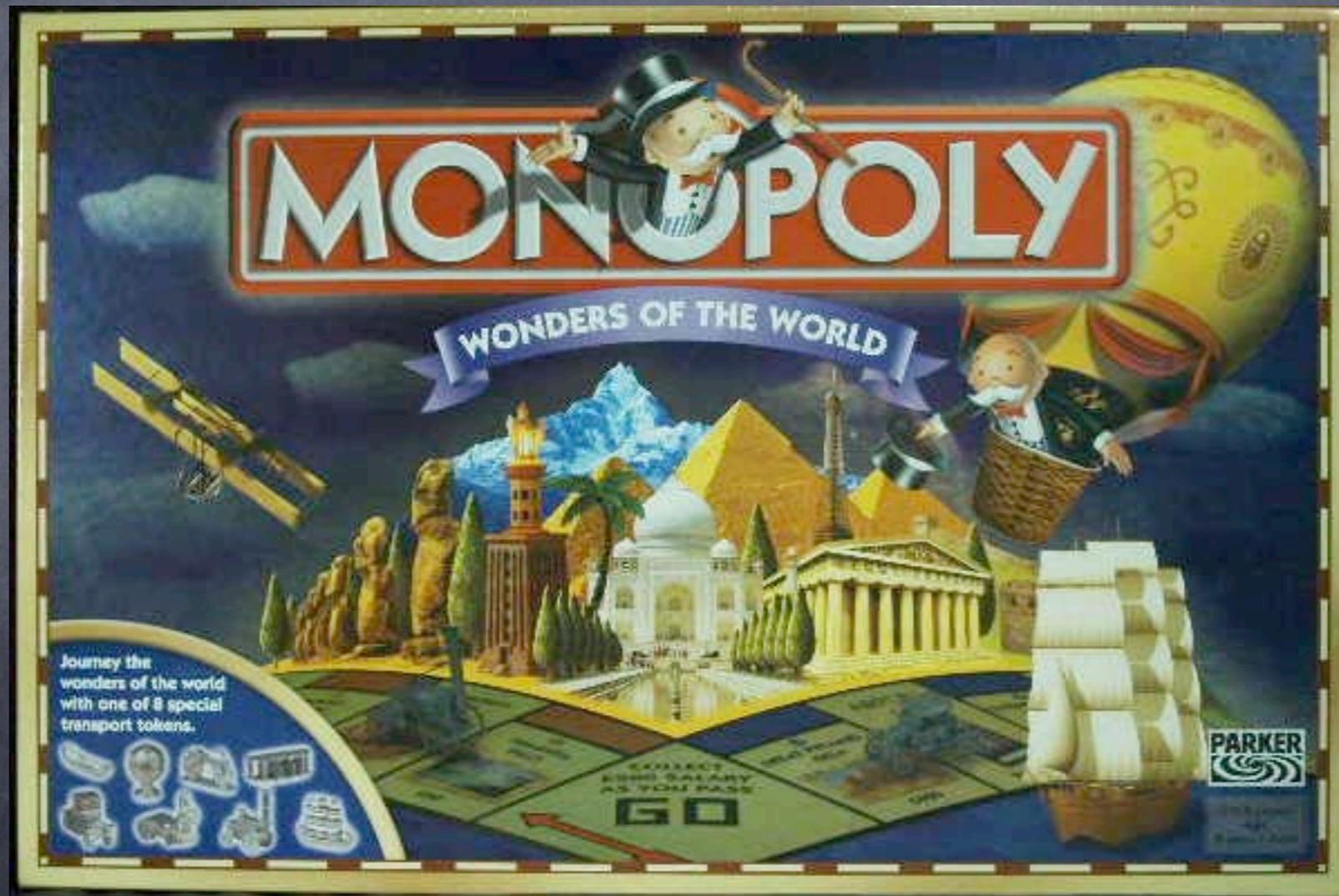
Varieties



Varieties



Varieties



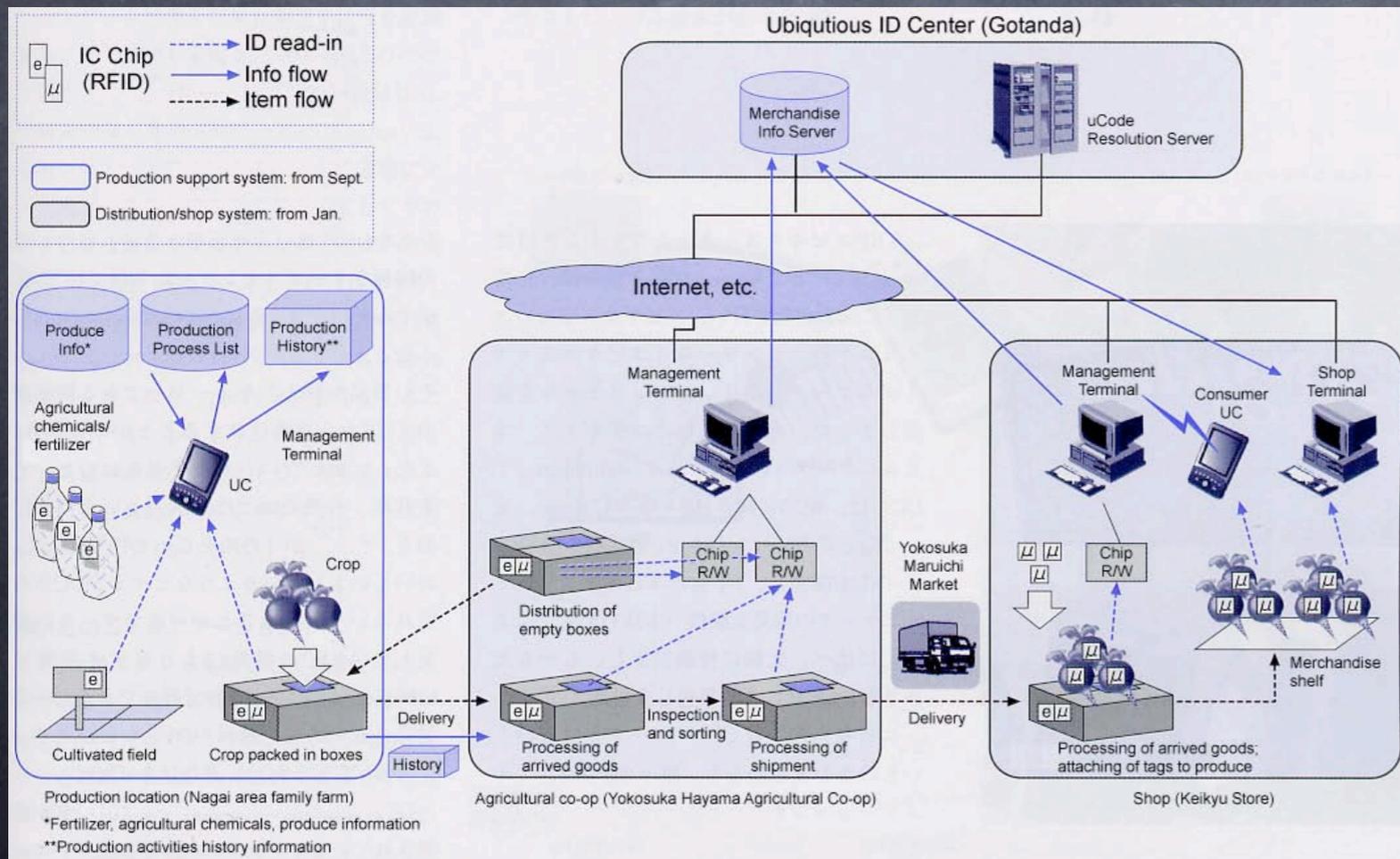
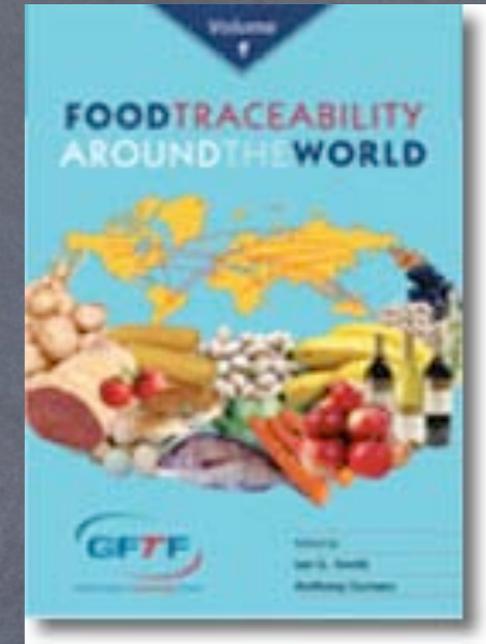
Quality of
your work is
bad --
Go directly to
RE training
DO NOT
collect SSP

Come listen to **Renel** on Thursday...

Objective

- Raise awareness of traceability, especially:
 - provenance issues
 - tracing back to sources
 - impact of media used
 - trial-and-error

Tracing back



FQcode invites you to discover our Traceability Solution at Booth N° 5114 of PMA Fresh Summit. 22th to 24th, October 2006. San Diego CA, USA.



FQcode

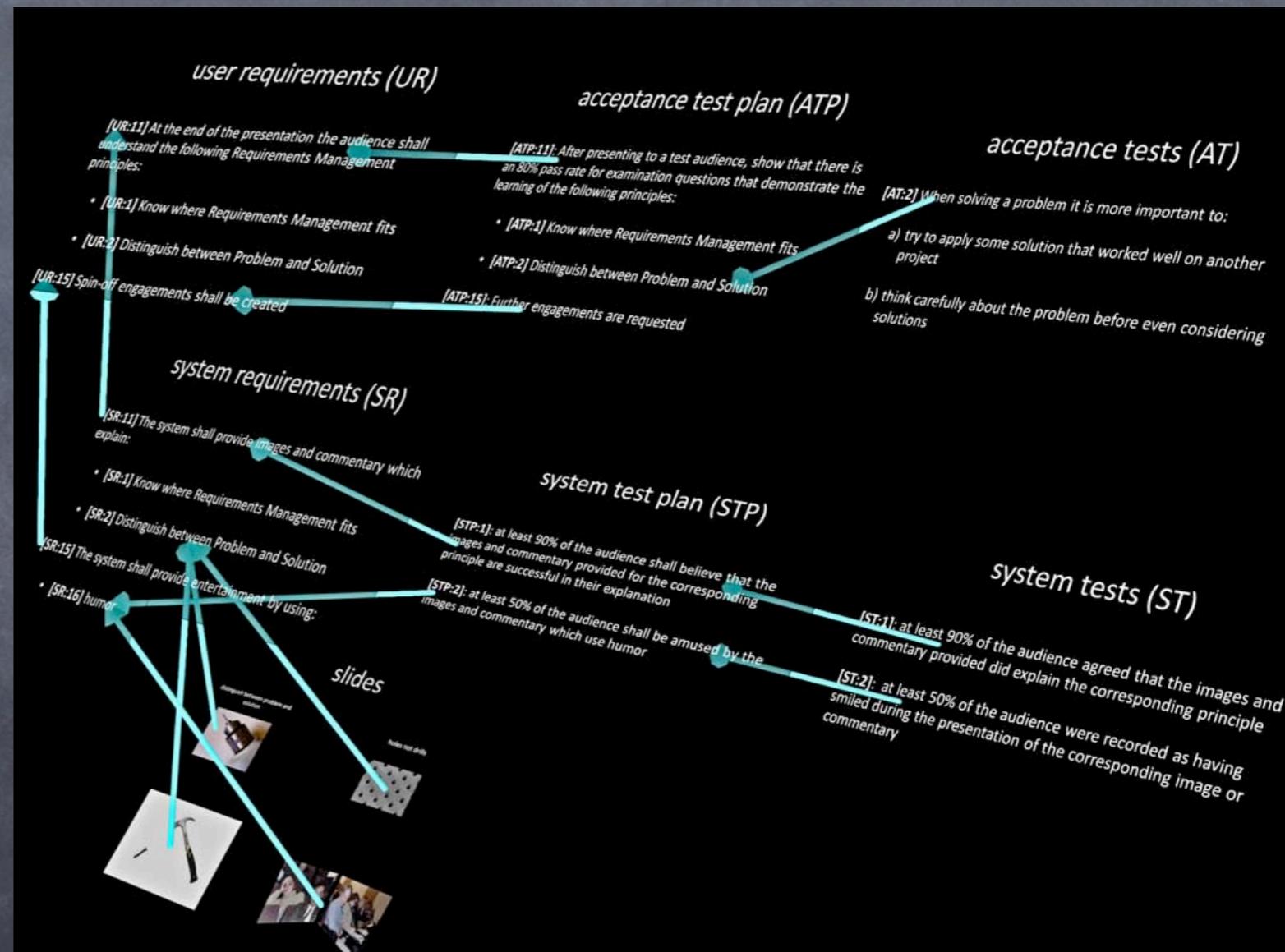
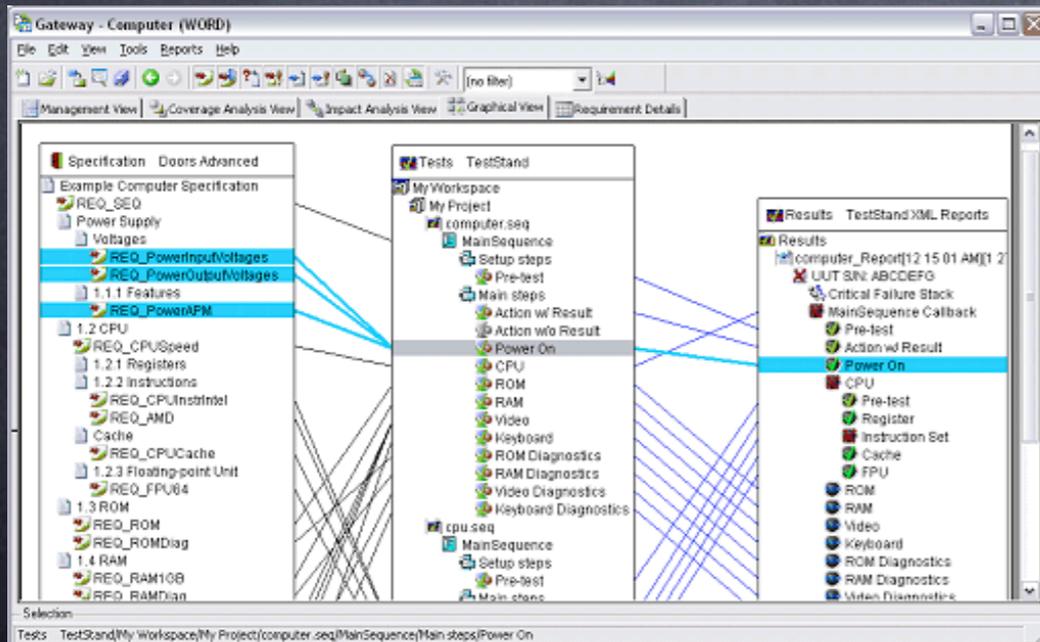
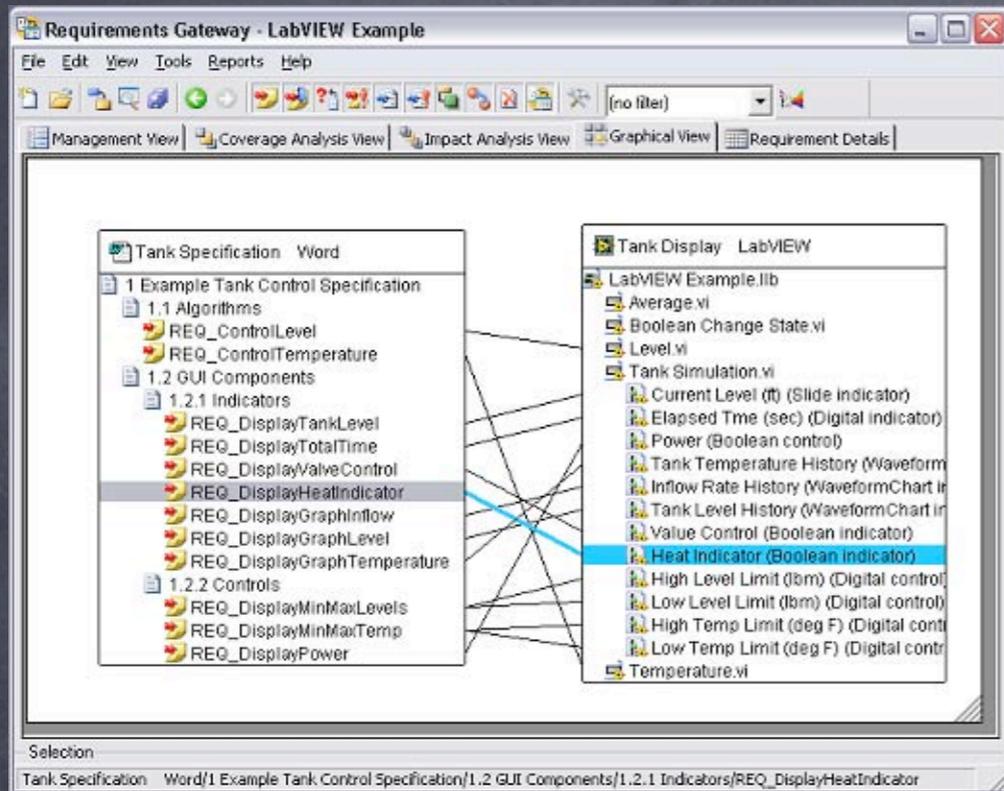
100% TRACEABILITY

Visit us
Booth N° 5114
At PMA
Fresh Summit



Integral Traceability Solutions

In software...



<http://exemplaryvisions.com>

Sources

bla bla



bla bla



Media

ELICIT
(abstract media
used in elicitation)

RECORD
(physical or virtual
media used in
elicitation products)

**DOCUMENT
REQUIREMENTS**
(abstract media after
analysis)

**Interview by
questionnaire**



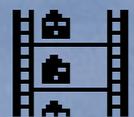
Text
*Formalised
dialogue*



Speech
*Formalised
dialogue*



Sound
*proper to
domain*



Moving
pictures

**Printed questions
(+ answers)
on paper**

**Sound recording
on tape (or disc)**

**Video images
on tape (or disc)**

**Other sources
(operations manual
+ client brief)**

ANALYSE

(via transfers between media)

Samples from
interview
[unstructured
text]

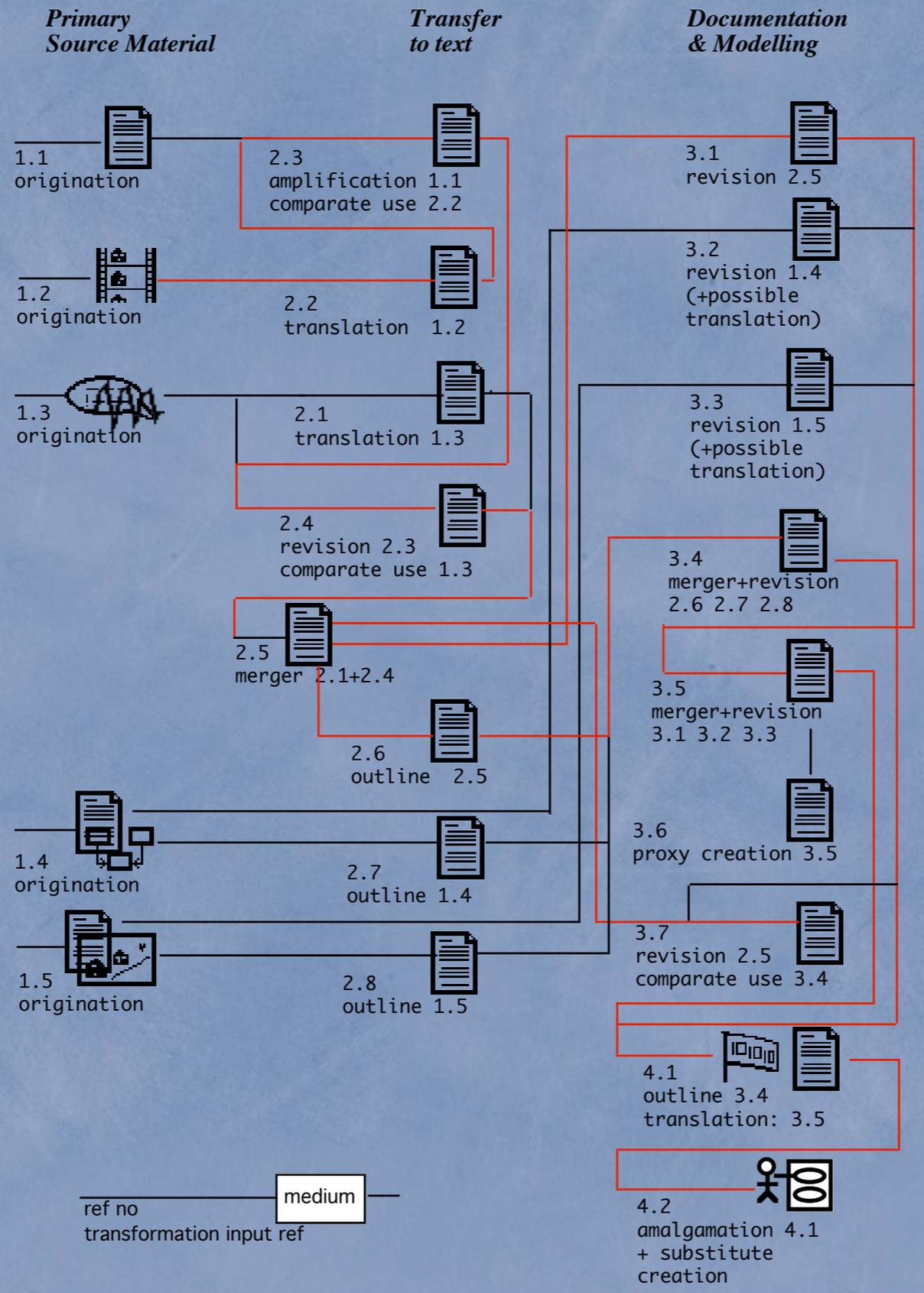


Use case
descriptions
[structured
text]



Use case diagram
[graphics
and signs
particular
to domain]

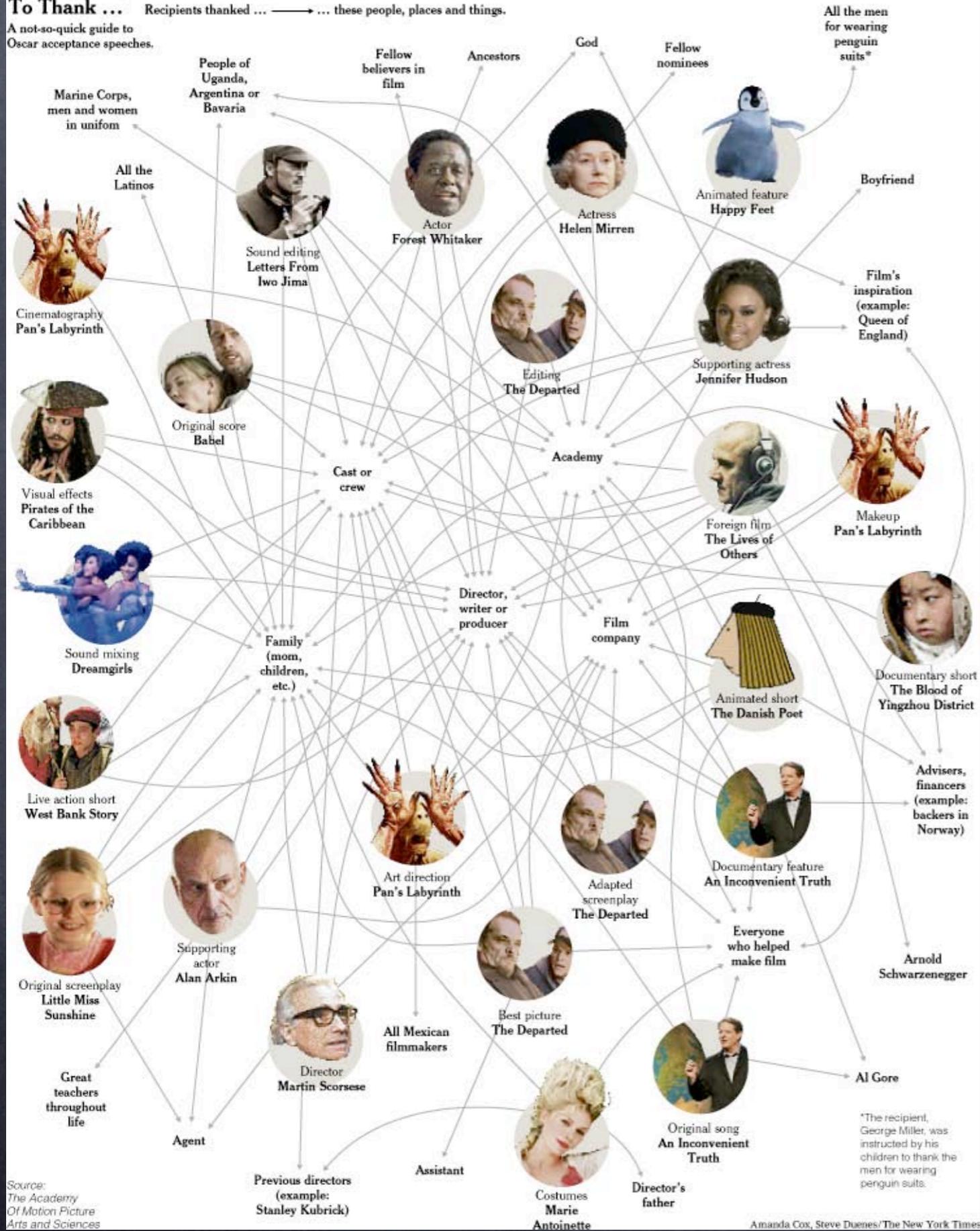




I Would Like To Thank ...

Recipients thanked ... → ... these people, places and things.

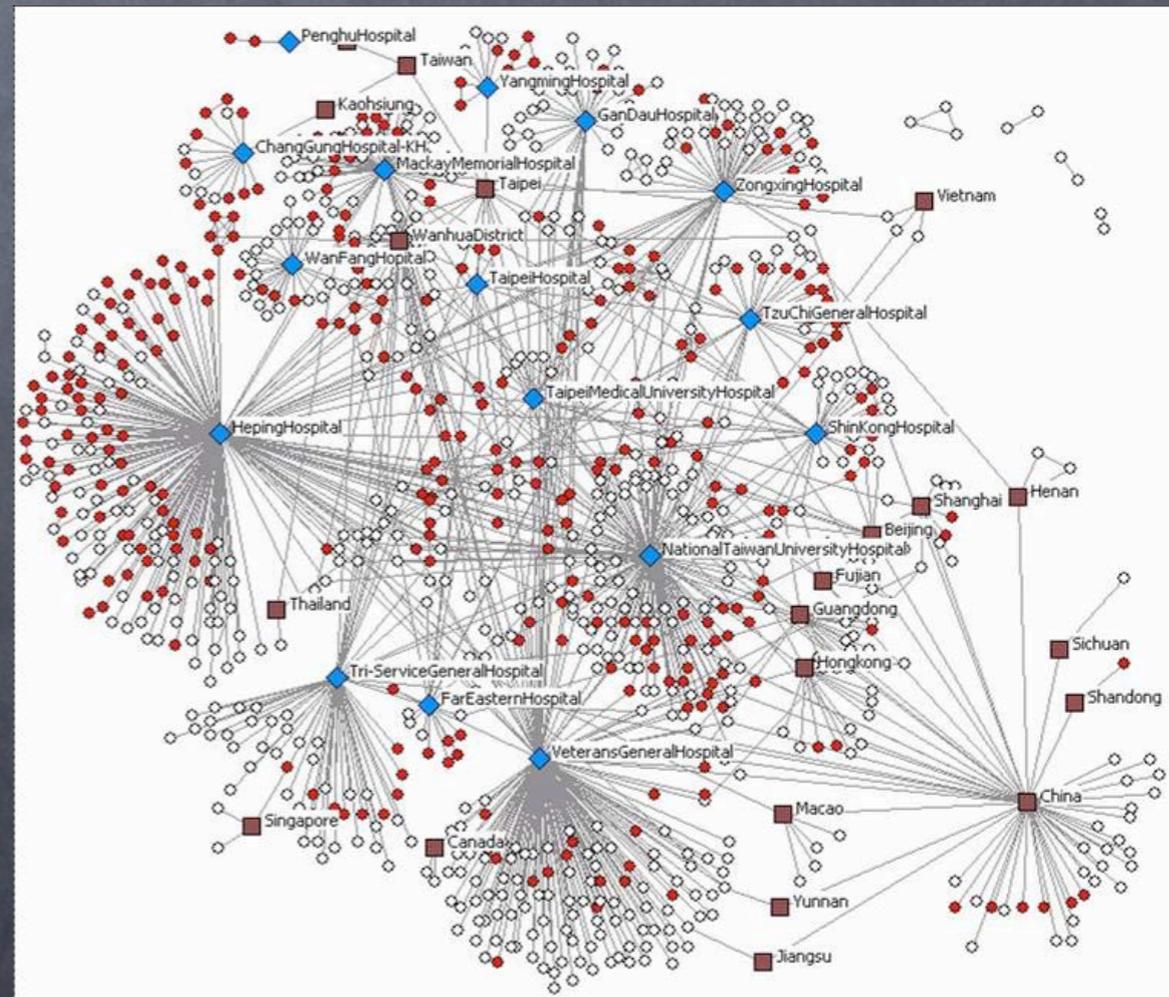
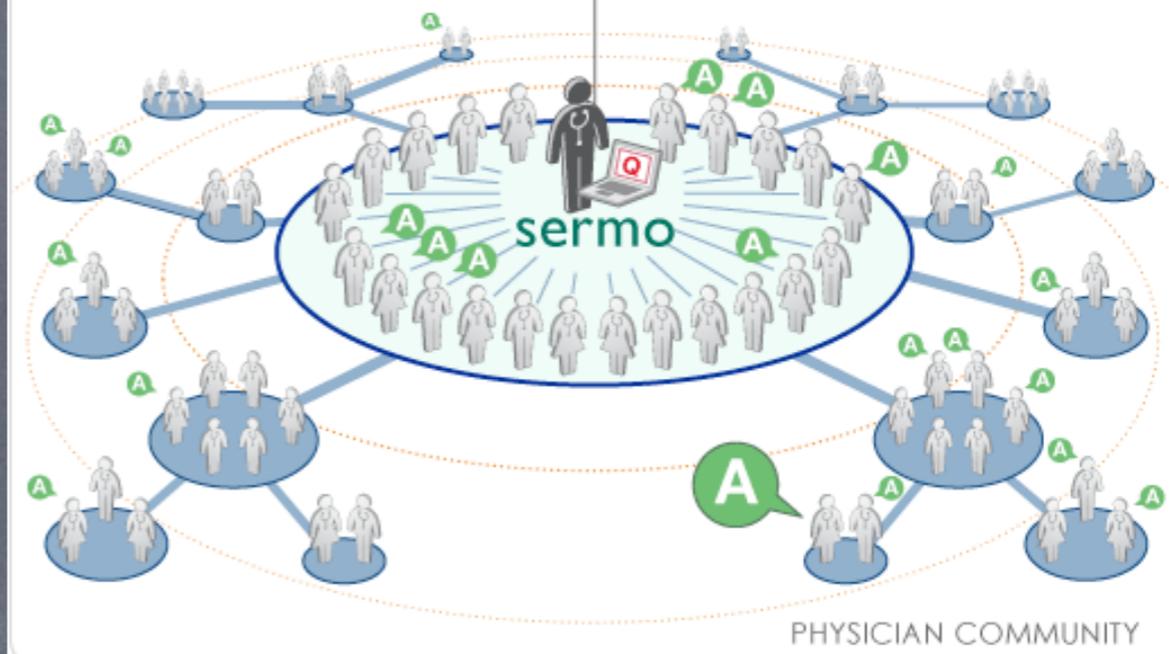
A not-so-quick guide to Oscar acceptance speeches.



Source: The Academy Of Motion Picture Arts and Sciences

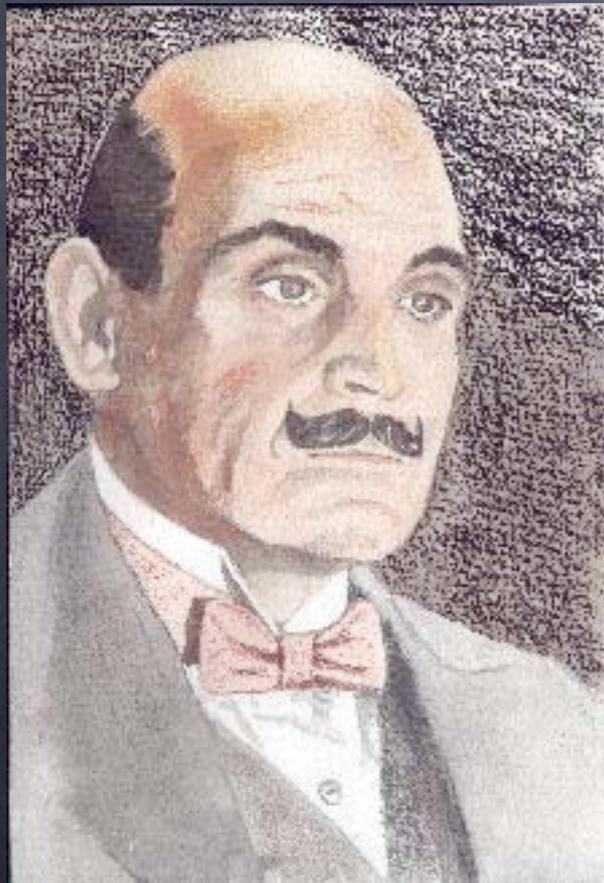
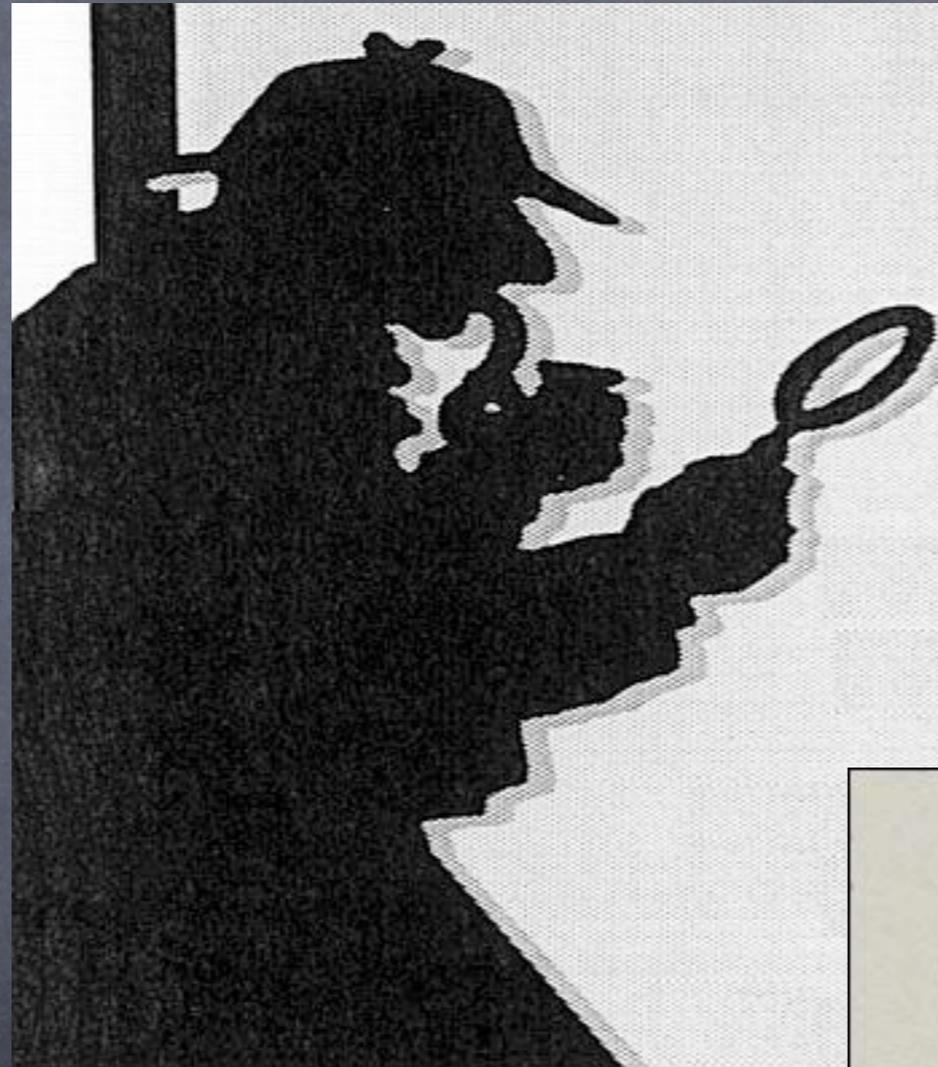
Amanda Cox, Steve Dumes/The New York Times

Physicians post observations and questions



*The recipient, George Miller, was instructed by his children to thank the men for wearing penguin suits.

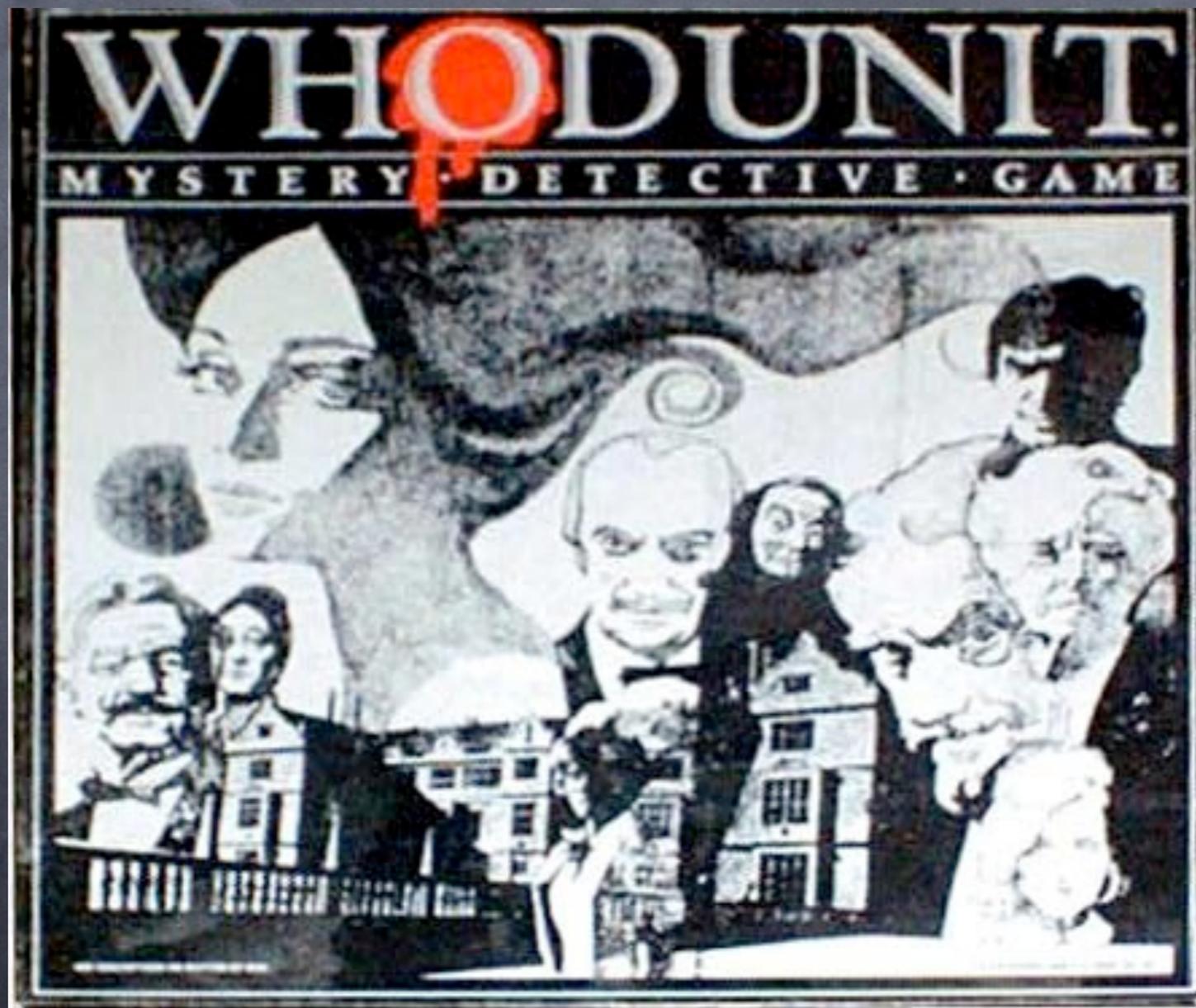
Inspiration



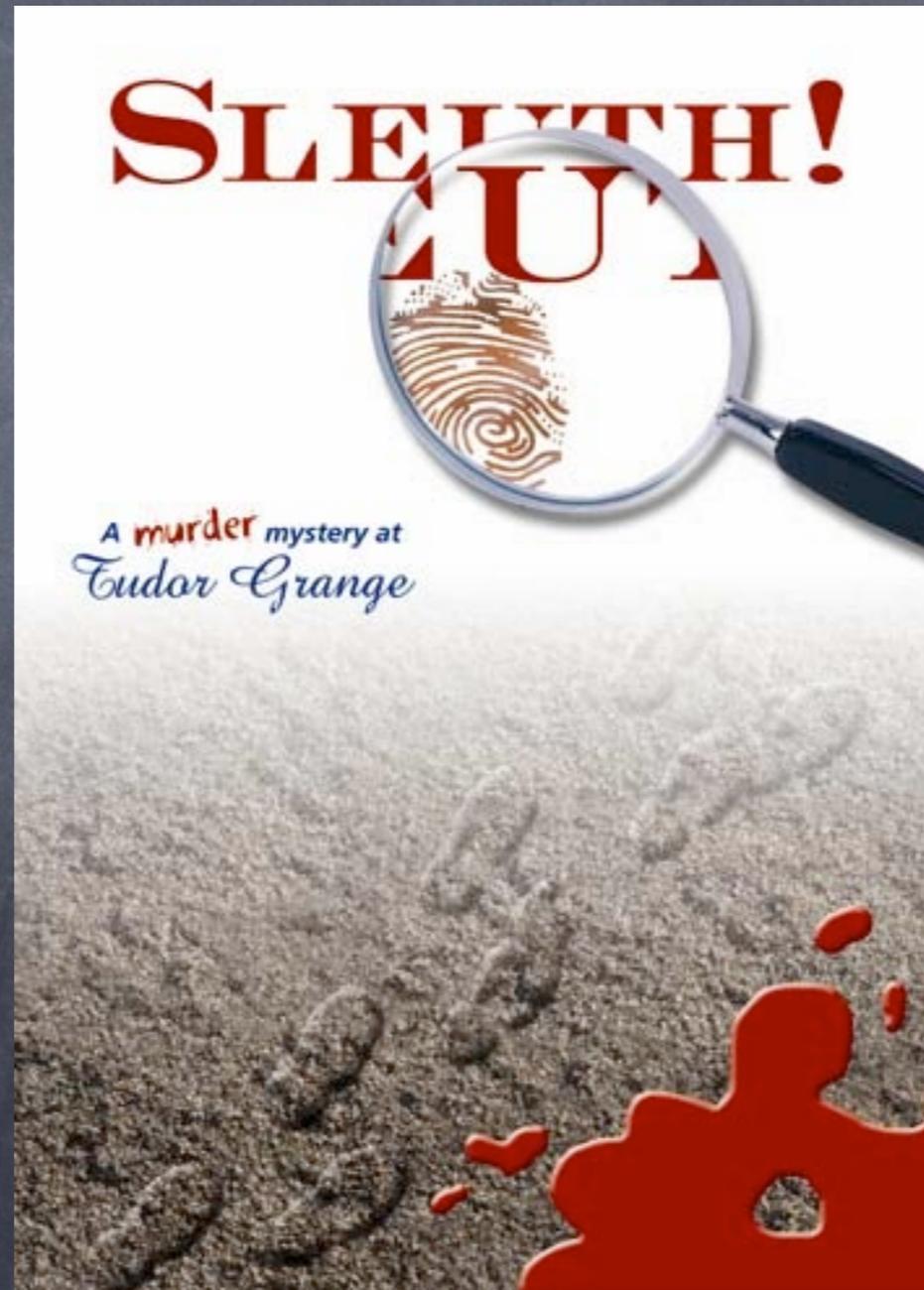
Cluedo



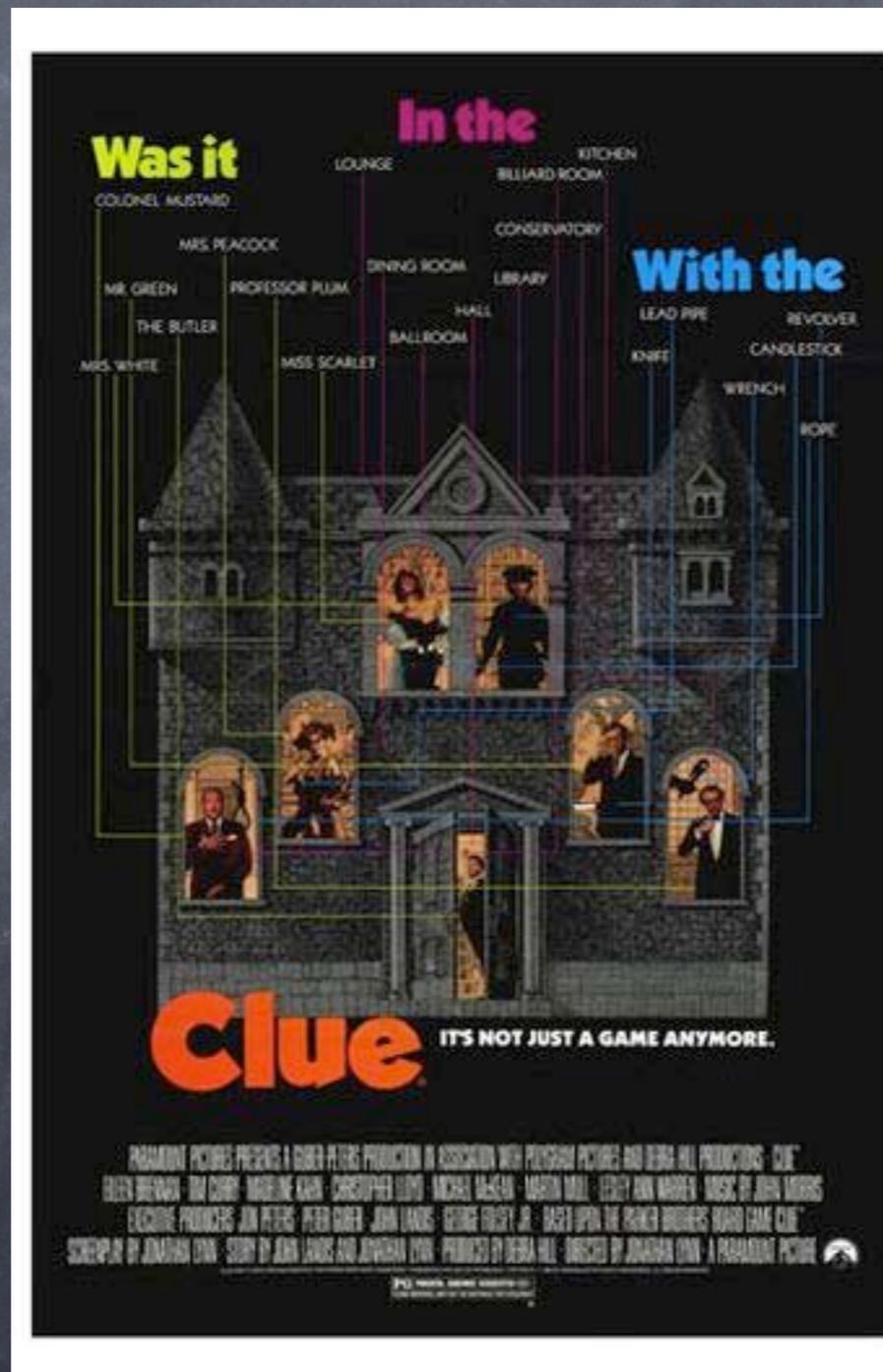
Flavours



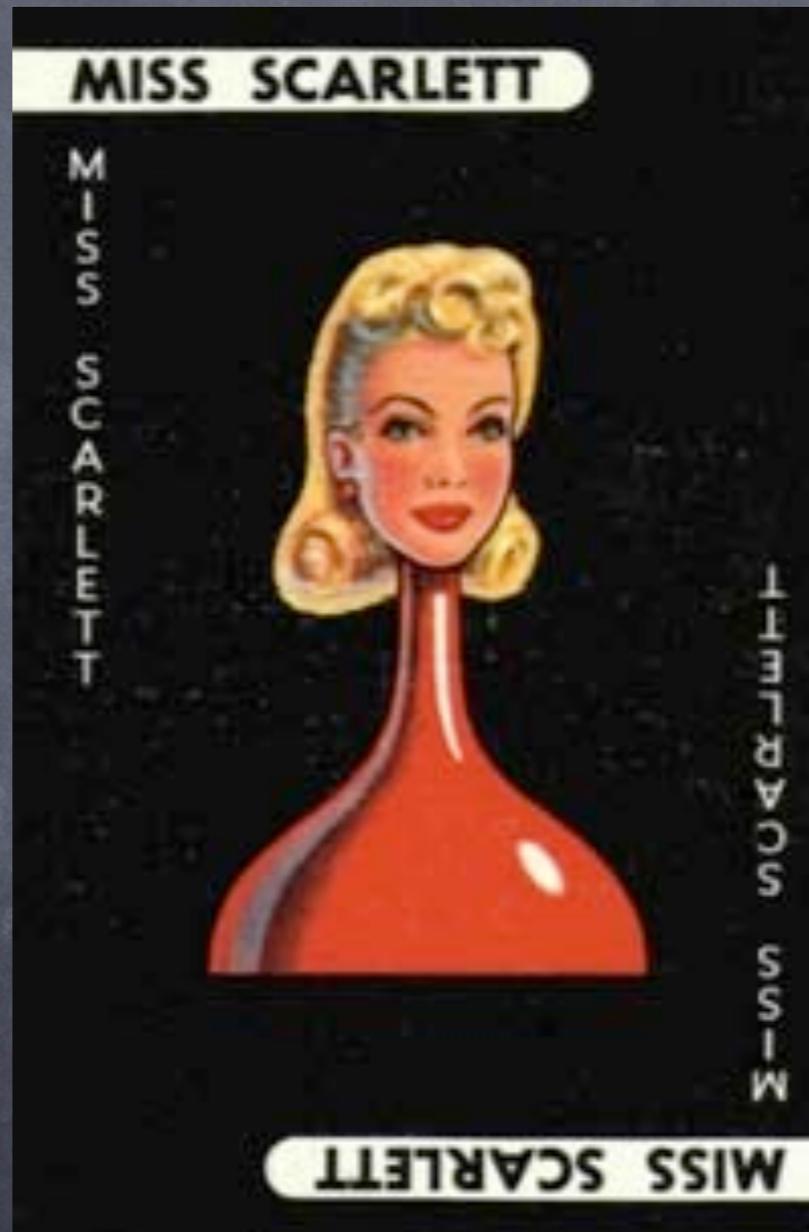
Flavours



Flavours



Who?



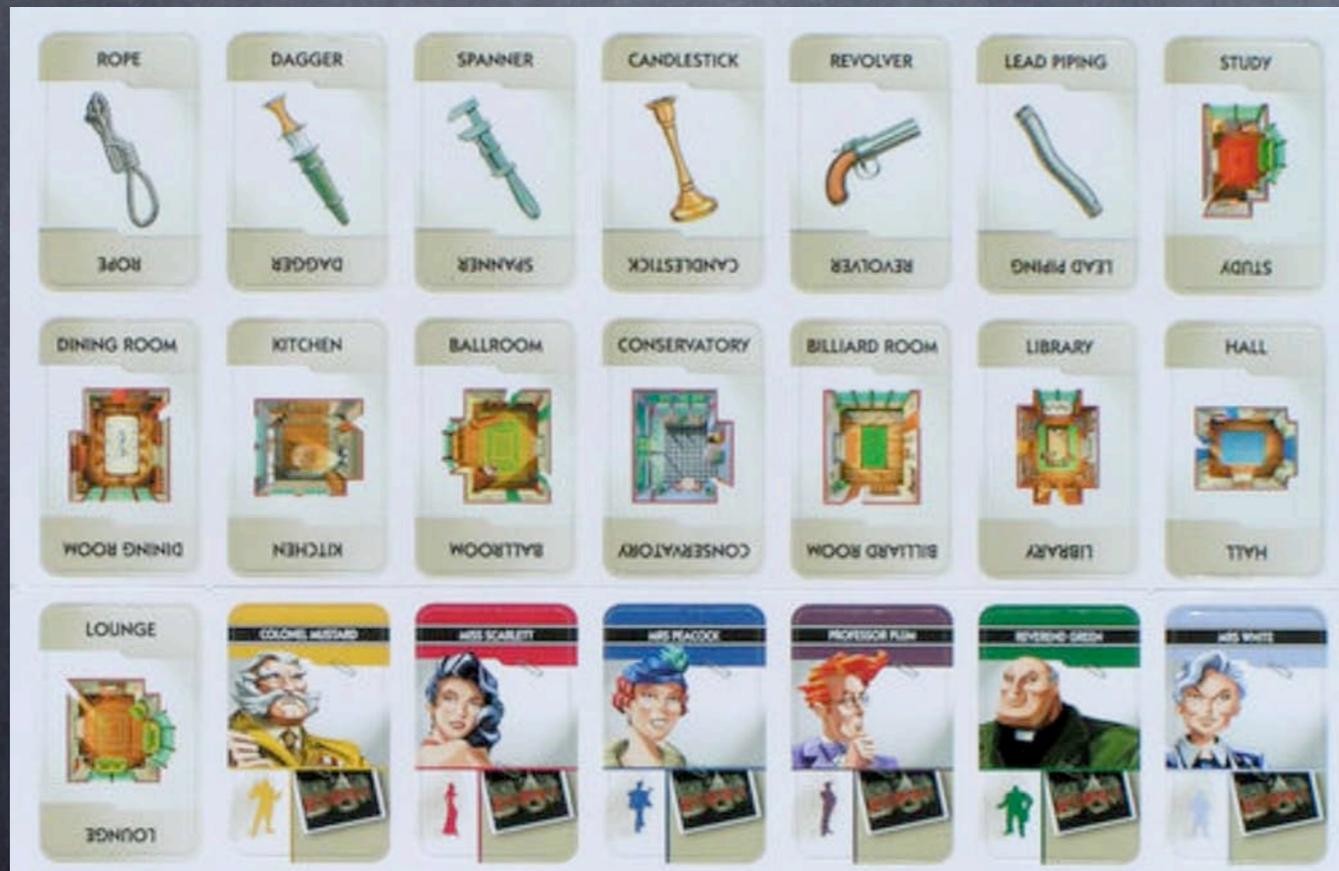
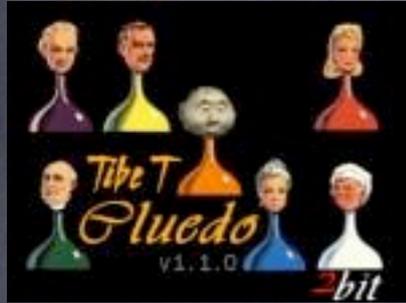
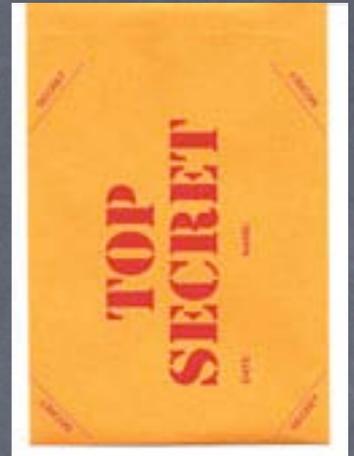
Where



With what?



Pieces



Tracing Whodunit

👁️ It was Olly by
the water
cooler on a
post-it!

psst...



Who – roles

Percy PM

Debbie Designer



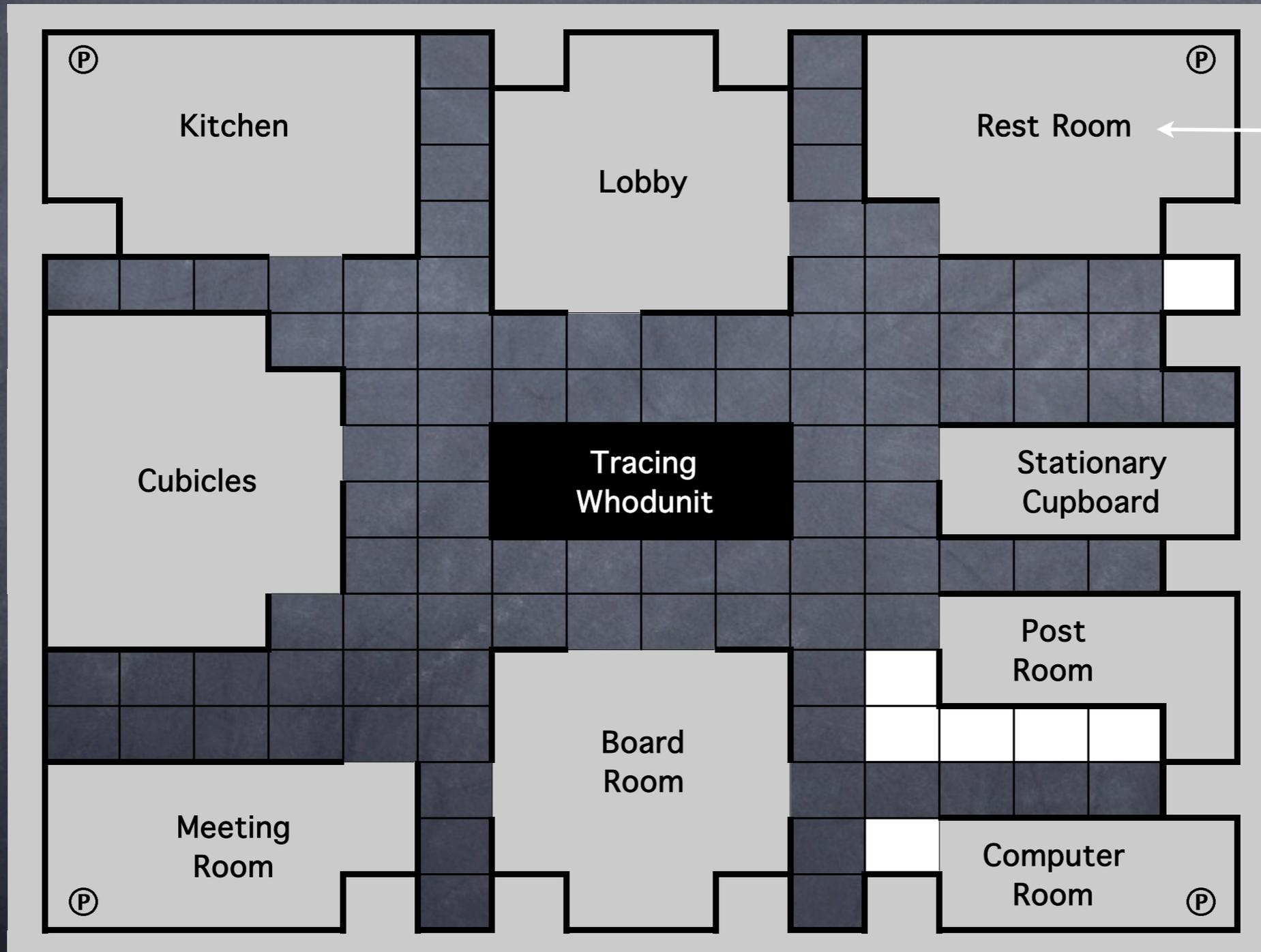
Colin
Customer

Eric End-
User

Rosie RE

Tracy Tester

Where – office locations



You'd be surprised!

With what – media

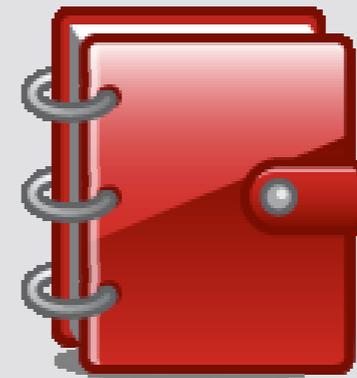
Envelope



Computer



Notebook



Video Camera



Whiteboard



Phone



Additional concepts

- WHEN: time stamp
- WHY: rationale
- WITH: collaborators
- Tailor
- Physical space

PACMANHATTAN



Pac-Manhattan

Video gaming hits the streets of NY

Wednesday, May 12, 2004 METRO 6



Are you game in Manhattan? The streets of the Big Apple are being used for a real-life version of computer game Pacman

BY ABUL TAHER

IT WAS the original cyberspace game of the 1980s that took youngsters off the sports field and into the computer room.

Kickarounds on the streets, skateboarding contests and BMX-racing were consigned to the history books as youths turned into solitary creatures who craved the virtual world rather than the real one.

For many, Pacman is a reminder of a mis-spent youth. For others, it was the forerunner of much better things to come.

But now the legendary computer game that kicked off a multi-billion-pound industry seems to have gone full circle.

Instead of playing on a machine, gamers are acting it out on the streets of New York. Dressed as Pacman and four ghosts - Inky, Blinky, Pinky and Clyde - they race through

THE RULES

FOUR players are designated ghosts and one Pacman. Each takes orders from a general in the control room. The game grid is the area around Washington Square. Posts are placed at four cross-roads to represent power pellets. Pacman must touch the posts to get powered up. He is told where the ghosts are, but the ghosts are not told where he is, only whether he is powered-up to chase them.

the Manhattan streets taking their orders from controllers on mobile phones.

The controllers use a map of the city to tell the players where to go, turning New York's urban grid into a real-life game board. Frank

Lantz, who developed the game with students at New York University, said: 'What this game does is make the players physical and social - qualities that you don't really find in computer games. We are invading a public space and transforming it into a game space.'

The creators of Pac-Manhattan studied the work of British creative artists Blast Theory, whose games Can You See Me Now? and Uncle Roy All Around You allowed online players to communicate with runners racing through cities in search of clues.

Major companies have already approached Prof Lantz, who believes Pac-Manhattan is the next step in the evolution of computer games. 'But he is aware that using real cities as game boards may have legal stumbling blocks.'

'Playing Pac-Manhattan is like skateboarding - benevolent usage of public space,' he said. For more details see www.pacmanhattan.com.

BUT DON'T TRY THESE AT HOME, FOLKS

DONKEY KONG

Equipment: Scaffolding, barrels, a mate, a girlfriend, cage, monkey costume (optional)
Difficulty: Insane

Method: 1. Go to your nearest Wimpy housing development and find a building with at least three levels of scaffolding.
2. Lock your girlfriend in a reasonably sized cage and position her and your mate at the top (you may want to ask her permission).

3. Get your mate to roll barrels down in your direction (try insulting his mother first, this adds a bit of spice). Your task is to scale the scaffolding and rescue the girl without getting taken out by the barrels. Simple.

Hint: Dressing up as small Italian plumber Mario is dangerous and should not be attempted.

ASTERIODS

Equipment: Some mates, some rocks, tennis racket
Difficulty: Paralyzing

Method: 1. Find a wide open area as far away from any windows as possible.
2. Stand in a central position holding your tennis racket.

3. Get your mates to throw the rocks at you. All you have to do is prevent yourself getting hit using your racket.

Hint: Try getting your mates to vary their throwing speed and attack in waves for a more authentic experience.

FROGGER

Equipment: A frog costume, a motorway
Difficulty: Fatal

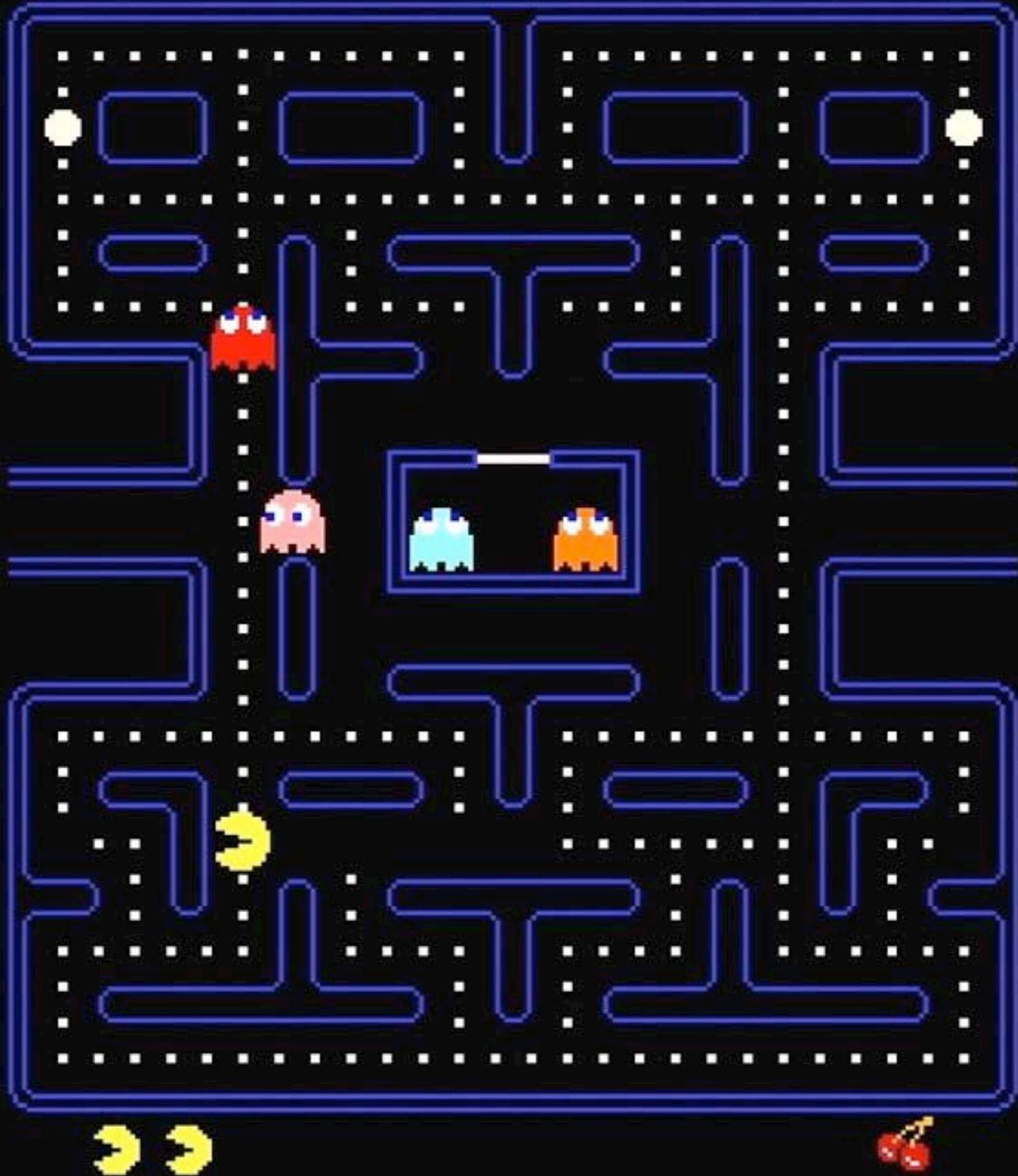
Method: 1. Go to a nearby motorway or major A-road and put on your frog costume.
2. Take position on the hard shoulder and, when you feel confident, begin hopping across to the central reservation - no running, that's cheating.

3. The aim is to successfully reach the far side of your selected motorway without losing any limbs or becoming frog paste. **Hint:** Avoid rush hour, the traffic will be moving too slowly - that is for beginners.

1UP
220

HIGH SCORE
1000

2UP
290



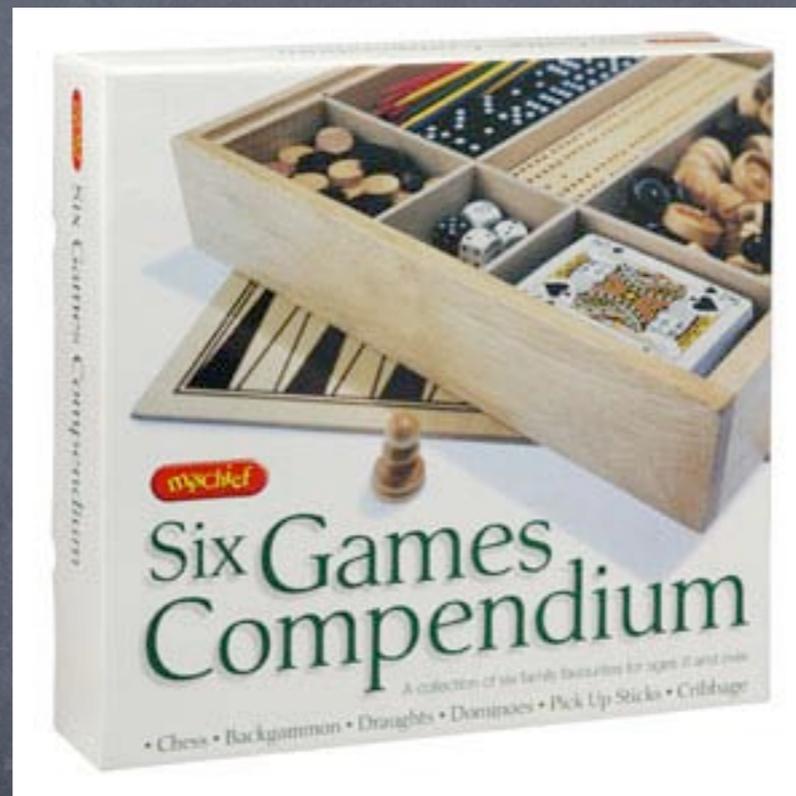


1UP 31060 HIGH SCORE 31060

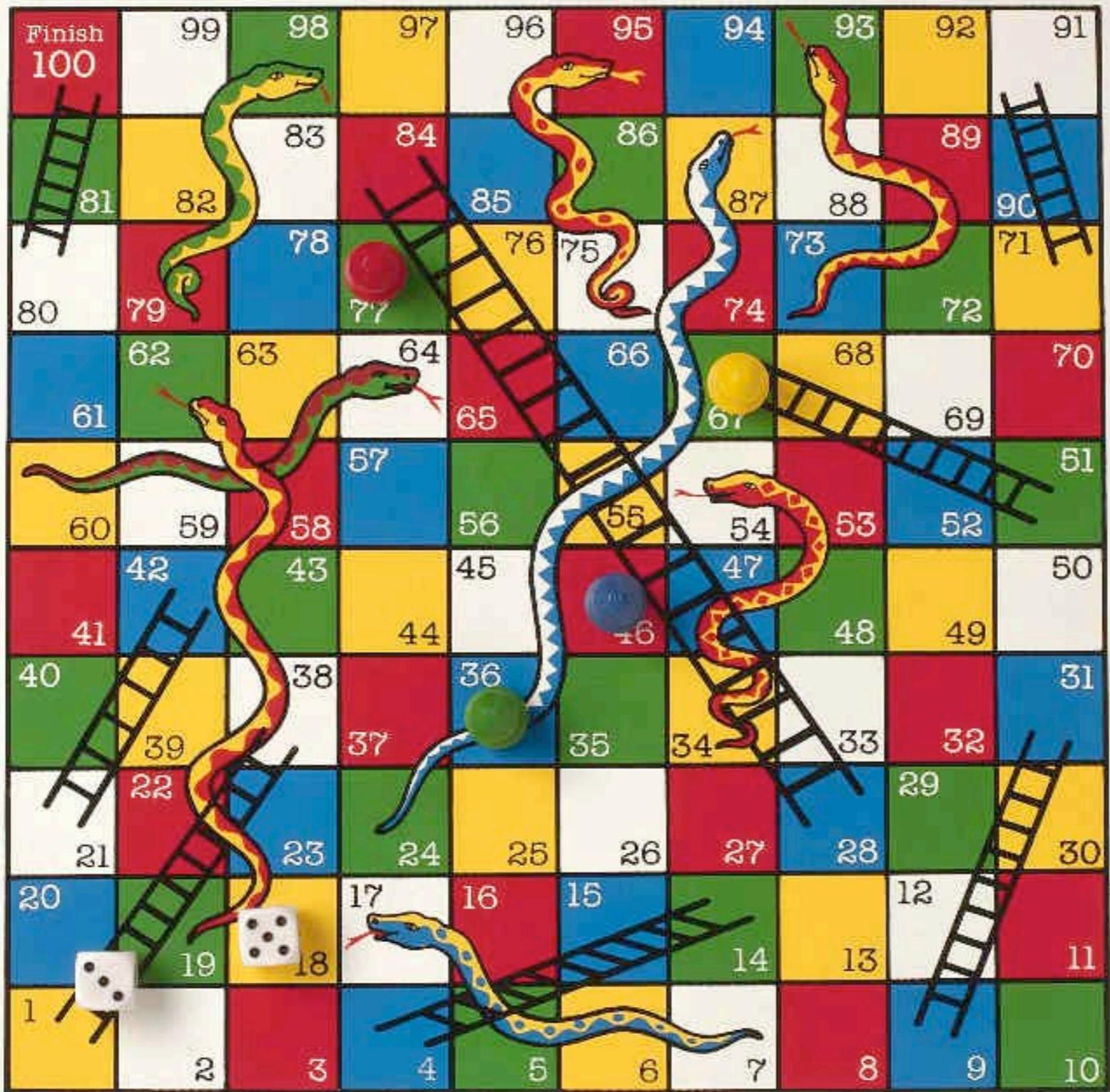
next game: **TO BE ANNOUNCED!**

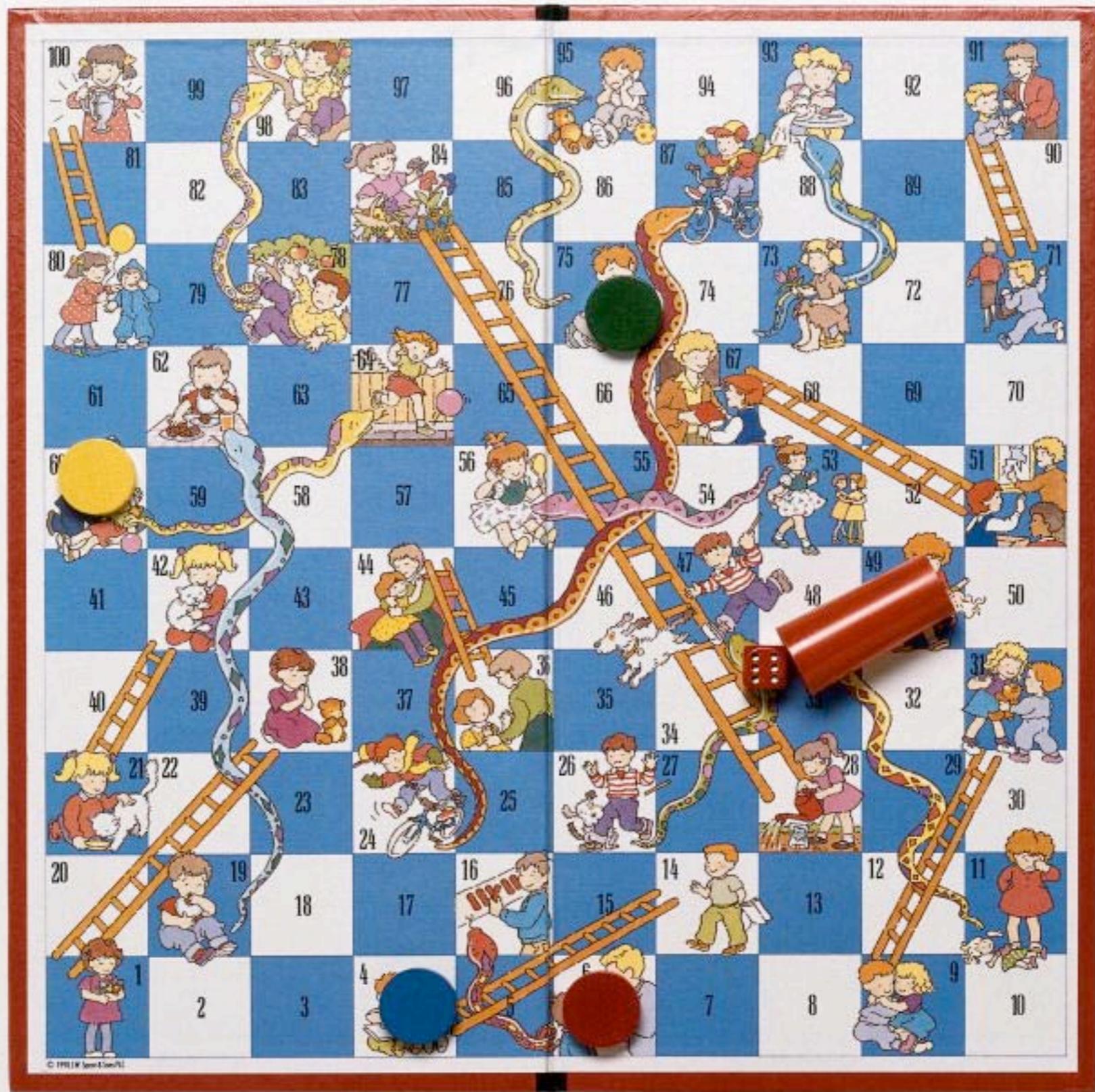


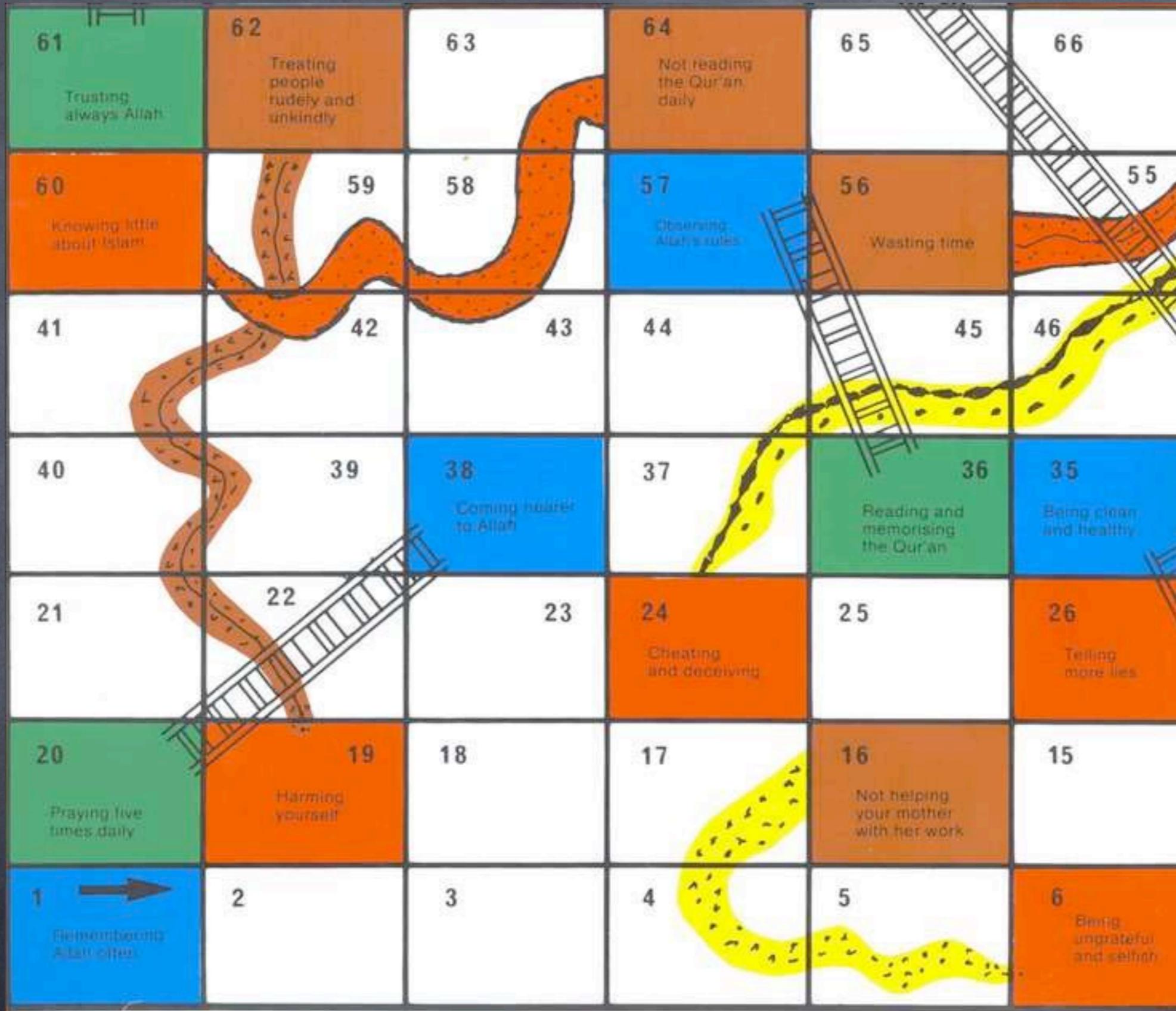
Get's you thinking...



• The ups and downs of projects...







- Dealing with requirements changes mid-project...



• Juggling requirements / multitasking...





• Learning the domain lingo...

TRIPLE WORD SCORE			DOUBLE LETTER SCORE	O ₁	K ₅	R ₁	A ₁			U ₁			P ₃		
F ₄	R ₁	O ₁	W ₄	N ₁	TRIPLE LETTER SCORE		D ₂	O ₁	Z ₁₀	E ₁	N ₁		DOUBLE WORD SCORE	A ₁	
A ₁		H ₄	O ₁	E ₁		DOUBLE LETTER SCORE		DOUBLE LETTER SCORE		V ₄			DOUBLE WORD SCORE	R ₁	
V ₄			M ₃					DOUBLE LETTER SCORE		A ₁	G ₂	G ₂	E ₁	R ₁	
E ₁			E ₁	DOUBLE WORD SCORE						D ₂				Y ₄	
S ₁	C ₃	A ₁	N ₁	T ₁	TRIPLE LETTER SCORE					B ₃	E ₁	E ₁		Q ₁₀	
		DOUBLE LETTER SCORE					DOUBLE LETTER SCORE		X ₈	I ₁		I ₁	DOUBLE LETTER SCORE	U ₁	
TRIPLE WORD SCORE			DOUBLE LETTER SCORE				B ₃	A ₁	I ₁	T ₁		S ₁	L ₁	O ₁	W ₄
		DOUBLE LETTER SCORE					U ₁		DOUBLE LETTER SCORE	E ₁		W	DOUBLE LETTER SCORE	D ₂	
	TRIPLE LETTER SCORE					P ₃	I ₁	T ₁	I ₁	E ₁	S ₁	E ₁		TRIPLE LETTER SCORE	
					DOUBLE WORD SCORE		T ₁				J ₈	I ₁	L ₁	L ₁	S ₁
DOUBLE LETTER SCORE		H ₄	O ₁	A ₁	G ₂	Y ₄	DOUBLE LETTER SCORE				N ₁	O ₁		O ₁	
	C ₃	E ₁	D ₂	E ₁		DOUBLE LETTER SCORE		DOUBLE LETTER SCORE	A ₁			F ₄	I ₁	N ₁	
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TRIPLE WORD SCORE			DOUBLE LETTER SCORE				U ₁	N ₁	T ₁	R ₁	I ₁	M ₃	S		R ₁

• Evolving requirements on a project...



SID MEIER'S
CIVILIZATION:
THE BOARDGAME

Based on the Award-Winning PC Game

WISDOM
PUBLISHING

• Estimating / distributing resources...





• The anatomy of a requirement...

OPERATION

**SKILL
GAME**

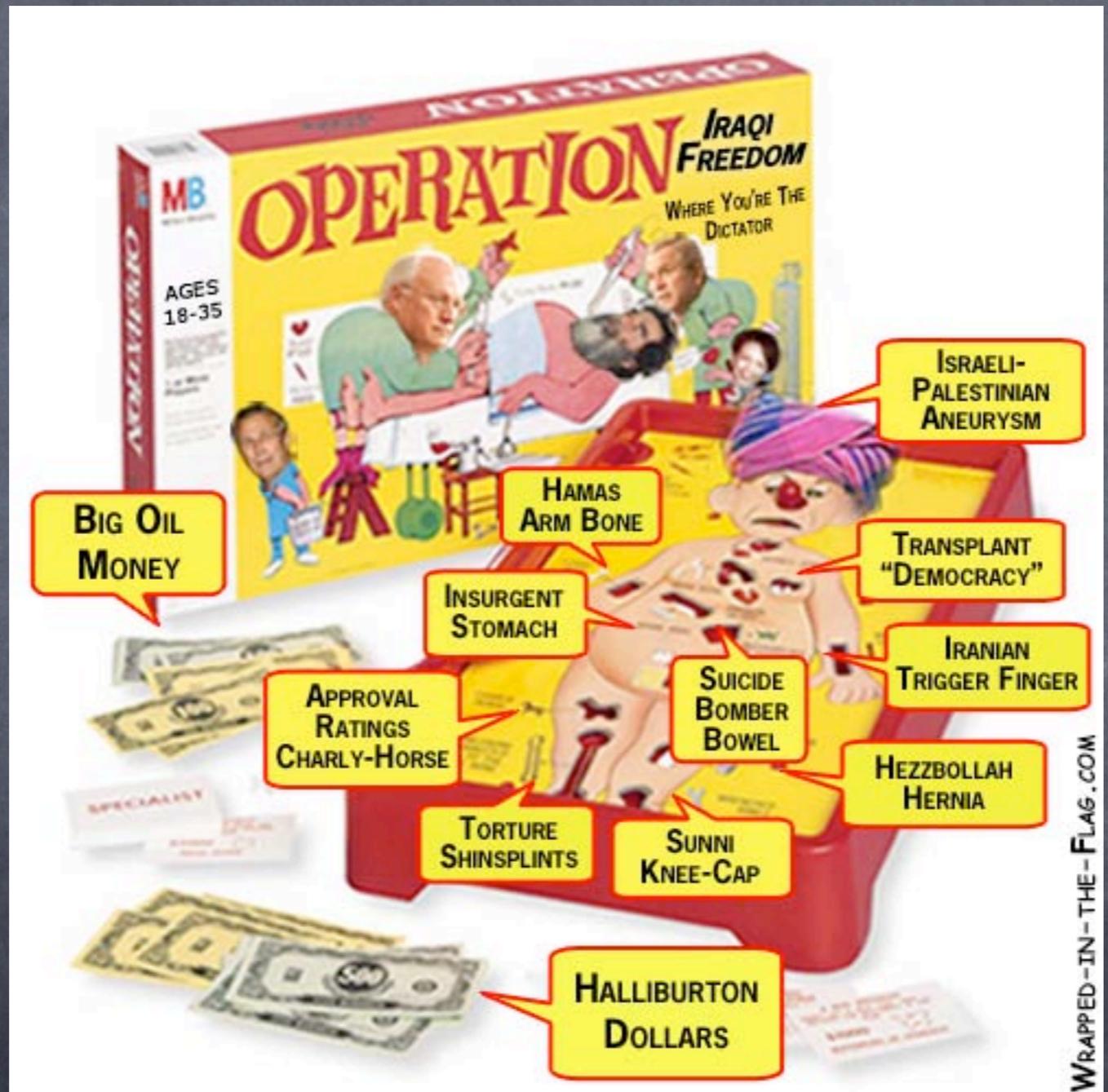
WHERE YOU'RE
THE DOCTOR



WARNING

OPERATION SKILL GAME
© 1998 HASBRO INC.





BIG OIL MONEY

HAMAS ARM BONE

INSURGENT STOMACH

APPROVAL RATINGS CHARLY-HORSE

TORTURE SHINSPLINTS

SUNNI KNEE-CAP

HALLIBURTON DOLLARS

ISRAELI-PALESTINIAN ANEURYSM

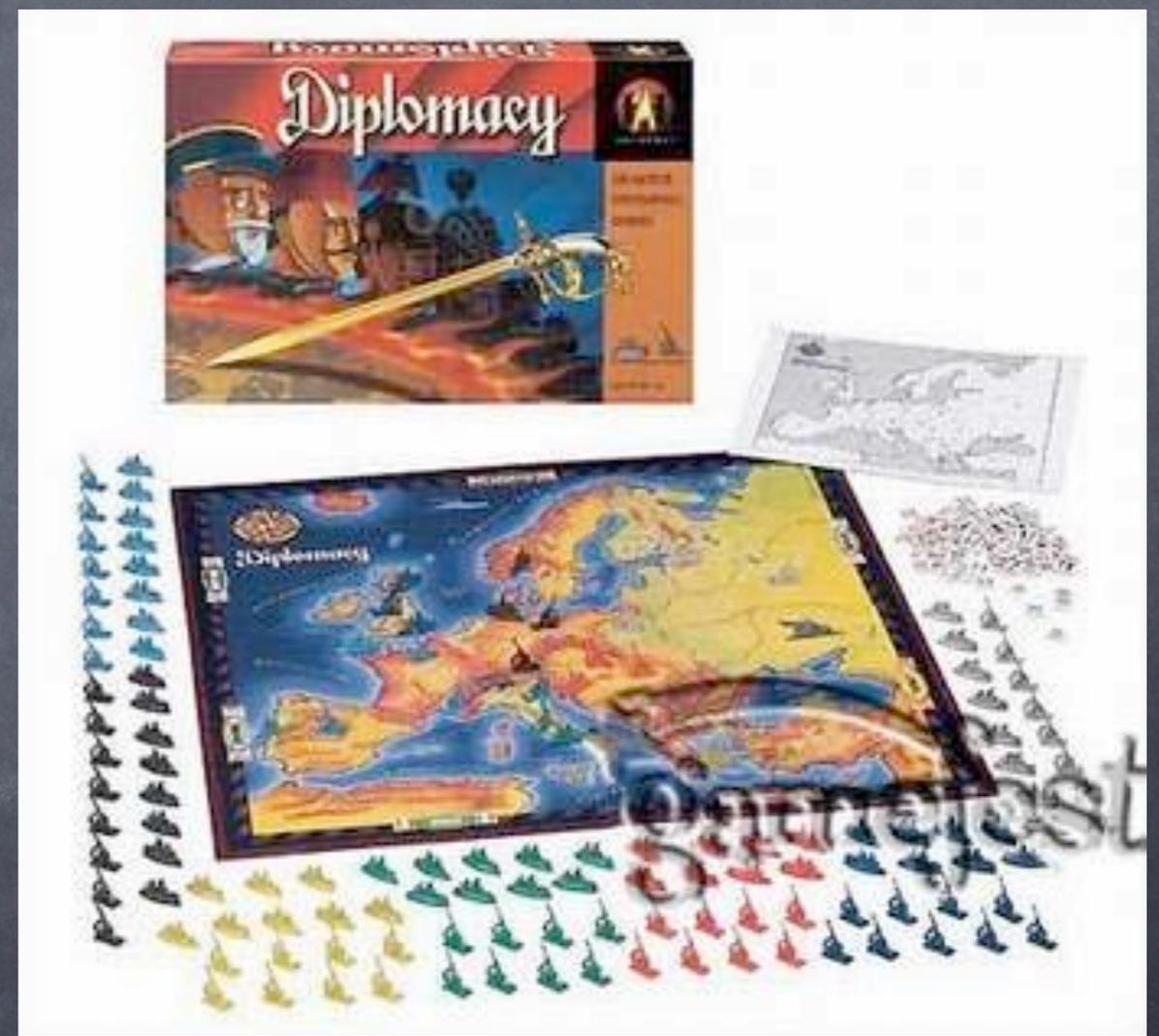
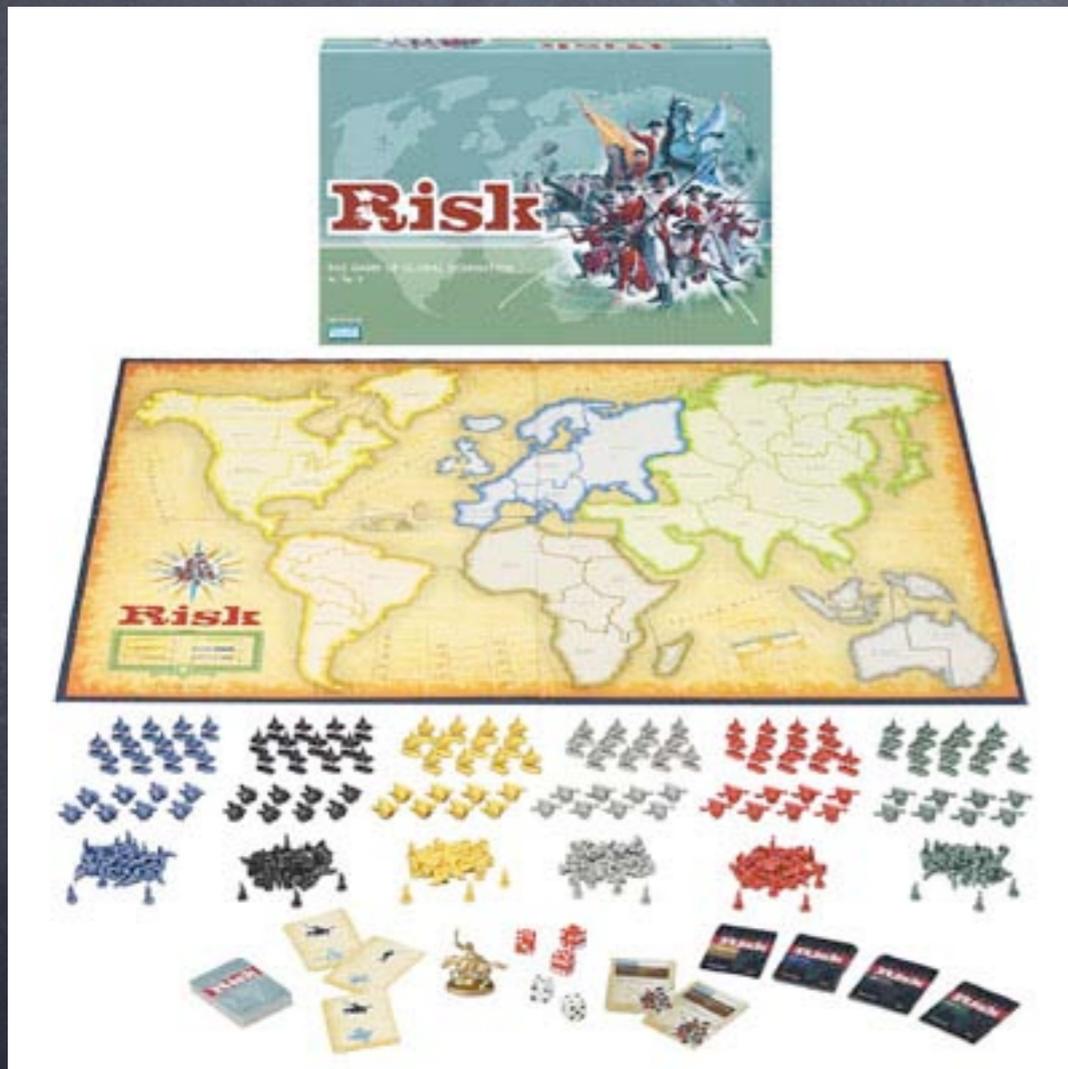
TRANSPLANT "DEMOCRACY"

IRANIAN TRIGGER FINGER

HEZZBOLLAH HERNIA

WRAPPED-IN-THE-FLAG.COM

Do I need to spell it out?



Re-purpose!

- Let's start modest - re-appropriate everyday games
- I haven't even touched the surface
- But we need to talk about this
- Then, where could / should we go?

Game genres

- Adventure
- Combat
- FPS
- Mazes
- MMPORPGs
- Obstacles
- Puzzles
- Quizzes
- Racing
- Role Playing
- Strategy
- Sports

Illustrative --
not exhaustive!

Game dimensions

- Synchronous versus asynchronous games
- Single-player vs multi-player games
- Time of sessions
- Realistic or abstract games
- Repetitive versus progressive games
- <http://www.gamethink.net/For-a-new-classification-of-game.html>

<http://www.gdconf.com/>

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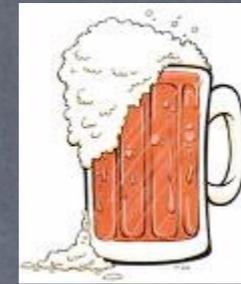
Taxonomy of Serious Games

	Games for Health	Advergames	Games for Training	Games for Education	Games for Science and Research	Production	Games as Work
Government & NGO	Public Health Education & Mass Casualty Response	Political Games	Employee Training	Inform Public	Data Collection / Planning	Strategic & Policy Planning	Public Diplomacy, Opinion Research
Defense	Rehabilitation & Wellness	Recruitment & Propaganda	Soldier/Support Training	School House Education	Wargames / planning	War planning & weapons research	Command & Control
Healthcare	Cybertherapy / Exergaming	Public Health Policy & Social Awareness Campaigns	Training Games for Health Professionals	Games for Patient Education and Disease Management	Visualization & Epidemiology	Biotech manufacturing & design	Public Health Response Planning & Logistics
Marketing & Communications	Advertising Treatment	Advertising, marketing with games, product placement	Product Use	Product Information	Opinion Research	Machinima	Opinion Research
Education	Inform about diseases/risks	Social Issue Games	Train teachers / Train workforce skills	Learning	Computer Science & Recruitment	P2P Learning Constructivism Documentary?	Teaching Distance Learning
Corporate	Employee Health Information & Wellness	Customer Education & Awareness	Employee Training	Continuing Education & Certification	Advertising / visualization	Strategic Planning	Command & Control
Industry	Occupational Safety	Sales & Recruitment	Employee Training	Workforce Education	Process Optimization Simulation	Nano/Bio-tech Design	Command & Control

Taxonomy of Serious Games

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Government & NGO	Public Health Education & Mass Casualty Response	Political Games	Employee Training	Inform Public	Data Collection / Planning / Visualization	Strategic & Policy Planning	Public Diplomacy / Opinion Research
Defense	Combat Medicine Rehabilitation & Wellness	Recruitment & Messaging	Soldier/Support Training	School House Education	Wargames / planning	weapons research	Command & Control
Healthcare	Cybertherapy / Exergaming	Public Health Policy & Social Awareness Campaigns	Training Games for Health Professionals	Games for Patient Education and Disease Management	Visualization & Epidemiology	Biotech manufacturing & design (Folding@Home)	Public Health Response Planning & Logistics
Marketing & Communications	Advertising Transference	Advertising, marketing with games, product placement	Product Use	Product Information	Opinion Research	Machinima	Opinion Research
Education	Fatworld Inform about diseases/risks	Social Issue Games	Train teachers / train workforce	Learning	Computer Science & Recruitment	P2P Learning Constructivism Documentary?	Teaching Distance Learning
Corporate	Employee Motivation & Wellbeing	Customer Education & Awareness	Employee Training	Continuing Education & Certification	Advertising / visualization	Strategic Planning	Command & Control
Industry	Occupational Safety	Sales & Recruitment	Employee Training	Workforce Education	Process Optimization Simulation	Nano/Bio-tech Design	Command & Control

Your task for the day



Beer for
the best
laugh!

- One tricky requirements topic
- One game you could re-purpose (not one I mentioned – you need a challenge)
- Be prepared to explain it
- Could a compendium of RE games help your teaching / training / project teams?
- Pros / cons?
- Thoughts on RE-O-Poly / Tracing Whodunit?

There has got to be
better / different ways...



... find them ... please!