Intellectual Property Strategy in the Global Cosmetics Industry
A Soap Opera

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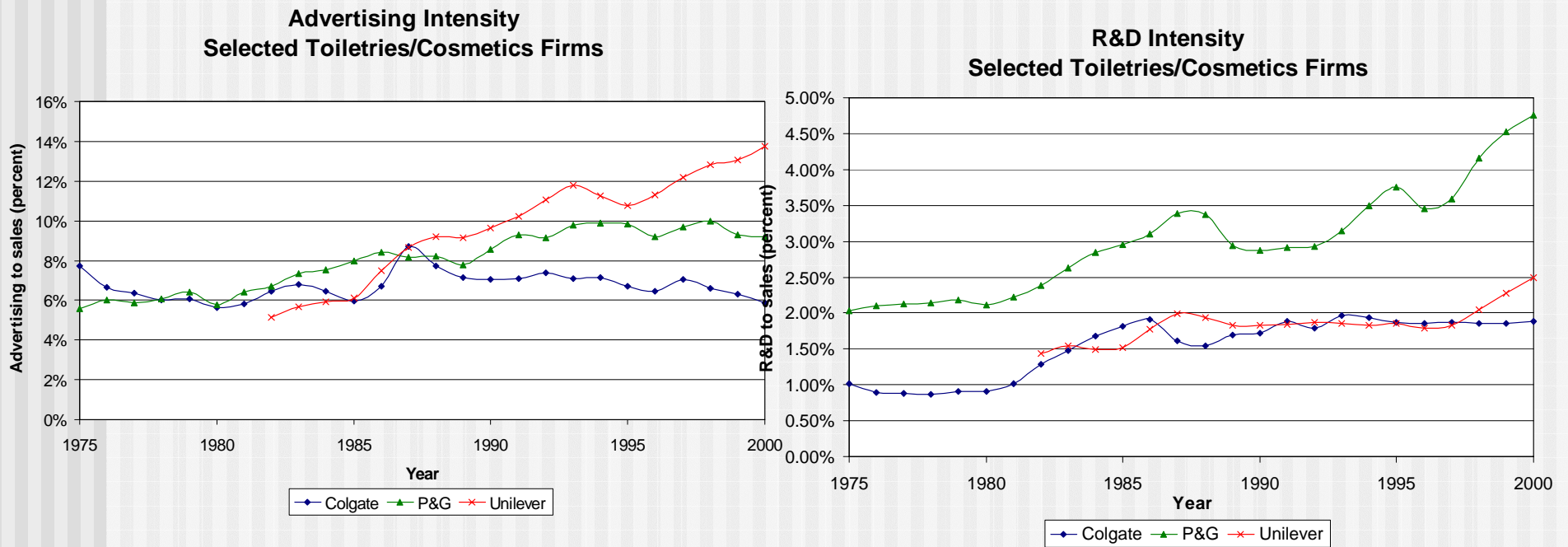
Why are we doing this?

- importance of IP and IP policy for innovation
- increased corporate use of various IP strategies
  - litigation, opposition
  - deep purse, cost of FUD (see Lerner, Hall and Ziedonis)
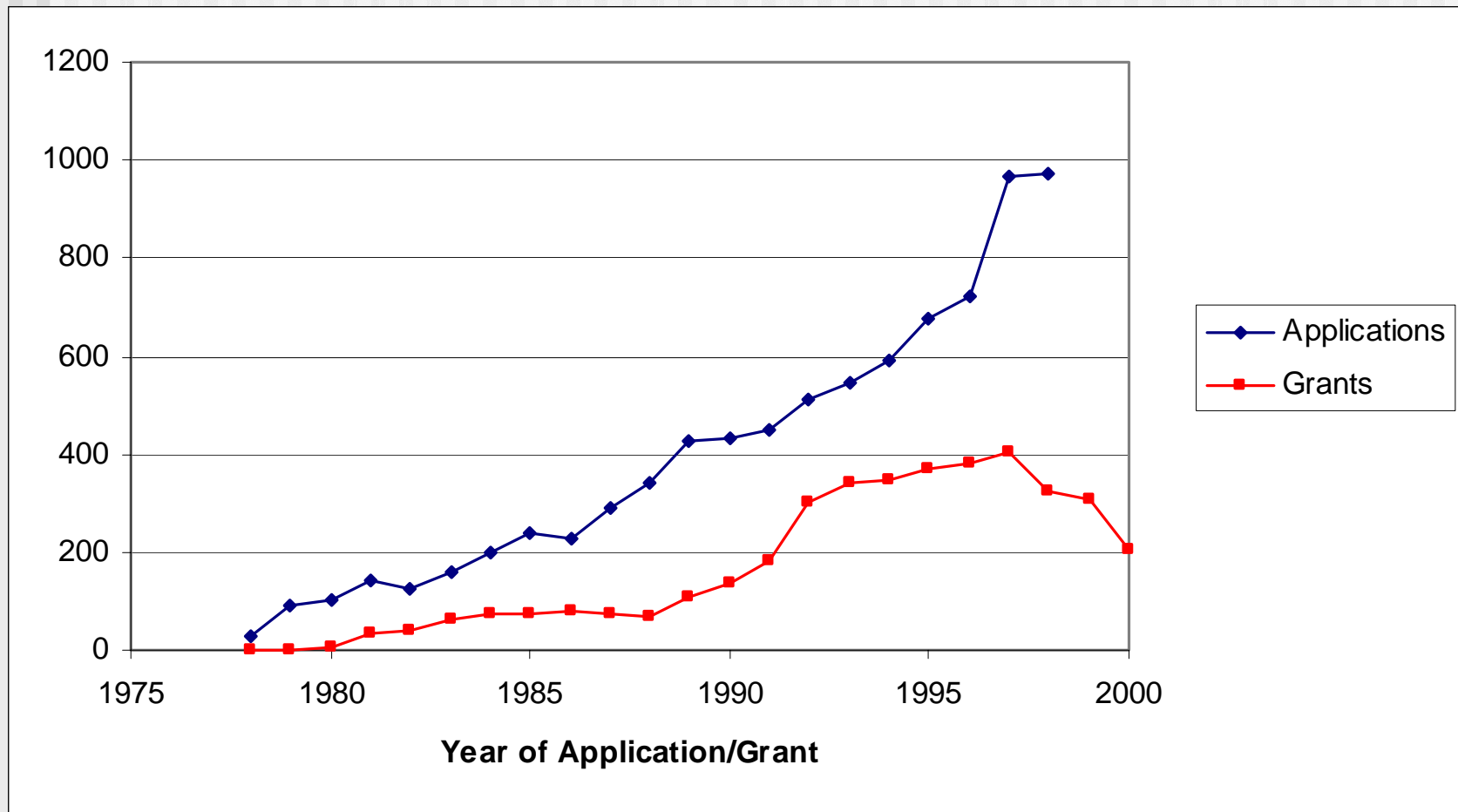- patent systems make mistakes - how to fix them at lowest cost?

Why this industry?

- mundane industry - branding is important – average advertising intensity around 10%

- R&D intensities – ~2% much lower than in pharmaceuticals and biotechnology, but not trivially small

- high patent opposition activity even though not a high-technology industry – why?

Advertising and R&D Spending - Large Toiletries Firms

**Advertising Intensity
Selected Toiletries/Cosmetics Firms**

**R&D Intensity
Selected Toiletries/Cosmetics Firms**

EPO Patenting in A61K 7

Patent examination at the EPO

Application $\Rightarrow$ Formal Examination $\Rightarrow$ Publication of the Application and the Search Report (+18 months)

Opposition/ Appeal

Granting of the Version Approved by the Applicant

Yes

Substantial Examination Passed

National Rights

No

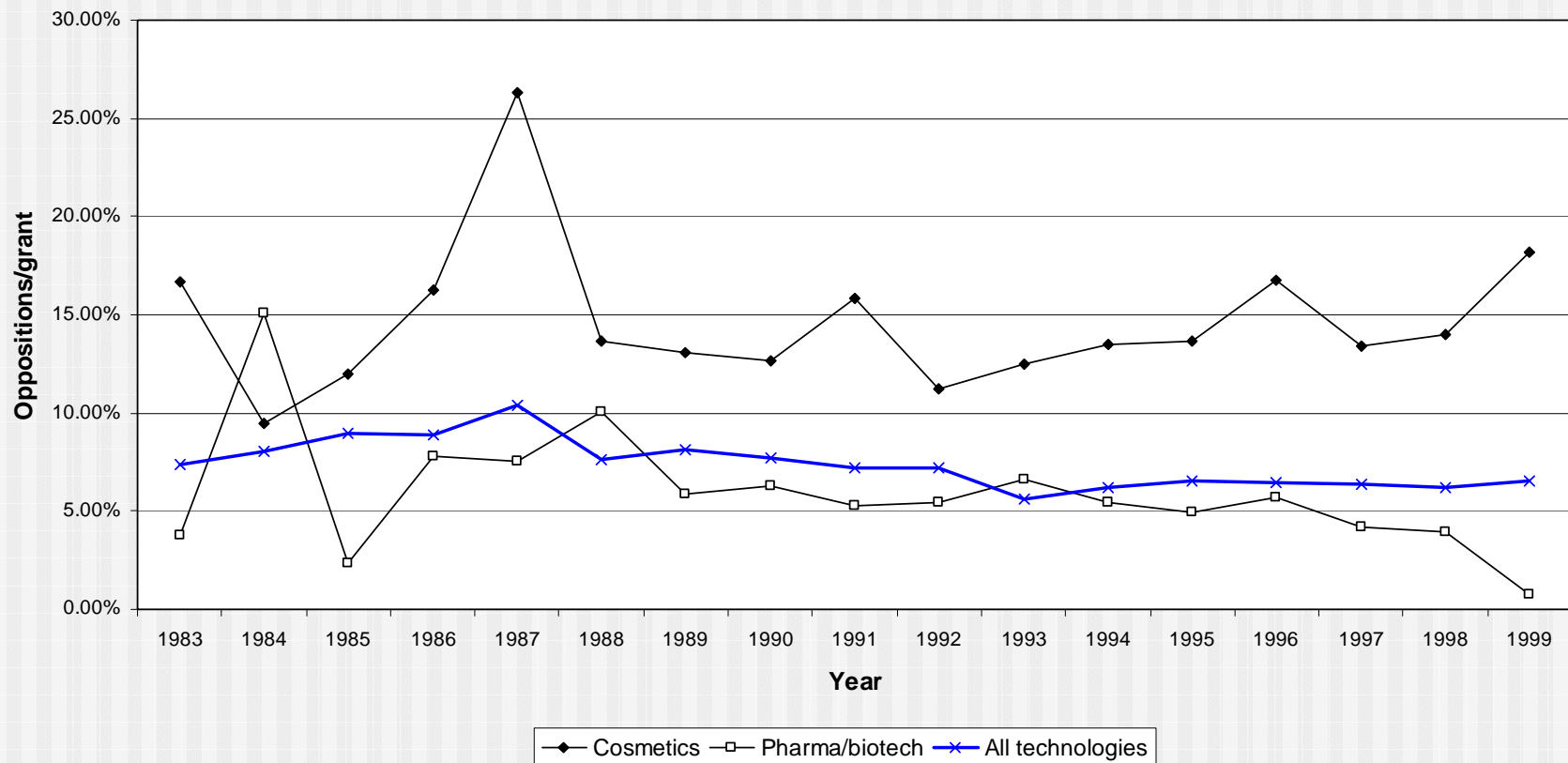Rejection of the Patent Application

Rejected
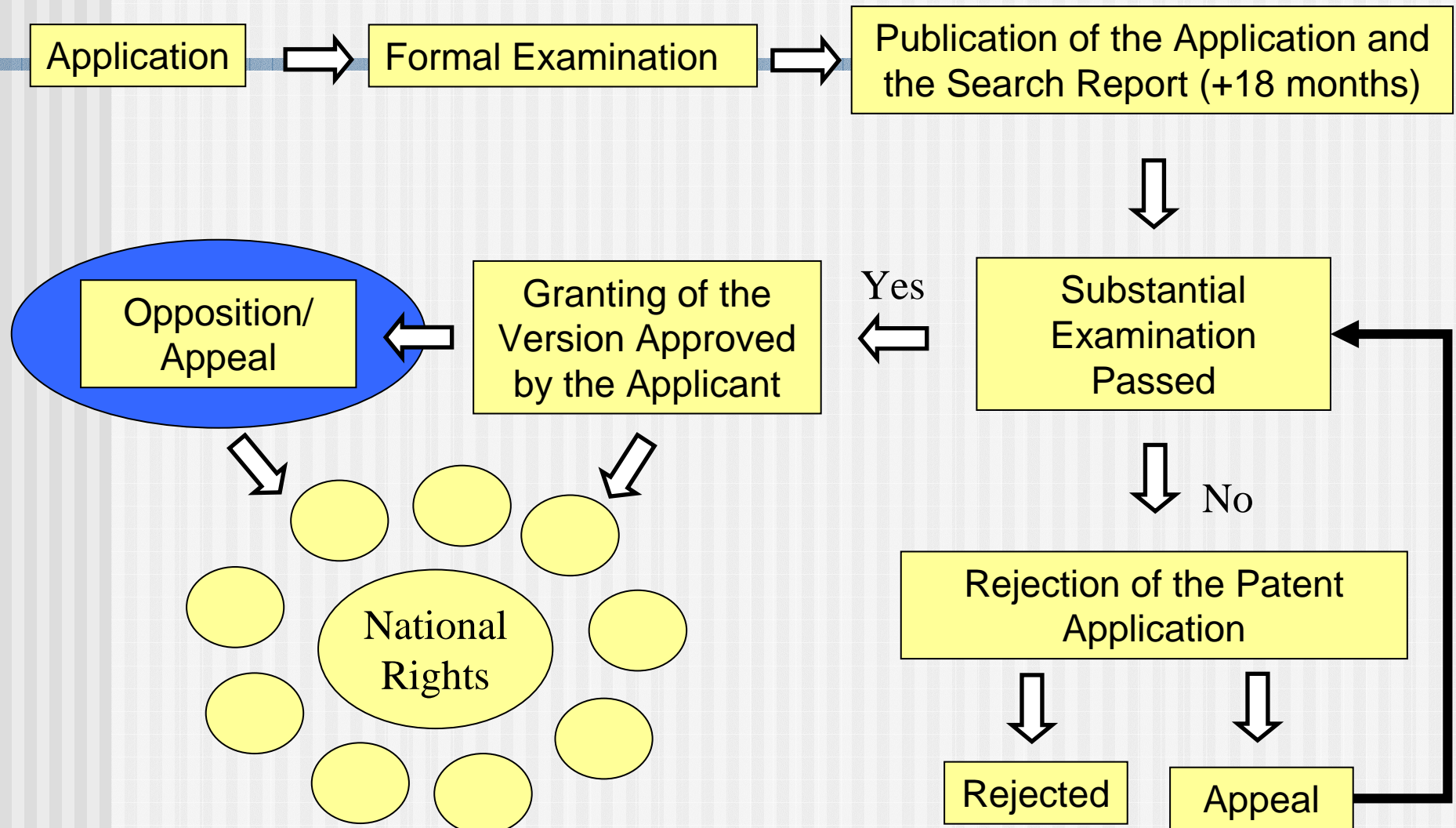
Appeal

Opposition Proceedings – Some Institutional Detail

- centralized proceedings, two instances (opposition and appeal) at the EPO
- modeled on the opposition mechanism in the German Patent System
- cost: 15,000-25,000 Euros
- subsequent litigation is at the national level (at much higher cost)
- any third party can oppose a patent grant within 9 months after the grant date
- once initiated by the opponent, opposed and opposing parties cannot settle "out of court"
- overall rate – 7%
  - ~30 times more likeley than US patent re-examination
  - ~10 times more likely than US patent litigation

Incidence of opposition

EPO Opposition Rates
1983-1999

Opposition Proceedings – Some Institutional Detail

Patent Grant → *9 months* → Opposition → *2 months* → Presentation of Proof → *4 (+2) months* → Response by Patent Holder → *4 (+2) months* → Response by Opponent → Hearing of Arguments → Decision Revocation, Amendment, Rejection → Response Patent Holder / Response Opponent → Final Decision Revocation, Amendment, Rejection → *2 months* → Appeal by Patent Holder? / Appeal by Opponent? → Appeal Procedure (similar structure)
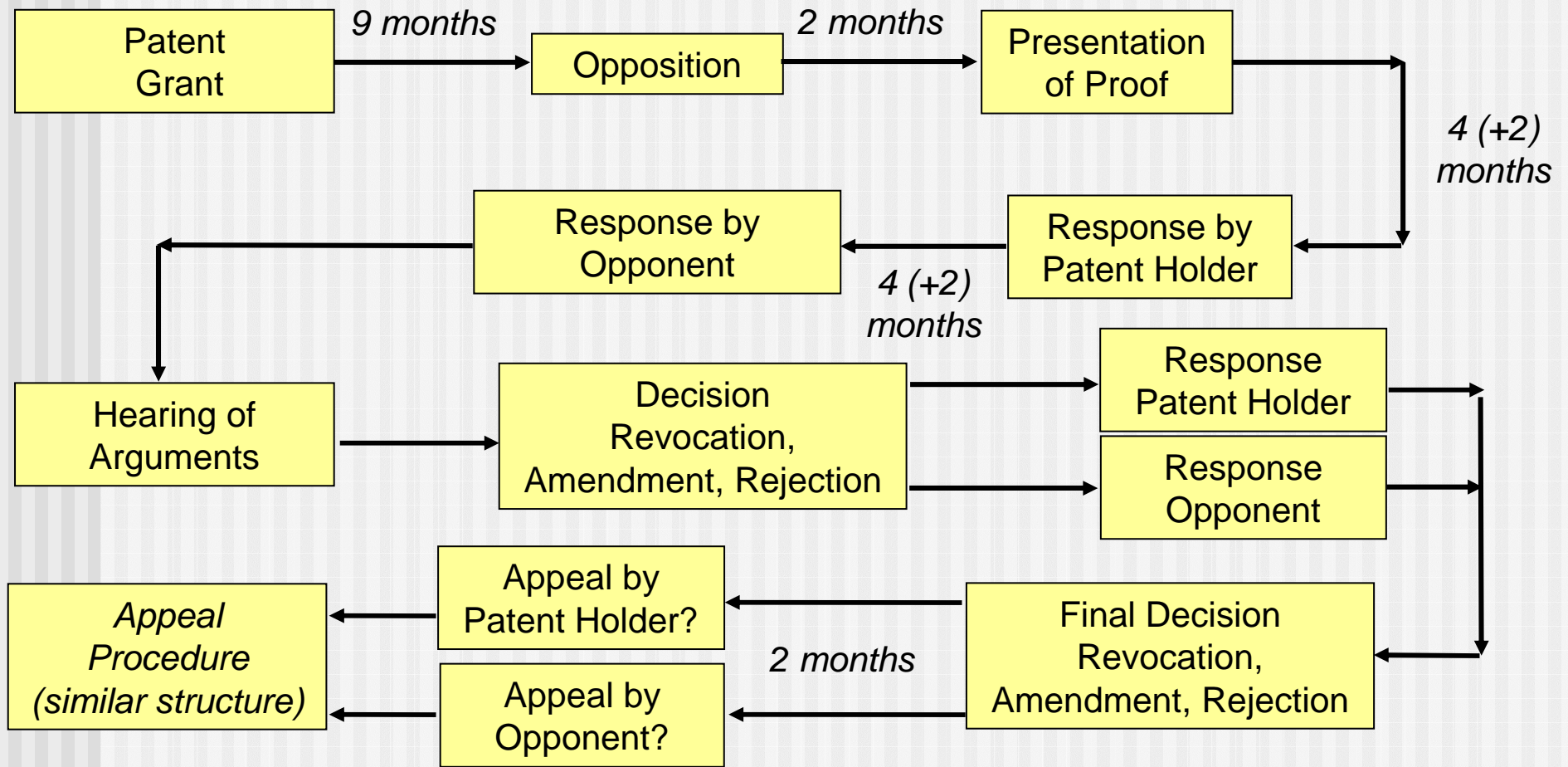
A Simple Model
When would we expect to see opposition?

Consider two cases

- ■ Successful opposition transforms monopoly to duopoly (entrant opposition)

- ■ Successful opposition preserves monopoly (incumbent opposition)

A Simple Model
When would we expect to see opposition?

threat points

cooperative solution (settlement)

$$T_O = p_O \Pi^D - c_O$$
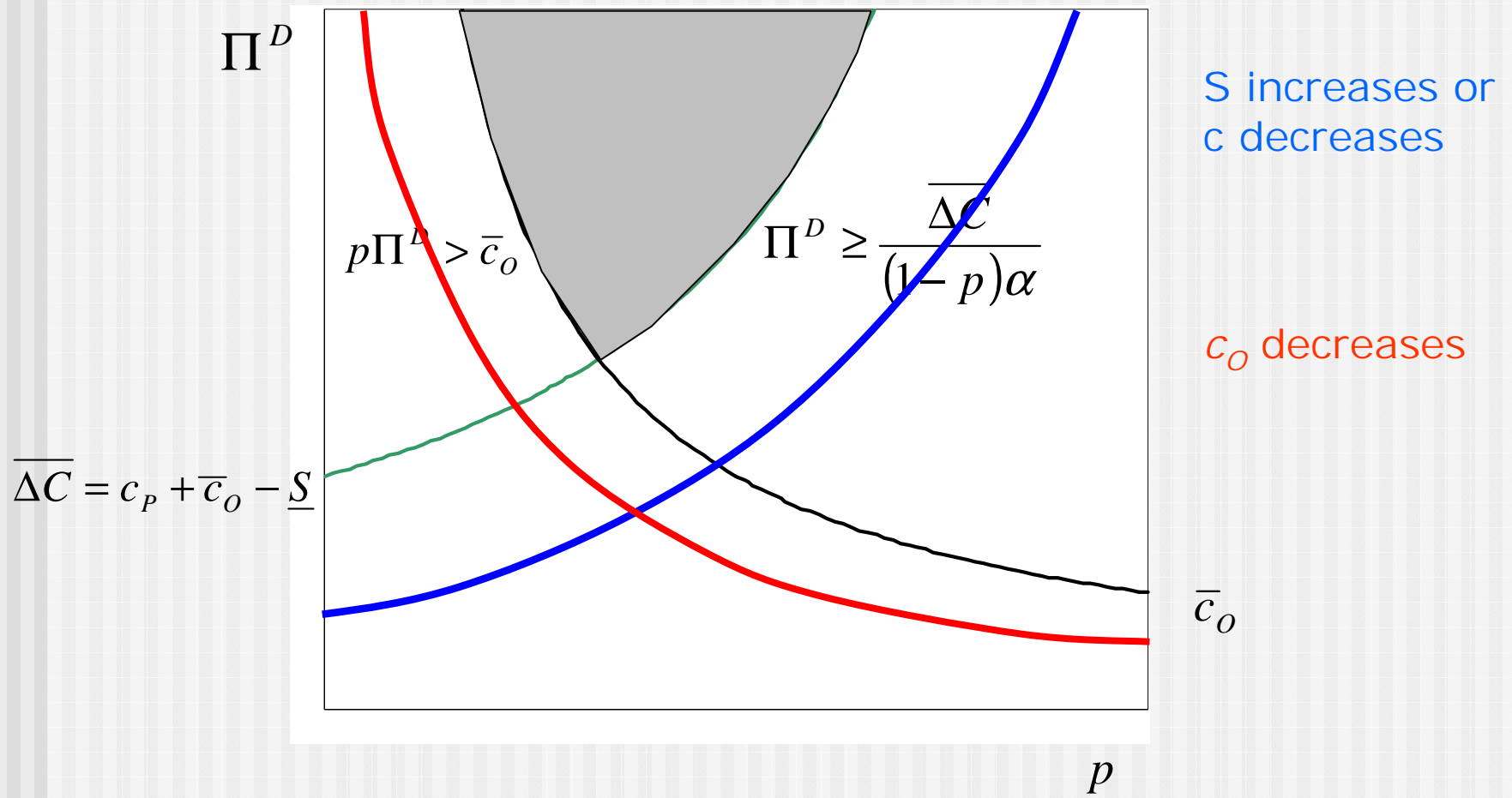
$$T_P = p_P \Pi^D + (1 - p_P)\Pi^M - c_P$$

$$CV = \Pi^S - S$$

Opposition will occur if the cooperative surplus is smaller than the sum of the threat points.

$$\left(\Pi^M - 2\Pi^D\right)\left(1 - p_P\right) + \left(p_O - p_P\right)\Pi^D + \left(S - c_O - c_P\right) \geq \left(\Pi^S - 2\Pi^D\right)$$

$$\Pi^M = (2 + \alpha)\,\Pi^D$$

"optimism" of the opponent

cost advantage of settlement

cooperation effect

A Simple Model
When would we expect to see opposition?

Π^D

$p\Pi^D > \overline{c}_O$

$\Pi^D \geq \dfrac{\overline{\Delta C}}{(1-p)\alpha}$

$\overline{\Delta C} = c_P + \overline{c}_O - \underline{S}$

$\overline{c}_O$

p

S increases or
c decreases

c_O decreases

# Reduced form implications

The likelihood of opposition increases with …

- … increasing stakes (more valuable patents)
- … diverging expectations
- … degree of asymmetric information
- … decreasing cost advantage of settlement vs. opposition proceedings relative to settlement costs (likely to be low in this case)

Data

- 8,501 EPO patent applications with A61K 7 as main or auxiliary classification (1978-2001)
- our sample: all 3,548 patents granted by Dec. 1995
- 523, or 14.7%, were opposed
- multiple oppositions:
  - 68% once
  - 20% twice
  - 12% three or more times

Patenting over time

Patent Application Rates for Selected Firms (Granted Patents)
1978-1995
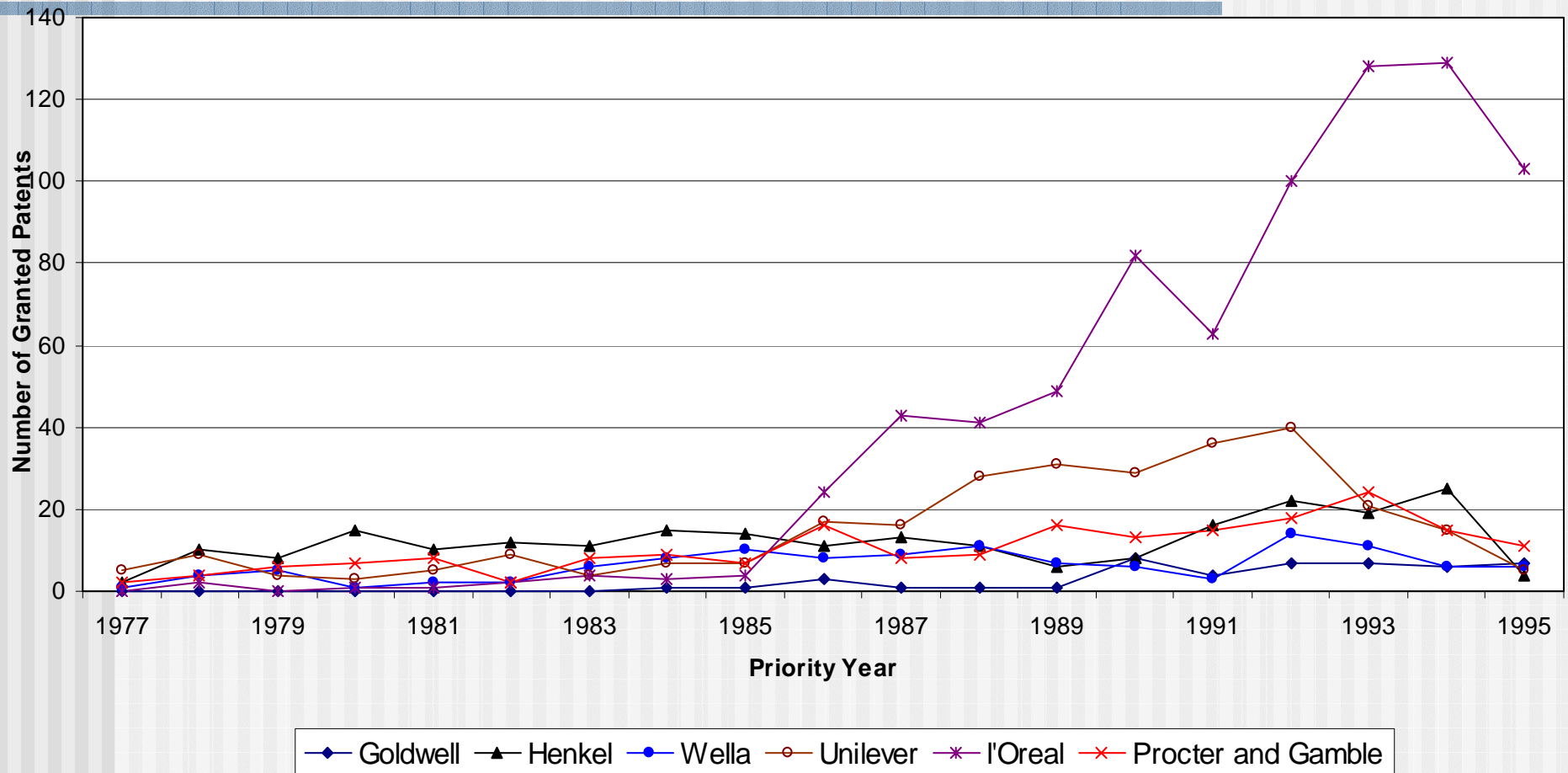
Enter the main players

	Most Active Patenting Firms in Cosmetics 1978-2000			
Opponent	Number of Patents Granted	Oppositions Filed	Own Patents Opposed	Ratio
HENKEL	221	207	23	9.00
GOLDWELL	33	93	16	5.81
WELLA	110	60	21	2.86
BASF	65	15	8	1.88
MERCK	23	5	4	1.25
COLGATE-PALMOLIVE	43	16	13	1.23
BEIERSDORF	28	9	8	1.13
BRISTOL-MYERS SQUIBB	31	7	7	1.00
PROCTER & GAMBLE	161	41	80	0.51
L'OREAL	538	53	141	0.38
SMITHKLINE BEECHAM	40	6	18	0.33
UNILEVER	274	25	91	0.27
KAO	177	0	43	0.00
Total for all firms	4205	848	573	1.48

Empirical results – who is attacking whom?

- See Table 8 in the paper
- Henkel, Goldwell and Wella account for the lion share of oppositions filed
- oppositions hit mostly P&G, Unilever and L'Oreal

Value correlates

- Number of designated EPC countries
- Number of claims
- Citations:
  - Number of backward A-cites to patents
  - Number of backward XY-cites to patents
  - Number of backward A-cites to scientific lit.
  - Number of backward XY-cites to scientific lit.
  - Number of forward A-cites
  - Number of forward XY-cites
- PCT application
- Accelerated exam requested
- Non-corporate applicant; university applicant

Empirical results – opposition probability

- Table 9 - descriptive stats on oppositions by firm
- Table 10 - simple probit for opposition probability.
    - opposition likelihood increases as value correlates increase
    - aggressive opponents (Henkel, Wella, Goldwell) have lower rates controlling for value correlates
    - P&G and Unilever face higher rates
    - Specific product classes:
        - cosmetics NEC; soaps; deodorants; sun/insect lotions, dental care
        - haircare (+12 percent)
        - perfumes, makeup, nailcare (-8 percent)

Opposition outcomes

- Table 11 – opposition outcomes compared to other technologies
  - Slightly less likely to be rejected, more likely to result in patent revocation

- Table 12 – outcomes by nationality of firm

Outcome	Non-German Patentholder	German Patentholder	Non-German Opposer	German Opposer	Henkel is Opposer	All firms
Opposition rejected	17.9%	38.5%	28.3%	19.2%	12.4%	14.9%
Patent amended	34.0%	29.5%	32.8%	33.0%	26.4%	21.6%
Patent revoked	45.7%	32.0%	37.4%	45.8%	58.9%	27.8%
Other	2.4%	0.0%	1.5%	2.0%	2.3%	1.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	65.5%

Conclusions

- high opposition rate due mostly to actions of a few players in the hair care industry
- more valuable patents are more likely to be attacked (as theory suggests)
- new citation measures do provide additional information

Questions

- **Is this legitimate opposition due to asymmetric information or harassment of large firms by established firms that have experience with the use of opposition?**

- **Is Henkel the Texas Instruments of the hair care industry?**
    - We don't really know, although the positive outcomes for German firms do suggest they are bringing some prior art to bear.

Further research

- model interaction between portfolio of opponent i and new patent
- are Henkel opposition cases taking longer?
- *US data as controls*
- *add firm-level data*