Tied selling and bundled offers
Introduction (I) : Key cases

• In litigation, mainly complementary products
  – Tetra Pak (92/163/EEC) tied machine and milk carton for packing, and maintenance. Fine: 71 M€ (the highest in Europe for abuse of dominant position until Microsoft)
  – Microsoft: tied Windows and its WMP multimedia player (one of the EU case’s two charges) and its Internet IE browser (US case)
  – Kodak (U.S. Supreme Court 1992) refusal to sell spare parts to third maintenance providers for its photocopiers
  – Hilti (see below)


• Merger control: GE/ Honeywell, Guiness and Grand Met (1997)

• Concerns private companies only, expected to « maximize their profit » (not deregulation….)
Intro (II) : why anticompetitive?

• Tied selling often goes with rebates (sometimes the tied product is offered)
  → Benefit for the consumer???

• Counter-arguments mentioned in the decisions:
  – Good in the short term, but bad in the long term if ‘eviction’ of competitors, cf. ‘benefit of competition in the long term’
  – ‘leverage effect’, ‘unjustified extension of market power’, ‘portfolio effect’, ‘distorts competition’
  – ‘artificial, discriminatory’ rebate, ‘false’ advantage,’ without economic compensation’
Intro (III) : Economic litterature

• Chicago School : Director and Levi (1956), Posner (1976), Bork (1978), etc.

• Post-Chicago :
  – Whinston (AER, 1990), Seidman (Economica, 1990), Carlton and Waldman (Rand, 2002), Nalebuff (QJE, février 2004)

• More and more sophisticated litterature. Methodology :
  – Specify hypothesis on consumers’ preferences, behaviours, strategic interactions
  – Incentive (object) and practice profitability
  – Effect on consumers, competitors, general efficiency
  – Test conclusions’ reliability
Introduction (end) : per se rule or rule of reason?

- Economists have identified cases where bundling / tying is anti-competitive (profitable, close the market and harm consumers or general efficiency)...

- … but far from being the rule does not favour of per se prohibition.

- US : Jefferson Parish (per se), Microsoft (Court of Appeals, 2001, rejected the per se rule for this case, see below)
- UE Microsoft : 100 demonstration pages
- France : Court of Appeal rulings, Lilly (3 pages on the merits) and Sandoz (5 pages) rather in favour of per se?
Useful Reference


• « In most cases, even the most careful and complete analysis will leave some room for discretion based on the weight given to the evidence and competing policy objectives within differing legal frameworks. »
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Definitions (I) Pure Bundling

• 2 goods sold together, fixed proportion
  – Car = wheels + brakes + engine + etc.
  – Plane ticket = flight + meal
  – Newspaper = articles + advertisement (/// fixed?)
  – Hospital = surgeon + anaesthetist

• Existence of a request for separate goods?
  – depends notably on consumers’ degree of information

• Contractual bundling / technological:
  – Holiday package including meals: the customer may eat outside (but pays)
Definitions (II) Combined Bundling

- 2 goods sold together and separately, package price is **strictly inferior** to the sum of individual prices
  - Microsoft Office: Word and Excel are available separately
  - Restaurant: menu versus ‘à la carte’
  - Lilly France, Sandoz

- Pure contractual bundling: extreme case where individual prices are high
Definition (III) Tying

• The customer who wants to buy A has to buy B. Besides good B is available on its own.
  – A = Football pay per view, B : pay TV
  – Video game Halo (A) available only under Xbox format (B)

• Typically monopoly of A (tying good) and competing B (tyed good)

• Tying may originate from exclusivity contract or technical incompatibility (technological tying)

• Virtual tying: consumers may buy and use B from a competitor. If technical link, can be destroyed
  – Microsoft Windows + Windows Media Player ou Internet Explorer (since 1998). Competing products are almost free.
The American case Jefferson Parish hospital

The hospital concluded an exclusivity contract with an anaesthetists’ association which stipulates that all the hospital needs will be covered by this association. This generated a complaint from other anaesthetists.

The Federal District (1981) concluded that the contract’s anticompetitive impact was minimal and offset by advantages for patients.

The Court of appeal (1982), to which the case was referred, qualified the contract as «tying arrangement» in adopting the «per se» rule.

The Supreme Court Suprême (1983) quashed the Court of Appeal ruling.

Les Courts have adopted a «per se» approach:
The « per se » approach

Three criteria are sufficient to define a « per se » prohibition

In this case of tied selling:

- Does the hospital sell two separate services it ties or a global service?
- If yes, does the hospital use a market power on the tying good (the hospital’s rooms) to force patients to use the tied product (anaesthetists)? In this case, the geographic definition of the relevant market was crucial to determine the existence of a market power
- Was the trade amount concerning the tied product significantly affected?
Case Analysis

The Court of appeal and the Supreme Court followed the same approach:
- affirmative answer of the two Courts to the first question
- different assessment of the relevant market and the hospital market power,
  linchpin of the demonstration
- same reasoning for the third point

The Court of appeal considered that the three conditions were met
And that this tied selling was prohibited per se whereas the Supreme Court considered that the last two were not fulfilled and moreover this contract is efficient because of the good’s nature of and the search for quality.

Explanation taken up by Nalebuff

In this case of tying on complementary products
Preferences (I)

- Given $V_A$, $V_B$, $V_{AB}$ the availabilities a consumer is ready to pay for good A, good B, package A+B.
  - Independent: $V_{AB} = V_A + V_B$
  - Complementary: $V_{AB} > V_A + V_B$
  - «extreme» complementarity: ditto $V_B = 0$.
  - For record: Substitutable: $V_{AB} < V_A + V_B$. Rare bundling
    - However see Aspen, US Supreme Court 1985: 4 ski slopes in the same massif, one operator supervising 3
    - Complementary ex ante and ex post substitute
    - Conflict for grouped packages, refusal to sell tickets to independents (even retail!). Essential facility issue
  - Independent or substitutable goods for the final consumer may be somehow complementary for a distributor
Les préférences (II)

- Possible heterogeneousness of values $V_A$, $V_B$, $V_{AB}$
  - Aggregated demand depends on distribution among the population
  - Independant goods $V_A$ and $V_B$ may be correlated
  - Link with the discrimination issue:
    - Second degree discrimination: seller offers a choice of options and let the consumers select their preferences $\Rightarrow$ may favour consumers and efficiency
    - Contrary to first degree discrimination: set rate according to observable characteristics $\Rightarrow$ generally ineffective
    - For consumers, difference in nature between rebate on one or several products?
    - Legally, raise the issue of the relevant market definition (Homogeneity in hospitals? See Lilly or Sandoz)
Chicago School challenges tying’s profitability

• For Chicago School, tying is not profitable. Bork (1978): «there is only monopoly profit»

• Crucial hypothesis:
  – Monopoly of market A
  – Use of A and B in fixed proportions
  – Static analysis
  – Exogenous structure of market B

• Argument variations according to the fact that goods are complementary or independant
  – Competition on B is perfect or not, etc.

• If bundling observed, efficiency gain may be suspected
Complementary goods : Chicago Arguments

- Monopoly market A (firm 1),
- Competing market B (possibly imperfect)
- If 1 ties (price $p^*$), monopoly on A+B « systems »
- Higher profit if 1 sells separately B at its cost $c_{B_1}$ and A at price $p^*-c_{B_1}$.

Other manufacturers of B contribute to increase the demand for A (true if horiz. or vertical differentiation)

1 sells more of good A. In transferring all profit on A, captures a part of the surplus brought by other manufacturers of B.

- From a static point of view, 1 has no interest in tying (if no efficiency)
Hilti: tied selling on complementary products

Relevant markets defined by the Commission, the Court of First Instance and the CJEC:

- Commission Ruling (22 December 1987)
- Rulings of TPI (12 Dec 1991) and ECJC (2 mars 1994)

- Hilti patented sealing gun
Market in monopoly

- Hilti patented compatible chargers
Market in monopoly

- Hilti compatible nails, for which some brand interchangeability exists
Competing markets
The facts:

Two independent nail manufacturers, Eurofix and Bauco claim, what was confirmed by the Commission investigation:

Hilti ties the sale of nails with chargers
this practice aims at evicting them from the compatible nail market
And had the effect to restrict the sale of nails within the EU
Commission analysis confirmed by Court of first instance and CJEC

The commission condemned Hilti for abuse of dominant position. Hilti used its power on the sealing gun market and the compatible chargers market, where it has a dominant position and where barriers to entry are high. To strengthen its position on the nail market, in competition in adopting a twinning policy between nail and charger sales.

Hilti acknowledges these practices but holds that they are motivated by safety reasons and the need to exclude nails which do not conform to standards.
Nalebuff’s economic analysis

According to theory there is no incentive to tie complementary products used in fixed proportions.

On the contrary, it is more rational to take advantage from the surplus created on the competitive market:

Typically Hilti case. The fact that products are used in fixed proportions eliminates the argument of price discrimination. Consequently, another objective led Hilti to offer this tied selling:

Safety is underestimated by authorities

Therefore no anticompetitive object
The Commission dismissed the safety argument because:

- Hilti brought no evidence
- Other legal appeals exist to prohibit the sale of below standards or dangerous products
- Hilti set itself as single judge for nail compatibility in implementing an anticompetitive practice

Is there an anticompetitive object? Which one?
What are the effects? : eviction of competitors
Independent goods: other manufacturers of B do not contribute, by definition, to increase demand for A.

If bundling, competition between A+B1 (price p*) and B2.

If good B homogeneous, competitive market, no profit to gain from market B. Company 1 improves its profit in selling B separately at price $c_B$ and A at price $p^*-c_B$

- Sells at least as much A, more if some consumers dislike B.

Imperfect competition on market B. More tricky since there is profit to make on this market.

- If consumers have the same price for A, known by company 1, the latter has an interest to sell A at this price (captures all the surplus on this market) and oligopoly profit on B.
Lilly France case

Decision off CC n° 96-D-12 confirmed by
Ruling of Court of appeal (6 May 97) and Court of Cassation
(15 June 99)

Issue raised by the case: is tied selling prohibited « per se » in
France and Europe?

Article L. 420-2 states that:

« Is prohibited the abusive exploitation of a dominant
position by a company or a group of companies
on the domestic market or a substantial part of it.

These abuses may notably include refusal to sell,
tied selling or discriminatory terms of sale … »
The markets concerned

Decision of the Conseil confirmed by the Courts of appeal and Cassation

The two markets concerned defined as domestic (and not by call for tender) are:

- The Dobutrex market, special drug considered essential and indispensable for hospitals

Lilly France has a monopoly on this drug because of its patent

- The Vancomycin market on which Lilly France had a monopoly because of the patent until 1988, date when the patent became public.

From that date, and until the practices analysis, in 1991, two competitors entered the market with a generic drug.
The facts

When Vancomycin entered the market, the company Lilly France submitted the granting of price reductions on patent medicines on which it had a monopoly (notably the Dobutrex), to the condition that hospitals also purchase Vancomycin from Lilly France.

The results:
- Most hospitals chose this option but the system introduced a discrimination between hospitals on Dobutrex price
- At the same time Dobutrex price increased
The decision confirmed

The Conseil decision states that: « considering that
- this tied reduction between Dobutrex and Vancomycin purchases
  was aimed at and resulted in deterring pharmacies from
  addressing to competing companies to obtain Vancomycin separately…
- the granting of a reduction on Dobutrex with the purchase of
  Vancomycin had an artificial and discriminatory nature…
- consequely the tied reduction was similiar to a loyalty rebate »

According to article L.420-2, the Conseil therefore ordered a sentence
for abuse of dominant position, consisting in offering a loyalty rebate in
order to block the entry on the market
Object and effects

- The object of the system described by Lilly France is to limit the loss of market shares on the Vancomycin market following entry into competition: Lilly France’s legal person

« From the second half of 1988, facing the competitive pressure from Lederlé andt Dakota-Pharm on Vancomycin, we set up a supplementary advantage system including the following features: »

- What were the system’s effects?

1) On the Vancomycin market:
Lilly France market share rised from 100 to 65 % in 4 years
In a dynamic market where competitors acquired 35 % of market shares. The reduction did not act as a barrier to entry on the market for Vancomycin
The effects

Moreover, prices dropped significantly (50% in 4 years) and the quantities sold increased, which seems on the contrary to reflect a very competitive market for Vancomycin.

The second point concerns the average Vancomycin price proposed by Lilly in 1990 and 1991, which was slightly higher than its competitors’. However this situation was observed during these two years in a context of falling average prices.

2) On the Dobutrex market: The major effect of tied reduction is to create a discriminating system between the hospitals which chose this reduction, i.e. purchasing the package and other hospitals on the Dobutrex price, in an unjustified manner and without any objective compensation.

« in the case in point, the tied reduction has a discriminatory nature since the hospitals which purchased Dobutrex without Vancomycin could not benefit from this advantage » Court of appeal
The effects

However, before the Court of appeal, Lilly mentioned range economies as a possible explanation to this price difference:

« the reductions granted in case of concomitant purchase of Dobutrex with Vancomycin were aimed at developing the sales of all the products Manufactured by Figersheim factory and to encourage the best use of the industry tool »

The second issue raised by the case is related to the price increase of the monopoly product, additional factor encouraging hospitals to choose the grouped offer. However, hospitals’ negotiation power is essential since the Court of appeal states: « the Ministry of Economy services estimated that if Lilly France had not implemented grouped offers towards province hospitals and proposed the prices it applied to AP deliveries, which had refused tied reductions, the hospitals would have saved 10 million Francs per year »
Non strategic reasons

Efficiency arguments
Incentive to tie (I) : efficiency gains

- « non strategic » reasons : do not depend on the competitors’ response (would apply to a non-threatened monopoly)
- ↓ in cost for companies (for ex. distribution). « range economies »
- ↓ in information costs for consumers, administration costs complexity (simplify consumer’s choice)
- Improve (supervise) quality or safety
  - After-sale service and coordination (double finger-pointing problem): printer does not work, stems from the PC or the printer? A single hotline telephone number.
  - Insurance : package avoids duplication or holes in the cover
- In what follows, supposes no economies of range (« obvious » effect put aside).
Incentives to tie (II) : reduce price inefficiencies

• Other non strategic reasons : ↓ price inefficiencies
  – Demand heterogeneity and imperfect discrimination
  – Double marginalization and Cournot effect for complementary goods
Price inefficiencies (I) = imperfect discrimination

- A monopoly sells both goods
- Does not consider reserve cost [coût =0]
- Independent goods, cor($V_A, V_B$) <0

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<thead>
<tr>
<th>Reserve price</th>
<th>good 1</th>
<th>good 2</th>
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<td>Gr. 1</td>
<td>4</td>
<td>10</td>
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<td>Gr. 2</td>
<td>10</td>
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Separately $\rightarrow$ price 10 $\rightarrow$ total surplus 20

Bundle $\rightarrow$ price 14 $\rightarrow$ total surplus 28

Preferences for bundle are more homogeneous. In practice, bundle complementary goods or corr. $\geq 0$. 
Imperfect discrimination (following)

Independent goods, $V_A$ and $V_B$ independent uniform on $[0,1] \times [0,1]$. Cost monopoly normalized at 0.

<table>
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<tr>
<th>A</th>
<th>A and B</th>
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Independent prices:

- $P_A = P_B = 1/2$, $S_c = 1/4$, $W = 3/4$

Bundling:

- $P(\text{bundle}) \approx 0.8$, $S_c \approx 0.27$, $W = 0.8$

Bundling ↓ price inefficiency. Remains partly true if competition
Price « inefficiency » (I) : imperfect discrimination (following)

- Complementary goods A and B, but variable proportions
  - Paper or maintenance (B) for photocopier (A)
- Competitive market B
- Development of A heterogeneous and unobservable for the monopoly holder (cannot exploit all the surplus).
- Consumers who value + A tend to purchase + B
- Tying of A and B (B quantity not specified at time of purchase, varies between customers)
  - From monopoly price for A and competitive price for B, ↓p_A and ↑p_B with total demand unchanged → Same profit on A (at the margin) and higher profit on B → profitable tying
Variable proportions (end)

• With tying, the monopoly holder better discriminates between consumers (make customers who value more A pay higher prices)

• Ambiguous impact on social surplus and consumers
  \( \geq 0 \) if increases demand (allow lower A price)

• Purest form of price discrimination: right of use [only one good]
  – page photocopy (counter), insurance car /kms.

• Easier to pay for consumables (toner, etc.)

• Also valid if the complementary good quality is correlated with the preference for the tying good
  – Most US funeral homes tie funeral services and coffins. Fixed proportions + competitive coffin markets (Internet). Chicago wrong if quality allows discrimination
  – Restaurant: meal + wine. Corkage fee does not work
Price « Inefficiency » (II) = Cournot effect (1838)

- Two complementary goods markets
- Two companies in monopoly on each market versus a single monopoly
  - relevant for merger control [see issue of «portfolio effect »]
- Tying, like vertical integration, may allow to reduce price inefficiencies
Double marginalization and Cournot effect

Cars sold with tyres

- tyre manufacturing
- Price c
- Car manufacturer
- Price p
- Consumers

Cars sold without tyres

- car
- Price $P_A$
- Consumers
- Price $P_p$
- tyre
- $P_A + P_p$
Double marginalization and Cournot effect

- In the vertical case, the tyre manufacturer (leader) anticipates the car manufacturer’s price fixing (follower).
- In the case of « complementary good », each player anticipates what the other does (Cournot-Nash play).
- In both cases, the situation is worse than with a single company, for consumers, for companies, and for global surplus (prices too high).
  - In vertical case, first mover advantage of the leader, even worse than Cournot effect.
- Vertical or conglomerate integration would eliminate this price inefficiency (each player then internalizes its externality on the other) → lower price.
Merger : GE Honeywell case portfolio effect

Prohibition ruling by the Commission (3 July 2001, M.2220)
Case pending before the le TPI

The portfolio effect, this indirect effect on merger is at the heart of the decision: no activities overlapping, but sharing with a single capital structure, in dominant position on the markets concerned, of a full range of complementary goods

Aeronautical sector:
- GE in DP on jet engine markets for large seating capacity aircraft
- Honeywell in DP on avionics and non-avionics products making up the aircraft
The Commission identified the risks resulting from the merger:
because of the entity’s market power on the jet engine market and the one of complementary products, avionics and non-avionics,
It will be able to offer a wide and comprehensive product range:
- range unequalled by competition
- at a price which will encourage customers to opt for the grouped offers
- the result would be to evict competitors on all markets
The issues raised by the decision

1) **Will the new entity have an incentive to propose grouped offers?**

   «The complementary nature of GE and d’Honeywell products, combined with their respective position on the market will give the new entity the capacity and the incentive, according to economic good practice, to launch into subordinated offers or cross subsidies for all product sales to both customer categories » Decision point 349

2) **If yes, what will be the impact if such offers?**

   In the short or long term?

1) **To the first question, the parties answered that it was not in their interest to propose grouped offers because**

   - demand does not encourage these choices: companies tend to compare prices and products in a detailed manner
   - Honeywell and UTC are already able to offer a whole range of products but are not doing it.
The issues following the decision

- The selection of equipment and engines last several years. Different teams select the products

- Prices are fixed individually according to a call for tender process and bilateral negotiations

In such a market context, what is the reference price allowing to recognize a grouped offer, as part of a bilateral negotiation, non-transparent and over a certain period?

All these market specificities imply that there is no incentive for an entity to propose grouped offers

The Commission rejected these arguments challenging the parties’ data and considered that the merger would encourage grouped offers in creating new incentives in the field.
The issues following the decision

2) If the entity, after the merger, proposes grouped offers, what will be the impact on the short and long term?

- In the short term, the major effect will consist in a price reduction, which will result in a demand transfer towards the new entity’s offer. This short term effect seems to be favorable to consumers even if this effect penalizes competitors.

( absence of Cournot effect since global demand is inelastic).

« The parties also argued that they are not encouraged to reduce their respective product prices because of the demand relative inelasticity for aircraft compared with engine and components’ prices and also, because the global price of an aircraft is only one factor to take into account in an airline company’s decision to purchase or not a additional aircraft » Decision point 374

Point 376: « consequently, even if at the sector’s level, demand for aircraft is inelastic… »
The issues following the decision

- However, in the long run, this analysis may generate the eviction of competitors unable to reply to this offer.
- Once the competitors are evicted, the new entity will have a monopoly, in a market with high entry costs, since several markets will have to be integrated simultaneously. Prices will be able to rise without attracting the entry.

In the long term, merger is therefore harmful to consumers.
The issues following the decision

- Is the scenario described by the Commission possible?
Why could companies not reply or enter into partnership?
Barriers to exit are high in the sector: are evictions possible?
Is there a power for purchasers to compensate the price increase?
- Are potential costs to be favoured for consumers, in the medium-long run compared with a certain profit in the short term?
- Has the Commission respected the dominance test in this case?
Cournot effect and competition

• Extension if competition on goods A and B. Issue of merger control

• Complementary goods A and B, in 2 variants, 4 companies produce A1, A2, B1, B2

• Merger of A1 and B1 has 2 effects
  – Cournot (reminder) : lower price and market volume increase
  – Lower prices and market share increase
Cournot Effect and oligopoly (following)

- Competitors will reply to price reductions \(\rightarrow\) ambiguous predictions on profitability. Depends on
  - Number of bundled goods (may be > 2)
  - Relative importance of goods in the bundle
  - Competitors’ reaction: \(\downarrow\) in prices… and bundled too!
  - Pure or mixed Bundling
  - Distribution of purchasers’ preferences, etc.

- Nalebuff’s simulations on the basis of a set of hypotheses (equal marginal costs, differentiated goods, etc.)

- A1 and B1 merge and pure bundling (or mixed): \(\uparrow\) market share of the new entity, but profit \textbf{may} decrease because of competitors’ reaction: \(\downarrow\) price, (+ intense competition)
Cournot Effect and oligopoly (end)

• What is certain: rivals (if no bundling) lose (even) more. Consumers win.

• Bundle against bundle: all companies lose even more. Consumers win a lot.

• Competition issue? Possible, if efficient competing companies cannot bear price reductions («long term argument »)
Bundle and negotiation

- Importance of the negotiation method and the seller’s knowledge of the purchaser’s preferences
  - Negotiation by mutual agreement and perfect information of the seller: if the seller knows the purchaser’s preferences (A1/A2 et B1/B2), and may fully discriminate, bundling may never improve the immediate profit [if no range economies] (true from a static point of view only)
  - Hereafter uniform price fixing and non discrimination are supposed
  - Intermediary case: information quality should be assessed
Strategic reasons
Incentives to tie: strategic reasons

• In all what follows, monopoly on A

• Strategic reasons (as part of a competitive interaction)
  – Deter entry on market B
  – Reduce of competition intensity on B
  – Protect monopoly on A (also deterrence to entry)

• Efficiency and strategic reasons overlap: efficiency gains create a strategic advantage if competitors cannot follow
  – Beware of not falling into ‘efficiency offense’: « efficiency gains raise competition issues »
Strategic reasons

Complementary goods
Complementary goods and development

- Complementary goods A and B (fixed proportion)
- Monopoly on A (for ex. patent), present on B

- A potential entrant (company 2) on B may generate surplus $\Delta>0$ as quality or cost profit, under the condition to pay entry cost $C_B$
  - $\Delta$ exogeneous, innovation process without model
  - Socially efficient entry : comparison $\Delta$ and $C_B$
  - No demand heterogeneity, no discrimination pb

- Chicago (fixed proportions...) From a static point of view, company 1 let 2 enter on B, and captures a part of surplus $\Delta$
- Carlton and Waldman (2002) : threat to enter on 2 on market A in the future [patent on A expires]
Development and entry costs

- **Incentive to tie:** protect monopoly on A
  - If 2 enters on A in the future, it will monopolize the market (better complementary product) and 1 will be evicted
- **To that end, it may tie both goods at present (it loses for now):**
  - Prevents the entry of 2 on B at present → forces it to pay both entry costs in the future → may discourage entry

- **Kodak tied photocopier + maintenance**
  - If future entrants on photocopiers do not find independent service providers, they will have to create a service network simultaneously

- **Two-stage game (at each date)**
  - Company A decides, or not to tie. Techno tying preventing entry
  - Company 2 decides, or not, to enter on B [pays entry costs]
• If tying prevents the entry, it is socially inefficient and harmful to consumers
  – If 2 enters, efficient entry. Since 2 compares $\Delta$ and entry costs
  – Consumers: at the date 2 duopoly if entry. Better if entry.

• Technological tying necessary to influence the entry
  – once 2 entered, 1 has an interest not to tie

• Variant n°1 bis: an emerging market $A'$ appears in the future and uses the same complementary good
  – Both companies have the same entry cost on $A'$ (but 2 also bears entry cost on $B$)
  – Tying may be profitable: «swinging» from $A$ to $A'$
  – but here the entry may be too frequent, since company 2 internalizes the monopoly profit on the new market (not supervised by 1). Prohibiting tying may be inefficient.
Development and network externalities

- DOJ in 1998 / Microsoft. Strategic motivation for tying: protect Windows’ quasi-monopoly
- "barrier to entry applications": if most applications are designed to "work" on Windows, there is no incentive to develop a competitive OS.

- Two externalities in the case of IE:
  - + users for a OS $\leftrightarrow$ more applications developed for this OS [Netscape came with Java interface capable to break the barrier]
  - + users of a browser $\leftrightarrow$ + optimized websites for the browser

- Microsoft’s ultimate goal: keep its quasi-monopoly on Windows $\leftrightarrow$ avoid the appearance of applications compatible with other OS $\leftrightarrow$ Monopolize the application market $\leftrightarrow$ tie OS and applications
Development and network externalities (following)

- Tying allows to prevent the competitor from reaching critical size (economy of scale) or to benefit from a network effect.
- Economy of scale: Apologue of the small town, with several restaurants and one hotel-restaurant.
- If the hotel ties rooms and meals (full board compulsory = virtual tying), less travellers will eat in local restaurants→ may exclude them from the market if goes under the viable production scale. Local people will end eating at the hotel.
  - 2 customer categories (use of hotel is nil for local people)
  - Impact on prices? on efficiency?
Development and network externalities (end)

• Future use of A+B_j depends on the number of present customers
  – No entry cost for 2 on B market here

• Incentive to tie
  – If A+B2 sold in T=1, 1 evicted in T=2 bec 2 better quality
  – If A+B1 sold in T=1, 1 remains in T=2 if high externality / Δ

• Incentives of 2 do not coincide with the surplus
  – bec 2 wins the network externality if it has a monopoly in T=2
    → The entry may be inefficient and tying socially useful

• Virtual tying (through prices) is sufficient here, no need for commitment of 1 before entry of 2
  – If 2 entered in T=1, nothing is lost for 1 which may prevent consumers from purchasing B2 and the externality in favour of 2 is working (the aim is not to prevent the entry of 2)
About Windows Media Player

• **Same type of network externality:**
  + WMP users $\rightarrow$ more content (music, cinema, multimedia) encoded in this format $\rightarrow$ + WMP users

• **We just saw that virtual tying was sufficient to prevent entry on A (and B) $\rightarrow$ Efficiency of the Commission’s remedy (which does not exclude virtual tying) ???

• **WMP / IE : a more obvious « two-sided market » aspect**
  – The media player’s seller get paid (in fact more) on content providers than on final consumers
  – [Exists also for IE : rights paid by research engines]
  – Possibility of negative prices (competitors would pay assemblers to install their player) [cancel the virtual tying effect]
Bundling and innovation (I)

- Choi and al. (Rand, 2001)
- Monopoly on A, less efficient on B (cost or quality)

- Committed to tie: always sell A with B: ↓ short term profit (Chicago)
- Meaningful if ↓ its disadvantage compared with its competitor → Bundling ↑ incentives to do R&D
- ↑ also R&D yield for the monopoly since ↑ sales of B
  - In the extreme, if bundling allows to cancel the entrant’s sales, the monopoly holder wins all R&D profit
- ↓ rivals’ incentives to invest in R&D (↓ yield)

- → recover the delay and even overtake the competitor
Bundling and innovation (II)

• Works with virtual tying? Applies to Microsoft IE or WMP? Netscape less encouraged to invest than Microsoft? Not obvious.

• Decision US Court of Appeals in Microsoft case 28/06/2001: the per se rule is not appropriate in the case concerned:

• «Our reading of the record suggests merely that integration of new functionality into platform software is a common practice and that wooden application of per se rules in this litigation may cast a cloud over platform innovation in the market for PCs, network computers and information appliances.»
Strategic Reasons
Independent goods
Bundling and differentiation

- Independants goods, fixed proportions (1 for 1),
- Two theoric examples where motivation discrimination (better capture the surplus) disappears
  - Carbeja and al. (1990) perfect positive correlation
  - Carbeja (1990) 2 variants of A products by 2 companies in monopoly corresponding to 2 consumer groups (no heterogeneity on A)
- Bundling use to differentiate from competitors → ↓
  - Competition → supra-competitive prices on each segment
  - Reduction in consumers’ surplus → competitors win, even those who do not tie
  - Impact on undivided social surplus
Tying and foreclosure

- Whinston (1990), case of independent goods, fixed proportion. Homogeneous preferences for good A
- Competitor may enter on B (entry fixed cost) and sell a differentiated good (horizontally)
- If competitor is here, the monopoly has an interest in not tying: captures all surplus on A and duopoly profit on B (Chicago argument)
- If monopoly ties A and B
  - If company B present: A+B1 against B2 → more aggressive monopoly (bundle) < $p^m(A) + p^d(B)$ → ↓ profit (anticipated) of 2 → may deter entry
  - Otherwise monopoly on A+B1: $p$ (bundle) < $p^m(A) + p^m(B)$
Tying and foreclosure (end)

- Tying «ties the hands» (!) of the monopoly and forces to be more aggressive on B than in the case of absence of tying.
- Profitability: the monopoly compares
  - profit without bundling (monopoly A + duopoly B)
  - profit with bundling and entry deterrence (monopoly on A and B, but forced to tied price fixing)
- Effect on consumers and ambiguous social surplus. May be higher in the second case.
- Does not work with technological tying (practical impact?)
- Static motivation. Nothing to do with predation.
Tying and limit price

• Improves powers of existing market: Package [Word+ Excel].

• Nalebuff (2004): show that even ignoring the possible complementarities (efficiency gain), with independent goods, incentives to tie.

• Maximum price model: monopoly has capacity to commit itself not to reduce its price after entry (≈ notion of dominant position). Game
  – stage 1: monopoly posts its price (indep. or bundle)
  – stage 2: decides to enter
  – stage 3: entrant determines its price
Bundling reduces entrant’s potential profit → facilitates deterrence of entry. No need to reduce price (« limit price »)

Even if entry, higher profit with bundling!!!

→ Losing competitors

→ Consumers surplus and total surplus often higher because of better discrimination…
Tying and limit price (end)

- Tying is more efficient to deter entry if \( \text{corr}(V_A, V_B) \geq 0 \), because consumers are satisfied to have both A and B (no room for a competitor who sells only one good).

- Note (cf. plus haut) : Tying allows better discrimination if \( \text{corr}(V_A, V_B) \leq 0 \).
Conclusion for independent goods

- It is difficult to find static theories where bundling leads to:
  - exclusion of efficient competitors (or reduction in their profit)
  - reduction of consumers’ surplus or social surplus
  - Increase in monopoly profit (practice profitability)
- In all cases, requires a great commitment capacity
- One may certainly adapt dynamic arguments as for complementary goods (network externalities, R&D,…) [not quoted in Lilly for example]