

Antitrust Analysis in Software Product Markets

A First Principles Approach



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Disposition of Claims in *Microsoft*

- **Leveraging (states):** dismissed by Jackson on summary judgment
- **Exclusive dealing:** dismissed by Jackson in conclusions of law
- **Attempted monopolization:** dismissed by D.C. Cir. on appeal
- **Tying:** dropped by plaintiffs
- **Monopolization:** liability affirmed by D.C. Cir.; served as basis for remedy (Kotelly)



Product Markets in *Microsoft*

- **Intel-compatible PC operating system software products**
 - FOF 18
 - COL: Liability for monopolization claim
 - D.C. Cir.: Affirmed



Product Markets in *Microsoft*

- **Market for “platform-level browsing software for Windows”**
 - FOF 79
 - COL: Liability for attempted monopolization claim
 - D.C. Cir.: “Varying and imprecise”
 - Attempted monopolization: Reversed
 - Tying: Remanded for rule of reason analysis; plaintiffs barred from “careful” market definition



Product Markets in *Microsoft*

- **“Market for Web browsing functionality”**
 - FOF 201
 - COL: Not cited
 - D.C. Cir.: Not cited, but district court failed to enter “detailed findings defining what a browser is or what products might constitute substitutes”



Product Definitions

- **Explicit, not implicit**
 - “what a browser is”
- **Not too abstract**
 - “detailed”



Defining the Relevant Product Market

- $S = \{\text{defendant's product}\}$
 - **Repeat**
 - Consider a price increase by a hypothetical monopolist over S
 - Identify demand and supply responses
 - Add substitutes to S
- until no more substitutes are found*

Demand-Side Substitutes

- **Functional interchangeability**
 - User purposes (i.e., end uses)
- **Reasonable interchangeability**
 - Competitive variables

Price Discrimination Markets

A relevant product market can be defined around a captive end use segment

- Cellophane? Probably not. Arbitrage defeats price discrimination
- Software? Possibly. DRM can prevent arbitrage

Quality-Adjusted Price Discrimination Markets

An end use segment is captive if a hypothetical monopolist could discriminate against it by reducing quality with respect to that end use alone.

Product Definitions

- **Explicit**
 - D.C. Circuit demands findings “defining what a browser is”
- **Abstract**
 - Judicial administrability
 - Avoid false distinctions
 - Avoid manipulation
- **Specific**
 - D.C. Circuit requires “detailed findings”
 - Address relevant factual inquiries
 - Obviate reliance on misleading intuitions

Explicit Definition

A software product consists of “code and nothing else.”
– Microsoft

Would Microsoft have taken the same litigation position in a copyright infringement suit?

Implicit Definition

A software product is "functionality separately valued by consumers."

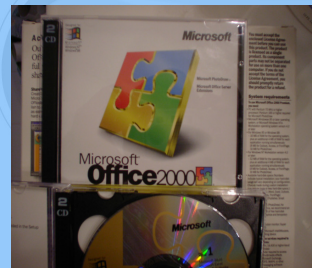
– Lawrence Lessig

A software product is that which enables a consumer to use a computer system to perform a desired function.

- Legal rights
- Technological capabilities



Software Product Distribution



- Code
 - copy on media
- License
- Documentation
- System requirements
 - Preconditions

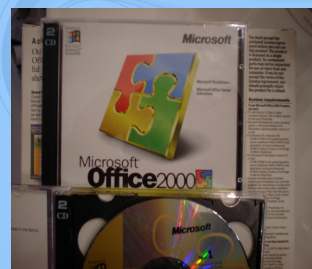


Software Product Elements

- Legal rights (and/or immunities) derived from the vendor's copyright in the vendor's code
- Technological capabilities (i.e., services) delivered by the vendor's code
 - Necessary to install and run the accompanying software according to the documentation
 - For a contemplated purpose



End Uses of Software Products



- Supporting tasks
- Preinstalling platform software



Supporting a Task

```
/* Converting binary to BCD */
C:> bin2bcd
Enter binary: _
```



Supporting a Task

```
/* Converting binary to BCD */
C:> bin2bcd
Enter binary: 11001100_
```



Supporting a Task

```

/* Converting binary to BCD */
C:> bin2bcd
Enter binary: 11001100
BCD = 0010 0000 0100
    
```

Supporting the Same Task

Supporting the Same Task

Identifying Substitutes

- Demand substitution?
 - Same use
 - Different code
 - Different user interface
- Role of platform software?
 - Different operating system, but high overlap
- Supply substitution?
 - Structural barriers to entry?

Appropriate level of abstraction?

Essential Use Cases

An *essential use case* is a structured narrative, expressed in the language of the application domain and of users, comprising a simplified, generalized, abstract, technology-free and implementation-independent description of one task or interaction that is complete, meaningful, and well-defined from the point of view of users in some role or roles in relation to a system and that embodies the purpose or intentions underlying the interaction.

Larry Constantine & Lucy Lockwood (1999)

Use Case


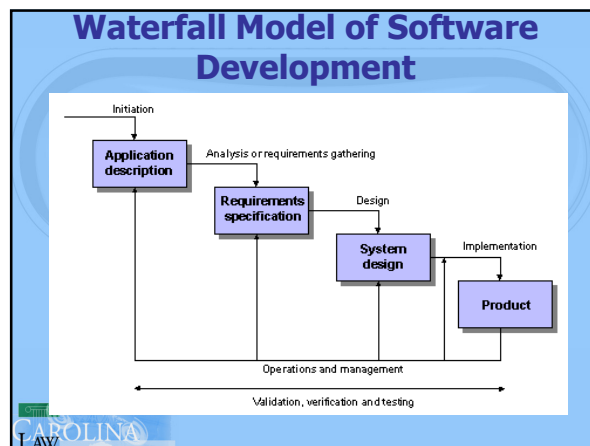
Precondition: User is account holder
User Purpose: Get cash

| User Action | System Response |
|-------------|----------------------|
| insert card | read magnetic stripe |
| enter PIN | request PIN |
| press key | verify PIN |
| ... | display menu |

Essential Use Case


System: User is account holder
User Purpose: Get cash

| User Intention | System Responsibility |
|----------------|-----------------------|
| identify self | verify identity |
| choose | offer choices |
| take cash | dispense cash |

Well-Functioning Software Product Markets


- Design choices are made by the software developer, not by courts or monopolists.
- Every software developer is free to choose the code that is to be executed when its software product is chosen.



Web Browser Use Case

System: PC
User Purpose: Perform a Web transaction


| User Intention | System Responsibility |
|-----------------------|--------------------------------------|
| select Web resource | offer choice of Web resources |
| retrieve Web resource | request Web resource from Web server |
| | receive Web resource from Web server |
| | present Web resource |
| perceive Web resource | |



Web Browser in FOF

- A Web browser “provides the ability for the end user to select, retrieve, and perceive resources on the Web.”

FOF 150




Web Browser Competitive Variables in FOF

- Minimize search and communication costs
- Avoid harmful Web resources
- Assess costs, risks and benefits of Web transactions in advance

“[T]here is no indication that Microsoft is destined to provide a ‘best of breed’ Web browser that makes continuing, competitively driven innovations unproductive.”

FOF 197-98



Microsoft's Web Browser Software Product

- **Implicit (Felten):** That which allows a Windows 98 user to browse the Web.
- **Explicit:** The legal right (or immunity) and technological capability to make copies and adaptations of the Windows 98 code (on hard disk, in RAM) for the purpose of performing Web transactions.
- **Market for Web browsing functionality**
 - Felten shows end use of Windows 98 for Web browsing is a captive segment (i.e., a relevant product market)



"Integration"

Are Microsoft's OS and Web browser software products "integrated"?

Not by operation of the consent decree standard:

- Felten shows that there is no plausible benefit to joint provision



"Integration"

Are Microsoft's OS and Web browser software products "integrated"?

Not by definition:

- They are accompanied by the same software code, but they do not consist of this code



"Integration"

Are Microsoft's OS and Web browser software products "integrated"?

Not by operation of copyright law:

- They consist of separate and distinct legal rights
 - Distinguishable rights, even though derived from the same copyrighted code



"Integration"

Are Microsoft's OS and Web browser software products "integrated"?

Not by operation of copyright law:

- § 102(b) limits copyright exclusivity to "expressions," not "ideas"
 - *Altaï*: no exclusivity over program elements where the "freedom of design choice" is "circumscribed by extrinsic considerations"



"Integration"

Are Microsoft's OS and Web browser software products "integrated"?

Not by operation of copyright law:

- § 117 immunizes the "owner of a copy" of software from copyright liability for making adaptations as necessary to use the software for the purpose "for which it was both sold and purchased."



"Integration"

Are Microsoft's OS and Web browser software products "integrated"?

Not by operation of technology:

- Felten shows that they consist of separate and distinct technological capabilities

"New Product"

Does "seamless browsing" create a new product?

- New product only if functionalities have merged into a new user purpose (essential use case)
- Here, user purposes are still distinct, but are implemented by the same (similar) user interface
 - Retrieval problem

Web Browser

Competitive Variables in FOF

- Minimize search and communication costs
- Avoid harmful Web resources
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