

# Patent Law

Prof. Roger Ford  
Monday, April 18, 2016  
Class 22 – Remedies: Damages

# Recap

# Recap

- Remedies background
- Permanent injunctions
- Temporary injunctions

**Today's agenda**

# Today's agenda

- Damages framework
- Lost profits
- Reasonable royalty

**Damages  
framework**

# What's at stake

Chart 2c. Top ten largest initial adjudicated damages awards: 1995–2012

Year	Plaintiff	Defendant	Technology	Award (in MM)
2009	Centocor Ortho Biotech Inc.	Abbott Laboratories	Arthritis drugs	\$1,848
2007	Lucent Technologies Inc.	Microsoft Corp.	MP3 technology	\$1,538
2012	Carnegie Mellon University	Marvell Technology Group	Noise reduction technology on integrated circuits for disk drives	\$1,169
2012	Apple Inc.	Samsung Electronics Co.	Smartphone software	\$1,049
2012	Monsanto Company	E.I. Dupont De Nemours and Company	Genetically modified soybean seeds	\$1,000
2010	Mirror Worlds LLC	Apple Inc.	Operating system	\$626
2011	Bruce N. Saffran M.D.	Johnson & Johnson	Drug-eluting stents	\$593
2003	Eolas Technologies Inc.	Microsoft Corp.	Internet browser	\$521
2008	Bruce N. Saffran M.D.	Boston Scientific Corp.	Drug-eluting stents	\$432
2009	Uniloc USA Inc.	Microsoft Corp.	Software activation technology	\$388

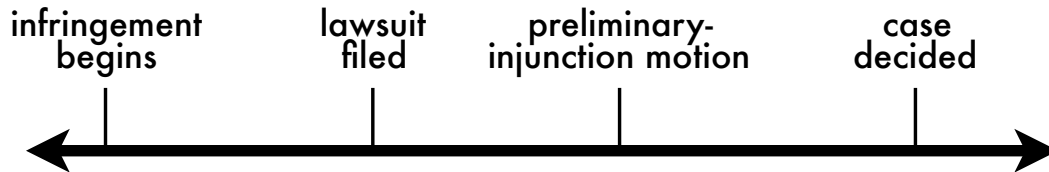
Source: 2013 PwC Patent Litigation Study

# What's at stake

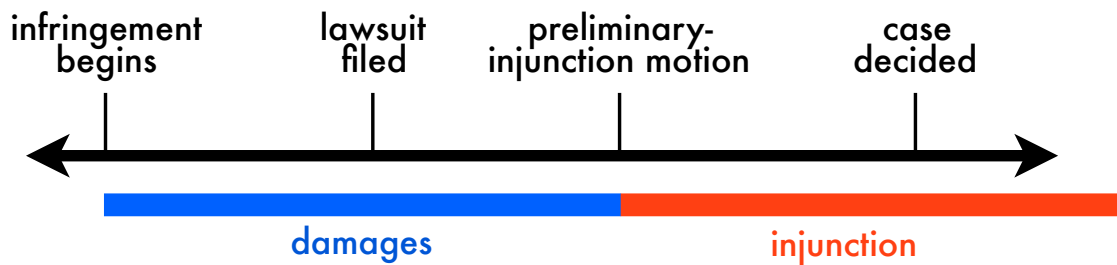
→ “It is important to note that the awards reflected in Chart 2c are those identified during initial adjudication; **most of these awards have since been vacated, remanded, or reduced**, while some remain in the appellate process. In fact, by mid-2013, two of the three blockbusters from 2012 were significantly reduced or settled, with the other still pending appeals.”

Source: 2013 PwC Patent Litigation Study

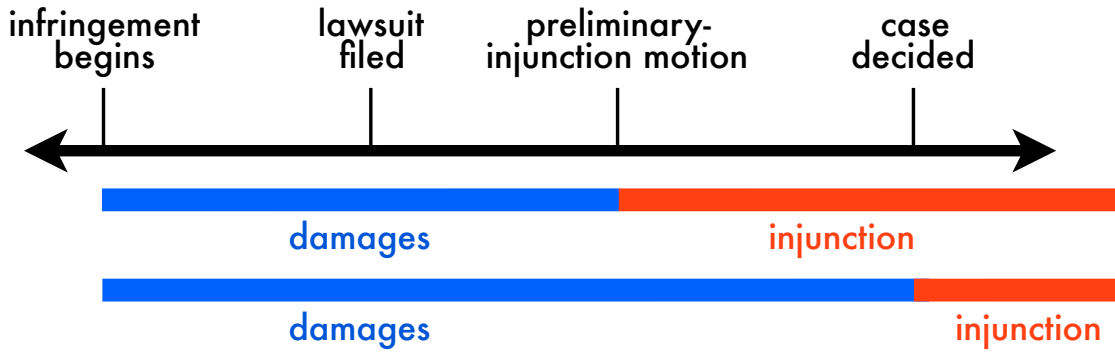
# Damages framework



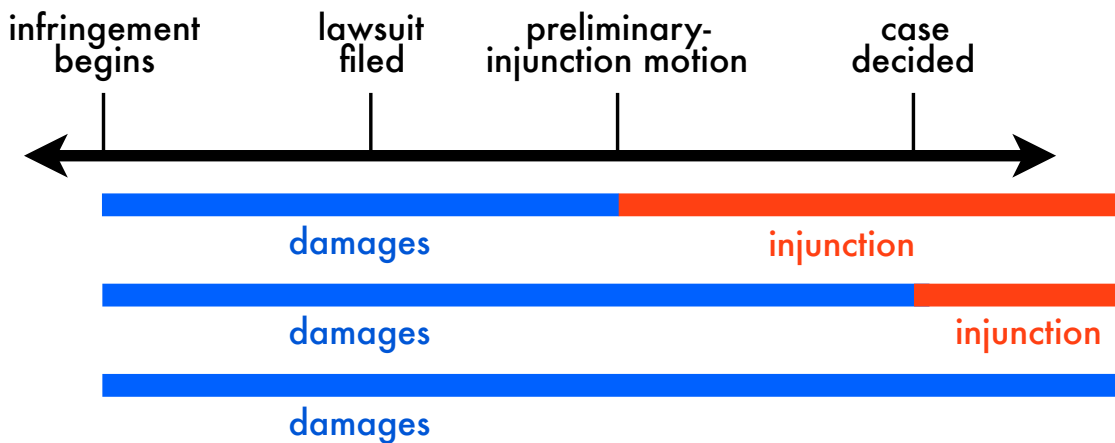
# Damages framework



# Damages framework



# Damages framework



## (post-AIA) 35 U.S.C. § 284 — Damages

Upon finding for the claimant the court shall award the claimant **damages adequate to compensate for the infringement**, but in no event less than a **reasonable royalty** for the use made of the invention by the infringer, together with interest and costs as fixed by the court.

When the damages are not found by a jury, the court shall assess them. In either event the court **may increase the damages up to three times the amount found** or assessed. Increased damages under this paragraph shall not apply to provisional rights under section 154(d).

The court may receive **expert testimony** as an aid to the determination of damages or of what royalty would be reasonable under the circumstances.

# Damages framework

- Two measures of damages
  - Lost profits
  - Reasonable royalty
- The basic principle:
  - Damages are to **compensate** the patent holder, **not punish** the infringer
- The fundamental question:
  - **What would have happened if the defendant never infringed the patent?**

# Damages framework

→ So what could have happened if the defendant never infringed the patent?

# Damages framework

→ So what could have happened if the defendant never infringed the patent?

- Patent holder would have had a monopoly and made lots of money
- Patent holder and defendant would have agreed to a reasonable royalty
- Defendant would have made something else
- Defendant would have been out of the market, but other competitors would have filled in the gaps



# Damages framework

→ If you were a patent holder, would you prefer lost-profit damages or a reasonable royalty?

# Damages framework

→ If you were a patent holder, would you prefer lost-profit damages or a reasonable royalty?

- Whichever would be higher!
- If the patent holder practices the invention, it will usually prefer lost profits
- Absent infringement, a patent holder has the option to license or not
- Patent holders will refuse to license if they expect profits from monopoly to exceed royalties

# Damages framework

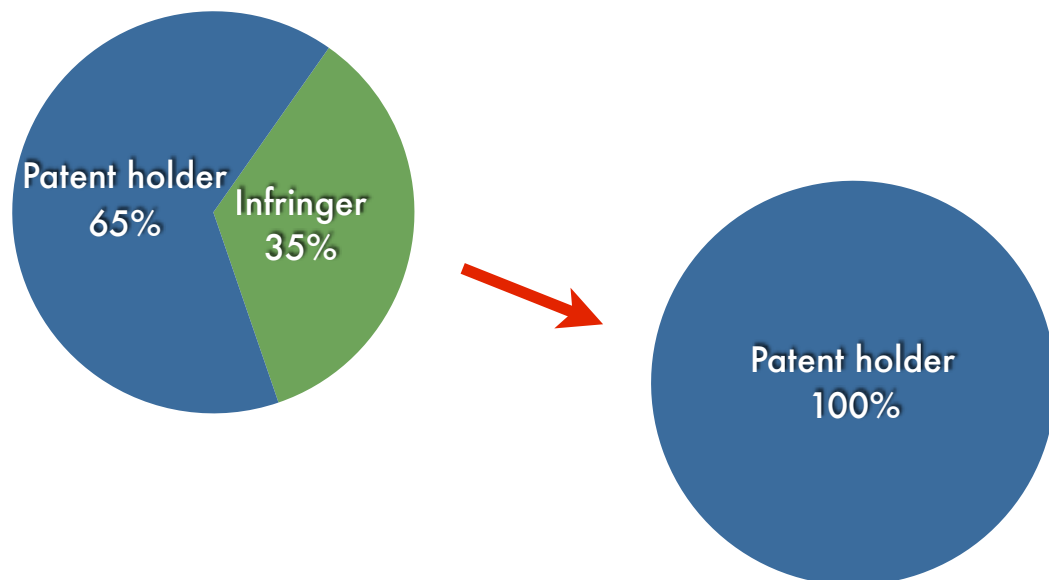
- In cases between competitors, then, the central dispute for damages is often whether the plaintiff can get lost profits or not at all

**Lost profits**

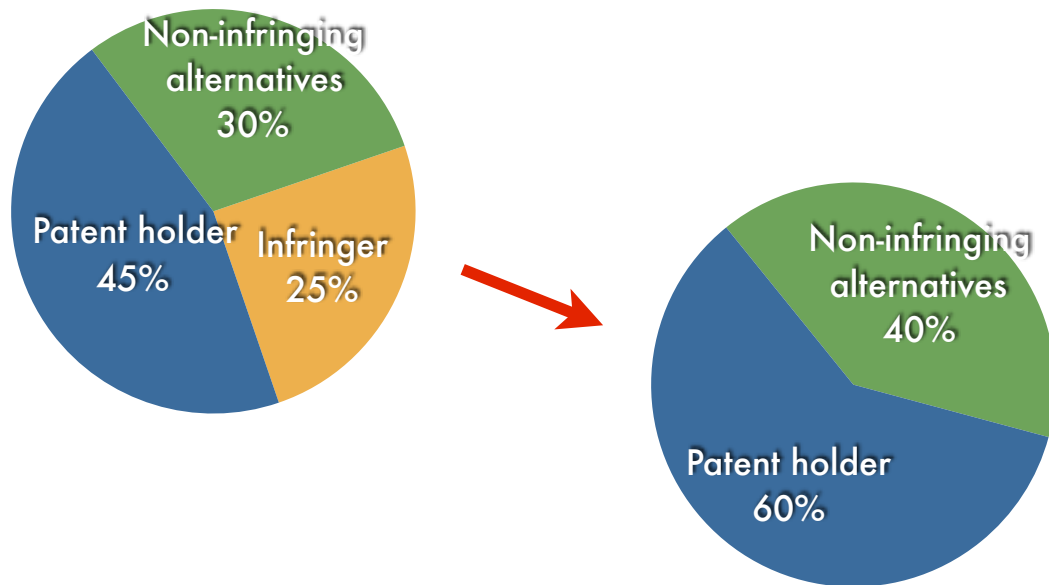
# Lost-profits theory

- Patent holder's theory:
- If the infringer hadn't sold illegal infringing articles, I would have made more sales and profits

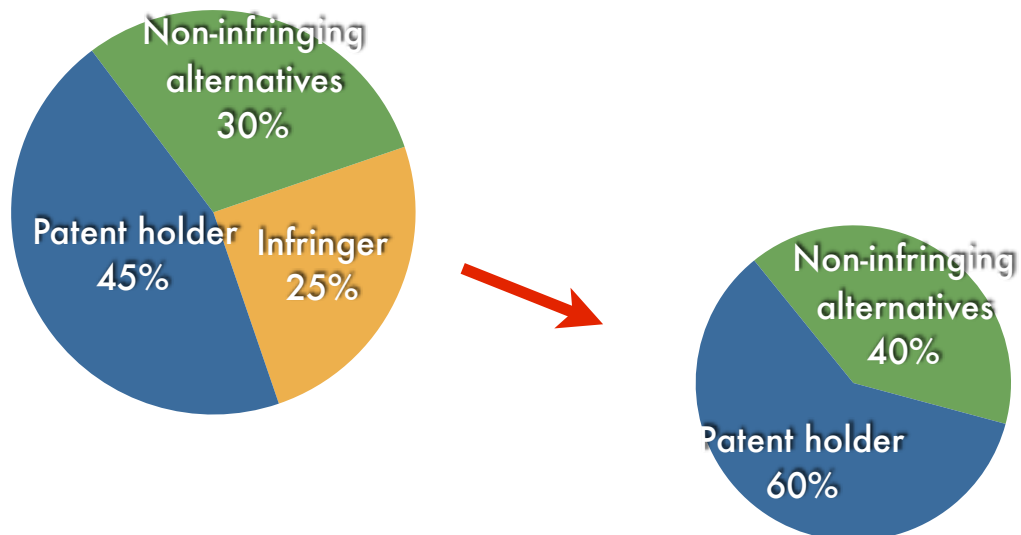
# Lost-profits theory



# Lost-profits theory



# Lost-profits theory



# Lost-profits theory

→ Reality:

- If the infringer hadn't sold infringing articles, some customers would have bought from the patent holder – but some wouldn't have
- Some would buy from others
- Some would no longer buy at all

## *Panduit* factors

→ Question: Is the patent holder entitled to lost profits at all?

- Would it have earned marginal profits?
- Can it prove the amount of those profits?

# *Panduit factors*

→ *Panduit Corp. v Stahlin Bros. Fibre Works, Inc.* (6th Cir. 1978):

- Demand for the patented product
- Absence of noninfringing substitutes
- Patent holder's manufacturing and marketing capability
- Amount of profits that would have been made

# *Panduit factors*

→ Demand for the patented product?

# *Panduit factors*

- Demand for the patented product?
  - Patent holder can only make additional profits if there would have been additional sales

# *Panduit factors*

- Absence of noninfringing substitutes?

# *Panduit* factors

- Absence of noninfringing substitutes?
  - If there were noninfringing substitutes, then consumers may have switched to those instead of the patent holder's product

# *Panduit* factors

- Patent holder's manufacturing and marketing capability?



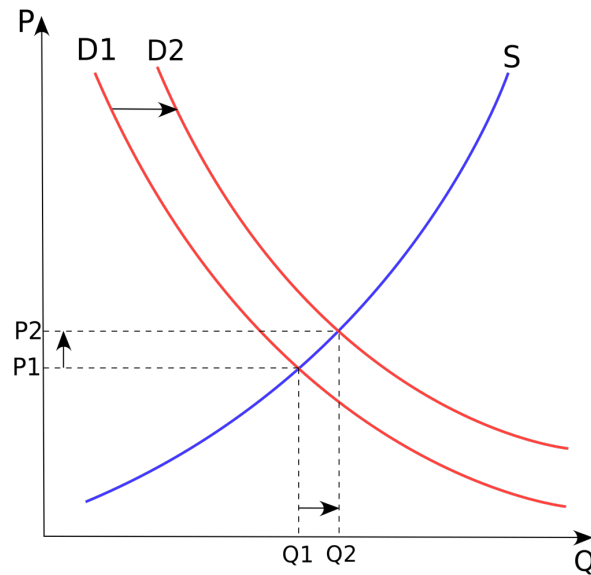
# *Panduit* factors

- Patent holder's manufacturing and marketing capability?
  - Patent holder would not have made additional sales if it couldn't have fulfilled the orders

# *Panduit* factors

- Amount of profits that would have been made?
  - Economics is hard!
  - Patent holder could have raised prices if the infringer wasn't in the market...
  - ...but then fewer people would have bought the product

# Panduit factors

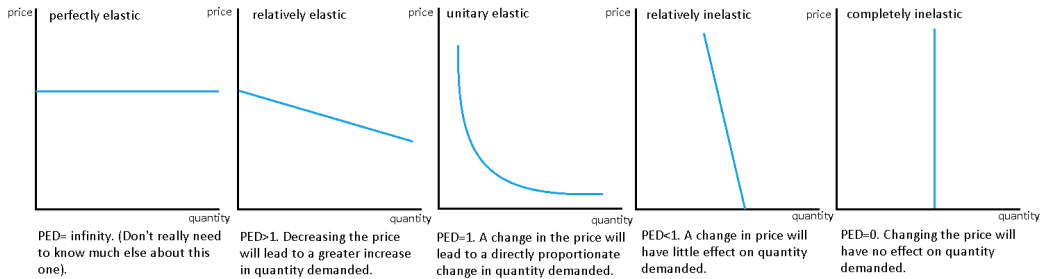


# Panduit factors

- Elasticity of demand:
- How much demand would be lost from the patented product for every dollar increase in its price?
  - Candy; cars; Windows computers: high price elasticity of demand
  - Unique drugs; gasoline: low price elasticity of demand

# Panduit factors

## Elasticities of Demand



**United States Patent** [19] **3,849,194**  
**Armbruster et al.** [45] **Nov. 19, 1974**

[54] **LOW D.E. STARCH CONVERSION PRODUCTS**

[75] Inventors: **Frederick C. Armbruster; Earl R. Kool**, both of La Grange, Ill.  
 [73] Assignee: **CPC International Inc.**, Engelwood Cliffs, N.J.

[22] Filed: **Sept. 17, 1971**  
 [21] Appl. No.: **181,566**

**Related U.S. Application Data**

[63] Continuation of Ser. No. 602,563, Dec. 19, 1966, abandoned.

[52] U.S. Cl. .... **127/29, 195/31 R**  
 [51] Int. Cl. .... **C12b 1/06, C13k 1/06**  
 [58] Field of Search ..... **195/31 R; 127/29**

[56] **References Cited**  
**OTHER PUBLICATIONS**

Wallerstein Company, Technical Bulletin, No. 236, (Apr. 1964).

Wallerstein Company, Data Sheet, No. 242, (Jan., 1965).

*Primary Examiner*—Lionel M. Shapiro  
*Attorney, Agent, or Firm*—Albert P. Halluin, Frank E. Robbins

[57] **ABSTRACT**

The present invention provides a process for preparing low D.E. waxy starch hydrolysates and low D.E. waxy starch conversion syrup products which are both liquid and solid. Waxy starch is treated with bacterial alpha amylase at a temperature above 85°C to liquify the waxy starch, then cool the liquified waxy starch to about 80°C, then convert the liquified waxy starch with bacterial alpha amylase to a D.E. from about 5 to about 25. By concentration from the resulting hydrolysate, a non-hazing syrup is obtained. Non-hygroscopic water-soluble solids are also obtained by further drying to a moisture content of less than about 15 percent.

**14 Claims, No Drawings**

**U.S. Patent**  
**No. 3,849,194**

→ **“Low D.E. Starch Conversion Products”**

United States Patent (19)  
Armbruster et al.

(11) 3,849,194  
(45) Nov. 19, 1974

**U.S. Patent**  
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[54] LOW D.E. STARCH CONVERSION PRODUCTS  
Wallerstein Company, Data Sheet, No. 242, (Jan., 1965).

[75] Inventors: Frederick C. Armbruster; Earl P.

[73] Assignee:

[22] Filed:

[21] Appl. No.

Rela

[63] Continuati

abandoned

[52] U.S. Cl.

[51] Int. Cl.

[58] Field of S

[56]

Wallerstein Co

(Apr. 1964).

**We claim:**

**1. A process for producing a waxy starch hydrolysate which comprises treating in a first step an aqueous slurry of waxy starch with a bacterial alpha-amylase enzyme at a temperature above about 85°C. to liquefy the waxy starch and to provide an aqueous solution containing a liquefied waxy starch, then subsequently in a second step, at reduced temperatures below about 85°C, treating said liquefied waxy starch with a bacterial alpha-amylase enzyme to saccharify the waxy starch and to achieve a waxy starch hydrolysate having a dextrose equivalent value from about 5 to about 25, stopping the saccharification reaction and recovering the waxy starch hydrolysate so produced.**

## *Grain Processing*

- Product: Lo-Dex 10, a maltodextrin food additive
- Produced by four methods
  - Processes I, II, and III infringed
  - Process IV did not infringe
  - Customers did not care about the differences

# *Grain Processing*

- Grain Processing: we lost sales due to the infringing product
- Court: what would have happened absent the infringement?

# *Grain Processing*

- Let's look to the *Panduit* factors!
  - Demand for the patented product
  - Absence of noninfringing substitutes
  - Patent holder's manufacturing and marketing capability
  - Amount of profits that would have been made

# Grain Processing

- Let's look to the *Panduit* factors!
- Demand for the patented product
  - Absence of noninfringing substitutes
  - Patent holder's manufacturing and marketing capability
  - Amount of profits that would have been made

# Grain Processing

- Court: a noninfringing substitute may be available even if it's not currently being used
- American Maize switched to Process IV in two weeks – “practically instantaneous”
  - American Maize “did not have to ‘invent around’ the patent”

# *Grain Processing*

→ But what about the fact that Process IV cost more?

# *Grain Processing*

→ But what about the fact that Process IV cost more?

- Process IV was “not prohibitively expensive”
- Profit margins were high enough to absorb the 2.3% cost increase
- Probably this would have mattered in a license negotiation

# Lost-profit complications

- Price erosion: In competition, prices will fall
- Lost sales: Higher monopoly prices will drive some customers out of the market
- Returns to scale: Monopoly producer will have higher volume and so better returns to scale
- Promotional expenses: In competition, promotion will be more expensive
- Accelerated market entry: If a competitor infringes, it will gain know-how that will help after the patent expires

Reasonable  
royalty



# Reasonable-royalty theory

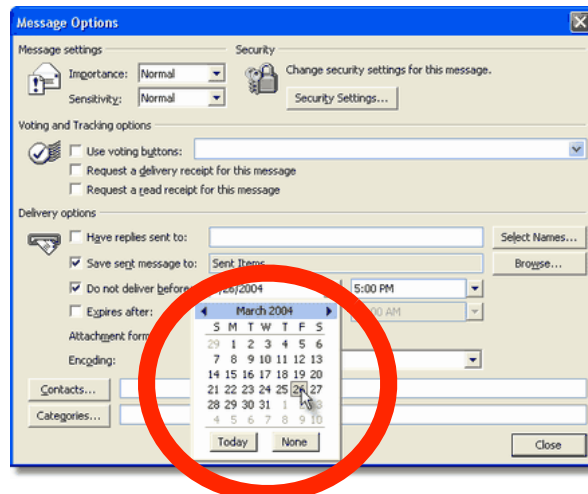
- Often the fallback to lost profits
- **When does a royalty make sense?**

# Reasonable-royalty theory

- Often the fallback to lost profits
- **When does a royalty make sense?**
  - When the defendant could easily have switched to a noninfringing alternative, and so would only have agreed to a royalty to avoid switching
  - When the plaintiff couldn't or wouldn't have made any sales

# Lucent v. Microsoft

→ Tech: date picker in Outlook



# Lucent v. Microsoft

→ Why no lost profits here?

# *Lucent v. Microsoft*

→ **Why no lost profits here?**

- Lucent made no competing product  
– no profits to be lost
- Microsoft could easily have designed around the patent

# *Lucent v. Microsoft*

→ Hypothetical negotiation: what royalty would the parties have **agreed to** before the infringement?

# Georgia-Pacific factors

→ *Georgia-Pacific Corp. v. US Plywood Corp.* (SDNY 1970):

- 1. Royalties received by patent holder
- 2. Royalties paid by licensee for similar patents
- 3. Nature and scope of the license
- 4. Patent holder's licensing practices and policies
- 5. Commercial relationship between parties
- 6. Effect of patent on patent holder's products
- 7. Duration of the patent term and license term
- 8. Profitability and success of patent product

# Georgia-Pacific factors

→ *Georgia-Pacific Corp. v. US Plywood Corp.* (SDNY 1970):

- 9. Advantages of patent product over others
- 10. Nature of patented invention
- 11. Extent to which infringer used invention
- 12. Portion of profit or selling price customarily allowed for use of the invention
- 13. Portion of profit attributable to the invention
- 14. Opinion testimony of qualified experts
- 15. Outcome from hypothetical negotiation

# *Lucent v. Microsoft*

- Lump-sum license v. running royalty
- Lump-sum: easier to track; puts risk of under-performing product on licensee
  - Running royalty: harder to track; puts risk of out-performing product on licensee

# *Lucent v. Microsoft*

- What was wrong with the jury verdict?

# *Lucent v. Microsoft*

→ **What was wrong with the jury verdict?**

- Other licenses not comparable
- Other licenses not proved relevant
- License for a tiny feature can't be based on the full value of Outlook
- Microsoft would never have agreed to a \$350 million lump sum for a tiny feature

# *Lucent v. Microsoft*

→ **Four lump-sum licenses:**

- \$290MM Dell/IBM
- \$80MM Microsoft/HP
- \$93MM Microsoft/Apple
- \$100MM Microsoft/Inprise

→ **Problems:**

- Multiple patents
- Cross licenses
- Inadequate explanation of patents

# *Lucent v. Microsoft*

## → Entire-market-value rule

- Patent holder can't use the entire market value of the infringing product as the royalty base unless it can show that the patented feature is the **basis for consumer demand**
- Royalty base: amount multiplied by the royalty rate

# *Lucent v. Microsoft*

## → Entire-market-value rule

- Here, Lucent's expert violated this rule by increasing his royalty rate from 1% to 8% once the base was reduced

# *Lucent v. Microsoft*

→ **Example 1:**

- Entire product is a Windows PC costing \$1000
- Court orders 1% royalty
- So the royalty on each PC is  $\$1000 \times 1\% = \$10$

# *Lucent v. Microsoft*

→ **Example 2:**

- Entire product is a Windows PC costing \$1000
- But the patented component is a \$10 video card
- Court orders 5% royalty
- So the royalty on each PC is  $\$10 \times 5\% = \$0.50$



# *Lucent v. Microsoft*

## → Example 3:

- Entire product is a Windows PC costing \$1000, or maybe Outlook costing \$50
- But the patented component is a tiny feature
- Court orders 5% royalty
- So the royalty on each PC is  $\$????? \times 5\% = \$?????$

# *Lucent v. Microsoft*

## → Problem: The royalty is variable, so the base doesn't matter that much, economically

- It'd be fine to start with the value of the computer if the royalty was, say, 0.01% (10¢ for a \$1000 computer)
- But in practice royalties are often in a narrow band of ~0.25% to 5%

# Reasonable royalties

- Criticism: The line between lost profits and reasonable royalties is unclear and not always followed by courts

“In practice, [ ] **the lines between lost profits and reasonable royalties are blurring**. In significant part, this is because courts have insisted on **strict standards of proof for entitlement to lost profits**. Specifically, patentees must prove demand for the patented product, the absence of noninfringing substitutes, the ability to meet additional demand in the absence of infringement, and the proportion of those sales that represent profits. This in turn means that **many patent owners who have in fact probably lost sales to infringement cannot prove lost profits damages and must fall back on the reasonable royalty measure**. The result is that **courts have distorted the reasonable royalty measure in various ways, adding ‘kickers’ to increase damages, artificially raising the reasonable royalty rate, or importing inapposite concepts like the ‘entire market value rule’ in an effort to compensate patent owners whose real remedy probably should have been in the lost profits category**. Unfortunately, Congress is now considering locking one of those distortions—the entire market value rule—into reasonable royalty law.”

Mark Lemley, *Distinguishing Lost Profits from Reasonable Royalties*, 51 William & Mary Law Review 655, 656 (2009)

“While the *Georgia-Pacific* factors include several that require the consideration of the value of those noninfringing components, in fact for a variety of reasons those components are undervalued. Most notably, in *Fromson v. Western Litho Plate & Supply*, the Federal Circuit **simply rejected the very idea that a patentee’s remedy should be apportioned based on the share of the value of the overall product the patentee contributed**. The district court quite reasonably had concluded that **the parties would have set a royalty rate based on the proportion of the value of the defendant’s product that was ‘attributable to the invention.’** The Federal Circuit reversed and required that the award take the form of **a percentage of the defendant’s entire product sales**, even if that exceeded the total profit the defendant made on the product. Ignoring the other components that contribute to defendant’s sales, as *Fromson* appears to require, is intellectually indefensible. Not surprisingly, this approach has led to reasonable royalty rates that are decidedly unreasonable, and indeed that often exceed the defendant’s total profit on a product even when that product was composed primarily of noninfringing components.”

Lemley, *Distinguishing Lost Profits from Reasonable Royalties* at 665–66

“Finally, and most dramatically, courts have occasionally simply increased the reasonable royalty award because they fear that it undercompensated a plaintiff that should in fact have received lost profits. *Panduit* is the most notable example. In that case, ... the court affirmed the district court’s rejection of plaintiff’s lost-profits theory for hypertechnical reasons. Having done so, it proceeded to **excoriate the district court for applying the normal reasonable royalty rules**. Instead, the appellate court **reimported many of the concepts of lost profits, reasoning that the defendant would not have been able to make the sales at all but for the infringement, and therefore the plaintiff was entitled to damages that far exceeded the 60 percent of defendant’s profit that the district court had awarded as a reasonable royalty**. Although the Federal Circuit has rejected the express use of ‘kickers’ to compensate patentees for attorney’s fees, the court also has **approved discretionary increases in the reasonable royalty designed to avoid undercompensation**, which amounts to much the same thing.”

Lemley, *Distinguishing Lost Profits from Reasonable Royalties* at 666–67

# After *Lucent*

- This case was a turning point in damages, where courts began closely scrutinizing jurors' verdicts
  - Starting to see what evidence is insufficient
  - But it's less clear what evidence will be sufficient

# After *Lucent*

- Courts are beginning to exercise their gatekeeper function and scrutinize licenses:
  - *ResQNet.com v. Lansa* (Fed. Cir. 2010):  
"The majority of the licenses on which ResQNet relied in this case are problematic for the same reasons that doomed the damage award in *Lucent*."

# After *Lucent*

- Courts are beginning to exercise their gatekeeper function and scrutinize licenses:
- *Wordtech Sys. v. Integrated Networks* (Fed. Cir. 2010): “We explained in *Lucent* that lump-sum licenses are generally more useful than running-royalty licenses for proving a hypothetical lump sum.... Of Wordtech’s thirteen licenses, only two were lump-sum agreements.”

Next time

# Next time

- Remedies: increased damages and attorney fees