PATENT LAW/PROFESSOR STRANDBURG

INTRODUCTION

- Patents give you a right only to exclude, not right to practice (e.g. radar detectors, blocking patents when claims overlap between patents)
    - The claims are the actual legal rights in the patent

Policy Issues: Why might one invent something?

1. To solve a problem: (a) societal use; (b) to sell to others; (c) for yourself
2. Assigned by the company: (a) profit; (b) use your expertise; (c) license out → here there is a choice between using this as a patent and using it as a trade secret
3. Doesn't need to be *better* than already in –use inventions: might just be a design-around

Benefits to business from invention (without patenting)

4. First in time (first mover advantage): (a) patent is a first-to-invent system; (b) gain market share; (c) stay ahead – how easy is the invention to copy

How can you exclude others (without patenting)

5. You can create standards for the classes of products (i.e. mp3), creating compatibility issues
6. "Network Effects" – related to the first mover advantage (e.g. facebook)

Patents are just one driver of invention

Art. I § 8: "the copyright clause"

Policy Issues: Why have a patent system –**SOCIAL BENEFIT – utilitarian rationale**

Benefits "Promote Progress"	**Cons** "Impede Progress"
1. Encourages the sharing of ideas (putting ideas into the public domain): otherwise might have used trade secret 2. Encourages inventing: otherwise you might have just used other people's inventions – this makes something new (**Free rider problem**) **Tension between (1) and (2)** – we must disclose so that people know how to make it, but we must make it exclusive so that people don't reverse-engineer the invention Gives you exclusive rights in exchange for the disclosure of the idea 3. Allows for unitary ownership of the idea (Demsetz) – efficient exploitation	1. Refusal to license (to downstream competitors) – holdout problem: can be because of imperfect information, idiosyncratic value of the good **Transaction costs; monopoly costs** 2. Encourages people to stay quiet before patenting (less exchange pre-patent) 3. What about people who would have chosen to invent anyway for altruistic reasons?

The Government also has other ways to incentivize innovation → **patents are DOMESTIC**

Subsidies/grants for science research	Creating innovating institutions	Market: market forces might not always incentivize innovation	Prizes	Trade Secrets

Why Patents might be better? (than just imposing a direct subsidy on inventions)

- Worthless patents don't really impose any costs
- Reward is commensurate with value (hard to evaluate value *ex ante*)
- Markets might not be sufficient to create all innovation

The Patent System tries to balance a lot of these factors:

1. Limited term (not an indefinite exclusive right)
2. Examination rather than registration (higher standard for the right)

3. Requirement of non-obviousness
4. Limits on injunctive relief (*eBay v. MercExchange*)
5. Subject matter exclusions

THEMES AND TENSIONS

Incentive to create, disclose, disseminate----------Free access to knowledge
Exclusivity as driver----------Competition as driver

Government grant (cf. statute)----------Private Document (cf. Contract)

Technological Expertise----------Individual entitlements, dispute resolution
patent examiners ----------juries, non-technical judges, fact/law distinction

Domestic Interests----------International Interests
Territoriality of enforcement, heterogeneity----------Harmonization
"Breaks" for US inventors----------Foreign inventors

CLAIMS (CLAIM DRAFTING)

Limitations ("metes and bounds" of the exclusive right):

1. Prior art (novelty; obviousness)
2. Actual invention

Preamble: introduces and identifies the basic nature of the invention (broad, shouldn't be limiting)
Transition:
Comprising (open group) A and B means A and B *and* anything else
Consisting of (closed group) A and B means A and B *only* – crowded prior art situation
The Body: lists all the elements of the invention and how they interact
The full claim is only a single sentence
Precise wording is critical: infringement is determined by the wording of the claims – not the actual patent (e.g. the disclosure)
Uses "peripheral claiming" – claims are defined by the **limitations** (in order to infringe, you must have all of the limitations)

- Claims must use consistent internal references (the gear – can only refer to one gear – must differentiate between multiple gears)
- Means plus function claims are permitted (but special limitations) //but must be read in light of your specification (**35 U.S.C. § 112 ¶ 6**): must **be in combination** (not just M+F)
- Jepson claims: only improvements – "wherein the improvement comprises"
- Claims are generally drafted from the most general to the most particular
    - This is because of validity – if the broadest claim is found invalid, can easily drop down to the next claim (**claims are separately valid or invalid**, there is no such thing as an "invalid patent")
    - Multiple dependent claims (and separate claims) can help save the patent from any new prior art – it would only invalidate a portion of the total patent
- The goal of the drafter is to **maximize** the scope of the claims
    - Generally, fewer limitations can create a broader scope of the claim

PROSECUTION:
Typically, a patent starts out as very broad

- During an office action, all the claims may be rejected
- Amendment process – these are the changes and why they should be accepted

CLAIM CONSTRUCTION – QUESTION OF LAW – *reviewed de novo*
35 U.S.C. § 112: "The specification shall contain a written description of the invention and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, to make and use the same"

Substantive Claim Issues
What sources may be used? *See Phillips* case 1. Claims, specification, prosecution history (presumably objective, intrinsic sources) [**better**] • There can include idiosyncrasies of the inventor; claims/specs are public → notice 2. Dictionaries, trade journals (objective, external sources related to the field) • Do not include idiosyncratic word use, but are neutral and predictable 3. Expert and inventor testimony (very subjective, external sources) [**worse**] • These are typically created for the purpose of litigation, even though the expert and the inventor can have expertise and speak to the PHOSITA's knowledge
Rules for claim construction – "canons" 1. Patentee is her own lexicographer ***remember, the PHOSITA ≠ Inventor** 2. You cannot read limitations into the claims from the specifications (but they can help resolve the meanings of words when they are ambiguous – e.g. context) 3. Can use both ordinary and contextual meaning; BUT Contextual (in the patent/spec) Meaning may trump Ordinary (to a PHOSITA) Meaning; dictionaries are used recently 4. Narrow construction if you need to save validity (**only if ambiguous**, *see Phillips*) **X** 5. Patentee cannot recapture territory they have disclaimed (somewhat related, PHE) 6. Claim differentiation: different claims should have different scopes (redundancy), *see Marbury* 7. The Purpose of the Patent

Difficulties: limitations on the language (**precision**) a truly new invention may not have appropriate words with which to describe the idea, technology is complex

Policy Issues: Approaches to Claim Construction (and their reasoning)		
Narrow Interpretation	Broad Interpretation	Burden on the applicant
Provides **Notice** to the Public • Allows design-around • Don't want the inventor to get more than what they actually invented	Fairness to the **Inventor** • Inventor should not be penalized by language • Don't want easy work-arounds for copyists	Applicant has more knowledge: peripheral claiming is an information-forcing mechanism (patentee must be clear and not vague)

Phillips v. AWH Corp. (2005): Main issue – to what extent should the patent specification be used to determine the proper scope of the claims? //here, the court was defining "baffles"

- The precise order in which the sources are used are unimportant, but certain types of evidence is more valuable (e.g. **intrinsic evidence > extrinsic sources**)
- The audience is the person having ordinary skill in the art when the application was filed:
  - It can be difficult to figure what is "the art"
  - Also what is "ordinary skill"

Goals of Claim Interpretation: (1) Accuracy; (2) Clarity to external inventors – **NOTICE**

Markman v. Westview Instruments: The claims are construed by the judge in a bifurcated proceeding: there is no right to a jury trial (7th) on the issue of claim construction → **judge issue**

Advantages	Disadvantages
1. Can save judicial resources and serves as a notice function on scope of claims 2. Can allow settlement; SJ → no trial req. 3. Can require much less evidence; witnesses presented 4. Judges are more consistent; will have increased expertise	1. Credibility of the experts is decided by the judge, not the jury 2. Disconnected nature of arguments (can reduce accuracy)

Cybor Corp. v. FAS Technologies (1998): On appeal on the issue of claim construction – can be reviewed as a **matter of law**: there is no fact-finding here, so there is no need to give deference to the district court: **de novo review** – gives uniformity to the treatment of the patent

- Is this really a pure law question, or is it a mixed question of law and fact?
- The Federal Circuit does not permit interlocutory appeals of claim construction
    - But many cases are reversed on the issue of claim construction: **this reduces the importance of the District Courts** (*see Rader dissent*)
    - The district court may well be better positioned to interpret the claims
    - This not law: **these are "technical" facts** – district court judges are able to study the relevant law [Rader]

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CLAIM DEFINITENESS – QUESTION OF LAW **35 U.S.C. § 112 ¶ 2**
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as her invention

Policy Issues: **Purpose of Definiteness**
• Provides notice – if a claim is indefinite, how can a competitor understand? • Burden on the applicant to clearly disclose

Compare: **Claim Construction** – *what* does this mean to a PHOSITA
With: **Definiteness** – does it mean *anything* to a PHOSITA: **would a PHOSITA understand what is claimed** (indefiniteness assessed in light of the subject matter; *see Orthokinetics*)
Orthokinetics v. Safety Travel Chairs (1986): Defendant argues that the claim is indefinite because there are different types of cars, and thus there are different dimensions – "so dimensioned as to be insertable through the space between the doorframe and the seat" for the wheelchair

- But there is not really a notice issue here: although the patentee could have specified a range

CF. Standard Oil v. American Cyanamid (1985): The patentee had described the ion as "partially soluble", which has no meaning in the art (rather than using the known "slightly soluble"): **despite the explanation, this is like construing the contract against the drafter**

- Recent Federal Circuit cases have held that a claim is only indefinite if it is not "insolubly ambiguous" (if it can be constructed, even with difficulty in light of the spec, and the art)
    - Takes a narrow view of indefiniteness

DISCLOSURE: **35 U.S.C. § 112 ¶ 1**

The specification shall contain

A written description of the invention and the manner and process of making and using it…

In such clear, concise, and exact terms as to enable any person skilled in the art to which it pertains…to make and use the same

And shall set forth the best mode contemplated by the inventor

Why do we need the specification and not just the claims?
1. Allows better interpretation of the claims 2. Educates the public in the making and using of the invention 3. Controls overreaching by patentees (patenting what was not actually known)

A. WRITTEN DESCRIPTION – QUESTION of FACT (reviewed for clear error), "does the specification inform the PHOSITA that inventor had possession at time of patenting"

What prior art counts?

- Continuations: § 120 (benefit of the earlier filing date in the United States); § 132(b) – "continuation in part" is a continuation with new matter
- Amendments during prosecution: § 132
- Foreign Priority § 119

This requirement is used to police claims that have been amended: if there is new matter added, then the older priority date should no longer be used → **Counters early filing incentive**

- Before, there was gaming that would be used to cover competitor's invention

Gentry Gallery v. Berkline (1998): How to have two reclining chairs next to one another – put a console with the control in the center; the accused product put a pivoting cushion console

- Here, the new claim was added during prosecution, not covered by the specification
  - Must show "**possession of the invention**" in the specification; "the claims may be no broader than the supporting disclosure"
  - You also **don't** get rights of things that are obvious in light of your invention

Tronzo: originally, only claimed a conical shape for the hip socket – is not allowed to include other shapes; different from when the claimed shape *clearly* includes the denigrated species, *see Rambus*.

  - Omitted Element test: if claims omit an essential element from spec, no W/D

Ariad Pharms. v. Eli Lilly (2010): (1) there is a separate written description requirement from the enablement; (2) original claims (not amended) *can* be invalid for lack of written description

Here: the invention was that interference with NF-kB activity could reduce cytokine production

- Could the enablement have been used instead? What does it mean to reduce NF-kB activity?

Written Description: Typical Issues "time gap"
1. When new claims are added to a pending patent application (**but** not limited, *see Ariad*) 2. An originally filed claim is substantively amended during prosecution 3. An applicant claims the earlier filing date of a related application

B. ENABLEMENT -- QUESTION OF LAW

"Can PHOSITA make and use the invention given the claims" – does it give PHOSITA possession?

1. **Undue Experimentation**
2. **Extent of Disclosure ∝ Commensurate with the Scope of the Claims** (OBJECTIVE)

The Incandescent Lamp Patent (SCOTUS, 1895): There was difficulty finding material for the refractory material inside light bulbs: the patent claimed, "An incandescent conductor made of vegetable fibrous material" (they had used carbonized paper; wood carbon)

- Defendants had a conductor made of carbonized bamboo

Issues: (1) the class of materials they had claimed did not all have the state properties (it is actually difficult to find a fibrous material that produces incandescent light) → **would require undue experimentation by a PHOSITA to actually enable the invention**; (2) the class actually included something that was in the prior art

- You can have a broad claim like this if you actually knew that *all* fibrous materials worked

In re Fisher (1970): Claim – hormone containing "at least 1.0 International Unit ACTH per mg": no upper limit, despite the disclosure which disclosed potencies between 1.11-2.30 IU/mg

- Scope of the enablement must be commensurate with the scope of the claims

But you need not enable everything in the claim: If you have a range, but the non-functional units in the range that do not work can be easily discovered, this is still enabled

Amgen v. Chugai Pharms (1991): Patent on erythropoietin, claimed any functional substitute or analog of EPO: millions of analogs can be created just by substituting 3 amino acids

- If these analogs were easy to make (and know the properties), this would be fine

In re WANDS (1988): The claimed invention involves immunoassay methods for the detection of hep-B surface antigen using high-affinity (10^9 M^{-1}) monoclonal antibodies

- The PTO felt that this was not enabled because it would require undue experimentation

The Federal Circuit disagreed: (1) the written description *was* sufficient: their success rate was so low because they stopped testing once they felt they were successful

Why would they stop experimentation?: (1) It might not work again; (2) speed

Opposing driving forces: Interest in patenting → file early BUT is there sufficient disclosure?
Policy Issues: **Why do we have an enablement requirement?**
1. Quid pro quo with the patent office (in terms of enabling the public) 2. Limit overbreadth 3. Deter claims to research plans

The PTO also felt that the deposit wasn't sufficient enablement: (2) only one part of the full claim was enabled (rather than the full scope of the generic claims)

Factors from *In re Forman*: (1) Quantity of experimentation necessary; (2) the amount of direction/guidance; (3) the presence/absence of working examples; (4) the nature of the invention; (5) the state of the prior art; (6) the relative skill of the PHOSITA; (7) the **predictability** of the art; (8) the breadth of the claims

But you need not have real experimentation: **prophetic examples** are permitted, requires particular language – (1) cannot pretend that you have actually done the experiment if it is a thought experiment (*Purdue Pharma*); (2) must be more than just a respectable guess (*Rasmussen*); (3) your work must be such that the PHOSITA believes that it will work //**need not have examples**

- This protects the small inventor

Here: the **PTO** or the **party challenging validity** has the **burden of proof**; at time of application

C. BEST MODE

1. **What is the inventor's best mode?** (SUBJECTIVE: did the inventor have a preference?)
2. **Provides disclosure for the PHOSITA to practice** (OBJECTIVELY, must enable)

It need not be super-obvious, but cannot make it too difficult for the PHOSITA to find

- Gasoline engine need not state which fuel is ideal //but *must* provide materials/sources

MEANS + FUNCTION CLAIMS: **35 U.S.C. § 112 ¶ 6**

"Means for fastening" – originally there was a lot of resistance to this on the definiteness issue: Only in combination. The scope of a means plus function claim is **limited by the specification**

UTILITY – QUESTION of FACT

Comes from both § 101, which requires that inventions must be "useful" and § 112, which requires the patent applicant to disclose "the manner and process of making and *using* the invention"

- At first it seems that not very much information is not required: if something is useless, then who would go through the expense of patenting the invention?
    - In fact, we still do this largely in terms of policing the operability requirement
    - Nonetheless: there are costs – (1) patent seal can be used to defraud; (2) can be used for blocking/settlements even if they are useless

Policy Issues: **What should be covered by the patent system?**
1. Practical or Specific Utility: what constitutes substantial utility 2. Beneficial Utility: prohibits patenting of that which is socially harmful/deleterious 3. Operability of the Invention: Can it actually accomplish the utility allege?

Operability: Every claim is **presumptively operable** – the PTO has the burden to produce evidence that a PHOSITA would doubt the asserted utility and operability of the invention

- E.g. questionable baldness cure
- Once the PTO has met the burden to show that there is "doubtful operability", applicant must rebut, **concern about fraud**

A high operability standard: could create a longer delay to patentability (i.e. requiring commercial success as a definer of utility) – use trade secret

- But if the inventor didn't know that it would work when the invention was filed, it doesn't matter if it eventually ends up working: a guess is not enough, *see Rasmussen*

Current **low operability** standard allows specialization: those who are good at commercializing are able to then produce the product → efficient system

- Something that is impractical (i.e. preventing canals from freezing by running steam pipes through them) is not inoperable (commercial utility v. actual operability)

Beneficial Utility:

Lowell v. Lewis (C.C.D. Mass. 1817): The patented pump need not be **better** than existing pumps to be of beneficial utility, simply that it is not frivolous or injurious to good policy or sound morals

Policy Issues: **Why don't we have the "better" standard?**	
PROS: more competition – creates better products for society	CONS: incentives to innovate *at all* are lower

We don't require improvement: not least because it is difficult to tell what is better

Juicy Whip v. Orange Bang (1999): Created a post-mix beverage dispenser where the visible dispenser is just for show (rather than a pre-mix dispenser, where what the customers see is what they are actually purchasing). Argument that this was deceptive to consumers.

- The PTO is not the arbiter for bad trade practices (institutional competency argument): we have the FDA, the FTC, Congress

Policy Issues: **What to do with "immoral inventions"**	
Short Term	**Long Term**
More people use it after development because the use is not limited (without patent)	More incentives to create research in that particular area (*ex ante*, with patenting)

Biotechnology & Morality
1998: the PTO stated that the doctrine might preclude a patent on human/animal chimera, although ultimately decided issue under patentable subject matter (§ 101)
2004: Congress enacted Weldon Amendment – prohibiting patents on human organisms
2005: TRIPS agreement – "*order public* or morality exception"

- Doesn't provide any limits on how countries can use this provision
- But there are possible WTO-sanctions from the misuse of this provision

Practical Utility: "sufficiently useful" requirement – you need only have one non-trivial use
Brenner v. Manson (SCOTUS, 1966): Two inventors were awarded a patent on a novel process for making a known steroid – this arose in the interference proceeding
1956: Ringold publish an article about the tumor inhibiting effects of the steroid at issue
Dec, 1956: Ringold file a patent application seeking a patent on the new process; rec'd 1959
Jan, 1960: Manson files a patent application, claiming **an earlier date of invention** (but would not have any trouble showing utility *at time of filing*)

- Manson claimed that there were (1) tumor-inhibiting effects; (2) operability; (3) serious research on the steroid produced

The court rejects these arguments: don't want patenting too early in the timeline: (1) can inhibit research and (2) cause a windfall that is undeserved when uses are discovered by others

Polic Issues: **What other incentives exist for making a better process?**
1. Grants: funding provided for particular research, governed by someone higher up, *ex ante* We are concerned about the market for upstream products: "prospect theory" – do we want the government or a company to control this type of research? → **public choice?** 2. Scientists want publication; Company wants the use commercially 3. People who do research already have incentives to make **research tools**, but we actually need research in finding **utility**

In re Brana: disregarded *Brenner* to some extent, patented an anti-tumor drug that worked on mice, but not clear how it works on humans – the PTO did not raise sufficient doubt about utility

PTO's Substantial Utility Guidelines: "specific", "credible" and "substantial"
1. Not basic research – targeted at gene patenting 2. Not a method of identifying or making a material with no use or treating an unspecified disease 3. Not a throw away utility (e.g. using the onco-mouse as snake food)

In re Fisher (2005): Claimed some ESTs that hybridize to some genes expressed in maize tissue, PTO denied patent because of no utility

- The Court argued that this was a hunting license, because the genes that were the target of the ESTs had no known uses – they can only be used to gain further information about the underlying genes; gives *Skidmore* deference to the PTO guidelines

Rader dissent argues that the ESTs are research tools (like the microscope), and are beneficial to society – the Court here should have invalidated the patent under the obviousness doctrine

Limitations seen here:
1. Patents on early stage research
2. Patents on research tools

	Enablement	Written Description
Primary Policy Goal	Enable sufficient disclosure for PHOSITA to make and use claimed invention	Ensure patentee *actually* invented (possessed) claimed invention – you might be able to describe it on a guess (and enable it)
Basis for Evaluation	Specification + Claims	Specification + Claims
Time of Evaluation	Time of filing	Time of filing
Claim Scope Issue	Scope ∝ scope of claims	Ensure patentee actually possessed scope at time of filing
Level of detail required (how early can you patent)?	No undue experimentation for PHOSITA	Cannot patent a research plan or goal: possession
Quid Pro Quo	Must disclose to get exclusive rights	No exclusive rights over something you didn't invent: (1) denigrated embodiments; (2) obvious to PHOSITA but not conceived by patentee

Policy Issues: With § 112

1. Provide **notice** to the public
2. Control Early Claiming
3. Breadth of the Claim
4. Disclosure Quid Pro Quo

SECTION 112

CLAIM DEFINITENESS: NOT INSOLUBLY AMBIGUOUS

WRITTEN DESCRIPTION: POSSESSION OF THE INVENTION AT TIME OF FILING

ENABLEMENT: ENABLE PHOSITA TO MAKE AND USE AT TIME OF FILING

BEST MODE: DISCLOSE INVENTOR'S FAVORITE EMBODIMENT

UTILITY: DISCLOSE A USE AT TIME OF INVENTION THAT IS:

- **SPECIFIC TO THE CLAIMED INVENTION**
- **SUBSTANTIAL (REAL WORLD)**
- **"WORKS" (OPERABILITY)**

Threshold question: what is the critical date? (reference must have an effective date before this)
Secondary Question: What counts as a reference?
NOVELTY – **35 U.S.C. § 102**(a), (e) & (g) → DATE of INVENTION (approx. date of filing)

- If the inventor has not given society something new, there is no reason to give them an exclusive right
- Requires only a single reference that has an effective date before the critical date that anticipates the claimed invention (includes **all the limitations of the claim**)

Anticipation: (1) evaluated separately for each claim; (2) discloses all elements literally; (3) must **enable** practicing the invention (but not necessarily use; *see Hafner; Titanium Metals* – because the research paper needed the use of at least three methods, was anticipated) → QUESTION of FACT

- If the prior art is a public use, the enablement is satisfied by the reduction to practice; *see Lockwood v. American Airlines* (airline reservation system was already used)

In re Robertson (1999): The applicant provides for an "improved mechanical fastening system" for diapers with three fastening methods

- '569 reference only provides two fastenings and suggests that the disposal can be easily accomplished by fastening the other two fasteners: **inherency argument – the third fastening method is *part* of the first two** (when we put them together, we get the third)

The Court found that this method was *not* inherently disclosed: the third fastening method was not expressly disclosed in the '569 reference, **mere possibility is not enough** (claim chart, *see p. 366*)

- However, this is a narrowing construction of Robertson's own claims

That which infringes, if later, would anticipate, if earlier (only literal infringement) **Principles of Inherent Anticipation** [APPLIES under (a), (b), (e), (f), & (g)]	
Claim limitation necessarily present (not only occasionally and accidentally) – **need not be explicitly present**	Would be recognized by a PHOSITA (not merely "probably recognized); *see Robertson*; *Schreiber* (different field still ok)
	Significantly present as a matter of physical or natural law (*see Seaborg* v. *Schering*)

In re Schreiber (1997): Created a conical dispensing top for popcorn dispensers, which was supposedly anticipated by a similar conical top for dispensing oil from a top (a Swiss patent)

- Did the Swiss patent inherently contain the functional limitation from Schreiber's claims?

Yes: the popcorn dispenser *was* anticipated by the oil can → **different field can still anticipate**
The popcorn making could have (1) gotten a new use for popcorn dispensing OR (2) claimed a limiting range – both of which require a license

Policy Issues: **Why do we have the inherency doctrine?**
1. Save time and work for the patent owner: certain knowledge known by the PHOSITA 2. We don't want to remove things that were already in the public domain (anti-backsliding) **But what about hindsight bias?**

Schering Corp. v. Geneva (2003): Prior art covers loratadine, used in Claritin. New patent '716 covers a metabolite of loratadine – DCL, which forms in the patient's body

- Under pure application of *Robertson*, no one was aware of the metabolite
- But if it **is present as a matter of natural law**, it is anticipated: not formed under accidental or unusual conditions (to distinguish from *Seaborg* and *Tilghman*, which were also NOT **detectable**, rather than merely **unknown**), it is produced **every** time

But they could have used a *Parke-Davis* type "purified substance" claim: we worry that we would stop research into learning more about body mechanisms

Accidental Anticipation Doctrine

In re Seaborg (1964): Patent on Americium, element # 95, which can be created by a neutronic reactor at a high power level. However, such a reactor was described in the Fermi patent, which means that patent actually produced trace amounts of Americium.

- Since no one knew that the element was produced: **an unrecognized invention gives nothing to the world**, the claim is still valid

Tilghman v. Proctor (SCOTUS, 1880): Discovered a new process for breaking down animal fat into glycerine: requiring that the fat was mixed with water and subjected to high temps/pressures

- A steam engine lubricated with animal fat produced this while it was working

Under a similar logic, this patent was upheld – but different from *Seaborg*: should Tilghman get credit for just noticing and realizing the use?

But there is no *de minimis* exception for anticipation or infringement.

If the SPECIES is in the prior art	Then the GENUS cannot be claimed: it is anticipated, *see Titanium Metals* (Russian article disclosed some of the alloys)
If the GENUS is in the prior art: **like an improvement patent** (you would need to license earlier)	Then the SPECIES is not necessarily anticipated unless that *particular* species is also disclosed: **must be a very special species** (that has unusual characteristics, etc)

"Known or Used by Others in this country**, Patented or Published** in a foreign country**"** § 102(a)

BURDEN: is on the party seeking to invalidate by "clear and convincing" evidence (rather than a preponderance of the evidence required at the PTO level)

In THIS country:

Known by others: National Tractor Pullers v. Watkins (N.D. Ill. 1980): Evidentiary issues from the "known by others" requirement: the court requires **corroboration of oral testimony**; *see the Barbed Wire Patent* (SCOTUS, 1891) (witnesses arguing that they had seen a fence was not sufficient to invalidate the patent): BUT there is no *per se* rule against relying on oral evidence to find invalidity

- **Rule**: you must have some sort of **public** disclosure (not merely knowledge): which (1) aids in evidentiary issues but also (2) provides the public with the knowledge, *see also Pennock*

Lost art is similarly insufficient to show anticipation, *see Gayler v. Wilder* (SCOTUS, 1850)

Used by others (more than 1): Rosaire v. Baroid Sales Division (5th Cir. 1955): Disagreement about whether Teplitz (Gulf Oil) had actually used this product before the filing of the patent

- Patent involved taking samples of soil to see how much hydrocarbon gas evolved
- **Rule**: this was sufficient "use" – had been (1) done publicly and (2) in the ordinary course of business (i.e. nothing was done that this was a secret use, *see also Gore v. Garlock*); (3) not abandoned because it didn't work (which might have been probative)
- Corroboration is easier in *use* than in *knowledge* (different standard from *Tractor-Pullers*), there is also less concern for fraud: But the public still is not benefiting from the prior use
- **Secret Use**: doesn't count, but *Rosaire* is not considered a secret use

In this country standard favors the American inventor, and can also be obscure in other countries

What is a "printed publication"? (same for §§ 102(a)-(b)) → Accessibility is crucial

Catalog counts – **Jockmus v. Leviton** (2nd Cir. 1928)

1. Is there sufficient disclosure? The court found that a picture on the back of mag is sufficient
2. Was there enough distribution of the catalog? (**A. length of time on display; permanency**)
    a. Went to people who were skilled in the art (**B. expertise of the target audience**)
    b. At least 50 copies were distributed

The ease and simplicity with which the material could be copied: **probative** – a copy with a secrecy notice was not considered public information, *see Aluminum Co. v. Reynolds Metal.* (**C. expectation of copying** & **D. ease of doing so**)

Ephemeral Publication: **In re Klopfenstein** (2004): Gave a printed slide presentation at a conference, which was then also displayed at a separate conference for less than a day, no copies of the presentation were distributed, → the court found that this was sufficient disclosure

- Indexed material is helpful, *see In re Hall*; a paper delivered orally can be sufficient printed publication, *see MIT v. AB Fortia*; but a printed billboard that is not indexed is also sufficient, *In re Cronyn*; the thesis was not sufficient prior art, *see In re Bayer.* (**E. ease of access**)
- Copies in a private corporate library is not a publication, *see Northern Telecom.*

Policy Issues in defining "Publication"
1. How long should a firm spend on searching? – there is a generous definition for publication: **we encourage inventors to find the prior art to avoid duplication** (a limited definition would **have more public users benefit from the disclosure**) 2. What are the implications of the standard for the presumption of validity for issued patents? 3. What are the consequences for academic inventors? (this creates a lesser incentive to publish if you want to patent, but academics live by publishing)

- You might (1) make a statutory invention registration or make (2) a defensive publication – if you want to create prior art that prevents others from patenting

"The invention was described in (1) an application for patent by another filed in the United States OR **(2) a patent granted on an application by another** filed in the United States" § 102(e)

U.S. Patents OR Published Applications are prior art as of their DATE of FILING

Alexander Milburn Co. v. Davis-Bournonville Co. (SCOTUS, 1926):
(not an interference proceeding: Clifford's *disclosure* anticipates Whitford's claims: this is not sufficient prior art under § 102(a)) → **can be used in obviousness analysis**
1/31/11: **Clifford** files patent
3/4/11: **Whitford** files patent – could have filed a Rule 131 affidavit swearing it was earlier
2/6/12: **Clifford's** application is granted
6/4/12: **Whitford's** application is issued → **but issuance date is actually irrelevant here**

- This doesn't seem fair to Whitford, but this would have been in the public domain

DERIVATION FROM ANOTHER: § 102(f)

1. **Shop Rights General Rule**: Inventor owns the rights even though conceived during employment

Express contract requiring assignment: ownership to Employer	Employee specifically hired to invent: possible implied contract to give ownership to Employer	Employee used employer's resources to conceiver/RTP: Employer gets "shop right" – royalty-free license

2. **Joint Inventors**: An inventor must contribute to conception and joint inventors must work jointly (not independent invention), though need not be physically together

Options for error:	
§ 116: Applies during prosecution	§ 256: Applies after patent issuance
Misjoinder: Non-Inventor named **Nonjoinder**: Inventor omitted *Can be corrected only if no deception*	**Misjoinder** can be corrected *even* if there was deception; BUT **nonjoinder** can only be corrected if no deception by the *true* inventor

Campbell v. Spectrum Automation Co. (6th Cir. 1975): Former employee (Zimmerman) claims that he actually invented the product (although the patentholder is the former employer (Campbell), who sued former employee for infringement). Here, it was clear that the employee had invented it – inventor gets rights even during employment (even if they are assigned to the employer – "shop right")

- Mere assistance is not derivation, *see Agrawam Co.*

In this case, it seems that Zimmerman can take over the patent – Campbell's misjoinder is correctable even if he "stole" the invention and Zimmerman's nonjoinder is correctible because there is no deception on his part

PRIORITY of the Invention: § 102(g) can get an invention UNLESS **the invention was made by the other inventor** in an interference OR made by another inventor in THIS country **AND not abandoned, suppressed or concealed** //draw a timeline! **Note this is before 2011 change

1. If there are two inventors: who gets the patent? (interference proceeding)
2. What is the "date of invention" used for novelty more generally?

Policy Issues governing priority
Tradeoff between rewarding the first inventor and getting the invention out to the public Why don't we have a first-to-file system? (1) natural rights (*Pierson*) (2) protect small inventor
1. Conception creates greater risk of fraud (First-to-conceive) 2. First-to-file: (a) global uniformity; (b) easier proof standard; (c) preserves resources; (d) small inventors are not helped that much by the interference proceedings anyway

<table>
<tr><td>Conception:
must have a use, i</td><td colspan="2">First to conceive can prevail over first to RTP if there was diligence
"definite" and "permanent" idea of the "complete" and "operative" invention, see Brown. Uncertainty is OK. *Can use R. 131 "swear behind" affidavit</td></tr>
<tr><td rowspan="2">Diligence

Totality of the circumstances type standard here</td><td colspan="2">Must have kept working on reducing it to practice after conception
• Diligence must begin BEFORE the second inventor's conception
• Employees of the inventors can do work that is imputed to inventor, Brown</td></tr>
<tr><td>Does not break diligence:
1. Poverty & Illness (but note constructive RTP)
2. Regular employment
3. Reasonable time for preparation and filing application</td><td>Does break diligence:
1. Attempts to get outside funding when sufficient funding is available; Griffiths
2. Attempts to get commercial orders
3. Doubts about value/feasibility
4. Work on unrelated inventions</td></tr>
<tr><td>Reduction to Practice

They need not appreciate that it is patentable</td><td colspan="2">First to RTP usually has priority
Filing a valid application constitutes a constructive reduction to practice
1. Must have practiced an invention that encompasses all elements of the invention
2. Must have appreciated that the invention worked for its intended purpose (~~guess~~) – knowledge standard, see Estee Lauder v. L'Oreal where it didn't count that they made the sunscreen because they didn't know if it worked(similar to accidental anticipation doctrine in enablement)</td></tr>
<tr><td>Abandonment, Suppression & Concealment</td><td colspan="2">• "reasonable efforts" are sufficient: delays that would be lack of diligence often do not rise to ASC: requires intent OR gross neglect
Any RTP that has been ASC'ed is disregarded (but can be used as the conception date for a later filing, see In re Costello)</td></tr>
</table>

Diligence is REQUIRED *after* CONCEPTION but *before* RTP

Brown v. Barbacid (2002): **Interference Evidentiary Rules**

Here, they were trying to show evidence of diligence after conception

1. Is the evidence submitted admissible? The usefulness of the admitted evidence depends on its value to a PHOSITA
2. Can an inventor's won testimony corroborate the inventor's RTP (e.g. lab notebooks)? No. But the testimony can be corroborated by another individual's oral testimony. **Just need *something* other than inventor testimony**.

Rule 1 Junior inventor (2nd to file) bears the burden in interference proceeding: **preponderance**
• Once the invention is **published** (18 months): **clear and convincing evidence**
• Once patent has **issued**: (a) presumption of validity & (b) clear and convincing standard
Rule 2 "Independent evidence" is required to corroborate inventor's testimony

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Abandonment, suppression and concealment can ONLY OCCUR *after* ARTP

- **Requires intent to abandon**: which can be inferred from extreme delay

Peeler v. Miller (1976): Miller reduced to practice and submitted disclosure to the Monsanto patent department. Four years later, the application was filed. The Court found that the lack of resources made this was sufficient for *some* delay, but that this was not "mere delay" and that this constituted suppression (no intent to abandon or conceal)

Policy Issues with ASC
To allow *too* much delay can cause: (1) gameplaying and (2) perverse incentives Plus we don't want other people to waste their time inventing already existing inventions • A **trade secret** is considered **suppressed**: should we have prior user rights? • But a mere "non-informing use" is not considered ASC'ed, *see Dunlop; Lockwood* • Abandoning a patent application does not constitute abandonment

Paulik v. Rizkalla, (1985): After work has been abandoned, but the inventor resumes work before the second in time inventor, this work can still be counted in the priority analysis: **only the suppressed or concealed work is completely disregarded in the priority analysis**

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§ 102(g) Prior Art **outside of interference proceedings**

(g)(1) applies exclusively to interferences

(g)(2) applies to other circumstances, "in this country"

Dow Chemical Co. v. Astro-Valcour (2001): § 102(g) prior art is much more difficult for the patent office to find than § 102(a) prior art – here, Astro-Valcour had used the invention, but had chosen not to patent their invention → **this constituted prior art and Dow's patent was invalid**

Policy Issues: When should you create a trade secret?
1. How easily can you sue patent infringers? 2. How easy is it to reverse engineer? (makes it hard to keep a secret) 3. First-mover advantages/Network effects 4. Type of industry (does it move so fast that patents are worthless?)

International Considerations:

1. Use of foreign activities to establish priority for person applying for US patent? → **ALLOWED**: inventive work in U.S./WTO countries is treated equally -- § 104
   a. Foreign filing date can be used only under Paris Convention/35 U.S.C. § 119
2. Use of foreign activities to establish prior art → **NOT ALLOWED**

STATUTORY BARS: § 102(b), (c) & (d)
The date when it becomes (1) public or (2) printed or (3) on sale → CRITICAL DATE
No patent, if more than one year prior to application the invention was:

1. Patented OR Described in printed publication anywhere
   OR
2. In public use OR On sale in this country (**sale**: does not include assignment; sale of the commercial embodiment of the invention)

By others or by the applicant

Policy Issues: **Statutory bar with one year grace period**	
Promoting Early Filing 1. Public reliance interests – not removing from the public domain 2. Faster disclosure for follow-on invention 3. Avoid de facto extension of patent term by commercial exploitation before filing	**Allowing Grace Period** 1. Reasonable amount of time to determine whether patenting is "worth it" 2. Encourage publication faster than preparation of patent application Choice between patent and trade secret

PUBLIC USE
Pennock v. Dialogue (SCOTUS, 1829): Patent covers the process for making the special hose. The invention was completed in 1811 and then sold to Philadelphia (license), the patent was obtained in 1818. Turned on the interpretation of the 1793 Patent Act:

- Plaintiff argued that the right could not have been lost (under a natural rights theory) unless it was intentionally abandoned
- Defendant made a "use it or lost it argument" – if you have abandoned your exclusivity, then you have lost your inchoate right to patent

§ 1: requires that the invention was "not known" – which here implied "not known or used by others" – the public → **important provision – once it is given to the public, don't take away**
There is only a limited exclusivity: this person used as a trade secret, when it failed, tried to patent
Egbert v. Lippman (SCOTUS, 1881): Barnes invented a pair of corset steels, which he allowed his future wife to wear before he sought to patent the invention. The court considered this public use.

- Dissent argued that this cannot be thought of as a public use – there was an implicit confidentiality agreement (**but** there was no actual secrecy obligations)
  - Plus it had started to be widely used in the interim; **not experimental use**

Moleculon Research Corp. v. CBS, Inc. (1986): Nichols created a 3-D puzzle capable of rotational and his models were seen by some friends who came to the chemistry office

- After his boss saw it, he obtained a patent for the device
- Thus is a suit against Rubik's cube: who argued that the display in the office was public use

Found that it was NOT: How to distinguish from *Egbert*?

1. He never lost possession (control); *compare with Beachcombers* (demonstrated at party)
2. Expectations of confidentiality; need not be explicit – *see AMP v. Fujitsu* "custom & practice"

Metalizing Engineering v. Kenyon (2d Cir., 1946): Method for conditioning metal surfaces

- Inventor had been using the product secretly but had been selling the product: **public use**

Distinguishes *own* sale of a product (with a secret process) with a *third party* sale (also with a secret process): **idea is to incentivize giving disclosure to the public the most quickly**

- But this distinction is made solely on the basis of "public use" provision

Own Sale (no patent): *Macbeth Evans Glass*; *Metalizing Engineering* (maybe *Pennock*)
Third Party Sale (patent allowed): *Gillman*

ON SALE BAR

Pfaff v. Wells (SCOTUS, 1998): Pfaff designed a socket and then sent drawings to manufacturer (did not make or test the prototype) and received a written purchase order for the device

- Waited more than a year to file the patent after the purchase order

Two Conditions for the On Sale Bar:

1. The product must be the subject of a commercial offer for sale
2. The invention in the commercial offer must be ready for patenting:
    a. Either reduction to practice OR
    b. The specification is enabling (i.e. drawings/description, like in *Pfaff*)

Policy Issues: **Why did the Supreme Court make this test**?
1. Avoids gameplaying – we don't want people to put off reduction to practice: plus, you cannot claim an early constructive reduction to practice for § 102(g) priority, but then claim that the on-sale bar does not apply under § 102(b): provides symmetry 2. Provides notice and definiteness

Pfaff's actions were considered as putting the invention on sale: *can* be on sale before RTP.

This situation varies between industries: easy for software, hard for chemical/biological

Sale	**Not on Sale**
1. Even if offer was never consummated – bid for Navy contract 2. Need not contain detailed plans or schematics; *King Instrument* 3. Can be deemed a sale without "intent to sell", can be "ready" even with finetuning	1. But general offers for sale are not applicable (but this is a finder of fact) **Unclear**: if the offer (either specific or general) is *before* the conception, it might be on sale at the time of conception, but maybe not until actual performance of the sale

Sham Sale **Mahurkar v. Impra** (1995): Exclusive license is granted after invention, but it requires a sale by a certain date (before the critical date). Because of problems manufacturing to spec, someone else buys two defective products. The federal circuit found that this was *not* a sale: because in the "totality of circumstances", this was not actually available to the public nor did commercialization occur. **But** this is pre-*Pfaff*. (but it is not a "real commercialization")

- Federal Circuit uses a contract-formalistic conception of "offer"

Third Party Sale **Abbott Labs v. Geneva Pharms.**, (1999): Third Party Byron Chemical sold chemical without knowing that it was the patented form – "Form IV anhydrate"

- Court found that ignorance of the parties is irrelevant under *Pfaff*: **policy reasons** – the invention is already being sold and people are benefiting from it

Compare to Accidental Anticipation: *Tilghman v. Proctor* – in those cases, it was a minimal result that provided no useful result: here, the useful portion of the invention was *why* it was being sold

Compare to *Estee Lauder* case: the reduction to practice (sufficient here, because it was being sold) – but doesn't require the "for purpose" appreciation from *Estee Lauder*

EXPERIMENTAL USE EXCEPTION to PUBLIC USE/SALE/OFFERS: **Q of LAW**

Public Use: **Elizabeth v. Nicholson Pavement** (SCOTUS, 1877): Suit brought by American Nicholson against the city of Elizabeth, who were alleged to have infringed the patent by laying down wooden pavements. Defendants alleged that Nicholson had put the pavement in public use. But the public nature of pavement meant that it could not be secret → **kept control**.

1. You must have finished all experimentation before RTP: RTP starts § 102(b) clock
2. Public knowledge is a § 102(a) issue – and the inventor clearly conceived before any public knowledge

Sale: **Manville Sales v. Paramount Systems** (1990): Inventor's firm received contract to install lighting assembly. The first assembly failed. The inventor received permission to try a new assembly, with payment conditionally approved upon satisfactory performance – **the sale was for experimental purposes**. (would likely survive *Pfaff*)

- But you can only keep experimenting for a limited time, *Seal Flex Inc. v. Athletic Track* (1996)

Lough v. Brunswick Corp. (1996): Lough improved the seal assembly on boat motors.

- He sold prototypes to his friends, but did not sell the invention
- Applied for a patent, and then Brunswick copied his invention

1. Constituted public use (to give it to his friends) because he did not maintain control
2. Did not constitute experimental use because he did not collect results

Dissent: argued that this is a question of **fact** and more deference was owed to the jury

- Is this unfair to the small inventor?

Factors in determining experimental use: also – *market* testing is NOT the same as *experimental* testing (one is to see if there is a market, one is to see if it is functional), *In re Smith* (1983)
*not the same as the exception used for infringement liability

1. Number of prototypes	4. Existence of a secrecy agreement
2. Duration of testing	5. Compensation for the testing
3. Records of the testing	6. Control (**most crucial**)

TP Labs v. Professional Positioners (1984): orthodontist used the appliance on some patients before filing for a patent – the court found an "inherent pledge of confidentiality"

- How is this different from *Lough*, who argued that he would have heard about a problem?

Third Party: **Baxter v. COBE Labs** (1996): (although there was an interference proceeding, the claims involved in this case were not in the original interference: and should be not **estop**)

- '089 claimed a seal-less centrifuge, which was built by Ito/Sundeau in the lab

1. Further refinement of the invention is not an experimental use
2. Public testing by a third party (not controlled by the inventor) is **not** experimental use
    a. Public because: the lab was open to the public/no confidentiality expectation

- **Even if the Third Party *stole* the information**: still a bar, *see Colgate-Palmolive* (3d Cir. 1948)

Policy Issues: **Experimental Use**

1. Discourages removal from the public domain (what the public believed was freely available)
2. Favors prompt disclosure
3. Allows inventor after sales to determine potential economic value
4. Prohibits inventor from exclusivity for more than the statutory length

Secret Third Party: **W.L. Gore v. Garlock** (1983): '566 covers a process for rapidly stretching Teflon – public disclosure is necessary for § 102(b) application, therefore, the patent is valid despite third party trade secret agreement

Abandonment under 35 U.S.C. § 102(c): "a person shall be entitled to a patent unless he has abandoned the invention"

- The only time when this would be activated (but not § 102(b)) would be if abandonment is announced *before* the one year statutory bar kicks in

Prior Foreign Filing: § 102(d) entitled to a patent *unless* the foreign application was filed more than 12 months before U.S. filing & it has already issued – very rare facts

NONOBVIOUSNESS - 35 U.S.C. § 103 – QUESTION OF LAW

No patent if differences between invention and prior art, such that "the subject matter as a whole" would have been obvious **at the time** to a PHOSITA

Policy Issues: **Why don't we stop at (1) utility & (2) novelty**?

1. We don't want trivial applications -- administrative burden
2. Doesn't make sense to give a monopoly: (a) little investment required; (b) would have been invented regardless, without the social benefit of a real disclosure
3. Dilutes the value of actual discoveries: takes away incentive to make the important step (**for the pathbreaking inventions**)
4. Can exacerbate the holdout problem (blocking patents; transaction and search costs)
5. Undermine court enforcement of patent (seems unfair)
6. Reduce people's following of patents

Something that is economically valuable is not necessarily technical difficult: *Selden*

Issue: How do we figure out *in hindsight* if something was obvious?

- Hindsight bias
- The patent office is the one who is technically skilled: closer to PHOSITA

Hotchkiss v. Greenwood (SCOTUS, 1851): established doctrine of invention – "ingenuity or skill…possessed by an ordinary mechanic acquainted with the business"

Post-*Hotchkiss*, the Supreme Court applied increasingly stringent invention tests – "flash of creative genius", as a constitutional standard

Graham v. John Deere Co. (SCOTUS, 1966): Reiterates the *Hotchkiss* standard when interpreting the 1952 statute. Patents are *not* a natural right – they are socially created, and they are non-rivalrous, getting benefits from ideas does not take them away from other people

Graham Analysis

1. Determine the Scope and Content of the Prior Art (*Graham*)(FACT)
   § 102 shows what qualifies (1) inventive entity & (2) industry lab exceptions; *Winslow* wall?
   Threshold pertinence: (1) Same field of endeavor OR (2) pertinent to the problem
2. Ascertain the differences between the prior art and the claims at issue (FACT) **by limitation**
3. Find the level of ordinary skill in the pertinent art (*KSR*) (FACT)
   Here, they determined that this was someone with a college degree in MAE:
   a. Education of the inventor and others in the field (remember, inventor ≠ PHOSITA)
   b. Types of problems encountered in the art
   c. Prior art
   d. Rapidity with which inventions are made
   e. Sophistication of the Technology

   Other possible factors: (f) amount of experimentation/cost; (g) maturity of the field; (h) difficulty of the problems; (i) routine techniques & approaches; (j) simultaneous development of the invention, *Environmental Designs*
4. Determine the obviousness or nonobviousness of the subject matter: (1) **TSM** (for combo) OR
   a. Design, need or market pressure
   b. Ordinary creativity of the PHOSITA
   c. Mere updating is obvious *Leapfrog*
   d. Resurrected the "obvious to try" doctrine (**hinges to predictability**, not necessarily art-limited): **limited number of possibilities** *In re Kubin*
5. Secondary Considerations: (a) commercial success (**nexus** between success & invention); (b) long-felt need in the industry (*KSR*); (c) failure of others; (d) teaching away (*Adams*) – after *KSR* they are "objective indicia" of (4)

- Here, the court didn't actually determine the level of ordinary skill in the art
- Furthermore, because the prior art introduced hadn't been seen by the PTO, the argument that was made against obviousness was made for the first time on appeal: less believable

Calmar v. Cook Chemical: the spray was very commercially successful/long-felt need

- The prior art here was § 102(e) prior art, which was not considered by the examiner
- Many other countries do not include "secret prior art" in obviousness discussions

United States v. Adams, (SCOTUS, 1966) water-activated magnesium battery (was very useful for the United States during WWII): most inventions *are* combinations of known inventions

- "teaching away" concept in the prior art

1. Water activated departs from the prior art (involved in every claim)
2. Has superior (not equivalent) characteristics compared to the prior art

Some criticized the category of combination patents: everything is a combination of prior art

Federal Circuit test: **Teaching-Suggestion-Motivation**:

1. The nature of the problem to be solved
2. The knowledge of the PHOSITA
3. Actually suggested in prior art

KSR v. Teleflex, (SCOTUS, 2007): Claim described a mechanism for combining the electronic sensor with an adjustable automobile pedal so the pedal's position can be transmitted to a computer that controls the throttle

- During prosecution, had distinguished from the prior art because there was a fixed pivot: but the Asano patent *did* have this characteristic, and thus this hurt the obviousness argument

The Federal Circuit had reversed the District Court's finding of obviousness: the prior art references did not target **this** problem, thus it was not obvious

- After this decision, the Federal Circuit stopped the formalistic application of the test to a more flexible application of TSM (and also resurrected the "obvious to try" test)

Errors of the Federal Circuit
1. Foreclose the flexible reasoning by only examining the problem that the patentee was trying to solve: take into account ordinary creativity 2. Find that someone who is attempting to solve the problem will only look to the prior art that was trying to solve the same problem 3. Too careful with hindsight bias fear You can use TSM, but it isn't the only test to use here

Now the Federal Circuit uses "flexible TSM", where the "need" is not found in written references, but in the "knowledge and creativity of skilled artisans"

Policy issues between the two approaches
1. We don't want to take away something that *would* have been in the public domain: **higher standard (more things are obvious)** 2. Do we need to drive this innovation using the tools of patenting or would it have been invented regardless: **suggests higher standard as well** (theory of competition, first mover) 3. Federal Circuit wanted to create more of a rule and less of a standard (**notice**) 4. Federal Circuit was more concerned about hindsight bias: see in a case like *Leapfrog*, obviousness can depend on the timing of the invention, which can be hard to control

Obvious to Try: In re KUBIN (2009): Application claimed the DNA that encodes the CD48 binding region of NAIL (which was thought to play a role in activating natural killer cells that fight tumors, viruses): "when skilled artisans pursue known options from a finite number of identified, predictable solutions" – showed that you can have predictability in an "unpredictable art"

Hybritech v. Monoclonal Antibodies, (1986): Uses monoclonal antibodies in sandwich assays (uses the same antibody twice), Federal Circuit found that this was *not* obvious under TSM

- Sandwich assays need a large amount of antibodies: new source of antibodies is hybridomas (which were not available before)

Frankel article does not suggest (explicitly) combining with Oi/Herzenberg article

Analysis of Secondary Variables:

1. Commercial Success: here, the test was successful, but was this because of the (1) invention or because of the (2) marketing – **nexus between success & invention**
2. Failure of others (not an issue here)
3. Long felt but unsolved need: expert witness testified that this test was surprisingly effective
4. Teaching away (not an issue here)
   - Not whether the **differences** would be obvious, but the **invention as a "whole"**

The Scope & Content of the Prior Art

1. The court must decide whether a reference is considered "prior art"
2. If it is, is it part of the **pertinent** prior art?

All § 102 references are included (**time of invention**)+ double patenting prohibition (even if it is not in the prior art, if it is patented, then it is included) – *see chart*

Pertinence Issue:

Is it analogous?

1. Is the art from the same field of the endeavor regardless of the problem addressed
   Should be aware of this art
2. If the reference is not within the field of the inventor's endeavor, is it reasonably pertinent to the problem at issue?
   Should find this during the research process

In re Winslow, (1966): Winslow solved a problem about how to take a stack of bags and open the topmost bag to fill it (using a jet of air, the flaps were perforated). The court found that the invention was obvious – envisioned that the inventor has in mind all of the pertinent prior art

In re Clay (1992): Clay's invention is a process for storing refined liquid hydrocarbon product – places a dead volume between the tank bottom and the outlet port (which expands as the liquid is used). Main question: Applies *In re Wood*, not the same problem → **not obvious**

Policy Issues: **What is being taken out of the public domain** – determined through pertinence

1. If you take into account *all* documents (broad pertinence conception): you believe that invention occurs socially though collaboration
   a. Requires more search costs for the inventor
   b. We don't want inventors to **avoid** knowledge (bad incentives)
2. A narrower conception might come from the belief that invention occurs more individually
   c. Requires fewer search costs
   d. Has a more human conception of the inventor (super-person?)

INFRINGEMENT

Infringement is discussed in **37 U.S.C. § 271**: "whoever without authority, makes, uses, offers to sell, sells, any patented invention [within the US]" infringes the patent"

- Strict Liability offense: similar to real property rights (it doesn't matter if you didn't know that it belonged to someone else when you trespass, you don't need to cause actual harm)
- Independent Invention is *not* a defense

Claim Validity Issues are separate (*see different outline*)

Infringement Analysis

Step 1: Construe the claims (often done through a process called a *Markman* hearing)
Determined by perspective of PHOSITA at **time of invention**

- This is done by the judge in a bifurcated proceeding **before** trial

A. QUESTION of LAW (*Markman v. Westview Instruments*)
B. Interpretation using: (1) intrinsic (primary source) & (2) extrinsic evidence if the meaning is still ambiguous
C. Product by Process: if you cannot characterize the product well enough, you receive less protection under the *Abbott* conception: **when you get a product by process claim**, it is NOT infringed when someone makes the product by *another* process; if there is **already** a patent on this product, you CANNOT get a product-by-process claim (just a process one)
D. Means + Function Claims: you cannot import limitations from the specification into the claims (typically), but here, you do – to cabin the breadth of these claims (**there is one equivalents analysis here** – *Wright v. Paulhan*)
    1. Identical function
    2. Structure, materials, acts are equivalents/have insubstantial differences
    3. Equivalent to PHOSITA **at time of issuance**

(Here: (1) What is the literal scope of the claim
Step 2: Assess the infringement of each *actual* limitation (written): **Peripheral Claiming**; All limitations that are **literally** present
Step 3: Go through an equivalents analysis (for equivalents to the limitations): **this is particularly crucial for after-arising technology** (because an M+F claim wouldn't cover this – wouldn't be in the spec)
Compare to central claiming (claim only the heart of the invention) or European purposive approach (construe in light of the patent law and the language used)
--
Product by Process Claims: **Abbott Labs v. Sandoz, Inc.**, (2009) (en banc): '507 patent has claims that cover crystalline cefnidir and define its unique characteristics (that show that it is made using a particular process) – designed to avoid infringing on earlier cefnidir patent

- Because Abbott was unable to prove that the generic versions at issue had the relevant X-ray fingerprint or that they were produced by the new process, there was no infringement

When process terms define the product: this is an enforceable limitation – pure product claims are broader than product-by-process claims, each element is material in scope of the invention
Means + Function: **Wright v. Paulhan** (SDNY, 1910): Wright patent focused on how to construct a flying machine while maintaining the stability – required wing-warping using a tail-rudder/warping ropes //later covered ailerons

- Later skilled pilots could make the warping without such aids: they have pilot-ropes

Do these ropes infringe? **Yes** – considered a fair equivalent (a different means): **either**:

1. "Equivalents thereof" = same function and insubstantial differences OR
2. "Substantially the same way to get substantially the same result"

DOCTRINE of EQUIVALENTS (DOE)

Winans v. Denmead (SCOTUS, 1854): Winans was granted a patent for "an improvement in cars for the transportation of coal". This is a typical central claim – no limitations are added here: just the basic idea and explains the purpose (would be the spec today)

- The infringing product has an octagonal shape instead of a circle – *reductio ad absurtem* doctrine: the natural limit of the claim would be absurd

Policy Issues: **Why do we have DOE? What are some problems?**

1. Incentives: If something is so close but it does not infringe – reduces incentives to invent/patent in the first place, **overly literal interpretation leaves room for "unscrupulous copyist"**
2. Did the patentee choose to patent narrowly to preserve validity, *Winans* dissent
3. This approach also doesn't incentivize specific claiming, disregards patent reissue
    a. Clarity issue emphasized in *Festo*: tradeoff between DOE & certainty
4. Notice: If claims are interpreted broadly → might discourage further innovation because of fear of infringing in the improvement ; fear also that patentees will get coverage for things that they did not invent (**after arising equivalence – new technology**), *Winans* dissent
    a. Using individual elements approach cabins the DOE doctrine: we don't want to go back to the amorphous central claiming approach
    b. Notice issue emphasized in *Warner-Jenkinson*

Graver Tank v. Linde Air (SCOTUS, 1950): welding flux using "alkaline earth metal silicate", discussed use of manganese but did not include it in the claims. The infringing product uses manganese silicate. (**Festo** is the law, ignore the facts of this case)

- The majority found that DOE does apply (fear of unscrupulous copyists)
- Dissent: what is not specifically claimed is dedicated to the public

Warner-Jenkinson v. Hilton Davis (SCOTUS, 1997): Hilton Davis owned a patent on an ultrafiltration process (discloses pH range of 6.0-9.0, 9.0+ was in the prior art). Warner-Jenkinson used the process at pH of 5.0 (independent invention)

- The majority applied DOE and found that W-J did infringe
- Intent of the infringer doesn't matter: **objective** test (possible change from *Graver Tank*)
    - To account for intent might lead to avoiding disclosures: we want to incentivize looking at the disclosure (that is the point!)

Modern Application of DOE: **can only be applied to separate elements** (not to the invention as a whole, *W-J*): in infringement analysis you proceed by element – if any element is not (1) literal infringement or (2) equivalent, no infringement **AT TIME of INFRINGEMENT** (not issuance)

1. Is the change one of substance? (i.e. making DOE inapplicable): "insubstantial differences"

OR

2. Triple Identity: Is it the **same** (a) function, (b) way & (c) result)? //not the only test

(+ whether the PHOSITA would know of the interchangeability)

Limitations on the Doctrine: Can't use when…

1. Matter is disclosed but not claimed (*Johnson & Johnson*); **interpreted narrowly** – could only have DOE if not disclosed, but *Festo* requires that patent rights are for disclosure (**§ 112**): probably means that if it is **expressly** disclosed but not claimed (suggesting deliberation)
2. Matter within the prior art (*Wilson Sporting Goods*)
3. Matter given up in prosecution (PHE): Prior art/§ 112/Narrowing amendment
   + **rebuttal** – PHOSITA could not have drafted a claim that encompasses this equivalent

PROSECUTION HISTORY ESTOPPEL

- This didn't apply in *Warner-Jenkinson* because the amendment for the lower bound had no reason:

Presumption that the amendment was for a "substantial reason related to patentability"

1. If it was adopted to avoid prior art → **PHE** applies
2. If the presumption is rebutted (for no apparent reason) → No PHE
3. If the presumption is not rebutted → **PHE** applies
4. If the amendment was for a reason not related to patentability → No PHE

Festo v. SKK Co. (SCOTUS, 2002): Festo owns two patents for an improved magnetic rodless cylinder, amended patent added limitation that had a pair of sealing rings and was made of a non-magnetizable alloy

Federal Circuit test: (1) Estoppel arises from any narrowing amendment; (2) When estoppel applies it is a complete bar to any DOE (**provided certainty; notice**)

PHE requires that the claims of the patent be interpreted in light of the proceedings in the PTO during the application process: the Court upholds that first prong of the Federal Circuit test

Policy Issues: **We assume that any narrowing amendment gives rise to estoppel**
1. If you really were just changing the formatting: you wouldn't have narrowed the scope – amendments are generally related to patentability (we have policy reasons for § 112) 2. BUT sometimes you might narrow a dependent claim (to cover a competing product) 3. OR You might just want it to issue earlier **Patentee also has more resources than the infringer here**: 4. They can leave a trail under prosecution 5. They originally could put in new claims – *but see Honeywell*

But the Court does not support the complete bar on any DOE: (complete bar avoids issues in examining the subject matter surrendered by the narrowing amendment) – **partial bar** – patentee **bears the burden to show that the amendment does *not* surrender the particular equivalent**

- This bar would be particularly unfair with after-arising technology
- Furthermore, the language is *still* not perfect (original problem leading to DOE still remains even after amendment)

Must be: "peripherally related equivalent with tangential relation to the amendment"

- For full explanation of how PHE applies, see powerpoint outline

1. Foreseeability: **objective test** – after-arising technology
2. Tangential to the reason for the Amendment (*Festo*)

Compare Biagro (2005): the patentee limited claims to concentration level of 30-40% (used to avoid prior art with a **lower** concentration), the alleged infringing product had a **higher** concentration

- Held not tangential because they both dealt with concentration levels

With Primos, Inc. v. Hunter Specialities (2006): original patent amendment was a "plate" that had the limitation that was "differentially spaced". The alleged infringer was a dome – this was considered tangential to the amendment.

3. "Some other reason": apparently there are no examples

Reverse DOE: Never Applied (flip-side of after-arising technology)
If you have something that is literally within the claims, but is beyond what was actually invented: 1. Hard to imagine applications with peripheral claiming 2. Purified DNA product → artificially made DNA (*Scripps Clinic v. Genentech* (1991)) • We don't need this because we have a blocking patents doctrine 3. § 112 enablement really solves the reverse DOE problem (**limits the invention**)

PATENT EXHAUSTION (similar to Copyright first sale doctrine)
One you sell to someone (**valid sale**), you can no longer enforce patent rights against the purchaser (they are an implied licensee) //open question about sale in other countries; *Omega v. Costco*

- Presumption that the sale *does* exhaust the rights in the patent, *Univis Lens* (SCOTUS, 1942)

Quanta v. LG (SCOTUS, 2008): Sales cannot be conditional, "but we express no opinion on whether contract damages might be available even though exhaustion operates to eliminate patent damages"

- Restrictions on licenses are ok (under Federal Circuit case law)
- Allows contracts associated with sales to restrict use

Policy Issues: **Why do we allow exhaustion**?
1. Reduced paperwork 2. Allows a market for used goods 3. Certain idea of personal property – disturbing to allow patentee to continue having rights over your own property, can prevent user innovation from tinkering with the invention (**autonomy issues**, a la Radin)
***Quanta* does make a difference** – differences between patent & contract law 1. Patent law allows harsher remedies (injunctive relief/3X damages) 2. Contract law is state law/Patent law is federal statutory law 3. No contributory liability – you must be a party to the contract

EXPERIMENTAL USE EXEMPTION

Use Exemptions
1. Common law research exemption → **no induced infringement** 2. Statutory research exemption (§ 271(e)(1)) "**safe harbor provision**", **no inducement** 3. Prior art business method exemption 4. Medical practitioner exemption → **no remedies recoverable**; ALLOWS **inducement**

Judge-Made: **Madey v. Duke** (2002): Madey was a researcher at Duke, where he allowed use of inventions at the FEI lab. After Madey left Duke, they continued to use his inventions in FEI lab.

- Defense: **must be shown by the defendant**
- Experimental use is only that taken for amusement, satisfying idle curiosity or inquiry
- Other jurisdictions have made a research tool exception
    - Studies show that in the US, researchers often ignore patents/are not sued (**norms**)

Policy Issues: **Why have a research exemption at all**?
1. Could have a chilling effect on research otherwise (patents are about incentivizing innovation) 2. Transaction costs can make it difficult for researchers to use patented tools 3. Like the "fair use" doctrine – still serves a public good even when not exclusive 4. Oftentimes, even a design-around might infringe

Statutory Exemption: Much more broad conception, in *Eli Lilly v. Medtronic* (SCOTUS, 1990), the Court held that the statute immunized tests of (1) drugs, (2) medical devices so long as the tests were "reasonably related" (*Merck v. Integra*) to submitted information for FDA regulatory activities, **might still include**:

1. Experimentation on drugs that are not ultimately subject of FDA submission
2. Use of patented compounds in experiments not ultimately submitted to FDA

- Covers research tools ONLY if it is the **subject** of the research: not merely the use of research tools to produce FDA activities, *Proveris v. Innovasystems*

INDIRECT INFRINGEMENT – requires a direct infringer

35 U.S.C. § 271(b): **Inducing Infringement**: whoever "actively induces" infringement of a patent shall be liable as an infringer *****focuses on the **circumstances of the sale**; providing instructions

Big difference: You can have a substantial non-infringing use and be liable here

Scienter Requirement: Actual knowledge (incl. willful blindness) (deliberate indifference not enough (*Global Tech*))

35 U.S.C. § 271(c): **Contributory Infringement**: offers to sell/sells/imports a component

*****focuses on the **properties of the article**, component = tangible part

1. Constituting a **material part** of the patented invention
2. Knowing that the component is **especially adapted to infringement** AND
3. Not a staple article **suitable for a substantial non-infringing use**

- A good faith belief that something does not infringe the patent (mistake of law) does not meet the scienter requirement, *see* *Sandisk v. Lexar* (N.D. Cal. 2000) ***only know re: patent**
- Cannot infringe by "failing to stop infringement", *see* *Tegal Corp*.
- No pre-patent inducement , *Presto*, but you can induce post-expiration infringement through actions during the active term of the patent, *Paper Converting*.

Policy Issues: **Why do we need this**?

1. Deep pockets
2. Hard to sue consumers (and doctors, *see* *Bard*) -- very unpopular AND hard to find them
3. Indirect supplier could profit: should be held accountable
4. They can also stop the infringement

Bard v. ACS (1990): Bard sued ACS for infringing patent '017, which relates to a method for using a catheter in coronary angioplasty

Direct Infringers: the doctors using the catheter

BUT: there are material issues of fact re: whether the way that the doctors used the catheter actually infringed: you can use the catheter in a way that does not infringe //**but this is not sufficient, because you could probably prove that at least some of the doctors *did* infringe**

§ 271(b): Insufficient scienter to meet "actively induces" infringement

§ 271(c): There are three possible ways that it could have been used, and **two** are non-infringing

∴ Not sufficient for a finding of summary judgment

Aro v. Convertible Top (SCOTUS, 1964): Aro produced fabric that replaced worn-out fabric portions of convertible tops, both for GM/Ford. GM had a license for the top, Ford did not.

Is it repair or reconstruction to replace a top? (doctrine of exhaustion): allows reasonable repairs to something that you bought without infringement → **depends on intent of the parties**

- A right to repair comes from an **authorized** purchase
- You still have recourse under contract law if the reconstruction was not permitted (warranty)

Aro I (GM only): predicate infringement not there – they bought authorized product, this is repair

Aro II (Ford): predicate **direct** infringement **is present**: users bought unauthorized product (note: the direct infringement by Ford is not sufficient, because Aro did not contribute to that)

1. Aro sold component, which was a material part of the patent
2. Knowingly (there was a cease and desist notice): **Dispute in this case**
    a. Is this because they knew that these fabrics were only used for Ford tops
    b. Or does it require more: that they knew that these were under patent and that Ford did not have licenses for these tops → **THIS IS THE LAW:** doesn't change case
3. No substantial non-infringing use (only used for the **Ford** cars)

DIVIDED INFRINGEMENT

More than one party involved: What if the steps are carried about by more than one party?

BMC v. Paymentech (2007): BMC is the assignee of patents that cover a method for processing debit card transactions without the use of a PIN number

§ 271(a): **Direct Infringement**: Requires a party to perform or use each and every step of the element of the claimed method or product (*Warner-Jenkinson*)

- If you **control** the conduct of the acting party: vicarious liability, *see Engle v. Dinehart* (5th Cir.)

Policy Issues: Why do we have divided infringement?	
For Finding Infringement We don't was game-playing to circumvent patents (although we have vicarious liability) • What about a level of control not quite at agency liability	**Against Finding Infringement** • We don't want to hold people liable for the actions of others Indirect infringement requires **scienter** Direct infringement does NOT
Brown v. Duchesne (SCOTUS, 1856): Patent law rights are territorial (domestic) → **Why?**	
1. Notice (helps the patentee as well – prior art) 2. Jurisdiction – enforcement issues 3. Sovereignty (patent law is tied up in economic policy)	

Deepsouth Packing v. Laitram (SCOTUS, 1972): Exporting components of a patented combination for assembly overseas is *not* infringement → **OVERRULED**

§ 271(f): There is still liability for infringement when: "**supplies** or **causes to be supplied**"

1. They sell the **components** for the invention for foreign assembly
2. They would be liable under §§ 271(b) or (c) of the assembly occurred in U.S.

Microsoft v. AT&T (SCOTUS, 2007): At&t's patent covers method for encoding and compressing recorded speech. Windows software enables a computer to process speech in the manner claimed.

- Uninstalled software does not infringe: **only infringing** once it is loaded on a computer

1. There is no direct infringement: **sold abroad**, the disk or computer alone does not infringe
2. Is the disk a "component for the invention": Microsoft supplies a master disk, that is copied onto other disks and *those* are used for the software installation

- The abstract code **cannot** be combined with the computer unless it is made into a computer readable form, which is only done abroad → **No § 271(f) liability** (blueprint is insufficient)
    - We don't want liability for a blueprint: you might not have gotten patent there

J. Alito agrees that even if they had sent the disk with the software, this would not infringe so long as the disk was subsequently removed: the disk itself is not a component of the patented invention

§ 271(g): Whoever, without authority, imports into the U.S. or offers to sell/sells or uses within the US a product that **is made by a process patented in the US** INFRINGES

Unless the product is (1) materially changed by subsequent processes OR (2) trivial/nonessential component, *see Eli Lilly* (1996): used patented process to make precursor compound to a drug sold in the United States → no infringement because of differences between drug & precursor;

Bio-Tech v. Genentech (1996): used patented process to make plasmid that produced hormone sold in the United States → found infringement

NTP v. Research-in-Motion (2005): The patents at issue covered part of the email system used by Blackberry. The defendant had part of the email system in Canada.

§ 271(f): No component used abroad

§ 271(g): No process done outside the United States

You cannot win this on the **method** claim because not all of the steps are in the U.S. (*Paymentech*)

- The systems claim *was* infringed: because it is being **used** in the United States; § 271(a)

REMEDIES FOR PATENT INFRINGEMENT

Injunctions: Preliminary & Permanent 35 U.S.C. § 283: The Courts may grant injunctions in accordance with the principles of equity	**Property Rule**
Damages: Lost Profits & Reasonable Royalty 35 U.S.C. § 284: Upon finding for the claimant the court shall award compensatory damages for infringement, but no less than a reasonable royalty (together with interest/costs)	**Liability Rule**

Policy Issues: **When should we treat patents like property?**	
PROPERTY 1. Valuation difficulties (hard to know what damages to award) 2. Lower transaction costs: **bargaining** is possible – you know who owns it 3. Clear boundaries of the right 4. Ability to design-around patented technology	**LIABILITY** 1. Valuation difficulties (hard to bargain *ex ante* – you know owner, but value?) **Patent Holdup**: higher fee sought *ex ante* 2. Hard to identify relevant parties/costs 3. If you do not know you are infringing, how can you bargain? ***notice**

- Patent rights are ideas: they are non-rivalrous: this is different from real property
- Who can really avoid the harm when it is strict liability for infringement? We usually avoid strict liability because one party is at an advantage in preventing the harm
- Problems with collective arrangements: non-practicing entities (patent trolls?)

eBay v. MercExchange (SCOTUS, 2006): MercE has a biz method patent for an electronic market designed to facilitate the sale of goods between private individuals by establishing a central authority

- **Patents cannot have special rules**: must apply the same rules as other law

Rules for a permanent injunction:

1. Has suffered irreparable injury (**no longer a presumption of irreparable harm**)
    - Willingness to license; non-practicing entity, no motion for preliminary injxn.
2. Remedies available at law are inadequate to compensate for that injury
3. Considering the balance of hardships: the remedy in equity is warranted
    - Here, it is slightly in favor of eBay
4. The public interest would not be disserved (before: the thinking was that patentee was *always* representing the public interest, but now: **J. Kennedy** – suspect validity of biz method patents; non-practicing entities) → **doesn't favor either party**

Before: injunctions were denied very rarely: represents tend toward skepticism re: patents

z4 v. Microsoft (E.D.Tex. 2006): z4 is another NPE that holds patents (their own)

1. No irreparable harm here
2. NPE has a lot of trouble meeting this prong: remedies at law are appropriate (universities?)
3. Is Microsoft redesigning the product a sufficient hardship?
4. Is unavailability of the infringing product an appropriate public interest?

What do you do without a permanent injunction?

- You must settle or obtain damages "ongoing relief"
    - United States has been particularly hostile to compulsory licenses
- When you violate a permanent injunction: can be held in contempt

Government: (1) Federal government – can get damages (eminent domain); (2) State government: can only get injunction – Eleventh Amendment prohibits recovery of money damages

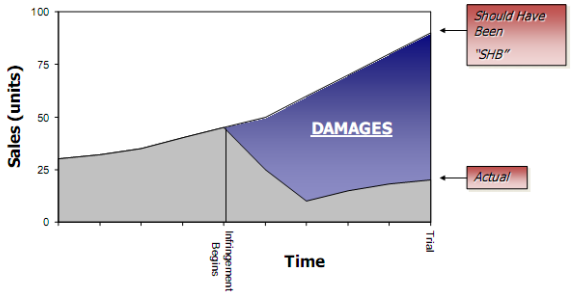
PRELIMINARY INJUNCTIONS

Amazon v. BN.com (2001): '411 describes the one-click patent, which was presumably infringed by BN. PI requires (1) reasonable likelihood of success on the merits: (a) that there is infringement AND (b) that the patent is valid; (2) irreparable harm; (3) balance of hardship; (4) public interest

- Here, BN showed sufficient doubt re: the validity of the patent – "substantial question of validity", so the grant of the PI was not upheld
- We don't have enough time before the preliminary injunction to address all the issues: err on the side of caution (in not granting injunction), different from permanent injunctions

DAMAGES

- Statutory damages are intended to be compensatory
- Typically litigated along with the liability portion of the case (sometimes bifurcated), which make the assumption that the patent is valid AND infringed



Policy Issues: **Why have one proceeding?** Why bifurcate?

1. If the patent is invalid: why waste all this time on finding damages
2. Can influence the jury to think about the damages issue when finding liability and vice versa
3. But it might be good to have it all in one proceeding: same experts – efficiency
4. Can help a settlement decision

Panduit Corp. v. Stahlin Bros. (6th Cir. 1978):

1. We try to award **Lost Profits** first: (a) demand for the product; (b) possible non-infringing subs; (c) capability of the patentee to meet demand [relevance? They can license/contract out]; (d) **the profit that they *would* have made** [economies of scale; presence of infringers; convoyed sales]

(d) is difficult to show: A court will examine whether this value is too speculative

- Here, this was the failing element: **lack of evidence on the fixed costs of Panduit**

2. When actual damages cannot be proved: the owner is entitled to a **Reasonable Royalty**: "an amount that a person would have obtained from a reasonable royalty and still have sold the item at a profit"
   - Cannot be treated as a negotiation between willing bargainers: **unfair to the patentee**'

The competitor has 4 options:

1. Sell non-infringing substitute
2. Obtain a license: make & sell the product
3. Take invention and risk litigation
4. Take license and repudiate contract, challenge validity

Should the results from (2) and (3) be the same?

Maybe the competitor doesn't know about the patent

Reasonable Royalty is determined using the *Georgia-Pacific Factors*: **Main Issues**

1. Are there non-infringing substitutes? (affects the price)
2. Consider the other licenses by this patentee, similar licenses are difficult to obtain because of confidentiality issues
   a. Maybe consider the **infringer's** predicted profits:
   b. Too much of a windfall? Economies of scale? But there is a sense of estoppel

3. Difficult to figure out in hindsight the negotiation price: the **risk** is gone from one party – assumes that the patent is valid (**increases the range of royalties**)
4. Here, Panduit never wanted to license to anyone

Policy Issues: Patent comes from both (1) property and (2) tort law – **why** high RR damages?
1. Deterrence: increased burden on the infringer – **can't have a "kicker"**, *Hanson v. Alpine Vly* 2. Difficult to prove actual damages (uncertainty)

Grain Processing Corp. v. American Maize Products (1999): Process I-III products infringed, but Process IV did not (patent on the **product**, not on the **process**).

- Before, the Process IV products could not be differentiated because they used the wrong method for measuring percent DE concentration: AMP thought their product was non-infringing (and then they realized it wasn't, so they changed the process)

Issue: **Is this a "non-infringing substitute"** under Lost-Profits analysis? Requirements: (a) available; (b) acceptable → **YES**

- Here, the other process was available, but it was more expensive: here, the additional cost was small enough that it could be absorbed by the infringer (the cost of process < cost of product)
- Acceptability: does it make a difference that customers care about?
    - Sometimes, customers prefer name brand drugs. But these are functionally the same.
    - *Grain Processing* shows that even when there is demand for the product, the consumers do not necessarily demand **every claimed feature**

This can create a "willful infringement" problem: if they had a non-infringing alternative and they *still* infringed – what does that say about the infringer

Effects of *Grain Processing*
1. Lower damage awards: where infringers can modify their equipment (depends on industry) 2. Can litigate "next-best alternatives" → more costly trials 3. Can affect how inventors seek to patent their inventors: can seek to delay issuance of patents to ensure that they cover competitor's specific infringement 4. Might also encourage suit earlier in the patent term

WILLFUL INFRINGEMENT –QUESTION of FACT, up to COURT DISCRETION

§ 284 allows awarding enhanced damages up to three times the amount found in compensatory

Policy Issues: **Why do we have enhanced damages**? What about controversy?
1. Deterrence (both specific to this infringer and general deterrence) 2. Respect for the law **Controversial** 3. Proving intent is difficult (plus litigation is expensive) 4. Creates a greater incentive to litigate for plaintiffs: **windfall** 5. Discincentivizing looking at the prior art (destroys point of disclosure) 6. We already have strict liability!

35 U.S.C. § 285: Allows the awarding of attorney's fees **"exceptional cases"**

- You must be the prevailing party: must be "exceptional" – e.g. enforcing a patent obtained through inequitable conduct; bad discovery practices; frivolous suit

Limitations: § 286: Six year statute of limitation

- Use the *Reed* factors: difficult to make a definitive finding
    - These reflect a high level of culpability

- Some factors seem irrelevant to the actual finding of willfulness
- Sometimes only used to determine **whether** and **how much** to enhance damages

Knorr-Bremse v. Dana Corp (2004): Here, infringement was found

There is an affirmative duty of care

1. When attorney-client or work-product privilege is invoked, can there be an adverse inference from that invocation? **No.**

- We want to protect this institution and have free-exchange of information

2. When the defendant has **not** obtained legal advice, can there be an adverse inference? **No.**

Totality of circumstances approach takes into account whether there is a **substantial defense to infringement** – but this is not sufficient to defeat any liability for willfulness (prevent game-playing)

- It is a public service (private prosecutors/attorney-generals) to take a patent to trial and have it invalidated

Because there is still an affirmative duty: this case probably didn't make a big difference in terms of seeking opinion letters

In re Seagate (2007): **Overrules** *Underwater Devices*

3. If the client uses an "advice of counsel defense" to show that there was no willfulness, does this waive attorney-client privilege to communications with trial counsel? **No.**
4. There is no affirmative duty to obtain counsel's opinion (**before: if you had notice of the patent, you would need to investigate with counsel**): new standard is "objective recklessness" – (a) unjustifiably risk of infringement that was (b) known or should have been known by the infringer

Conversation with SCOTUS: Formalistic bright line, and no special rule for patent infringers

Patent Reform efforts with Willful Infringement
1. Abolish except in cases of copying 2. Preclude willful infringement if there is a substantial defense of invalidity/non-infringement 3. Clear and convincing notice of: (a) written notice from patentee OR (b) intentional copying OR (c) continuing infringement after finding of liability 4. No willfulness if there is an "informed good faith belief" of invalidity, unenforceability, non-infringement 5. Limit when there can be pleading of willfulness (expand F.R.Civ. P. 11)

PATENT MARKING

35 U.S.C. § 287: Persons making or selling any patented article may give notice to the public by fixing thereon the word "patent". When this cannot be done, fixing a label containing like notice.

- Failure to mark → no damages shall be recovered unless separate notice was given

Soverain Software v. Amazon (E.D.Tex. 2005): Soverain alleged that Amazon infringed three patents (dealing with controlling/monitoring access to servers, sales systems)

- Amazon alleged that there was **no notice** because there was no (1) constructive notice through marking OR (2) actual notice
- The marking statute does not apply to **method claims** because there is nothing to mark
- But marking does not depend on the tangibility of the object:

We mark to:
1. Avoid innocent infringement 2. Encourage notice to the public 3. Aiding in the identification of patented articles

- Sometimes actors **choose** *not* to mark: (1) sneak attack; (2) allows design-around
- False marking is prohibited § 292:
    - Requires **intent** to deceive: knowledge of falsity provides presumption, but can be rebutted, *see Pequignot v. Solo Cup* (2010)
    - Expired patents are included (as falsely marked), *see Solo Cup*.
- Qui Tam statute: **any person** may sue
- Fine of < $500 **per article**

PUBLISHED APPLICATIONS have provisional rights (**not** an interpretation of § 271(a))
35 U.S.C. § 154(d): reasonable royalties are available beginning from date of publication

1. Actual notice
2. Issued patent claims are substantially identical to the published patent claims

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INEQUITABLE CONDUCT: Rules for inventors, attorneys & patent agents (substantially involved in prosecution)

1.56: Duty to Disclose material to the patent office: (1) duty of candor; (2) all information known to be material 1. Not already on record 2. establishes a prima facie case of unpatentability OR 3. refutes/is inconsistent with applicant's position	**Case Law Standard**: "unenforceability" under 35 U.S.C. § 282 *the entire patent is unenforceable; maybe related ones

Policy Issues: **Why do we have this doctrine?**
1. Efficient to impose duty to disclose (no opposing party during prosecution) 2. How would the PTO find out about such conduct otherwise? (PTO doesn't have enough resources to pursue disciplinary action frequently) **Controversial** 3. Strategic behavior at PTO: (a) no searches at all OR (b) information dump: one solution – require writing re: why the reference is material 4. IC is brought up as a defense nearly 80% of the time (and found rarely) 5. Can deter incorrectly: a. If fraud is found at litigation: **too late** (in terroram effect): maybe a high penalty will be sufficient deterrence b. Maybe we should deal with this in an opposition proceeding: is there sufficient discovery there? Or maybe the pleading standard should be more lenient

Therasense v. Becton (Panel, 2010): '382 prior art patent shares two inventors with the patent-in-suit: (1) discusses two types of membrane: (a) diffusion controlling; (b) protective membrane which is **optional but preferable**
EPO 1993 Patent: argued that it was obvious: in response, Therasense argued that the membrane was a protective layer, not a semipermeable layer (distinguishing factor)
In Prosecution in the United States: In the '551 patent (at issue), argued that it was "lacking a protective membrane for whole blood" – which overlaps with the '382 claim, so they wrote an affidavit saying that '382 is interpreted as **requiring a membrane**

- Should have disclosed the EPO proceeding

QUESTION of FACT: Is the non-disclosed information **material**?
QUESTION of FACT: Must have an **intent** to deceive?

Materiality	**Intent**: "clear & convincing evidence"
1. Reasonable examiner standard (old rule), sometimes used by the courts 2. Current PTO rule 1.56 (matches the PTO standard) 3. But-for causation: fraud standard – if the PTO had been aware of this matter, the challenged claims would not have been allowed	1. "single most reasonable inference" drawn in light of all the evidence 2. Subjective intent to deceive **Should there be a sliding scale approach?**

DISCLAIMER: if you think a claim is invalid **without deceptive intention** (might want to do this if you want to sue on another, valid claim) § 253

CORRECTION: If it is the PTO's fault – they may issue cerification/correction, § 254
Applicant's fault: § 255

1. Clerical/typographical nature (good faith)
2. OR A minor character

Cannot change the scope of the claims

- Can only sue for infringement **after** correction

REISSUE – for more serious errors **render patent "wholly or partly inoperative/invalid"**, cannot have **deceptive intention**, §§ 251-52 (by patentee request only)

1. Discovered new prior art (narrow claims)
2. Can broaden claims for up to 2 years
    a. Doctrine of Equivalence (easier than re-litigating issue)
    b. In light of competitor's new product

    //Cannot add new matter

- No presumption of validity
- Open to public
- Cannot recapture scope lost during prosecution
- Intervening rights for a new infringer

REEXAMINATION ****changed in 2011 Law**
Ex parte: limited 3rd party participation: "raise substantial new question of patentability" §§ 302-07

1. Anyone can file
2. Cannot broaden the scope

Inter partes: Full 3rd party participation rights, **can** appeal (as can the patentee) §§ 311-18

1. Subject to estoppel
2. Can stay litigation (discretionary): can be cheaper and be used to strengthen claims

Good for public interest groups: would not have standing to sue necessarily, but can engage in reexamination proceedings, requires less funds, don't have to worry about estoppel

SECTION 101 – PATENTABLE SUBJECT MATTER

What kinds of inventions can (or should) be patented?

1. Products of Nature? //Living Things

Biotechnology: overlap with basic research, can abrogate the public health

2. Algorithms/software/abstract ideas?

Computers: could be covered by copyright protection, seems to have overlap with algorithms

3. Business methods: We live in an information society and depend on service economy, might fall outside the scope of "technology"

Policy Issues: **Why Should we Exclude *Anything***

1. Other incentives exist to invent/discovery these things (particularly for business methods):
    a. University grants, alternative social mechanisms
    b. Collaboration is necessary to invent: interdisciplinary approaches
    c. The private market has weaknesses in the regulation: might provide insufficient revenue, create holdout problems: **downstream inventions give incentive** (**benefits outweighed by costs**)

At what other times do we go outside the private market?

1. When the government seeks a monopoly
2. When the valuation difficulties are difficult (especially for basic research)

See: public schools; roads; healthcare: **concern about free riders, abilities to pay, externalities from those who cannot afford the services** (we have a baseline of these rights): infrastructural inventions, market failures

3. Autonomy? Freedom of Thought?

Constraints on Patentable Subject Matter

Constitution: Art. I § 8

- "useful arts" – this term refers to technology (can it be outside the scope of the useful arts)?

Patent Statute: In addition to being "new" and "useful"

- Process (which means process, art & method)
- Machine
- Manufacture
- Composition of matter

International Treaty Obligations (TRIPS)

- You cannot exclude a particular field of technology
- BUT: you can exclude based on "ordre public or morality" OR
- "methods for treatments of humans or animals", non-microorganism patenting

Historically, there has been a prohibition on patenting: (1) laws of nature; (2) physical phenomena; (3) abstract ideas

O'Reilly v. Morse (SCOTUS, 1853): Claim to "use the motive power of the electric current for…printing intelligible characters…at a distance": **unpatentable because it was too abstract, would cover things not yet invented**. //probably unpatentable under enablement as well

The Telephone Cases (SCOTUS, 1888): Claim to a "method of transmitting sounds telegraphically by causing electrical undulations, similar in form to the vibrations of the air." → **patentable**

Hotel Security Checking v. Lorraine (2d Cir. 1908): Arguably denied patentability of biz. methods

Parke-Davis (S.D.N.Y. 1911): Even if the purified adrenaline were merely an extracted product without change, there is no rule that such products are not patentable"

- Provided the basis for the future patentability of genes

Funk Bros. (SCOTUS, 1948): Certain strains of bacteria were mixed to inoculate seeds: but putting them all together was not patentable – **it is no more than packaging the inoculants**

Gottschalk v. Benson (SCOTUS, 1972): Method for converting numerals from binary decimal to binary because it would "wholly preempt the mathematical formula and in practical effect patent the algorithm itself"

Parker v. Flook (SCOTUS, 1978): Method for computing "alarm limit" for petrochemical process (using the Arrhenius formula): not patentable because it was a mathematical equation followed by a "conventional, post-solution application"

Diamond v. Chakrabarty (SCOTUS, 1980): Claimed a bacteria which was genetically modified so that it would help treat oil spills – the claims to the bacteria themselves were rejected by PTO

- Focused on the statute to determine the scope of PSM and the relevant legislative history
- **Senate Report**: "may include anything under the sun that is made by man…but not necessarily patentable under 101"
- Court takes a very broad approach: but both sides agree that Congress has the proper discretion here: But it takes a long time for Congress to do things: (1) capture by industry; (2) it is slow

1. Should the Court err on the side of not including new material unless Congress says otherwise?
    a. New technology should be forward-looking
    b. Disregards hazards of having patents on living things: disallowing patentability doesn't stop research
2. Or Should Congress have to give permission for the Court to include? (**Dissent**)

Would definitely be a bad idea to decide this as a Constitutional Issue: would be very difficult to change.

Diamond v. Diehr (SCOTUS, 1981): Process for curing rubber in a mold using the Arrhenius equation to calculate the curing time based on the temperature of rubber in the mold

- Interpreted to mean that software is patentable

Policy Issues: **Why is Software Patenting Controversial?**
1. Tangibility 2. Seems like a math problem (but it also requires creativity): but does that mean it is like copyright and not like patent law?

State Street Bank (1998): This is a data processing system for Hub and Spoke financial services configuration. Acknowledged under *Chakrabarty* that there are three exceptions (1) laws of nature; (2) natural phenomena and (3) abstract ideas

- There is no exclusion for business methods: this is a transformation of data that is a practical application of a mathematical algorithm that produces a **"useful, concrete & tangible result"**
    - This is an analogy to a mechanical device
    - If the patent is too broad, we have: §§ 102, 103 & 112

In response, Congress passes 35 U.S.C. § 273: Prior User Defense for Business Methods

Revival of interest in PSM:

eBay v. MercExchange (SCOTUS, 2006): Kennedy concurrence – injunctive relief may have different consequences for the burgeoning number of patents over business methods

- Mentioned potential vagueness and suspect validity of these patents

LabCorp v. Metabolite (SCOTUS DIG 2006): Expresses doubt over :useful, concrete, tangible result test"

In re Comiskey (2007): System of arbitration (no requirement of computerization): rejected as based on abstract ideas (no patents on systems that depend on human intelligence alone)

- Revitalized the "**mental steps**" doctrine

In re Nujiten (2007): Patentability of an electrical signal (digital watermark) – not patentable – not a "manufacture" because it was not tangible

In re Bilski (SCOTUS, 2007): Patent on a method of hedging risks in the energy industry (no one disagrees about patentability: everyone thinks it is not patentable, they just don't know why)

Patent Examiner:

1. No apparatus is required
2. "Purely mathematical problem" (change from conception in *State Street*)
3. Not directed at the "technological arts"

BPAI: applied the mental steps doctrine (no transformation of physical matter)

Federal Circuit

Applied the "machine-or-transformation of matter tests" (**typical bright line**)
+ cannot be insignificant post-solution activity or mere data gathering (not bright line)

1. Problematic to use bright line tests given new technology
2. Should merely carrying out tests on computer make some patentable? (is the role of a computer the same as pencil/paper?)

Kennedy (+ the parts the **Scalia** agreed on): **not patentable because this is an attempt to patent abstract ideas** (like what J. Rader said)

- The machine-or-transformation test cannot be the "sole test"→ it is a **clue**
  - Having it as a sole test violates the definition in the statute
- Why don't we just say that business methods aren't patentable'
  - Statute doesn't allow - § 273

1. This would "preempt" the whole abstract idea (have the practical effect of patenting the abstract idea)
2. It is not enough to limit something to a particular technology/environment: "post-solution activity"
3. Could use point-of-novelty test (dicta, not really adopted) – this goes against the Fedeeral Circuit of taking the claim as a whole a little, but basically, anything that is in nature is considered to fail novelty (*see* *Parker v. Flook*)

Kennedy (without **Scalia**)

- The statute doesn't give very much guidance, but we agree that these patents are problematic
  - We don't want to foreclose new technology
  - But maybe the Federal Circuit could make a smaller category and exclude that
- The machine-or-transformation test creates uncertainty about other technologies

Stevens: Thinks that it is silly to use the § 273 argument - this was merely a stopgap: argues that these were historically patent-ineligible

- This opinion is confusing and gives no guidance: we should outlaw biz method patents

Breyer: tries to give guidance (+ **Scalia**)

1. § 101 is broad, but not without limit
2. The machine or transformation test is a clue and is not the sole test
3. Useful, concrete or tangible result: not a good test

Does *Bilski* affect the patentability of software claims?

Pre-Bilski:

1. Mathematical algorithms not patentable
2. Software is claimable as a method/system/machine: steps taken on a computer
    a. Also allowed "software on a disk" – *Beauregard claim*

GENE PATENTS

Funk Bros (1948): This invention was not patentable because it merely combined characteristics of products of nature

- Human-animal chimera: not patented: invoked moral utility prohibition
- Congress' Weldon Amendment: cannot encompass a human organism (2004)
- TRIPs allows exemptions of living things

Purified Products of Nature

Merck v. Olin Mathieson (4th Cir.): Cow liver was purified into vitamin B12

- Emphasizes the economic characteristics and utility – not a transformation physically alone
    - "step from complete uselessness to great and perfected utility"

We don't allow products of nature patents because: these are things that belong to all of us – we don't need to incentivize finding this

Parke-Davis (SDNY): Allowed the patentability of purified adrenaline – makes it available for more people: every practical purpose a new thing commercially and therapeutically.

Myriad (SDNY 2010): Challenged patent claims: "isolated DNA containing portions of BRCA1 and BRCA2 sequence", which are mutations indicating predisposition to breast cancer

1. How can someone own the genes in your body? (they own the information)
2. BUT the naturally occurring form won't meet the limitations of the claim - -**purified**
3. Is there less inventing going on here?
4. It is hard to design-around gene patents (patents are on the target, not the cure) – differentiates from other drugs

Other Doctrines that Deal with Gene Patenting:

1. Utility
2. Written Description
3. Enablement
4. Obviousness: **obvious-to-try; predictability; point of novelty** (doesn't exist)

//SACGHS recommended having exemptions rather than broad limitations (§ 287(c))

Court held that this was a phenomenon of nature: needed to show "markedly different characteristics": subject to being drawn in a conclusory manner; sounds like obviousness

- Focus on technological differences (rather than economic differences)

DOJ Amicus Brief: argues that naturally occurring sequences are not patentable

- BUT: human-made genetic inventions *are*

Andrew Chin: printed matter doctrine – "genes as information"

Long history: of tension/hostility between physicians and patents

Lab Corp v. Metabolite (SCOTUS DIG, 2006): Patented (1) correlation between homocysteine and vitamin deficiency; (2) Created a test that looked for homocysteine

- But Abbott created a better test, Lab Corp stopped paying royalties
- Breyer argued that the claim about homocysteine was "a completely mental step": not patentable

Prometheus v. Mayo (2009): Applied m-or-t test and found that it was patentable

- First you administer the drug then you check the levels and if it falls within a certain range, *you may* increase or decrease the amount of the drug subsequently administered
    - Transformation is: (1) administering the drug and (2) transforming the sample from body (just like **Metabolite** assay)
- But here, there is a step beyond thinking: it involves administering the drug
- Administering the drug is **not** a natural phenomenon (but what about digesting a prepared food? Is that unnatural?)

Post-Bilski: This is not an abstract idea, but a law of nature

1. You can use machine or transformation test
2. Probably won't change practice of looking at the claim as a whole

If *Prometheus* is unpatentable: there are odd results

1. You can patent a drug
2. You can patent a new use

But once you have a correlation – suddenly unpatentable

Is "administering the drug" the main thing – or is it "post solution data gathering"?

- Lourie doesn't think that it is merely data gathering

CLAIMS: construed to determine scope of the right - **notice**

1. Means plus function claims: 112 ¶ 6 (a) must be in combination (b) read in light of spec.
2. Product by process claims: limited only to the product made by *that* process. **Abbott**

Construction– Question of Law, reviewed *de novo* (**Cybor**) with underlying issues of fact
"what does the claim mean to the PHOSITA"? Determined at "time of invention"
Claims are construed by **judges** in (typically) a bifurcated proceeding **Markman**
What sources may be used? **Phillips v. AWH** intrinsic sources > extrinsic sources
[Claims/specification/prosecution history] > [Dictionaries, trade journals] > [Expert testimony]
• you cannot read in **limitations** from the specification (even as you interpret the claims)
Definiteness: 112 ¶ 2 – Question of Law: "would a PHOSITA understand what is claimed"?
• As "accurate as the subject matter permits" (**Orthokinetics**), so long as the claim is not "insolubly ambiguous" (can be construed in light of the spec and **the art**) (**American Cyanamid**)

A. Written Description: 112 ¶ 1 – Question of Fact. "Does the specification inform the PHOSITA that the inventor was in possession of the invention" at "time of patenting"

1. Squeaker Gene	2. Gentry Gallery/Tronzo	3. Ariad
Claimed a genus without having all of it	Inventor didn't think of it/thought it wouldn't work ("omitted element")	Research Plan *applies to unamended claims

B. Enablement: 112 ¶ 1 – Question of Law. (1) Cannot require *undue experimentation* by the PHOSITA to enable the claims (**Incandescent**); (2) Scope of enablement = scope of the claims (**In re Fisher**) (if non-functional units can be easily found, still enabled). **In re Wands**: (a) Qty of exp.; (b) amount of direction/guidance; (c) presence/absence of working examples (**don't need examples**); (d) state of prior art; (e) skill of PHOSITA; (f) **predictability** of art*; (g) claim breadth. *Challenger/PTO has burden of proof to show no enablement* at "time of filing".

C. Best Mode: 112 ¶ 1 (1) Subjective: did inventor have preference; (2) Allows enablement

VALIDITY

Utility – Question of Fact: (1) Operability: PTO has burden to show that it is not operable;
(2) Beneficial Utility: (a) need not be *better* (**Lowell v. Lewis**) (b) deception is ok (**Juicy Whip**)
(3) Practical Utility: "sufficiently useful" – at least one non-trivial use
• high standard: "a patent is not a hunting license" (**Brenner v. Manson**) v. more lenient standard – drug might work on humans, but only showed treatment in mice (**In re Brana**).
• PTO has burden to show no utility - Guidelines: (a) not basic research; (b) not a method of identifying/making a material with no use/treating unspecified disease (**ESTs**, **In re Fisher**);
(c) Not a throw-away utility (cannot use the onco-mouse as snake food).

INTENT and MATERIALITY STANDARD

- **At issue in the pending Fed Cir en banc case of Therasense**

- **Therasense/Abbott argues for "conduct tantamount to fraud"?**
  - **Would require a high standard of both materiality and intent**
  - **"but for" the conduct, the patent would not have issued**
  - **Specific intent to deceive**
  - **Materiality not relevant to intent to deceive**

- **Becton, Dickinson argues for**
  - **Use of PTO rule 1.56 to determine materiality**
    - **No "but for" standard**
  - **Intent as "single most reasonable inference based on totality of evidence"**
  - **Materiality can be evidence of intent**

- **PTO argues for**
  - **Use of PTO rule 1.56 to determine materiality**
    - **No "but for" standard**
  - **Specific intent to deceive**
  - **Materiality can be evidence of intent**

§	What?	Who?	Where?	When?	Use of References
a	Known	Others	U.S.	Before Invention	Inventor/Inventive Entity cannot anticipate own invention **BUT**: (A+B+C) can ant. (A+B) & (A+B) can anticipate (A+B+C) **One person using it is not sufficient**
	Used	Others	U.S.	Before Invention	
	Patented	Others	Anywhere	Before Invention	
	Published	Others	Anywhere	Before Invention	
b	Patented (after ISSUANCE)	Anyone	Anywhere	> 1 year pre-filing	Can be used in obviousness analysis even after the date of conception, *In re Foster* Question is still obviousness at the time of invention, and the 102(b) art is treated as though it existed at the time
	Published	Anyone	Anywhere	> 1 year pre-filing	
	Public Use	Anyone*	U.S.	> 1 year pre-filing	
	On Sale	Anyone	U.S.	> 1 year pre-filing	
c	Abandoned	Applicant		Before Filing	Probably like 102(b) under *Foster*
d	Filed **AND**	Applicant	Foreign	> 1 year pre-filing	Probably like 102(b) under *Foster*
	Patented	Applicant	Foreign	Before U.S. Filing	
e	(1) Application published **OR**	Others	US/PCT	Filed before Invention	Exception to inventive entity rule: A's patent/application won't ant. (A+B) & (A+B+C)'s filing won't ant. (A+B): but the later entity must show that it is responsible for the earlier work Exception: for industry labs – *see* (f) & (g)
	(2) Patent Granted	Others	US/PCT	Filed before Invention	
f	Derived from another	Applicant	Anywhere	Any time	Industry Lab Exception: If prior art is *owned* (assigned) by the same person, no obviousness
g	(1) Interference: made /not ASC'ed	Others	Anywhere	Before Invention	Industry Lab Exception contd.: (A+B+C) (employed by Z) cannot make obvious (D+E+F) employed by Z, or (D+E), D w/Z; E w/Y if **joint** research agmt.
	(2) Made & not ASC'ed	Others	US	Before Invention	

VALIDITY: Novelty § 102 – Question of Fact: A single reference with an effective date before the critical date that anticipates: discloses all the limitations of the claim (evaluated *separately* for each claim; discloses all elements literally) **applies to** § 102 (a); (e) & (g) ***make a claim chart**

Inherent Anticipation: The limitation (1) Would be recognized by a PHOSITA (not merely "probably recognized", **In re Robertson**; can be from a different field, **In re Schreiber**);
(2) Significantly present as a matter of physical or natural law (not accidental: **In re Seaborg; Tilghman v. Proctor**; but simply unknown at the time is not enough: **Schering Corp. v. Geneva**)

• Key Question: will this take something away from the public if patented?

Genus/Species: A genus can be anticipated by a species in the prior art (**Titanium Metals**) BUT a species might not be anticipated by a genus in the prior art (**special species**)

Enablement (for the reference): similar standard to 112 ¶ 1: for **printed publications** "a disclosure lacking a teaching of how to use a fully disclosed compound for a specific utility or how to use a compound produced by a fully disclosed process" is *still* enabling. (**Hafner**)

• When it is already in the public use: no enablement is necessary. (**Lockwood v. American A.**)

§ 102(a): **(1) Known or used by others in this country** //burden on party seeking to invalidate

A. Known: Must be a **public** use: 1. Single user is not enough (**Tractor Pullers**); 2. Must be corroborated evidence (**Barbed Wire Case**); 3. Cannot be Lost Art (**Gayler v. Wilder**)
B. Used: Public use requirement is less stringent than for knowledge: 1. Merely not secret **(Gore v. Garlock); 2.** in ordinary course of business and 3. Not abandoned (**Rosaire**)

(2) Printed Publication/Patent in foreign country: 1. Length of time on display/permanency; 2. Expertise of the target audience; 3. Expectation of copying; 4. Ease of copying and 5. Ease of access (indexing) (**Jockmus; In re Klopfenstein**)

§ 102(e): **(1) Application for patent OR (2) Granted Patent** date of filing description NOT claim

§ 102(f): **Derivation**: Suggestions: (1) embrace the plan (all elements) and (2) fully enable

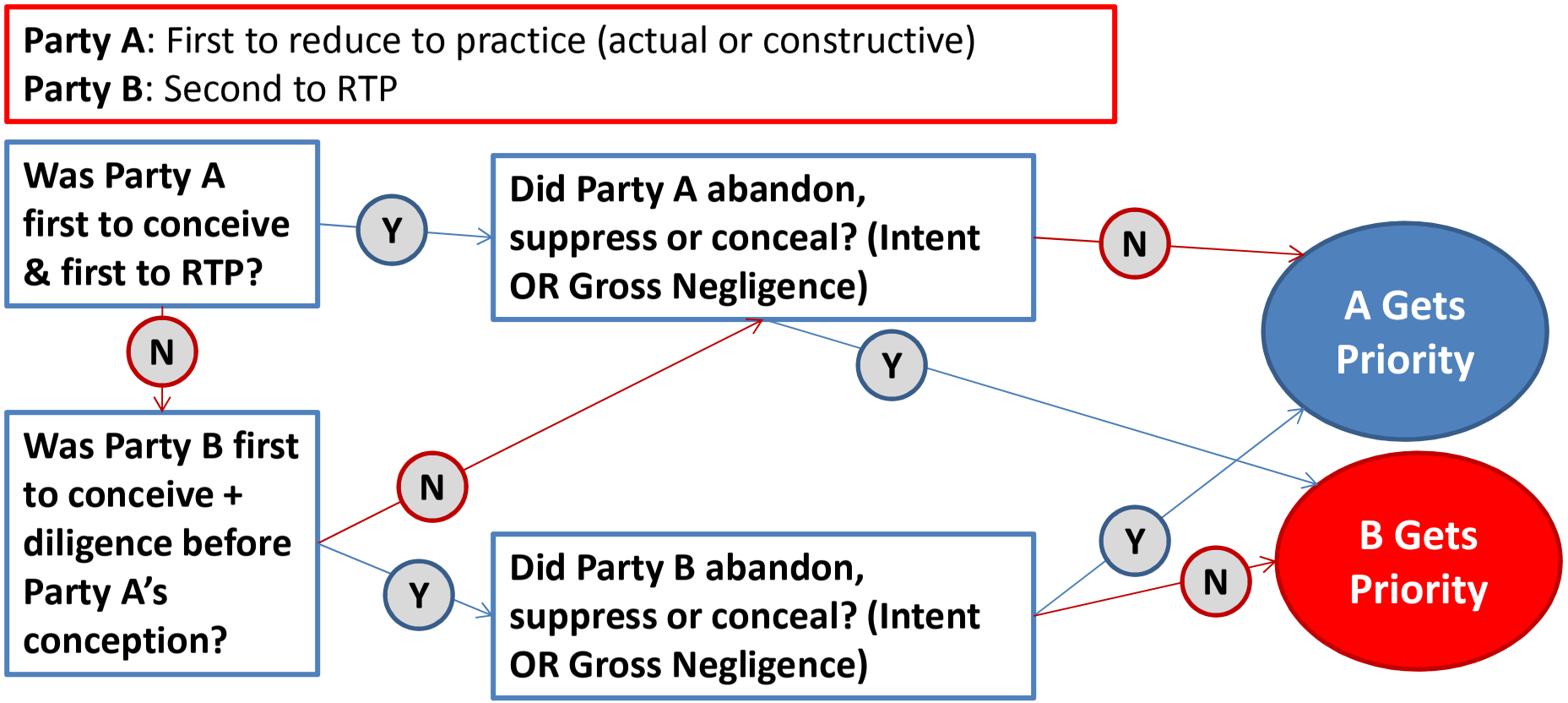
§ 102(g): (g)(1) during the course of an interference that the other invention was made before and NOT ASC'ed **(any WTO country)**; (g)(2) this invention was **made in this country** and NOT abandoned; suppressed or concealed.

Conception "definite & permanent idea of complete & operative invention" (**Brown**) (inc. a use)

Reduction to Practice: 1. Must have practiced an invention that encompasses all elements of the invention; 2. Must have appreciated that the invention worked for its intended purpose

ASC: Requires **intent** to abandon (can be inferred from **extreme delay**) (**Peeler**)

- If abandoned inventor resumes work: all prior work is **disregarded** (**Paulik v. Riskalla**)
- A trade secret is considered **suppressed** (a mere non-informing use is NOT)
- If they use it but choose not to patent it, still considered prior art (**Dow v. Astro-Valcour**)



VALIDITY: § 102(b): **Statutory Bar**: within the one year BEFORE the filing date

1. Patented OR in a **Printed Publication** anywhere

Art here is typically by the patentee: otherwise would be in § 102(a) or § 102(g) interference

2. Public Use OR **Sale** in this country

Public Use: 1. Not in control of the inventor (*Compare* **Egbert *to* Moleculon Research**)

2. If you use it secretly for more than a year (i.e. selling product) (**Metalizing Engineering**)

1. Discourages removal from public domain/2. favors prompt disclosure/3. allows reasonable amount of time for inventor to decide/4. prohibits early commercial exploitation (**Baxter**)

Experimental Public Use: You must finish all experimentation before RTP: (a) number of prototypes; (b) duration of testing (**Seal Flex**); (c) records of testing (**Nicholson Pavement**); (d) secrecy agreement; (e) compensation for testing; (f) **CONTROL** (most crucial) (**Lough**)

Third Party Use: Is sufficient if it is public (even stolen) (**Colgate**), not secret (**Gore v. Garlock**)

On Sale: 1. The product must be the subject of a commercial offer for sale **(specific offer);**

2. The invention in the commercial offer must be ready for patenting: (a) either RTP OR (b) the specification is enabling (**Pfaff**). Third party sale is sufficient (**Abbott Labs v. Geneva Pharms**), even if they don't know what they are selling, sham sale *may* trigger (**Marhurkar**)

- *Can* have an experimental sale (**Manville Sales**), **market** testing/fine-tuning doesn't count
- You can market without triggering "on sale" bar, including quote sheets: bright line rule using contract law (**Gemmy Indus.**)

VALIDITY §103 **Obviousness**: Question of Law, determined at time of invention

1. Determine the Scope and Content of the Prior Art (FACT, **Graham**) (All § 102 art is eligible) Must be (a) in the same field of endeavor regardless of the problem addressed OR (b) pertinent to the problem (**In re Clay**), look at the "Winslow wall" (**In re Winslow**)

2. Ascertain the differences between the prior art and the claims at issue (FACT) by *each* limitation (but the question is not whether the differences are obvious, but whether the subject matter as whole is obvious)

3. Find the level of ordinary skill in the pertinent art (FACT, **KSR v. Teleflex**)

(a) Education of the inventor and others in the field; (b) Types of problems encountered in the art; (c) prior art; (d) rapidity with which inventions are made; (e) sophistication of the technology; (f) amount of experimentation/cost; (g) maturity of the field; (i) routine techniques and approaches; (j) simultaneous development of invention (**Environmental Designs**)

4. Determine the obviousness/nonobviousness of the subject matter (**KSR**)

You can use either (1) TSM: (a) the nature of the problem to be solved; (b) the knowledge of the PHOSITA; (c) actual suggestion in the prior art //**used when claimed invention is a combination of elements that are in the prior art**

or

(2) (a) design, need or market pressure; (b) ordinary creativity of the PHOSITA; (c) mere updating is obvious (**Leapfrog**); (d) "obvious to try" (**In re Kubin**)

SECONDARY CONSIDERATIONS: (a) commercial success (must have a **nexus** between success and the invention); (b) long-felt need; (c) failure of others; (d) teaching away: -- these are "objective indicia" of the obviousness/nonobviousness of the subject matter (**KSR**)

OBVIOUSNESS, ANTICIPATION AND STATUTORY BARS COMPARED

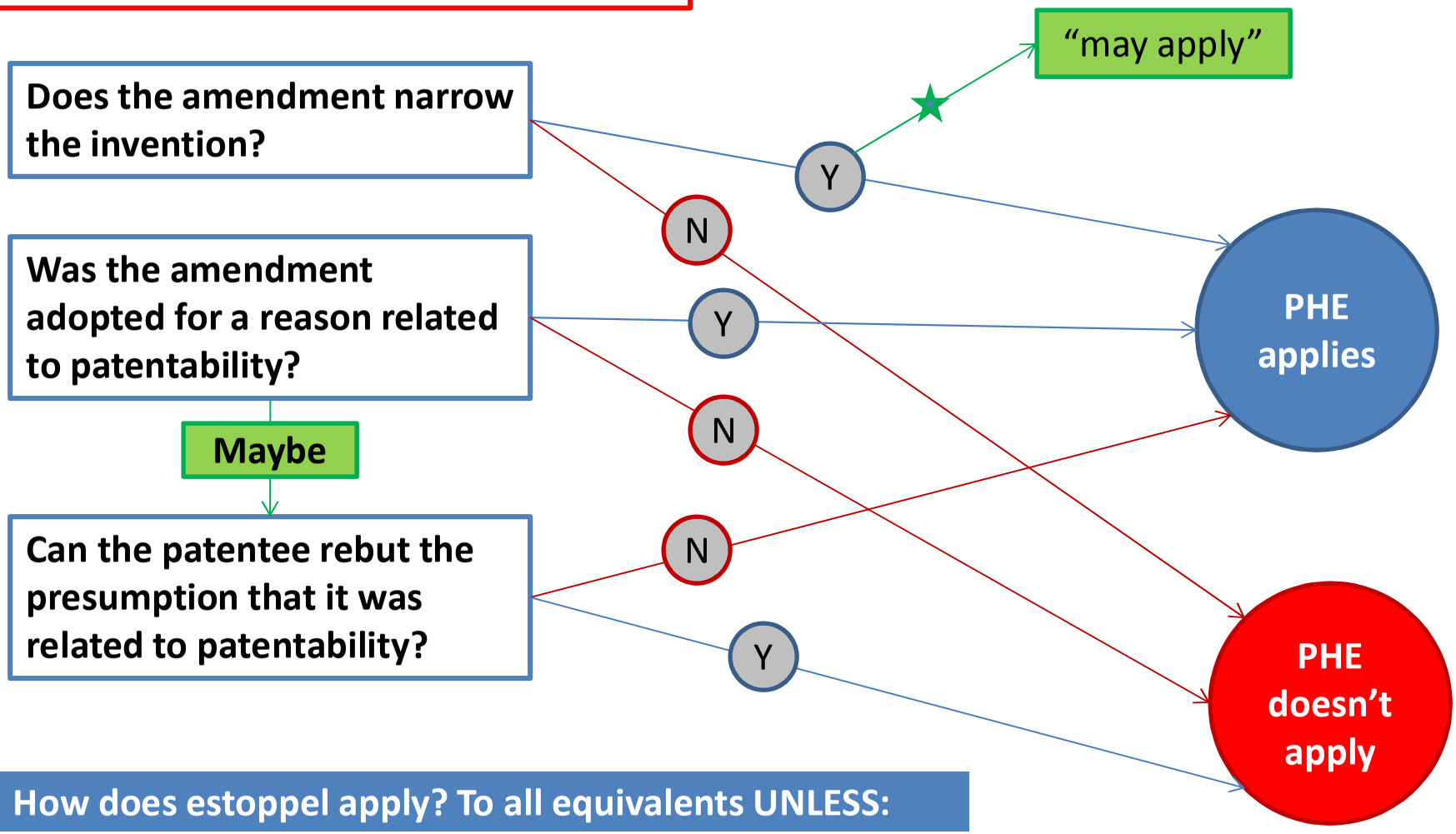
	Novelty	Statutory Bars	Obviousness
Test	Identity of every limitation	Identity of every limitation	"Subject matter as a whole" obvious to PHOSITA, but each limitation accounted for
Number of references	1	1	1 or more combined with "ordinary skill in the art"
Applicable sections of 102	(a), (e), (f), (g) (others)	(b), (c), (d) (others and inventors)	(a), (e), (f), (g) (note special rules for overlapping inventive entities) (b), (c)?, (d)?
Field of prior art	No restrictions	No restrictions	"Analogous art"
Secondary indicia	Not relevant	Not relevant	Highly relevant
"Teaching away"	Not relevant	Not relevant	Highly relevant

102(a)	[publicly] used . . . by others	Non-secret = Public Trade secret ≠ Public but Non-informing product = Public
102(b)	Public use [applicant]	Non-secret = Public Non-informing product = public Commercial trade secret = public
102(b)	Public use [3rd party]	W.L. Gore: 3rd party secret commercial use of process did not bar patent Lockwood v. American Airline: 3rd party commercial use of non-enabling product did bar patent Same as above, EXCEPT Commercial trade secret ≠ public

NOVELTY PROVISIONS	STATUTORY BARS
102(a), (e), (g)	102(b), (c), (d)
Before invention only	Before and after invention Critical date is filing date
Third parties only (not inventor)	Inventor or third party
Policy is patent only something new	Policy is promote early filing

INFRINGEMENT: § 271: "whoever without authority, makes, uses, offers to sell, sells, any patented invention [within the US] infringes the patent": Strict Liability / Question of Fact
(1) Claim Construction then → (2) **Comparison** of the claims with the accused device:
Means + Function Claims: other functions infringe when (1) they are equivalents thereof OR (2) substantially the same way to get substantially the same result (**Wright v. Paulhan**)
All Limitations: for either literal infringement or DOE, you must meet **all elements** (**W-J**)
If there is no literal infringement, then you look at **Doctrine of Equivalents** (at time of infringement) – used because we have **peripheral claiming**:
1. Is the change one of substance? (insubstantial differences are permitted) (**Warner-Jenkinson**)
OR 2. Is it the **same** (a) function, (b) way and (c) result (and would the PHOSITA *know*)
Limits on DOE: 1. Matter disclosed but not claimed; 2. Matter within prior art 3. PHE (next slide)
Exhaustion: Once you have sold a product to someone: cannot enforce rights against purchaser (under **Quanta**, sales cannot be conditional, but you can use contract law)
Experimental Use Exemption: 1. Common law: only for amusement (**Madey v. Duke**)
2. Statutory § 271(e): for submission of information for FDA regulation (only the **subject** of the research is protected, not the **tools**), includes (a) drugs not submitted; (b) compounds
INDIRECT INFRINGEMENT: requires a § 271(a) direct infringer (§ 154: application liability)
§ 271(b): "actively induces" infringement //scienter requirement is up for review
§ 271(c): a component that is a material part of the patented invention, knowing that it is especially adapted to infringement AND not suitable for substantial non-infringing use (**Bard**)
• You have to know that the component is part of a **patented** invention/not licensed (not merely that it is part of something) (**Aro**)
• Method claims: all steps must be carried out in the United States/by one party (**Paymentech**)
§ 271(f) scienter is a combination of (b) and (c) (**Msoft v. AT&T**); § 271(g) **no scienter** requirement: importing without (1) material change OR (2) trivial/nonessential component

Prosecution History Estoppel (Festo)



How does estoppel apply? To all equivalents UNLESS:
1. Unforeseeable (after-arising art)
2. Tangential for the reason for the amendment (*Primos*)
3. "Some other reason"

REMEDIES: Medical exemption – you cannot get remedies against doctors § 287(c)

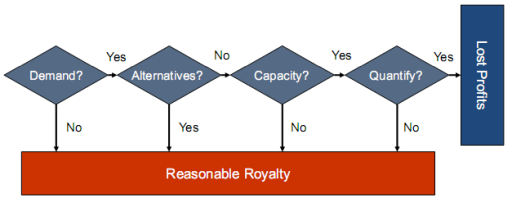
Injunctions § 283: Courts may grant injunction in accordance with the principles of equity

Permanent Injunction: 1. Has suffered irreparable injury (**no presumption**); 2. Remedies at law are inadequate to compensate for injury; 3. On balance, equity is warranted; 4. Public interest would not be disserved by the injunction (**eBay v. MercExchange**; **z4 v. Microsoft**)

Preliminary Injunction: 1. Reasonable likelihood of success on the merits: (a) that there is infringement AND (b) that the patent is valid (Question of validity → no injunction, **Amazon**) 2. Irreparable harm; (3) Balance of Hardships; (4) Public Interest

Damages § 284: **Lost Profits**, must show: (a) demand for the product (**presumed**); (b) possible non-infringing substitutes [1. Is it available & 2. acceptable, but need not be on sale (**Grain Processing**)]; (c) capability of the patentee to meet demand and (d) the profit they would have made //difficult to show (**Panduit v. Stahlin Bros.**)

Reasonable Royalty (minimum damages) //foreseeable?
"an amount that a person would have obtained from a reasonable royalty and still have sold item" //NPE preferred?



Uses **Georgia-Pacific Factors**: (a) are there non-infringing substitutes; (b) similar licenses

Willful-Infringement § 284 (Question of Fact), Attny's Fees § 285: must show **objective recklessness**: (a) unjustifiably high risk of infringement; (b) known/should have known

1. No Affirmative Duty to obtain counsel's opinion (once you know of patent) (**Seagate**); no adverse inference for having **not** obtained legal advice (**Knorr-Bremse**)
2. If you use counsel: no adverse inference if privilege is invoked (**Knorr-Bremse**)
3. If you use "advice of counsel defense", no waiver of privilege (**Seagate**) (see p. 1036)

Patent Marking: § 287 Products must be marked for remedies; § 292 no false marking (**intent**): knowledge of falsity is a presumption, but can be rebutted (**Solo Cup**)