

Depaul University College of Law

Center for Intellectual Property Law and Information Technology (CIPLIT®)

9th Annual CIPLIT Symposium: *Cyberlaw 2.0: Legal
Challenges of an Evolving Internet*

Patent Law's Unpredictability Doctrine & the Software Arts

Panel 5: Tackling Intellectual Property Law in Cyberspace
Friday, October 16, 2009; 8:30 – 10:30 a.m.

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Outline

- Scope of inquiry/issue
- Disclosure requirements for software arts
- Enablement
 - Undue experimentation & Wands factors
- Unpredictability doctrine
 - Enablement
 - Nonobviousness
- Software unpredictability
- An unpredictability doctrine for software arts?
 - Perhaps particularly plausible for internet or business method software patents?

Note: the argument is not addressing specifically the other pros/cons of requiring disclosure of source code for software patents, but the argument could be an element of such a discussion

Scope of inquiry/issue . . .

- An argument in the spirit of:
 - Burk & Lemley, *Policy Levers In Patent Law*, 89 Va. L. Rev. 1575, 1653-55 (2003)

The *written description doctrine* as currently applied is a macro policy lever. The Federal Circuit has applied the doctrine to biotechnology cases in a way that would be inconceivable in other industries, such as software. The effect is to narrow the scope of biotechnology patents--or at least DNA patents--rather dramatically. The same may be said of the application of the enablement requirement through the intermediary of the PHOSITA. In certain industries, such as software, the enablement requirement is easily satisfied and therefore plays virtually no role in limiting the scope of claims. In other industries, such as biotechnology, the doctrine has been applied with much more vigor. . . .

The court has concluded that chemistry, pharmaceutical research, and biotechnology are inherently uncertain disciplines, meaning that in those disciplines--the very ones in which the *reasonable interchangeability* test will be most important--the test is likely to lead to narrow interpretations of the doctrine of equivalents.

- Unpredictable arts doctrine with a potential influence on software patent disclosure requirements?

Disclosure Requirements

- Enablement is the central doctrine
 - It helps fulfill the “public disclosure” part of the patent bargain
 - It helps delimit the boundaries of patent protection by ensuring that the scope of a patent claim accords with the extent of the inventor’s technical contribution
- Written description doctrine is in flux
 - Recent cases have applied the written description test as a more stand-alone requirement whereas (arguably) traditionally it was not
 - *Ariad Pharms., Inc. v. Eli Lilly & Co.* (written description requirement separate from an enablement requirement?; if so, what is the scope and purpose of the requirement?)

§ 112 ¶¶1-2 Language

[¶1] 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, or with which it is most nearly connected, to make and use the same,

and shall set forth the **best mode** contemplated by the inventor of carrying out his invention.

[¶2] The specification shall conclude with one or more claims **particularly pointing out and distinctly claiming** the subject matter which the applicant regards as his invention.

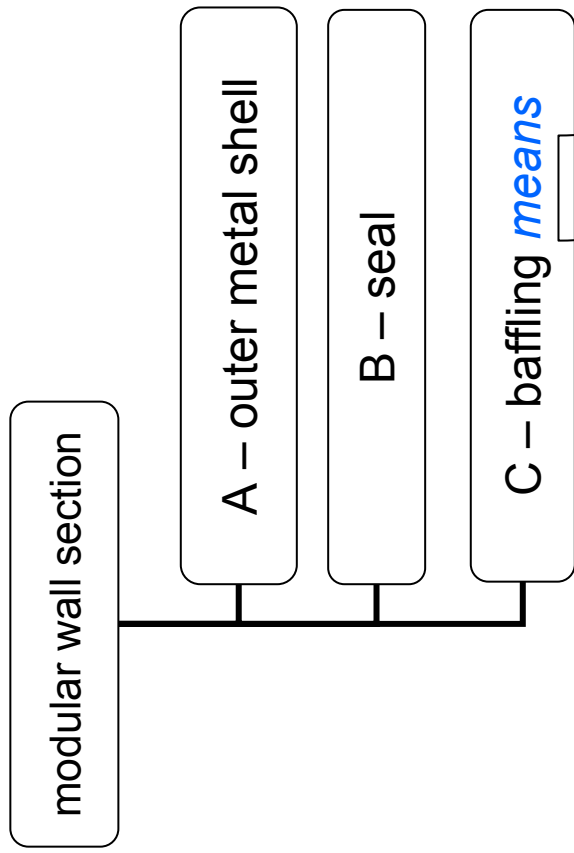
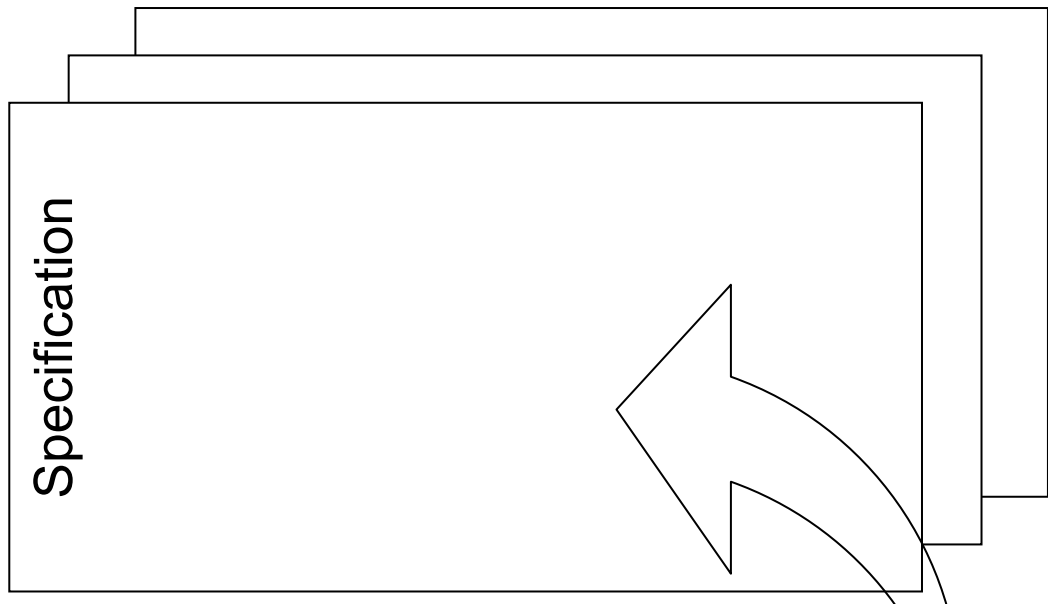
Written Description requirement.

Enablement requirement.

Best Mode requirement (subjective in part).

Definiteness requirement.

Means plus function - § 112, ¶ 6

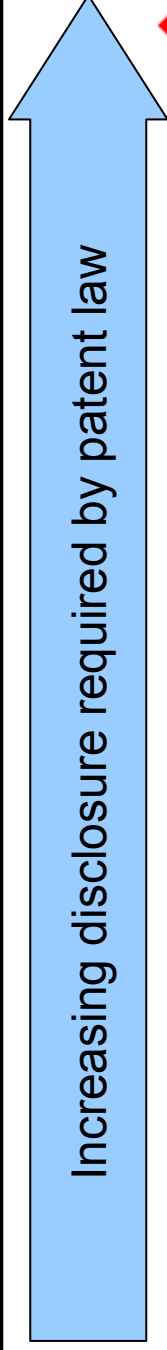


search for corresponding structure; such structure provides the specific meaning for this claim limitation



Disclosure requirements for software arts

Disclosure necessitating patent law doctrine	Block diagram	Well-specified algorithm	Source code	"Model" or "deposit"
Enablement	✓			
Written Description	✓	?		
Best Mode	✓	sometimes		
Definiteness	sometimes	sometimes		
Means plus function - § 112, ¶ 6	✓			



Hypothetical patent claim

A *firewall* for restricting transmission of *email messages* between a first site and a plurality of second sites in accordance with a plurality of administrator selectable policies, *said firewall comprising*:

a *email message transfer protocol relay* for causing said *email messages* to be transmitted between said first site and selected ones of said second sites; *and*

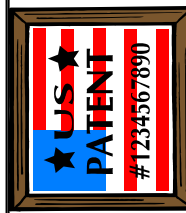
a *plurality of policy managers*, responsive to said relay, for enforcing administrator selectable policies, *said policies comprising*

at least a first source/destination policy, at least a first content policy

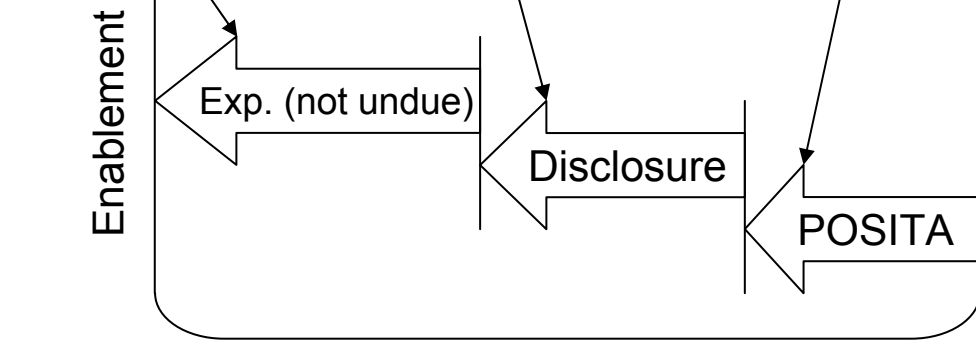
and at least a first virus policy, said policies characterized by a plurality of administrator selectable criteria, and a plurality of administrator selectable exceptions to said criteria,

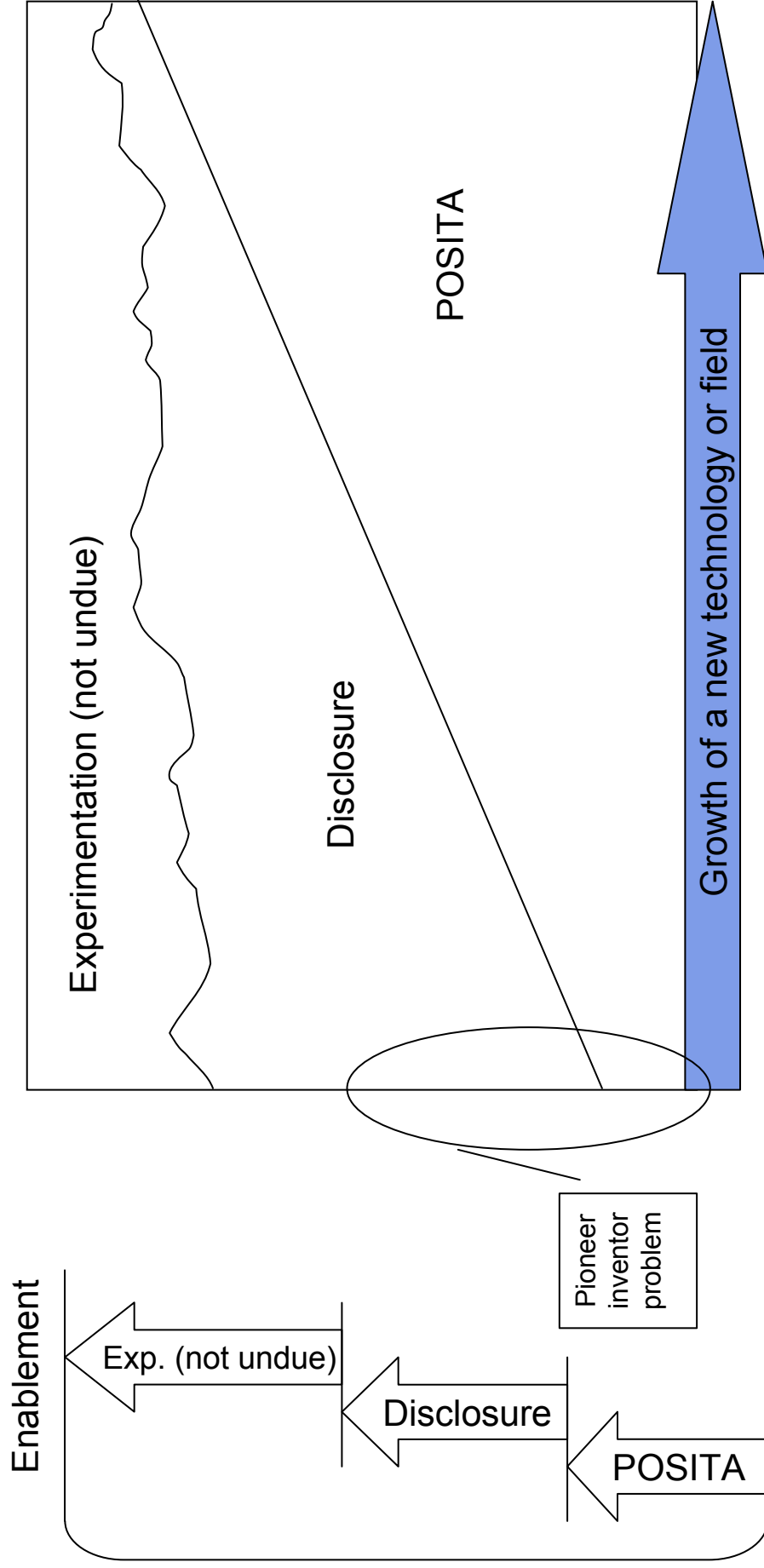
said *policy managers comprising*,

- an access manager for restricting transmission of *email messages* between said first site and said second sites in accordance with *said source/destination policy*;
- a content manager for restricting transmission of *email messages* between said first site and said second sites in accordance with *said content policy*; and
- a virus manager for restriction transmission of *email messages* between said first site and said second sites in accordance with *said virus policy*.



- Based on a number of factors, any experimentation required may or may not be “undue” – if it is “undue” the claim is not enabled
- The specification provides some additional level of information disclosure pertinent to making and using the claimed invention
- A POSITA would know some base level of information





- POSITA knowledge is likely to go up over time in a nascent field
- But, various factors will determine tradeoff between disclosure and undue experimentation
 - Field of the art, complexity of the invention, unpredictability of the technology

Enablement – undue experimentation – Wands factors

- quantity of experimentation necessary
- amount of direction or guidance provided
- presence or absence of working examples
- nature of the invention
- state of the prior art
- relative skill of those in the art
- **predictability or unpredictability of the art**
- the breadth of the claims

and still
unpredictable?

Unpredictability can also influence
the obviousness inquiry



Application of enablement to software life cycle

- Sufficient information from Design phase should be disclosed to allow a POSITA to get to the Prototype phase

80 SOFTWARE ENGINEERING CONCEPTS

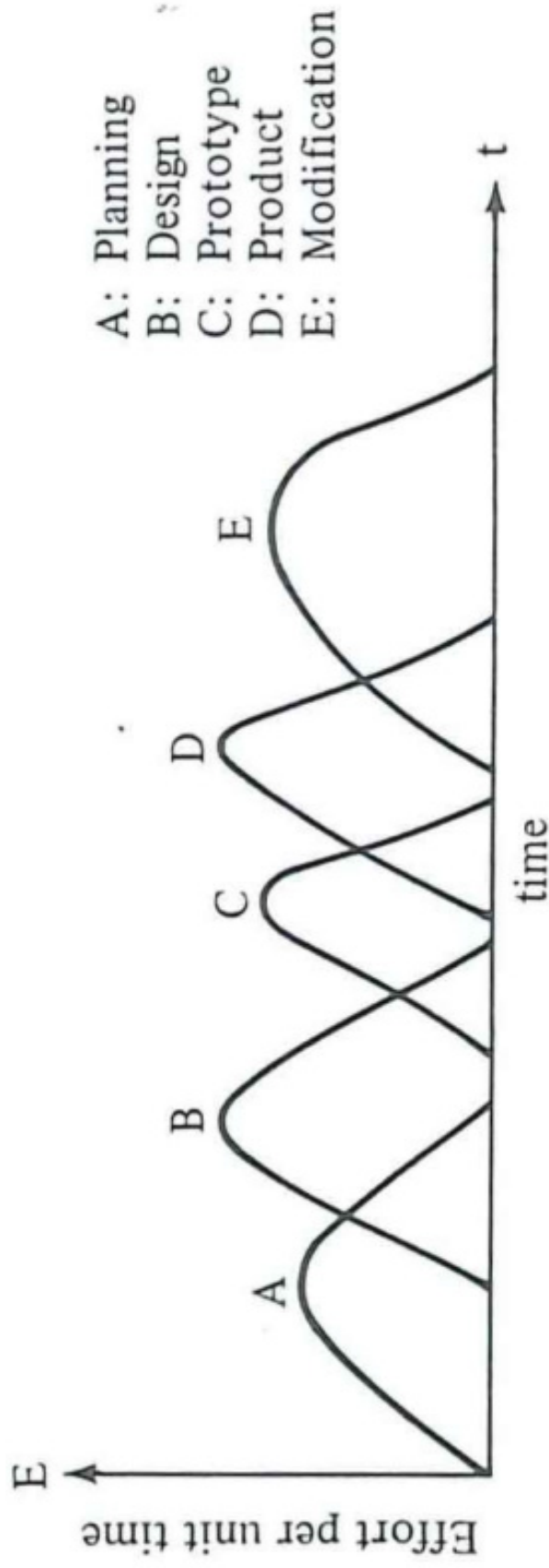


Figure 3.6 Cycles in a research and development project (NOR58).

Software unpredictability . . .

- Software failures
- Algorithm indeterminacy
- Fragile ecologies

- Software development
 - Compared to engineering disciplines
 - Heterogeneous
 - Languages, platforms, layers & objects



A problem has been detected and windows has been shut down to prevent damage to your computer.

The end-user manually generated the crashdump.

If this is the first time you've seen this stop error screen, restart your computer. If this screen appears again, follow these steps:

Check to make sure any new hardware or software is properly installed. If this is a new installation, ask your hardware or software manufacturer for any windows updates you might need.

If problems continue, disable or remove any newly installed hardware or software. Disable BIOS memory options such as caching or shadowing. If you need to use Safe Mode to remove or disable components, restart your computer, press F8 to select Advanced Startup Options, and then select Safe Mode.

Technical information:

*** STOP: 0x000000E2 (0x00000000,0x00000000,0x00000000,0x00000000) ***

Beginning dump of physical memory
Physical memory dump complete.
Contact your system administrator or technical support group for further assistance.

Software unpredictability . . .

- Software dependability

Perhaps in the future we will know enough about software-development practices that the very use of a particular technique will constitute evidence of the resulting software's quality.

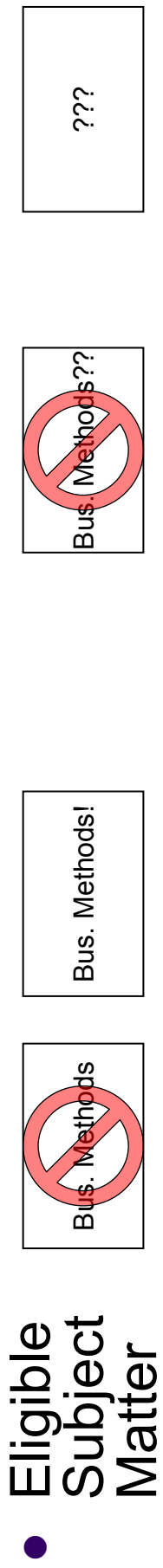
Today, however, we are far from that goal. . . .

Actually, where data is collected, it is often suppressed; many companies withhold even basic information about the number and severity of defects in their products, even when issuing patches that purport to resolve them. . . .

certified systems sometimes fail catastrophically . . .

Contrary to the intuition of many programmers, finding bugs should not increase confidence that fewer bugs remain; indeed, it is evidence that there are more bugs to be found.

“Step Change” in Patent Law - Abstract Ideas & Business Methods



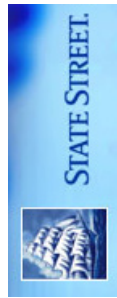
- Eligible Subject Matter
- Utility
- Statutory Bars, Novelty
- Non-obvious
- Disclosure Requirements

Increasingly abstract software claims but no adjustment of disclosure requirements

1985

2000

2010



Bilski



An unpredictability doctrine for software arts?

- Is the doctrine only applicable when the uncertain variables are items from nature?
 - Software is built on human-generated “scaffolding”, and some of its degrees of unpredictability derive from industry structure, path-dependent features of computing, and methods of management
- If the doctrine derives from other values, then the analogy with software is perhaps stronger
 - The unpredictability doctrine allows courts to calibrate the scope of enablement (and thus claim scope) for a patent application based on what is specifically disclosed
- Establish a sliding scale with claim abstractness?
 - The more abstract, the more a court should attend to the unpredictability factor among the Wands factors