eKNOWLEDGE ABOUT
SUBSTANTIVE PATENT LAW (SPL) PRECEDENTS
– TRAIL BLAZER INTO THE INNOVATION AGE –

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I. SPL ... AND ITS ROLE FOR FINANCING R&D ...

- Substantive Patent Law (SPL) deals with novelty, nonobviousness, clarity/definiteness, usefulness/technicity of an invention by only 4-7 §§ of any National Patent Law, in the
  - US basically 35 USC §§ 101/102/103/112,
  - EU basically EPC §§ 52-57, 69,
  - C, J, ......
- An invention's SPL test is the simplest precise problem existing.
- Hunter/Farmer, manufacturing, industrial age – innovation age?
- Cost of generating a new transportation technology: ≥ 5 B€!
- Cost of generating a single life science drug: 0.1-5 B€!
- Where from comes the money in the US, EU, J, C, B, ...
- A society's investment into R&D is an "early productivity indicator" of this society – its protection by SPL hence indispensable!
- Innovation biz still in "Manufacturing Age"; "Industry Age" ahead!

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II. **eKNOWLEDGE ABOUT SPL PRECEDENTS: TRAIL BLAZER ...**

- But: Future of patent law is unclear in EU as well in US. Also in C?
- Also: Adapting patent law to technical development is too slow in EU, also in US (in spite of AIA, causing problems). How about C?
- Adapting SPL precedents seems to work in the US due to its two central Highest Courts, now copied by C. How about the EU???
- European refusal to foster inventivity as trail blazer of wealth:
  - No Grace Period — sending academic inventors to the US,
  - No open ended Patent Application Continuations — the same,
  - No Fast Track and No Examiner Interviews,
  - Strange misjudgment of needs of globalization,
  - Absurd discussion about "technicity" limitation,
  - Hysteric reservations as to genetics research and technologies.
  - Ignorance of raging economical competition in innovativity.

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III. SPL FOR EMERGING TECHNOLOGIES INVENTIONS

- Originally: Patents based on allegedly inventive devices submitted.
- Thereafter until today: Patents based on specifications of alleged inventions.
- But: With emerging technologies patents ought to be granted only based on their clear "usefulness" and "inventivity", the dominating reasons being:
  - emerging technologies – only these are lucrative for us – are all model based, as started in IT, went on in telecommunications, and now is ubiquitous in business/DNA/nano/life/green technologies,
  - the models being "intuitionless", thus needing higher preciseness, also for not being preemptive and thus compromising the patent system, and
  - unavoidable ethical reservations require political discussions.
- Increased scientific rationality of SPL caters for emerging technologies needs.
- In the US, the Supreme Court and the Court of Appeals of the Federal Circuit, CAFC move this way, whereby new notions introduced by the Supreme Court’s precedents, e.g.: "inventive concepts", “abstract ideas”, and “preemptive”, caused clashes in the CAFC – parts of it practicing parts of them by rationales showing uncertainties about the requirements the Supreme Court stated by them.

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IV. KNOWLEDGE KINDS AND KKRs/KRs IN PATENT BUSINESS

Patent eKnowledge is the key blueprint of any precise eKnowledge in any business area – such as medicine, education, industry, transportation, security, show biz, .... And: It is **FOL + FINITE!!!**

- **Knowledge kinds, KKS, in patent business:**
  - Legal kinds – Nat./Internat. patent and other laws, PTOs' and other bodies' directives, corporate/market rules, ..., mostly case independent.
  - Technical kinds – patent at issue, prior art, marketing/user/maintenance information, ..., mostly case specific.

- **Knowledge kinds' representations, KKRs, in patent business:**
  - documentRs – in any doc.i, as known from everyday life.
  - logicRs – to be marked-up in doc.i's as identified by the inventor/posc,
  - brainRs – showing what our brains do, though we don't know how,
  - argumentRs – sequences of mixtures of the above KKRs.

- **KRs are instantiations of KKRs. From the above said follows:** Any KR item is a “universe” of its own – THE issue in today’s Geometry!

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V. OVERVIEW ABOUT A PATENT IES'es GUI – STRUCTURE-KR

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VI. OVERVIEW ABOUT A PATENT IES'es GUI – ARGUMENTS-KR

test.1 The FSTP-Test is executed for the set ν claim interpretations, Sol, selected in (b)(c), comprising the steps:
(a) It prompts the user for the claim(ed invention)’s and prior art’s docs with their “marked-up items, MUIs”;
(b) It prompts ν Sol and for any Sol’s ν AD|X seminal, i.e. 0 ≤i ≤|S|∩|RS| and ad-hoc |S|∩|RS|, 0 ≤i ≤|S|∩|RS|;
(c) It prompts for the definiteness justification of ν compound inCs in Sol, i.e. of ν AD|X seminal;
(d) It prompts to disaggregate ν AD|X seminal νSol into (BED|cr|Seminal|Bed|) 1 ≤k ≤|S|∩|RS|;
(e) It prompts for the definiteness justification of its disaggregation in (d);
(f) It automatically sets \( \text{K} = \sum_{(i,k) \in \mathcal{S}} \mathcal{K}_i \), \( \mathcal{S} := \{ \text{BED|cr|Seminal|Bed|} 1 ≤k ≤|\mathcal{K}| \} \), with \( \mathcal{K}_i \) := {BED|cr|Seminal|Bed| 1 ≤k ≤|\mathcal{K}|};

test.2 It prompts for justifying ν BED-inCs in S\#': Their lawful disclosures;

test.3 It prompts for justifying ν BED-inCs in S\#': Their definiteness under § 112.6;

test.4 It prompts for justifying ν BED-inCs in S\#': Their enablement;

test.5 It prompts for justifying ν BED-inCs in S\#': Their independence;

test.6 It prompts for justifying ν BED-inCs in S\#': Their posc-nonequivalence;
(a) It automatically sets if \( |RS| = 0 \) then BED|in|CRK := "dummy" else performing c-f \( \forall 1 ≤i ≤|RS| \);
(b) It prompts to disaggregate ν BAD-X into \( \wedge \text{Sol} \uparrow \text{BED|in|CRK} \);
(c) It automatically sets BED|in|CRK := either BED|in|CRK \& discloaed \& definite \& enabled, else "dummy(ik)";
(d) It prompts for JUS\uparrow\text{BED|in|CRK}.

test.7 It prompts for justifying by NAIO test on (S\#',P,0\#): TT.0 is not an abstract idea only;

test.8 It prompts for justifying on ν BED-inCs in S\#': TT.0 is not natural phenomena solely;

test.9 It prompts for justifying ν BED-inCs on (S\#',P,0\#): TT.0 is novel and nonobvious by NANO test" on the pair (S, S\#), if \( |RS| = 0 \) then BED|in|CRK \& discloaed \& definite \& enabled, else "dummy(ik)";

The "Not an Abstract Idea Only, NAIO" test basically comprises 4 steps, ignoring any prior art’s inventions:
1) It prompts to justify the specification discloses a problem, P,0\#, to be solved by the claim(ed invention) as of S\#;
2) It prompts to justify, using the inventive concepts of S\#', that the claimed invention solves P,0\#;
3) It prompts to justify that P,0\# is not solved by the claim(ed invention), if a BED-in of S\# is removed or relaxed;
4) if all verifications 1)-3) apply, then this pair <claim(ed invention), Sol> is "not an abstract idea only".

The "Novel And Not Obvious, NANO" test basically comprises 3 steps, checking all "anticipation combinations, A\uparrow|\uparrow|\text{Sol} of S\#:
1) It automatically generates the ANC\# matrix, its lines representing for any prior art document,i=1,2,...,1, the relations between its invention\#i's BED-inCs to their peers of TT.0\#, represented by its columns, whereby S\# derived from any prior art documents' invention in Sol;
2) It automatically derives from the ANC\# matrix the set \( \{ \text{ANC|Sol} \} \) with the minimal number Q\#\|\\text{Sol}.
3) It automatically determines and delivers <Q\#\|\\text{Sol}(\text{ANC|Sol}) being the creativity of the pair <claim(ed invention), Sol>.  

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VII. CAPABILITIES OF INNOVATION EXPERT SYSTEMS (IESes)

Increasingly powerful capabilities, explained by the following ladder, its "high end" known from science fiction, its spokes not being consecutive.

- **Graphics/Acoustic prompting through legal q-a**
- Graphics/Acoustic prompting through *all reasonable q-a*
- **Assessing legal correctness capability** – all being "self-catalytic systems"
- **Self-contained interactive graphics/acoustic "responsivity"**
- **Realtime** self-contained interactive graphics/acoustic responsivity
- **Personalizable/Moderatable** realtime self-contained interactive graphics/acoustic responsivity
- **In-/Extrinsic user-counseling** in realtime self-contained graphics/acoustic interactive responsivity = self-inflammable self-catalytic system = HAL

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VIII. KR ORIENTED FUNCTIONS OF A PATENT IES

- Most IES functions are KR oriented for its "calibration", few for its "engagement" mode – working step/stream wise, also overlapping.
- Today, all the information eventually output by the IES in engagement mode is input before in calibration mode by an IES user – i.e., is already marked-up/linked or marked-up and linked during calibration by a user.
- In a Patent IES all the invention independent information should already carry its "mark-up information, MUIs". MUIs to be provided by the inventor/posc are vastly stereotypic – once the invention's inventive concepts are identified – as then the FSTP-Test [URL see below] prompts the user through the complete check whether it satisfies SPL.
- Perspective for “FFOL problems”: Adapted FSTP-Tests may check “any document for its satisfying any directive” – e.g. a new drug specification for satisfying a FDA directive, not just a patent’s invention the SPL.

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