PATENTS' ABSOLUTE ROBUSTNESS AND THE FSTP-TEST – SEMI-AUTOMATED BY THE INNOVATION EXPERT SYSTEM, IES

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ABSTRACT OF THIS SPECIFIC PRESENTATION': ITS SCREEN SHOTS & THEIR ABSTRACTS

For each of the 10 'Screen Shots', except **VI.**, its 'Abstract' summarizes its oral message, by explaining its topics presented in much more detail – thus *MAKING NOTES SUPERFLUOUS*.

For an ET CI (ET = Emerging Technology), the first 8 Screen Shots **I.-VIII.** , except **VI.**, report about: **I.** the two here interesting principles of quantifying an ET CI's generative compound inventive concept, **1.)** into its set S of atomic quanta of inventivity and **2.)** by evaluating S by the 10 atomic social concerns of 35 USC SPL; **II.** its eRepresentation as eKNOW; **III.** the relations between the eKNOW components of S; **IV.** the interrelations between S and the "**Substantive Patent Law, SPL**", in the US being: **35 USC §§ 101/102/103/112**); **V.** the fundamental "**FSTP-Test**", capable of SPL testing **all** CIs resp. their Ses, hence embodying the Supreme Court's line of unanimous *KSR/Bilski/Mayo/ Myriad/Biosig/Alice* decisions; **VII.** the **1.)** alias *Mayo* quantification of S **VIII.** the **2.)** alias *Alice* quantification of S;

The 3 Screen Shots **IX.-XI.** and their Abstracts outline the 'Innovation Expert System, IES' functioning : in **IX.** that the FSTP-Test interactively generates for S, by executing its 10 FSTP-test.o and storing in the IES their outputs into 10 sets of 'arguable sub tests, **AST**s'; in **X.** that for any AST a set of 'user interface entities, **UIE**s' is automatically and/or interactively generated and calibrated (in the IES's calibration mode) such that any final UIE represents a "Legal Argument Chain, **LAC**". Any LAC is automatically resp. semi-automatically reproduced by an IES (in the IES's court mode, where it automatically screens all input it is capable of identifying for figuring out, which sets of LACs might actually be of interest in the court's discussion) under user control; in **XI.** what the evolutionary steps of the IES are. The colors in their headlines indicate the separate key ideas involved in such LAC derivations/generations/reproductions/controls.

Part of this tutorial has recently been presented at the 'Work in Progress on IP, WIPIP' conference in DC, run jointly by the USPTO and GWU, whereby this tutorial was focused, in its 20' slot only, on the double quantification of an ET CI – which explains its bias towards this new phenomenon achievable with ET CIs.

I. Principles of Quantifying a C(laimed) I(nvention)'s Inventive Concept

- This quantification is indispensable/optional for ET CIs resp. CT CIs.
- There are two principles of quantifying an ET CI, i.e. its total = generative compound "inventive concept, inC":
  - DISAGGREGATING it – by 35 USC §112 – into a conjunction of "atomic increments of ET CI's compound inventivity", any such increment hence being an "Inventivity Quantum"; their set is called ET CI's "Generative Set, GS" of elementary inventive concepts,.
  - On top of the first quantification: EVALUATING this Generative Set of Inventivity Quanta of ET CI's invention as a whole, by determining the values of ET CI's further decisive indicators of 35 USC §§ 101 & 102/103 – being the inCs' semiotic aspects – for checking their SPL satisfaction, too.
- Both quantifications are indispensable for translating *Mayo's/Alice's* wordings of "MORE THAN"/"ENOUGH"/… into rigorous (i.e. scientific) language, which then enables determining unquestionable properties of the so quantified ET CI – thus translating the *Mayo/Alice* requirements for an ET CI to satisfy SPL into precise thresholds.

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ABSTRACT OF I.

- The above survey slide provides a preview on the structure of what is explained in this Tutorial, i.e. its details are here not yet understandable. But, some notions may be clarified immediately.
- From *Alice* is known: An ET CI may be modeled by an inventive concept – more precisely: by a generative compound one, which is made up from a conjunction of atomic/elementary inventive concepts
- The wordings of *Mayo/Alice* comprise a series of decisive new – and in particular quantitative – terms, first of all "enough", "more than", … , due to their vagueness inviting troubles, uncertainties at least. Moreover, due to this vagueness, it also is impossible to introduce thresholds, although these would provide a basis on which uniformity/consistency in SPL precedents as to ET CIs may be achieved.
- This presentation shows which notions of an ET CI in post-*Mayo* SPL precedents are amenable to quantification – e.g. "inventive concept", "nonobviousness", "patentability", "noneligibility", "inventivity", …– and of what kinds these quantifications are. For them hence such thresholds may be introduced.
- From the particularities of any "emerging technology, ET" – intangibility/invisibility/fictionality – follows that virtually any ET CI is "model based", i.e. that construing the claim construction for an ET CI requires much more scrutiny than needed for a "Classic Technology Claimed inventions, CT CI", in particular as to all patent-eligibility/-ability exemptions.
- This implies that two kinds of ET CI quantifications contribute to determining the semiotics – i.e. the capability of meaning-making – of the Supreme Court's interpretation of 35 USC SPL and of ET CIs (in addition to this semiotics being of FFOL, usually not the model): Firstly ET CI's 1. §112 quantification by "elementary/atomic inventive concepts" and, based on this set, secondly ET CI's 2. §§ 101/102/103 quantification of ET CI's properties as a whole. If both quantifications succeed for an ET CI, it satisfies the 10 "elementary/atomic social concerns" encoded by 35 USC SPL.

II. A CI's eKNOW – eK-Kinds & eK-Representations & ETs

- "Patent eKnowledge" is the blue print of any precise eKnowledge as to any subject matter – such as medicine, transportation, security, nano tech, ….
- "Substantive Patent Law, SPL" grants inventors' "Intellect. Prop. Rights"
- The semiotics of "Patent eKnowledge" is (among others) **FINITE∧FOL!!!**
- eK-Kinds alias eK-Semiotics of a "Patent Practitioner":
  - **Legal kinds – patent laws/precedents, PTOs' other bodies' directives, … – CI indep.**
  - **"Technical" kinds – patents/ prior art/ posc, marketing/user/maintenance information, ...**
    For ET CIs this kind of information is dramatically different from CT CIs!!!!! – CI specific.
  - **Patent Business kinds – R&D, Prosecution, Litigation, Licensing, Marketing – CI specific.**
- Representations of any eK-Kind alias eK-Semiotics:
  - **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),**
  - **LACRs – sequences of mixtures referring to the above eK-Kinds.**

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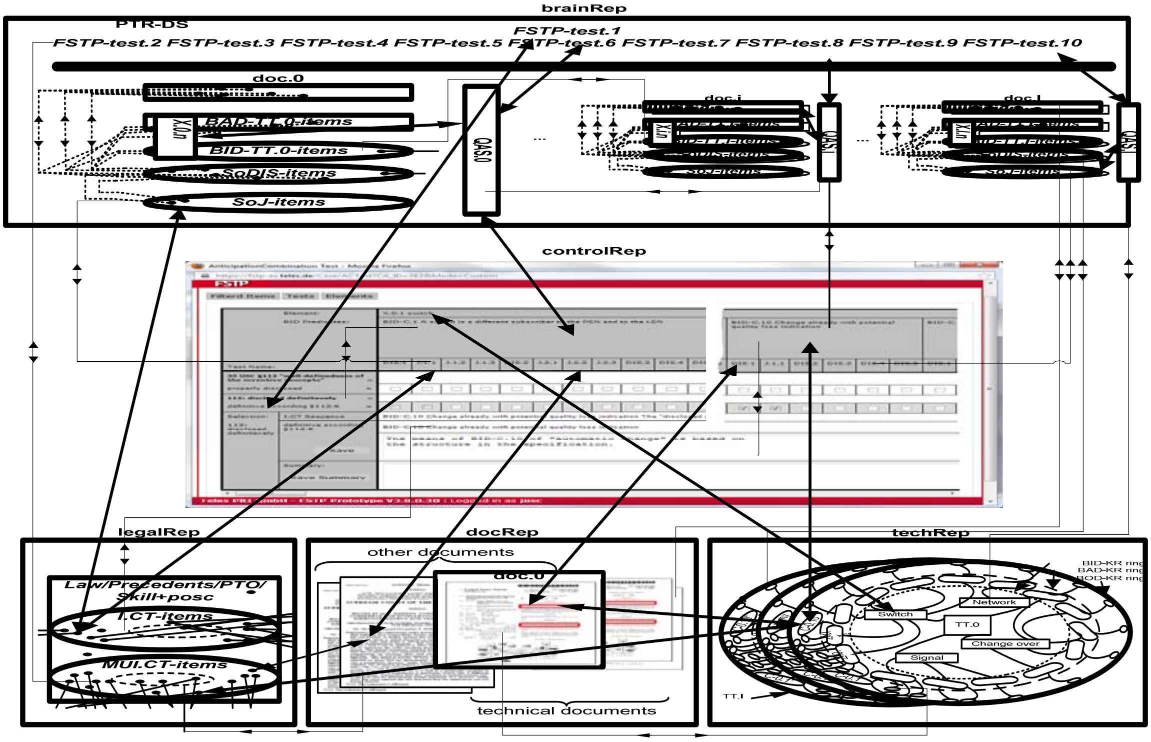
ABSTRACT OF II.

- Patents in general are very simple, allegedly precisely described, practical solutions of problems.
- As usual in engineering, they are of "first order logic" and even finite – both probably indispensable for making the patenting philosophy work.
- For designing a technology efficiently supporting patent professionals, distinguishing between 3 compound knowledge kinds is crucial – hitherto never distinguished in KR – namely: legal, "technical" (in its broadest sense), and business kinds of knowledge, the human categorization of which is here called its semiotics.
- By Bilski/Mayo/Alice the Supreme Court elaborates on categories/semiotics of invented "technical" knowledge subject to patent-eligibility exemption, i.e. it distinguishes between subcategories alias subsemiotics of the compound semiotics of "technical".
- Legal argument chains (LACs) – producible and reproducible in realtime by and "Innovation Expert System, IES" – then determine the eventually required kind and representation of knowledge, i.e. semiotics of the CI under SPL test. Any LAC is highly personalizable as to features of its legal and technical representation and other I/O features, starting from the resp. automatic LACs.
- Mathematical modeling provides the basis for the mathematical FSTP-Test outlined/used in IV-VII.
- The legal correctness of such an IES would be audited by PWC/EY/DT/… just as that of ERPs.
- The normal patent practitioner need not care for mathematical/technical "soundness" proofs of FSTP-Technology. But knowing some basics about the terms/notions syntax, semantics, pragmatics, and in particular semiotics (the science of "meaning making") simplifies understanding *Alice,* see first paragraphs in Wikipedia.

III. eK-Kinds: Tech./Legal/BIZ & eK-Reps: DocR/LogicR/BrainR



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ABSTRACT OF III.

- Above is shown a control screen shot (in the middle). Below the control screen shot, 3 screen shots model 2 different graphical representations of all kinds of eKnow. The middle screen shot models, by docRs, two "docR-stacks" of documents, the right stack models all technical documents, and the left stack all other documents – while the "legalR-stacks" in the right and left screen shots model, by legalRs, the logical structures of the peer documents in the two middle docR-stacks. Above the control screen shot, the large screen shot models, in its lower half, all info about the CI as "brainR-objects", all having quite similar internal structures, whereby any brainR-object represents all eKnow about any document in the 2 bottom docR-stacks, the by far most complicated one being the brainR-doc0 comprising TT0 – while its upper part indicates the outcome of executing the FSTP-Test on the CI.
- The LAC information is here graphically indicated on the bottom lines of the control screen shot. I.e., acoustic or other graphical info representation is not shown here. For other UIE info see V.
- The double headed arrows exemplify how the user may browse between eKKs, eKRs, and both.
- There are no such arrows modeling that the user may browse, also within one eKR, between its items.
- The brainR models all the relations known to the IES. It may be implemented as a sophisticated "linking structure" – not discussed here – of all items of other data structures contributing to implementing the IES, i.e. also between all items introduced in V-VI.
- The basic structure of the brainR of a CI's analysis/representation is determined by the FSTP-Test, see IV. I.e.: the brainR is automatically built-up, by FSTP Technique, such as to model, in any national patent system (which is just a parameter of the IES), not only the national flavor of its SPL but also its Highest Court's SPL precedents.
- The user interaction as to a CI under SPL test (by the FSTP-Test) – with the brainR of this CI built-up in the IES – is controlled by the UIEs (see IX./X).

IV. Structure of Testing a CI for Satisfying Substantive Patent Law (SPL)

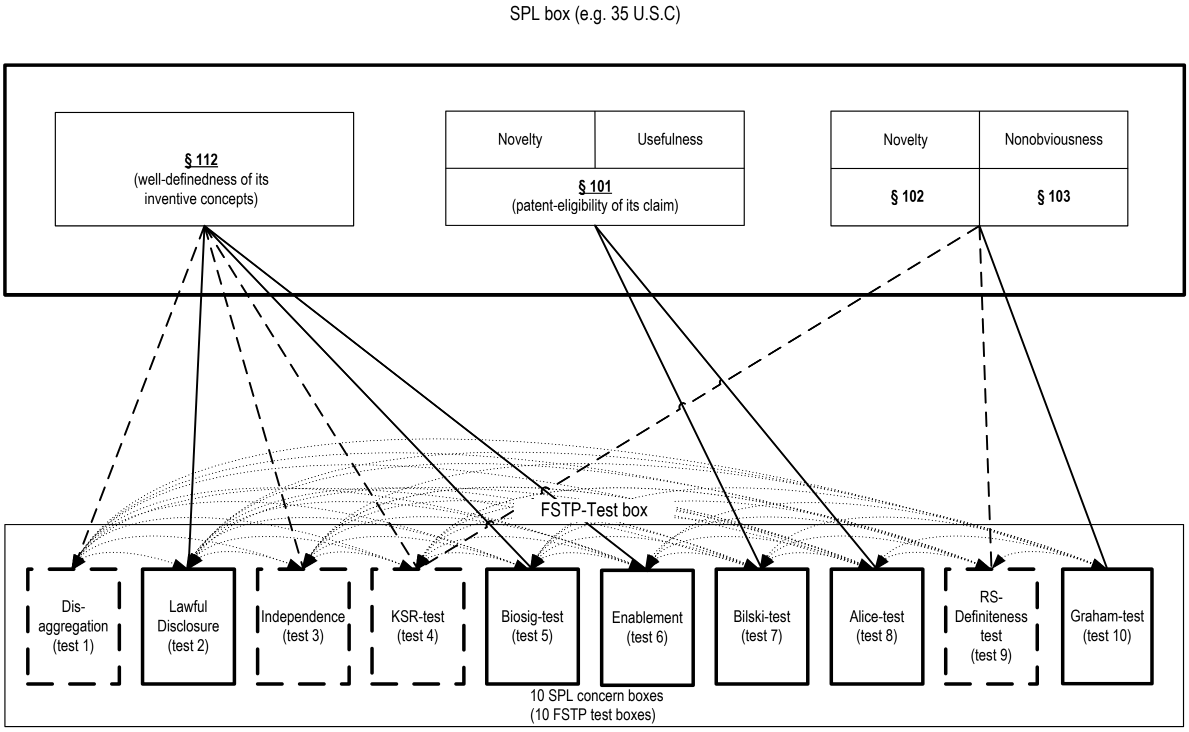

FIG 1

Bold lines show the classical claim construction's test.i's, dashed ones what Mayo/Biosig/Alice additionally require (refined claim construction). "←" show a "use hierarchy" among test.i's. "→" expand it to testi's total dependency.

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<u>*ABSTRACT OF IV.*</u> **(TO BE SLIGHTLY ADJUSTED)**

- The SPL_box, on top, shows the 4 Sections of 35 USC SPL, the requirements of which – they encode the society's concerns about granting temporary monopoles on innovations immediately after their creation for providing an incentive for marketing them quickly – must be met by the ET CI under SPL test.
- The FSTP-Test_box, at the bottom, shows the 10 concerns of SPL – see the FSTP-Test in V. – that these 4 Sections' requirements encode and which hence must be satisfied by the ET CI under SPL test.
- The FSTP-test.1/4/5/8 are not yet noticed by SPL precedents, but they are indispensable for ET CIs.
- The bold lines show what is tested (rudimentarily) by the classical claim construction for an ET CI.
- The dashed lines show what additionally must indispensably be additionally tested for an ET CI (more exactly) for its refined claim construction – due to an ET CI's invisibility/intangibility/fictionality.
- An optimal sequence of executing the FSTP-test.o is o=1,2,…,10.
- All tests must be executed for any set GS(ET CI) of inventive concepts generating this ET CI – of which usually a finite number of versions exist. Here is assumed (in V.) that just 1 GS exists, for simplicity. Even for a single GS – for brevity often just "S" – there may be several execution sequences for the FSTP-Test, as for several test.o there may be different justifications.
- If, for a test.o, one of its justifications does hold, this execution sequence may proceed to its next test.(o+1); if none of them holds (or there is no justification at all) this execution sequence is normally void – see the Abstract V – and the search for a completely executable execution sequence may be continued by e.g. backtracking in the just voided execution to a preceding test.(o-n), n=1,…,(n-1), in which an alternative justification (not yet involved in a preceding execution sequence) exists – for testing, whether the so identified alternative execution sequence may be completed successfully..By repeating this procedure, eventually one execution successful execution is found (which means the whole FSTP-Test is passed by the ET CI under SPL test), or all execution sequences are voided (which means the FSTP-Test is no passed by the ET CI under SPL test, i.e. this ET CI does not satisfy SPL).
- If this ET CI had several it generating S, i.e. it had several interpretations, any S must be processed..
- **If an ET CI passes the whole FSTP-Test, its patent-eligibility and patentability cannot be questioned. This ET CI is arbitrarily robust!!!**
- **If an ET CI passes the whole FSTP-Test, its being infringed by an ET CI* is easily, exactly, and non-deniably determinable. This ET CI is arbitrarily transparent!!!**

V. The *Mayo/Alice*-based FSTP-Test of a CI: Scientification of SPL-Testing

The **FSTP^{FFOLLIN}-Test** is a computer implemented method – defining also a system – for testing

- under a given Finite First Order Logic Legal Invention Norm, FFOLLIN, a given Claimed Invention, CI^{FFOLLIN}, which has a given interpretation TT0^{FFOLLIN}, represented by its Generative Set of TT0^{FFOLLIN}, S^{FFOLLIN},
- TT0^{FFOLLIN} – defined by S^{BADFFOLLIN} ::= {BAD-crC0n^{FFOLLIN}/$\forall^{1 \le n \le N}$} ∧
  ∧ S^{FFOLLIN} ::= {BED-crC0kn^{FFOLLIN} | 1≤n≤N : BAD-crC0n^{FFOLLIN}=$\wedge^{1 \le kn \le Kn}$BED-crC0kn^{FFOLLIN}},

whether this FFOLLIN is satisfied by TT0^{FFOLLIN} alias S^{FFOLLIN},

- whereby FFOLLIN is defined to comprise a conjunction of 10 given **FSTP^{FFOLLIN}-test.o** of TT0^{FFOLLIN} alias S^{FFOLLIN}, i.e. $\wedge^{1 \le o \le 10}$FSTP^{FFOLLIN}-test.o – for brevity in the sequel the index **"FFOLLIN"** being omitted, any FSTP-test.o abbr. by just "o)", 1≤o≤10, and for 6≤o≤10 the stereotypic "over model and posc" omitted –

whereby the claimed invention for any TT0 prompts the CI's user to input to it

- the given information ■) ∀TT0-elements X0n of TT0, 1≤n≤N, ∧ ∀ binary abstract and elementary disclosed creative concepts of all X0n, BAD-crC0n resp. BED-crC0n ■) for |RS|>0 also ∀TTi-(dummy-)elements Xin peer to X0n, 1≤i≤I=|RS| ∧1≤n≤N, ∧ ∀ binary abstract and elementary disclosed (dummy-) creative concepts, crCin, of all (dummy-)elements Xin, called BAD-crCin resp. BED-crCin, as well as ■) ∀ below justifications, by stepwise prompting,

i.e., for testing the S input to it as follows:

1)	(a) S^{BAD}::={BAD-crC0n |$\forall^{1 \le n \le N}$}, S::={BED-crC0kn|1≤n≤N:BAD-crC0n=$\wedge^{1 \le kn \le Kn}$BED-crC0kn};		
	(b) justof$^{\forall 1 \le n \le N}$:	BAD-crC0n is **definite**,	
	(c) justof$^{\forall 1 \le n \le N \wedge \forall 1 \le kn \le Kn}$:	BED-crC0kn is **definite** ∧ ∀ patent-noneligible BED-crC0kn* are identified;	
	(d) justof$^{\forall \in SBAD \cup S}$:	BAD-crC0n = $\wedge^{1 \le kn \le Kn}$BED-crC0kn;	
2)	justof$^{\forall \in SBAD \cup S}$:	s∈S ∧ BAD-crC0n∈S^{BAD} are **lawfully disclosed**;	
3)	justof$^{\forall \in SBAD \cup S}$:	**Independence-test passed**	S is well-defined&independent over model;
4)	justof$^{\forall \in SBAD \cup S}$:	***KSR*-test passed**	S is well-defined over posc;
5)	justof$^{\forall \in SBAD \cup S}$:	**TT0's implementation by S is enablingly/lawfully disclosed**;	
6)	justof$^{\forall \in SBAD \cup S}$:	***Bilski*-test passed**	TT0 is non-preemptive;
7)	justof$^{\forall \in SBAD \cup S}$:	***Alice*-test passed**	TT0 is patent-eligible;
8)	justof$^{\forall \in SBAD \cup S}$:	***Biosig*-test passed**	TT0 is definite;
9)	justof$^{\forall \in SBAD \cup S}$:	**RS-Definiteness-test passed**	RS is well-defined over TT0;
10)	justof$^{\forall \in SBAD \cup S}$:	***Graham*-test passed**	TT0 is patentable.

FIG 2:

The FSTP^{FFOLLIN}-Test, the passing of which is necessary and sufficient for a CI's TT0 satisfying SPL

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ABSTRACT OF V. (TO BE SLIGHTLY ADJUSTED)

The FSTP-Test's plcs-structure is expanded by its embedded pmgp-tests, as shown by FIG 2.

- The FSTP-Test structure comprises of 10 FSTP test.o, in total checking of a CI, whether it is patent-eligible and patentable. This is the case iff it meets all 10 concerns legally encoded by SPL, i.e. by 35 USC §§ 101/102/103/112. I.e.: iff this CI passes all the 10 FSTP test.o on a set S (see **test.1(a)**).
- It prompts the user to input, for this CI from doc0, first its elements X0n and their modeled compound inventive concepts BAD-X0n and as many elementary inventive concepts BED-crC0nk as it is able to identify, 1≤n≤N, 1≤k≤K^{n}, which defines CI's S (see the above simplification) – whereby the user also identifies all BED-crC0kn* being subject to a patent-eligibility exemption.
- *KSR*-test5 here is only indicative, may be trivially relaxed as needed by KSR – impacting on test10.
- *Biosig*-test6 is superfluous for a large class of CIs of FFOL, also comprising many ET CIs.
- RS-Definiteness-test8 must in principle take for any prior art document.i/TTi, if there is any, peer steps to those taken for doc0/TT0 in test1 – but practically this may be dramatically simplified.
- The society's SPL concerns as encoded by § 112 are checked by test.o, 1≤o≤6; those encoded by § 101 are checked by test.o, 7≤o≤9; those encoded by §§ 102/103 are checked by test.10.
- The FSTP-Test is the logically indispensable and hence canonical procedure for acquiring **all** technically and legally relevant information about a CI (based on user/posc input) – stored as its eKNOW in a data structure DS – such that **any** meaningful question about CI satisfying SPL can instantly be answered by it. This is the reason for the amazing reasoning capabilities of the IES.
- The final evaluation of any such quantitative answer is subject to a court's findings – but under much more scrutiny than under any other test discussed hitherto, e.g. the TSM or MoT tests. It namely is complete and all final checks of the FSTP-Test occur only on the refined/"rationality enabling" level of notional resolution. **But: A CI passing the FSTP-Test is legally extremely robust.**
- The FSTP-Test's black section shows the ET CI's first, its blue one its ET CI's second quantification.
- The FSTP-Test evidently is not an algorithm/program but an algorithm/program scheme.
- The FSTP-Test hence translates – by its two quantifications – the *Mayo/Alice* test into a precise, complete, and non-misinterpretable SPL test applicable to any ET CI, too (not only to CT CIs).

In other words: The FSTP-Test is the simplest operational implementation of the *Mayo/Alice* test.

VI. The Absolute Robustness of a Patent's Analysis by Scientific FSTP-Testing

<u>Scientific patent analysis: Automatically guided & absolutely robustness warranting!!</u>

<u>THEOREM</u>: ***Any non-pathologic ET-CI may be upgraded – by using the FSTP-Test – to unassailable patent-eligibility & patentability & nonobviousness, i.e. to be***

<u>ABSOLUTELY LEGAL ROBUST</u>.

Depending on the creativity effort invested in what parts and to what extent, the scope(ET-CI) would thereby vastly controllably shrink resp. grow.

<u>D.1</u>: $S^R ::= \{\forall s^{Rv}\} ::= \{\forall < s^{Rv1} \in TS(s^1),..,s^{RvK} \in TS(s^K) > \}$ is called "<u>TT0-REALIZATION SET</u>" iff $\forall s^{Rv}$ the "**s^{Rv}-embodiment, $TT0^{sRv}$**" is disclosed by TT0's specification.

<u>D.2 "SCOPE(TT0)"</u>: S^R is called "**scope(TT0)**" resp. "**scope(CI)**".

<u>D.3 "TT0' = TT0"</u>[4.b)]: A TT0' is called to be "**equal, '='**" to TT0 iff $S'^R = S^R$.

<u>D.4 "TT0' ∊ SCOPE(TT0)"</u>[4.b)]: A TT0' is called to "**belong to scope(TT0)**" iff TT0' passes the FSTP-Test $\wedge\ S'^R \subseteq S^R$.

<u>D.5 "TT0' VIOLATES TT0"</u> A $TT0' \notin SCOPE(TT0)$ is called to "**violate**" TT0 iff $S'^R \cap S^R \neq \Phi$.

<u>D.6 "TT0 IS DEFINITE"</u>[4.d)]: A TT0 is called "**definite**" iff it passes the FSTP-Test.

<u>D.7</u>: Induced by *Mayo* let, for a TT0's CI-element, the term "**improvement-prone, ip**" denote a new "property **category**" for its inC(s), modeled as its(their) "ip-inC(s)". Compared to such an inC, its new ip-inC property is: It is already 'visible' that it will "improve" in its domain and/or its TS, no matter whether predictably in time or not.

<u>D.8</u>: For an $s \in S$ and an s^o let be defined ▪) the relation "**$s^o > s$**" iff $domain(s) = domain(s^o) \wedge TS(s^o) \setminus TS(s) \neq \Phi$, and ▪) as meaning of "s=ip" to be that s is an "ip-inC".

<u>D.9: "PREEMPTIVITY"</u> by *Bilski*: TT0 is called "**preemptive**" iff $\exists TT0' \neq TT0$ passing the FSTP-Test: $scope(TT0') \cap scope(TT0) \neq \Phi \wedge \exists k \in [1,K]: (s'^k > s^k) \vee (s^k = ip)$.

<u>D.10: "ABSTRACT IDEA"</u> by *Bilski*: TT0 is called an "**abstract idea**" iff $\exists TT0' \neq TT0$ passing the FSTP-Test: $scope(TT0') \cap scope(TT0) \neq \Phi \wedge \exists k \in [1,K] \not\ni k': (s'^k > s^k) \wedge (s^{k'} = ip)$[5.d)].

<u>D.11</u>: Induced by *Alice,* let for an ip-TT0 the term "**transformation-warranting**, **tw**" denote another **category** of its ip-CI-element/s' properties, modeled by "tw-inC/s" tying its ip-inC/s into a user-application, so transforming this ip-TT0 into patent-eligibility.

<u>D.12 "PATENT-ELIGIBLE"</u> by *Alice*: An ip-TT0 is called "**patent-eligible**" iff $\exists \{k^*\} \subset [1,K]$: $\wedge^{\forall k \in [1,K]} BED\text{-}crC0k \gg \wedge^{\forall k \in [1,K] \setminus \{k^*\}} BED\text{-}crC0k$, whereby the "≫" has the meaning "{k*} transforms the latter conjunction into a user-application".

<u>D.13</u>: For an ip/tw-CI, let "**scope(ip/tw-CI)**" be the modification of the S^R of the original CI as it results from the modifications of the domains and TSes of this original CI's inCs, first by its ip-inCs, making this ip-CI preemptive, and then by its tw-inCs, making this **ip/tw-CI** a nonpreemptive user-application.

<u>D.14</u>: Let the meaning of the relation "**substantially more than**, ≫" between an ip/tw-CI and its ip-CI be: "The ip/tw-CI's tw-inC(s) eliminate the preemptivity created by its ip-inC(s) by modifying their domains and/or TSes such that any ip-inC is defined only for and this ip-CI is transformed into a user-application ip/tw-CI of its tw/ip-inC(s)".

VII. The inC Quantification Implied by *Mayo*, Modeled by the FSTP-Test

test1 The FSTP-Test prompts the user to input <no “**multi-interpretable CI**”, i.e. ∃1 S only [150,58]>

- **(a)** ∀TT.i ∧ 0≤i≤I=|RS| ∧ 1≤n≤N : ∀ BAD-crCin of TT.0;
- **(b)** ∀1≤n≤N justof: BAD-crC0n is **definite** <see [150,137]>
- **(c)** S::={BED-crC0kn|1≤n≤N: BAD-crC0n ^{duc}**=** $\wedge^{1\leq kn\leq Kn}$BED-crC0kn ∧ ∀nk* are identified };
- **(d)** ∀1≤kn≤K^n ∧ 1≤n≤N justof: BED-crC0kn is **definite**;

test2 ∧ ∀ ∊ S for justof: their **lawful disclosure**;

test3 ∧ ∀ ∊ S for justof: their **enablement of TT.0**;

test4 ∧ ∀ ∊ S for justof: their **independence**; <see [150,137]>

test5 ∧ ∀ ∊ S for justof by *KSR*-**test: S ∩ (posc ∪ RS) = ∅**; (without “cherry picking”) <see [150,137]>

test6 ∧ ∀ ∊ S for justof by *Biosig*-**test: S is definite**; <see [150,151]>

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ABSTRACT OF VII. **(TO BE SLIGHTLY ADJUSTED)**

- To begin with: For a given ET CI, neither a compound nor an elementary/atomic inventive concept of it – involved in this ET CI’s test whether it satisfies SPL – needs to be explicitly used by the claim’s wording of this ET CI. It suffices that it, including its meaning, is disclosed for the posc by the ET CI’s specification. I.e.: *Mayo/Biosig/Alice* concur that the inC(s) of an ET CI, under test for satisfying SPL, is(are) to be those created by the inventor of this ET CI when inventing it, as disclosed by its patent. Hence, this question for the ET CI’s inventive concepts – on the BAD and BED level of notional resolution – must be answered, first and by the posc (as derived from this ET CI’s specification of the patent comprising it) before they can be input to the FSTP-Test, when it prompts for them in test1.
- As an ET CI having allegedly passed the FSTP-Test is vulnerable only by its pragmatics (= input to it by the user, see V.), it provides an excellent basis for structuring SPL precedents administration as indicated by *Pullman/Markman/Teva* – in particular, as it quotes **all** potential pragmatic errors. Its most recent *Cuozzo* decision seems not to be applicable, here, as referring to the USPTO’s rights in IPRs, not in SPL, though this may require reconsideration.
- test1-6 hence iteratively prompt the user: for inputting all these inventive concepts and for justifying the disaggregation of BAD-inCs into conjunctions of BED-inCs, just as their definiteness, just as their independence, … – all as input before. In the general case several by an inC differing TT.0s alias S alias GS(ET CI) got to be maintained. Automatically generating/checking justifications is ignored here.
- **Any S** – having passed test1/2/3/4 – **represents a *Mayo* quantification of ET CI** into its |S| atomic/elementary inventive concepts.

  The notion of “inventivity quantification” of FSTP-Technology is strongly similar to that of “energy quantization” known from Elementary Particle Physics alias Quantum Mechanics, but SPL precedents did hitherto not define a smallest inC – though, if possible, this evidently would make sense.

  FSTP quanta by definition carry semiotics, unknown in Physics, which also knows only a single quantum, the “h” (Plank’s constant, the minimal energy required for generating a physical action). I.e.: The FSTP notion of “inventivity-quantum” kind of generalizes the Physic notion of “energy-quantum”.
- Without going into detail, the responsibility of this initial part of the FSTN-Test is to assess that
  - all BAD-inCs and BED-inCs meet, separated into sets S, all requirements basically of § 112.
  - the subsequent test7/…/10 have per S an unquestionably clarified basis for their executions.

VIII. The inC Quantification Implied by *Alice*, Modeled by the FSTP-Test

test7 $\wedge$ for S justof by ***Bilski*-test**[i)] : **S is non-preemptive**; <see [150,137]>

test8 $\wedge$ for S **RS-Definiteness test**: by defining BED*-AN matrix by BED*-inCik ::= N $\forall\ 1 \le n \le N \wedge 1 \le k \le K^n \wedge 0 \le i \le I$;
BED*-inC0k ::= A if BED-inC0k ϵ posc; <see [150,137]>
BED*-inCik ::= A if BED-inCik = BED-inC0k, $1 \le i \le I$;

test9 $\wedge$ for S justof by ***Alice*-test:** **S is patent-eligible** if $\exists nk^* \epsilon [1,N]X[[1,\max\{K^n\}]: \wedge^{\forall nk \epsilon NK}$ BED-crC0nk $\gg \wedge^{\forall nk \epsilon NK \setminus nk^*}$ BED-crC0nk;

test10 $\wedge$ for S justof by ***Graham*[ii)]-test**: **S is patentable**; <see [150,137]>

i) The **"*Bilski*-Test"** – testing TT0 for not being preemptive, as of *Alice* – prompts the user for input&justof:
VII. $\exists nk^* \epsilon [1,N]X[[1,\max\{K^n\}] : \wedge^{\forall nk \epsilon NK}$ BED-crC0nk $\gg \wedge^{\forall nk \epsilon NK \setminus nk^*}$ BED-crC0nk is **definite**; <nk*ϵ 1,N]X[[1,max{Kⁿ}] has appl. semiotics>
VIII. If enlarging TT0's truth set alternatively its scope [58], **1)** does not hold. <If 1) & 2) apply, then TT0 is "not an abstract idea", hence not preemptive [151,137]>

ii) The **"*Graham*-Test"** – determining the semantic height of TT0 over RS – works with all non-cherry-picking, i.e. element-wise, "anticipation combinations, ACs" of RS as to S [5,6,7,11]:

1) It starts from the "anticipation/non-anticipation, AN" matrix of FSTP-test.8, any one of the I+1 lines of which shows, by its K column entries for any i = 1,2,...,I, which of the peer TT.0 entries is anticipated/ non-anticipated by the i-line one, and for i=0 is anticipated/non-anticipated by posc.

2) It automatically derives from the AN matrix the set {∀ACs} with minimal Q^{pmgp} of "N" entries [5,6].

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ABSTRACT OF VIII. **(TO BE SLIGHTLY ADJUSTED)**

- Evidently, the preceding post-*Mayo* quantification of an ET CI – in VI. – tests only ET CI's satisfying § 112, more precisely: of ET CI's single set GS(ET CI) alias S alias TT0. If |{GS(ET CI)}| > 1, i.e. if ET CI has several interpretations alias Ses, the preceding statement holds for any S.
- Testing ET CI's satisfying also § 101/102/103 occurs above, and for all S of ET CI satisfying § 112.
- Thereby the question arises, under which conditions such an S and such an S', S≠S', represent the same invention resp. different inventions – momentarily not yet clarified.
- By contrast to the preceding *Mayo* quantification – in VI. – by more than 7 x |S| x |{GS(ET CI)}| (sub) tests, the above *Alice* quantification comprises only the test8-10, i.e. 3 FSTP-subtests.
- By contrast to the quantification provided by (the subtests of) test1-7, which deliver only T/F values, the test9-10 may deliver scaled values, e.g. natural numbers, identifying the degree of patent-eligibility, of novelty, and of obviousness.
- The semiotics of SPL and all its precedents is determined to be of FFOL.
- The semantics of SPL and all its precedents, here called "patent law carrying semantics, plcs" is encoded by the structure of the FSTP-Test (semiotically put: by its syntax).
- The pragmatics of SPL and all its precedents, here called "patent monopoly granting pragmatics, pmgp" is encoded by the input to the FSTP-Test (semiotically put: by its model/symbol).
- Of particular interest in the *Alice* test – and prior to it in the *Bilski* test – that the ET CI resp. its S may contain a BED-inC*, the crC* part of which, above identified by its index nk*,
  - represents/models an abstract idea and/or a natural phenomenon, and
  - carries a semantics and pragmatics vastly independent of the semantics and pragmatics carried by the crCs of S\BED-inC*.

  How to quantify the degree of this "semiotic independence" of BED-inC* from S\BED-inC* is currently being researched on and should shortly be published [91].

  If no such BED-inC* exists, then the *Alice* test is defined to be meaningless and superfluous.

IX. SE.-AUTOM. GEN. of a CI by FSTP-TEST ALL eKNOW and ASTs

The whole (ET) CI FSTP-Test ::= $\wedge^{1\leq o\leq 10}$**FSTP-test.o reads**: **All “<>” refer to the FSTP Reference List**

test1 The FSTP-Test prompts the user to input <no “**multi-interpretable CI**”, i.e. ∃1 S only [150,58]>

- **(a)** ∀TT.i ∧ 0≤i≤I=|RS| ∧ 1≤n≤N : ∀ BAD-crCin of TT.0;
- **(b)** ∀1≤n≤N justof: BAD-crC0n is **definite**; <see [150,137]>
- **(c)** S::={BED-crC0kn | 1≤n≤N **:** BAD-crC0n **=** $\wedge^{1\leq kn\leq Kn}$BED-crC0kn ∧ ∀nk* are identified};
- **(d)** ∀1≤kn≤K^n ∧ 1≤n≤N justof: BED-crC0kn is **definite**;

test2 ∧ ∀ ϵ S for justof: their **lawful disclosure**;

test3 ∧ ∀ ϵ S for justof: their **enablement of TT.0**;

test4 ∧ ∀ ϵ S for justof: their **independence**; <see [150,137]>

test5 ∧ ∀ ϵ S for justof by *KSR*-**test:** **S ⋂ (posc ⋃ RS) = ∅** (without “cherry picking”) <see [150,137]>

test6 ∧ ∀ ϵ S for justof by *Biosig*-**test:** **S is definite**; <see [150,151]>

test7 ∧ for S justof by *Bilski*-**test**[i)] : **S is non-preemptive**; <see [150,137]>

test8 ∧ for S **RS-Definiteness test**: by defining BED*-AN matrix by BED*-inCik ::= N ∀ 1≤n≤N ∧ 1≤k≤K^n ∧ 0≤i≤I;
BED*-inC0k ::= A if BED-inC0k ϵ posc; <see [150,137]>
BED*-inCik ::= A if BED-inCik = BED-inC0k, 1≤i≤I;

test9 ∧ for S justof by *Alice*-**test:** **S is patent-eligible** if ∃nk*ϵ[1,N]X[[1,max{K^n}] :$\wedge^{\forall nk\epsilon NK}$BED-crC0nk≫$\wedge^{\forall nk\epsilon NK\backslash nk*}$ BED-crC0nk;

test10 ∧ for S justof by *Graham*[ii)]-**tes**t: **S is patentable**; <see [150,137]>

i) The **"*Bilski*-Test"** – testing TT0 for not being preemptive, as of *Alice* – prompts the user for input&justof:
IX. ∃nk*ϵ[1,N]X[[1,max{K^n}] : $\wedge^{\forall nk\epsilon NK}$BED-crC0nk≫$\wedge^{\forall nk\epsilon NK\backslash nk*}$ BED-crC0nk is **definite**; <nk*ϵ 1,N]X[[1,max{K^n}] is appl. Semiotics>
X. If enlarging TT0’s truth set alternatively its scope [58], **1)** does not hold. <If 1) & 2) apply, then TT0 is “not an abstract idea”, hence not preemptive [151,137]>

ii) The **"*Graham*-Test"** – determining the semantic height of TT0 over RS – works with all non-cherry-picking, i.e. element-wise, “anticipation combinations, ACs” of RS as to S [5,6,7,11]:
- **3)** It starts from the “anticipation/non-anticipation, AN” matrix of FSTP-test.8, any one of the I+1 lines of which shows, by its K column entries for any i = 1,2,...,I, which of the peer TT.0 entries is anticipated/ non-anticipated by the i-line one, and for i=0 is anticipated/non-anticipated by posc.
- **4)** It automatically derives from the AN matrix the set {∀ACs} with minimal Q^{pmgp} of “N” entries [5,6].

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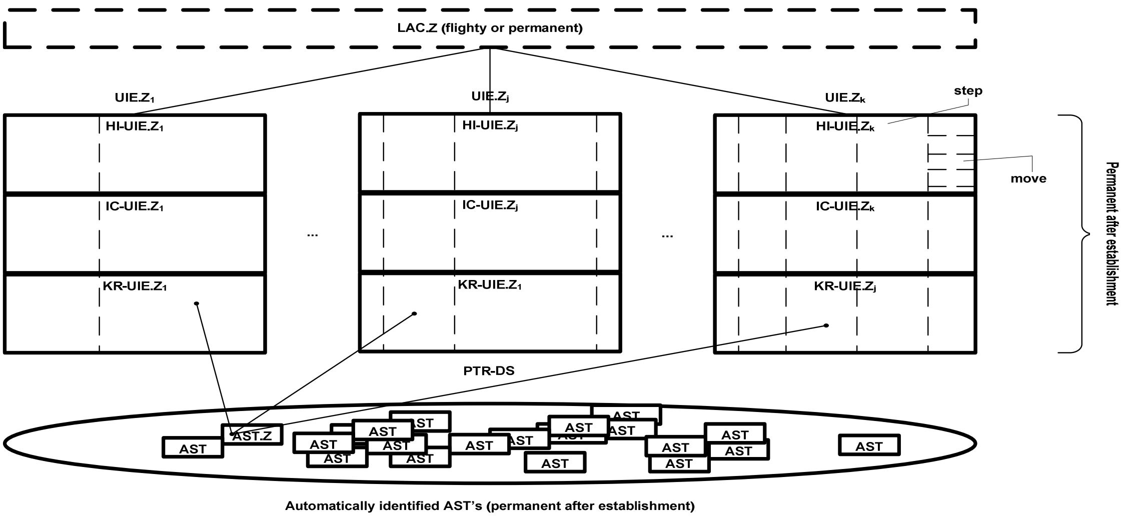
ABSTRACT OF IX.

- The in/output of executing the FSTP-Test on an ET CI is located in the IES as part of its DS.
- Once more: The FSTP-Test is the canonical procedure for acquiring **all** technically and legally relevant information about a CI (based on user/posc input), stored as part of its eKNOW in the DS.
- How the DS of a CI’s FSTP-Test, i.e. of a CI’s SPL test, is interrelated to the IES user – i.e. invoked/controlled/configured/annotated/…/used by it – is explained in X/XI.

X. AUTO./S-AUTO. DER./GEN. from ASTs by UIEs into ALL LACs



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ABSTRACT OF X.

- The above data structure is stored on top of the DS, i.e. uses it. The ellipse, at the bottom, shows all the ASTs automatically derivable from the DS generated/stored by the user's execution of the semi-automatic FSTP-Test in explorative mode on the CI at issue (see III), whereby both data structures have the brainR indicated in II.
- In addition, the IES may comprise a set of q/a's, called QAS – expandable by the IES user for a specific CI or generally – i.e. stereotypically resp. individually related to the justifications of the FSTP-Test. Such set(s) is(are) used by the IES to prompt the user, in both modes, for control input.
- Any "User Interface Entity, UIE.z" is generated when configuring, by the IES user, the realtime presentation(s) of any AST.z – here the user configured for AST.z 3 different presentations.
- The functions available to the user for generating UIEs and then invoking/controlling them – during IES calibration and/or IES's LAC(s) reproduction – are not subject of this paper (but see V). Most IES functions for its "calibration"/"configuration"/"comfort" mode, few for its "engagement"/"combat"/"court"/"realtime" mode alias operation may, on request by an IES user, work step/stream wise, also overlapping, also user specific, ….
- Any UIE.z consists of 3 functional modules invoked by the user: ●KR-UIE.z for accessing an AST.z at IES calibration identified by the user, ●HI-UIE.z for inputting at IES calibration the argchain derived from AST.z (by the user or automatically, thereby the multimedia representation of this LAC may also be determinable by the user or not) and for outputting at IES realtime operation this LAC (as configured, which may mean "as then stored" or "as dynamically generated", both represented by the dashed box at the top of FIG 1), and ● IC-UIE.z for the "interconnection control" of this LAC presentation at IES realtime operation to the user, to an observer, to another presentation of the same AST.z, to another LAC.y, to steps therein, … (to be configured at calibration by the user).

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XI. AUTO. SEL.-/REPRODUCTION of LACs by UIEs for CI's SPL-Proof

The below ladder of work items on the IES shows its increasingly powerful capabilities, its "high end" as of science fiction, its "low end" going online early next year, its rungs not necessarily consecutively provided.

a) *Default graphics input prompting* through *all FSTP-test.o and QAS.*
b) Graphics*/Acoustic* input prompting *as in a).*
c) Input prompting as in a)/b) for *expanding QAS and use as there.*
d) *User forward controlled IES responsitivity/interaction* as in a)-c).
e) *Dynamic user controlled IES responsitivity/interaction* as in a)-d).
f) *Realtime control* as in a)-e).
g) *Personalizable control* as in f).
h) *User counseling* beyond c) as in f): Self-inflammable/-catalytic IES, HAL

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<u>*ABSTRACT OF XI.*</u>

- In c) and h) the IES may leverage on contextual information of various kinds provided by the user, e.g. R&D control [137], not discussed in this paper.
- In a)-c) the prompted input provided by the user selects the LAC to be reproduced and describes all parameters of this reproduction – thereby it would be vastly guided, potentially interactively, by IES default libraries, also potentially expandable by the user.
- In d) the user inputs a description, using a notation being an expansion of the one used in a)-c), of the sequence of such a)-c) inputs to be processed automatically by the IES, potentially enabling limited IES/User interactions as in a)-c).
- In e) the user is enabled to dynamically restructuring the automatics of the IES ahead as planned.
- In f) the user is enabled to anytime fully dynamically restructuring the automatics of the IES ahead.
- In g) several users may control the IES simultaneously as needed by them, thereby potentially synchronizing them or forcibly being synchronized, at predefined sync-points in predefined sync-operations, or the former and/or the latter being dynamically controllable by predefined or dynamically determined user.
- h) is far ahead and need not yet be described, here – though its capacity should be evident already.
- In a Patent IES, all its CI independent information may already carry its audited MUIs.
- Also MUIs to be provided by the inventor/posc are vastly stereotypic – once the invention's inventive concepts are identified – as then the FSTP-Test prompts the user through the complete check whether a CI satisfies SPL. This enables the creativity mentioned in c) and h).
- 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 (by MUIs), or marked-up and linked, or marked-up and later linked during calibration by a user. This applies to all KRs of any information.