

MEMO about "Mathematical Inventive Intelligence, MII" 1.a)

Sigram Schindler,^{*)}
TU Berlin & TELES Patent Rights International GmbH

I. The Purpose of MII

There is a never-ending story about patents, SPL^{1.b)}, and SPL precedents about ETCIs: That they all are imprecise and ambiguous as based on natural language. The same applies for any task description in any truly innovation business.^{1.c)} By MII – based on the Supreme Court's "MBA framework", AIT,^[2] and also on the patent-eligibility problem – this no longer needs to be true. This MEMO explains why.^{1.d)}

This MEMO is a practical and straightforward approach to showing why MII is precise and non-ambiguous^{1.e)} – though being a very rudimentary only English language enhanced by SPL terms/notions. All its examples^[296,299] deal with topical decisions by the CAFC, based on the Supreme Court's *Alice* decision.

It often refers to recent preceding FSTP papers (for using them^[296] or making them more concise than there^{[237ftn7.a)}). These namely explain what the "**canonical representation alias form**" is of an ETCI and of the *Alice* criterion^{1.f)} for patent-eligibility of an ETCI represented in this form – hence assumes some familiarity with such canonical issues.^{1.g)} Thus, its purpose is to explain how structurally an ETCI in canonical representation may mathematically be described/modeled/defined – if a case needs this scrutiny, at all. This explanation is presented here by continuing the elaborations in^[271Section II,296].

In total, this MII MEMO conveys a structural understanding why •ETCIs are "model-based" and hence need, in their SPL analysis, much more scrutiny than CTCIs (supported by that much intuition that models are superfluous) and •MII will attune to the *MBA* framework^{1.h)} the large patent community and the smaller one of innovation "philosophers"^{1.i)} – providing to both communities a common and clear view on how it "quite naturally" integrates into everyday's patent work the *MBA* framework. So MII enables its broad and cross-fertilizing use by both communities – by hiding from their members all of SPL's intricacies and showing them only blue skies, nevertheless extremely trustworthy by *MBA* framework's inherent guidance.

MIl thus will achieve a substantial increase in the quality of drafting ETCIs, just as in the quality of examining ETCIs by the USPTO, just as in the quality of SPL precedents about ETCIs in courts.^{1.j)[299]}

^{*)} My greatest thanks go to my by now excellent coworkers in the FSTP-Project:

For the extremely productive critics of this MEMO's scientificity to D. Schoenberg, J. Schulze, B. Wegner, R. Wetzler, for the IES prototype development to T. Hofmann, C. Negrutiu, J. Wang, and for auxiliary very important contributions to U. Diaz, L. Hunger.

¹ .a A second MEMO headline were: "*The Compulsory Alice Test is Amazingly Crisp – though its Unquestionable Interpretation was Demanding*". MII is not a language, but a "language scheme" (known by^[2]) logically comprised by any and comprising all languages of the type^[2] of this MEMO.
 .b This MEMO does not discuss a notion^[271ftn3.a)] introduced by an earlier FSTP publication, but only its such introduction is identified, here. E.g. as to CTCIs vs. ETCIs:^[271ftn1.c)] While Sections I/II focus on ETCIs (without excluding CTCIs), Section III explicitly addresses by "CI" CTCIs just as ETCIs.
 .c – unavoidably, otherwise the task were not dealing with a genuine innovation but with an improvement or just a remake of something preexisting.
 .d here shown for the SPL environment only, but true also for any other environment's set of precise requirements free of contradiction.^[267]
 .e Note: Different canonical representations of an ETCI – as understood e.g. by its inventor and by a court – may represent the same ETCI or not^[271].
 .f The *Alice* criterion^[267,296] is the logic expression modeling the patent-eligibility test (scheme^{1.a)}) of the Supreme Court's *Alice* decision.^[271ftn4.a)]
 .g also the FSTP test is the "canonical ETCI test (scheme^{1.a)}) for satisfying SPL" for any ETCI, as it requires by FSTP-test1 to "canonically decompose" the compound O-/A-crC(s) of the ETCI under test into its E-crCs, thus generating an ETCI's canonical representation.^[271,296]
 .h The Supreme Court's *MBA* framework is expected to become the basis for testing any future invention from any ET area under any SPL, worldwide.
 .i "philosophers" is a generic term comprising politicians, journalists, R&D managers, AIT researchers, inventors, investors, licensors/licensees, judges/lawyers/examiners – anybody not an SPL expert but seriously interested in precisely/exactly/concisely specifying whatever innovative items, e.g. by SPL.
 .j A kind of disclaimer here is in place: Leaving aside these high flying ambitions of the MII as to socioeconomic issues, this MEMO is focused on the objective of showing that the *MBA* framework and MII are indispensable for a broadly practiced "Patent Technology" alias "advanced patent knowhow".
 To this end, MII rests on the quite practical and mathematically well (as axiomatically) defined FSTP technology^[9.b)] – which therefore is the first unquestionable sub-physical exact knowledge representation science driven by and being fully in line with the US Highest Courts' cognitions as to the needs of legal protection by SPL of inventions/innovations in areas of emerging technologies – thereby fixing also the flawed classical "patent know-how".

II. The Philosophy of MII

The purpose of MII is to encourage and support securely using, in particular in dealing with an ETCl, the enormous everyday practical advantages enabled by the *MBA* framework: It greatly facilitates and increases the efficiency in any kind of SPL related practical work with ETCl's – from inventing them, controlling their R&D, applying for their patenting, licensing them, attacking infringements by them, Put metaphorically, the MII shall provide the same kind of service as it is provided by the steering wheel of a car, which enables the driver to securely and easily steering the car through the traffic and all bends of roads without bothering the driver with how its car's 4 wheels must by him be aligned accordingly.

By contrast to wholly material/tangible/visible CTCl's, any ETCl is in at least one of its E-crCs or as a whole immaterial/intangible/invisible and/or potentially temporal indefinite, i.e. mental/spiritual/abstract and fictional – otherwise it is not an ETCl but a CTCl. Due to these reasons, an ETCl's specification/description/representation is inevitably "model based", i.e. exists only as intellectually defined on top of a virtual model, which provides some specific virtual service to the MII, which in turn provides its "MII service" to e.g. an ETCl's test for its satisfying SPL, see Legend3. Due to any ETCl's above quoted unavoidable property, its claim interpretation and claim construction requires a degree of intellectual scrutiny never encountered before in patent business – as there is no intuition subcortically fixing this ETCl's incomplete and/or erroneous specification/description/representation without letting us know how flawed the latter in truth is.

The Supreme Court's *MBA* framework enabled investing this scrutiny into an ETCl's SPL test by introducing the notion of an ETCl's "**inventive concept(s)**".^[296] This key notion namely enables procedurally^{2.a)} excluding that an ETCl is found •definite if its scope is not well defined,^[244ftn9] •patent-eligible if it is of unlimited preemptivity caused by its above quoted properties, being "natural phenomena" and/or "abstract ideas",^[271,296] and •patentable if its semantic height over posc and prior art is =0.^{2.b)}^[296]

Hence inventive concepts, inCs – and all SPL notions related to them – are fully integrated into the MII.

Finally, two more features of the MII: •MII's use in an ETCl's SPL test by the FSTP test automatically generates a data structure, PTR-DS, that comprises at least 1 correct answer to **any** rational^[291ftn2] SPL question about this ETCl – although still in PTR-DS specific representation. For inserting a user controlled mark-up into an ETCl's PTR-DS representation, the MII exposes to her a simple user interface^{2.c)} for determining this mark-up on the MII level of abstraction. By calibrating the IES^[9.b], for any such answer the IES user may, using this mark-up, either just use an automatically generated human conceivable "Legal Argument Chain, LAC" or conveniently and completely input one or several human LAC representations [6,7,11,43,59,267-270,272]. These are in realtime retrievable, even automatically (as pre-configured) by catch-words and/or context sensitive as well as by realtime user control. •For any ETCl a virtually absolutely "SPL-robust" patent (application) may be drafted, whereby this robustness even may comprise – by the PEGG-test^[260] – the ETCl's future patent-eligibility (as required by the Supreme Court's *Alice* test).

² .a – not just declaratively –
 .b Note that none of these 3 "if"s is an "iff"^{3.b)}
 .c currently under design^[261] for today's needs (see Legend3 to FIG3)

III. The MII Semantics' Blue Skies and Precise/Exact Definitions

A MEMO always refers to the past, perhaps clarifying it – hence this Section III is structured as follows.

First Section III presents the context of MII in testing CIs^{1.b)} for their satisfying SPL – by briefly recapitulating, by FIGs 1-3/Legend1-3, the overall structure of the "SPL universe", as earlier introduced already [9.b,271FIG3]. Then its final part clarifies by the end of Legend3^{5.a)} the impact on this overall structure by the exact/precise^{3.a)} definitions of MII's semantics, embodying the *MBA* framework's notions.^{3.b)}

I.e.: FIG3/Legend3 •firstly model the overall structure of our brain's working in a CI's SPL test – thus facilitating to clearly recognize the enormous mental complexity in correctly executing it, making indispensable MII's use and its partial automation in this execution – and •secondly convey the high probability that most of such testers don't really need most of this enormous mental complexity, i.e. may blindly trust MII, as explained by the end of Legend3.

To begin with: FIG1/Legend1 shows/explains that for a CI in canonical representation, the 9 concerns are conjunctively met by its COM(CI) iff it satisfies all 11 requirements ex-and implicitly stated in 35 USC §§ 101/102/103/112, as interpreted by the Supreme Court's *MBA* framework (2 requirements being added for exact-/preciseness).^{3.d)} For any ETCl, SPL's conjunction of 11 requirements alias tests evaluates to T^{3.d)} iff SPL's conjunction of 9 concerns evaluates to T, for this ETCl.

FIG2/Legend2 shows/explains the FSTP test – for testing an ETCl in canonical representation (i.e. by COM(CI) defined) for satisfying SPL, based on the accordingly to^{3.d)} increased SPL rationalization embodied by the A-/E-inCs of COM(CI)[^{271fn4.a)}]. I.e., the FSTP test to this end itself is canonized.^{1.g)}

FIG3/Legend3 shows/explains the "brain representation" of an ETCl's SPL test – simplified as most of its legal aspects are left away, in favor of space in FIG3 for providing a first insight into the structure of the Model box.^[251] As it is made-up from the ETmodel and SPLmodel boxes (presently each with the usual model only^[251]), it provides the basis for indicating the permanent structural intellectual integration of these models, as existing by MII today (in the future configurable), i.e. the structural integration by MII of today's usual/single ETmodel and SPLmodel.

³ a "Exact" shall emphasize that these definitions must concisely/seamlessly represent the notions of the *MBA* framework (including its social/preemptivity aspects), "precise" that they must not be compromised by the vagueness of pre-*MBA* SPL semantics, but take an CI's SPL test to the here described level of development and hence scrutiny^[296,299]. Prior to this *MBA* framework defined semiotic process^[271fn3.a)], this exact-/preciseness was just unthinkable by logical reasons provided by the Supreme Court's famous 6 decisions, quoted below.^{3.d)}

If one argued that none of these Supreme Court decisions explicitly requires the degree of exact-/preciseness required here, this would mean forgetting about the *MBA* framework's striving for consistency and predictability in SPL precedents also about ETCl's, including their social requirements that the Supreme Court clearly stated in *Mayo* to be met by its accordingly refined interpretation of 35 USC SPL. Hence, any "materialistic only" SPL satisfiability test – e.g. not excluding ETCl's' unlimited preemptivity from patentability – thus ignoring Kant's Categorical Imperative^[9.b,237,299] is deficient, a priori.

All that is assumed to be known, here, from the patent community's patent-eligibility discussion^{3.b)} and preceding FSTP publications^{3.c)}[9.b,271,296].

b At this occasion a PS to^[296] may be helpful. It is true that "... preemption is not a standalone test for eligibility ... the absence of complete preemption does not demonstrate that a claim is eligible^[292], as there are other important SPL reasons for a CI's patent-noneligibility – of which its unlimited preemptivity (= "complete preemptivity") per se is none, as exemplified by recent CAFC decisions^[296,299] and recapitulated next.

FSTP-test1(c) in FIG2 checks the disclosure by the CI's specification of the usefulness of the CI and the invention/TT0 it embodies.^{4.b)} Yet, for stronger increasing A*'s weight, it may be appropriate to tighten also the in^[296] very generously identified semantics of the interpretation of the *Alice* test^{4.b)}, to what is now shown by FIG2: By defining "*Alice*'s inventive concept" in A* as demanding still more – of what TT0 actually conceptually embodies – than what A*'s preceding weight^[271,296] represented. This increased demand were surely fulfilled if A*'s truth set is defined on a space for modelling notions of another ontology than those spaces suitable for defining TT0's E-crCs. But this increased A* demand should be fulfilled also less restrictive by this former "*Alice* applications space" being just independent of these latter "TT0's E-crCs defining spaces". This is a question about the demand of the *Alice*'s inventive concept, eventually to be decided by courts – but avoided a priori by the most generous and *Alice* conforming semantics definition of A* in^[296,299].

Nothing to recognize of all that is a misunderstanding of the Supreme Court's *Alice* decision – and its philosophy to resolve the before indeed existing "patent-(non)eligibility dilemma" with ETCl's, evidently putting the whole patent system into jeopardy (as the Supreme Court in *Mayo* explained).

This requires – implicitly but clearly and unquestionably – that the IEG interpretation of this *Alice* decision (and also of the *Mayo* decision) be reconsidered for refining it accordingly. Currently this IEG interpretation is an *Alice/Mayo* under-interpretation ignoring these decisions' separation line between unlimited preemptive and non-/limited preemptive CIs^{6.c)}: By their tying the patent-eligibility of a CI to the existence therein of a TT0 and TT0's application as well as an (appropriate^{4.b)}[^{298]}) inventive concept in "CI/TT0", thus defining these decisions' separation line between non-eligible and eligible CIs. The current IEG interpretation ignores both, the application of TT0 and these combinations' such inventive concept. It thus preserves the pre-*Mayo/Alice* uncertainty about the patent-(non)eligibility issue – which to terminate the purpose is of both these Supreme Court decisions. That ignoring both these restrictions of the more detailed *Alice* test requires less scrutiny in a claim construction, just as a claim's BRIP¹⁰ compared to its BRIMBA^[298] is no excuse.

c The sequence of the FIGs indicates the notionally top-down approach to the structure of the MII semantics' definitions here at issue – this structure's top basically being shown by FIGs1 and its bottom being shown by FIG3.

d Here is leveraged that the knowledge embodied by SPL, just as any other human perception, may be presented on the O-/A-/E-levels of notional resolution, i.e. in O-/A-/E-KRs. [^{296fn2.b)}fn2.e)] Thereby the 11-fold conjunction alters nothing of the 9-fold one, but simply rearranges the rationality^[271fn2.a)] in total embodied by the Supreme Court's *KSR/Bilski/Mayo/Myriad/Biosig/Alice* decisions in its E-KR^{MBA} for bringing it in line with the rationality embodied by 35 USC SPL in its E-KR^{SPL}, i.e. for assuring E-KR^{SPL} = E-KR^{MBA}. To this end, the semantics of the former/9-fold E-inC(s)^{SPL} is redistributed onto the latter/11-fold E-inC(s)^{MBA} one, as indicated by the naming and elaborations of test1(b)/test1(c)/test1(d), test2-test9 in FIG1/2 and Legend1/2.^[271,296,299]

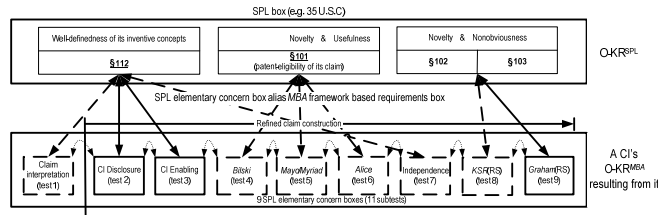


FIG1: For of a CI the 9 Necessary^Sufficient FSTP-testo's Checking its Satisfying 35 USC SPL – as Interpreted by the Supreme Court
Legend1: As to granting by SPL a temporary monopoly on a CI, the 4 Sections of 35 USC SPL (in the SPL box) are the legal implementation of social concerns, made-up from 9 elementary social concerns independent of each other. Any elementary social concern is an MBA framework requirement statement that is to be met by a CI's properties, each to test for its satisfying SPL. The bold lines model the classical such testing, augmented in refined testing by what is modeled by dashed lines.

Thus, the SPL-elementary-concern box alias MBA-framework-based-requirements box shows 9 testo's, for refined checking a CI for its meeting these 9 requirements – for a CI socially deserving legal protection, as Congress determined by 35 USC SPL §§ 112/101/102/103 and the Supreme Court interpreted by the MBA framework. The 8 transitive "test consistency" relations between them totally intermesh all 9 elementary social concerns of 35 USC SPL and all SPL-relevant CI properties.^{4.a)}

1) (a) generate/input: COM(CI)	::= values of 1,N,K ¹ ,..., K ^N – with (optional) user-names \forall generated/input items – and $\forall \epsilon \in A\text{-crCS} ::= \{A\text{-crC0n} \mid 1 \leq n \leq N\} \cup E\text{-crCS} ::= \{E\text{-crC0nk} \mid 1 \leq n \leq N \wedge 1 \leq k \leq K^n\}$, whereby recognizable is: $\forall \epsilon \in \text{COM}(CI)$ and TT0's specification discloses for it an A*;
(b) justof $\forall 1 \leq n \leq N$:	A-/E-level-test is passed: iff $A\text{-crC0n} \bmod (\{\forall \epsilon \in E\text{-crC0n}\}) = \wedge^{1 \leq k \leq K^n} E\text{-crC0nk}$;
(c) justof:	A*-test is passed: iff $\langle TT0, \Phi \rangle^{wleC}$ is useful $\wedge \langle TT0, A^* \rangle^{wleC}$ is new \wedge useful;
(d) justof:	Biosig-test is passed: iff $\langle TT0, A^* \rangle^{wleC}$ is complete \wedge definite;

2) justof $\forall 1 \leq n \leq N \wedge 1 \leq k \leq K^n$:	CI Disclosure-test is passed: iff E-crC0nk is lawfully disclosed by E-leC0nk, with E-leC0nke[SPL];
3) justof $\forall 1 \leq n \leq N \wedge 1 \leq k \leq K^n$:	CI Enabling-test is passed: iff A-crC0n's implementability is disclosed $\wedge \forall E\text{-crC0nk}$ are testable;
4) justof:	Bilski-test is passed: iff $(E\text{-crCS}^{npe} = \Phi) \vee ((E\text{-crCS}^{npe} \neq \Phi) \wedge (\exists A^*))$;
5) justof:	Mayo-Myriad-test is passed: iff $E\text{-crCS} \supset E\text{-crCS}^{TT0}$;
6) justof:	Alice-test is passed: iff $(E\text{-crCS}^{E\text{-crCSTT0} \neq \Phi}) \wedge \text{scope}(\text{COM}(CI))$ is non- or limited preemptive;
7) justof $\forall 1 \leq n \leq N \wedge 1 \leq k \leq K^n$:	Independence-test is passed: iff $\forall \epsilon \in \{E\text{-crC0nk} \mid 1 \leq n \leq N \wedge 1 \leq k \leq K^n\}$ are independent of each other;
8) justof $\forall 1 \leq i \leq n \leq k \leq K^n$:	KSR(RS)-test is passed: iff $\forall ANM(i,n,k) ::=$ if $(E\text{-crCink} = E\text{-crC0nk}$ or equal within their tolerances) then "A" else "N";
9)	Graham(RS)-test is passed: iff $\langle \forall n^k \epsilon = A \rangle \notin \{ \forall AC \text{ over ANM} \}$.

FIG2: The FSTP-Test – Checking a CI in Canonical Form for its Meeting all 9 Requirements Stated by the MBA Framework

Legend2: The horizontal dashed line separates, for a CI, its refined claim interpretation (above this line) from its refined claim construction, comprising all FSTP-testo's except test1(d) – as its result delivered by the CI's inventor deserves deference (except based on a clear legal error). I.e.: The meaning of FSTP-test1 differs, depending on determining/defining for a CI its refined claim interpretation or veri-/falsifying the claim construction for the CI.^{6.a)}

The refinements in^{3.d)} of E-KR^{SPL} = E-KR^{MBA} means that – as part of its implied semantics' rearrangement – \bullet test1 (modelling § 112 requirements) is split as shown above and \bullet test7 is added, as otherwise the E-level's notional exactness/preciseness, required by the Supreme Court's MBA framework, is for ETCIs impossible to define consistently \forall ETCIs (explained already in the first FSTP publications).

^{4. a} – standing for a CTCL or an ETCI, being a "patent (non)eligible subject matter", by Alice defined as a pair of \langle an invention/TT0, its application/ A* \rangle . In more detail: An ETCI in canonical form is a pair \langle ETCI's invention=TT0, ETCI's A*= \langle an application of TT0, a subset of COM(CI) \rangle – this A* being disclosed by the ETCI's specification, whereby this subset of COM(CI) is Alice's inventive concept.^[296] Topical ETCIs in canonical form are shown in^[296,298].

^b The next bullet points provide further comments on the FSTP test for SPL satisfaction by a – by the SPL – Claimed Invention, CI:

- Up-front: α) The redistribution of the total semantics of all the above 6 Supreme Court decisions onto the 9 testo's^{3.b)} is not unique, hence an even more intuitive distribution may be found – with the same total semantics, trivially – although this redistribution is surely close to optimal, due to the simplicity of all 6 above "purified" Supreme Court decisions achieved by this redistribution. β) All 9 testo's are executed on the same set of inCs of the CI (which is not warranted by classical claim interpretation/construction). γ) In testo², $2 \leq o \leq 9$, the expression right of its "iff" is evaluated by leveraging that all expressions for $o^* < o^*$ have evaluated to T. Hence, the result of any testo is meaningful only if the other 8 testo's have already been evaluated to T. This is in particular evidenced by FSTP-test6: it neither repeats the preceding FSTP-test nor mentions the following ones (This is very often not checked by classical claim interpretation/construction, potentially rendering an isolated result meaningless). Finally: δ) A postfix "wleC", "npe", "TT0", "L" of an item means that it is considered "without its leCs", "only as to its non-patent-eligible inCs", "only on TT0" resp. "to indicate that the space before it is independent of the space behind it".
- Line1(a)** is no test (except for some consistencies), but provides initial input to the following tests. For simplicity the input is assumed to be "wleC".
- test1(b)** represents a CI's A-/E-consistency test, being self-explaining by its description right of the "iff".
- test1(c)** excludes the amorality of a CI, and hence its patent-eligibility, by the notion of usefulness – the rest of it being trivial.^{3.b)}
- In **test1(d)** the notion of "definiteness^completeness" of COM(CI) is synonymous to the notion "definiteness" of the Supreme Court's Biosig decision, in particular as clarified by^{6.a)} and excluding the BRIP^{TO}.^[258]
- test2** is the only testo, $1 \leq o \leq 9$, that cares about the E-leCs of the CI at issue (Once the E-leCs are determined, its A-leCs may be derived from them, while from these deriving its O-leCs is vastly meaningless as still embodying too much highly speculative Metaphysics, which is completely removed from the E-leCs). Thereby |SPL| stands for the finite set of all non-redundant Legal Argument Chains, LACs, constructable from 35 USC SPL.
- In **test3** just the A-crCs (not their E-crCs) need to be enablingly disclosed – but a so enabled A-crC must be testable for embodying its E-crCs.^[299]
- In **test4** the term right of "iff" is the mathematical representation of the Bilski-test, $E\text{-crCS}^{npe}$ denoting the set of all non-patent-eligible E-crCS. Note that it here is defined to check a part of the Alice test – this part not being checked in test6 – but it definitely is not the whole Alice test.^{3.b)} I.e.: If the CI stands for an ETCI, it also verifies/falsifies the existence of an A* comprised by the CI. Thereby A* would comprise an application of the CI's patent-noneligible TT0 and a nonempty set of E-inC of CI.^{3.b)}, and its existence transforms TT0 into the patent-eligible CI. test4 also hints at how TT0 may potentially be reinterpreted to be patent-eligible under easily recognizable conditions.
- test5** assesses that the CI alias E-crCS due to its inclusion of E-crCS^{TT0} is by its number and volume significantly more than TT0.
- test6** verifies/falsifies that the CI by its A*'s $E\text{-crCS}^{E\text{-crCSTT0} \neq \Phi}$ ^{3.b)} and its not being unlimited preemptive also by its quality significantly more than TT0.
- test9** is indispensable, as necessary for deciding an ETCI's patent-(non)eligibility, anyway.^{3.b)} Yet: The refined claim construction skips test7-test8 iff $RS = \Phi$. Otherwise, i.e. for $RS \neq \Phi$, the following holds: For being exact/precise^{3.a)}, any doci, with $i > 0$, had to be analyzed with the same rigor (as doc0) for determining what it indeed discloses as allegedly being peer to the properties of COM(ETCI). Without this scrutiny, about ETCIs very often absolutely untenable anticipation or obviousness prima facie assumptions are made, e.g. by examiners or judges. While hitherto the excuse has been that this thorough analysis is unacceptably tedious, this is at the latest by the vastly automated FSTP-Test falsified. For test9 per se see^{5.6)}.

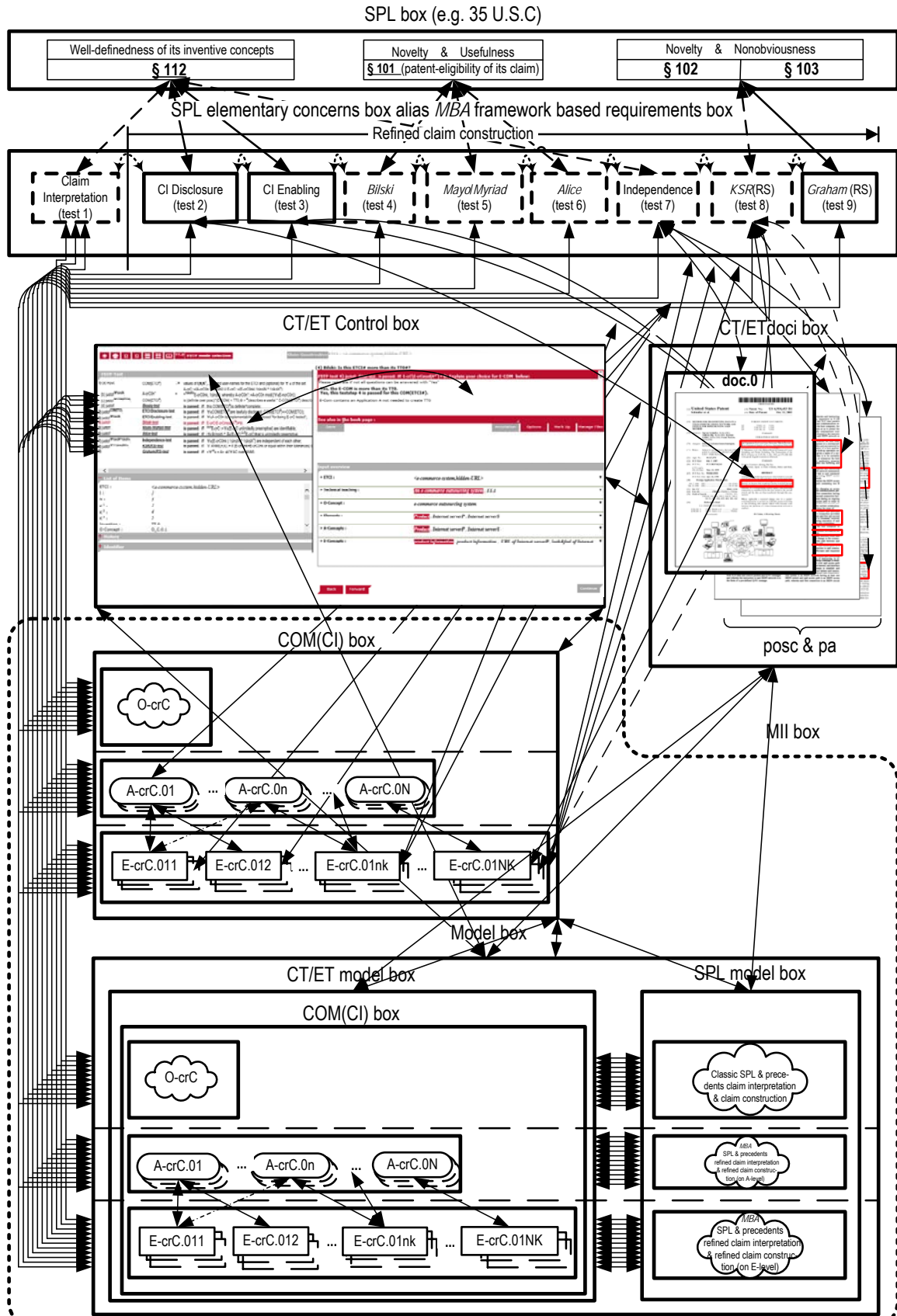


FIG3: Mental Relations between the MBA Framework Required SPL Items in a CI's Test for Satisfying SPL ^{5.a)}

⁵ .a All elaborations in this Section hold also for a CI standing for a CT/CI. The reason being that then none of its "E-crCs is patent-noneligible". Then in FSTP-test4 the E-crC_{non}=∅ and the CI is patent-eligible (provided it has passed FSTP-test1-3).

.b This structure of FIG3 models the mental relations existing in a human brain when thinking about and/or performing a CI's SPL satisfaction test: Any single thought refers to a single item (being a box or an arrow) in this very gross structure – and this single thought's semantic aspects are identified in this structure by transitively following the arrows emanating from this item all the way (potentially looping) up to the SPL box and down to the Model box.

Legend3: FIG3^{6.a)} shows the scheme alias structure of applying to a CI an arbitrary *MBA* framework based SPL satisfaction test, this test just as this CI both in canonical representation, i.e. this test being the FSTP test.

Ignoring in FIG3 the "MII model" box indicated by the dotted line, FIG3 models in "brain representation"^{9.b)} the structure of this test's process. It shows ●only items/relations representing creativity related issues – i.e. omits all legal aspects (defining a quite similar structure^{9.b)}) – and ●within the CI^{4.a)} its A* is not separated from its TT0, i.e. if it exists it is comprised by the CI, though the inventor knows about it. FSTP-test1(c)&test4)

All double-headed arrows ●between items in the 'SPL box', in the 'SPL elementary concerns box' alias '*MBA* Framework based Requirements box', in the 'COM(CI) box', in the 'CT/ETdoc.i box', in the 'CT/ET Control box' with the FSTP-Test, in the CT/ETmodel box and ●within these boxes represent relations that our brain establishes and uses when interacting with the CI's test, e.g. when inventing it, modifying/reiterating it, thinking about it, preparing its SPL test, rationalizing it, licensing it,^{6.c)}

These interactions are performed by R&D managers of a CI, investors into it, its inventor, the patent lawyer/pposc dealing with it, its examiner/administrator/ judge/..., most of them irrelevant at any particular point in time of an interaction.

Yet in any of these persons and in any stage of the development of this KR(CI), these boxes are of potentially dramatically differing Metaphysics or Rationality – and any such person should anytime be absolutely aware of these qualities of her alleged understanding what she is about to think and why in this very moment about this CI and its SPL test, which requires her proceeding as modeled by FIG3. Section I had already indicated the low probability that several persons necessarily involved would reliably achieve the precisely & exactly same understanding of whatever process arising from dealing with this CI – and that for indeed achieving it reliably, MII is able to dramatically increase the probability. This is explained next, by starting with a brief outline of linguistic and implementation aspects of MII.

MIl is provided by an "object language" and a "meta language"^{286]} for describing all of a CIs' A-/E-inCs/properties and operations on them as well as their management as seen by a tester. Both languages – by the tester seen as a single one – are small subsets of ACE^{288]}, being a few rigidly simplified natural English sentences automatically translatable into known executable code processing mathematical expressions. Using MII in a CI's tester description^{156,127]} thus enables fully rationally deciding whether it satisfies SPL. If so, this CI is of maximal legal robustness.^{11.3/273]}

As shown by FIG3, MII would hide from these persons all the – for absolutely correctly thinking indispensable – modeling/defining/referring issues raised by the CI's FSTP-Test that are located within the dotted line in FIG3 (and are schematically summarized by FIG2). This dotted line hence tells to what degree MII relieves all these persons from tedious subtleties of precise & exact thinking about testing a CI for its satisfying the requirements stated by 35 USC SPL. Instead of confronting these persons with these subtleties of the meanings dealt with by the mathematical expressions right of the FSTP-Test's "iff" column implemented by the meta language, the MII would grant to all such persons access solely to the names of the tests left of the "iff" column in the object language, trusting their intuitive understanding – due to these tests' simplicity (being the Supreme Court's "purified" 6 *MBA* decisions).^{4.b)1.a)}

This is the principle, by which Mathematical Artificial Intelligence supports executing the FSTP-Test in determining, for a given CI, its refined claim interpretation as required by this just quoted *Biosig*-test, and on the basis of this so determined refined claim interpretation in construing the CI's claim construction, thus veri-/falsifying the CI's satisfaction of 35 USC SPL – both activities achieving the objectives outlined in Section I by using the MII, all this induced and vastly enabled by the Supreme Court's *MBA* framework. There is another important activity in every day's patent business – to an even higher degree automatable than this semi-automatic SPL testing – namely arguing about such testing,^{5.b)} also as required in infringement cases. While the automatic LACs generation has been outlined already, the draft of the MMUI for using them efficiently and expanding the GUI for the above testing is under construction.

MIl thus takes, by the IES, its tester/user automatically to this much higher level of intuitive conciseness as to indispensable cognitive and ethical socioeconomic facts represented in O-level terms/notions of the *MBA* framework, on its and the tested CI's A-/E-levels the incarnation of its FSTP-Test in canonical representation on this CI in canonical representation – without requiring that the tester/user would understand this lift performed to it, i.e. these insights into the CI that the MII achieves for her/him. It is totally immaterial, what this user thinks/feels when she/he executes this specific CI's SPL test by determining its refined claim interpretation and construing the refined claim construction on its basis. Normally, she/he would just accept this test's results.

The semantics of the MII thus should overcome this gap in understanding the factual advantages of the Supreme Court's *MBA* framework. The innovation that the *MBA* framework embodies is evidently not self-unfolding, but requires to this end the additional software-implemented intelligence provided by the MII^{MBA}.

^{6. a} It is a refined structure of that in FIG3 of the "Red Brochure"^{9.b)} – modelling the brainR of a CI in canonical form being under FSTP test and existing prior to the status nascendi of the PTR-DS for this CI. At that point in time, principally all relations (a specific kind of its items, modeled by arrows) are predetermined already between this structure's nodes (another specific kind of its items) identified by their "IES names".^{261]} There are many more relations/arrows than those shown by FIG3, at this point in time being the blueprint for determining the refined claim interpretation for any CI.

The objective of the refined claim interpretation for a CI must distinguish two different procedures: ●Either, starting from this blueprint and determining by the CI's inventor or a substitute the COM(CI) from scratch (i.e. all its A-/E-crCs) by FSTP-test1, by the end of which the inventor would check whether and confirm that this COM(CI) is a complete and definite representation of her invention, ●or, starting from the just described COM(CI) and inputting it by FSTP-Line1(a), for checking this COM(CI) by an examiner or judge by FSTP-test1, whether it indeed passes its test1(b) and test1(c) – but unable to check test1(d).

Both processes may cause feedback into the CI described by COM(CI) and/or its specification, i.e. iteratively change one or both of them or not.

Thereby the CI's inventor – assumed to be familiar with the FSTP-Test – may already check on her own whether the COM(CI) she intends to provide will pass its refined claim construction, and whether any changes of the invention then becoming necessary are in line with other in-house requirements. If the inventor is also familiar with the USPTO's EPQI,^{261]} she may moreover check that her presentation and disclosures in the patent application also meet the MRF needs. But even if she is not familiar with the EPQI, the IES will automatically prompt the inventor, the pposc, the patent lawyer, ..., the examiner, the judge, the licensee – whoever is involved by the actual configuration of the IES for this CI – to reply also to the relevant questions of the MRF.^{273]}

^b Note that MII does not directly support modelling our SPL thinking. Quite the contrary applies: It is a computer implemented "abstract" machine replacing our SPL thinking in a specific CI's SPL satisfaction test by executing its calculations totally independent of this specific CI, which implement our thus thinking. I.e.: The MII is a consequence of our principally recognizing and modelling such thinking, but once MII exists it makes our thinking in many cases superfluous, as it is much faster and totally error-free – though MII's totally correct application by everyone can principally not be guaranteed, leaving a residual need for SPL high potentials exactly understanding how an MII implementation actually works on a CI in its O-/A-/E-KRs.

^c The notions of a CI's^{5.a)} non-/unlimited-/limited preemptivity are repeated here from^{296fms.b)} and explained in more detail in ^{299]}. I.e.: A CI is

- "nonpreemptive" iff its specification determines that it implies that its truth set is disjoint to the scope of another otherwise patentable and patent-eligible patent or of a combination of the latter with the teaching of some printed document accessible to the public.",
- "unlimited preemptive": "An otherwise patentable and patent-eligible CI is called unlimited preemptive iff its specification implies that its scope – when and after its patent otherwise being granted and valid – comprises no segment (identified and defined by the CI's specification) that is disjoint to the scope of another otherwise patentable and patent-eligible patent or of a combination of the latter with an above described document.", and
- "limited preemptive": "A patentable and patent-eligible CI is called limited preemptive iff it is neither nonpreemptive nor unlimited preemptive, i.e. its scope comprises at least one nonempty just (by the preceding bullet point) excluded segment, yet of only a priori known kind of potential preemptivity".

