

## Patent-Eligibility: Vague Feelings or An *MBA* Framework Fact?

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*PROPOSAL FOR STUDY*<sup>1.a)</sup>: By its "*Mayo/Biosig/Alice, MBA*" framework, the Supreme Court requires an ETCI<sup>1.b)</sup> embodying a patent-noneligible invention/TT0 to be patent-eligible if and only if it embodies also an application/A and an inventive concept, here called in<sup>AC1.b)</sup>.

The Supreme Court thereby induced a simple refined *Alice* test – here called “patent-eligibility granted/-ing, PEG” test – resolving the patent-eligibility problem of Substantive Patent Law (“SPL”) deterministically.

This renders the outcome of an ETCI’s PEG test as an “*MBA* framework fact” and any – hitherto unavoidable – vague feelings about this ETCI superfluous.

### EXPLANATION

This explanation of this "proposal for study" focuses on ETCIs, as they are model based<sup>1.b)</sup> and hence subject to a patent-eligibility analysis. This caused the Supreme Court to launch its *MBA* framework.

Accordingly, it shows in Section II – after an introductory Section I – that using the *MBA* framework in testing an ETCI for its being patent-eligible, as required by the Supreme Court’s *Alice* decision, presents this ETCI’s patent-eligibility question in a light dramatically simplifying it. It namely shows that the hitherto unlimited preemptivity embodied by any model based invention/TT0<sup>1.b)</sup>, rendering it patent-noneligible due to social fairness considerations about the SPL, actually may be “limited” alias “tied to” a particular application – and thus remains patent-eligible, as not affecting its use in other applications. This moreover clearly incentivizes the search for further applications for a model based invention/TT0 right from applying for patent protection for it, i.e. meeting a fundamental national R&D objective.

Thus the Supreme Court, by its *Alice* decision cut a Solomonian judgment as to developing ETCIs – between the commercial interests of inventors and investors and the fairness interests of the public.

<sup>1</sup> .a This submission by the author has the broader USPTO context of its patent quality initiative [245,244,251,258,259]. Accordingly, many of the following elaborations are highly redundant to earlier FSTP reports, even reusing their wordings. Backward references are identified by [XXX<sup>nnn</sup>], whereby “XXX” identifies a document in the Reference List and “nnn” an item identifier therein, e.g. [258<sup>2.a)</sup>]. If these elaborations and reports differ, this does not mean they contradict or devalue each other as they often serve different purposes and/or only didactical clarifications – and/or express improved insights<sup>2.a)</sup>.

Moreover: The following elaborations, though clarifying the just quoted presentations, are rigorous abbreviations and simplifications of them, too. I.e.: Their full understanding is hardly possible without consulting their presentations of details.

The decisive value of the following elaborations is that they present one of the several key advantages enabled by the Supreme Court’s framework: Here its inducing the “refined *Alice* test” alias “patent eligibility granted/-ing, PEG” test, for any ETCI usually easily deciding, whether it is patent-eligible or not, thus definitively resolving this hitherto big problem – by deciding, whether the preemptivity of the ETCI at issue is sufficiently limited for granting it the status of patent-eligibility.

.b E/CTCI = emerging/classic technology claimed invention. An ETCI’s description is “model” based at least in part on purely intangible/intellectual/mental/fictional items, while a CTCI’s description gets along without this extension of the world of material artifacts by purely mental yet very rational – as “separated” and “layered” – “inCs underlying models” [259].

An ETCI is a pair <invention/TT0, application/A> and denotes a patent-(non)eligible subject matter.

Thereby holds: TT0 = “Technical Teaching 0”, denotes the mental “point 0” of all respective SPL consideration.

.c The following mirrors advanced System Design [2] and in particular “Mathematical Artificial Intelligence, MAI” [258<sup>5.a)</sup>]<sup>4)</sup>.

.d What the *MBA* framework’s notion ‘preemptivity’ of an ETCI means, ought to be clearly understood: “An ETCI is called preemptive iff it is hard to exclude that its scope<sup>4)</sup> comprises a today not thought of ETCI\* and for the future this exclusion is principally impossible.” I.e.: An ETCI’s TT0 being obvious today or in the future renders this ETCI preemptive.

While it is hard to think of an alternative preemptivity definition, it would deviate from this one only marginally.

The above quoted publications demonstrate the application of this preemptivity definition, within ETCIs’ PEG test, by re-considering CAFC and ET DC decisions – for the *DDR/Myriad/Cuozzo/Motio* ETCIs – and the FSTP-Test seen as ETCI.<sup>3.d)</sup>

## I. Basic Remarks as to the “Preemptivity” Phenomenon of the Supreme Court's *MBA* Framework<sup>1.d)</sup>

The patent community (especially USPTO's IEG) is not yet aware of the tight interrelation between preemptivity and patent-eligibility, i.e. has an intellectual “preemptivity white spot”<sup>1.d)</sup> – due to its reluctance to exhaustively discussing and accepting the Supreme Court's *MBA* framework, as explained by [258,259]. Thus, it erroneously assumes a “missing link” in the *MBA* framework: Namely, a “red line” that separates patent-eligible ETCIs of some limited preemptivity (urgently needed by investors and supported by social consensus, as by the Supreme Court's *Mayo* decision clearly identified) from patent-noneligible as totally unlimited preemptive<sup>2.a)</sup> ETCIs (as patents socially intolerable by several strong reasons, see *Mayo*). But the *MBA* framework unquestionably does define this line – as shown next.

While *Mayo/Alice* indeed solely tell that it is socioeconomically very problematic to grant patents to unlimited preemptive ETCIs – thus causing their patent-eligibility problem – they both refrain from requiring to grant patents only to totally nonpreemptive ETCIs. Especially *Alice* clearly states: “An unlimited preemptive TT0 is transformed by an application A with an inventive concept into a patent-eligible subject matter <TT0,A> that is  $\alpha$ ) significantly more [than this TT0]<sup>2.b)</sup>, and is  $\beta$ ) of limited preemptivity”.

This means that A achieves this ETCI's patent-eligibility iff this pair <TT0,A>  $\alpha$ ) fulfills the uniform and objective condition for  $\beta$ ) its being of limited preemptivity, as all its originally unlimited preemptivity is tied to A's use of TT0. It then is also qualitatively more<sup>2.b)</sup>. The conjunction of these “**two *Alice* requirements**” –  $\alpha) \wedge \beta) \equiv \alpha') \wedge \beta')$  – thus indeed represent a ‘uniform and objective condition’<sup>2.c)</sup> for transforming an unlimited preemptive TT0 into a patent-eligible subject matter ETCI of limited preemptivity outside of a limited part of the scope of A<sup>2.d)</sup>, identified by this ETCI's inventive concept, in AC<sup>3.c)</sup>.

I.e., this conjunction is the clarification of this explicit *Alice* statement and shows that there is no allegedly missing link in the Supreme Court's *MBA* framework. It solely had been hard to recognize, due to the hitherto non-clarified notions of scope(ETCI)<sup>4)</sup> and especially of preemptivity<sup>1.d)</sup>.

Hence, in Sections II.1/2, the exhaustive interpretation of the *MBA* framework enables ETCIs' PEG test

- in retrospective form: to check this ETCI for granted patent-eligibility by its limited preemptivity, and
- in prospective form: for granting the patent-eligibility of ETCI's continuations by designing and drafting its specification controlled by its retrospective PEG test of Section II.1.

I.e.: In total, Section II shows, how to dependably achieve ETCIs' *MBA* framework based patent-eligibility and preserve it over their continuations – what any on innovations depending enterprise urgently needs.

<sup>2</sup> .a The term “unlimited” is to be understood broadly as “unexpected”/“unpredicted”/“undefined”/“unrestricted in use”/... preemptivity causing this big problem. “Limited” preemptivity – standing for its being “expected”/“predicted”/“defined”/“restricted in use”/... – is highly welcome, as absolutely indispensable for incentivizing investments into R&D for ETCIs (always being preemptive) [244<sup>VI.2</sup>]. But how about an ETCI expected to be of limited preemptivity during its patent's lifetime but going off limits during this period? The Supreme Court's *Alice* decision provides a solomonic answer to this question, shown next.

Namely: This answer is based on the insight that the scope<sup>4)</sup> of a patent for a subject matter <TT0,A> is disjoint to the scope of the subject matter <TT0,B> with  $B \neq A$ <sup>3.b)</sup>, as the notion of scope of a subject matter is defined by its ERTS [244]. This implies that TT0 is “patented as to its by A restricted use only” – i.e. if an ETCI's preemptivity exceeds bounds (as disclosed by its specification), the by its patent thus caused violation of the social fairness principle [237] is reduced to a part of this application/A area – for many ETCIs tightly definable by the USPTO's resp. policy, prior to granting it the patent.

.b [...] added for logically explicitly completing the statement. Thus, quantitatively <TT0,A> is trivially more than TT0.

.c hence necessary & sufficient, see also<sup>2.d)</sup>

.d The below items (i)-(x) explain why  $\alpha) \wedge \beta)$  is the ideal<sup>2.c)</sup> *MBA* framework based criterion indicating the transformability of an unlimited preemptive and hence patent-noneligible <TT0, $\Phi$ > into a patent-eligible <TT0,A> by granting patent protection to TT0's unlimited preemptivity iff TT0 is applied in conjunction with A (i.e. whether used by A or not [122]).

.e This logic conjunction must not be seen as A modifies TT0 by overwriting one of its properties – then not TT0 is transformed into subject matter <A,TT0>, but some TT0\* from TT0 derived by A – as then nothing of the following changes.

## II.1 The Retrospective PEG Test of an ETCI

Describing an ETCI by “inCs” [259] enables refining *Alice*’s compound notion modeling its patent-eligibility criterion –  $\alpha)/\beta) \equiv \alpha')/\beta')$  – and thus showing exactly&precisely [244<sup>13)</sup>] what, for a patent-(non)eligible subject matter  $\langle TT0, A \rangle$ , this uniform and objective<sup>2.c)</sup> criterion (= condition) is. As the latter is equivalent to the PEG test – just being the evident procedural representation of this declarative criterion – several of its details are summarized by the items (i)-(x), after first presenting this criterion and proving its exactly (mathematically) modelling the Supreme Court’s *Alice* decision.

Due to this refinement, this uniform and objective condition for a subject matter  $\langle TT0, A \rangle$  to be patent-eligible – although its TT0, i.e. its  $\langle TT0, \Phi \rangle$ , is unlimited preemptive – may be represented as [258<sup>FIG2)</sup>:

**“An ETCI alias subject matter  $\langle TT0, A \rangle$ , with  $\langle TT0, \Phi \rangle$  patent-noneligible as unlimited preemptive, is by A transformed to patent-eligibility iff ETCI passes the FSTP-test1-5  $\wedge$  AEC\|E-COM( $\Phi$ TT0) $\neq \Phi$ ”.**

FIG 1: The “Patent-Eligibility Granted, PEG”-Test

This is the *MBA* framework based sole criterion<sup>3.a)</sup> deciding, whether some ETCI is patent-eligible or not! It states an ETCI’s such property – its patent-(non)eligibility – as *MBA* fact, i.e. stops guessing about an ETCI’s patent-(non)eligibility by feelings. It exactly mirrors<sup>3.b)</sup> the Supreme Court’s *Alice* decision.

*Alice* puts this criterion by means of the SPL key notion of ‘inventive *Alice* concept, in<sup>AC</sup>’<sup>3.c)</sup> that it introduced into SPL to this end – which hence is clarified, again by of the FSTP-Test [258<sup>FIG2)</sup>, as follows.

An ETCI’s “**inventive *Alice* concept, in<sup>AC</sup>**” is by the *Alice* decision the set  $\text{AEC}\|E\text{-COM}(\Phi TT0)$ , consisting of the set of  $\forall$  this transformation warranting “**elementary inventive *Alice* concept(s), E-in<sup>AC</sup>**”.

Then  $\text{in}^{\text{AC}} \neq \Phi$ , for an ETCI, implies<sup>3.b)</sup>: Any of its elementary inventive *Alice* concepts  $E\text{-in}^{\text{TT0, AC}}$   $:= \text{TT0, As}^k \in \text{TT0, AEC}$ , and the more its inventive *Alice* concept  $E\text{-TT0, A in}^{\text{AC}}$ , transforms its patent-noneligible as unlimited preemptive embedded subject matter  $\langle TT0, \Phi \rangle$ , into a quantitatively and qualitatively “more”, namely into  $\text{ETCI} = \langle TT0, A \rangle$ , as  $\text{TT0, As}^k \in \text{COM}(\text{ATTO}) \setminus \text{COM}(\Phi TT0)$ <sup>2.b)</sup>  $\wedge$  ETCI’s preemptivity is limited by A.

<sup>3.a</sup> I.o.w.: The existence of this objective & uniform – *BR*<sup>*MBA*</sup> based (see the ETCI’s FSTP-Test [258<sup>FIG2)</sup> – criterion for an ETCI’s patent-eligibility, evidently bars all the hitherto esoteric views on this issue and hopefully terminates all the accordingly legally erroneous decisions about it, as rightfully felt and complained about by virtually all innovations depending economies to the USPTO [252]. This expectation is supported by the fact that this criterion – derived from the *MBA* framework by its exhaustive yet rigorously rational interpretation – once familiar with it, will be recognized to be the only one, evidently.

<sup>.b</sup> This granting patent protection only to  $\langle TT0, A \rangle$ ’s unlimited preemptivity – i.e. not to an other  $\langle TT0, B \rangle$ ’s unlimited preemptivity if  $B \neq A$  – is indeed established, as follows from the next paragraph (assuming the simplification that  $\exists$  only 1  $E\text{-COM}(\text{ATTO}) = \text{ERT}(\text{ATTO})$ <sup>4)</sup> and that ETCI passes the FSTP-test1-5).

Proof by contradiction that this criterion correctly models the Supreme Court’s *Alice* decision, i.e. by assuming the contrary were true. This means<sup>2.e)</sup>  $\exists B \neq A \wedge \text{AK} = \text{BK} \geq 1 \wedge E\text{-COM}(\text{ATTO}) = \text{ERT}(\text{ATTO}) = \text{ERT}(\text{BTT0}) = E\text{-COM}(\text{BTT0})$ <sup>4)</sup>.

From this assumption and the above  $\text{AEC}\|E\text{-COM}(\Phi TT0) \neq \Phi$  follows<sup>2.e)</sup> that  $\text{As}^k = \text{Bs}^k \quad \forall k \in [\text{OK}+1, \text{AK}] = [\text{OK}+1, \text{BK}]$ , and as this equality holds for the first  $\text{OK}$   $\text{Bs}^k$ , too, this evidently contradicts the assumption that for this B holds:  $B \neq A$ . q.e.d.

<sup>.c</sup> The notion of an inventive concept, inC, as defined by the Supreme Court’s *Mayo* decision, is the basis of defining by *Alice* the notion of an ETCI’s in<sup>AC</sup>, yet the latter represents – as of  $\alpha)/\beta) \equiv \alpha')/\beta')$  – significantly more than an inC (in other ways, this applies also to other *Alice* categories of inCs, not discussed in detail, here, e.g. natural phenomena or abstract ideas modelling inCs, as the Supreme Court’s *Alice* decision suggested).

<sup>.d</sup> The objective PEG test’s decision about an ETCI being patent-eligible – uniform across all areas of emerging technologies – is by the *MBA* framework totally based on this ETCI’s preemptivity properties. Vastly dropping preemptivity as the basis for this patent-eligibility decision, as the IEG currently does, would again raise the question, what the rationale should be to uniformly and objectively base it on. And vastly dropping the uniformity and objectivity requirement as to ETCI’s SPL precedents is multiply excluded by the Supreme Court’s *MBA* framework.<sup>1.d)</sup>

The following remarks (i)-(x) help grasping the working of this condition for an ETCl to be patent-eligible. For this condition – it is a declarative statement (i.e. nonprocedural) about an ETCl, nevertheless it immediately shows how to verify/falsify it for this ETCl procedurally – namely holds: It

- (i) is indeed exhaustive, as imposing on an ETCl tested exactly the limitations that *Alice* imposes on it.
- (ii) is decidable [2] as composed of one or finitely many inCs, each being finite.
- (iii) is trivially to check procedurally, once ETCl's AEC is determined and approved by FSTP-test1-5
- (iv) is met, if  $\exists$  a single whatsoever  $E\text{-TT0.AinAC}$ .
- (v) is met by any ETCl with  $\text{COM}(\text{TT0})=\Phi$  if only  $\text{TT0.AinAC}\neq\Phi$  – as is the case in the CAFC's *DDR* decision: Its TT0 is obvious, but its specification discloses a  $\text{TT0.AinAC}$ .
- (vi) is not met by an ETCl with  $\text{TT0.AinAC}=\Phi$ , as TT0 by its specification then cannot be disclosed to be composed from a simpler  $\text{TT0}^*$  and an  $A^*$  such that for  $\langle \text{TT0}^*, A^* \rangle$  holds  $\text{TT0}^*.A^*\text{inAC}\neq\Phi$  – as this would imply that already holds  $\text{TT0.AinAC}\neq\Phi$ , contradicting the precondition. This is the case in *Alice* due to its negligent specification of application A of the resp. patent (explained in earlier FSTP papers).
- (vii) may be tightened by adding a further restriction to this condition, e.g. that  $|\text{TT0.AinAC}|\geq 3$ . This tightened condition preserves its sufficiency but loses its necessity, i.e. may simplify procedurally figuring out that an ETCl satisfies SPL – although would erroneously determine the contrary for other ETCl's, while this contrary would be wrong by *Alice* and the above criterion.
- (viii) may not be relaxed – i.e. is the minimal patent-eligibility limitation exerted on an ETCl's TT0 of unlimited preemptivity.
- (ix) may no longer be sufficiently powerful for an ETCl only 1 second after its patent being granted – though ETCl's patent-eligibility remains preserved – due to ETCl being made-up by means of a natural phenomenon E-crC, for which during this 1 second became evident that its E-crTS must be expanded by an element, for preserving its commercial appeal. This points to the patent-eligibility granting test in Section II.2<sup>4)</sup>.
- (x) is easily usable by the prospective PEG test, as indicated by (ix) – hitherto thought of never before by the patent community's patent-eligibility discussion, always focused on only ETCl's retrospective patent-eligibility tests only. I.e.: Any innovations based enterprise definitively needs this evident look-ahead capability of an ETCl's patent-eligibility test, as by the prospective PEG test provided<sup>5.c)</sup>.

Finally: At the first glance, this notion of an 'inventive *Alice* concept, inAC' may seem oversophisticated. Yet, at a second glance one would recognize that the trivialities of its semi-mathematical MAI representation [258<sup>FIG2</sup>] – unavoidable for preciseness, as otherwise it were impossible to model exactly & precisely the indispensable refinement of the *MBA* framework, in particular its extremely meaningful tying an invention's/TT0's unlimited preemptivity to an application/A, i.e. without unnecessarily restricting this ETCl's specific preemptivity – are misleadingly pretending this nonexistent sophistication. I.e., principally the *Alice* decision resolved the patent-eligibility problem in a straightforward way (if the seemingly 'mathematical frills' are ignored, yet being indispensable for finding and communicating it precisely).

It remains to be seen, whether the patent community will take this way, i.e. will perceive the above conjunctive patent-eligibility criterion,  $\alpha)\wedge\beta) \equiv \alpha')\wedge\beta')$ , to be met by an ETCl as too limiting or as too relaxing. While ●) further relaxing this criterion would invite patent applications the SPL precedents about which would with all likelihood become inconsistent, ●)tightening it and still achieving its vast acceptability seems to be impossible and unwise. This criterion hence will prevail as it is, by all likelihood.

<sup>4</sup> Thereby it turns out that not only the notion of an ETCl's total "inventivity"<sup>1.c)</sup> and its adjectives<sup>2.a)</sup> must be clearly understood, but also its notion of scope – although extremely important and extremely blurring if not mathematically defined, also hitherto nowhere clearly defined by the pertinent literature about SPL precedents about ETCl's, neither the pre-*Mayo* nor the post-*Mayo* literature, i.e. for the first time delivered by earlier publications of the FSTP-Project (see the Reference List).

The scope(ETCl) ::=  $\{\forall E\text{-realization tuples of ETCl}\} = \{\forall \text{ERTs(ETCl)}\}$ , whereby any ERT(ETCl) is defined by this ETCl's FSTP-Test [258<sup>FIG2</sup>] as one of its K-tuples<sup>1.c)</sup>. W.l.o.g., by the simplification<sup>3.b)</sup> only a single  $\langle s^1, s^2, \dots, s^K \rangle$  exists.

## II.2: The Prospective PEG-Test of an ETCI

After the retrospective ‘patent-eligibility granted’ test of an ETCI in Section II.1, now the prospective ‘patent-eligibility granting’ test of an ETCI is outlined, i.e. the PEG test warranting that – just as patent-eligibility has been granted to its ETCI’s patent(application) due to its specification – it will be granted also to its continuations, based on disclosures comprised by its specification.

The prospective PEG test is designed to work for all foreseen continuations of the ETCI’s patent(application) specification, i.e. disclosed by it<sup>5.a)</sup>. Specific simple classes of continuations are briefly identified by the next sentences for outlining how to proceed in a general continuation: The prospective PEG test may e.g. leverage on the fact that, for an ETCI = <TT0,A>, in the specification of its patent(application) the disclosures of ‘its currently unused E-inCs of A’ [251], i.e. of E-inCs<sup>5.b)</sup> unused by its claim’s wording and due to A, are storable independently of the disclosures of its TT0’s E-inCs, and vice versa. This may simplify presenting that ETCI’s above necessary and sufficient patent-eligibility condition  $in^A C \neq \Phi$  eventually may become true, as it then may depend e.g. only on A’s disclosures.

Designing/Drafting a patent(application) specification’s disclosures in this hitherto unusual way – such that this necessary and sufficient condition is met by a later continuation – establishes the fundament for the usefulness of the prospective ‘patent-eligibility granting, PEG’ test, evidently being procedural.

This, again, requires a further notional refinement – here of the notion of an ETCI’s specification.

Let “ $\underline{RA}$ ” stand for “A’s equivalence class,  $\underline{EA}$ ”, defined by requiring that  ${}^A E C$  is the same  $\forall B \in \underline{EA}$ , i.e.  ${}^A C \subseteq {}^B C$  and  ${}^B C \setminus {}^A C$  is irrelevant – reduced to  $\underline{RA}$  by excluding any  $B \in \underline{EA}$ , unless the specification ●)firstly discloses B (which would be verified for B by its meeting the retrospective PEG test, except its test3) and ●)secondly explains that and why its subject matter <TT0,B> is useful.

If an ETCI specification is so drafted, ETCI’s respective continuation would not again raise its SPL satisfaction question except test3 (including its patent-eligibility FSTP-test6) – otherwise usually occurring.

**The “Patent-Eligibility Granting, PEG” test alias “prospective PEG” test, warrants the patent-eligibility for any continuation of a patent-eligible ETCI = <TT0,A> with patent-noneligible TT0 iff ETCI’s specification is designed/drafted such that  $\forall <TT0^*,B>$  it discloses also holds:  $B \in \underline{RA} \wedge <TT0^*,B> in^A C \neq \Phi$ <sup>5.b)</sup>.**

FIG 2: The “Patent-Eligibility Granting, PEG”-Test

In total, the intended advantage enabled by the PEG test ought to be: It should unfold all only possible SPL potentials in favor of supporting generating and protecting ETCIs, in particular those deserving long time funding as requiring long term research efforts & being of high risk nature. The pace of such ETCIs’ broadening their penetration into all areas of the life-cycle as widely understood by emerging technologies – always being model-based, i.e. merely intellectually controlled and more and more becoming unlike the classical inventions hitherto protected by patent law, yet – catapults such ETCIs into a key role as to assessing not only the wealth of the US society, but also as to improving its well-feelings as evidently facilitating everyday life and prolonging life time.

<sup>5</sup> .a Also an ETCI continuation’s specification may be augmented, if the scope(ETCI) is not expanded but just clarified, here not elaborated on.

.b for avoiding misunderstandings, instead of simply writing “E-inCs”, it were necessary to write “ ${}^{ETCI} E-inCs = {}^{TT0,AE} E-inCs$ ”, for not mixing these up with “E-in<sup>A</sup>Cs”, as the latter term denotes a set of specific ones of the “ ${}^{TT0,AE} E-inCs$ ”. I.e.: The middle “A” stands for the ETCI independent “Alice” decision, the leading “A” stands for an ETCI dependent “application”.

.c The prospective PEG test enables designing an infinite variety of patent-eligible potential continuations by drafting different complexities and/or variations of the specification of an ETCI’s patent application such that they already envision these continuations.

