THE ETCI's PATENTELIGIBILITY THEOREM, FSTP-TECHNOLOGY, IES, …: THE *MBA*-FRAMEWORK AND THE US INNOVATION ECONOMIES' WORLDWIDE LEAD

Sigram Schindler[*)]
TU Berlin & TELES Patent Rights International GmbH
www.fstp-expert-system.com

I. The ETCI's PE Theorem Shows the Supreme Court's Strategic 'Innovation Thinking'

This ETCI's Patenteligibility Theorem for an "Emerging Technology Claimed Invention, ETCI" says: [1.a)]
An ETCI DE/PE/PA is easily decidable & it is "**patenteligible**, **PE**" iff it is of "**limited preemptivity**, **LP**".

DEFINITION: An ETCI$\in\{<^{nPE}TT0,^{TT0}AS>\}$[a)] is by *Alice* explicitly defined "**PE**" iff the ETCI has the properties **α)&β)**:

α): "ETCI's ^{TT0}A is an $\in^{TT0}AS$ that **preserves TT0's nature**" — meaning[b)]
for this $^{TT0}A \in^{TT0}AS$ holds $\{\prod^{TT0}scope(E\text{-}^{TT0A}crCS^{ETCI})\} \setminus \{scope(E\text{-}^{TT0A}crCS^{TT0})\} = \Phi$ — and

β): "$\exists^{TT0}A \in^{TT0}AS$: ETCI::= $<^{nPE}TT0,^{TT0}A>$ has **an inventive** ^{Alice}**concept**" — meaning
$\bigcup^{\forall TT0A\in TT0AS}\{E\text{-}^{TT0A}crC^{Alice} \in E\text{-}^{TT0A}crCS^{ETCI} \setminus E\text{-}^{TT0A}crCS^{TT0} \mid E\text{-}^{TT0A}crC^{Alice} \perp E\text{-}^{TT0A}crCS^{TT0}\} \neq \Phi$**.**

and is by *Alice* implicitly defined "**limited-preemptive**, **LP**" iff the ETCI has the properties **α)&γ)**:

γ): "$\exists^{TT0}A^* \in^{TT0}AS$: ETCI::= $<^{nPE}TT0,^{TT0}A^*>$ has **an inventive** ^{Alice}**scope**" [b)] — meaning
$\bigcup^{\forall TT0A\in TT0AS}\{scope(E\text{-}^{TT0A}crCS^{ETCI\setminus TT0}) \setminus scope(E\text{-}^{TT0A}crCS^{TT0})\} \neq \Phi$**.**

ASSERTION: ●An ETCI is Patenteligible if and only if it is Limited Preemptive,
&
●ETCIs' DE/PE/PA is rationally/mathematically provable semi- or even **α** fully-automatically. It then is fully robust.

PROOF: Only **β)** ⇔ **γ)** needs to be proven, as) holds for both sides. First the assertion's "=>" (= if) is proven to be correct, next its "<=" (= only if). For automatic testing any ETCI's DE/PE/PA see[400].

●From **β)** follows **γ)**, as assuming $\bigcup^{\forall TT0A\in TT0AS}\{scope(E\text{-}^{TT0A}crC^{ETCI\setminus TT0})\setminus scope(E\text{-}^{TT0A}crCS^{TT0}) = \Phi$ contradicts **β)**.
●From **γ)** follows **β)**, as assuming $\bigcup^{\forall TT0A\in TT0AS}\{E\text{-}^{TT0A}crC^{Alice}\ldots\} = \Phi$ contradicts **γ)**.[b)] **q.e.d.**

The charm of this 'PE theorem': Of any (meta-)rational[354]ftn2.h) ETCI the FSTP.test4-7[390,391] may, after its test1-3 (= its claim interpretation), rationally&semi-automatically and even mathematically&fully-automatically prove an ETCI's being definite, patenteligible (i.e. limited-preemptive), and/or patentable.[c)]

This is excellent news for all investors in creating & patenting long-term/high-risk inventions.

*) **Thanks for discussing this theorem's mathematical modelling go to** *C. Negrutiu, D. Schoenberg, J. Schulze, J. Wang, B. Wegner, R. Wetzler*.

1.a The acronyms DE/PE/PA and ^{TT0}AS denote of an ETCI its *MBA*-framework properties 'definiteness'/'patenteligibility'/'patentable' and 'TT0-defined Application Set', TT0 (= Technical Teaching) standing for an nPE invention, i.e. the starting point of the 'PE analysis' in *Mayo*/*Alice*.
The 'only if' is necessary to avoid putting the US NPS into jeopardy by the coming flood of potentially unlimited preemptive ETCIs (and hence by the patent law not dependably protectable, as the Supreme Court explained in its *Mayo* opinion). The 'if' confirms an ETCI's being PE is easily/deterministically/unquestionably decidable by the PE analysis of the Supreme Court's *Alice* opinion (i.e. by the FSTP-Test[400]).
To achieve the exactness and preciseness implied by the Supreme Court's *MBA*-framework just as that of its interpretation of 35 USC §§112/101/102/103 (= Substantive Patent Law, SPL) and of an ETCI — i.e. the Supreme Court's meta-rational[391]ftn1.c) and Kantian[332]2.e) thinking — the latter must use, in an ETCI's SPL-analysis, the O-/A-/E-KR (= "**Knowledge Representation**"[2]) of human perception. I.e., an E-crC^{Alice} must not be defined/understood by the 'nonrefined' *MBA*-framework[355]ftn2.b.2, as it knows of an ETCI only its O-level of notional resolution, i.e. its O-crCs, which often are logical conjunctions of several E-crCs: While e.g. the independence of E-crCs is easily recognizable, this often is impossible for the O-crCs comprising them, as these may comprise additional E-crCs being dependent on each other. FSTP-Technology assumes: Any meta-rational O-KR of an ETCI may be refined into its ●rational E-KR[5-7] and then into its ●mathematical KR[391]. Hitherto no ETCI has been encountered that does not meet both requirements. W.l.o.g. this paper assumes several brevities and simplifications[182].
An ETCIs' properties **α)-γ)**, PE, and LP are rationally/mathematically and hence meta-/fully-automatically determinable, e.g. by an IES.[351] Without the mathematical KR of the PE-problem, there is no chance of finding this "**Basic PE Theorem"** and its formal proof (published already e.g. by[300] on 27.07.2016) — the reason why the *Alice* opinion did not state that for an ETCI holds PE ≡ LP. The theorem's perception and its proof are simple, while their notional filigree of basic mathematical cognitions makes them nontrivial, for probably anybody.

.b The meaning of the term 'scope' of (part of) an ETCI — in classical SPL murky — is mathematically defined to be its "realization tuple" set.[355]
Also note that the ETCIs, i.e. their applications, referred to in the theorem/proof often are not unique. E.g., the scope of a patented ETCI (always factorially comprising its nPE TT0's scope) may, if appropriately drafted, embody several different applications or of 1 several KRs. Here the enabling-test is of decisive importance.
The mathematical KR of the above Basic PE Theorem and proof — they encode/represent the Supreme Court's *MBA*-framework interpretation of SPL, as of 35 USC §§112/101/102/103 — also proves the necessity of the entire *MBA*-framework for protecting ETCIs by SPL. As presented in more detail e.g. in[400], *MBA*-framework: Leaving out of it only the above **α)&β)** or **α)&γ)** — in an ETCI's test for satisfying SPL — namely clearly shows its potential to put the US NPS into jeopardy (by granting patents to nPE as unlimited preemptive ETCIs).
Scientifically, this definitively terminates the vastly absurd discussion about the Supreme Court's *MBA*-framework. But this absurd discussion quite evidently will not terminate in the patent community — as evidenced by the 2 reports briefly commented on in Section II.

.c After the long lasting search by the patent community for the *MBA*-framework conforming solution of an ETCIs' §101 problem — resolved by the ^{IDL}FSTP-Test[390], which additionally answers the total robustness question of this ETCI! — the above 'PE theorem' shows once more (yet not indirectly by the FSTP-Test being the implementation of the *MBA*-framework definition, but now directly as consequence of this definition) that this *MBA*-framework definition is not only sufficient but also necessary for avoiding that the US NPS is threatened by ETCIs.

II. The *MBA*-Framework Stabilizes the US Innovation Economies' Lead

All the US innovation economies — especially those driven by long-term/high-risk/exorbitant-cost ETCI investments — depend on the US NPS: On its ability to warrant the chance to achieve these investments' return. This warranty is the key incentive for risking such investments — also if being aware of such ETCI investments' importance for enabling the US society's wealth in the future.[2.a)]

To preserve this warranty into the era of "Emerging Technology Claimed Inventions, ETCIs" [b)], the US Supreme Court designed its *MBA*-framework for refining the interpretation of USC 35/SPL to meet the needs of protecting ETCIs. It thereby induced the development of the FSTP-Technology[182].[c)] The latter comes with a series of totally unexpected practical results — and the need for a significant but notional subtle, i.e. hard to grasp, paradigm refinement of classical SPL performed by the *MBA*-framework — such as drafting for any ETCI an absolutely robust specification or automatically testing (mathematically proven to be correct) an ETCI for its satisfaction the US SPL.

This enormous power of the *MBA*-framework based FSTP-Technology — documented in detail (see the FSTP-Reference List) — is today focused on the US Supreme Courts' SPL precedents on ETCIs and thus stabilizes the US NPS[d)]. By contrast, no other NPS as yet had an *MBA*-framework-alike interpretation of its Supreme Court(s)[e)], and the attempt to perform this for ETCIs indispensable paradigm refinement of classical SPL is likely to encounter there the same reservations as it encountered in the US.

This reasoning does not overtake itself: First the US NPS had to accept FSTP-Technology, and hitherto there is no indication that this would happen soon. By contrast, as usual in such paradigm refinements, there is hardly any interest in the US patent community to get acquainted with it[f)].

Moreover, a cognitional barrier as to the complete understanding of the *MBA*-framework must be overcome, first, in particular by the CAFC, the USPTO, and the large IP-organizations. While[390] explained their pretty different yet still incomplete current mind-settings as to SPL's paradigm refinement, 2 more reports were published[407,408], both being interesting — only due to the institutions they represent.

USPTO's Patenteligibility Report & **STRONGER's Patents Act 2017:** Commenting their elaborations under the here key aspect of adjusting is possible by a 3-word-statement: **Two Missed Opportunities**. Both namely neither stabilize the US NPS nor approach the solution of the "PE problem" (still plaguing the patent community). Without this solution, achieving consistency & predictability of the US SPL precedents on ETCIs is absolutely impossible[354,355], while both are warranted and automatically achieved by rigorously and completely applying the Supreme Court's *MBA*-framework, i.e. the FSTP-Test.

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[2] **.a** Enabling the US society's wealth in the future based solely on CTCIs is impossible — alone due to their amenability to be performed by robots.

.b — with their vast fictionality of their functioning, a phenomenon never encountered in Classical Technology —

.c — based on the KR-driven[2] emergence of the mathematically exact "Innovation Science"[d)] [182], this exactness indispensably required by ETCIs' high degree of being fictional alias model-based, implying their O-/A-/E-(notional resolution)level KR, as frequently discussed in the preceding publications and here represented by the above Basic PE Theorem and its proof.

.d This does not only stabilize the US NPS by its significant increase of productivity under various aspects, but — as it is on the right track into the innovation society anyway — also increases the chances that several other NPSes would adapt the US SPL as their base system.

.e The US courts' have, as to their concerns about US SPL precedents on ETCIs, the worldwide by far best experience — due to the long time internationally leading role of US based emerging technology innovation capability. This US awareness of an ETCI's PE problems — as manifested by the Supreme Court's *MBA*-framework, invoked by the increasing clashes in courts, indicating the dependence of the US society's wealth on cutting-edge techniques, not only in ICT but in particular all Bio-Technologies — puts the US NPS on top of all other NPSes.

Recent decades' media communications, confirmed by official socioeconomic key figures, show that most patented blockbuster innovations were started, patented, and legally defended in the US, before being broadly introduced/accepted by other big national economies.

As to their NPSes: None of them has already a patent law or Supreme Court position equivalent to the *MBA*-framework, i.e. capable of warranting the consistency of precedents on ETCIs.

.f and those who understand its message quite directly confirm that they don't want to go public with this knowledge, as they would see evident job problems for many members of this community if the innovation economy introduced it. But there are viable counterexamples: The introduction of ERP systems into the economy did not reduce the number of its bookkeeping work places; it merely required bookkeepers to considerably increase their job qualifications — which simultaneously brought them higher wages.

The FSTP-Project's Reference List

FSTP = Facts Screening/Transforming/Presenting (Version of 01.08.2017*)) Most of the FSTP-Project papers below are written in preparation of the text-book[182] – i.e. are not fully self-explanatory independent of their predecessors.

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[2] AIT: "Advanced Information Technology" alias "Artificial Intelligence Technology" denotes cutting edge IT areas, e.g. Knowledge Representation(KR)/Description Logic (DL)/Natural Language (NL)/Semantics/Semiotics/System Design, just as MAI: "Mathematical Artificial Intelligence", the resilient fundament of AIT and "Facts Screening/ Transforming/Presenting, FSTP"-Technology, developed in this FSTP-Project.

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