

The SPL-AI-Relation of 'Application-Controlled ETCIs, ACETCIs'

Part V

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Abstract 1.a)

This mail's Part V presents the SPL-AI-Relation as the longtime sought PE^nPE criterion of v^ACETCIs — saying that v^ACETCIs are nPE. It firstly states that 8 major US organizations[587-594] — in their replies to the USPTO's 'AI inquiry'[551,552] & its questions 11 & 12 — for no ETCI define or only identify its SPL-AI-relation to the Supreme Court's SPL-framework. This Part V does both: By defining this SPL-AI-relation for v^ACETCIs — implying that v^BIOstructured ETCIs turn out to be PE. It secondly shows — for DDR & Broad, both by the CAFC and/or USPTO grossly erroneously analyzed as to their PE^nPE — a spectacularly simplified ETCI test for PE^nPE (& the Supreme Court's SPL-framework satisfaction) by their subject matters' use-KR.

1. The SPL-AI-Relation — Defined Here, as Hitherto Unknown in All Replies to the USPTO's AI-Inquiry.

The by Andrei Iancu launched USPTO 2019 PE Guidelines[504,566] assume correct^b) ETCIs, i.e. almost completely^b) as by the Supreme Court's Solomonic SPL framework required, esp. being 'application controlled'. He also very early stimulated thinking about whether AI might facilitate such ETCI's SPL-satisfaction testing — by a simple test, the passing of which by such an ETCI being necessary & sufficient for its satisfying SPL^c). And indeed:

Any m^ratACETCI's FSTP-Test may be dramatically simplified to the below box of 2 trivial SPL-AI theorems^d).

Metarational Claim Interpretation, m^ratCI: <2 inputs ::= m^rat&ratCI in (nISL v ISL) & ISL KRs, 2 outputs ::= CBN(m^rat&ratETCI)> & begin:
1) if [CBN(m^rat&ratETCI) is factually {m^rat&ratO-crC0n = m^rat&rat((sum 1<=n<=N)K_i=K) ^ ((sum 1<=n<=N)E-crC0k_i) ^ ncrC0n)} / 1<=n<=N} ^ m^rat&rat[E-complete ^ correct ^ definite]] then go on;
...
(Mathematical Claim Construction, mat^AI-CC) for <internal input ::= CBN(m^rat | rat | mat SPL^AI-ETCI)> holds: Any SPL^AI-ETCI is PE, and especially
(Mathematical CRISPRAI-Theorem about mat^AI-CC) for <internal input ::= CBN(m^rat | rat | mat CRISPR^AI-ETCI)> holds: Any CRISPR^AI-ETCI is PE.

Legend: The 2 bottom boxes model the strange dualism of 'materialistic' vs 'idealistic' SPL cognitions. i.e., mathematically modelling, for an ETCI, the notion of its meaning of SPL satisfaction' • by 'testing' this ETCI as unknown vs • by 'proving' its conjunction of its hypothetical elementary AIs' definitions (i.e. axioms). This is in the middle box indicated by the "equals, =" sign, whereas before, in the top box, the "is defined as, ::=" sign is used, thus indicating this difference — together these two boxes clearly specify the by Mathematical Philosophy, 'MP', defined 'normal quality transformation'^2a) enabled by MP. Locke/Hume & Berkeley/Kant 'initialized' these then semiotic MP notions, but none of them clarified this mathematical metamorphosis in Cognition Theory. For the MP proofs of the 2 theorems see the following and[576,577,586]. I.e., today's only still here existing problem — broadly thought not to exist — is the bizarre assumption, for BIOETCIs there were no new §112-problems[495]. Although, for these proofs this assumption is irrelevant.

*) The authors' thanks for discussing this mail go to U. Diaz, C. Negrutiu, D. Schoenberg, J. Schulze, J. Wang, B. Wegner, R. Wetzler.

1.a For Parts I-IV see[488,489,495,503,576,577,586]. There and here the following terms[489fn2.a)] are used: AI ::= Artificial Intelligence; SPL ::= Substantive Patent Law; (C/E)TCI ::= (Classic/Emerging) Technology Claimed Invention; AC ::= application controlled; CAC ::= conservative AC; (n)PE|(PE)(G) ::= (non)patenteligible/-bility (guideline); PA ::= patentability; (p)posc ::= (person of) pertinent ordinary skill and creativity; The precise meanings of these terms' FSTP-notions are known either by the pposc, or explained here, or are (re)defined in[596].
b for therein still missing details see[576,577,586], which also explain ETCIs' needs of them for preemption exclusion & minimal §101 invasivity into R&D^2a).
c e.g. by the dramatically simplified FSTP-Test[FSTP], by its definition[6-9,572] being the only one modulo redundancies, i.e. the unique one.
d For basics of Mathematical Philosophy cognitions about bottom-up Mathematics & layers of exact sciences & emerging technologies, see[182,596] — needed for modelling correct human thinking's 'mathematical transformation' of an original m^ratACETCI (in m^rat|KR) into its identical rat^matETCI (in KR). 2.a)

For convenience of the reader of this mail, its predecessor⁵⁷⁷⁾ is in^{2.a)} below partially recapitulated. Additionally, before switching to the 2. Section, some short remarks are in place that highlight the fundamental paradigm expansion currently taking place in virtually all innovation/invention/patenting and related business.

The ‘technical’ headlines of the PE-/AI mails do not express the amazingly powerful features of the emerging AI-/FSTPtech. Especially, they don’t create awareness about SPL-AI taking patenting of ACETCIs from their currently still ‘pre-industrial’ manual processing development state to their ‘post-industrial’ vastly automated development state. Notionally this is indicated by an ETCI being partially based on at least one ‘abstract idea’ (in a CTCI) and/or ‘natural phenomenon’ (in an ETCI), both being of intangible and/or invisible and/or immaterial and/or even unknown subject matter — unlike most classic inventions that comprise no such ‘exceptional’ elementary creative concept E-xcrC. Prior to the SPL-framework, such E-xcrCs had conceptionally not been recognized, they had simply been ignored^{b)}.

The Supreme Court noticed ETCIs’ E-xcrCs worldwide for the first time — thus enormously ‘widening all patenting horizons’ and soon by far outnumbering all classical inventions.

The Supreme Court’s decisions of the 10./13.01.2020 — to refuse its currently reentering into the PE problem — is very helpful: It might have involuntarily disturbed the broad convergence process in the US patent community on the by its *Alice* decision specified solution of an ETCI’s PE problem. After its public unusually controversial existence in the US NPS for more than 7 years, Andrei Iancu has started creating this convergence instantly with his inauguration — by emphasizing the Supreme Court’s Constitutional responsibility to interpret 35 USC/SPL as its framework decisions do — and by asserting that he will solve the so defined PE problem. His 2019 PE Guideline of the USPTO^[504,566] indeed clearly approaches to this assertion.

The Supreme Court thus implicitly indicates its consensus with Iancu’s assertion. The 2 by the Supreme Court invited PE amicus briefs of the DOJ’s Solicitor General, too, are mute as to this evident public convergence towards the ‘PE-problem solution’. Also, the always very positive comments on Iancu’s many such efforts are not ignorable — e.g. fixing, in^[504,566] the CAFC’s grossly incomplete *Mayo/Alice* interpretation^[480].

^{2.a} Correctly interpreting the Supreme Court’s SPL-framework requires the notional scrutiny known from Analytic Philosophy that often is (misleadingly) felt to be superfluous. Accordingly, the meaning of a bold notion, below on the left-most, denotes an ETCI item’s^[FSTP] “**notional property quality**” (right of its ‘—’ axiomatically defined). This quality of a legal and/or factual notion may be:

- **transcendental** – this ETCI item is excluded from SPL-satisfiable testing, as embodying a highly speculative notion;
- **metaphysical** – not being “highly speculative”, but definable such that this property is recognizable to be amenable to metarationalization, i.e. definable by (informal) conjunctions of informal “**O(-level)-predicates**” of this ETCI, i.e. ^{mat}axiomizable, located on its notional **O-level**;
- **irrational** – all such notions belong principally to Rationality, due to their eventual by definition axiomizability being amenable to mathematization, as Kant implicitly postulated⁹⁾, i.e. principally already located on its notional **A-level**;
- **metarational** – being definable by an ISL-expression^{le.g.372,390)} (in basically natural English) describing all semantics of all O-predicates as formal conjunctions of formal “**A(-level)-predicates**” in ISL, i.e. a priori ^{rat}axiomizable (often even ‘easily’), located on its notional **A-level**;
- **rational** – being definable by an ISL-expression (again in basically natural English) describing all summands of all such A-predicates, i.e. being rationalizable, i.e. also mathematizable, by “**E(-level)predicates**” in atomic or exceptional ISL notions, located on its notional **E-level**;
- **mathematical** – being describable by exactly these E-predicates in mathematical KR, located on its notional **E-level in matKR**.

b. e.g. in the ETCI *Diehr*, see *Mayo* (on p.11/12, as the crucial exceptional E-xcrC ‘molding’ is skipped in its wording, as being a natural phenomenon ‘modeled by postc’); or in the ETCI *Myriad*, where the patent owner & the CAFC didn’t recognize the framework’s filigree.

2. Two by the CAFC and/or USPTO misinterpreted ACETCIs & Their Functional Specifications.

This Section explains, of the 2 in the Abstract mentioned ACETCIs, their functional specifications — in FSTPtech (and System Design^{4f}) called its ETCLs' 'use structures^{3.a)}. It shows these 2 different subject matters' use hierarchies^[e.g.495], which would determine their patent applications being PE/ⁿPE due to their being^{AC} (hence also PA/ⁿPA, depending on their test8&9 passing), if the Supreme Court's 'minimal § 101 invasivity' into R&D and its potential preemptivity were ignored — what trivially were a serious legal error.

(#1)

DDR-ETCI¹⁹ ::= CBN^(mratETCI) ::= **{**

mratE-crC0S ::= **{E-crC0k** ::= k-^{ISL}-sentences, disclosed by E^{mrat}MUIS0k, 1≤k≤4},
 with N::= 3: X1::= Application (APP), X2::= SalesServer (SS), X3::= Prod.Server (PS),
 with K::= 4 — whereby E-crCS ::= {ek / 1≤k≤4} :

ratEcrC0S ::= **{(X1,1)e1** ::= SS-url, (X1,2)e2 ::= P, (X1,2)e4 ::= l&f, (X1,3)e5 ::= pid;
 (X2,1)::=e1, (X2,2)::=e2, (X2,3)e3 ::= PS-url ;
 (X3,1)::= e3, (X3,2)::=e4, (X3,3)::= e5 } **}**

(#2)

Broad-CRISPRETCI¹⁰/X ::= CBN^(mratETCI) ::= c **{**

mratE-crC0S ::= **{E-crC0k** ::= k-^{ISL}-sentences, disclosed by E^{mrat}MUIS0k, 1≤k≤16 — here skipped —),
 N::= 11+1 ETCL-elements: X1::= application (APP-^{td} by inventor)^[500],
 X2::= a eukaryotic cell (EUC), X3::= a targeted DNA molecule (TDDNA-M),
 X4::= a target sequence (TSE), X5::= 1-or-several vectors (1os VEC),
 X6::= 1. regulatory element(REE1), X7::= 1 or several nucleotide sequences (1os NUS),
 X8::= CRISPR-Cas system(CR-CasS), X9::= guide RNA (gRNA), X10::= REE2,
 X11::= 1NUS, X12::= Type-II-Cas9 protein (T-II-Cas9p),
 with K::=15+1 E-properties, i.e.

ratEcrC0S ::= **{(e1, 1 =)e1** ::= altering expression of at least one gene product •;
 (e2, 1 =)e2 ::= containing & expressing a TDDNA-M •;
 (e3, 1 =)e3 ::= comprising a TSE • (e3, 2 =)e4 ::= encoding the gene product •;
 (e4, 1 =)e5 ::= TSE •; (e5, 1 =)e6 ::= com. an REE1 [operable-in ('opi) a EUC
 (e6, 1 =)e8 ::= opi a EUC oli 1os NUS •; (e7, 1 =)e9 ::= encoding a gRNA •; (e8, 1 =)e10 ::= comprising 1os VEC •
 (e8, 2 =)e11 ::= introduced into EUC •; (e9, 1 =)e12 ::= targets the TSE •; (e9, 2 =)e13 ::= hywi the TSE •; (e10, 1 =)e14 ::= opi a EUC oli 1
 NUS •; (e11, 1 =)e15 ::= encoding a T-II-Cas9p •; (e12, 1 =)e16 ::= cleaves the TDDNA-M • } **}**

operably-linked-to ('oli) 1os NUS encoding a gRNA hywi the TSE • (e5, 2 =)e7 ::= comprising an REE2 [operable-in ('opi) a EUC oli 1 NUS encoding a T-II-Cas9p) •; (e6, 1 =)e8 ::= opi a EUC oli 1os NUS •; (e7, 1 =)e9 ::= encoding a gRNA •; (e8, 1 =)e10 ::= comprising 1os VEC • (e8, 2 =)e11 ::= introduced into EUC •; (e9, 1 =)e12 ::= targets the TSE •; (e9, 2 =)e13 ::= hywi the TSE •; (e10, 1 =)e14 ::= opi a EUC oli 1 NUS •; (e11, 1 =)e15 ::= encoding a T-II-Cas9p •; (e12, 1 =)e16 ::= cleaves the TDDNA-M • } **}**

On the right of an above graphic specification of an ETCL's functionality it is provided in ISL, as by its 'CBN headline' indicated. This ^{ISL}CBN as such, i.e. the ETCL's 'model instantiation', is included by the **{...}** right of the numbered box comprising the redundant graphic specification of the ETCL's functionality^{b)}.

Thus, all of the ETCL's SPL properties — being nonfunctional ETCL properties — are comprised by the ETCL's 'CBN specification' and all of the ETCL's functional properties are comprised by the 'TT0 use specification' of the ETCL's application. I.e. this conjunction is achieved by any ∈ set of necessary & sufficient ETCL-independent solutions of the ^{SPL}AI-Test — being a mathematical expression in terms of the ETCL's ∈E-crCS — if it also is a solution alias implementation of the ETCL's CBN specification, being determined by replacing in this expression any E-crCk • by its above right side in simple cases, or otherwise • by its above right rewritten side, such that it comprises no E-crCk^{d)} — whereby this rewriting always exists as the ETCL exists^{d)}.

^{3.a} Note that detailed public presentation of scientifically subtle concepts, like 'use hierarchy', may — until^[192] — anytime be slightly modified as frequently happened already^[495ftn5.c)]. I.e.: These slight modifications do not affect their principal meanings and their relations to the CAFC's and/or USPTO's decisions being considered.

^b Compared to IT systems' functional specifications, any ETCL's functional specification is just trivial. It namely specifies not a whole functioning system, but solely the functionality of the human invention that it embodies, i.e. none of the latter's inventive or noninventive parts separable from specifying the invention's complete functionality — i.e. a latter's SPL property.

^c It is evident that scopes of ^{BIO}ETCLs — i.e. the 'realization tuple sets of their CBNs' — are for most ^{BIO}ETCLs much tighter than those of e.g. ^{IT}ETCLs, as the nature is much more selective in its granting survival than computer programs.

^d As the proofs of the above 2 AI-Theorems do not need to know this rewriting, but solely its existence, it follows from the ETCLs' ^{SPL}AI and the ^{CRISPR}AI precondition that the equations 4''-7'' hold for any such ETCL — **q.e.d.**

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Finally, this mail is terminated by a list of naming conventions & alike that enables understanding — in addition to the just presented outline of a proof — also some first details that are key to grasping^[596] in March.

For an ETCI being PE, it necessarily — not yet sufficiently — embodies an application (of its also mandatory ⁿPE TT0), here always being identified in the X1-box by putting all E-crCs alias 'e's of this application in brackets. If there is no such 'e', this ETCI is ⁿPE.

If an ETCI comprises of an 'e' several occurrences, they all must comprise the same T/F-value, otherwise they are considered as different 'e's. For simplicity, the K E-crCs in any CBN(ETCI) need not be marked as being E-xcrCs. The tester would know it by its posc and then use and denote it by x where feasible.

A line between 2 e's indicates that they communicate with each other. If one of its ends terminates at the resp. box's border, it communicates with several e's in this box as described by the resp. ISL expression of this box's 'verbal' specification. If a line passes an ETCI-element alias X-box without meeting an e therein, its end points' communication is only transferred by this ETCI-element. An ETCI's semantics scientification without and/or with graphics support is evidently the same. While an ETCI's graphics KR does expose the 'use hierarchy' at a glance, its ISL KR does not. The use hierarchy is a key structural phenomenon of decisive importance in CRISPR and alike ^{BIO}ETCIs.

In (#1), the TT0 is made-up by 'e1— e1', i.e. an Internet user's nonspecific use of a SalesServer, i.e. it is an ⁿPE 'abstract idea'. By TT0's application, this abstract idea is transformed into a PE ETCI.

For the preceding PE statement about this Internet application to be correct, it indispensably also has to meet additional Supreme Court *Alice* requirements (that have not yet been taken into account by the USPTO's 2019 PE-guideline) — especially that this application has to comprise an **"inventive *Alice* Concept"** — for excluding that ETCIs may put the whole US NPS into jeopardy. This requires e.g. that this inventive *Alice* concept is basically independent of TT0. To be clear: These requirements must be met by any such ETCI, as multiply shown by FSTP publications.

Thus, the CAFC in its *DDR* case for the first time came up with its PE decision being (almost) correct — as it failed to assess that it meets these subtle requirements, too.

Note already here that the E-crCs in *DDR* and all ^{IT}ETCIs — they are modellable in appropriate Euclidian Rⁿ's — are dramatically different from the E-crCs in ^{BIO}ETCIs.

Excerpt from the FSTP-Project's Reference List (as of 20.02.2020).

Many FSTP-Project mails, including this one, are written in preparation of the textbook^[182] — i.e. are not fully self-explanatory independent of other FSTP-mails.

<p>[182] S. Schindler: "AI Based Patent Technology", Textbook, in prep. [480] S. Schindler: "A Fresh Look at the USPTO's PE-Guideline — by Andrei Iancu before the AET", pub. 17.07.2018⁹ [488] S. Schindler: "UC's vs. Broad/MIT/Harvard's CRISPR Patents & the Supreme Court's Framework", Part I, publ. 20.09.2018⁹ [495] S. Schindler, B. Wittig: "UC's vs. Broad's CRISPR Patents ...", Part III, publ. 30.01.2019⁹ [504] USPTO: The 2019 §§ 101&112 Guidelines, 07.01.2019⁹ [508] S. Schindler, B. Wittig: "The ^{SP}AI-Relation of 'Application-Controlled ETCIs', ^{AE}ETCIs', Part V", pub. 21.02.2010⁹ [510] S. Schindler: "Finally, CAFC & USPTO Started Friendly ...! One Year of Andrei Iancu's Spirit in the USPTO — and All US Legal Patent-Business is of Good-Will.", publ. 05.03.2019.⁹ [551] S. Schindler: "The 'Director's-Forum-on-AI-in-Patenting' is a Brilliant Idea — as to the Point", publ. on 01.09.2019⁹ [552] S. Schindler: "CAFC's Anew Legal Errors in ... Need Supreme Court Clarification.", publ. 15.10.2019⁹ [566] USPTO: The 2019 § 101 October PE Guideline, 18.10.2019⁹ [573] S. Schindler: "An Unnoticed AI Requ. Met by the Supreme Court's PE Philosophy ...", pub. 09.12.2019⁹ [575] B. Wegner, B. Wittig, S. Schindler, C. Negrutiu, D. Schönberg, J. Schulze, R. Wetzler: "Mathematically Modeling the Meaning of FSTPtech Specifications of ETCIs", in prep. [576] S. Schindler: "The 'AI^{SP}-test mod(SPL) ≡ FSTP-Test is the Strong PE-Test ∨ ETCIs", pub. 03.01.2020⁹</p>	<p>[577] S. Schindler: "The USPTO's PE-Guidance is still Mute about 'Wild Preemptivity' — ...", pub. 19.12.2019⁹ [584] B. Grant: "... life science has moved us closer to a complete understanding of what makes us human ...", The Scientist, 20.12.2019⁹ [585] D. Kwon: "Hundreds of CRISPR patents have been granted ... and the number of applications continues to grow at a rapid pace.", The Scientist, 15.07.2019⁹ [586] S. Schindler: "AI-testing an ETCI Warrants Much Better Information than its PE-Test ...", pub. 09.01.2020⁹ [587] AIPLA: Reply to USPTO's AI-Enquiry⁹. [588] AIPLA: Reply to USPTO's AI-Enquiry⁹. [589] AUTM: Reply to USPTO's AI-Enquiry⁹. [590] CCIA: Reply to USPTO's AI-Enquiry⁹. [591] EFF: Reply to USPTO's AI-Enquiry⁹. [592] IEEE: Reply to USPTO's AI-Enquiry⁹. [593] IPO: Reply to USPTO's AI-Enquiry⁹. [594] R STREET: Reply to USPTO's AI-Enquiry⁹. [595] T. Rue: Reply to USPTO's AI-Enquiry⁹. [596] S. Schindler: "About the Idealistic/Materialistic Dualism in Mathematic Definitions of ETCIs", in prep. *) The complete FSTP Ref. List & ∨ documents on www.FSTP-expert-system.com</p>
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