

## AI-testing an ETCI Warrants Much Better Information than its PE-Test — Due to AI's Scientification. <sup>1.a)</sup>

Sigram Schindler<sup>\*)</sup>

TU Berlin & TELES Patent Rights International GmbH.

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This AI/PE-mail underpins by short elaborations on a very important pertinent keyword — quoted at the beginning of the following paragraph in bold letters — the statement of the headline. Its correctness was shown already in<sup>[567,577]</sup>.

Reasons of **notional refinement** implicitly required by the Supreme Court's framework. My AI/PE-mail<sup>[576]</sup> showed already that an  $\text{mrat|rat|matAI-Test}$  &  $\text{mrat|rat|matETCI}$  is isomorphic to ( $\cong$ ) and derived from its  $\text{mrat|rat|matETCI}$  in  $\text{CBN}(\text{mrat|rat|matETCI})\text{-KR}$  & its  $\text{mrat|rat|matFSTP-Test}$ . Thereby there, in<sup>[576]</sup>, all these notions were left notionally slightly less exact by omitting their terms' initial 'notional quality indicators'<sup>[FSTP]</sup> — just as in the above headline — for simplifying communicating between men about such keywords. This simplification is indeed fine, if among them there is awareness of the necessity of this exact notional refinement<sup>b)</sup>.

Yet, this awareness doesn't exist in the patent community as to the meaning of factual properties concerning an ETCI's anticipation or obviousness over (a CBN of) prior art, not to speak of wild preemptivity of this ETCI<sup>[576,577]</sup>. In both inquiries the USPTO and the CAFC committed gross legal errors, in *KSR* alone by applying the TSM-test as decision maker and in *Berkheimer* alone by applying the "well-understood, routine, conventional activity"-test. The TSM-test namely does not check the basic independence of the E-crCs involved in defining the *KSR*-ETCI, and the latter test does not check the absence of wild preemptivity of the *Berkheimer*-ETCI. Both institutions repeatedly committed these (due to their implications) gross legal errors also in other ones of their decisions, as reported in many FSTP-mails.

And while this lack of exactness is tolerable when using our human kind of intelligence — as we could interpret correctly (i.e. as by the *Alice* PE specification required) these  $\text{mrat}$  notions as  $\text{rat}$  notions by means of our natural intelligence, as shown in the below test4-7. This lack of exactness is intolerable when using the AI of an ETCI (embodied by its FSTP-Test, as this AI is derived from the latter) for automated decision making, due to the inability of its automat to interpret  $\text{mrat}$  input (provided by *Alice*'s PE spec) or to replace it by itself by the  $\text{rat}$  input indicated by test4<sup>1-7</sup>.<sup>c)</sup>

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

<sup>1.a</sup> ●All Supreme Court framework implied notions necessarily used but not defined in this PE-/AI-mail are defined in<sup>[573,577]</sup> or several scattered earlier FSTP mails, then referred to by <sup>[FSTP]</sup>. ●Since<sup>[577]</sup>, the abbreviations "CBN" stands in FSTPtech for the notion "combination" introduced by the Supreme Court's *Alice* decision. ●Several acronyms stand for the same meaning (although sometimes being context-sensitive), e.g. CBN & E-crCS, or TT0 & E-crCS<sup>TT0</sup>, or ETCI\TT0 & E-crCS<sup>ETCI\TT0</sup>, ....., or CRS & SPL & FOL & FFOL, or AI & AI<sup>SPL</sup> & AI<sup>CRS</sup> or AI<sup>FOL</sup>.

FSTPtech deals only with mathematically axiomized/-able & deterministic AIs — enabling their usability in mathematical proving.

An ETCI passing the FSTP-Test is in FSTPtech called to be "ideal"<sup>[573]</sup> — scientifically called to be in "canonical" KR — as/iff enabling rationally & mathematically simply proving<sup>[FSTP,182]</sup> that ETCI's Claim Construction ('CC') is (semi-)automatically ETCI's FFOL requirements robustly satisfying<sup>[573]</sup>.

If an ETCI is not given in & not unquestionably correctly transformable into its canonical KR, then it is called to be of "wild" preemptivity — as then there is no way to rationally proving especially its being not 'application clustering'<sup>[577]</sup> — as with today patenting ETCIs often is the case<sup>[488,495]</sup>.

The patenting community calls an ETCI as of "rough" SPL specification also if it is much vaguer, e.g. it ignores its application clustering<sup>[573,577]</sup>.

.b A simple example of this necessity is provided by determining, whether a notion is "basically independent"<sup>[FSTP]</sup> over a set of other notions, e.g. whether — in a given car driving context — the notion of 'changeover' is independent over the set '{lane, driving, leaving}' or not. Evidently, it is not. In an ETCI's ISL specification, the decisions about its notions' being basically (in)dependent of its sets of other notions are trivial, as the term 'basically' requires that a dependency is instantly recognizable (i.e. that recognizing it requires no complex reasoning).

.c — and as this AI controlled automated decision also is unable to perform the coordinate transformation indicated by test4<sup>1-7</sup>, explained in<sup>[508]</sup>.

.d Note that such problems of intuitive rationalization/scientification/mathematization of legal SPL notions don't occur, one of the reasons being that anyone's meaning is the same for all ETCIs, while a factual SPL notion's meaning may be different in different ETCIs — in spite of their name being the same.

**Metarational Claim Interpretation,  ${}^{mat}ratCI$ :**  $\langle 2 \text{ inputs} ::= {}^{mat}rat\&ratCI \text{ in } (nISL_{\vee}ISL) \& ISLKR\text{s, } 2 \text{ outputs} ::= CBN({}^{mat}rat\&ratETCI) \rangle$  & begin:

- 1) if  $[CBN({}^{mat}rat\&ratETCI)$  is factually  $\{ {}^{mat}rat\&ratO\text{-}crC0n = {}^{mat}rat\&rat((\sum_{1 \leq n \leq N} K_i = K) \wedge (\wedge_{1 \leq n \leq N} E\text{-}crC0k_n) \wedge ncrC0n)) / 1 \leq n \leq N \} \wedge {}^{mat}rat\&rat(E\text{-}complete \wedge \text{-}correct \wedge \text{-}definite)$  then go on;
- 2) if  $[ {}^{mat}rat\&ratO\text{-}inC0n, \forall 1 \leq n \leq N$  are ex- or implicitly lawfully disclosed] then go on;
- 3) if  $[ {}^{mat}rat\&ratO\text{-}crC0n, \forall 1 \leq n \leq N$  are ex- or implicitly enablingly disclosed] then output  ${}^{mat}rat\&ratE\text{-}crCS = CBN({}^{mat}rat\&ratETCI)$  & stop.

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**(Meta)Rational Claim Construction,  ${}^{mat}rat\&ratCC$ :**  $\langle \text{internal input} ::= CBN({}^{mat}rat\&ratETCI), \text{in-} \& \text{external output} ::= CBN({}^{rat}ETCI) \rangle$  & begin:

- 4) if  $[CBN({}^{mat}ratETCI)$  is  ${}^{mat}rat$  directed to an  $nPE$  concept<sup>l</sup>, i.e.  ${}^{rat}$  comprises in  $ETCI$ 's  $nPETT0$  an  $E\text{-}xcrC$  directing to this  $TT0$ 's meaning] then go on;
- 5) if  $[CBN({}^{mat}ratETCI)$  is  ${}^{mat}rat$  an application of those concepts, ...<sup>l</sup> i.e. a  ${}^{rat}$  application that hierarchically uses  $nPETT0$ ] then go on;
- 6) if  $[CBN({}^{mat}ratETCI)$  is  ${}^{mat}rat$  significantly more than ...<sup>l</sup>, i.e.  ${}^{rat}E\text{-}crCS^{ETCI\&TT0}$  is basically independent of  $E\text{-}crCS^{TT0}$ ] then go on;
- 7) if  $[CBN({}^{mat}ratETCI)$  is  ${}^{mat}rat$  transforming the nature of the claim ...<sup>l</sup>, i.e.  ${}^{rat}$  min. transforming claim ( $nPETT0$ ) into claim ( $nPEETCI$ )] then  $i \& e$  output 'CBN( ${}^{rat}ETCI$ ) is  $PE$ ' & stop.

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**Mathematical Claim Construction,  ${}^{mat}CC$ :**  $\langle \text{internal input} ::= CBN({}^{rat}ETCI), \text{external output} ::= CBN({}^{mat}ETCI) \rangle$  & begin:

- 4') if  $[E\text{-}xcrCS^{TT0} \neq \Phi]$  then go on;
- 5') if  $[ ( [ \text{scope}(E\text{-}crCS^{ETCI}) \subseteq \text{scope}(E\text{-}crCS^{TT0}) ] \wedge ( (\exists E\text{-}crC^{\circ} \in E\text{-}crCS^{ETCI\&TT0}) \wedge (\exists E\text{-}crC^{\circ\circ} \in E\text{-}crCS^{TT0}) ) : E\text{-}crC^{\circ} \parallel E\text{-}crC^{\circ\circ} ) ]$  then go on;
- 6') if  $[ (\exists E\text{-}crC^* \in E\text{-}crCS^{ETCI\&TT0}) \wedge (E\text{-}crC^* \neq E\text{-}crCS^{TT0}) ]$  then go on;
- 7') if  $[E\text{-}crCS^{ETCI}(E\text{-}crC^*) = PM]$  then output 'CBN( ${}^{mat}ETCI$ ) is  $PE$ ' & stop.

**Mathematical Claim Construction,  ${}^{mat}AI\&CC$ :**  $\langle \text{internal input} ::= CBN({}^{rat}ETCI), \text{external output} ::= CBN({}^{mat}ETCI) \rangle$  & begin:

- 4'') if  $[E\text{-}xcrCS^{TT0} \neq \Phi ::= {}^{rat}$  comprises in the  $nPETT0$  an  $E\text{-}xcrC$  directing to this  $TT0$ 's meaning] then go on;
- 5'') if  $[ ( [ \text{scope}(E\text{-}crCS^{ETCI}) \subseteq \text{scope}(E\text{-}crCS^{TT0}) ] \wedge ( (\exists E\text{-}crC^{\circ} \in E\text{-}crCS^{ETCI\&TT0}) \wedge (\exists E\text{-}crC^{\circ\circ} \in E\text{-}crCS^{TT0}) ) : E\text{-}crC^{\circ} \parallel E\text{-}crC^{\circ\circ} ) ]$    
  $::= {}^{rat}$  application that hierarchically uses  $nPETT0$ ] then go on;
- 6'') if  $[ (\exists E\text{-}crC^* \in E\text{-}crCS^{ETCI\&TT0}) \wedge (E\text{-}crC^* \neq E\text{-}crCS^{TT0}) ]$  then go on;
- 7'') if  $[E\text{-}crCS^{ETCI}(E\text{-}crC^*) = PM ::= {}^{rat}$  minimally transforming claim ( $nPETT0$ ) into claim ( $nPEETCI$ )] then output 'CBN( ${}^{mat}ETCI$ ) is  $PE$ ' & stop.

**(Mathematical) CRISPR Theorem about  ${}^{mat}AI\&CC$  for  $\langle \text{internal input} ::= CBN({}^{rat} | \text{mat CRISPR}ETCI) \rangle$ :** Any CRISPR ETCI is PE. [495,577]

**Legend:** Note that — compared to the FSTP-Test and the AI-test (in the top resp. middle box) — their here KR wordings are augmented in test4&4'', in test5&5'', and in test7&7'' (but not their  ${}^{mat}KRs$ , thus being 3 important clarifications of these tests  ${}^{rat}$  meanings, but no modifications of these  ${}^{mat}$  meanings, i.e. their test4', test5', and test7').

Note also that the limitation of the transforming process in test7/7''/7''' need not be unique, but that an ETCI may enable several minimal transformations — each such ETCI then potentially being PE for a separate patent with the potential referring to the resp. test1-3. And the same holds also already for test4-6. Finally, these alternatives are to be taken into account in the proof of<sup>2.a)</sup>, yet skipped here!<sup>182)</sup>

**Excerpt from the FSTP-Project's Reference List (as of 31.12.2019), 2.a)**

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

[480] S. Schindler: "A Fresh Look at the USPTO's PE-Guideline — by Andrei Iancu before the AET", pub. 17.07.2018 <sup>l</sup>	[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.	
[488] S. Schindler: "UC's vs. Broad/MIT/Harvard's CRISPR Patents & the Supreme Court's Framework", Part I, publ. 20.09.2018 <sup>l</sup>	[576] S. Schindler: "The 'AI <sup>SP</sup> -test mod(SPL) $\equiv$ FSTP-Test' is the Strong PE-Test $\vee$ ETCIs ...", pub. 03.01.2020 <sup>l</sup>	
[495] S. Schindler, B. Wittig: "UC's vs. Broad's CRISPR Patents ...", Part III, publ. 30.01.2019 <sup>l</sup>	[577] S. Schindler: "The USPTO's PE-Guidance is still Mute about 'Wild Preemptivity' ...", pub. 19.12.2019 <sup>l</sup>	
[504] USPTO: The 2019 §§ 101&112 Guidelines, 07.01.2019 <sup>l</sup>	[584] B. Grant: "... life science has moved us closer to a complete understanding of what makes us human ...", The Scientist, 20.12.2019 <sup>l</sup> .	
[508] B. Wittig, B. Wegner, S. Schindler, C. Negrutiu, D. Schönberg, J. Schulze, R. Wetzler: "UC's vs. Broad/MIT/Harvard's CRISPR Patents & the Supreme Court's Framework — Graphical Support in $({}^{mat}AI\&CC)$ ETCI Specification", Part V <sup>l</sup> , to be pub. in Jan.20.	[585] D. Kwon: "Hundreds of CRISPR patents have been granted ... and the number of applications continues to grow at a rapid pace.", The Scientist, 15.07.2019 <sup>l</sup> .	
[566] USPTO: The 2019 § 101 October PE Guideline, 18.10.2019 <sup>l</sup>	[586] S. Schindler: "AI-testing an ETCI Warrants Much Better Information than its PE-Test ...", pub. 09.01.2020 <sup>l</sup>	
[573] S. Schindler: "An Unnoticed AI Requ. Met by the Supreme Court's PE Philosophy ...", pub. 09.12.2019 <sup>l</sup>	*) The complete FSTP Ref. List & $\forall$ documents on <a href="http://www.FSTP-expert-system.com">www.FSTP-expert-system.com</a>	

2.a A PE  ${}^{rat}BIOETCI$  is by Alice defined as a pair  $\langle nPETT0, APP \rangle$  of  $\bullet$  an  $nPE^{rat}TT0$ , being 1.) an invention, and  $\bullet$  an APP, being 2.) a  ${}^{rat}$  application of this  $TT0$  (i.e. "using/needng, 'U/N',  $TT0$ <sup>[503]</sup>), and being 3.) transforming the nature of this  $TT0$  (i.e. not expanding the domain of an  $EcrC$  needed for completely defining it nor increasing these  ${}^{rat}EcrCs$ ' minimal number, here called "conservative"), and being 4.) together with  $TT0$  significantly more than  $TT0$  alone (i.e. comprises a  ${}^{rat}EcrC$  basically  ${}^{rat}$  independent of  $TT0$ ). Moreover holds w.l.o.g.: 5.)  $\forall {}^{rat}EcrCs$  are basically  ${}^{rat}$  independent.

**Proof:** It shows that from these 5  ${}^{rat}ETCI$ -properties follows its being truly  ${}^{rat}PE$  robust, as a  ${}^{rat}BIOPEETCI$  passes the 7  ${}^{rat}PE$ -FSTP.testo. Indeed holds: 1.)&2.) implies by passing FSTP.test1)-4), 3.) implies passing test5), 4.) implies passing test6), and 5.) implies passing test7). **q.e.d.**

b. The well-axiomizability of US/SPL's notions — SPL interpreted as by the Supreme Court's framework required — and the many mathematical interrelations between these notions, such as the 'CRISPR Theorem about  ${}^{mat}AI\&CC$ ', imply that  ${}^{mat}AI\&CC$  undeniably embodies that it is a clean-cut science, in FSTPtech called 'Virtual Physics'. Due to  ${}^{mat}AI\&CC$ 's strong similarity to the well-known Hamilton-Jacobi Theory in Physics, as well as to its mapping of its classic version into its elementary particle version, this Virtual Physics clearly paves the way into the 8<sup>th</sup> earthly Continent<sup>[577]</sup> of ETCI — just as Newton's/Leibniz's cognitions paved the ways for the then societies' industrialization.

These very general statements and the derivation of the exemplary CRISPR Theorem shall indicate that all  ${}^{FOLETCI}$ s and their patents by their new application areas will enable increasing and leveraging on any economy's & any ... & any life-science's innovativity — more easily & rapidly than ever before.