No. 13-298

IN THE

Supreme Court of the United States

ALICE CORPORATION PTY. LTD.,
Petitioner,
v.
CLS BANK INTERNATIONAL AND
CLS SERVICES LTD.,
Respondents.

On Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

BRIEF OF *AMICUS CURIAE* DALE R. COOK, *PRO SE*, IN SUPPORT OF PETITIONER

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QUESTION PRESENTED

Whether claims to computer-implemented inventions-including claims to systems and machines, processes, and items of manufacture-are directed to patent-eligible subject matter within the meaning of 35 U.S.C. § 101 as interpreted by this Court?

PARTIES TO THE PROCEEDING

All parties to the proceeding are identified in the caption.

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INTEREST OF *AMICUS CURIAE* [1]

Dale Cook, *Pro Se Amicus*, the real party in interest, an attorney licensed by Texas (1992) and Washington (2001), filed an *Amicus* brief in the court below, and at the Petition Stage.

SUMMARY OF ARGUMENT[2]

In times past, electrical-engineer patent attorneys patent-claimed Information Age ("InfoAge"), and in particular Intelligence Amplification ("IntellAmp"), technologies like Alice's but they did so in terms of the actual electronic circuits (*e.g.*, Resistor-Transistor Logic circuits) which were assembled, activated, and operated via a large number of sequences of voltages that were sequentially impressed in parallel to the pins of a type of Integrated Circuit ("IC") (*e.g.*, a "general purpose processor"). The practice was that the electrical engineer would receive the large number of sequences of voltages to be impressed upon the processor in the form of a medium such as magnetic oxide (*e.g.*, computer tape drive or hard disk drive)—a stored computer program. In view of the state of the law, the electrical engineer patent attorney, on behalf of his client (*e.g.*, the Integrated Circuit Banking Machine Corporation ("ICBM")) would then work with engineers/programmers to determine/synthesize the

[1] No counsel for a party authored this brief in whole or in part, and no party or counsel for a party made a monetary contribution intended to fund the preparation or submission of this brief. No one other than *amicus curiae*, its members, or its counsel made a monetary contribution to the preparation or submission of this brief. Parties have consented to *Amicus* briefs.

[2] *Amicus* notes that Sections I-III below (technology-centric) and Section (IV (legal centric) may be read in either order depending upon preferences.

circuits created/likely created by the computer program as its voltages were applied to the pins of the IC (processor) to find those electronic circuits in the sequence of assembled circuits that represented the most commercially valuable results arising from the computer program.

The electrical-engineer patent attorney would then claim variants of those activated electronic circuits. These claims were insanely hard to parse, and in no way abstract, and they met all legal requirements. And they were valuable to the attorney's client.

But . . . it was very labor intensive for a person reading such claims to know what they covered in the real commercial world if they did not already know, at the front end, what human-semantic logic the circuits worked to mimic. Not a great system for judges and the public, but great for the people who knew the legally required "encryption algorithm," provided by the electrical engineer in the employ of the client. That is, the attorney's client (ICBM) knew what commercial activity was being infringed, but it was a high intensity exercise (but doable) for anyone else to know exactly what commercial activity was being infringed by legal instruments drafted in the working vocabulary of electrical engineers. And this had the added benefit of making electrical-engineering patent attorneys immune from legal malpractice lawsuits—a special type of lawyer, "above the law"—because no one could understand the claims well enough to claim attorney error should something go wrong in assertion.

Then . . . the Court of Appeals for the Federal Circuit (CAFC) changed everything, creating a "CAFCInformationAge Test"—defined by three seminal cases: *In re Alappat*, 33 F.3d 1526 (Fed. Cir.

1994), *AT&T Corp. v. Excel Communs*., 172 F.3d 1352 (Fed. Cir. 1999), and *State Street Bank & Trust Co. v. Signature Fin. Group*, 149 F.3d 1368, 1373 (Fed. Cir. 1998)—that allowed the complex electrical engineering subject matter to be claimed in natural English language that described the commercially valuable results arising from the complex electrical engineering subject matter. In tandem with that law, and as shown herein, the CAFC also created its Markman Jurisprudence, *Markman v. Westview Instruments*, 52 F.3d 987 (Fed. Cir. 1995), which this Court validated in *Markman v. Westview Instruments,* 517 U.S. 370 (1996), which when paired with the CAFCInformationAge Test allowed a reviewing Federal Judge to construe the broad legal contours of the claim in terms of its commercially valuable end results (Markman Phase 1—construing the legal instrument) prior to actually engaging the incomprehensibly-complicated electronic-engineering technologies of the Information Age (Markman Phase 2—consulting electronic engineers/programmers as to what machines-processes, articles-of-manufacture were meant by the natural English language of the patent claims). With respect to Information Age technologies, this allowed the reviewing Federal Judge to handle the major legal issues first, but without ever having to wade into the mind-warping electronic engineering technologies, which he ordinarily would have had to do before the CAFCInformationAge Test.

For example, due to the fact that the CAFCInformationAge Test allows claiming of the commercially valuable results in plain English—rather than volts, amps, resistance, timing diagrams, transistors, capacitors, etc.—a judge can determine in a first stage whether the defendant is not liable—

under either direct (35 USC 271(a)) or vicarious (35 USC 271(b)-(c)) infringement theories—on the law alone. For example, because (a) as a matter of law no single legal entity can practice the claim as drafted, *Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318 (Fed. Cir. 2008)[3] , (b) as a matter of law the claim as drafted is invalid as indefinite, *IPXL Holdings v. Amazon.com*, 430 F.3d 1377 (Fed. Cir. 2005); *Katz Interactive v. Am. Airlines*, 639 F.3d 1303 (Fed. Cir. 2011))[4], or (c) as a matter of law the defendant is not liable in that the claim as drafted is not infringed via the defendant's use of the multi-sovereign gambit, *NTP, Inc. v. Research In Motion, Ltd.*, 418 F.3d 1282 (Fed. Cir. 2005).[5] Thus, by allowing the judge to handle the major legal issues first, the CAFCInformationAge Test freed up crucial judicial resources that would otherwise have been wasted wading into the electronics and operations to reach the legal issues.

For like reasons, since a non-electrical-engineer attorney can likewise read the claim, notice to the public is also further improved.

Thus, the CAFCInformationAge Test paired with the Markman jurisprudence allowed/required the patent attorney to claim in terms of commercially

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[3] ("Thomson neither performed every step of the claimed methods nor had another party perform steps on its behalf, and Muniauction has identified no legal theory under which Thomson might be vicariously liable for the actions of the bidders. . . . Thomson does not infringe the asserted claims as a matter of law.")

[4] *Amicus* Cook Br. 28-33.

[5] *Id.*

valuable results thus improving the lives of both the working federal judges and the public.[6]

CLS Bank (the financial industry) would undo all that by sending us back to times past, where claims such as Alice's would be in the form of the machines, machine-states, and machine-state transformations that create the DATA which constitute the INFORMATION that is the commercially valuable results.

Electrical engineers, computer engineers, and even a handful of computer scientists, can claim in that way, but does the Court really want that?

If not, then this Court should adopt the CAFCInformationAge Test as A machine-or-transformation test appropriate to the Information Age ("InfoAge"), in general, and Intelligence Amplification ("IntellAmp") technologies in particular.

[6] However, the seminal cases forming the CAFC InformationAge Test appear unclear due to the vocabulary that existed to describe the technology at the time they were decided. As shown herein, a newer formal DATA-INFORMATION vocabulary can be applied to these seminal cases to clarify that they form a machine-or-transformation test appropriate to InfoAge and IntellAmp technologies.

I. A Complex Question Implying A False Dilemma—Either-Or Choice Between Software ("Not Hardware") And Hardware—Used To Argue That "Software" Matches A Definition Of "Abstract"; and a False (Neglected) Cause Used to Argue that Alice Lays Claim to Human Thinking Rather than to Machines/Machine-States/ Machine-State Transformations Carefully-Engineered to Create DATA (Humanly-Perceivable Differences) Designed to Cause INFORMATION (Human Thinking)

CLS Bank (the financial industry) has convinced the courts that some of the most complex and power-intensive electrical circuitry and electrical circuitry operation known to mankind are somehow disembodied "abstract ideas."[7] How could that be?

There is precedent of this Court that yields a simple formula having the desired outcome (e.g., Alice's patent claims held invalid as drawn to patent in-eligible subject matter with nary so much as a claim construction):

> The categories of patent-eligible subject matter [—"process, machine, manufacture, or composition of matter"—] recited in § 101 . . .[are] limited by . . . judicially created exceptions. ". . . abstract ideas" are excluded from patent eligibility, *See Diamond v. Diehr*, 450 U.S. 175, 185, 101 S. Ct. 1048, 67 L. Ed. 2d 155 (1981), . . . *Gottschalk v. Benson*, 409 U.S. 63, 67, 93 S. Ct. 253, 34 L. Ed. 2d 273 (1972). Thus, even inventions that fit

[7] Does charging a smartphone, notebook computer, or a desktop computer connected to the industrial power grid seem abstract?

> within one or more of the statutory categories are not patent eligible if drawn to . . . an abstract idea. . . .
>
> . . . If the invention falls within one of the statutory categories, we must then determine whether any . . . judicial exceptions nonetheless bars such a claim—is the claim drawn to a patent in-eligible . . . abstract idea? If so, the claim is not patent eligible. Only claims that pass both inquiries satisfy § 101.

CLS Bank Int'l v. Alice Corp. Pty, 717 F.3d 1269, 1276-1277 (Fed. Cir. 2013).

Formulaically, IF subject matter of claims can be made to match the definition of "abstract idea" in this precedent, THEN the claims are to "patent-ineligible" subject matter, and the "claim is not patent eligible". *Id*.

The financial industry has used three effective tools to make Alice's technologies match up with the definition of abstract ideas in this context,[8] thereby creating rhetoric that Alice's technologies constitute "unpatentable subject matter": (i) a complex question that presupposes some inchoate "invention" (e.g., some ineffable "software") somehow "implemented" in a "computer," said presupposition implying; (ii) a false

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[8] *See,* e.g., abstract ideas of *Ultramercial, Inc. v. Hulu, LLC*, 722 F.3d 1335, 1342-1343 (Fed. Cir. 2013) ("Members of both the Supreme Court and this court have recognized the difficulty of providing a precise formula or definition for the abstract concept of abstractness. . . . ('The Court . . . [has] never provide[d] a satisfying account of what constitutes an unpatentable abstract idea.')" (quoting, Stevens J., concurring, *Bilski v. Kappos*, 130 S. Ct. 3218, 177 L. Ed. zd 792 (2010)) and CLS *Bank Int'l v. Alice Corp. Pty*, 717 F.3d 1269, 1292 (Fed. Cir. 2013) (". . . abstract ideas—mental steps.").

dilemma (either-or choice between software ("not hardware") and hardware) used to construct an argument that "software" matches the dictionary definition of "abstract," when software is actually an engineering term used to distinguish the design choice of using computer programs to create special purpose circuits from reconfigurable but slower hardware versus the design choice of using circuit manufacturing techniques to create non-reconfigurable (but much faster) hardware; and (iii) a false (neglected) cause argument—confusing DATA (machine-generated differences above the threshold of human perception) for the INFORMATION (human thought, or mental states)—such DATA are designed to cause, and through such confusion arguing that Alice's claims are drawn to mental steps.[9] [10]

Regarding the complex question and false dilemma argument, there is no inchoate "invention" (e.g., some ineffable "software") somehow "implemented" in a "computer." Software is an engineering term differentiating the use of slower reconfigurable hardware from faster non-reconfigurable hardware. Software is not abstract. Software and hardware are functional design equivalents.

Regarding the false (neglected) cause argument, IntellAmp patents do not lay claim to either first-order or second-order human thought. Rather, ***IntellAmp patents, like Alice's, lay claim to machines/machine-states/machine-state-transformations carefully engineered to create***

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[9] *Aristotle*, Sophistical Refutations Book I, Parts 1 and 4

[10] *Encyclopedia Britannica Online*, describing Aristotle's *Sophistic Refutations*:, accessed January 08, 2014, http://www.britannica.com/EBchecked/topic/200836/fallacy

structured DATA (machine-generated-tangible-differences),[11] ***said DATA structured in view of*** FIRST-ORDER-human-thought-***SYMBOL***-INFORMATION (e.g., English language words which have concrete meaning to English-readers), ***and said DATA further structured in view of*** SECOND-ORDER-human-thought-***CONCEPT***-INFORMATION (e.g., desired result of understood and humanly-useful currency trading concepts which the English reader gleans from the English words of Alice's IntellAmp claims). In IntellAmp technologies DATA (machine-generated-tangible-differences) are not thinking; rather, U.C. (machine-generated-tangible-differences) are structured to trigger, or cause, human thinking. ***IntellAmp patent claims are to machines that produce DATA, not to the thinking/meaning—INFORMATION—such DATA are structured to trigger in humans***.

All "abstract" arguments are false. The Court should hold Alice's claims are drawn to patent eligible subject matter because "software" is not abstract, and IntellAmp technologies use machines to create machine-generated-differences (DATA) structured to trigger human meaning/thinking and thus Alice's claims are to machines that produce DATA, not the human thinking such DATA might trigger.

[11] "Tangible" meaning perceivable by humans via some technology such as voltmeter measurements, pixel brightness differences (LCD monitor), haptic differences (cell phone on vibrate), audio differences (cell phone with audible ringtone), etc.

II. A Complex Question Implying a False Dilemma: An Either-Or Choice Between "Hardware" and "Not Hardware" ("Software") Used To Construct An Argument That "Software" Matches A Definition Of "Abstract" And Is Thus Unpatentable, When In Fact "Software" is A Term to Distinguish the Design Choice of Reconfigurable (But Slower) Hardware from the Design Choice of NON-Reconfigurable (But Much Faster) Hardware

The financial industry has been able to generate confusion by the exploitation of a false choice between "hardware" and "software" ("not hardware") which has been deftly inserted into the Question Presented. This dilemma is false, and the Question Presented should be understood consistent with the technology.

The Question Presented recites "whether claims to computer-implemented inventions-including claims to systems and machines, processes, and items of manufacture . . ." The phrase "computer-implemented inventions" implies that there is some inchoate and disconnected "invention" which is just somehow "implemented" in a "computer."

The phrase "claims to computer-implemented inventions . . ." appears calculated to create the appearance of a "split nature" of such claims. By using "computer-implemented" as an adjective that is appended to "invention," a "computer" (*e.g.*, a hardware microprocessor) is made to seem like a generic or neutral component of "something else" (*e.g.*, "not hardware" ("software")) that "is" the "invention."

Why does this matter? Because when mischaracterized in this way—“software” as “not hardware”—but otherwise ill-defined, “not hardware” matches up with “abstract idea”: “disassociated from any specific instance . . . expressing a quality apart from an object <the word poem is concrete, poetry is [abstract]>"). An abstract idea is one that has no reference to material objects or specific examples—i.e., it is not concrete.” *Ultramercial* at 1342–43. This “similarity” leads to the conclusion that, as an abstract idea, “software” is unpatentable. But the hardware-software (“not hardware”) dichotomy used to generate this “similarity” is false.

As shown below, what is called “software” is actually use of computer programs to create special purpose circuits from reconfigurable but slower hardware, and what is called “hardware” is actually use of circuit manufacturing techniques to create non-reconfigurable but much faster hardware.

In the absence of the false dichotomy “software” is patent eligible because electronic and computer engineers understand “software” as “slower hardware;” that is why a computer program can be converted to faster non-reconfigurable hardware as shown following.

III. Question Presented Should Be Understood In View of the Actual Technology–What is Called "Software" is Actually Use of Computer Programs to Create Special Purpose Circuits from Reconfigurable but Slower Hardware, and what is Called "Hardware" Is Actually Use of Circuit Manufacturing Techniques to Create Non-Reconfigurable but Much Faster Hardware: "Hardware"-"Not Hardware" ("Software") Dichotomy is False—Hardware and Software, Properly Understood, Are Functional Design Equivalents[12]

Amicus shows following that the "hardware"—"software" ("not hardware") dichotomy is false, even when traditional microprocessor methodologies are used. However, more recent tools make proving the falsehood of the software-hardware dichotomy that much easier.

A. "Hardware"-"Not Hardware" ("Software") Dichotomy is False: NEC's Cyberwork-Bench Tool Accepts As Input a Program Written in the Higher Level Language C and Outputs Functionally Equivalent Non-Reconfigurable Hardware Design

NEC's Cyberworkbench accepts as input a program written in the higher level computer language C and outputs a non-reconfigurable hardware design which functions equivalently to the C program. The non-reconfigurable hardware design may be implemented in Application Specific Integrated Circuits (ASICs),

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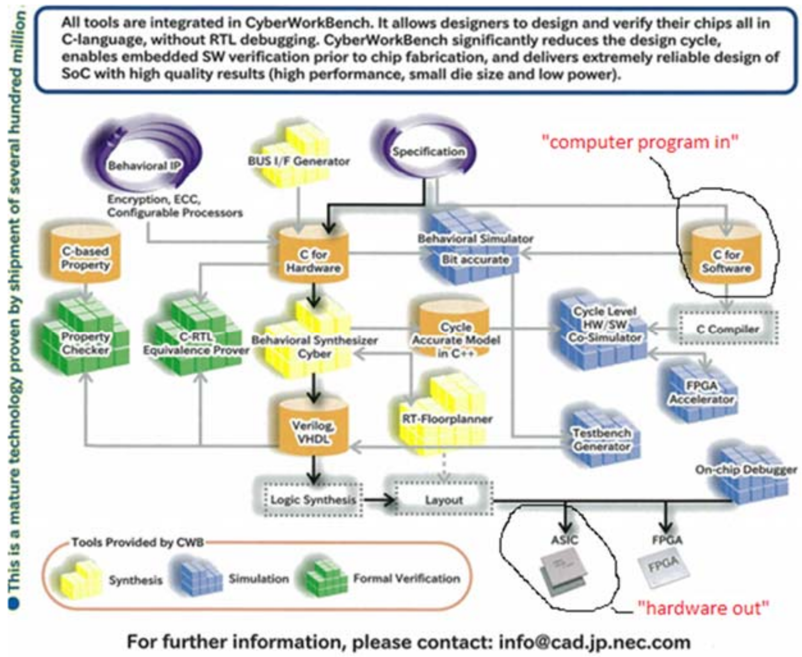
[12] Regarding all technology descriptions herein, please see Appendix A.

which are non-reconfigurable circuits formed in silicon and metal.

NEC's Cyberworkbench provides for direct translation of programs written in higher level computer languages direct to non-reconfigurable hardware (*e.g.*, ASIC hardware), thus directly demonstrating that the digital designs of computer programs (slower special purpose electronic circuits created from the reconfigurable electronic circuits of microprocessors via use of programs) may be equivalently implemented in non-reconfigurable electronic circuits (*e.g.*, ASICs).

NEC's Cyberworkbench datasheet illustrates its ability to convert a C program into a non-reconfigurable hardware equivalent. Shown (upper right) is the Cyberworkbench accepting as input a higher level programming language C program and producing as output (lower right) a non-reconfigurable hardware design:



http://edatechforce.com/wp-content/uploads/2011/02/CyberWorkBench-Datasheet.pdf.

NEC Cyberworkbench depicts a computer program converted directly to equivalent non-reconfigurable hardware. The either-or hardware-software dilemma is thus seen to be false.

B. "Hardware"-"Software" ("Not Hardware") Dichotomy is False: Program Written in the Higher Level Language C May be Partially Implemented in Non-Reconfigurable Hardware and Partially Implemented In "Software" (*e.g.*, Special Purpose Electronic Circuits Assembled via Encoded Voltages of Computer Program Interacting With Reconfigurable Electronic Circuits of A Microprocessor/VLSIC)

Parkinson's Figure 1 and the associated text of their article *C to VHDL Converter in a Codesign Environment*, available at http://www.cse.unsw.edu.au/~sridevan/index_files/00323960.pdf, illustrate a computer program written in the higher level programming language C equivalently implemented in a working system composed of a combination of (i) NON-reconfigurable electronic circuits ("hardware" the right-hand path of Parkinson's Figure 1) and/or (ii) reconfigurable electronic circuits ("software"—special purpose electronic circuitries sequentially created by encoded voltages of a computer program interacting with the millions of recon-figurable electronic circuits provided by a VLSIC/microprocessor—the left-hand path of Parkinson's Figure 1).

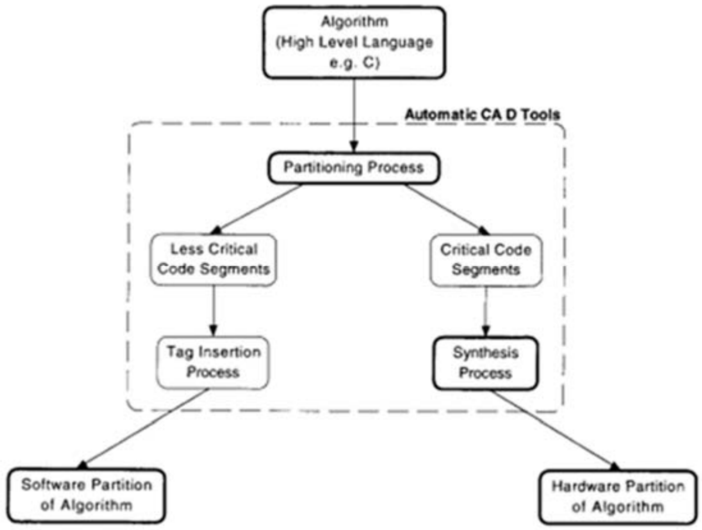


Figure 1 - Automated Hardware/Software Codesign Methodology

For example, as explained in their article, tools such as C to Very-High-Speed-Integrated-Circuit Hardware Description Language (VHDL) converters accept as input a program written in the higher level computer language C, and produce as outputs files written in VHDL. The VHDL files are then input into logic synthesis tools which read the VHDL and output a non-reconfigurable hardware design. The non-reconfigurable hardware design may be implemented in ASICs, which are non-reconfigurable electronic circuits formed in silicon and metal.

The non-reconfigurable hardware can then be interfaced with the special purpose electronic circuits via the encoded voltages of computer programs interacting with the reconfigurable electronic circuits provided by a microprocessor/VLSIC to desired effect. For example, as explained by Parkinson et al, the parts of the C program for which speed is particularly important are implemented in non-reconfigurable hardware, while the parts where speed is not as critical are implemented in software (reconfigurable hardware under program control).

The "either-or" hardware-software dilemma is thus seen to be false. Hardware and software (programmatic use of slower but reconfigurable hardware) represent design choices that may in fact be combined.

C. "Hardware"-"Not Hardware" ("Software") Dichotomy is False: Program Written in the Higher Level Language C → Vendor-Specific Compiler → Binary Instructions for Vendor Specific Microprocessor/VLSIC = Voltages Applied in Parallel to the Pins of a Vendor-Specific VLSIC/Microprocessor To Assemble, Operate, and Save Outputs of Sequences of Hardware Designs at the Rate of Millions Per Second

In operation, a higher level computer language program, such as one written in the C programming language, is translated (compiled) into the binary instructions appropriate to the Instruction Set Architecture-microarchitecture of the vendor specific (*e.g*., Intel, NEC, AMD, etc.) microprocessor in use. These binary instructions actually represent voltages that are applied in parallel to the microprocessor.

To understand that the "hardware"-"software" dichotomy is false, it helps to keep in mind that a microprocessor is a Very Large Scale Integrated Circuit (VLSIC) having a collection of re-configurable (slower) circuit components activatable by applied voltages; ***in the absence of a program the VLSIC/microprocessor is inert***. It also helps to keep in mind that a "computer program" consists of encoded voltage levels that turn transistors on and off in a VLSIC/microprocessor; ***in the absence of the appropriate type of microprocessor/VLSIC a computer program is inert.***

Any digital logic design of a computer program, in order to work in the real world, must be such that it can compile to voltages that will work with the circuitries of a vendor specific microprocessor.

A microprocessor/VLSIC contains millions of electronic transistors and resistors. The VLSIC/microprocessor is engineered such that its electronic transistors can be selectively activated—just like flipping an on-off light switch in a room—to create special purpose analog electronic circuits which can accept electrical inputs and produce electrical output in ways that "mimic" or "stand in" for certain defined human-semantic logical operations. The defined human-semantic logical operations which a microprocessor's/VLSIC's special circuits can mimic are called "instructions." ***Taken together, the defined human-semantic logical operations and the hardware engineering of the VLSIC/ microprocessor that is necessary to produce the special circuits that when operated within engineering parameters can mimic the defined human-semantic logical operations are called the Instruction Set Architecture-micro-architecture ("ISA-microarchitecture") of the micro-processor/VLSIC. The ISA-micro-architecture is vendor specific***, so an Atmel microcontroller's ISA-microarchitecture is different than an Intel microprocessor's ISA-microarchitecture.

Activating and/or setting the inputs of the special purpose circuits which mimic the defined human-semantic logical operations ("instructions") of the VLSIC/microprocessor is typically done via voltages applied in parallel to metallic traces ("bit lines") which connect with metallic pins, each of which electrically connect with the VLSIC which make up the microprocessor. For example, with respect to the Atmel microcontroller, see *Amicus* D. Cook Br. 28-33, 8 voltages are applied in parallel to activate specific instructions of the Atmel microcontroller.

The circuits of the microprocessor/VLSIC are analog—as are all circuits—but are engineered in view of a special convention which allows the analog circuits to mimic human semantic digital logic. For example, in one type of circuit implementation ("Resistor-Transistor logic"), 0.0 to +0.8 measured volts, by convention, is treated as "standing for" human-semantic logical zero, and measured +2.0 to + 5.0 volts, by convention, is treated as "standing for" human-semantic logical one. The voltages can thus be "treated as" (encoded as) "strings" of "binary" symbols, but electrical and computer engineers understand that such strings specify voltage levels that open and close transistors of the VLSIC/ microprocessor to create or set the inputs of the special purpose circuits which mimic the human-semantic logic of the Instruction Set Architecture of the microcontroller/VLSIC.

Control of the circuitry of the VLSIC/microprocessor consists of a sequence of a number of encoded voltage levels—*e.g.*, a sequence of eight parallel voltage levels for the Atmel processor. When such a sequence is constructed to achieve a humanly useful and meaningful (concrete meaning to a human) output of circuits (tangible machines) and associated voltage transitions (transformations) via clever use of the special purpose electrical circuits-associated human-semantic instructions that make up the Instruction Set Architecture, such an encoded sequence of voltage levels is denoted as a "computer program." There is nothing abstract about a sequence of 8 voltages to be applied in parallel to metallic traces known as bit lines such as for the Atmel 8-bit processor.

Modern microprocessors/VLSICs can execute their instructions at the rate of millions per second. Since each instruction has an accompanying electronic circuit that "stands for" the human-semantic logic instruction, it follows that the computer programs are creating, using, and tearing down hardware designs (electronic circuits) from the electronic circuit components of vendor specific microprocessors/VLSICs at the rate of millions per second.

The either-or "hardware"-"software" dilemma is thus again seen to be false.

D. The Question Presented Should Be Viewed In Light of the Actual Technology—"Hardware" and "Software" Represent Functionally Equivalent Design Choices—"Software" is An Engineering Term Denoting Use of Computer Programs to Create Special Purpose Circuits from Reconfigurable but Slower Hardware, "Hardware" Is An Engineering Term Denoting Use of Circuit Manufacturing Techniques to Create Non-Reconfigurable but Much Faster Hardware

Amicus hopes the Court will recognize that engineers understand that the digital designs of higher order computer language (*e.g.*, C) programs can be equivalently implemented via general purpose microprocessor/VLSIC reconfigurable circuit techniques, non-reconfigurable circuit techniques (e.g., Application Specific Integrated Circuits), or some combination thereof (e.g. hardware software co-design such as detailed in above-described *C to VHDL Converter in a Codesign Environment*).

Properly understood, "software" is not abstract.

IV. A False (Neglected) Cause: Information "From Nothing" Versus Engineering Reality: IntellAmp Technologies Use Carefully Engineered Machines/Machine-States/Machine-State Transformations to Create DATA (machine-generated-tangible-differences) Structured In View Of FIRST-ORDER-Human-Thought-SYMBOL-INFORMATION (e.g., English Language Symbols Which Have Concrete Meaning To English Reader), And SECOND-ORDER-Human-Thought-CONCEPT-INFORMATION (e.g., Result Of Understood And Humanly-Useful Currency Trading Concepts Which Engineers Ultimately Hope To Trigger)

Regarding the neglected cause argument, things are slightly more complex. The Court is likely familiar with the mind-bending concepts of Semiotics—the study of signs as opposed to that which they signify, BUT there is yet a further distinction that arises in very precise semiotics as well as IntellAmp technologies: the distinction between the sign vehicle (one or more humanly-perceivable machine-generated differences—DATA), the sign (first-order human thought, e.g., DATA interpreted as English language words by humans who understand English—

FIRST-ORDER-human-thought-***SYMBOL***-INFORMATION), and the signified (second-order human thought, e.g., such as would be understood from the English words of Alice's claims by English-readers who further work in the highly complex world of international currency trading -- SECOND-ORDER-human-thought-***CONCEPT***-INFORMATION). Noth, *Handbook of Semiotics* 79-80 (1995).

Engineers usually work with "information" as that term is used in Shannon and Weaver's Mathematical Theory of Communication, traditionally referred to as "information theory," but better described as "data theory" outside of engineering as explained herein. As used by engineers, "information" is neither signifier (FIRST-ORDER-human-thought-***SYMBOL***-INFORMATION) nor signified (SECOND-ORDER-human-thought-***CONCEPT***-INFORMATION). Rather, it is "something else"—what precise semiotics calls the "sign vehicle": "In information theory, the term *signal* corresponds to the sign vehicle of semiotics. This signal . . . is opposed to the sign since it is only its physical embodiment." *Id*.

"From a semiotic point of view, Shannon & Weaver's. . . communications models do not represent signs as one of their elements. Not signs but signals are transmitted in the process of communication. ***Signals are only the energetic or material vehicles of signs, and their physical form. In this sense, a signal is a physical event, while a sign is a mental process***." *Id* at 174.

As explained in herein, the signals ("information") of "information theory"—machine generated differences that humans can perceive by some technological means—are better referred to as DATA outside of engineering.

Thus, IntellAmp technologies are difficult to understand even when the goal is understanding. But the financial industry's goal is to win, so it has confused the issues. This confusion can be remedied by use of this chain: engineer-designed machines create structured DATA,[13] said DATA are structured to generate FIRST-ORDER-human-thought-***SYMBOL***-INFORMATION (e.g., English language words which have concrete meaning to English-readers), and said DATA are further structured to generate SECOND-ORDER-human-thought-***CONCEPT***-INFORMATION (e.g., result of under-stood and humanly-useful currency trading concepts gleaned from the English words).[14] So, engineers CREATE MACHINES to generate DATA structured to function as first-order English symbols AND generate second-order logical concepts at the same time—IntellAmp technology really is that complicated.

The financial industry has been able to generate even more confusion by the conflation of a real dichotomy between "engineering" information (as in

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[13] Data are machine-generated-tangible-differences, where "tangible" means perceivable by humans via some technology such as voltmeter measurements, pixel brightness differences (LCD monitor), haptic differences (cell phone on vibrate), audio difference (cell phone with audible ringtone), etc.

[14] See Appendix B example where varying brightness pixels (machine states) that form words of Spanish language remain DATA to human who does not understand Spanish, but becomes INFORMATION (meaning, thoughts) when the machine states are transformed e.g. brightnesses varied such brightnesses understood to form words of English language (first-order thought) when viewed by a human who does understand English, such words further understood as conveying a useful and concrete meaning (second-order thought) in a human who further understands currency trading.

Alice's claims, and as data communications engineers use the term) and "ordinary" everyday information (the way normal people use the term). This dichotomy is real, but confusion can be avoided due largely in part to the newer vocabulary invented by Professor Luciano Floridi in his article, "Semantic Conceptions of Information", *The Stanford Encyclopedia of Philosophy* (Spring 2013 Edition), Edward N. Zalta (ed.), URL =<http://plato.stanford.edu/archives/spr2013/entries/information-semantic/>.

A. Adoption Of Professor Luciano Floridi's Newer Formal Vocabulary Recognizing That DATA (Machine-Generated Differences) "Causes" INFORMATION (Concrete Meanings In The Mind Of The Human Perceiving The DATA) Helps See Through The False Cause Of Such Concrete Meanings Arising "From Nothing"

Data communications engineers' use of the term "information" ("engineering-information")—e.g., consistent with Shannon's Mathematical Theory of Communication (MTC)—can be very confusing because it is so different from the way normal people use the term. In engineering-information, psychological/mental states are irrelevant**.** Engineering-information is not information in the ordinary sense of the word. "Engineering-information" has an entirely technical meaning: information without human meaning, such as would be transmitted over a fiber optic cable or telegraph wire. Floridi, *Semantic*, § 2.2. "The 'goal [of engineering information] is to . . . eliminate the psychological factors involved' . . . subtract human knowledge from the equation" J. Gleick, *Information: A History, A Theory, A Flood* 200-

201 (2011). "Shannon . . . declared meaning to be 'irrelevant to the engineering problem.'" *Id* at 416.

But, in engineering references, the term used is typically just "information"—as such term is used in Alice's claims—even though what is meant is "engineering-information"; information devoid of all human-semantic meaning such as might be transmitted over a telegraph wire. This unfortunate identity of terms for radically different things (engineering-information versus "ordinary" information), can be used, as the financial industry has done here, to argue that IntellAmp claims are drawn to "ordinary" information: human-semantic meaning, or human thought.

Why does this matter? Because in this way it can be argued that IntellAmp patents claim ordinary "information" or "human-semantic meaning" which matches up with "mental steps" which are ". . . abstract ideas" and hence are drawn to unpatentable subject matter. *CLS Bank Int'l v. Alice Corp. Pty*, 717 F.3d 1269, 1292 (Fed. Cir. 2013) ("abstract ideas—"mental steps").

This is false. One way to see that it is false is to adopt Professor Floridi's consistent use of "DATA" instead of "engineering-information" and use of "INFORMATION" as "ordinary" information and as such term is commonly used outside of engineering.

The dichotomy is real and is heavily used in IntellAmp technologies. IntellAmp patents claim machines/machine-states/machine-state transitions that generate DATA (humanly-perceivable[15] differ-

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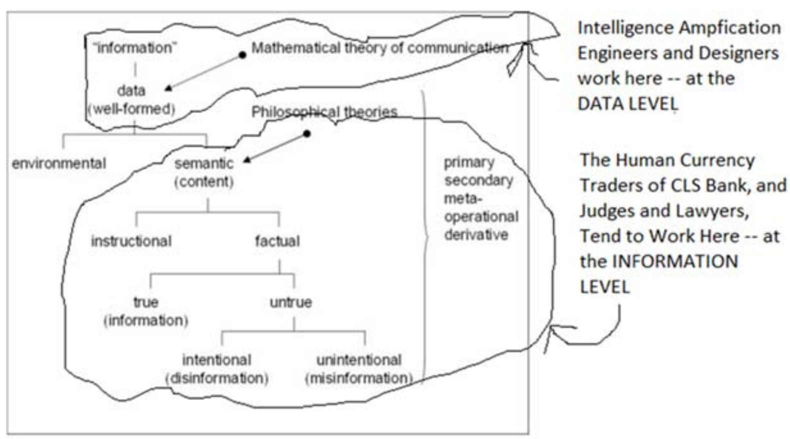
[15] e.g., via technology such as voltmeter measurements, pixel brightness differences (LCD monitor), haptic differences (cell

ences) that is structured to cause INFORMATION (e.g., first-order (symbol meaning) and second-order (concept meaning)) in some pre-defined group of humans (e.g., humans who understand English-language symbols and who further understand currency trading concepts). [16]

Floridi has created a map showing the concept of semantic information as "meaningful data":



The financial industry hopes to confuse the DATA and INFORMATION levels thus leading the Court to conclude Alice claims INFORMATION (abstract ideas), but Amicus—with Professor Floridi's help—

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phone on vibrate), audio differences (cell phone with audible ringtone), etc.

[16] "The moment one transforms that set of signals [machine states] into other signals [human perceptions] our brain can make an understanding of [concrete meaning, or human thought], *then* information is born—it's not in the beeps [machine states].'" Gleick, *Information*, p. 249 "It takes a human—or, let's say, a 'cognitive agent'—to take a signal [data] and turn it into information . . . we *invest* stimuli with meaning, and apart from such investment, they are informationally barren." *Id*. 416-7.

seeks to help the Court keep straight that Alice's claims are drawn to machines (electronic circuits)/ machines-states (e.g., voltages of electronic circuits)/ transitions of machine-states (e.g., transformation of voltage state levels from 0.0-0.8 to 2.0-5.0 measured volts) that create DATA (MACHINE-GENERATED-TANGIBLE-DIFFERENCES), structured to cause INFORMATION in some pre-defined group of humans (e.g., humans who understand English-language symbols and who further understand currency trading concepts).

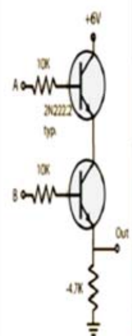
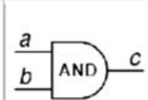
B. IntellAmp Technologies Rely On Engineering Techniques To Activate Human Subjectivity Through Carefully Controlled And Engineered Machine Objectivity

IntellAmp technologies augment/improve the intelligence of humans (such as the human currency traders of CLS bank) via engineering of electronic circuits (machines) to create DATA (plural of DATUM). A datum is a difference that can be perceived by a human via one of the 5 human senses (*e.g*., sight, hearing, touch, taste, smell). Floridi, *Semantic*, S 1.3; Gleick, *Information* p. 161.

IntellAmp technologies use conventions such that the DATA can "stand for" some defined human-semantic meaning (INFORMATION). For example, the following table shows how ANALOG electronic circuit voltages—DATA—and an accompanying set of conventions allow the ANALOG electronic circuit voltages to "stand in for," or mimic, two-valued (*e.g*., DIGITAL) human-symbolic logics (*e.g*., Boolean logics or equivalently natural-language-like "if then" conditional logic statements). ***These techniques are fundamental, and still form the basis of InfoAge***

and IntellAmp technologies, such as Alice's, albeit via increased design complexities by factors that likely number in the trillions:[17]

If patent attorneys return to drafting claims in the lexicon of electrical engineering, LIKE YOU JUST DID, judges and juries will try to skip over engineering-speak. Does the court really want to read

Resistor-Transistor Logic ("RTL") Circuit	RTL Circuit Voltage States -- DATA in Intelligence Amplification Technologies			Circuit Voltages --Machine States – "Stand for" or "Mimic" HUMAN-SEMANTIC INFORMATION			Circuit Voltages --Machine States – "Stand for" or "Mimic" HUMAN-SEMANTIC INFORMATION
				 AND Gate: The output is high only when both inputs A and B are high			If (A = True) AND (B = True) Then Output = True Else Output = False
	Measured INPUT Voltage		Measured OUTPUT Voltage	Human-Semantic Logic INPUT		Human-Semantic Logical Function OUTPUT	
	Circuit Terminal A	Circuit Terminal B	Circuit Terminal Out	A	B	A AND B	
	Measured 0.0-0.8 Volts	Measured 0.0-0.8 Volts	Measured 0.0-0.8 Volts	Logic 0	Logic 0	Logic 0	
	Measured 0.0-0.8 Volts	Measured 2.0-5.0 Volts	Measured 0.0-0.8 Volts	Logic 0	Logic 1	Logic 0	
	Measured 2.0-5.0 Volts	Measured 0.0-0.8 Volts	Measured 0.0-0.8 Volts	Logic 1	Logic 0	Logic 0	
	Measured 2.0-5.0 Volts	Measured 2.0-5.0 Volts	Measured 2.0-5.0 Volts	Logic 1	Logic 1	Logic 1	

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[17] *Amicus* synthesized table from the sources of Appendix A, and this **interactive** "Basic Gates" page: http://hyperphysics.phy-astr.gsu.edu/hbase/electronic/gate.html #c1; there are many types of logic gate circuits which can be explored on this page. Basic pattern is to click the symbol of the logic gate, then on the resulting page click the "how do you make one" link.

claims like that (as in times past)? If not, the Court should adopt the CAFCInformationAge Test.

The preceding table shows that the analog electronic circuit—paired with the convention of assigning 0.0-0.8 volts to human-semantic "false" and 2.0-5.0 volts to human-semantic "true"—allow the voltages arising from circuit operation to "stand for" or "mimic" the human-symbolic "digital" "If-Then" conditional logic of computer programming or Boolean Truth Tables. ***Today's hyper-complex microprocessors/ VLSICs are built using this and similar circuits over and over. IntellAmp typically uses higher-level programs that assemble combinations of the microprocessors/VLSIC instructions to mimic yet-higher-level human semantic logic (e.g., currency trading). Thus, if the Court can understand this single example, the Court can understand VLSIC/microprocessor and related IntellAmp technologies***.

IntellAmp patent claims are not to human thinking, but instead to the machines (electrical circuits)/ machine-states (electrical circuit voltages)/ machine-state transformations (transitions of voltage levels) perceivable by a human (DATA), said DATA structured to create a concrete meaning in the mind of a human observer (INFORMATION).

V. CONCLUSION

A. The CAFC's Decision of Alappat Encodes That Either-Or Hardware"-"Software" ("Not Hardware") Dilemma is False, and is Thus a Machine-or-Transformation Test Appropriate to the Information Age

Alappat, 33 F.3d 1526 (Fed. Cir. 1994), recognizes that the hardware-software either-or dilemma is false, and allows pure (non-hybrid) Info Age machine statutory class claims but without the legal dilemmas of the CAFCIndustrialAge Test:

> Alappat admits that claim 15 would read on a general purpose computer [microprocessor] programmed to carry out the claimed invention, but argues that this alone also does not justify holding claim 15 unpatentable as directed to nonstatutory subject matter. We agree. ***We have held that such programming creates a new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.***

Alappat, 33 F.3d 1526, 1544-1545 (Fed. Cir. 1994).

The Court should thus adopt *Alappat* as a Machine-or-Transformation test appropriate to the Info Age on at least this basis.

B. Applying the DATA-INFORMATION Vocabulary to CAFC Decisions Made in Specific Response to IntellAmp Technologies Produces an IntellAmp Machine and/or Transformation Test Immune to Attorney Argument That Claims Are Drawn To "Abstract Ideas" (INFORMATION) When Such Claims Are Actually Drawn To Machines/ Machine-States/Machine-State Transformations That Create DATA (Tangible (Perceivable)[18] Differences) Structured to Cause INFORMATION (Concrete Human Meanings) In The Mind Of A Human Reader [19]

The CAFC decided two of the seminal CAFCInformationAge Test cases in direct response to IntellAmp technology complexity: *AT&T v. Excel*, 172 F.3d 1352 (Fed. Cir. 1999)—holding pure (non-hybrid) statutory-process-class claims to IntellAmp patentable subject matter under 35 USC § 101; and *State Street Bank*, 149 F.3d 1368 (Fed. Cir. 1998)—holding pure (non-hybrid) statutory-machine-class claims to IntellAmp patentable subject matter under 35 USC § 101.

The CAFCInformationAge Test avoids confusion by letting judges work in terms of the humanly useful

[18] While not always visible to the naked eye, machine state changes are humanly-perceivable even on small chips through the use of various technologies.

[19] See Appendix B example where varying brightness pixels (machine states) that form letters of Spanish language remains DATA to human who does not understand Spanish, but becomes INFORMATION (meaning, thoughts) when recast as English and viewed by a human who understands English.

end result (INFORMATION, or human meaning), secure that if such result is from computer/ communications engineering, what is actually being claimed are machines (electrical circuits)/machine-states (voltages)/transformations of voltages (transitions of voltages) that produce DATA (tangible differences) which a human would interpret as the INFORMATION (concrete meaning) found useful**.**

Using the DATA-INFORMATION vocabulary, *AT&T v. Excel* may be read as holding that if a pure-process-statutory-class IntellAmp claim is drawn to a useful and concrete result (INFORMATION), such is statutory subject matter if the patent discloses the use of machine-generated process DATA (e.g., humanly-perceivable (tangible) machine-states (electrical circuit voltages)/machine-state transitions (transformations of electrical circuit voltages)) structured to cause the useful and concrete results (INFORMATION) in the mind of a human:[20]

> As previously explained, ***AT&T's claimed process employs subscribers' and call recipients' PICs as data***, applies Boolean algebra ***to those data to determine the value of the PIC indicator***, and applies that value through switching and recording mechanisms ***to create a signal useful for billing purposes.*** . . .
>
> . . .
>
> . . . understanding of ***transformation*** is consistent with our earlier decision in

[20] See Appendix C example of red-black dominos machine-state transitions/transformations causing Tangible (humanly perceivable) result, which causes Concrete meaning (human thought or meaning to one who understands English) which humans find Useful.

> Arrhythmia, . . . Arrhythmia's process claims included various mathematical formulae to analyze electro-cardiograph signals to determine a specified heart activity. . . .. The Arrhythmia court reasoned that the method claims qualified as statutory subject matter by ***noting that the steps transformed physical, electrical signals from one form into another form***—a number ***representing a signal related to the patient's heart activity***, a non-abstract output. . . . The finding that the ***claimed process "transformed" data [perceivable voltages, or machine-states] from one "form" to another*** simply confirmed that Arrhythmia's method claims ***satisfied § 101*** because the mathematical algorithm included within the process was applied to produce a number which had had **specific meaning**—a **useful, concrete [meaning]**, [arising from] tangible [(perceivable) machine-generated differences].

AT&T v. Excel, 172 F.3d 1352, 1358-1359 (Fed. Cir. 1999).

Using the newer formal DATA-INFORMATION vocabulary as demonstrated herein, the Court can read *AT&T* as part of a machine-or-transformation test appropriate to InfoAge and IntellAmp technologies that holds that if a pure-process-statutory-class claim's plain English is drawn to a useful and concrete result (e.g., causes meaning, "who owes what regarding phone bills" in the mind of the judge—INFORMATION), such is statutory subject matter if the patent discloses humanly-perceivable (tangible) machine-states (electrical circuit voltages)/ machine-state transitions (transformations of electrical circuit voltages) that cause DATA (e.g., "logged history" of machine-state (voltage) transitions/ transformations, or process) that can be interpreted as INFORMATION in the mind of the judge.

Using DATA-INFORMATION vocabulary, *State Street* may be read as holding that if a pure-machine-statutory-class IntellAmp claim is drawn to a useful and concrete result (INFORMATION), such is statutory subject matter if the patent discloses the use of machine-generated DATA (e.g., humanly-perceivable machine-states (electrical circuit voltages) /machine-state transitions (transformations of electrical circuit voltages)) to cause the useful and concrete result (INFORMATION) in the mind of a human:

> Today, we hold that the ***transformation of data [machine-generated differences engineered such that human would understand them as] representing discrete dollar amounts, by a machine through a series of [machine-states that "stand in for" or "mimic"] mathematical calculations*** . . . constitutes . . . [patentable subject matter] ***because it produces [humanly perceivable, or tangible, machine-states that "stand in for" or "mimic"] "U"—a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades*** [—concrete human-semantic meaning, INFORMATION, such information economically useful to the human].

State Street, 149 F.3d 1368, 1373 (Fed. Cir. 1998).

Using the newer formal DATA-INFORMATION vocabulary as demonstrated herein, the Court can read *State Street Bank* as part of a machine-or-transformation test appropriate to the InfoAge and IntellAmp technologies that holds that if a pure-machine-statutory-class claim's plain English is drawn to a useful and concrete result (e.g., causes meaning "share price" in the mind of the judge—INFORMATION), such is statutory subject matter if the patent discloses humanly perceivable (tangible) machines (electrical circuitries)/machine-states (electrical circuit voltages)/machine-state transformations (transitions of electrical circuit voltages) that are engineered to create DATA that can be interpreted as INFORMATION in the mind of the judge.

As shown, the Court—through use of DATA-INFORMATION vocabulary—could thus adapt *AT&T* and *State Street* to be a Machine and/or Transformation test appropriate to the InfoAge, and in particular to IntellAmp Technologies.

C. *Allapat, AT&T v. Excel*, and *State Street Bank* Form An IntellAmp Technologies Machine-or-Transformation Test that Improves Public Notice in View of the Technical Expertise of the Patent and Trademark Office ("PTO") and Improves Judicial Efficiency of Post-Issuance Interpretation Consistent with *Markman* Jurisprudence

The CAFCInformationAge Test allows attorneys to claim electronic circuits (machines)/ electronic circuit voltages (machine states)/ electronic voltage transitions (transformations of machine states) via natural English language particularly well suited to the practical two-stage approach that the United States Government ("Government") takes to patent claims.

In the first stage (pre-patent claim issuance), the Government requires that the PTO ensure that the technical subject matter undergirding the attorney's claims to legal monopoly be new (*e.g.*, 35 U.S.C. § 102) and that what is new is non-trivial (*e.g.*, 35 U.S.C. § 103). If the patent attorney is able to establish that the technical subject matter of her client's patent claims is new and non-trivial, the patent issues.

In the second stage (post-patent claim issuance), under Markman jurisprudence, a member of the Federal Judiciary <u>finally</u> gives interpretation to that in which the attorney's client is most intensely interested: the claim to exclude others (35 U.S.C. § 154) via patent infringement lawsuits (35 U.S.C. § 271(a), (b), and (c)) from commercial use of the client-owned technologies (e.g., technologies which a person who works in the technical field would find implicated by the words of the claim) via interpretation of the contours of the legal monopoly claimed. Thus, the United-States system conserves judicial resources by barring from issuance, and thus judicial interpretation, claims to legal monopolization of technical subject matter that is not really new.

The CAFCInformationAge Test allows a patent attorney to draft claims to IntellAmp technologies—circuits (machines)/circuit voltages (machine-states)/voltage transitions (machine-state transformations)—in the form of natural English language. The attorney—through her technical training as verified by registration with the PTO—knows that IntellAmp technologists often describe their electronic circuits/processes in very-constrained sub-sets of natural English language (e.g., conditional "if then" natural-language-like computer-programming statements such as briefly discussed herein in the context of the circuits that "stand for" the human-semantic Boolean AND function) and thus expects that a patent examiner will interpret the natural English language as "standing in" for the requisite new IntellAmp technical subject matter.

The CAFCInformationAge Test strengthens the statutory notice function of the patent claims by allowing the attorney—through her legal training, experience, licensure by her respective state bar admissions, and in particular her close attention to the courts' patent jurisprudence—to draft her claims to legal monopoly in the form of natural English language instead of the specialized vocabulary of computer programs as they actually are (e.g., sequences of voltage levels), microprocessors/VLSICs, transistors, capacitors, circuits standing for logic gates, ASICS, etc. which the natural English represents.

That is, the CAFCInformationAge Test allows the attorney to draft a natural English language claim to legal monopoly such that a Federal Judge—and the public—can construe the overall contours of the claims to legal monopoly in view of the patent statutes and extant relevant judge-made law (*e.g.*, via rules very analogous to those which the judge routinely uses to legally construe legal statutes and/or legal contract language) but without first wading into the mind-bending minutiae of the electronics.

But that clarity comes in exchange for an expected quid pro quo: the attorney expects that once the Federal Judge has finished construing the overall contours of the claims to legal monopoly, the Federal Judge will interview those who routinely work in the technical field to determine what technologies—e.g., the machines/machine-states/machine-state transformations of IntellAmp technologies—the natural English language of the claims really "stand in" for, and thereafter substitute the understood technical meaning for the natural language. Effectively, the drafting attorney expects that the judge will back into that technical subject matter about which the patent examiner was concerned during patent examination.[21]

If this most important step of "backing into" the technical subject matter really encompassed by the claim is skipped, and especially in IntellAmp technologies such as Alice's, claim construction stops and confusion arises from the free-floating natural English language of the claims leading one to the erroneous conclusion that they are related to "abstract ideas"—*e.g*., free-floating human mental constructs for which no one can get paid.

However, if this most important second step is done, the Question Presented becomes tautological: When properly construed, Alice directly claims electronic circuits (machines), mapped states of the electronic circuits (processes), and media bearing signals which will generate electrical voltages (such media being articles of manufacture) which by definition are statutory subject matters. This is why applying the CAFCIndustrialAge Test to such claims as a test for patentability results in an apparent legal dilemma[22]—

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[21] Like contract construction, except that once the judge has construed the overall legal contours, she determines the meanings of disputed terms of patent claims more like statutory construction—based on what disputed terms would have objectively meant to one of skill in the technologies. *Markman v. Westview Instruments*, 52 F.3d 967, 987 (Fed. Cir. 1995).

[22] See *Amicus* D. Cook Br. p. 32 ("DILEMMA: For processes-emergent-from-program assembled- machines-in-operation-OR-program-assembled- machines-proper, the CAFCIndustrialAge

the claims are already drafted to machines (*e.g.*, massive configurations of special purpose electrical circuits) and transformations (*e.g.*, processes describing the humanly-perceivable transformations of voltage level inputs to voltage level outputs). Since the claims ALREADY encompass machines and transformations, requiring that the claims encompass additional machines and transformations beyond those which they already claim directly gives rise to much confusion.

Alappat, 33 F.3d 1526, 1544 (Fed. Cir. 1994), can be read as part of a machine-or-transformation test appropriate to the InfoAge and IntellAmp technologies that recognizes that the hardware-software dichotomy is false, and allows pure (non-hybrid) machine statutory class claims to InfoAge technologies without the legal dilemmas of the hybrid claims required by the CAFCIndustrialAge Test.

Using the newer formal DATA-INFORMATION vocabulary as demonstrated herein, the Court can read *AT&T v. Excel*, 172 F.3d 1352 (Fed. Cir. 1999) as part of a machine-or-transformation test appropriate to InfoAge and IntellAmp technologies that allows pure-process-statutory-class claims to InfoAge and IntellAmp technologies without the legal dilemmas of the hybrid claims required by the CAFCIndustrialAge Test.

Using the newer formal DATA-INFORMATION vocabulary as demonstrated herein, the Court can read *State Street Bank*, 149 F.3d 1368 (Fed. Cir.

Test seems to require that an attorney achieve patentable subject matter at the expense of claims subject to strong (and thus expensive) attorney argument that such claims are invalid "as a matter of law" (*IPXL v. Amazon*) OR unenforceable "as a matter of law" (*NTP v. RIM*). Or vice versa.")

1998), as part of a machine-or-transformation test appropriate to InfoAge and IntellAmp technologies that allows pure-machine-statutory-class claims to InfoAge and IntellAmp technologies without the legal dilemmas of the hybrid claims required by the CAFCIndustrialAge Test.

For at least these reasons, the Court should adopt *In Re Alappat, AT&T v. Excel, and State Street Bank*—but clarified via the newer formal DATA-INFORMATION vocabulary as demonstrated herein—as a Machine-or-Transformation Test appropriate to InfoAge, and, in particular, IntellAmp technologies.

Thus, the Court should either

(a) adopt *In Re Alappat, AT&T v. Excel,* and *State Street Bank*—but clarified via the newer formal DATA-INFORMATION vocabulary as demonstrated herein—as a Machine-or-Transformation Test appropriate to InfoAge, and, in particular, IntellAmp Technologies, OR

(b) require Markman-compliant claim construction in all patent litigations, for at least reasons argued in *Amicus* D. Cook Br. 1-33.

Respectfully submitted,

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January 23, 2014

APPENDIX

APPENDIX A

Bibliography Including Works Cited
or *Works Consulted*

All technical descriptions herein are a synthesis of Amicus based a combination of his working knowledge, consultation with various technical experts, and at least these following works. *As an aid to the Clerks, Amicus has stack ordered the works in case they care to read any of them*:

Floridi, Luciano, "Semantic Conceptions of Information", The Stanford Encyclopedia of Philosophy (Spring 2013 Edition), Edward N. Zalta (ed.), URL = http://plato.stanford.edu/archives/spr2013/entries/information-semantic/; *See* especially Figure 1 ("for data versus information");

See Wikipedia, Intelligence Amplication, http://en.wikipedia.org/wiki/intelligence_amplification (as of Jan. 23, 2014 9:20 GMT)

Blum, J., *Exploring Arduino: Tools and Techniques for Engineering Wizardry* (2013)

Gleick J., "The Information: A History, a Theory, a Flood" (Publication date: 3/1/2011; ISBN-13: 9780375423727; Publisher: Knopf Doubleday Publishing Group);

See Wikipedia, Logic Gate, http://en.wikipedia.org/wiki/Logic_gate (please also activate the links in this articl) (as of Jan.13, 2014, 04:3 GMT)

See Wikipedia, *VHDL*, http://en.wikipedia.org/wiki/VHDL ("VHDL was originally developed at the behest of the U.S Department of Defense in order to document the behavior of the ASICs that supplier companies were including in equipment. The idea of being able to simulate the ASICs from the information in this documentation was so obviously attractive that logic simulators were developed that could read the VHDL files. The next step was the development of logic synthesis tools that read the VHDL, and output a definition of the physical implementation of the circuit.")

See Wikipedia, Integrated Circuit, http://en.wikipedia.org/wiki/Integrated_circuithttp://en.wikipedia.org/wiki/ Integrated_ circuit

See Wikipedia, Application-Specific Integrated Circuit http://en.wikipedia.org/ wiki/ASIC ("An application-specific integrated circuit (ASIC) /eɪsɪk/, is an integrated circuit (IC) customized for a particular use, rather than intended for general-purpose use.")

See Wikipedia, C to HDL, http://en.wikipedia.org/wiki/C_to_HDL

See Wikipedia, *Hardware Description Language*, http://en.wikipedia.org/wiki/Hardware_description_language#History

See Wikipedia, High-Level Synthesis, http://en.wikipedia.org/wiki/High-level_synthesis("High-level synthesis (HLS), sometimes referred to as C synthesis, electronic system-level (ESL) synthesis, algorithmic synthesis, or behavioral synthesis, is an automated design process that interprets an algorithmic description of a desired behavior and creates digital hardware that implements that behavior")

See Wikipedia, Instruction Set Architecture, http://en.wikipedia.org/wiki/Instruction_set_architecture ("Instruction set architecture is distinguished from the micro-architecture, which is the set of processor design techniques used to implement the instruction set. Computers with different microarchitectures can share a common instruction set. For example, the Intel Pentium and the AMD Athlon implement nearly identical versions of the x86 instruction set, but have radically different internal designs.")

See Wikipedia, Microarchitecture, http://en. wikipedia.org/wiki/Microarchitecture (In computer engineering, micro-architecture (sometimes abbreviated to µarch or uarch), also called computer organization, is the way a given instruction set architecture (ISA) is implemented on a processor.)

See Wikipedia, Claude Shannon, http://en.wikipedia.org/wiki/Claude_Shannon (Invented circuits and associated conventions that "stand for" human-semantic two-valued if-then or Boolean logics).

See Wikipedia, Logic Synthesis http://en.wikipedia.org/wiki/Logic_synthesis

See Wikipedia, Boolean Algebra http://en.wikipedia.org/wiki/Boolean_algebra_(logic) (Including Claude Shannon's invention of circuits that "stand in" for two-element Boolean Algebra which are used today; "Propositional logic is a logical system that is intimately connected to Boolean algebra.[3] Many syntactic concepts of Boolean algebra carry over to propositional logic with only minor changes in notation and terminology, while the semantics of propositional logic are defined via Boolean algebras in a way that the tautologies (theorems) of propositional logic correspond to equational theorems of Boolean algebra.").

See Wikipedia, Propositional Logic which Redirects to Propositional Calculus, ("In mathematical logic, a propositional calculus or logic (also called sentential calculus or sentential logic) is a formal system in which formulas of a formal language may be interpreted to represent propositions.")

See Wikipedia, Microprocessor, http://en.wikipedia.org/wiki/Microprocessor;

See Wikipedia, Electronic System-Level Design And Verification, http://en.wikipedia.org/wiki/Electronic_system-level

See Wikipedia, Electronic Design Automation, http://en.wikipedia.org/wiki/Electronic_design_automation

See Wikipedia, Resistor–Transistor Logic, http://en.wikipedia.org/wiki/Resistor-transistor_logic (describing aspects of Resistor–Transistor Logic) (as of Jan.13, 2014, 04:3 GMT).

See Wikipedia, Register-Transfer Level, http://en.wikipedia.org/wiki/Register-transfer_level

Jeremy Campbell, "Grammatical Man: Information, Entropy, Language, and Life" (a monumental achievement, this first opus has a few inaccuracies that Mr. Gleick cured, but it took great courage for Mr. Campbell to write this, and I am very grateful to Mr .Campbell for his Courage; here is an excerpt from Wikipedia entry: . . . is a 1982 book written by the Evening Standard's Washington correspondent, Jeremy Campbell) http://en.wikipedia.org/wiki/Grammatical_man;

See Wikipedia, The Information: A History, a Theory, a Flood, http://en.wikipedia.org/wiki/The_Information:_A_History,_a_Theory,_a_Flood

See Wikipedia, Field-Programmable Gate Array, http://en.wikipedia.org/wiki/Field-programmable_gate_array

APPENDIX B

THE SUPREME COURT OF THE UNITED STATES

[Filed October 4, 2013]

No. 13-298

ALICE CORPORATION PTY. LTD.,

Petitioner,

v.

CLS BANK INTERNATIONAL AND
CLS SERVICES LTD.,

Respondents.

On Petition for a Writ of Certiorari to the
United States Court of Appeals
for the Federal Circuit

BRIEF OF *AMICUS CURIAE* DALE R. COOK,
PRO SE, IN SUPPORT OF PETITIONER

Example: IntellAmp Machine-States Must
Be Engineered to Create Structured DATA
(e.g., Machine-States, such as
voltages/ pixel brightnesses)

Appropriate to Both Language (English), and
Concepts (Currency Trading) of Expected User
of the IntellAmp Automation

* * * *

If viewed from "inside" the machine (e.g., on the inside of an LCD monitor—the part a human can't see), the changes of states of the machine are just that: changes in state (e.g., changes in voltage signals that drive associated brightnesses of pixels on a computer screen). However, when the changes in machine states create a difference a human can perceive, formally "data" (plural of datum) are produced (e.g., the different voltages are such that a human can perceive differences in brightness in at least two areas of the screen). For example, if the changing voltages drove pixel brightness differences creating a character string that an observing human could discern—such as "comprar el dólar canadiense inmediatamente por 90 centavos de dólar en la que tenemos un comprador dispuesto a pagar inmediatamente 95 centavos de dólar"—such a string would constitute data. If a human observer only understands English and not Spanish, such a string would merely constitute data.

However, if data—human-discernible differences (e.g., text string)—are understood to have a meaning by an observing human, such data are said to formally constitute "information." For example, if the data (machines states (e.g., varying voltages/varying pixel brightnesses)) formed the character string "buy the Canadian dollar immediately for 90 cents US in that we have a buyer willing to immediately pay 95 cents US" the data—character string—would constitute information for an English reader.

That character string (data) can be understood by/with human thought, but the data itself does not constitute human thought. From the machine standpoint, it is just the current state of a process that changes pixel brightnesses as dictated by the computer program.

A patent claim to that process would read like the string ("buy the Canadian dollar immediately . . .), but with a proper claim construction, one skilled in the art would understand that what was claimed was the machine-in-motion—process—or an end state of a process that resulted in pixel brightnesses that a viewing human could perceive as the string "buy the Canadian dollar immediately . . . " One skilled in the art would not construe the claim as human thinking because Intelligence Amplification automation, like Alice's, is sold to augment humans, not replace them. Humans are the market to whom Alice sells. Alice does not sell human thinking, but rather a change in machine states/processes, and thus one skilled in the art could never derive human thinking from the claims. That is why this Court's Markman jurisprudence is so critical here.

APPENDIX C

THE SUPREME COURT OF THE UNITED STATES

[Filed October 4, 2013]

No. 13-298

ALICE CORPORATION PTY. LTD.,
Petitioner,
v.
CLS BANK INTERNATIONAL AND
CLS SERVICES LTD.,
Respondents.

On Petition for a Writ of Certiorari to the
United States Court of Appeals
for the Federal Circuit

BRIEF OF *AMICUS CURIAE* DALE R. COOK,
PRO SE, IN SUPPORT OF PETITIONER

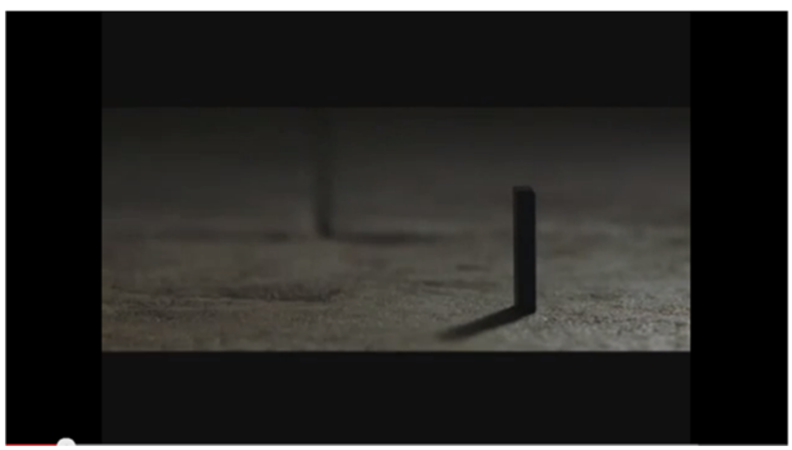
Example of Red-Black Dominos Machine-State
Transitions/Transformations Causing Tangible
(humanly perceivable) Differences, Which Causes
Concrete Meaning (human thought or meaning
to one who understands English)
Which Humans Find Useful

* * * *

Now Amicus presents the emergent process domino analogy in pictures. A computer program for a general purpose processor specifies:

(a) a selection drawn from a collection of many available computing elements in the general purpose processor, analogous to . . . ;

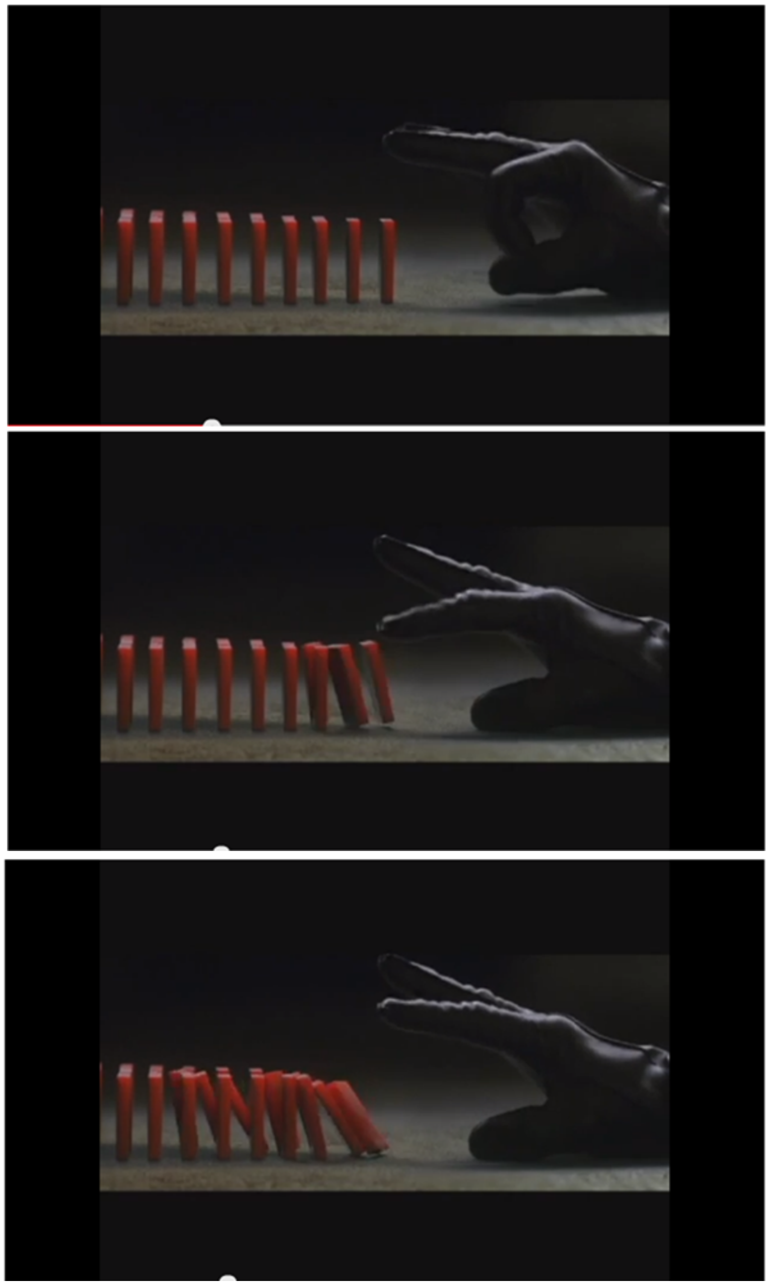
(b) a <u>specification</u> of how the <u>selected computing elements</u> are to be (i) organized (e.g., in sequence or in parallel) <u>to "set up" desired</u> combinational, sequential, and/or parallel logic circuit(s), analogous to … and (ii) such organization further <u>including the sequences and timing</u> of the voltage levels <u>that will be applied to the various selected computing elements</u> in the "set up" circuit(s), analogous to …;



12a

13a

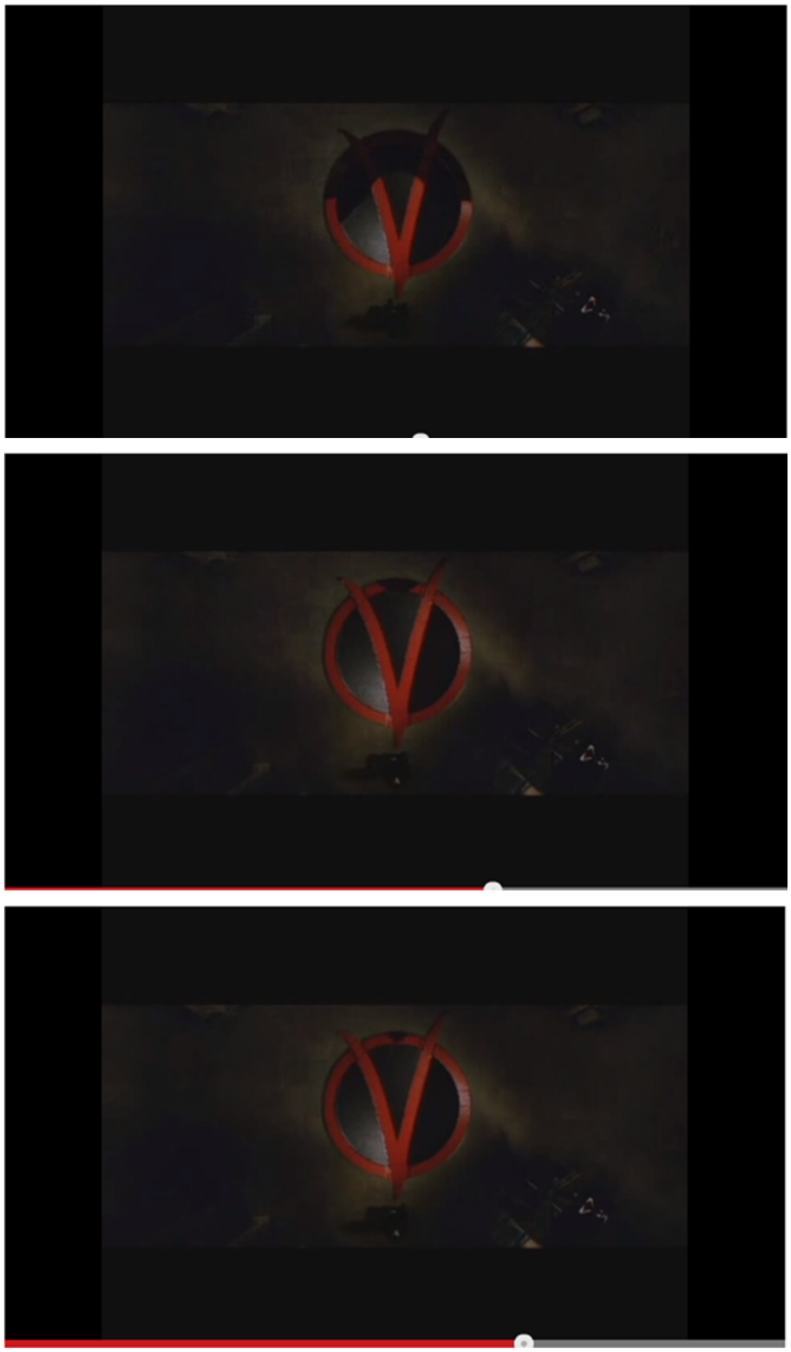
(c) <u>an initiation signal that kicks</u> the logic circuit(s) <u>into action</u>, analogous to …;



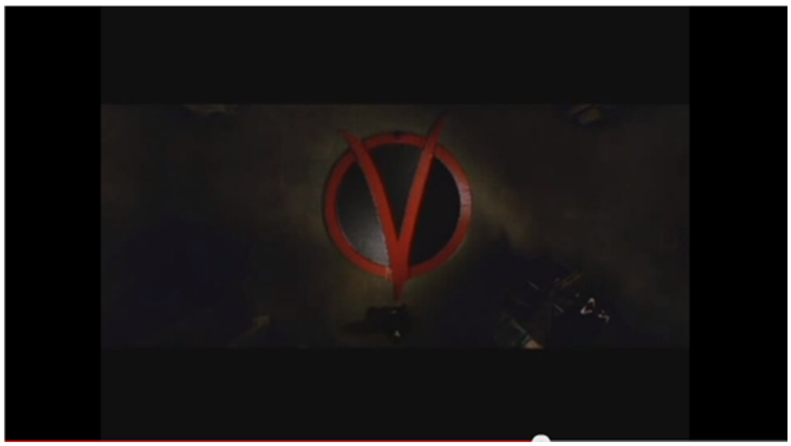
such that (d) after initiation, the <u>states of the various</u> program-selected, program-arranged, and program-timed <u>computing elements as they interoperate</u> in the <u>manner specified by the computer program may be observed/recorded/mapped</u> analogous to …;

16a

17a



until, (e) ultimately, the flowing pattern/process generated by the interoperating computing circuits gives the result of a set of determined and discrete machine states which manifest a pattern that both (i) can be perceived by and (ii) confers meaning to an observing human, which is analogous to …:



This mechanical contrivance is analogous to electronic processes-emergent-with-program-assembled-machines-in-operation, but constitutes mechanical processes-emergent-with-program-assembled-machines-in-operation in its own right. But it is not new. There is no need to augur this, as in the judge-created exceptions to otherwise patentable subject matter. Lack of novelty can be objectively demonstrated for the domino message transmission machine and process. Amici urge the Court to vitiate the inscrutable judge-created exceptions to otherwise patentable subject matter in view of criteria that can be demonstrated via objective evidence.

The precision and control of the domino process/pattern that dynamically flowed and was called into being as the dominoes fell into each are anything but abstract, and result in intermediate/ending states of discrete red-black (binary) dominoes.

The result is a red-black pattern recognized by the viewer as the letter "V" for Specific, an Antonym of Abstract. Amici note that the red-black dominos constitute:

(a) Tangible Perceptions (humanly perceivable differences—formally "data"): something is tangible if it can produce data (plural of datum). Data are one or more differences that can be registered by one or more of the human physical senses (sight, hearing, touch, smell, etc.); the process/result of the process is tangible because it produces a pattern of red-black differences that are perceivable by human vision;

(b) Concrete Meaning (humanly understandable data—formally "information"): information is a difference (data) that makes a difference to someone. Here, the result of the process has concrete meaning in that an English reader can discern the human-semantic letter "V" from the red-black pattern, via a priori known letters of the English alphabet; and

(c) Useful Information (humanly valuable information): the result is valuable in that it allows the Court to understand that Alice's technologies are not anything like what a human does with pen and paper, and are not the human mind itself. The result allows the Court to understand just how far afield the courts have been led in that it provides an analogy demonstrating claimed computational processes are the polar opposite of abstract.