

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DK CROWN HOLDINGS INC. (FORMERLY DRAFTKINGS, INC.), A
DELAWARE CORPORATION,
Petitioner

v.

DIOGENES LIMITED,
Patent Owner

IPR2023-00268

U.S. Patent No. 11,200,779

**DECLARATION OF OLAF VANCURA, PH.D. IN SUPPORT OF
PATENT OWNER'S PRELIMINARY RESPONSE**

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I. INTRODUCTION

I, Olaf Vancura, Ph. D declare as follows:

1. My name is Olaf Vancura. I have been retained as an expert in this proceeding on behalf of Patent Owner Diogenes Limited (“PO”), and its counsel, DLA Piper LLP (US). I am personally knowledgeable about the matters stated herein, and am competent to make this declaration.

2. I understand that DK Crown Holdings Inc. (f/k/a DraftKings, Inc.) (“Petitioner”) filed a Petition for *Inter Partes* Review (“Petition”) of US 11,200,779 (“the ’779 patent”) (EX-1001).

3. I am being compensated for my work in this matter at my standard hourly rate. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony in this matter. My compensation is not based on the outcome of this matter or on the outcome of my opinions.

4. I have been asked to provide my conclusions and bases thereof regarding several aspects of the issues in dispute. Based on my investigation in this matter, I conclude that U.S. Patent Application Publication No. 2012/0309489 (“Scott”) (EX-1006), alone or in view of the general and common knowledge of a person of ordinary skill in the art (“POSITA”), fails to disclose, teach, or suggest a number of elements of the challenged claims, including at least limitations 1[e]-1[g]

and 16[i]-16[k] because Scott discloses a gaming machine that operates in stages rather than the claimed continuous system.

5. My analysis and conclusions regarding both subjects are presented in more detail below.

II. BACKGROUND AND QUALIFICATIONS

6. I have extensive experience in gaming and gambling software.

7. My professional experience and expertise is described in my current CV (EX-2004).

8. I completed my Bachelor of Science in Electrical Engineering, with a minor in Mathematics, from Santa Clara University in 1987. I completed my Master of Arts in Physics from Johns Hopkins University in 1989. I completed my PhD in Physics from Johns Hopkins University in 1992. Thereafter, I joined Harvard University as a Post-Doctoral Fellow, and subsequent to that, I joined the Harvard-Smithsonian Center for Astrophysics as an Astrophysicist.

9. Circa 1995, I began working in the gaming space as a consultant, author and inventor. For several years, I created and taught the mathematics of gambling curriculum at nearby Tufts University. The class was very popular, oversubscribed by some 3 times available spaces, and nominated for “Best Course at Tufts.”

10. In late 1997, I transitioned to the gaming industry full-time by joining Mikohn Gaming in order to initiate and lead their venture into gaming content. At Mikohn, I was promoted several times and ultimately headed their games division, leaving in 2006 as Chief Creative Officer.

11. In 2010, I joined American Gaming Systems as Vice President of Game Development, heading up an R&D team of 65 people, and was responsible for all hardware, software, game design, licensing and content.

12. I have designed (as chief architect, creatively responsible for concept, functional specification of game play and all underlying math) dozens of casino games (including slot machines with physical and/or video reels, video pokers and table games). In the design process, I typically code (program) the game “from scratch” and analyze game properties, evaluating and experimenting with various game play methods and math models before converging to a specification.

13. As a consultant, I have also coded, optimized and analyzed many casino games that are not my own, providing mathematical analysis and reports for gaming regulators. I am familiar with the mathematical and algorithmic underpinnings of electronic bingo-based (Class II), traditional Las Vegas-style (Class III) and pool/pull-tab-style slot machines. I am familiar with gaming regulations and have

worked extensively with regulations and/or regulators covering multiple jurisdictions throughout the United States.

14. I (as sole or co-inventor) have been awarded over 80 United States patents related to gaming, including a number of patents directed to the implementation of wagering events on gaming machines and systems. I have provided a list of some of these patents, which I believe to be most relevant to this action, as EX-2005.

15. I have designed games that earned multiple awards from the industry and players including, e.g., the #1 and #3 “Most Innovative” game by Strictly Slots magazine readers in the same year. An estimated \$8 billion has been wagered upon my games.

16. I am an author of multiple books on gaming/games. *Smart Casino Gambling* takes an applied mathematics approach to gaming and discusses ways of gaining an advantage, or at least minimizing the disadvantage, against the house. *Knock-Out Blackjack* describes a novel card-counting system I co-invented which was named one of the “Top 100 Events in Gaming” for the 20th century by *Casino Player* magazine. *Advantage Yahtzee* describes my computer-derived optimal solution to maximize expected score in the popular Yahtzee home game, a game of fantastic complexity with over 10^{100} possible paths. A neural network I created and

coded, which learned to play Blackjack at an expert level, was described in my paper “A Computer Teaches Itself to Play Blackjack” as found in *Finding the Edge*, a compendium of academic gambling studies for which I served as lead editor.

17. I have been invited to give talks for the Dartmouth Chance Lecture series, University of Nevada Las Vegas Excellence in Gaming series, Cornell World Class Masters, University of Nevada Reno Executive Development Conference, Mensa Annual Gathering and the National Institute of Standards and Technology, among others.

III. DOCUMENTS AND OTHER MATERIALS RELIED UPON

18. In forming the opinions set forth in this declaration, I have reviewed the documents in the following table:

Exhibit No.	Description
Petition	Petition for <i>Inter Partes</i> Review (“Petition”) of US 11,200,779
EX-1001	U.S. Patent No. 11,200,779 (the “’779 patent”)
EX-1002	Prosecution File History of the ’779 patent
EX-1003	File History for U.S. Patent No. 9,117,341
EX-1006	U.S. Patent Application Publication No. 2012/0309489 A1 (“Scott”)
EX-1007	Declaration of Dwight Crevelt
EX-2004	CV of Olaf Vancura, Ph. D

Exhibit No.	Description
EX-2005	List of Relevant Patents with Olaf Vancura as Inventor/Co-Inventor

19. Additionally, I have utilized my own experience and expertise, including regarding the knowledge and capabilities of a person of ordinary skill in the relevant art in the timeframe of the claimed priority date of the '779 patent.

IV. PETITIONER'S GROUNDS FOR CHALLENGE

20. In this declaration, I offer opinions on the following grounds presented by Petitioner:

Ground(s)	Claims	Basis	Reference(s)
1	1-3, 5-10, 16-18, 21-25	§102	Scott
2	1-3, 5-10, 16-18, 21-25	§103	Scott in in view of the general and common knowledge of a POSITA

V. RELEVANT PATENT LAW AND LEGAL STANDARDS

A. Date of Invention

21. I have been asked to use the date of the filing of the earliest application to which priority is claimed (*i.e.*, September 6, 2012) as the date of invention for purposes of my analysis.

B. Anticipation

22. I am informed and understand that a patent claim is invalid under 35 U.S.C. §102 if a prior art disclosure teaches every element required by the claim,

either expressly or inherently. The identical invention must be shown in as complete detail as is contained in the claim. When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art.

C. Obviousness

23. I am informed and understand that a patent claim is invalid under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time of the invention to a person having ordinary skill in the art to which the subject matter pertains. Obviousness, as has been explained to me, is based on (i) the scope and content of the prior art, (ii) the differences between the prior art and the claim, (iii) the level of ordinary skill in the art, and (iv) any secondary indicia of non-obviousness (*e.g.*, “secondary considerations” such as commercial success in the market place of the claimed invention), to the extent that they exist.

24. I further understand that obviousness may be demonstrated by showing that it would have been obvious to combine the teachings of more than one item of prior art. In determining whether a piece of prior art could have been combined with other prior art or with other information within the knowledge of a person having

ordinary skill in the art, the following are examples of approaches and rationales that may be considered:

- Combining prior art elements according to known methods to yield predictable results;
- Simple substitution of one known element for another to obtain predictable results;
- Use of a known technique to improve similar devices (methods, or products) in the same way;
- Applying a known technique to a known device (method or product) ready for improvement to yield predictable results;
- Applying a technique or approach that would have been obvious to try (choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success);
- Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to a person having ordinary skill in the art; and

- Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

25. I further understand that an invention may be obvious if one of ordinary skill in the art, facing a wide range of needs created by developments in the field, would have seen an obvious benefit to the solutions tried by the applicant. When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, it may be obvious to a person of ordinary skill to try the known options. If a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique would have been obvious.

26. I further understand that a person of ordinary skill in the art is a hypothetical person who is presumed to be aware of all of the relevant art at the time of the invention. The person of ordinary skill may be able to fit together the teachings of multiple patents and/or printed publications employing ordinary creativity and the common sense that familiar items may have uses in another context or beyond their primary purposes.

27. I also understand that when considering the obviousness of a patent claim, one should consider whether a teaching, suggestion, or motivation to combine

the references exists so as to avoid impermissibly applying hindsight when combining or modifying the prior art. I understand this test should not be applied rigidly, but that the test can be important to avoid such hindsight.

28. I also understand that one of ordinary skill in the art must have a reasonable expectation of success in combining or modifying prior art references.

29. I also understand that all elements of a claim must be considered in an obviousness analysis.

D. Standard of Proof

30. I understand that the standard to prove unpatentability in an *Inter Partes* Review proceeding is by a preponderance of the evidence, which means more likely than not.

VI. LEVEL OF ORDINARY SKILL IN THE ART

31. I have considered the level of ordinary skill in the art relevant to the '779 patent. I understand that factors such as the education level of those working in the field, the sophistication of the technology, the types of problems encountered in the art, the prior art solutions to those problems, and the speed at which innovations are made may help establish the level of skill in the art.

32. After reviewing the '779 patent, the relevant portions of the prosecution history of the '779 patent, and cited references, it is my opinion that the relevant art of the '779 patent is in the field of electronic gaming.

33. Based upon my knowledge of this field, I conclude that a POSITA at the time of the earliest filing date of the '779 patent (September 6, 2012), and for that matter, at all subsequent times through the present, would have had a Bachelor's degree in electrical engineering, computer science, or a similar field; and at least two years of experience in the wager-based gaming industry. Additional work or research experience can substitute for less or different education, and vice-versa.

34. I am and was at the time of the earliest filing date at least a person of skill in the relevant art, of a level at least as high as or more than ordinarily skilled persons, and I am able to provide insight and opinions into the understandings of such persons at all relevant times by virtue of my education, training and experience.

VII. THE '779 PATENT

35. I have reviewed the '779 patent, together with its file wrapper and the file wrapper of related applications.

36. Having recognized a need for new products to generate and maintain interest in online betting platforms, which was a problem unique to this technology

space and not a concern of in-person betting establishments, the '779 patent describes a novel solution to this problem. For example, the '779 patent states:

In one embodiment, at any desired time after initiation of an event (such as at any time after a “ticket” is purchased until completion of an event, after each leg has been completed, between legs, including potentially as a leg is “in-play”, and/or during a designated span of time before, during and/or after any of the legs), any desired number of players who remain eligible for a prize (and potentially those still eligible for bonus and/or consolation prizes) or to win or have correct (win) predictions for each of the events or legs that are completed, may be offered a “buy-out” or an opportunity to sell their tickets (in whole or alternatively may be in part (i.e., a fractional amount) to the game operator or through the game operator (or alternatively directly) to a third party (e.g., one or more system operator(s), business entity or entities such as a merchant(s), one or more other persons, other player(s), etc.). Thus, for example, the game operator (or any other entity) may offer the player a fractional amount of the potential Jackpot Pool to buy the ticket for the still pending game(s) and thereby provide the player the opportunity to cash in and avoid the risk of being eliminated on a later leg or the final event. In other examples, a ticket held by players may be comprised of one or more divisions, and the buy-out offer or sale may involve just certain divisions of the ticket, so that those divisions are sold but the player retains ownership of the remaining divisions of the ticket. In yet another example, a ticket held by a player may include an accumulator or parlay wager, in which case the player may receive (or initiate) a

buy-out offer or sale for a fractional amount of a prize (e.g., a jackpot), and which may occur at any time, such as before, during and/or after any of the legs specified by the wager have been completed.

EX-1001, 35:42-36:6.

37. A buy-out offer can strike a balance between the interests of bettors and the sportsbook operator (or the “house”) during the life of a wager. A multi-leg wager (for example, an accumulator or “parlay” wager) allows a bettor to make one wager upon the outcome of multiple events, such as the result of three football games. In a parlay, all of the wagered outcomes are required to win; the winnings from one event are staked on the next event in a series until either the bettor loses or the series completes successfully. In multi-leg wagering, prior to the start of all of the sporting events wagered upon, a bettor purchases one ticket having each of the bettor’s predicted outcomes of the games or “legs” of the event contained thereon. A successful bet or ticket, in a parlay embodiment, is worth a predetermined value based on the application of each game’s (or leg’s) payback to each of the successive events. A successful bet is more difficult because it is contingent on multiple successful outcomes, and can also be very profitable to the bettor given the progressive increase in stake between successful legs.

38. For example, a bettor having a four-fold parlay, or a bet involving four sporting events, having won the first two of the four relevant bets on their ticket,

stands a better chance to win the overall wager than what existed prior to the completion of those first two events. Conversely, the house stands a more significant risk of losing the bet. A buy-out allows a bettor to sell its wager back to the house for a profit that is less than the maximum amount of the possible winnings, to the potential benefit of both parties.

39. Accurate, timely and consistent buy-out offers improve bettor confidence. It is desirable for an online wagering system to operate accurately and with stability across a plurality of players. The '779 patent provides the capability to provide a buy-out offer to a plurality of players based on the criteria described in the '779 patent, and to do so consistently across similarly situated tickets, independent of bettors' geography. Thus according to the patented methods, a bettor receives a partial or full buy-out offer reflecting a value derived from real-time information from potentially a multitude of sources.

40. These technological advancements potentially foster additional bettor engagement and platform profits. Combined with buy-out offers' improved real-time accuracy, these improvements, in my opinion, are apt to drive bettor engagement by increasing popularity of placed bets, amounts wagered (since wagers may be cashed-in for partial value to avoid "all or nothing" scenarios) and placement of new bets, which in turn increases revenue.

41. Increased better enjoyment should result in keeping customers at an online betting site, i.e., better site “stickability,” than an online wagering system lacking these features.

42. The calculations/processing required by a method, system, or device to generate buy-out offers continuously and in real time during play based on time-sensitive game changes that affect odds (e.g., for sporting events: the current score, which team currently has possession, how much time remains, players’ status (injuries, ejections, foul trouble, etc.) with instant updates (e.g., upon a turnover, a made/missed shot, a goal, a penalty, a rebound, a strikeout, an error, etc.) are very complex. This complexity is vastly greater than a single-outcome bet made prior to a game and resolved at the end of a game, and the complexity may increase further with additional legs, the inclusion of proposition bets, in-play betting, and/or varied bet types.

43. The buy-out functionality is technical and time-sensitive in nature. A large volume of information from various sources may be collected and analyzed, “instantly,” for a real-time valuation. For any particular wager, this information includes the maximum payout for the bettor’s bet and the probability of a successful outcome. The probability calculation can take into account many types of real-time information from the sportsbook operator, such as odds changes, the maximum

payout for the multi-outcome event bet, the probability of a successful outcome on the remaining leg or legs, and in parimutuel betting how many tickets have been sold holding the same ticketed outcome, as well as the value and composition of the pool, including for example whether any consolation prizes are offered for near miss tickets. The probability of success calculation for an in-leg, single leg or multi-leg wagering event may also take into account external data from a multitude of sources.

44. The system described in the '779 patent contemplates continuous activities that take place in real time to allow the capability of continuous cash-out for players during live play.

45. For example, the '779 patent states that “[t]he system controller may continuously retrieve data in real time related to a progress of the multi-outcome event before the multi-outcome event has been completed.” *Id.* at 1:65-2:1.

46. Furthermore, “[t]he system controller may recalculate the wager information in real time for each of the one or more participants based on the continually retrieved data.” *Id.* at 2:1-4. Further, “[t]he system controller may continuously evaluate the recalculated wager information.” *Id.* at 2:4-5.

47. The continuous reception of real time information from the wagering event and the wager itself, along with the continuous recalculation of this information allows the server system to “make a determination of what the

appropriate value would be to make an offer to cash out to one or more players.” *Id.* at 17:47-48.

48. Furthermore, “[t]he server system 12 may make this determination at any time, such as, and without limitation, at certain discrete points of a wagering event (e.g., halftime of a sporting event) **or** it may continuously evaluate the wagering event and incoming wagers and make multiple determinations in real time.” *Id.* at 17:52-57 (emphasis added). Thus, the ’779 patent discloses that the determination of cash-out value may be at discrete points of a wagering event (such as halftime, end of the 1st period, during a time-out, etc.) **or** it may continuously evaluate the wagering event and make multiple determinations in real time. In other words, the ’779 patent draws a distinct **contrast** between “discrete points” (e.g., halftime or other stoppage of play) and “continuously” (e.g., real time during live play and thereby extremely time-sensitive).

49. The system of the ’779 patent allows for “cash-in buy back [to] also operate during live play and offer continuous cash-in ability as soon as it is technically possible.” *Id.* at 23:5-7.

50. The ’779 patent further contemplates that “the ability to trade or sell tickets back to the system operator may be continuous, and also in these circumstances, the bid may be extremely time sensitive.” *Id.* at 23:40-43.

51. In accordance with the buy-out option, “[w]hen the player decides to end the game play, he can select the cash out button at which time the player may receive cash or other payout mechanisms such as tickets or credit slips redeemable by a cashier (or other suitable redemption system) or funding to the player's electronically recordable identification card or the player's online account.” *Id.* at 27:48-53. In one embodiment, “the player may be offered the option of cashing out a percentage of the potential Jackpot Pool, for example by depressing the cash out button the players sells 10% or 25% of the potential Jackpot Pool for the amount offered on the display.” *Id.* at 27:37-41. An “authorized player or manager may then elect to cash out the ticket by selecting the ‘cash out’ icon” that is displayed. *Id.* at 44:10-12.

52. The collection and processing of this volume of information from a multitude of sources — continuously, accurately, and in real time — is not possible outside of the technological environment of an online sports wagering system. For example, in the context of multi-leg wagers with continuous buy-out capability, the probability of success must be re-calculated between legs of a multi-leg wager, or continuously while any particular leg event is in progress, e.g., based upon on a variety of in-game statistics, (metrics, positions, etc.) and their fluctuations, some examples of which are noted earlier.

53. Further, the system identifies all similarly situated bettors to whom a particular buy-out offer will be made, regardless of geography, and facilitates real-time communications to and from that plurality of bettors.

54. This buy-out feature provides additional decisions for the player, which creates added excitement and engagement during the wagering event — thus fulfilling the need in the gaming industry “for new products to generate and maintain consumer interest.” *Id.* at 1:49-50.

55. The '779 patent provides a unique, ordered combination of elements that, taken together, improve prior art in online wagering systems. Such methods, systems and devices, to my knowledge, were neither typical nor accomplished previously in the prior art.

VIII. CLAIM CONSTRUCTION

56. I have been informed that the parties agree, for the purposes of the preliminary response, that the claim terms can be afforded their plain and ordinary meaning. I therefore do not address claim construction in this Declaration.

IX. SUMMARY OF REFERENCES IDENTIFIED BY PETITIONER

57. Petitioner relies on a single reference, Scott. A brief discussion of this reference is provided below.

58. The Petition relies on Scott in both grounds.

59. Scott is directed to “a gaming machine configured to provide value for partial or incomplete game outcomes.” EX-1006, ¶[0002].

60. Scott explicitly references a gaming machine configured to present “various styles or configurations of games.” *Id.* at ¶[0044]. These games may be broadly classified as card games (e.g., video poker, blackjack, and other card games), numbers games (e.g., keno, video lottery, bingo, bingo-based), dice games, and slot games. *See id.* In my opinion, these games are included in Scott because they each occur in known stages. Absent entirely from Scott is any mention of wagering upon sporting events.

61. Scott discloses “a value engine for a gaming machine” that “generally determines a cash value for player cards, symbols, or other gaming indicia even though the indicia does not form a winning outcome.” *Id.* at Abstract. Thus, Scott is stating that applicable situations generally include in-progress games with “indicia” such as card rank/suit, numeric values, die faces, and slot symbols. For example, Scott states that “[i]t is contemplated that the value engine may be used with any wagering game where game symbols or indicia (e.g., player card symbols, slot symbols, keno numbers, bingo numbers, etc...) are revealed in subsequent stages or steps of a game.” *Id.* at ¶[0035]. (emphasis added).

62. Scott thus equates stages with steps of a game. A POSITA would have understood and continued to understand that in the development and implementation of slot machines, these are sometimes referred as “states.” The device may be considered a “state machine” in that regulations require (e.g., upon power recovery after a power failure) that the game resume play at the same state it was in when it lost power.

63. Scott references its applicability with respect to games having “stages” or “steps” in multiple places. *See e.g.*, EX-1006, Abstract (“The value engine may determine the cash value for the indicia at various times or stages during a game.”), ¶[0033] (“In general, the value engine herein is configured to evaluate game outcomes at various stages of a game.”), ¶[0035] (“It is contemplated that the value engine may be used with any wagering game where game symbols or indicia (e.g., player card symbols, slot symbols, keno numbers, bingo numbers, etc...) are revealed in subsequent stages or steps of a game.”), ¶[0067] (“It is contemplated that the current cash value may be presented at stages of the game.”), ¶[0091] (“As stated, the determination of a current cash value for a player’s symbols may occur at various stages of a game.”).

64. In my opinion, Scott is directed to a game, utilizing indicia in determining outcome, that occurs in stages (or steps, or states) that may occur at various times.

65. Scott describes specific examples of stages of various games at which the value engine operates (e.g., in video poker at the stage after the initial deal and prior to the player drawing replacement cards). More specifically, Scott discloses that:

In the poker example of FIG. 3A, the value engine has evaluated the player's cards 304 in light of the paytable 308 and determined a current cash value for the cards of 30 credits. This amount is higher than the player's wager of 10 credits and so is enticing to the player. However, the current cash value of 30 credits is less than the 100 credits the player could win if he or she obtains the one card 304 needed to complete a royal flush.

Id. at ¶[0062].

66. Further, “[t]o illustrate, in FIG. 3A the player has four cards to a royal flush and thus is close to achieving the royal flush... In FIG. 3B, the player requires two cards to achieve a royal flush.” *Id.* at ¶[0065]. “Because of the lower odds that a winning outcome will be achieved, the value engine has determined a lower current cash value of 15 credits for this set of cards 304.” *Id.* at ¶[0066].

67. The “current cash value may be determined and presented **after each card or other game symbol is dealt to a player.**” *Id.* at ¶[0067] (emphasis added). For example, “**as each individual playing card or slot symbol is revealed,** a new current cash value may be calculated.” *Id.* (emphasis added). Alternatively, “current cash value may be **determined and presented at the end of each dealing stage of a game...** For example, in a video poker game, current cash value may be presented **after the initial deal, after one or more cards are held, or after one or more replacement cards are dealt.**” *Id.* (emphasis added).

68. Scott discloses that “[a]t a step 408, one or more game symbols or indicia may be presented...” to the player. *Id.* at ¶[0071]. For slots, “one or more slot symbols may be presented such as by spinning and stopping one or more reels.” *Id.* Further, “in a slot type game, **current cash value may be calculated for newly revealed slot symbols, held symbols, and/or replacement symbols...**” *Id.* at ¶[0068]. (emphasis added). In a hold and respin slot, “a player may attempt to obtain a winning outcome while retaining or holding one or more of his or her current slot symbols.” *Id.* This is similar to Scott’s video poker embodiment.

69. “FIG. 3C illustrates an embodiment where the player is close to achieving a 777 jackpot of 1000 credits.” *Id.* at ¶[0069]. The player is offered a current cash value at this stage based on this closeness.

70. Scott states that “in a keno type game, the value engine may generate a cash value for a player's keno card based on the numbers the player currently has marked.” *Id.* at ¶[0035]. The value engine “may reevaluate the keno card as additional numbers are marked to determine a cash value **as each keno number is revealed and/or as individual numbers are marked on the keno card.**” *Id.* (emphasis added). “In a keno embodiment, one or more numbers may be presented so that those that match the player’s keno card may be identified.” *Id.* at ¶[0071]. Further, “In a keno (or bingo) embodiment, **the numbers marked and their position relative to one another may be considered for purposes of determining current cash value.**” *Id.* at ¶[0073] (emphasis added). Alternatively, “the unmarked numbers needed to win the keno game and their positions may be considered.” *Id.*

71. Scott also teaches the use of triggers that align with the stages or steps of the game. More specifically, “...determination of a current cash value can be triggered by various events.” *Id.* at ¶[0036]. Scott states that “[t]his is advantageous in that some events that occur during a wagering game may change the odds or other characteristics of a game without changing the game symbols or indicia.” *Id.* Examples of these triggers, corresponding to step 408 in FIG.4, include each subsequent numbered keno ball (whether resulting in a hit for the player or not, since

each ball drawn affects the odds of winning), *Id.*, “newly presented cards” for video poker, *Id.* at ¶[0080], or “one or more new slot symbols” in a slot type game, *Id.*

72. The gaming machine includes a “value engine... configured to evaluate game outcomes at various stages of a game.” *Id.* at ¶[0033]. The value engine can then “determine a monetary or cash value for the current game outcome and present this value to a player.” *Id.* The value engine “can be used to enhance traditional games, such as to encourage new players to play or to entice existing players to continue playing.” *Id.* at ¶[0037]. The value engine “may evaluate game information to determine a current cash value.” *Id.* at ¶[0058]. For example, the value engine “may receive game information identifying the game symbols or indicia the player currently has, the odds the player will win (or lose), the amount the player has wagered, or various combinations thereof.” *Id.* “If the player accepts the current cash value for his or her game symbols... the current cash value may be paid to the player.” *Id.* at ¶[0076].

73. The current cash value is “based on the current situation of the game being played.” *Id.* at ¶[0065]. To illustrate this, Scott points to FIG. 3A where “the player has four cards to a royal flush and thus is close to achieving the royal flush.” *Id.* As such, “the value engine has determined a current cash value for this set of cards 304 as 30 credits.” *Id.*

74. Once the current cash value of 30 credits is determined, the value engine presents the value to the player. The player may then accept or decline the current cash value.

75. Alternatively, Scott contemplates that a player may sell his or her wager in a marketplace. *Id.* at ¶[0096]. To do so, a player “may engage a ‘sell’ button or the like to suspend the current game and solicit wagers or credits from other players who may purchase the symbols from the player.” *Id.* “The player’s symbols may then enter an electronic marketplace for sets of symbols.” *Id.* While the player’s symbols are in the marketplace, the current game is suspended, so “[t]he player may play a new game at this point, while awaiting the sale of the symbols ... [or] the player could simply wait for the symbols to be sold before playing again.” *Id.*

X. SCOTT FAILS TO MEET CERTAIN LIMITATIONS OF THE CHALLENGED CLAIMS

76. In my opinion, Scott, alone or in combination with knowledge of a POSITA, does not meet the limitations of the challenged claims.

A. Scott Does Not Meet Any of Elements 1[e]-1[g] and 16[i]-16[k].

77. As described above, the system claimed by the ’779 patent comprises a continuous real time data collection system, which collects data “continuously,” or “without interruption” or “at all times,” under the plain and ordinary meaning of the term.

78. More specifically, the claimed system continuously receives real time information regarding the wagering event and the wager itself, and continuously recalculates this information so “cash-in buy back may also operate during live play and offer continuous cash-in ability as soon as it is technically possible.” EX-1001, 23:5-7.

79. The continuous retrieval and recalculation of real time information is reflected in the claims of the ‘779 patent, for example in elements 1[e]-1[g] and 16[i]-16[k], which recite “continuously retriev[ing]... data in real time related to a progress of the wagering event,” “recalculat[ing]... the wager information in real time based on the continuously retrieved data,” and “continuously evaluat[ing]... the recalculated wager information.”

80. Scott’s system does not perform these operations. Rather, Scott discloses a gaming machine that operates in stages or steps. Figure 5 in Scott illustrates the determination of cash value in an exemplary value engine that occurs in step 428 of Figure 4 in which “a current cash value for the player’s current game symbols may be generated and presented by the value engine of the gaming machine.” EX-1006, ¶[0073]. Scott’s value engine retrieves and/or receives data on an as-needed basis when performing its function, rather than receiving it *continuously* and in real time as required by the challenged claims.

81. A POSITA would have understood and continued to understand the difference between as-needed and continuous data retrieval.

82. As-needed, or on-demand, data retrieval refers to a process where data are retrieved only when requested (e.g., by the user or a process) at discrete points in time or function. This type of retrieval is common in applications where data are not needed continuously. Examples of as-needed or on-demand data retrieval may include accessing a specific record in a database, requesting a file from a server, reading the next random number in a data file or refreshing a particular page on a website when directed by the user.

83. Continuous data retrieval, on the other hand, refers to a process where data are retrieved continuously and typically in real-time. This type of retrieval is common in applications where data are needed constantly (or frequently) or where the data are continually changing. Examples of continuous data retrieval may include monitoring systems that collect and display real-time data, such as stock prices or weather conditions, or applications that require continuous data streaming, such as may be utilized in video or audio streaming services.

84. In summary, on-demand data retrieval and/or receipt is initiated by the user (or a process) and occurs only when needed, while continuous data retrieval

and/or receipt is ongoing and, once initiated, typically occurs automatically and substantially in real-time.

85. Scott's disclosure indicates that a "current cash value" is determined in an "on-demand" rather than "continuous" fashion. Scott discloses that "the current cash value may be presented at stages of the game." *Id.* at ¶[0067]. "For example, current cash value may be determined and presented," through data retrieval and/or receipt, "after each card or other game symbol is dealt to a player." *Id.* Scott discloses that the determination and presentation "may occur in real time or in substantially real time," but this is once the data for the newly revealed indicium has been retrieved/received. For Scott then goes on to state that "[f]or example, as each individual playing card or slot symbol is revealed, a new current cash value may be calculated." *Id.* In short, "the value engine may be used with any wagering game where game symbols or indicia (e.g., player card symbols, slot symbols, keno numbers, bingo numbers, etc...) are revealed in subsequent stages or steps of a game." *Id.* at ¶[0035].

86. In other words, the current cash value in Scott is determined and presented *intermittently* (i.e., at specified steps such as after each of the game indicia is revealed) rather than *continuously* (i.e., at all times).

87. Moreover, nothing in Scott's written description suggests that Scott's data retrieval is continuous.

88. Scott discloses that "the process of presenting current cash value for a player's game symbols may continue with newly presented game symbols until the game is over ... or until the player accepts a current cash value for his or her set of symbols." *Id.* at ¶[0081]. Per Scott Figure 4, to reach the step of newly presented game symbols (not originally presented game symbols), the player must have declined the previous cash value. After the step of newly presented game symbols has occurred, the game reaching this point and not being over serves as a type of trigger for the value engine to anew calculate and present an updated current cash value.

89. Stated another way, just because Scott's cash value process "may continue" until it ends does not mean that the entire process, including the data retrieval and/or receipt, evaluation, etc. is "continuous," particularly where Scott's disclosure shows that data retrieval and/or receipt is conducted on an "as needed" basis as explained above.

90. Further, simply because Scott discloses that the current cash value may be "dynamic" does not counsel a different result because it is still "based on the current situation of the game being played." *Id.* at ¶[0065]. This is illustrated in FIG.

3A of Scott, where “the player has four cards to a royal flush and thus is close to achieving the royal flush.” *Id.* In one embodiment, once the current cash value of 30 credits is determined and displayed to the user, a response from the user (e.g., either accepting or declining the current cash value) is required. *Id.* ¶[0064] (“the player may be required to accept or decline the current cash value before the game will continue.”) In another embodiment, “the value engine will present current cash values and the game may proceed according to its rules, unless the player engages an ‘accept’ button 108 D or the like to indicate that he or she wishes to take the current cash value offered by the value engine.” *Id.* However, in either embodiment, the value engine would not, and need not, recalculate the current cash value until another trigger occurs, as described above.

91. A POSITA would have understood and continue to understand that a “dynamic” gaming machine display as disclosed in Scott is not necessarily continuous but merely changes in accord with the current cash value as determined at discrete stages. For example, slot paytables which adjust “on the fly” (that is, in real-time) to reflect pays for the currently selected bet level are said to be dynamic. Dynamic is not the same as continuous. Here, as discussed previously, Scott’s current cash value is updated dynamically but only when triggered at defined *steps*.

92. Scott also notes that, “[i]n a similar vein,” if a player decides to sell his or her symbols, “the player may engage a ‘sell’ button or the like *to suspend the current game* and solicit wagers or credits from other players.” *Id.* at ¶[0096]. During this suspended play, Scott’s gaming machine does not: (1) continuously retrieve in real time any additional data related to a progress of the wagering event (limitations 1[e], 16[i]), (2) recalculate the wager information in real time based on the continuously retrieved data (limitations 1[f], 16[j]), or (3) continuously evaluate the recalculated wager information (limitations 1[g], 16[k]).

93. Contrary to the Petition’s assertion that “FIGS. 4 and 5 of Scott further demonstrate that the data related to the progress of the wagering event is continuously retrieved in real time,” these figures actually illustrate the intermittent and on-demand operation of Scott’s gaming machine. Petition, 39.

94. FIG. 4 is “a flow diagram illustrating operation of an exemplary gaming machine having the value engine.” EX-1006, ¶[0070]. FIG. 5 is “a flow diagram illustrating how current cash value may be determined by an exemplary value engine.” *Id.* at ¶[0082].

95. Scott discloses that at step 428, “a current cash value for the player’s current game symbols may be generated and presented by the value engine of the gaming machine.” *Id.* at ¶[0073]. The current cash value is determined after “one or

more game symbols or indicia belonging to a player” and “additional information” including “the amount wagered, cards or symbols remaining to be dealt, credits remaining, and other information related to a wagering game” is received by the value engine in steps 504 and 508. *Id.* at ¶¶[0082]-[0083].

96. However, just because Scott discloses that the determination and presentation of the current cash value “may occur in real time or in substantially real time” as the one or more game symbols or indicia and the addition information are received by the value engine does not mean that this process is occurring *continuously* as Petitioner claims. EX-1006 ¶[0067]; *see* Petition, 41-42.

97. As shown in FIG. 4, the system presents the user’s game symbol(s) at step 408 and then determines whether the game is over at step 412. If it is determined the game is not over, the system presents a current cash value to the user at step 428. Even if this presentation occurs “in real time or in substantially real time,” as alleged by the Petitioner, the current cash value is only “determined” after data retrieval and/or receipt “***after each card or other game symbol is dealt to a player***” and thus the determination function either runs “as-needed” or relies on “as-needed” data as input and would not run continuously at all times. EX-1006, ¶[0067] (emphasis added).

98. Accordingly, while Scott's gaming machine may, at discrete points during the event, determine and present the current cash value, but once that current cash value is presented to the user at step 428, the machine has accomplished all it can do and, in the vernacular, "sits idling" until a player either accepts or rejects the current cash value at step 432 (which may be explicit or implicit), and the game advances to the next state (e.g., game over, new indicia, etc.). If, and only if, the user rejects the current cash value does the process return to step 408 and start over again. In other words, the game information data collection stops — even if momentarily while awaiting player input or the next game step — when an offer is presented.

99. A POSITA would have understood and continue to understand that any break in retrieving data related to a progress of the wagering event is *not* continuous retrieval as claimed.

100. Thus, because the system of Scott does not "continuously retrieve... data in real time related to a progress of the wagering event," it cannot "recalculate... the wager information in real time based on the continuously retrieved data," or "continuously evaluate... the recalculated wager information."

101. Petitioner stretches the meaning of Scott and fails to adequately allege that any of elements 1[e]-1[g] and 16[i]-16[k] of the challenged claims are met.

B. Scott, Alone or In View of the General and Common Knowledge of a POSITA, Does Not Meet Any of Elements 1[d], 16[c], 16[h], or the “Plurality” Elements of Claim 16.

102. Regarding “storing the wager in a record within a database” of elements 1[d], 16[c], 16[h], Petitioner argues that Scott discloses that wager information may be stored “in a memory device.” Petition, 36. However, Scott’s disclosure makes no mention of a “database,” let alone storing wager information *in a record* within a database.

103. Petitioner attempts to show that Scott stores wager information in a record by pointing to Scott’s ¶[0047] that discloses a “player tracking account” that performs “player tracking.” Petition, 37. But all ¶[0047] says is that “[t]he player might also elect to cash out by having a ticket or other media dispensed, such as via a printer, or electronically such as by transferring credits or currency to the player’s bank account or player tracking account.” EX-1006, ¶[0047]. In my experience, player tracking systems store a player’s wagering information (primarily for “comp” purposes in casino slot clubs) as may be delivered from the gaming device to the player tracking system, e.g., via a slot machine interface board (“SMIB”). However, this game information flow is one-way, and such data are not thereafter accessible by the gaming device from a player tracking system.

104. Furthermore, Scott discloses that the value engine may be run on the same processor running the slot machine. *Id.* at ¶[0050]. In such an embodiment, there is no need for the wager information to be stored in or retrieved from a database, as it may be readily available locally in the slot machine's RAM as the game runs. Each example described in Scott appears to be that of a single player wagering upon a game. Accordingly, except possibly for a “substantial marketplace for non-final game symbols” of players that are “electronically connected” (without further disclosure of how this is accomplished) of ¶[0096], **there does not appear to be a need in Scott for the storing of a plurality of wagers in a record of a database.** In any event, Scott fails to disclose that wager information is stored *in a record in a database* as claimed.

105. The stored wager information is linked to multiple other claim limitations, as the claims require, for example, that the system “recalculate” and “continuously evaluate” the wager information in connection with the status of the wagering event to “generate” a cash out option.

106. Scott also fails to meet any of the elements of claim 16 that require a “plurality” of features. This includes: (1) “a plurality of input devices” in elements 16[d], 16[e], 16[g]; (2) “a plurality of wagers” in elements 16[g], 16[h]; and (3) “a

plurality of participants” of the plurality of input devices in elements 16[g], 16[h], 16[i].

107. Petitioner cites to a single paragraph in Scott, ¶[0096], which discloses “a number of players electronically connected,” to support its allegations that Scott discloses a “plurality” of input devices, participants, and wagers as claimed. Petition, 77-78. However, ¶[0096] merely states that a player wishing to sell his or symbols to another player “may engage a ‘sell’ button or the like to *suspend* the current game and solicit wagers or credits from other players.” EX-1006, ¶[0096]. In other words, a player (the current bettor of the wagering event) at the originating device is wishing to sell his or her symbols to another player (who is not a current bettor of the wagering event) while the wagering event itself has initiated and is *suspended* mid-game.

108. The claims of the ’779 patent recite a system that includes a system controller comprising a trading engine module and a plurality of input devices. In claim 16, the system controller is configured to, in part, “receive, by the trading engine module, a plurality of wagers on the wagering event from the plurality of input devices.” EX-1001, 54:11-13. The plurality of wagers are “input by a plurality of participants.” *Id.* at 54:14-15. As such, the plurality of wagers by the plurality of participants is on **the** wagering event. In other words, the claims of the ’779 patent

recite a plurality (greater than one) of wagers by a plurality (greater than one) of participants upon the wagering event.

109. It is not clear to me how Scott would be scaled to a plurality of wagers by a plurality of participants upon reel-spinning or video poker slot machines. It is not enough to simply suggest a plurality of standalone slot machines each offering a version of the game. Each slot machine would have its own random number generator (“RNG”), and therefore the plurality of wagers would not be on the same wagering event. Instead, each player on each device would be wagering on a separate wagering event respective to the particular device.

110. Further, it would not be practical if a server-based (thin client) approach was used to implement the teachings of Scott and a central server supplied **the same** wagering event to each such slot machine. Player collusion and synchronization issues would arise. For example, it would be impractical to wait a set period of time for multiple players to place wagers upon, for example, the next spin of the reels or deal of the cards, or pause the same length of time before drawing new video poker cards, to avoid players “knowing” what will take place by observing other players before having to make their own decisions.

111. A POSITA would have also understood and continue to understand that a wagering event, wagered upon by a plurality of participants, that can be suspended

by a single participant is operatively impractical. It would be undesirable and impractical to allow, in a game wagered upon by a plurality of participants, a single bettor to unilaterally suspend and/or stop play for all, as this would decrease enjoyment for the remaining participants who did not wish to suspend the game. Further, suspended play cannot meet the elements of the claims for other reasons. With respect to the plurality of wagers, suspended play has no reason to “*continuously* retrieve data in real time” or “*continuously*” recalculate the wager information and evaluate the recalculated wager information as required by claim 16, since nothing is changing.

112. Moreover, far from a plurality of input devices, Scott consistently refers to a singular gaming machine throughout the entire specification. *See e.g.*, EX-1006, ¶[0009].

113. While multiplayer games are common, many games exist that are solely played as single player games, especially in the slot machine environment. Indeed, Scott’s specification and figures show that Scott is primarily directed to slot machines, which are traditionally only single player games. Although traditional games of blackjack, poker, keno, and roulette may be multiplayer in a live, physical environment, video versions of these games are typically single player, with each player wagering upon a separate wagering event. The same also may be applicable

to individual slot wagers on a central determination game. To the extent multiple participants (e.g., in a slot environment) could wager on a single wagering event under the teachings of Scott, the operational difficulties described above would apply, rendering this type of arrangement impractical. A POSITA would not have found it obvious to add multiple players to a single slot machine wagering event without operationally altering the gameplay.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

May 15, 2023

Date

A handwritten signature in black ink, appearing to read "Olaf Vancura", written over a horizontal line.

Olaf Vancura, Ph.D