

Appendix A
Infringement of U.S. Patent No. 11,393,279 (“279 Patent”) By Accused Products¹
Milestone Entertainment, LLC’s Infringement Contentions

Milestone Entertainment, LLC (“Milestone”) contends that Activision Blizzard, Inc. (“Activision”) infringes at least the following claims of the U.S. Patent No. 11,393,279: 1, 3-9, 13, 17, 18, 23, 25, 26, 28, 29.

Activision directly infringes at least claims 1, 3-9, 13, 17, 18, 23, 25, 26, 28, 29 under 35 U.S.C. § 271(a), as set forth in Milestone’s Infringement Contentions.

Activision induces direct infringement of at least claims 1, 3-9, 13, 17, 18, 23, 25, 26, 28, 29 under 35 U.S.C. § 271(b), as set forth in Milestone’s Infringement Contentions.

The following claim chart containing exemplary disclosures is based on the information presently available to Milestone. Milestone’s investigation of the case continues, and Milestone reserves the right to supplement this claim chart as appropriate.

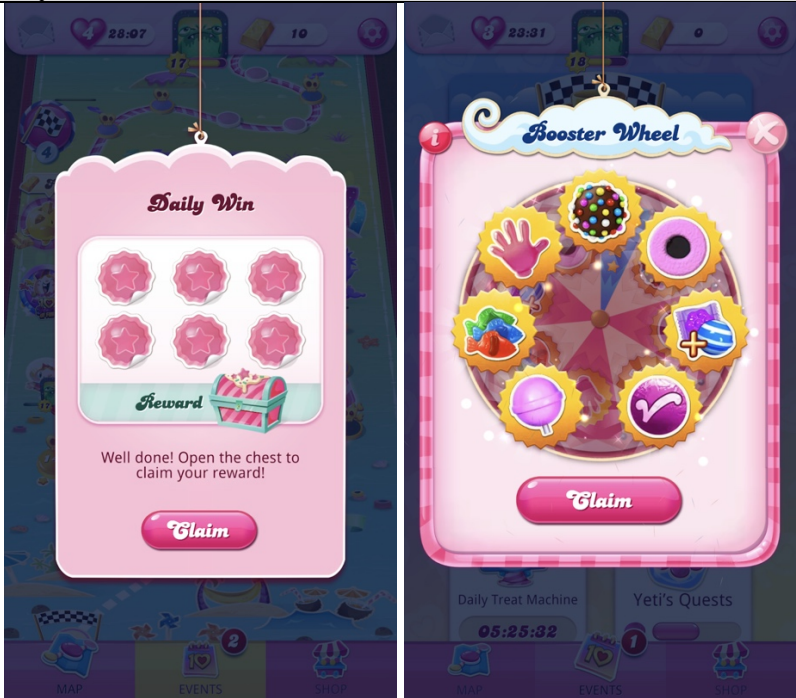
¹ The “Accused Products are Defendant’s “Candy Crush” casual games, including “Candy Crush Saga,” “Candy Crush Friends Saga,” “Candy Crush Jelly Saga,” and “Candy Crush Soda Saga”. Milestone’s contentions concerning Candy Crush Saga are representative of infringement by all Candy Crush Accused Products, because each utilizes variable parameters to modify game odds or prizing so as to achieve a set of mandated parameters, and utilizes virtual currencies in a manner not different from Candy Crush Saga for purposes of infringement.

Claim Language	Infringement By Accused Products
<p>1. A system for dynamically varying game play parameters in an electronic environment, over a communications network between multiple users of the system at multiple locations and a remote location including a play engine, the users utilizing communication devices, the communication devices having input capability and generate an output corresponding to the input, comprising:</p>	<p>To the extent the preamble is limiting, the Accused Products comprise a system for dynamically varying game play parameters in an electronic environment. Specifically, as described in more detail in the limitations below, Candy Crush can alter either the prizing structure of a game, or the structure of the game itself, as triggered by a comparison of prior game play information with some predefined criteria, such as frequency of game play, amount of time spent playing the game, or amount of money spent on in-game purchases.</p> <p>Candy Crush is a variation on a “match 3” game, in which the player advances through a series of game boards by swiping on the screen to match similar candies to cause them to be removed from the game board. In standard game play, players advance to the next board by either clearing a set number of pieces on the board, or by collecting a set number of board pieces through removing candies, all in a finite number of moves. Various “special items” such as wrapped candies, striped candies, and the like can be obtained, which aid the player in advancing to the next game board by removing more pieces from the board than themselves, <i>e.g.</i>, by exploding (wrapped candies), or removing all pieces in a vertical or horizontal row (striped candies).</p>

Claim Language	Infringement By Accused Products
	<div data-bbox="1071 228 1554 922" data-label="Image"> <p>The image is a screenshot of a mobile game interface. At the top, there is a score of 315, a heart icon with the number 1, and a progress bar with three stars. Below this is a level indicator showing a blue square and the number 2. The main area is a match-3 board filled with various colored gems: blue, orange, green, and purple. Some gems have special effects like stars or fire. At the bottom, there is a row of icons representing different game actions or power-ups, including a gear, a hand, a bomb, and a character. The background is a colorful, cartoonish landscape with hills and a sky.</p> </div> <p>Clearing the game board permits the player to advance to the next level; failure to clear the board results in loss of a “heart” and requires replaying the level. In normal game play, when the number of hearts falls to zero, <i>i.e.</i>, following a string of lost games, the player can no longer play the game for a period of time (typically 25 minutes) until one heart is restored. Putting the game down for an extended period restores the full complement of 5 hearts.</p>

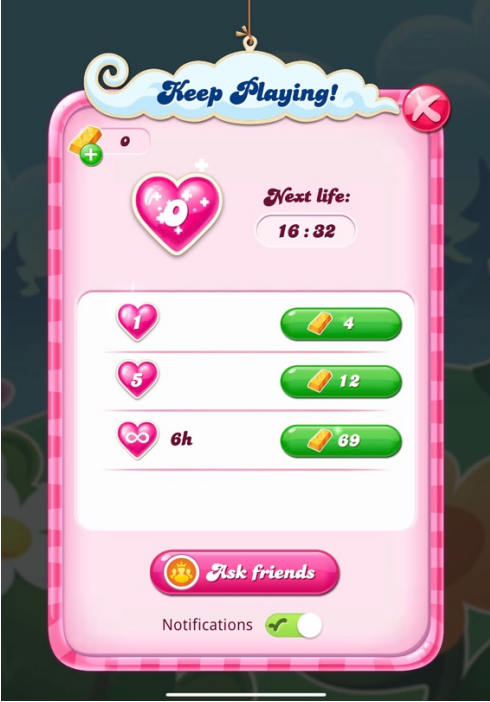
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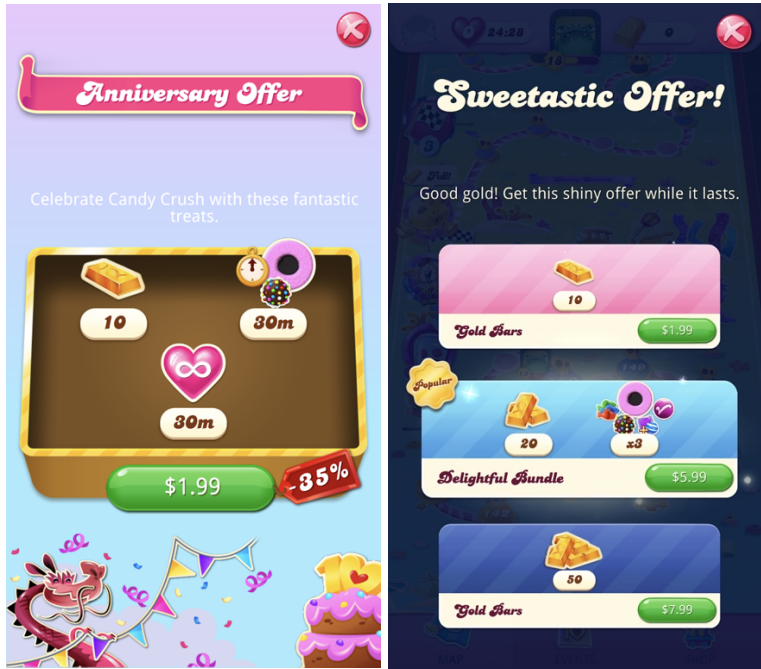
Claim Language	Infringement By Accused Products
	<div data-bbox="1087 228 1549 889" data-label="Image"> </div> <p data-bbox="751 927 1892 1036">Candy Crush offers numerous mini-games and contests to the player as they advance through levels, including races, leader boards, and mystery boxes, which offer lower-value prizes like special items.</p>

Claim Language	Infringement By Accused Products
	

Claim Language	Infringement By Accused Products
	<div data-bbox="886 228 1755 907">  </div> <p data-bbox="751 984 1860 1127">Candy Crush is free to play, but not free to win. The game offers numerous in-game purchases which increase the likelihood of success in clearing a level and advancing to the next one, including special items, additional moves on the game board, additional lives, and “gold bars” which function as virtual currency in the game.</p>

Claim Language	Infringement By Accused Products
	<p data-bbox="1045 235 1598 267"><i>Purchase of additional game board moves:</i></p>  <p>The screenshot shows a game interface with a dark blue background. At the top, there's a status bar with '330 ♥ 2' and a progress bar. Below that, a row of colorful game pieces (blue, orange, green, purple) is visible. A central pop-up window displays the text 'So close!' in a stylized font, followed by a large '+5' in a yellow box, and 'Play on' with a green button labeled '10'. Below the pop-up, a string of colorful beads (blue, orange, green, purple) is shown, with numbers 1, 4, 9, 16, and 25. At the bottom, there are several small icons of game pieces and a message: 'Don't give up, you'll lose your win streak!'.</p>

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	<p data-bbox="1136 235 1507 267"><i>Purchase of additional lives:</i></p>  <p data-bbox="1234 378 1413 410"><i>Keep Playing!</i></p> <p data-bbox="1213 483 1297 557">Next life: 16 : 32</p> <table border="1" data-bbox="1157 597 1476 768"> <tbody> <tr> <td>1</td> <td>4</td> </tr> <tr> <td>5</td> <td>12</td> </tr> <tr> <td>∞ 6h</td> <td>69</td> </tr> </tbody> </table> <p data-bbox="1234 857 1392 889">Ask friends</p> <p data-bbox="1234 914 1392 938">Notifications ☒</p>	1	4	5	12	∞ 6h	69
1	4						
5	12						
∞ 6h	69						

Claim Language	Infringement By Accused Products
	<p data-bbox="1150 235 1493 267"><i>Purchase of special items:</i></p> <div data-bbox="942 337 1698 1002">  </div> <p data-bbox="751 1040 1892 1256">The game's overarching goal is to induce players to make such in-game purchases. Candy Crush is aimed at maintaining player engagement so that it can present players consistent, repeated, and attractive opportunities to make in-game purchases. Activision-Blizzard tracks numerous key metrics related to that goal, including the number of monthly average users (MAUs, defined by Activision-Blizzard as the number of players accessing the game within the last 30 days), and in-game net bookings.</p> <p data-bbox="751 1295 1667 1326">MAU (monthly average users): defined as accessing game w/in 30 days</p>

Claim Language	Infringement By Accused Products
	<div data-bbox="884 233 1766 380"> <p>Operating Metrics</p> <p>For the year ended December 31, 2021, Activision Blizzard's net bookings^B were \$8.35 billion, as compared with \$8.42 billion for 2020. In-game net bookings^C were \$5.10 billion, as compared with \$4.85 billion for 2020.</p> <p>For the quarter ended December 31, 2021, Activision Blizzard's net bookings^B were \$2.49 billion, as compared with \$3.05 billion for the fourth quarter of 2020. In-game net bookings^C were \$1.24 billion, as compared with \$1.32 billion for the fourth quarter of 2020.</p> <p>For the quarter ended December 31, 2021, overall Activision Blizzard Monthly Active Users (MAUs)^D were 371 million.</p> </div> <p>MI00002564-MI00002625 (https://investor.activision.com/news-releases/news-release-details/activision-blizzard-announces-fourth-quarter-and-2021-financial) at MI00002567.</p> <p>In-game net bookings</p> <p><i>Net bookings and in-game net bookings</i></p> <p>We monitor net bookings and in-game net bookings as key operating metrics in evaluating the performance of our business because they enable an analysis of performance based on the timing of actual transactions with our customers and provide a more timely indication of trends in our operating results. Net bookings is the net amount of products and services sold digitally or sold-in physically in the period and includes license fees, merchandise, and publisher incentives, among others. Net bookings is equal to net revenues excluding the impact from deferrals. In-game net bookings primarily includes the net amount of microtransactions and downloadable content sold during the period and is equal to in-game net revenues excluding the impact from deferrals.</p> <p>MI00002424-MI00002563 (2022 Activision Blizzard Annual Report) at MI00002467.</p> <p>As has been well-documented, the game design of Candy Crush achieves these goals by seeking to create a “compulsion loop” that keeps players playing the game, and spending money on in-game purchases. The primary components of this loop are: steady progression through levels; repeated “near wins” (losses that indicate that the player was apparently very close to winning); “jackpot” moments where a win occurs despite the apparent odds; and time-outs, where the player is forced to put the game down despite the apparent near-completion of a level.</p>

Claim Language	Infringement By Accused Products
	<p data-bbox="919 240 1661 293">This is no niche market; no group seems immune to its charms. So what did Candy Crush get so right?</p> <p data-bbox="919 329 1709 483">Its designers appear to have hit upon a formula that's beginning to emerge from the academic discipline of game studies as the "ludic loop". Ludic loops are tight, pleasurable feedback loops that stimulate repetitive, if not compulsive, behaviour. "It definitely takes us back to behaviourist psychology," says Natasha Dow Schüll at the Massachusetts Institute of Technology, whose research on games anthropology led her to study this phenomenon in popular gaming.</p> <p data-bbox="919 519 1703 673">Her formulation has come largely from her studies of slot machines and their allure to addicts. Slot machines perfectly illustrate the concept of the ludic loop. They lure people into short cycles of repeated actions using tricks familiar to behavioural psychologists: you do something, the machine responds with lights, jingling sounds and occasionally cash rewards. You do it again. And again, and again.</p> <p data-bbox="919 709 1717 885">Our affinity for this kind of activity is typically ascribed to dopamine, a brain signalling chemical that has been the source of much confusion about the links between addiction, reward, gambling and gaming. Dopamine was long thought to be a simple reward or pleasure chemical, but the last decade has brought evidence that its action in the brain is in fact much more subtle. It is linked to the compulsion to repeat an activity, whether or not that activity is pleasurable (Behavioral Neuroscience, vol 119, p 5).</p> <p data-bbox="751 893 1591 963">MI00002626-MI00002632 (http://scripts.mit.edu/~schull/nds/wp-content/uploads/2014/06/new-scientist.pdf) at MI00002628.</p> <p data-bbox="751 1003 1896 1328">To these ends, Candy Crush's game play is not random. Instead, the game dynamically varies the structure of the game and its prizing, and on information and belief, does so on the basis of tracked data about user play, such as the amount or frequency of time played, the number of losses over a period, the time elapsed since last play, and/or amount or frequency of in-game purchases. A typical game structure alteration in Candy Crush is that when a potential or actual decline in the frequency of play is detected, such as when a game level has proven too challenging for the player and caused repeated losses. In such an event, on information and belief, the game structure alters to enable the player to pass the level.</p>

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	<p>So what's Schüll's recipe for a ludic loop? The first ingredient is engineered randomness. Aaron Steed, an independent game developer who has studied Candy Crush closely, thinks that if the algorithm that decides what shapes to drop were truly random we would see more matches than we do. That suggests the game's "randomness" has been fine-tuned to a sweet spot between pure chance and the illusion of control. "You think surely because it's random there'll be something I can solve there. It's what makes gambling games popular in general."</p> <p>Then there's the jackpot moment. The most satisfying thing that can happen in Candy Crush is when you think you're matching up a single row of sweets, but trigger an unexpected cascade of further matches. "It makes the game freak out," says Jamie Madigan, a psychologist based in St Louis, Missouri, who specialises in games.</p> <p>MI00002626-MI00002632 (http://scripts.mit.edu/~schull/nds/wp-content/uploads/2014/06/new-scientist.pdf) at MI00002629.</p> <p>For example, Candy Crush alters the composition of the opening and in-play game board, and alters the likelihood of obtaining special items during game play, in order to increase the chances of completing a level in the game.</p>

Claim Language	Infringement By Accused Products
	<div data-bbox="1060 228 1564 950" data-label="Image"> <p>The image is a screenshot of the Candy Crush game interface. At the top, it shows a score of 327, 2 hearts, and a level number 14. Below the score, there are icons for a camera, a star, and a red square with the number 13. The main part of the screen is a grid of colorful candies (purple, green, blue, red, orange, pink) arranged in a pattern. At the bottom, there are icons for a hand, a star, and a red square with the number 10.</p> </div> <p>For example, Candy Crush alters the likelihood of obtaining more powerful special items in mini-games, and varies the frequency of mini-games and bonuses, in order to increase the chances of completing a level in the game.</p>

Claim Language	Infringement By Accused Products
	<div data-bbox="1102 228 1543 1015" data-label="Image"> </div> <p data-bbox="751 1052 1864 1193">For example, Candy Crush initially offers players, upon a loss, the ability to either purchase additional moves to complete the level, or watch an advertisement to obtain additional moves. Following any in-game purchase, the advertising option is removed, and the player's only option is to pay to keep playing.</p>

Claim Language	Infringement By Accused Products
	<p data-bbox="1003 235 1644 267"><i>Prior to first purchase. Following first purchase</i></p>  <p data-bbox="751 841 1892 911">For example, Candy Crush offers players discounted purchases of special items for “hard levels” based on previous player experience.</p>

Claim Language	Infringement By Accused Products
	
1(a) a processor,	This limitation is satisfied by the Accused Products. For example, when installed and operating on a computing device, such as an Android or iOS mobile device or tablet, the Accused Products include a processor and memory.
1(a)(i) memory to:	This limitation is satisfied by the Accused Products. For example, when installed and operating on a computing device, such as an Android or iOS mobile device or tablet, the Accused Products include a processor and memory.
1(a)(ii) store mandated and programmable variable parameters for use in the course of game play,	This limitation is satisfied by the Accused Products. For example, when installed and operating on a computing device, such as an Android or iOS mobile device or tablet, the Accused Products include a processor and memory.

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	<p>Candy Crush stores mandated parameters for use in game play that represent threshold game play objectives the game is desired to achieve, including parameters relating to the frequency and amount of game play per player, and the frequency and amount of in-game purchases per player.</p> <p>For example, Candy Crush tracks the number of monthly average users (MAUs, defined by Activision-Blizzard as the number of players accessing the game within the last 30 days), and in-game net bookings.</p> <p>MAU (monthly average users): defined as accessing game w/in 30 days</p> <div data-bbox="884 634 1766 781"> <p>Operating Metrics</p> <p>For the year ended December 31, 2021, Activision Blizzard's net bookings⁹ were \$8.35 billion, as compared with \$8.42 billion for 2020. In-game net bookings^c were \$5.10 billion, as compared with \$4.85 billion for 2020.</p> <p>For the quarter ended December 31, 2021, Activision Blizzard's net bookings⁹ were \$2.49 billion, as compared with \$3.05 billion for the fourth quarter of 2020. In-game net bookings^c were \$1.24 billion, as compared with \$1.32 billion for the fourth quarter of 2020.</p> <p>For the quarter ended December 31, 2021, overall Activision Blizzard Monthly Active Users (MAUs)⁹ were 371 million.</p> </div> <p>MI00002564-MI00002625 (https://investor.activision.com/news-releases/news-release-details/activision-blizzard-announces-fourth-quarter-and-2021-financial) at MI00002567.</p> <p>In-game net bookings</p> <p><i>Net bookings and in-game net bookings</i></p> <p>We monitor net bookings and in-game net bookings as key operating metrics in evaluating the performance of our business because they enable an analysis of performance based on the timing of actual transactions with our customers and provide a more timely indication of trends in our operating results. Net bookings is the net amount of products and services sold digitally or sold-in physically in the period and includes license fees, merchandise, and publisher incentives, among others. Net bookings is equal to net revenues excluding the impact from deferrals. In-game net bookings primarily includes the net amount of microtransactions and downloadable content sold during the period and is equal to in-game net revenues excluding the impact from deferrals.</p> <p>MI00002424-MI00002563 (2022 Activision Blizzard Annual Report) at MI00002467.</p> <p>Candy Crush also tracks win rates for each level, and in-game purchases for each level.</p>

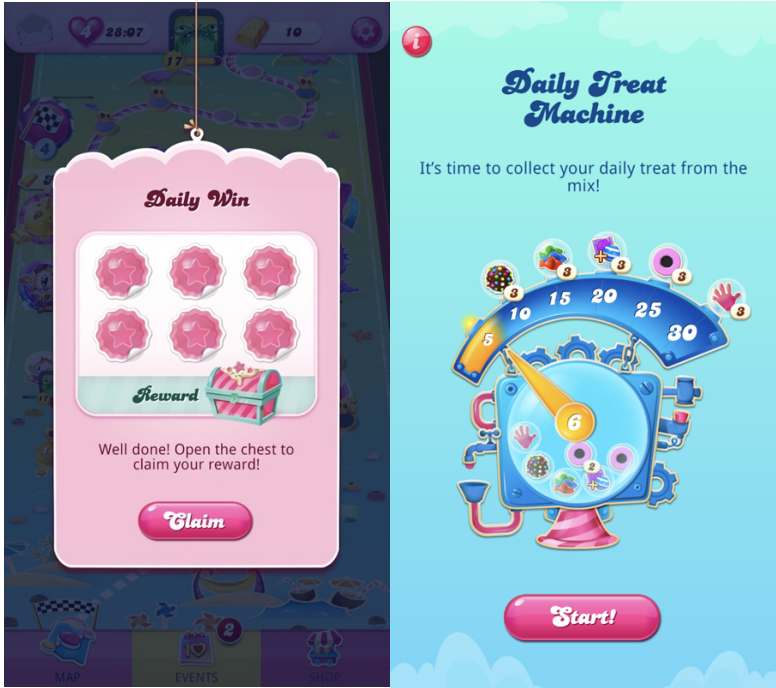
Claim Language	Infringement By Accused Products
	<div data-bbox="1089 228 1535 1024" data-label="Image"> </div> <p data-bbox="751 1062 1892 1279">On information and belief, Candy Crush tracks numerous aspects of game play for use as mandated parameters, or thresholds the game seeks to achieve, such as the frequency of play, the total amount of time played in a given period, the amount of time since the last play, the win/loss rate, the number of plays on a given level since the last win, the rate of progression through game levels, the number of in-game purchases, and the frequency of in-game purchase.</p> <p data-bbox="751 1320 1892 1424">In addition, Candy Crush stores alterable variable parameters defining both the game play and prizing structure. These parameters define, <i>e.g.</i>, how the game is played, the likelihood of a win, and the prizes awarded for a defined win. On information and belief,</p>

Claim Language	Infringement By Accused Products
	<p>these parameters are “variable” in that they may be programmatically altered. On information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met.</p> <p>For example, Candy Crush alters the composition of the opening and in-play game board, and alters the likelihood of obtaining special items during game play, in order to increase the chances of completing a level in the game.</p>  <p>For example, Candy Crush alters the likelihood of obtaining more powerful special items in mini-games, and varies the frequency of mini-games and bonuses, in order to increase the chances of completing a level in the game.</p>

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	<div data-bbox="877 264 1312 1044" data-label="Image"> </div> <div data-bbox="1320 274 1755 1044" data-label="Image"> </div> <p data-bbox="751 1084 1892 1230">For example, Candy Crush initially offers players, upon a loss, the ability to either purchase additional moves to complete the level, or watch an advertisement to obtain additional moves. Following any in-game purchase, the advertising option is removed, and the player's only option is to pay to keep playing.</p>

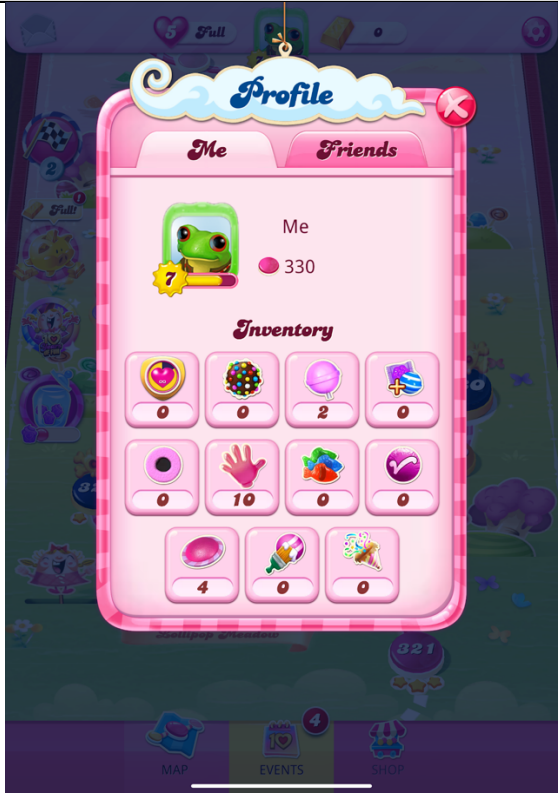
Claim Language	Infringement By Accused Products
	<p data-bbox="997 267 1648 305"><i>Prior to first purchase. Following first purchase.</i></p>  <p data-bbox="751 914 1892 984">For example, Candy Crush alters the pricing structure by offering players discounted purchases of special items for “hard levels” based on previous player experience.</p>

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<p>1(b) wherein, the mandated parameters represent parameters which must be achieved by the system as a whole, and the programmable variable parameters represent parameters characterizing at least one of:</p> <p>a game structure and a prizing structure,</p>	<p>This limitation is satisfied by the Accused Products. <i>See</i> Limitation 1(a).</p>
<p>1(c) record game play information regarding particular game play events, and</p>	<p>This limitation is satisfied by the Accused Products. Candy Crush records game play information regarding game play events. For example, Candy Crush game servers keep track of player progress through the levels, prior purchases, and frequency of play.</p>

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	 <p>The left screenshot displays a 'Daily Win' pop-up window. It features six pink star icons arranged in a 2x3 grid. Below the stars is a 'Reward' chest icon and the text 'Well done! Open the chest to claim your reward!'. A pink 'Claim' button is at the bottom. The background shows a game map with a heart icon and a timer '28:07'.</p> <p>The right screenshot displays the 'Daily Treat Machine' interface. It features a large blue wheel with numbers 5, 10, 15, 20, 25, and 30. A yellow arrow points to the number 6. Above the wheel is a red '1' icon and the text 'Daily Treat Machine'. Below the wheel is a pink 'Start!' button. The background is a light blue sky with clouds.</p>

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	<div data-bbox="877 228 1766 922">  </div> <p data-bbox="751 964 1892 1143">On information and belief, Candy Crush tracks numerous additional aspects of game play, such as the frequency of play, the total amount of time played in a given period, the amount of time since the last play, the win/loss rate, the number of plays on a given level since the last win, the rate of progression through game levels, the number of in-game purchases, and the frequency of in-game purchase.</p>

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	 <p>The screenshot displays a player's profile in Candy Crush. At the top, the player's name 'Player' is shown next to a green monster icon. Below the name, the player has 160 points and is located in Egypt. A 'Request sent' button is visible. The profile is divided into two sections: 'Last 7 days' and 'General stats'. The 'Last 7 days' section shows 12 levels won, 0 lives sent, and 0 color bombs combined. The 'General stats' section shows a current login streak of 3, a current win streak of 0, and a last race of 5.</p>
<p>1(d) store player's club information, including at least (i) player identification information, and (ii) the amount of player points,</p>	<p>This limitation is satisfied by the Accused Products. Candy Crush stores information about registered players, including their identity, the number of player points accrued, including gold bars, the number of bonus items, and the number of levels progressed through.</p>

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<p>1(e) a play engine coupled to the memory and operating with the processor to:</p>	<p>This limitation is satisfied by the Accused Products. On information and belief, Candy Crush each includes client and server-side components that implement the functions below.</p>
<p>1(f) implement a first set of programmable variable parameters to provide a first game play experience,</p>	<p>This limitation is satisfied by the Accused Products. For example, Candy Crush implements a base game play experience at the initiation of a given game with a particular game structure and prizing structure.</p>

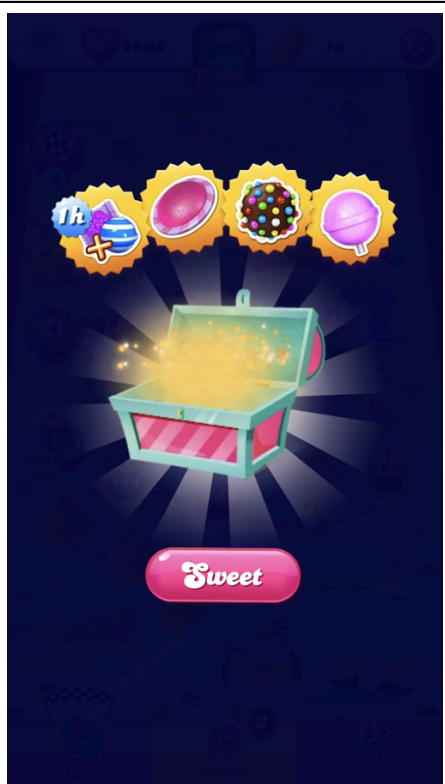
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<p>1(g) modify one or more programmable variable parameters to provide a second set of programmable variable parameters providing a second game play experience, wherein the first game play experience differs from the second game play experience, and</p>	<p>This limitation is satisfied by the Accused Products. As described above, Candy Crush can modify the game structure or the prizing structure to provide a different game play experience from the base game. On information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met.</p> <p>On information and belief, Candy Crush tracks numerous aspects of game play for use as mandated parameters, or thresholds the game seeks to achieve, such as the frequency of play, the total amount of time played in a given period, the amount of time since the last play, the win/loss rate, the number of plays on a given level since the last win, the rate of progression through game levels, the number of in-game purchases, and the frequency of in-game purchase.</p> <p>In addition, Candy Crush stores alterable variable parameters defining both the game play</p>

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	<p>and prizing structure. These parameters define, <i>e.g.</i>, how the game is played, the likelihood of a win, and the prizes awarded for a defined win. On information and belief, these parameters are “variable” in that they may be programmatically altered. On information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met.</p> <p>The game’s overarching goal is to induce players to make such in-game purchases. Candy Crush is aimed at maintaining player engagement so that it can present players consistent, repeated, and attractive opportunities to make in-game purchases. Activision-Blizzard tracks numerous key metrics related to that goal, including the number of monthly average users (MAUs, defined by Activision-Blizzard as the number of players accessing the game within the last 30 days), and in-game net bookings.</p> <p>MAU (monthly average users): defined as accessing game w/in 30 days</p> <div data-bbox="879 816 1766 966" style="background-color: #333; color: white; padding: 10px;"> <p>Operating Metrics</p> <p>For the year ended December 31, 2021, Activision Blizzard’s net bookings⁸ were \$8.35 billion, as compared with \$8.42 billion for 2020. In-game net bookings^c were \$5.10 billion, as compared with \$4.85 billion for 2020.</p> <p>For the quarter ended December 31, 2021, Activision Blizzard’s net bookings⁹ were \$2.49 billion, as compared with \$3.05 billion for the fourth quarter of 2020. In-game net bookings^c were \$1.24 billion, as compared with \$1.32 billion for the fourth quarter of 2020.</p> <p>For the quarter ended December 31, 2021, overall Activision Blizzard Monthly Active Users (MAUs)^d were 371 million.</p> </div> <p>MI00002564-MI00002625 (https://investor.activision.com/news-releases/news-release-details/activision-blizzard-announces-fourth-quarter-and-2021-financial) at MI00002567.</p> <p>In-game net bookings</p> <p><i>Net bookings and in-game net bookings</i></p> <p>We monitor net bookings and in-game net bookings as key operating metrics in evaluating the performance of our business because they enable an analysis of performance based on the timing of actual transactions with our customers and provide a more timely indication of trends in our operating results. Net bookings is the net amount of products and services sold digitally or sold-in physically in the period and includes license fees, merchandise, and publisher incentives, among others. Net bookings is equal to net revenues excluding the impact from deferrals. In-game net bookings primarily includes the net amount of microtransactions and downloadable content sold during the period and is equal to in-game net revenues excluding the impact from deferrals.</p> <p>MI00002424-MI00002563 (2022 Activision Blizzard Annual Report) at MI00002467.</p>

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	<p>As has been well-documented, the game design of Candy Crush achieves these goals by seeking to create a “compulsion loop” that keeps players playing the game, and spending money on in-game purchases. The primary components of this loop are: steady progression through levels; repeated “near wins” (losses that indicate that the player was apparently very close to winning); “jackpot” moments where a win occurs despite the apparent odds; and time-outs, where the player is forced to put the game down despite the apparent near-completion of a level.</p> <p>This is no niche market; no group seems immune to its charms. So what did Candy Crush get so right?</p> <p>Its designers appear to have hit upon a formula that's beginning to emerge from the academic discipline of game studies as the "ludic loop". Ludic loops are tight, pleasurable feedback loops that stimulate repetitive, if not compulsive, behaviour. "It definitely takes us back to behaviourist psychology," says Natasha Dow Schüll at the Massachusetts Institute of Technology, whose research on games anthropology led her to study this phenomenon in popular gaming.</p> <p>Her formulation has come largely from her studies of slot machines and their allure to addicts. Slot machines perfectly illustrate the concept of the ludic loop. They lure people into short cycles of repeated actions using tricks familiar to behavioural psychologists: you do something, the machine responds with lights, jingling sounds and occasionally cash rewards. You do it again. And again, and again.</p> <p>Our affinity for this kind of activity is typically ascribed to dopamine, a brain signalling chemical that has been the source of much confusion about the links between addiction, reward, gambling and gaming. Dopamine was long thought to be a simple reward or pleasure chemical, but the last decade has brought evidence that its action in the brain is in fact much more subtle. It is linked to the compulsion to repeat an activity, whether or not that activity is pleasurable (Behavioral Neuroscience, vol 119, p 5).</p> <p>MI00002626-MI00002632 (http://scripts.mit.edu/~schull/nds/wp-content/uploads/2014/06/new-scientist.pdf) at MI00002628.</p> <p>To these ends, Candy Crush game play is not random. Instead, the game dynamically varies the structure of the game and its prizing, and on information and belief, does so on</p>

Claim Language	Infringement By Accused Products
	<p>the basis of tracked data about user play, such as the amount or frequency of time played, the number of losses over a period, the time elapsed since last play, and/or amount or frequency of in-game purchases. A typical game structure alteration in Candy Crush is that when a potential or actual decline in the frequency of play is detected, such as when a game level has proven too challenging for the player and caused repeated losses. In such an event, on information and belief, the game structure alters to enable the player to pass the level.</p> <p>So what's Schüll's recipe for a ludic loop? The first ingredient is engineered randomness. Aaron Steed, an independent game developer who has studied Candy Crush closely, thinks that if the algorithm that decides what shapes to drop were truly random we would see more matches than we do. That suggests the game's "randomness" has been fine-tuned to a sweet spot between pure chance and the illusion of control. "You think surely because it's random there'll be something I can solve there. It's what makes gambling games popular in general."</p> <p>Then there's the jackpot moment. The most satisfying thing that can happen in Candy Crush is when you think you're matching up a single row of sweets, but trigger an unexpected cascade of further matches. "It makes the game freak out," says Jamie Madigan, a psychologist based in St Louis, Missouri, who specialises in games.</p> <p>MI00002626-MI00002632 (http://scripts.mit.edu/~schull/nds/wp-content/uploads/2014/06/new-scientist.pdf) at MI00002629.</p> <p>For example, Candy Crush alters the composition of the opening and in-play game board, and alters the likelihood of obtaining special items during game play, in order to increase the chances of completing a level in the game.</p>

Claim Language	Infringement By Accused Products
	<div data-bbox="1060 228 1564 950" data-label="Image"> </div> <p data-bbox="751 987 1892 1097">For example, Candy Crush alters the likelihood of obtaining more powerful special items in mini-games, and varies the frequency of mini-games and bonuses, in order to increase the chances of completing a level in the game.</p>

Claim Language	Infringement By Accused Products
	<div data-bbox="877 228 1318 1008">  </div> <div data-bbox="1325 228 1766 1008">  </div> <p data-bbox="751 1049 1892 1195">For example, Candy Crush initially offers players, upon a loss, the ability to either purchase additional moves to complete the level, or watch an advertisement to obtain additional moves. Following any in-game purchase, the advertising option is removed, and the player's only option is to pay to keep playing.</p>

Claim Language	Infringement By Accused Products
	<p data-bbox="995 235 1646 267"><i>Prior to first purchase. Following first purchase.</i></p>  <p data-bbox="751 841 1892 911">For example, Candy Crush alters the prize structure by offering players discounted purchases of special items for “hard levels” based on previous player experience.</p>

Claim Language	Infringement By Accused Products
	
1(h) utilize the first and second programmable variable parameter sets to achieve the mandated parameters through at least the first and second game play experiences,	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), Candy Crush manipulates the gaming and prizing structure when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met, in an attempt to reach the desired level of engagement and/or in-game purchase.
1(i) analyze game play as a function of the recorded information regarding particular game play events, and	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), Candy Crush analyzes game play in order to adjust the game structure or prizing structure.
1(i)(i) implementing a first set of	This limitation is satisfied by the Accused Products for the reasons stated in connection

Claim Language	Infringement By Accused Products
variable parameters to provide a first game play experience, and	with limitation 1(f).
1(i)(ii) determine the selection of the first or second programmable variable parameter sets utilizing the recorded game play information with predefined criteria including at least one of: a game structure and a prizing structure,	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met.
1(j) a display system for displaying at least the player club points, and	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(d), the Accused Products store information about registered players, including their identity, the number of player points accrued, including gold bars, the number of bonus items, and the number of levels progressed through. These items can be displayed.
1(k) a system input for receiving player input.	This limitation is satisfied by the Accused Products. Each of the Accused Products can receive system input, for example, via the touch screen of an Android or iOS device on which the game application is installed.
3. The system for electronic game play of claim 1 wherein the player's club information includes information on non-cash items.	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(d), the Accused Products store information about registered players, including their identity, the number of player points accrued, including gold bars, the number of bonus items, and the number of levels progressed through. These are non-cash items.
4. The system for electronic game play of claim 3 wherein the player's club information includes information on non-cash item is an image.	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(d), the Accused Products store information about registered players, including their identity, the number of player points accrued, including gold bars, the number of bonus items, and the number of levels progressed through. These are non-cash items represented as an image.
5. The system for electronic game play of claim 1 wherein the first set and second set of variable parameters utilize	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated

Claim Language	Infringement By Accused Products
<p>game play information across multiple users devices.</p>	<p>parameters concerning engagement and in-game purchases are met, based on recorded or tracked game play information. These include game play information for multiple users of the Accused Products. For example, Candy Crush alters the prizing structure by offering players discounted purchases of special items for “hard levels” based on previous player experience.</p> <div data-bbox="886 449 1759 1247">  </div>
<p>6. The system for electronic game play of claim 1 wherein the game play information includes information on a loss.</p>	<p>This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met, based on recorded or</p>

Claim Language	Infringement By Accused Products
	tracked game play information. On information and belief, the tracked information includes information about game losses.
7. The system for electronic game play of claim 1 wherein the game play information includes information on a series of outcomes.	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met, based on recorded or tracked game play information. On information and belief, the tracked information includes information about game outcomes.
8. The system for electronic game play of claim 1 wherein the game play information includes information on the number of wins.	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met, based on recorded or tracked game play information. On information and belief, the tracked information includes information about game wins.
9. The system for electronic game play of claim 1 wherein the game play information includes information on a first game play event.	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met, based on recorded or tracked game play information. On information and belief, the tracked information includes information about game play events, including wins and losses.
13. The system for electronic game play of claim 1 wherein the game play information includes information tracking the users play.	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met, based on recorded or tracked game play information including the user's play.
17. The system for electronic game play of claim 1 wherein the prizing structure is modified by modifying bonus prizing.	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met, based on recorded or tracked game play information. This includes modifying bonus prizing, such as special items awarded or made available for purchase.

Claim Language	Infringement By Accused Products
	<p>For example, Candy Crush alters the likelihood of obtaining more powerful special items in mini-games, and varies the frequency of mini-games and bonuses, in order to increase the chances of completing a level in the game.</p> <div data-bbox="877 375 1761 1156">  </div> <p>For example, Candy Crush initially offers players, upon a loss, the ability to either purchase additional moves to complete the level, or watch an advertisement to obtain additional moves. Following any in-game purchase, the advertising option is removed, and the player's only option is to pay to keep playing.</p>

Claim Language	Infringement By Accused Products
	<p data-bbox="995 235 1646 267"><i>Prior to first purchase. Following first purchase.</i></p>  <p data-bbox="751 878 1892 946">For example, Candy Crush alters the prizing structure by offering players discounted purchases of special items for “hard levels” based on previous player experience.</p>

Claim Language	Infringement By Accused Products
	
<p>18. The system for electronic game play of claim 1 wherein the prizing structure is modified by modifying awarding of non-cash prizes.</p>	<p>This limitation is satisfied by the Accused Products for the reasons discussed in connection with Claim 17.</p>
<p>23. The system for electronic game play of claim 1 wherein the decision engine for game analytics tracks user specific play.</p>	<p>This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met, based on recorded or tracked game play information including the user's play.</p>

Claim Language	Infringement By Accused Products
	
<p>25. The system for electronic game play of claim 1 wherein the predefined criteria is a predefined prizing criteria.</p>	<p>This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met, based on recorded or tracked game play information including the user's play. On information and belief, this includes information about previously awarded or obtained prizing, including bonus items.</p>
<p>26. The system for electronic game play of claim 1 wherein the predefined criteria is the number of wins.</p>	<p>This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated</p>

Claim Language	Infringement By Accused Products
	parameters concerning engagement and in-game purchases are met, based on recorded or tracked game play information including the user's play. On information and belief, this predefined threshold includes information about the number or frequency of wins.
28. The system for electronic game play of claim 1 wherein the predefined criteria is the amount of time played.	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met, based on recorded or tracked game play information including the user's play. On information and belief, this predefined threshold includes information about the amount of time played.
29. The system for electronic game play of claim 1 wherein the predefined criteria is the number of plays for a player.	This limitation is satisfied by the Accused Products. As discussed above in connection with limitation 1(g), on information and belief, the variable parameters that define the game and prizing structure are altered when one or more threshold levels of the mandated parameters concerning engagement and in-game purchases are met, based on recorded or tracked game play information including the user's play. On information and belief, this predefined threshold includes information about the number of plays.