Modes of Uncertainty

Anthropological Cases

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The Gaming of Chance: Online Poker Software and the Potentialization of Uncertainty

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A man sits before a large desktop monitor station, the double screen divided into twenty-four rectangles of equal size, each containing the green oval of a poker table with positions for nine players. The man is virtually "seated" at all twenty-four tables, along with other players from around the world. He quickly navigates his mouse across the screen, settling for moments at a time on flashing windows where his input is needed to advance play at a given table. His rapid-fire responses are enabled by boxed panels of colored numbers and letters that float above opponents' names; the letters are acronyms for behavioral tendencies relevant to poker play and the numbers are statistical scores identifying where each player falls in a range for those tendencies. Taken together, the letters and numbers supply the man with enough information to act strategically at a rate of hundreds of hands per hour.

Post session, the man opens his play-tracking database to make sure the software has successfully imported the few thousand hands he has just played. After quickly scrolling through to ensure they are all there, he recalls some particularly challenging hands he would like to review and checks a number of filters to reveal for further analysis only hands that match these criteria. While replaying the hands forward in simulations to see how different actions might have played out, he performs a statistical calculation to determine whether his actual win rate for the session met the win rate that would have been expected from the cards he was dealt and how much this had to do with skill or luck. He consults a graph of his "aggression factor" to convince himself he hasn't been playing as timidly as he used to and, finally, makes some notes in an Excel spreadsheet on minor behavioral adjustments to apply during his next session. Satisfied that he has taken adequate inventory of his performance that day, the player closes the program without once checking to see how much he won; now is not the time to be misled by short-term data.

At first examination, software-assisted online poker would appear to be a contemporary instance of what Ian Hacking (1990) called "the taming of chance." In his book of that title, Hacking extended his earlier work (1975) on the seventeenth century emergence of probability, a mode of thought inspired by experiments with games of chance and distinguished by the novel recognition that the past does not determine what will happen next. The notion of pure randomness was tempered by the rise of statistics in the nineteenth century and worldly phenomena came to be understood as governed by statistical laws; chance was "tamed" not in the sense that it could be controlled but in the sense that it could be subjected to calculation. This historical development is often cited as an antecedent for the kinds of risk-management technologies and practices that have flourished in capitalist economies since the 1980s, the argument being that they extend the taming process Hacking had identified, seeking to convert the chaotic uncertainties of chance into calculable, governable risks (Ewald 2002, 286).

Yet what other modes of relating to uncertainty are afoot in the contemporary world? Might an excess of scholarly attention to the chance-taming projects of so-called risk society obscure these other modes? Recently, scholars have explored domains of modern risk-taking such as contract law (O'Malley 2000b), financial derivatives (Arnoldi 2004; Appadurai 2011, 2012), day trading (Martin 2002), and futures trading (Zaloom 2006) to argue that uncertainty can figure as a resource to invite, cultivate, and exploit rather than a liability to reduce, mitigate, or control. "Financial speculation is an active, voluntary engagement with risk," writes Zaloom; "to work with risk is to engage fate and to play with the uncertainties of the future" (93).

Competitive gambling, in which action depends on uncertainty (without it, there simply would be no game), is an example of what O'Malley has called "enterprise uncertainty": gamblers approach uncertainty as a field of potential profit. But what are we to make of their use of online poker software as described above? Is it yet another instance of the mobilization of probabilistic expertise against uncertainty or, alternatively, evidence of the generative, untamed aspects of uncertainty? Or perhaps an indication that actuarial and speculative treatments of uncertainty can intermingle in hybrid forms such as O'Malley's (2000b, 465) "enterprising prudentialism"? As this chapter will show, although some poker software features serve to reduce uncertainties by turning them into statistically calculable risks, the preponderance serve to help gamblers abide and strategically engage with uncertainties that simply cannot be converted into known risks and to actively foster and play with new uncertainties. On the whole, poker software

is better regarded as a tool for "gaming chance" than for taming chance, in the sense that it works to potentialize rather than to minimize uncertainty.

Drawing on interviews with gamblers, observations of online poker play, and discussion threads from poker forum archives, I examine how data-tracking and analysis software configures the field of uncertainty and enables players to act in response to that field. The uncertainties that arise in the course of play are multiple, each unfolding from the next in an ever-complicating cascade: *What cards are others holding? How might they play those cards? What cards do they suspect you of having and how do they believe you are likely to play them? Are they tracking you as you are tracking them? If so, how will the actions you take affect their statistical models of your behavior?*

These uncertainties, it should be noted before proceeding, occur within the context of a rule-bound game and in this sense are of a more finite nature than those involved in the cases typically considered in the scholarly literature on risk and uncertainty: global public health, biosecurity, nuclear threat, global financial catastrophe, and the like. Yet online poker and its associated technologies and practices offer a window onto more general forms and dynamics of contemporary subjectivity and the key role that uncertainty plays in those forms and dynamics. Gamblers who use poker-tracking software, I argue, are experimenting with modes of decision making and self-governance oriented toward the open-ended indeterminacy of uncertainty rather than the limiting, definitional project of risk calculation. As we will see, these modes value performance over outcome, multiple data points over single events, virtual over real time, and potentialization over actualization of the self.

The Rise of Online Gambling

The first real-money online poker game was dealt on New Year's Day in 1998; ten years later, annual revenue from online poker had grown to $6 billion. Despite heavy legal restrictions on the activity in the United States,[1] more Americans play than any other national group: some 10 million in 2010 (Skolnik 2011, 117). At the close of 2011 the US Department of Justice reversed its stance on the legality of Internet gambling, permitting individual states to institute online gambling. Since then the gambling industry has quickly mobilized, with Nevada, New Jersey, and Delaware in the lead. Restrictions on online gambling are likely to be further rolled back as all levels of government look for new consumer activities to regulate and tax (see Schüll 2012; Skolnick 2011).

Online poker sites commonly offer Texas hold 'em, Omaha, seven-card stud, and other popular versions of the game. Since the game of poker pits

gamblers against one another rather than against the house, the house makes its money by collecting a "rake" (or percentage commission) on each cash game played or from entrance fees for tournaments. Online purveyors stand to collect far more rake than their land-based casino counterparts because players can gamble at multiple tables simultaneously when online—an activity called "multitabling." Skilled players also stand to make more money when multitabling, for instead of the twenty to thirty hands they might play in an hour of live poker, they play as many as two thousand—a rate at which they can increase their exposure to hands worth betting on. A poker site explains: "Playing at more tables simultaneously can significantly increase your hourly wage." As the reference to "hourly wage" indicates, an increasing number of online poker players approach the activity as a form of work—not wealth by sudden, singular windfall but by rapidly executed increments of labor.[2]

In 1939 the philosopher and cultural critic Walter Benjamin drew an extended analogy between gambling and the repetitive, speeded-up process of industrial machine labor. "Gambling," he wrote, "even contains the workman's gesture that is produced by the automatic operation, for there can be no game without the quick movement of the hand by which the stake is put down or a card is picked up" (1968, 179). In the case of online poker, the "workman's gesture" has been reduced to the click of a mouse. In its speediest form, when players are gambling at the maximum number of tables permitted (twenty-four), play is referred to as "grinding."[3] Although grinders exponentially increase their exposure to risk, they do so in a way that reduces overall volatility. "In theory," says Emil, a twenty-six-year-old biostatistician and former recreational poker player, "the more hands you play *the more the variance will even out* and you'll reach your optimal expected wage." "I try to approach it very rationally," says Justin, a professional online poker player who participates in games with a $25,000 minimum buy-in, "to *optimize my income.*"

Phenomenologically speaking, the experience of multitabling is significantly different than live poker—in which a gambler sits at one table and attends to a single event stream, sometimes playing his cards but more often folding and waiting. Online, a player is "present," virtually speaking, at many tables at once, his attention distributed across a vast portfolio of games and events; there is no waiting, just constant action. Given the quickened pace of play, the time he can devote to each game decision is reduced. Monetary stakes, like time and attention, are spread across multiple games, thinning a sense of investment in the unfolding action narrative of any one table. Winnings, too, are diluted—for while profits go up overall when multi-

tabling, "with each additional table that you play, your winnings per table will drop," a poker website explains. This is due to missing turns at one table while taking action at another and to bad decisions made in haste. To ensure the highest possible "return on investment" (or hourly wage), multitablers must determine the maximum number of tables at which they can play *well enough*. "When you're playing in real life, you're playing every hand the best you can," says Winslow, a theoretical computer scientist and specialist in algorithmic problem solving currently working toward his doctorate at the Massachusetts Institute of Technology. "Online, you're weighing optimal play per hand against the optimal number of hands you can play in time."

In all these respects—temporal, attentional, financial—online poker would appear to be a "shallow" rather than a "deep" form of play, in contra-distinction to the anthropologist Clifford Geertz's (1973) famous description of gambling as a profoundly meaningful encounter between subjects in which social status and players' very existence is at stake.[4] Erving Goffman's (1967) sociological account similarly depicted gambling as a focused, existentially freighted affair in which card-playing heroes engage in "character contests" that allowed them to demonstrate courage, integrity, and composure in the face of contingency. Online multitablers, methodically clicking their way through thousands of hands per session while consulting statistical indices to guide their actions, are decidedly unheroic figures.

Yet no matter how multiple the tables, how micro the stakes, and how fleeting each moment of play, online players cannot avoid the linear temporality of decision making: they must, ultimately, act from a single position in time without knowing what the outcome will be; uncertainty cannot, in the moment of action, be circumvented. Niklas Luhmann (1993) defines risk as the problem of making decisions at the limit of knowledge, on the border between present and future. Risk, adds Randy Martin (2002, 106), "presents not only the limit of what can be known in the present but also the burden of acting as if one could know." Poker-tracking software and its evolving array of features and functions alleviate this burden by enabling players to act confidently yet *without* pretending to know what will happen next. In this sense, the technology equips them to abide—and, potentially, to profit from—uncertainty.[5]

Poker Technics: The Multitabler's Equipment

Software such as PokerTracker and Hold'em Manager[6] depend on constant tracking and recording of play-by-play game information: what cards the player was holding, what plays he made, what plays his opponents made,

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┌─────────────────────────────────────────────────────┬───┐
│ Dealer: Player2 checks                              │ ▲ │
├─────────────────────────────────────────────────────┼───┤
│ Dealer: Player3, it's your turn. You have 8 seconds to act │   │
├─────────────────────────────────────────────────────┤   │
│ Dealer: Player3 checks                              │   │
├─────────────────────────────────────────────────────┤   │
│ Dealer: Dealing River: [7d]                         │   │
├─────────────────────────────────────────────────────┤   │
│ Dealer: Player1 raises $1.40                        │   │
├─────────────────────────────────────────────────────┤   │
│ Dealer: Player2 You have 8 seconds to act           │   │
├─────────────────────────────────────────────────────┤   │
│ Dealer: Player2 has requested TIME                  │   │
├─────────────────────────────────────────────────────┤   │
│ Dealer: Player2 folds                               │   │
├─────────────────────────────────────────────────────┤   │
│ Dealer: Player3 calls $1.40                         │   │
├─────────────────────────────────────────────────────┤   │
│ Dealer: Player3 shows two pair [6d6c 7d7h]          │   │
├─────────────────────────────────────────────────────┤   │
│ Dealer: Player1 shows two pair [7d7c KhKs]          │   │
├─────────────────────────────────────────────────────┼───┤
│ Dealer: Hand #29246313 Player 1 wins pot ($5.20)    │ ▼ │
└─────────────────────────────────────────────────────┴───┘
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Figure 3.1. Play-by-play event data in an online poker chat log (created by author).

and, if the information gets revealed, what cards *they* were holding. This data is collected from the "chat log" that appears below every table. Puta- tively there to give otherwise anonymous players a space to socialize as they might during live play, the log also automatically records all game events as they occur (see figure 3.1). Tracking software draws this information into a database of "hand histories" that becomes the raw material for a number of analytic features. In what follows I examine these features, moving from in-game tools designed to facilitate rapid decision making to retrospective tools designed to prepare players for future sessions.

Acting in Real Time: The Heads-up Display

During a game session, the heads-up display (HUD) is the most important poker software feature at a player's disposal.[7] The HUD continuously queries a player's database to provide up-to-date information on opponents' behav- ioral patterns, presented in panels of letters and numbers that hover over the players' names (see figure 3.2). The figures on display, which may shift as real-time actions and events are fed into the database of hand histories, can be read as virtual "tells"; instead of looking at one's opponent across the table and trying to sense him out in real time from behind sunglasses as in live poker, an online player consults the HUD's summary of historical data with a quick glance. "If I see that a player typically never raises after he checks and is deviating from that behavior," explains Justin, "I can make certain deductions about how strong his cards might be."

"You can create profiles of people in a way you could never do offline," says Emil. "In live poker you have to sit and watch and try to remember what a person does to get a sense of how they play; you have to keep track of everything in your head. Online, you don't have to waste your energy remembering things—you have all these statistics overlaid on the screen." Justin comments, "I don't know of anyone who can actually remember *This player has been at the table for exactly 87 hands and has raised preflop exactly 11* times; it's more intuitive, like *This player has been raising a lot in the last few hours.*" When betting at multiple tables online, memory becomes even less reliable than in live poker, and intuition less available. The software works as "an external memory," as Justin puts it. "You trust the information more than your own memory and you feel more comfortable taking action, and doing it faster," says Emil. "The numbers make the whole decision-making process easier, less agonizing . . . it becomes much more of a binary, yes/no process."

HUD numbers may help a player to feel more confident in his decision-making process yet they do not pretend to pin down an opponent's behavior or predict what he will do next; they do not, in other words, eliminate uncertainty. Rather, they draw on a database of continuously accruing historical events to indicate emergent behavioral tendencies; they serve as a means for what Luhmann called "provisional foresight," allowing actors to adjust their responses to real-time conditions (1998, 69–70). "The numbers in the display tell you, *This player has certain tendencies*," says Winslow, "and you can take that information into account right before you make a decision about a hand." HUD-facilitated decisions in poker thus remain interpretations rather than calculations, speculations rather than predictions.[8]

The latest versions of poker tracking software allow players to customize their HUD windows to show whatever mix of behavioral statistics they wish. Always included up front, however, is a set of numbers thought to capture the core style of any player, summed up by the shorthand VPIP/PFR/AF. This triptych reveals the percentage of hands an opponent chooses to play (*Voluntary Put in Pot*), the frequency of his betting during the first of four rounds of a hand (*Pre-Flop Raise*), and how likely he is to keep betting during the latter three rounds of a game (*Aggression Factor*). A consensus has formed around the optimal ranges for this so-called Holy Trinity of game statistics; values falling outside of these ranges "imply predictability" and therefore "can be exploited by observant players," a poker website explains. Such players can glance at an opponent represented as "64/29/3" or "19/14/1.7" (as in figure 3.2) and instantly know whether they are up against a seasoned professional

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OPPONENT: 19 / 14 / 1.7  LC:70 / H:1.5k
VP_SB:73 / BB_VP:52 / 3B:6 (0 / 25/ 13)
4B:0 / C:37 / F:45 / T:52 / R:66
Ft3B:63 / Ft4B:45 / CB:70 /  FCB:64
TCB:87 / RCB:67 /  AF_F:2 / AF_T:2
ST:32 (40 / 60) / SQ:10 / XC:36 / XR:8
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Figure 3.2. Heads-up display for an opponent in which the first three numbers designate VPIP/PFR/AF and the rest indicate statistical scores for a variety of other behavioral tendencies (created by author).

or an inexperienced newcomer, whether he is a pushover or a heavy bluffer, and where he falls on the timid-to-aggressive spectrum.

The majority of players rely on a standard array of ten to twenty statistics in their HUD displays, swapping suggested configurations on message boards and trying out modifications in simulations before bringing them into live play. The most dedicated of players tinker with the software until they arrive at a personalized set of filters. "I use over 150 stats," says Justin; "I select whatever outputs I want to see on the screen, and filter by them." His current display, for example, shows 40 figures in a specific order. While a player might theoretically benefit from knowing how an opponent plays along a hundred different dimensions, HUD windows showing that many numerical values would be cognitively draining if not unassimilable, and would potentially overwhelm the aesthetic experience of play itself—especially with multiple tables open on the screen.

A secondary, more granular set of statistics pops up when a player hovers his mouse over any given figure in the primary HUD. "Behind every stat is another set of stats," says Justin. Consulting these deeper statistics takes time; it is done strategically. PokerUtilities.com, a website dedicated to discussion of emerging tools for online poker, recommends:

It can be very useful to commit one afternoon to customizing these pop-up screens until they show the information you want them to show. Make sure that only the helpful information per statistic is shown. Especially when playing numerous tables it can be very important to quickly find the information you are looking for . . . you will need to invest some time to optimize the pop-ups to make them more efficient and save yourself time when having to make a decision.

To further ease the decision-making process, poker players can configure the software to change the color of a given indicator when it passes certain statistical ranges. Not only do color changes break up the monotony of a wall of numbers, they also alert players, via intuitive visual triggers, to opponents' exploitable behavioral patterns as they emerge. While basic values like AF (aggression factor) are readily legible to a moderately skilled player without color, more complex behavioral values—especially those composed of numerous different statistics—are hard to detect without color even for a player of Justin's caliber. His advanced statistical dashboard is coded to provide him with color cues in such cases. "Certain stats are indicators of what to do in certain situations," explains Justin. "So if I look at the HUD and see that they're all green, I know I should play aggressively."

Software developers are constantly expanding the orbit of potentially significant data that can be automatically tracked and legibly displayed in the HUD. The capacity to take "notes" on particular scenarios or game occurrences, for instance, was recently added to the HUD's repertoire. Formerly, players were urged to keep Excel spreadsheets open during a play session, record memorable moments as they happened, and review them periodically to find patterns. Such a system left it up to players to decide, in real time, that something noteworthy had happened, and to take the time to note it. Automated note taking, programmed to detect and record the incidence of prespecified behaviors or "note definitions" (such as how many seconds an opponent takes to make a decision, which might be correlated with bluffing), releases players from this task and frees up time for more game play. Note definitions are "fully customizable and there are millions upon millions of combinations," reports an online review of a note-taking program. Once a note definition has been created, that note will flash in the HUD whenever an opponent fits the definition in question.

It is important to reiterate that the HUD is not an actuarial instrument that serves to predict outcomes but a reserve of tendential indicators—clues to the directions events could potentially take. Tendency, writes Brian Massumi (2002, 30), can be understood as "pastness opening directly onto a future"; it pertains to "the intermediate space between what has occurred and what is about to occur," as Samimian-Darash (2013, 3) has defined the field of "potential uncertainty." The HUD provides players with a compass to navigate this field—that is, to more quickly detect what might be happening in any given moment and where they might gain an edge. It is no surprise that they spend so much time calibrating, recalibrating, and tuning this instrument of detection. "I put quite a lot of effort into configuring how

I use the software, knowing what data to use and to combine, and what you can extract from it," says Justin.[9]

Yet the HUD's statistical scores, color-coded ranges, note definitions, and flash alerts add up to more than a detection apparatus, for they do not merely register events as they emerge but actively shape them. As much as the HUD *indicates* action it *cues* action and in this sense "affects the actualization of events before they take place" (Samimian-Darash 2013, 20). Following Deleuze's notion of the virtual as "the intensive multiplicity out of which the actual emerges," the HUD could be said to "virtualize" events (Arnoldi 2004, 33; see also Galloway 2012). Extending this idea, it could be said that the HUD virtualizes players as well as events—not simply in the representational sense but also in the sense that their unquantifiable potential for action is immanent in every figure of behavioral tendency displayed on the screen.

It is not just other players who are virtualized in this way; so too is the acting player, for in addition to statistically sussing out his opponents using the HUD, he can use the technology to see how *he* appears to *them*. "It's also important to keep an eye on your own stats, as tracking software has become so popular that it's likely other winning players at your table will be using it and looking to exploit you in the same way," an online tutorial suggests to novices. Justin notes:

> You never know for sure if they are tracking you, so before assuming that, I try to gauge what information they might have on me. I do this by looking at their behavior toward me and also at the speed of their play against me. Based on that, I can guess how aware they are of how I typically behave, and can adjust my behavior accordingly.

One way Justin adjusts his behavior is to frequently change his play style—for example, to alternately loosen and tighten his range of starting hands when playing against the same opponent. He thus uses HUD technology not only to compose a statistical profile of his opponents that can help him decide how to act in relation to them, but also to figure out what kind of profile they might be composing of him and how he might scramble the data he generates so as to keep them guessing about his play style. The best profile is one that gives off no signals or "tells" that could be exploited by discerning opponents; such a profile is ideal precisely because it remains in the sphere of uncertainty. While the HUD could be said to serve as a tool of uncertainty reduction when used to gauge the potential behavior

of others, when used reflexively it serves as a tool of uncertainty *cultivation*. The key is to methodically extinguish all signs of passion—desire, weakness, or intention—from one's data stream, so as to seem as truly random and unpredictable as possible.

Retrospection: Post-Session Analytics

While the HUD helps players dial down their human passions in the heat of the game, a different set of poker software tools helps them prepare for dispassionate play through retrospective exercises. In between game sessions, when players are not caught up in the rapid-fire stream of decisions that online play demands, they are invited to turn to their hand-history database and attempt to discern what patterns and habits might be revealed there. A range of queries can be put to the data: *Am I overvaluing or badly playing certain hand combinations? Am I playing too many hands from a certain position? Do I become aggressive or timid in certain situations?* The point is to reflect upon past action so as to shore up "leaks" in their game.

A player can revisit the game scenarios he suspects he played suboptimally—perhaps all hands in which he held an Ace or in which he was the first to act—and "replay" them in the form of simulations showing "how they could have gone differently," as Winslow puts it. By keeping the known information constant (i.e., the cards in one's hand and those shown on the table) while varying the known information (i.e., the cards held by one's opponents), "you can logically try to reason out the other lines you could have taken," says Justin; "you can see what you would have won on the preflop, and on the flop, and on the turn and on the river [different stages in a round of betting]—what the chances of winning *would have been* if you had made any number of different choices."

In effect, simulations convert actual events back into a virtual field of potential actualities, training players to more easily "see through" the singularity of any given decision moment and recognize the multiple futures it carries. "In the moment, the right decision is not clear," says Emil, "*but in the aggregate you can see how it makes sense to act*; certain things come up over and over again and start to make sense." Unlike the risk-management scenarios that Lakoff (2008) has described in the domains of bio-security and public health, which are designed to arm actors with the tools and response set to cope with a specified array of possible futures, these "reverse scenarios"[10] help players cope with the necessarily uncertain future of any hand by returning them to a point in the past and confronting them with the branching diversity of outcomes that might have emerged from it. Such

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a vantage does not reduce uncertainty but accustoms players to it, diminishing the consequential load of individual game decisions and facilitating the decisive, speedy flow of multitabling. The subjective stance sought is one of equanimity in the face of uncertainty and outcome variance.

Another post-session analytic tool that helps players cultivate such a stance is the All-in Expected Value (AIEV) calculator. Looking back on a session, the calculator assesses the odds a player had of winning in those hands where he went "all in" against another player. (While all-in bets are relatively rare in live play, they occur often in online multitabling due to the sheer volume of hands players encounter.) "I can look back and say, *Today I got into ten 50-50s and five 20-80s and four 40-60s and six 70-30s*," reports Winslow. In other words, he made ten all-in bets with a 50 percent chance of winning, five with a 20 percent chance, and so on. Also called pot equity, AIEV calculates what a player theoretically "owned" of a pot. "Basically, if you have a 40 percent chance of winning, you can think of that in the long run as owning 40 percent of it," Justin explains, "because *if you played the hand out an infinite number of times, that's how it would work out.* So that's your expectation."

In actuality, a tie notwithstanding, one player will walk away with the entire pot and the other with nothing. Thus, the AIEV calculator cannot be described as a predictive technology, even in the retroactive sense, for it is not concerned with how a specific hand will *turn out* but rather with what a player *can statistically expect* from it. "Your expectation is based on the long term and that's what should tell you how to act in the short term," says Emil. The point is to base one's expectations and one's actions in an infinite rather than a finite register.

To that end, poker players are emphatically encouraged to disregard their actual all-in winnings—for they may have won every all-in wager they made during a session of play, but only out of luck. Instead of calling up winnings after a session of play, they should call up their AIEV scores—and only after a statistically significant number of sessions have been played, since only a large number can be trusted to render an honest assessment of their performance. "Once we have played enough hands to make our sample size meaningful, *the data will be more honest than our own impressions* of how we stack up," writes a player on an Internet poker forum. If players find their scores to be in the negative range, they knows they have been playing too loose (e. g., betting on too many 20-80s and not enough 80-20s); if they find their scores favorable, then they should feel good about their performance—regardless of actual game outcomes. "If you're playing well," says Emil, "you should feel just as good whether you're losing or winning."[11] Justin emphasizes this point:

I never look at what I won; I just rate my performance. I don't care how much money I made—it's totally irrelevant, there's almost no value to it . . . I guess knowing that might influence my happiness in the moment but that itself is ridiculous since I should be happy or not based on *how well I played*. I want *that* to be an emotional trigger; I don't want any emotions connected with using or winning money because it's totally useless. Some days I win, some days I lose.

While losing players in a live game of poker might take small comfort in the knowledge that they "played correctly" (that is, according to statistical laws), in the context of online multitabling where they play tens of thousands of hands every month, such knowledge grants a sense of ontological security. The ontology at stake is not that of a self whose value is determined in moments of winning or losing but, rather, a self whose value accretes through many, tiny actions over time. In order to optimize his value potential, such a self must respect the law of large numbers at every decision point.

In keeping with this respect, skilled online players resist the temptation of retrospectively querying or consulting any of their tracked data too frequently. Winslow explains: "A lot of novice players get impatient and make the mistake of overvaluing their data—they get biased by short-term information and ultimately make poorer decisions. You have to have a lot of data points for anything you detect to be statistically significant—otherwise you can't confidently conclude that a pattern is real." He depicts himself as a dynamic database whose "real" value is emergent and impossible to evaluate without sufficient temporal resolution. Justin echoes his point: "It's important not to look at the data too often, because you need to have a fairly large number of hands not to be fooled by randomness. You have to safeguard yourself against that."

Tilt Management: Regulating the Passions

Each of the software tools I have considered thus far—whether in-game or retrospective—is designed to help online poker players act in linear, worldly time yet from the vantage of an infinite temporal field in which probabilistic values can be trusted to bear out. HUD numbers, reverse-scenario simulations, and the AIEV calculator assist players in the project of abiding outcome variance in the short term, arming them against the dreaded state of "tilt." In tilt, a given event or set of events triggers emotional reactions, loss of perspective, and a compromised ability to make decisions wisely; players inflate the significance of events as they happen and lose sight of the long-term horizon.

"I wish I was a robot," the much admired live poker player Jennifer Harmer once confessed to a journalist, explaining how hard it was to act, in any given moment, according to the statistical laws that she knew, rationally speaking, she should trust. The likelihood of tilting increases online, as do its costs: if a player tilts in a live game, she can sit out a couple of hands to clear her head without great consequence; but if she tilts online, the effects quickly bleed over to other tables, linking them in a dangerous cascade of emotional reactivity.[12] The challenge multitablers face—to act in worldly time without being affected by event outcomes—is akin to the challenge that online financial traders face as they move in and out of trades in a matter of seconds, striving all the while to "treat each trade as if it has no effect on the next" and to "ignore a sense of continuity" between past, present, and future trades (Zaloom 2006, 133–134; see also Knorr Cetina and Bruegger 2000, 2002; Zwick 2005, 2013).

Some online poker players make use of software such as "Tiltbreaker" to minimize the effects of tilt, through such features as "automated lock-downs" (triggered by player-defined circumstances such as a big win, a certain number of hands played, or a certain amount of time played), a Rage Quit button for instances of "super tilt," visual reminders to take a break, and a host of other customizable options. Others emphasize the importance of developing self-awareness. On a poker-forum thread entitled "managing tilt," one member posted a long message advising his peers on how they might track, manage, and ultimately avoid tilt. He began by distinguishing between the main forms of tilt: *angry tilt*, in which losses despite statistically correct play tip players into overly loose and aggressive play; *frustrated tilt*, in which mounting exasperation at being dealt bad cards and having to fold for an extended period triggers impulsive, sloppy play in games that players should exit; *fearful tilt*, in which the trauma of past losses results in overly tight and passive play; and, finally, *despondent tilt*, in which others' luck leaves players feeling they are bound to lose, a form of resignation that negatively affects their play and threatens to become a self-fulfilling prophecy. "Beware of your really 'giddy or euphoric' feelings too! They can have devastating effects," the author warned. He went on to urge his fellow players to "set up a tilt management plan" involving ready-at-hand techniques for identifying and combating tilt in its various guises. The author recommended that players perform "self-checks" every thirty minutes by taking inventory of any feelings of frustration, revenge, anger or despondency that might be creeping into their game, rating those feelings and, depending on their severity, choosing among various actions. One might "walk away from your computer immediately," for instance, and stay away for ten minutes if

that is sufficient to "un-tilt" oneself—or for twenty-four hours, if necessary. The important thing is to "ensure that you stay away long enough to rationalize the cause(s) of your tilt."

The work of "rationalizing" the causes of a tilt episode could involve "spending some time re-tooling your game" by way of retrospective investigation ("I recommend reviewing hands after each session, unless you are on tilt or too tired—then save it for the next day"), self-education on blogs or from poker-strategy books and websites ("Thou Shalt Understand Probability and Variance," reads an article on rules to avoid tilt), or posting data from one's tilted session on poker forums and message boards so as to receive feedback and advice from others.

To keep themselves from tilting in the first place and to mitigate tilt when it does occur, players not only make use of software tools but also create custom routines of self-discipline. In one online discussion a gambler describes how he writes down every "automatic negative thought" that crosses his mind during a play session and after the session writes out a "rational response" to each of these in an effort to banish them from future sessions. His method recalls the early Christian practice of writing down thoughts and actions as a safeguard against sinning; he depicts himself as if at a similar moral crossroads, yet instead of God versus Lucifer, chance is pitted against humans and statistics against tilt.

Justin has developed a particularly elaborate system of self-regulation to manage his reactions to in-game events and protect himself against tilt. Directly before a session of play he consults his "warm-up checklist" (see figure 3.3), a document he regularly revises. Simple items—such as making sure his desk is clutter-free, that he has a glass of water, that he has eaten enough food to sustain him through a session of play—are accompanied by larger goals, notes on how to raise motivation (e.g. do some pushups, study poker), and categories such as "mental focus points." The latter includes the only entry he has underlined: "Take the time for decisions. Count out loud." Directly beneath this line is a sublist of "REASONS TO TAKE TIME BEFORE CLICKING / MAKING A DECISION," the first of which reads: "I click less from emotion." Justin reflects:

> You're making so many decisions that a lot of them will just happen intuitively. In most cases that's fine, but when I enter that grey area where it's not certain what I should do, I want to make sure I don't rely only on my own intuitions. What I do is pause every time I'm facing a difficult decision. I try to count down in my head, *three, two, one* . . . I breathe in and out and try to override my intuition. Recently I ordered a metronome to see if it might help with

TO DO:
- Office clean-up
- Good music / good software
- Skype off
- Sufficient food / drink

GOALS:
- 100% focus on poker
- Optimize mental game
- Improve game (Make notes during play)

MENTAL FOCUS POINTS:
- Only focus on poker
- Take time for decisions. Count out loud.

GAME CHOICE:
- 4 to 9 tables (sometimes 12, but watch out)
- If less than 6 people at tables, don't play

LOW MOTIVATION:
- View motivation points
- Do some pushups
- Take short breaks
- Study poker

REASONS TO TAKE TIME BEFORE CLICKING / MAKING A DECISION:
- I click less from emotion
- I have time to change my mind, change my bet sizes, etc.
- So far this has always worked well
- I do not give off time-related tells to opponents
- It is annoying for opponents
- I win more money
- I feel more professional
- I play more often when I do this
- It's frustrating when I don't do it
- It forces me to think about every situation rather than mindless clicking
- It helps me with one of my "mental" goals this year: making more mindful decisions

Figure 3.3. Justin's "warm-up" checklist. Given to author by anonymous gambler.

that process and prevent me from making decisions too quickly. My thinking is that if I have a metronome, it will give me some sort of external rhythm. I plan to experiment with that.

While the HUD serves as an "external memory" for Justin, a metronome, he hopes, could function as an "external rhythm" to bring him out of the affective intensity of uncertain moments and restore him to the realm of rational reflection, presence, and equanimity.

After every session of poker, Justin consults his "cool-down checklist" (see figure 3.4), recording the time of day he played (morning, midday, evening), the amount of time elapsed, the total number of hands played, and scores for focus and technique based on the rating criteria he has developed, which range from "mega-tilted" to "maximal game time spent focused." Finally, he records comments on areas for self-improvement. One entry reads: "Evening, 120 minutes, 1,305 hands played, Focus 7, Technique 7. *Think it went ok. Next time: better focus, tighter play, fold preflop when in doubt.*" "I use

Focus		Technique	
1	Extremely poor focus, tilted	1	Played extremely poorly, felt mega-tilted
2	Extremely poor focus	2	Played very poorly, felt tilted
3	Very poor focus		Played poorly, made many mistakes
4	Very distracted	4	Played moderately, no special plays, a lot of mistakes
5	Distracted but not really unhappy	5	Average play, few special plays, some mistakes
6	Distracted 2-3 times	6	No special plays, a few mistakes
7	Fine focus, few distractions	7	Played well, made only a few mistakes
8	Very good focus, very few distractions	8	Played very well, barely any mistakes, felt good while at play
9	Extremely good focus, hardly any distraction	9	Very happy with game, made no mistakes, almost all the time focused
10	Best focus, no distractions	10	Maximal game-time spent focused extremely pleased with session

Figure 3.4. Justin's "cool-down" checklist. Given to author by anonymous gambler.

the information to try to adjust my behavior in the next session," he says. "I have a whole working document with a long list of things I could adjust. I am constantly revising it."

Justin's tilt-prevention checklists are not unlike the self-scrutinizing, self-doubting diaries of the Puritans, in which they took rigorous inventory of their passions in an effort to renounce them (Paden 1988; Weber 1958). His checklists also evoke the Jesuits' systematic method for recording sins and sinful thoughts, a practice designed to help rid them of passion so that they could remain indifferent in the face of worldly events (Quatttrone 2004). Yet recently Justin has made a small but significant revision to his approach, inspired by the realization that to act optimally in moments of uncertainty he must leave himself open—just a little bit—to signals of an affective, qualitative, intuitive nature. He explains how his new orientation departs from his former discounting of all emotion as illusory and in need of taming:

> If you imagine a scale from negative 5 to plus 5, I would say that I want to be at a +1. For a very long time I thought the best state to be in was zero—I operated that way for years. Operating at 0, you're acting like a perfect robot. But the risk in that for me was that I almost didn't listen to any emotional signals, because I was trying to rationalize everything. *But now I try to let in a signal* so I can then decide if I should take that signal into account in my decision-making process or not.

To get himself into the target state of +1, Justin takes simple measures: "One of the things in my warm-up used to be not drinking coffee—but now I

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always drink one cup of coffee or espresso before a session, it has become a ritual." Music is also important: "Basically what I do is configure my play-list to get me in that emotional state of +1—so some days I choose mellow music, because maybe I'm already at a 3 and I need to bring myself down, and other days I choose more activating music to bring myself up."

Justin's affective reorientation from zero to +1 can be understood as a reorientation from risk to uncertainty, from taming to gaming. His experiments in quantified self-regulation have led him to conclude that too tightly bracketing his emotions closes him off from the potential that lies in the uncertainty of the game and stifles his ability to respond decisively to that potential:

> I've come to understand that if I use a rational model for everything and become more robotic then I feel disconnected from the world and not really sure of what I want to do . . . That's why I try to open the interval to +1. Before, I tried to ignore or discount my gut feeling because I thought it was never to be trusted; I didn't know what I could do with it. *Now, I try to use it as a signal in those grey areas where things are uncertain.*

In a sense, the interval of +1 marks the interval of uncertainty that Justin recognizes he can't do away with—and, indeed, should not—if he wants to optimally game chance. In that interval, the task is not to statistically assess but to intuitively apprehend. As Appadurai (2011, 525) writes of contemporary financial actors, Justin uses "intuitions, experiences, and sense of the moment to outplay other players who might be excessively dominated by their tools for handling risk alone."[13]

Lessons for Life: "Create Your Own Justice"

The Dutch historian Johan Huizinga wrote in the late 1930s that play involves "stepping out of 'real life' into a temporary sphere of activity with a disposition all of its own" (1950 [1938], 8). Two decades later Erving Goffman proposed a less divided relationship between play and real life, characterizing games of chance as "world-building activities" that rehearse life "by immersing us in a demonstration of its possibilities" (Goffman 1961, 27, 34). For online multitablers, many of whom make money (and even a living) from poker, the game is neither a radical break from nor a rehearsal for life. It comes closer to anthropologist Thomas Malaby's (2003, 147) description of gambling as "a semibounded refraction of the precarious nature of everyday experience, a kind of distillation of a chanceful life into a seemingly

more apprehensible form." Online poker and its suite of software tools, I argue, provide a kind of testing ground for experiments in navigating the uncertain terrain of a world that, as Niklas Luhmann observes, "has come to be regarded as more fluctuating, more contingent. Each instant has a vaster, and thus more unpredictable, future. Contingency, risk and indeterminacy have become predominant" (Arnoldi 2004, 36; Luhmann 1998, 94–95).

How does software-assisted, online poker help players meaningfully orient to such a world? As I have shown, the technological mediation neither tames nor provides refuge from perceived contingency; rather, it helps them to develop a subjective "readiness" for living with uncertainty. This readiness is characterized by the capacity to be simultaneously uncertain and decisive, speedy and cool-headed, and to maintain a temporally discontinuous view of outcomes. Players recount how the stoical stance they cultivate toward events-in-time carries over from online play to life offline. Winslow reflects:

> You're tougher when things don't go your way in life because you're used to making the right decisions and not having things go your way in poker. When you play a lot online, at multiple tables, you can very visibly see the *swings*—you learn that in the short term there will be lots of variance, even if you're making all the right decisions. You get a very good sense of the degree to which luck is at work, how much it matters. And you realize that it's no different in life: sometimes you do the interview very well and you still don't get the job. *Thinking this way helps you stop connecting particular outcomes to your performance.* This type of mentality really helps me when I fail at something in life and by the same token, when I succeed—because even if you win it could have been due to luck, not because you made the optimal decision at every turn. *You can kind of see through a bad or a good outcome to all the other ways it could have gone.*

Life events, the game of poker trains its players to see, are meaningful only as part of a pattern, and that pattern is revealed only over time. In a sense, this kind of thinking "de-actualizes" an event by placing it back into the field of potential *even as it occurs*—just one among other potential events that could have come to pass.

I asked Winslow how this attitude did not lead him down a nihilist road. Why act at all? "Because in the long run if you make right decisions—the statistically correct decisions—you're likely to come out ahead," he responds. "*What you care about is the long haul, and you learn to rise above the moment.* It doesn't make you want to give up—it makes you want to play the game better, which means playing to reach your optimal statistical potential." What is controllable, or rather *gameable,* is the way in which one approaches, makes,

and reacts (or better, does not react) to decisions made in real time under conditions of uncertainty. The object of the game is to not to master chance but to master indifference to the outcomes it deals in real time and, in this way, act more gracefully and profitably in relation to it.

As the Puritan lives under God's mercy, the poker player lives under the mercy of time; divine providence is replaced by the providence of probability, election by luck. The analogy comes across in a quote from a software developer who designs programs to help players resist the tendency to become tilted by the "injustice of the game." In his blog post "How to Avoid Tilt" appears Rule #9, entitled "The Poker Gods Knoweth No Justice":

> There really is no justice to this game, at least not until the *very, very long run of things*, but it's really just a microcosm of life isn't it? You will have horrible, gut-wrenching downswings where nothing goes right and nothing is fair; but you must persevere. *Create your own justice; continuously push forward until the numbers inevitably yield in your favor*.

Salvation, here, will come if one abides short-term variance; time, not God, is the protective, just force in which one must place ones faith. As the Puritan has no way to intercede in God's decisions about who will be saved and who will not and can only be humble and self-vigilant, the poker player has no way to influence chance and can only play as much, as fast, and as well as he can. "The new religion of the market," writes Appadurai (2011, 528), "treats the market as the source of certainty, as the reward for disciplined focus on its messages and rhythms, and as the all-powerful power that rewards its own elect, so long as they obey its ethical demands."[14]

The injunction to "create your own justice" can be read as a response to the ethical demands of the market. Evoking the contours of a broader speculative habitus (Lee and LiPuma 2012, 293), the poker player strives to make the best decisions he can in moments of uncertainty so as to evermore closely approach his optimal yield. "We are taught to focus on the quality of our decisions, and *if we make enough of them, we will win in the long run*," writes a participant in an online poker forum. As long-term participants in volatile financial markets, these subjects have learned to cope with erratic downturns in the near term; they accept that they must dwell in uncertainty for the foreseeable future; they have faith that variance will yield to smooth gains in time, as long as they tend to leaks in their game and "persevere" They work to self-potentialize rather than to self-actualize; they expose themselves to uncertainty rather than avoid it; they seek to game chance, not tame it.

Coda: Tragedy of the Commons

The use of "bots" that pose as players is shunned by those committed to the game of online poker. The more aggressive of the bots can beat most amateurs fairly quickly but are not a threat to skilled players; the real danger is that they can be set to multitable around the clock, collecting vast quantities of data on real players. Using bots, some individuals have built huge databases of opponent profiles to sell online; a buyer of such databases can then pull up detailed information on opponents he is encountering for the first time. This is considered "cheating" in no uncertain terms—a shameful violation of the rules of the game that compromises the potential for players to "create their own justice."

Alongside the denouncement of poker bots' infiltration into the game, there is a creeping concern among players that their own use of tracking tools, now a universally accepted aspect of online poker, might become so advanced and so rampant that the very existence of the game will be endangered. The worry is that as more players adopt a statistically "winning" strategy, a point will be reached where no uncertainty remains—or rather, where uncertainty will no longer serve as a resource for gaming chance. "If everyone uses these stats and uses them correctly," says Emil, "then there will be no room left to have an edge—because everyone will have the same information, like we're all bots playing each other, and the game will be ruined for everyone." "If everybody uses the technology," echoes Winslow, "it'll be a tragedy of the commons."

CHAPTER THREE

1. The 2006 Unlawful Internet Gambling Enforcement Act (UIGEA) criminalized the transfer of funds from financial institutions to online gambling sites, making banks largely responsible for preventing their American clients from gambling. The law, however, did not make it illegal—or impossible—for Americans to place bets on-line; nor did it take full effect until 2010, by which point anti-UIGEA legislators were making headway with their agenda.

2. A poker site offers tips on how to arrange tables on ones screen for optimal play: "If you play only a small number of tables simultaneously, it makes sense to arrange them in a tiled fashion all next to each other so that you can follow the action at all tables. If you multitable eight, twelve or even more tables, you should switch to a 'cascading' or 'stacked' table arrangement" (see http://www.tournamentterminator .com/tournament-strategy/online-poker/tips-multitabling-effective/). The site rec-ommends that players buy a second monitor.

3. The term "grinding" in online poker has a different connotation than in online video games like World of Warcraft, or in live land-based gambling where "grind joints" are mocked as places for the poor and unwise. Online multitablers go as far as to boast of their grinding powers, some even claiming the title in their online name, e.g. "grinder007." While Lee and Lipuma (2012) rightly point out that the game of poker has become morally and culturally valorized for its high risk and volatility, with on-line poker a low-volatility, seemingly unheroic mode of play has been valorized.

4. The concept of "deep play" was first elaborated by Jeremy Bentham to describe play

in which financial stakes run "irrationally" high despite the fact that chance will determine the outcome (in Geertz 1973, 431).

5. Decision making, a number of scholars have argued, is a distinctively fraught domain of contemporary life. "Everyday risks present us with the necessity of making a seemingly never-ending set of choices," writes Hunt (2003, 169). "Modern individuals are not merely 'free to choose,'" Rose (1999, 87) elaborates, following Giddens (1991), "but obliged to be free, to understand and enact their lives in terms of choice." Melucci (1996, 44) similarly writes that "choosing is the inescapable fate of our time." Software-assisted, online poker is an arena in which players are grappling with this fate.

6. PokerTracker, originally developed in 2001 and today in its fourth iteration, is credited with bringing information technology solutions to online poker. Today Hold'em Manager is the leading poker software product.

7. Heads-up displays (HUDs) are a common feature of other online gaming interfaces such as World of Warcraft, in which HUDs hover over other players' avatars, communicating information about their status, their strengths, their historical record, and the like (e.g. see Galloway 2012).

8. As Zaloom (2006, 142) notes in her study of financial trading, although numbers are typically associated with "objectivity and certainty," in some cases they indicate qualitative, fluctuating information rather than stable points of certainty.

9. HUD technology is not unlike the "syndromic surveillance" system that Samimian-Darash identifies at work in contemporary public health, similarly described by Lakoff (2013) as a program of "vigilant monitoring": its problem is how to know what data is significant and its solution is to track and compile as much information as possible. In poker as in public health, the law of large numbers holds: the more events one tracks, the more trust one can place in the exceptionality of the patterns detected.

10. Thanks are due to Limor Samimian-Darash for suggesting the phrase "reverse scenario" to describe retrospective poker simulations.

11. Financial traders, Zaloom (2006, 128) reports, are similarly invested in "dismantling narratives of success or failure." She describes how managers at one trading firm claimed they didn't care if traders made or lost money as long as they practiced discipline: "The trader's responsibility was to his technique of self-regulation, not to the profit and loss figure at the end of the day" (129).

12. "Each hand interlocks with the next," wrote the author of a 2006 profile of online poker addiction (Schwartz 2006, 55). "Time slows down to a continuous present, an unending series of buildups and climaxes. The gains and losses begin to feel the same." For an extended account of the ways in which technological interface contributes to the experience of gambling addiction, see Schüll 2012.

13. Appadurai (2011, 524) writes: "We might say that while some actors in the field of finance do know what they don't know, and perhaps also what they would like to know, they certainly have no good way to measure what they don't know, and even more, they do not know how to measure it probabilistically. Thus uncertainty remains outside all financial devices and models."

14. In contemporary financial risk taking, Appadurai (2011) discerns a dispositional turn away from the methodicality and self-doubt of Puritanism toward a heady, "swashbuckling" confidence. In his account, as market *devices* become hypermethodical, market *actors* become "avaricious, adventurous, exuberant, possessed, charismatic, excessive, or reckless in the manner that Weber argued was exactly not the spirit

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of modern capitalism" (524) Online poker players grinding methodically through poker hands in front of their multiple screens paint a rather less exuberant profile for contemporary market actor and also suggest that devices and actors are more blurred than they are divided. Their mode of uncertainty—their "uncertainty imaginary," to use Appadurai's term—is a dispositional admixture of anxious self-discipline and speculative ambition (in a dose of exactly one unit, in Justin's case) that is well captured by O'Malley's phrase, "enterprising prudentialism" (2000, 465).