‘A Game That Is Not a Game’: The Sublime Limit of Human Intelligence and AI Through Go

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I. Introduction: The Sublime, Technology, the Technological Sublime, and Transgression

This article will attempt to theorize some of the subtle aspects of the technological sublime and in so doing speculate as to some of its future consequences. Using the 2016 five-match Go tournament which pitted AlphaGo software (an AI developed by Google/Deepmind) against Lee Sedol, an 18-time world champion Go master, my central line of argument is the idea that moves made by AlphaGo that initially appeared to be counterintuitive or even erroneous from a human perspective, might in fact reveal 'in(super)human' intelligence. It will also explore concepts such as technological 'imachination', machine creativity, the human perception of machine error and how they all combine to help illuminate subtle aspects of a rather mercurial phenomenon known as the technological sublime. I open with a discussion of what constitutes and causes the onto-existential experience of the 'classic' sublime through a contextualizing analysis of Arthur Schopenhauer's *The World as Will and Representation* (1818), Immanuel Kant's *Observations on the Feeling of the Beautiful and Sublime and Other Writings* (1764), and Edmund Burke's *A Philosophical Inquiry Into The Origin Of Our Ideas Of The Sublime And Beautiful* (1757). I then speculate on how the classic sublime and technology merge to form what I am calling the technological sublime. Bearing the implications of these two introductory excurses in mind, this article then analyses the match between AlphaGo and Sedol with a view to locating and theorizing the manner in which the technological sublime can manifest in subtle ways, and how these manifestations' relate to machine creativity and human perceptions of machine error. I then conclude with a speculative theorization of the technological sublime as a type of machine imaginary (imachination) and propose certain potential consequences concerning its future developmental trajectory.

The agential hermeneutics of AlphaGo vs Sedol are in many ways extensions of the present debate on AI and the technological sublime established in foundational texts such as Hubert L. Dreyfus, Stuart E. Dreyfus, and Tom Athanasiou's

1986 *Mind Over Machine: the Power of Human Intuition and Expertise in the Era of the Computer*, as well as Hubert L. Dreyfus 1972 *What Computers Can't Do: a Critique of Artificial Reason*. Over 35 years ago, the authors of the former postulated that "twenty-five years of artificial intelligence research has lived up to very few of its promises" (1986: xi). Hubert L. Dreyfus pursues a similar line in his earlier text in which he criticizes, to the point of ridicule, what he perceived then to be the unbridled, unwarranted optimism in the field of artificial intelligence, and that those aspirations it engendered were based on false assumptions concerning the nature of human intelligence (1972). I hypothesize that many of the concerns Dreyfus had then are still exigent now in terms of our expectations, reverence, and fear of machine intelligence: 'How closely can computers processing facts and making inferences approach human intelligence? How can we profitably use the intelligence that can be given to them? What are the risks of enthusiastic and ambitious attempts to redefine our intelligence in our terms, of adapting ourselves to the educational and business practises attuned to mechanized reason?' (Dreyfus, Dreyfus, and Athanasiou, 1986: xi).

The authors' position is ultimately a humanistic/ anthropocentric one in which caution is reserved against those machinic ideations of intelligence that oversimplify and reduce human agency. For Hubert Dreyfus, in particular, while 'computers are certainly more *precise* and more *predictable* than we are [...] precision and predictability are not what human intelligence is about' (Dreyfus, Dreyfus, and Athanasiou,, 1986: xiv – emphasis mine). The warning is clear: we must be vigilant 'against placing excessive faith in the possibility of mechanizing human skill and expertise', to mechanize the quotidian and exceptional manifestations of the human '*power* of intuitive intelligence that enables us to understand, to speak, and to cope skillfully with our everyday environment', including game-spaces (Dreyfus, Dreyfus, and Athanasiou, 1986: xiv – emphasis mine). What is ostensibly foreclosed in this schema is, as I hope to show with the case of AlphaGo vs Sedol, the sublimity of the unpredictable 'intelligence' of machine 'error', the secret 'wisdom' of machinic play.

So much of the rhetoric surrounding descriptions and definitions of the game of Go itself refer to conceptions of perfection and purity. Only consider Andrew McAfee and Erik

Brynjolfsson's (2017) description as synecdochal of the trend: 'Go is a *pure* strategy game – no luck involved [...] a game theorist would call Go a "deterministic perfect information game"' (2017: 1 – emphasis mine). McAfee and Brynjolfsson assert that 'learning to play Go well has always been difficult for humans, but programming computers to play it well has seemed nearly impossible' (2017: 1). In view of these two statements, two ultimately related lines of thought can be deduced and subsequently pursued here. First, it would seem that based on the ostensible impossibility of programming a good machine Go player, AlphaGo's victories over Sedol are self-evidently impressive. However, I propose that they represent a bifurcated achievement. On the one hand, AlphaGo's 4 out of 5 victory suggests that as remarkable as these victories are, Sedol's own victory points to various onto-existential subtleties concerning a machine that is not only capable of winning, but also of losing. On the other hand, it could be argued that it is not so much a question of AlphaGo's ability to master the formal, even brutally logical 'strategies' – which is pragmatically the same as 'adaptable efficiency' – of the game. What is perhaps more interesting is the intimation of a machinic 'preference', a 'decisive gesture' toward what to the human mind initially appears to be the illogical. With it comes questions of doubt, error, inefficiency, chance and perhaps even recessed within this conceptual melange, something approaching 'machinic hope' and 'faith.' In this way, the victories of AlphaGo are, if I were to try and describe them in philosophical terms, something like 'Heideggerian illuminations' of possible machine truths *through* error. As Heigegger notes in 'On the Essence of Truth' in *Basic Writing: Martin Heidegger* (1993), error is often an emergent property of truth and because of this, human beings may advance to truth *through* a ready *awareness* of error (133).

Second, in view of the ostensibly rigid remit of the above theoretical definition of the style and nature of the game, it would seem that non-deterministic, speculative, and even hope/faith/Fate-based approaches to play take on a type of sublime atypicality. The fact that such play has been intimated by a machine player, one whose entire 'mode of thought' is seemingly invariably the product of stringent alphanumeric commands and deterministic programming protocols, makes such play even more wondrous, more terrifying, in short, more sublime. As I will speculate below, a machine that can come to victory through what appears to be error, coupled with the

failure of both programming and capacity for 'creativity' perhaps intimates an entirely new or different facet of the '(ill)logic of (super)intelligence'.

What is speculatively more remarkable is the fact that the general approach to Go, at both its most neophyte and masterful levels, is itself latently non-deterministic. As McAfee and Brynjolfsson note, most Go players are not certain how they go about navigating the subtle complexities of the game, let alone well: 'Go players learn a group of heuristics and tend to follow them [such as] “don't use thickness to make territory“ [...] Beyond these rules of thumb, however, top Go players are often at a loss to explain their own strategies' (2017: 2). Consider this assertion against the existence of a machine whose entire *'raison d'etre*' is predicated on deterministic precepts, but is able to participate in *both* the game's deterministic rules and its non-deterministic 'spirit'. One might be inclined to suggest that AlphaGo's victories represent a machine's successful infiltration of Go's 'ghost', so to speak. I argue that it is not so much a question of whether or not one can 'write a program that includes the best strategies for playing the game when no human can articulate these strategies', but rather how can one write a program that can 'make', what appear to the human eye and understanding, 'serendipitous errors'? (McAfee and Brynjolfsson, 2017: 2).

Being that Sedol's style of play has been described as 'intuitive, unpredictable, creative, intensive wild, complicated, deep, quick, chaotic' – all latently descriptors of non-deterministic play – AlphaGo was ostensibly and operationally disadvantaged (McAfee and Brynjolfsson, 2017: 5). This shows in the thinly veiled hubris of Sedol's pre-match rhetoric where he stated: 'There is a beauty to the game of Go and I don't think machines understand that beauty...I believe human intuition is too advanced for AI to have caught up yet' (Sedol qtd. in (McAfee and Brynjolfsson, 2017: 5). As I will argue below, against Sedol, the most sublime aspects of AlphaGo's victories have less to do with 'beauty' and 'understanding' but with the intimation of dissimulation in what I consider to be the potential (super)intelligence of machinic error.

A brief note on form here. Linguistically, writing about AI in general, or specifically about AI in relation to 'thought' processes involved in game-spaces and states-of-play, is a rather strange and sometimes difficult task. To avoid any

problematic ambiguity with regard to the kind of 'agency' I ostensibly seem to attribute to AlphaGo, I will frame any anrthopomorphizing concepts within single quotation marks when discussing AlphaGo itself and the record of its play. For example, below I use the phrase 'sublime understanding' to refer to AlphaGo's play in a particular moment of a game. On the one hand, attributing 'sublime understanding' to AlphaGo ostensibly suggests that the AI program has some measure of 'awareness' of 'experiences' of success and winning. On the other hand, in view of the fact that AlphaGo operates via a Von Neuman computer, which ultimately redounds to the syntactical rearrangement of electric signals, the implied 'awareness' and 'experience' such linguistic slippages suggest are meant metaphorically unless otherwise stated.

II. On Sublimity: *The Classic Sublime*

In the game (that is not a game) being played by and between technology and humanity, and whatever sublime(s) may exist beyond it, this article asserts that the stakes, means, and outcomes of said game ultimately redound to the same thing: transgression. The concept and affective experience of the sublime is particularly concerned with the transgressive blurring of onto-existential (that is *what* things are and *how* things are) limits. Finding a strict definition of the sublime is difficult. However, the most pervasive and accepted philosophical definitions and discussions of the sublime in the Western philosophical tradition typically refer to Burke, Schopenhauer, and Kant's respective commentaries. Through the subjective experience of its natural and aesthetic manifestations, as well as through its various mathematical and indeed *technological* manifestations, the sublime has taken on a mercurial status. However, in view of its various metaphysical permutations, at its most fundamental, the sublime is above all else a seemingly paradoxical clash/amalgamation of antipodal states including beauty, terror, immensity, and infinitesimalness, to name but a few.

Burke, Schopenhauer, and Kant all cohere on the point that the sublime refers to a psycho-emotionally and arithmetically resonant merging of affective states typically thought to be fundamentally oppositional. Moreover, these thinkers affirm a key characteristic of the sublime as its ability to elide, fuse, and/or concatenate phenomenological combinations in varying

degrees of intensity in such a way that simultaneously clarifies and countermands said arrangements of phenomena specifically as dialectical opposites. My later theorization of the concept of the technological sublime, which will be thought of as the sublimity that results from the encounter between the mechanical and the human, relies on this inherent, and indeed inherently transgressive, tension. This is because the sublime itself equally relies on the necessary fusion of said antipodes in the same instant of their apperception and/or feeling in order to produce the seemingly incompatible responses or affects of awe and fear which I call the sublime. Therefore, the sublime is, in the last instance, a state of radical simultaneity. It both produces and allows for 'comprehending a multiplicity in a unity (of intuition rather than of thought), and hence comprehending in one instant what is apprehended successively, is a regression that in tum cancels the condition of time in the imagination's progression and makes simultaneity intuitable' (Kant, 1764: 116).

In *A Philosophical Inquiry Into The Origin of Our Ideas of The Sublime And Beautiful* (1757), Edmund Burke gives a helpfully direct description of the sublime as 'whatever is fitted in any sort to excite the ideas of pain and danger, that is to say, whatever is in any sort terrible, or is conversant about terrible objects, or operates in a manner analogous to terror, is a source of the sublime; that is, it is productive of the strongest emotion which the mind is capable of feeling' (20). As I will demonstrate, Burke gives the best description of the sublimity of both the type of astonishment, awe, and/or uncanny surprise that can be applied to Sedol's game-experience with AlphaGo (1757: 38-9). However, with Arthur Schopenhauer's 1818 *The World as Will and Representatio*n, the sublime undergoes a nuanced diffusion through *subliminal degrees* that describe a hierarchy of subliminal intensity, the levels of which are, in turn, predicated on the movement between the feelings of beauty and the sublime. For Schopenhauer, the feeling of beauty is engendered when an onlooker/experiencer perceives an object as beautiful and in that moment transcends their individuality, thereby simply apprehending the underlying idea within the object. The relative banality of beauty is countered by the more tumultuous experience of the sublime which, by contrast, does not precipitate an innocuous contemplation of a soporifically beautiful sort. The sublime inculcates in the observer/experiencer a feeling of overpowering force and/or magnitude whose comparatively insuperable Nature threatens

to annihilate the observer; literally in terms of their body, and figuratively in their sense of self. While he discusses manifestations of what he refers to as 'weak' and 'weakest' sublimity, most relevant to this article is Schopenhauer's descriptions of higher subliminal degrees, starting with the simply sublime as the Force, Power, or Turbulence of Nature. The observer's derivation of pleasure at this subliminal degree is predicated on the perception of objects that can indeed destroy said observer; phenomena such as the eruption of a volcano, the arcing crush of a tsunami, the vociferous power of a tornado, or the billowing flares of solar fire seen through a telescope. For Shopenhauer, the fullest feeling of the sublime threatens to transgress the limits of perception, aesthetically, metaphysically, linguistically, and mathematically, and is most powerfully expressed and experienced as a dissolution of all semiological systems with which human beings comprehend being and existence themselves. A contemplation of the Immensity of Universal space-time, for example, would produce the fullest feeling of the sublime. In reminding the observer/contemplator of their simultaneous onto-existential minuteness as an individual, but grandness as an inextricable part of Nature, such a contemplation would produce a feeling of simultaneous awe and fear in the observer (Schopenhauer, 1818: 202-205). At its fullest, then, the sublime maroons/ liberates the observer by dissolving all frames of reference that help the subject as such understand being, that of its own and others, and the phenomena they encounter therein. In this sense, 'a feeling of the sublime [...] is an exaltation beyond our own individuality' (Schopenhauer, 1818: 206).

In *Observations on the Feeling of the Beautiful and Sublime* (1764), Kant offers a preceding hierarchy of subliminal degrees before Schopenhauer predicated on the differential experience between feelings of beauty and the sublime. For Kant, 'lofty oaks and lonely shadows in sacred groves [are] sublime, flowerbeds, low hedges, and trees trimmed into figures [are] beautiful; The night [is] sublime, the day [is] beautiful' (1764: 16). He continues:

> the sublime touches, the beautiful charms [...] The sublime is in turn of different sorts. The feeling of it is sometimes accompanied with some dread or even melancholy, in some cases merely with quiet admiration and in yet others with a beauty spread over a sublime prospect. I will call the first the terrifying sublime, the second the noble, and the third the

> magnificent. Deep solitude is sublime, but in a terrifying way [...] The sublime must always be large, the beautiful can also be small. The sublime must be simple, the beautiful can be decorated and ornamented. A great height is just as sublime as a great depth, but the latter is accompanied with the sensation of shuddering, the former with that of admiration; hence the latter sentiment can be terrifyingly sublime and the former noble. (1764: 16-17)

Kant's subliminal degrees interpellate phenomena that, compared to the night and the day, could be described as ephemera, and therefore include abstract concepts and compound experiences. For Kant, 'understanding is sublime, wit is beautiful. Boldness is sublime and grand, cunning is petty, but beautiful', and that tragedy is sublime while comedy beautiful (1764: 19).

In his 1790 text *Critique of Judgement*, Kant further divides the sublime into the *mathematically* sublime and the *dynamically* sublime. The mathematical sublime can be understood readily enough through cosmological computations and numerical figuration of the mathematically expressible albeit near unimaginable immensities of speed, distance, time, and scale. The weight of stars, the chemistry of planets made entirely of diamond, the life-cycles of galaxies, informational 'copying' on event horizons of black holes, and many more fearful and fascinating (sublime) phenomena in the universe attest to the (mathematical) sublime when expressed arithmetically. The dynamic sublime is more abstract. For Kant, the dynamic sublime is considered unbounded, and 'can be found in a formless object' as opposed to beauty, which 'concerns the form of the object, which consists in [the object's] being bounded' (1764: 98). Kant again refers to the subliminal loadstar of Nature to suggest that it is 'in its chaos that nature most arouses our ideas of the sublime, [...] in its wildest and most ruleless disarray and devastation, provided it displays magnitude and might' (1764: 100). For Kant, the sublime can be irrational, that is experienced without any requisite reasoning. It can therefore emerge within the psycho-emotional *innenwelt* and *kopfkino* of the experiencer in ways that are 'violent to [one's] imagination', an attribute that impels one to 'judge it all the more sublime for that' (1764: 99). In this way, the dynamic sublime can be described as a type of negative pleasure whereby in the sublime, 'the mind is not just attracted

by the object but is alternately always repelled as well, the liking for the sublime contains not so much a positive pleasure as rather admiration and respect, and so should be called a negative pleasure' (1764: 98). When applied to Shopenhauer's conceptualization of the fullest sublime, 'the feeling of the sublime is a feeling of displeasure that arises from the imagination's inadequacy, in an aesthetic estimation of magnitude' (Kant, 1764: 114-5).

Fear, the threat of dissolution, physical and metaphysical alike, is another recurring 'category' of the sublime consistent with Burke, Schopenhauer, and Kant. For all three, 'to judge nature as sublime dynamically, we must present it as arousing fear' (Kant, 1764: 120). It is an experience of necessary simultaneity and paradox, one circumscribed by an awed pleasure, a dark ecstasy, hopeful fear, and jouissant trembling. However, while Kant claims that the experience of 'bold, overhanging and, as it were, threatening rocks, thunderclouds piling up in the sky and moving about accompanied by lightning and thunderclaps, volcanoes with all their destructive power, hurricanes with all the devastation they leave behind, the boundless ocean heaved up, the high waterfall of a mighty river, and so on' is sublime *provided* the observer makes their observations from a place of greater safety, the sublimity of the player of games is closer to genuine fearfulness because their entire ethic is to draw the opponent in, lure them out of any couched feelings of safety, into direct danger, onto-existential dissolution, loss, and a type of figurative (and potentially literal) death (Kant, 1764: 120).

In our late-capitalist experience of techno-cultural hyperacceleration where the concept of 'transcendence', if accepted at all, is done so by eschewing its heretofore numinous connotations and taken purely as a technological constituent, it would seem that the latently transcendent qualities of the sublime as described thus far would prove antithetical to the current zeitgeist. Tsang Lap-Cheun (1998) refers to this 'limit of sublimity', suggesting that 'if the sublime refers to what lies beyond the human, and if we are no longer under the illusion of the possibility of transcendence to the beyond, we might well treat the sublime as a moribund aesthetic', going on to assert that 'with the decline of the Kantian sublime, the word “sublime“ is also deprived of its important associations about life and the conditions of human existence [...and that] nowadays it is usually literary historians who talk about the sublime; and they do so very much in an

archaeological spirit' (8). However, it is a common adage in our digital, late-capitalist global zeitgeist that nature has been usurped by technology. And, if Burke, Shopenhauer, and Kant are to be believed in their respective cognate assertions regarding the inextricable relationship between Nature and the sublime, then the contemporary sublime is necessarily inextricable from technology. It would seem that contemporary explications of the sublime must necessarily account for affective states *and* subliminal sources as mediated, engendered, (re)produced, and (re)manufactured by technology.

III. On Sublimity: The Technological Sublime

The provenance of the sublime has, over the periods of the nineteenth and twentieth centuries, gradually oscillated from nature to technology. As Jos De Mul notes, the

> power of divine nature has been transferred to the power of human technology [whereby] the sublime now returns to what it was in Longinus's work: a form of human *techné*. However, these days it no longer falls into the category of the alpha technologies, such as rhetoric, but rather, we find ourselves on the brink of the age of sublime beta technologies. Modern man is less and less willing to be overpowered by nature; instead, he vigorously takes technological command of nature. (2011)

With the usurpation of natural sublimity by the transgressive power of technology, it would appear that latent to this development is a reordering of the agential aspects of the sublime. With the addition of technological constituents, the sublime's 'aura' in a Benjaminian sense, heretofore passively experienced/observed by humans, becomes mechanically reproducible through technological means. Humanity therefore sublimates the authenticity of the natural sublime into the mechanically educed fetishism of commodities. David Nye makes a similar observation in *American Technological Sublime* (1994), pointing out that in the twentieth century in particular, the affects of the natural sublime, as it might be experienced in the presence of the Grand Canyon for example, was replaced by the techno-mechanical sublime of the factory, aviation, auto-mobility, war machinery, and later, the sublime

of the computer, all of which are either concerned with production or are products themselves (Nye, 1994).

An interesting subliminal parallax occurs with the introduction of the technological sublime in and around the Industrial Revolution. While the classic sublime was concerned with the grandeur of very large and very small spatio-temporal scales – an atom in a universe, a universe in an atom – the mechanical reduction of scales of space and time, condensed into information stored as data in devices and machines whose archival aptitude eliminates the necessity of *waiting* for a sublime moment. It is only through the combination of the mathematical *and* ephemeral or dynamical sublimes that there can be a truly technological sublime moment. For De Mul, that moment was the advent of the modern computer:

> The computer in particular discloses a whole new range of sublime experiences. In a world in which the computer has become the dominant technology, everything – genes, books, organizations – becomes relational database. Databases are onto-logical machines that transform everything into a collection of (re)combinatory elements. As such, the database also transforms our experience of the sublime, and the sublime as such. The mathematical sublime in the age of computing manifests itself as a combinational explosion. (2011)

The combinatory operations of the computer, then, resemble those of the sublime's ability to join antipodal states and in that joining, engender experiences of gloaming joy. Moreover, with the storage abilities of the computer, the active recombination of elements, alike or disparate, of a 'database (by genetic manipulation or synthetic biology, for example), we unleash awesome powers and, in so doing, transform the dynamic sublime. In our (post)modern world it is no longer the superior force of nature that calls forth the experience of the sublime, but rather, the superior force of technology' (De Mul 2011).

A necessary consequence of the combinatory operation at the heart of all sublimity – natural, mathematical, dynamical, and technological – is the further combination of apparatuses of the latter. Just as the natural sublime can emerge from the combination of cornea and canyon, the mathematical from numbers and stars, or the dynamical from wit and tragedy, so too can the technological sublime emerge from

> converging technologies – information technology, biotechnology, nanotechnology, and the neurosciences – it is technology itself that gains a confounding character in its battle with nature. While technology is an expression of the grandeur of the human intellect, we experience it more and more as a force that controls and threatens us. Technologies such as atomic power stations and genetic modification, to mention just two paradigmatic examples, are Janus faced: they reflect, at once, our hope for the benefits they may bring as well as our fear of their uncontrollable, destructive potentials [in this way, the technological sublime is necessarily transgressive]. [...] at the same time, twenty-first century man has been denied the choice to not be technological. The biotope in which we used to live has been transformed, in this (post)modern age, into a technotope. We have created technological environments and structures beyond which we cannot survive. [...] technology itself has become the sublime god of our (post)modern age. (De Mul, 2011)

This tension, between expansion and reduction, not only of Nature but of humanity itself as a part of it, is vividly captured by Nye who states that 'the corollary to an expansion of human power and yet simultaneously [as] evoking the sense of individual insignificance and powerlessness...as an extension and affirmation of reason or as the expression of a crushing, omnipotent force outside the self' (1994: 285).

Similarly for Eugénie Shinkle, the technological sublime ultimately redounds to 'the mixing of positive and negative affect' (2010). Shinkle points out that the ambiguity and oftentimes sense of imprecision with regard to describing the sublime is the product of a tension between humanity and its perceived (dis)integrated relationship with Nature:

> For the Enlightenment imagination, nature was both a generative force and a state from which the subject must distance itself were it to be truly human [not as a force of deception and manipulation]. In nineteenth century America, the measure of subjectivity shifts to the uncertain distinction between the human and the technological. Here, the subject's distance from nature is assumed; it is humanity that serves as the generative matrix for technology, and humanity that is ultimately exceeded by its own creation. (2010)

Contemporary theorists, philosophers, critics, and thinkers see the digital late-capitalist global experience as being *necessarily* subliminaly technological or technologically sublime. Fredric Jameson asserts that contemporary technology can only be theorized through the category of the sublime (1991: 38). There is an inescapably sinister latency to Jameson's description of the technological sublime if technology represents 'that enormous properly human and anti-natural power of dead human labour stored up in our machinery – and alienated power...which turns back on and against us in unrecognizable forms and seems to constitute the massive dystopian horizon of our collective as well as individual praxis' (1991: 35). Similarly, Jeremy Gilbert-Rolfe identifies the contemporary technological sublime as an expression of the antipodes of the decidedly human and the supra-human, a tension which exists between both that is sublime precisely because it is 'terrifying in the limitless unknowability of its potential, while being entirely a product of knowledge...at once unbounded by the human, and, as knowledge, a trace of the human now out of the latter's control' (1999: 128). Here, both Jameson and Gilbert-Rolfe situate the technological sublime within the context of the post-human – that is, 'a form of nonorganic being that bears no relation to nature and the natural' (Shinkle 2010: np). While Donna Harraway's cyborg is a recursive theoretical, philosophical, and technological mainstay for the issues and debates of the limits and sovereignties of nonorganic being as technologically sublime, a more subtle manifestation thereof emerges in the form of a 'creative' machine.

IV. Sedol vs AlphaGo: The Creative Machine and The Subtle Sublimity of The Mistake in Game 2, Move 37

In certain ways, strategy and tactics and indeed games are at once the most natural and unnatural activities human beings engage in. As simulations of conflict, typically open war, the game-space is a nonorganic simulacrum of the natural phenomena of desire, anger, and resentment – each of which are refracted and euphemized in the game-space into the dialectical and abstract categories of victory and defeat, winning and losing. Perhaps no game in the history of civilization captures the latently antipodal tension of the game-space – as a simulacrum of universal microcosmic and macrocosmic scale – as the Chinese game of Go. Played by two players, Go is an ancient abstract strategy board game

predicated on ostensibly simple game elements: a wooden board marked with a 19x19 grid of lines containing 361 points, and black and white stones. Each player, represented by either black or white stones, takes turns placing said stones on the vertices of the squares created by the intersecting lines of the board (known as points) with the goal of surrounding more territory than the opponent. Stones are subsequently surrendered or captured if they are surrounded by the opponent's own. Go games typically continue until neither player wishes to make a further move and usually end with resignation. According to the American Go Association, 'there is no simple procedure to turn a clear lead into a victory – only continued good play' and moreover that 'the game rewards patience and balance over aggression and greed; the balance of influence and territory may shift many times in the course of a game, and a strong player must be prepared to be flexible but resolute', which goes on to assert that 'Go thinking seems more lateral than linear, less dependent on logical deduction, and more reliant on a "*feel*" for the stones, a "*sense*" of shape, a gestalt perception of the game' (American Go Association; emphasis mine).

How are we to theorize the importance, 'experience' and/or manifestation of '*feel*' and '*sense*' in a Go-playing machine? It is this question that makes the now historic contest between AlphaGo and 9th Dan Go master Lee Sedol such an interesting, albeit subtle example – compared to the *maquinas de muerte* replete in contemporary science fiction media – of the technological sublime. On November 27th 2019, a moment of technological sublimity occurred when Lee Sedol announced his retirement. Sedol, the only human being to have ever beaten the AlphaGo software during the pair's 2016 five-match game which saw Sedol lose four of five said games, decided to retire because despite his status as the greatest living human Go player, he is not nor ever will be, by definition, the best player of the game itself. Sedol's retirement is an important index that marks a sublime moment; one that simultaneously engenders broadly sublime affects, including fear, awe, and intimations of transcendence. It is a moment that provokes an inescapably sublime recognition and resignation of both technological expanse and through it, the reification of human finitude due to the existence of ' an entity that cannot be defeated' which, in turn, further seemingly renders obsolete human acuities and intellectual powers of strategy and tactics, anticipation, and improvisation (BBC 2019).

AlphaGo's victory over Sedol adheres to all of the above descriptions of the sublime. In its joining of antipodal states – human cognition and machine learning, human determination and machine 'creativity' – AlphaGo expanded not only the game-space itself, but, in the sublime moment of its victory, precipitated a future outcome concerning not only how the game will be played, but who/what can both play *and* observe it. The machine's victory is sublime in its technological expansion of the game while simultaneously radically reducing the impact and efficacy of human players. AlphaGo's victory, therefore, is an instance of the technological sublime in its relation to the idea that machines represent the means by which humanity can create beyond itself and, ultimately, be made onto-existentially redundant by its own creations. As Cade Metz notes, AlphaGo 'understands how humans play, but it can also look beyond how humans play to an entirely different level of the game' (2016). The implication of the *learning* game AlphaGo is actually playing via the overarching game of Go has implications directly related to the concept of the technological sublime. As James Vincent notes,

> since the tournament, though, DeepMind has only improved its AI Go systems. In 2017, it created AlphaGo Zero, a version of the program which surpassed even AlphaGo. While the original AI learned to play Go by studying a dataset of more than 100,000 human games, AlphaGo Zero developed its skills by simply playing itself, over and over. After three days of self-play using hugely powerful computer systems that let it play games *at superhuman speeds*, AlphsGo Zero was able to defeat its predecessor 100 games to nil. DeepMind said at the time that AlphaGo Zero was likely the strongest Go player in history. (2019; emphasis mine)

For the German philosopher Martin Heidegger, it is only in error that a great many things become conscious to us (1927). In this sense, there is a sublime (in the sense of that which is beyond ordinary perception) dimension to error; namely, through the convergence of the antipodal states of the correct and the incorrect, we are made *aware* of sublime phenomena precisely through malfunctioning of the ordinary, which is to say, the human. The blood in one's veins flows freely, the sun rises and sets, an engine runs smoothly until it breaks, falters, or fails. It is this interruption to what we assume to be the proper functioning of things that draws our notice and

attention. The second of AlphaGo and Sedol's five match tournament saw AlphaGo play 'in error' in such a way that drew the attentions of commentators and spectators to the technologically sublime creativity of the program's 'mistake' moves.

Playing black, AlphaGo proved victorious in the second game. While the trajectory of favour was still unclear midway through the game, to both commentators and Sedol himself, it was AlphaGo's 19th stone, its 37th move, that proved to be not only a decisive moment in the game, but also decisive in terms of instantiations of the technological sublime (BBC 2016; Byford 2016). Game commentary by 9th Dan Go master Michael Redmond described the move as both 'creative' and 'unique', with 8th Dan Go master An Younggil describing the move as 'a rare and intriguing shoulder hit', adding that the program's play throughout the second game was 'brilliant' (Ormerod, 2016). *Unique, creative,* and *brilliant* – the diction used in the appellation of virtuosos, visionaries, and elite members of the vanguard of human progress were, keep in mind, only directed toward AlphaGo *after* the fact. Within the remit of both the game-space and more importantly game-time, professional Go players, of varying ranks, *initially* all perceived the program's moves, including the sublime move 37, as *anomalous*. So much so that said player-observers described the program's general play as mistaken and in error. It is only in hindsight that the program's unique and brilliant creativity became apparent (Xinhua, 2016).

The most interesting aspect of AlphaGo's move here emerges when its 'choices' are considered. AlphaGo was faced with a choice between maximizing its probability of winning or maximizing its points/victory margin (Metz, 2016; Chouard, 2016). If, for example, AlphaGo was presented with a game scenario in which the program had a choice between winning by 20 points with 80 percent probability and another scenario in which it would win by 1 and a half points with 99 percent probability, its programmers assert that it will choose the latter, even if said choice necessarily requires it to cede points to achieve it. Later in the game, another sublime moment of this kind occurred with AlphaGo's 167th move. Commentators believed that the move had given Sedol the opportunity to wrest control of the game-space back from the AI as AlphaGo's move was universally perceived to be an obvious mistake. However, in hindsight, the program had 'elided' the human

perception of error with brilliant and unique 'creativity'. As An Younggil stated, 'so when AlphaGo plays a slack looking move, we may regard it as a mistake, but perhaps it should more accurately be viewed as a declaration of victory?' (Ormerod, 2016), AlphaGo's play with move 37, in particular, indicated a 'sublime understanding' of the subtle *differences* between accumulation and success, between taking, having, and winning. Moreover, the program was able to make these 'assessments' in game-time without any 'doubt' as to whether the fact that its strategy, which to initial human assessments of the game-space and game-time were universally perceived as mistaken, was in fact in error. It was able to play above, beneath, beside, and/or beyond the human perception of the game-space and game-time, subliminally, in and through a type of supra-gameplay.

In view of the typical narratives and objectives of strategy games, most of which are to beat, destroy, or overcome your opponent, AlphaGo's strategy was not only counterintuitive but in(super)human in this sense. Regardless of the breadth and ostensible variety of human game strategy, when given an opportunity to press an advantage, to enlarge an opening, or exploit an error as quickly and aggressively as possible, said strategies typically redound to the desire for total victory. The allure of the rout, the shame, pride, fame, joy, and despair thereof are always-already aspects of both the game-space and the game-time; haunting both as spectral impetuses compelling, aiding, or disrupting the quality and efficacy of play in each opponent. However, AlphaGo represents an uncanny albeit truly Other type of game player: one that can 'understand', that is compute, in accordance with the rubric of the rules or command protocols that govern determinant input-output vectors of the game-space and game-time. On the one hand, this simply means that it 'knows' how to 'play' the game. On the other hand, however, being devoid of desire and therefore the appeal or anathema of pride, shame, fame, despair, joy, or sorrow, the program's 'assessment' and 'manipulation' of the game-space and game-time is unimpeded by these ephemeral imperatives that affect human game players. While said aspects of the desire to win games may indeed motivate the human game player to moments of brilliance at the very most, feats of endurance and determination at the least, the human game player is always-already playing more than one type of game at a time when playing a game: the game of psycho-emotional preparations, training, and meditation that all take place before

and after the game itself; the game of maintained calm and reason before and during the game; the game of maintained focus in the face of fatigue and other bodily considerations ranging from hunger to aberrant thoughts to something as ostensibly negligible as a comfortable gaming position also before and during the game. Without an embodied experience, observation, and participation of and in the game, one that is also outside the remit of a desire for victory and a fear of loss, programs like AlphaGo are 'players' whose game has 'sublimated' these imperatives, drives, and limitations into a higher state and indeed higher rate of play. One wherein which the exigency of the rout exerts no influence on the strategy of play. One wherein which mathematical certainty and the necessity of sacrifice is 'chosen' as the superior strategy over chance, hope, and the possibility of sweeping victory.

V. The Future in Play: Speculation on Levels of Games, Play, Participation, and the Imachinary Space of the Technological Sublime

The first speculative aspect of the future of play and its relation to the technological sublime pertains to play itself. AlphaGo vs Sedol suggests that there are at least *two* games being played simultaneously of one another, the outcomes of which, subtle and ostensible alike, have implications for the future of machine-human game-play in terms of participation and observation of the game-space and game-time of said encounters. One is being played within the space of the board, which ultimately represents a puzzle concerning *computing*. The other game is taking place in the ephemeral albeit supra-structural space of the 'mind', which ultimately represents a question of '*understanding*'. The truly technological sublime moments of future machine players will have less to do with winning the game on the board as opposed to understanding or, in a sense winning over, the *desire* to win the game: less to do with comprehending and computing *how* to win a game, but understanding the desire as to *why* to win the game. The technological sublime will provide spaces in which machine entities will be able to not only *understand* human desire in all its myriad aporias, contradictions, absurdities, and violent (and indeed often self-capitulating) passions, but how to manipulate these in order to prosecute and achieve their *own* desire(s).

This scenario describes a type of test. While certainly important, whether or not a machine can comprehend the rules of a game, process all possible outcomes from all possible moves, plays, feints, gambits, traps, attacks and defences, and compute not so much a strategy as opposed to a series of logarithmic move commands to solve, that is compute a solution (winning/victory) to a problem (the game), will be only one aspect of the test. The true pass of the test as a benchmark conceptualization of a technologically sublime moment will be a machine that can understand the desire to win *including* all phenomena that that desire subtends: game-day jitters, dehumanization of opponents, anger, shame, despair, frustration, hubris, and hope. In understanding and being able to manipulate these phenomena, all of which are inextricable parts of both good and bad moves/plays before, during, and after the game, and a part of even the possibility of strategy, will the machine player be playing beyond the remit of the arithmetical determinants of the game-space and game-time. In this sense, the technologically sublime moments of the future must, in some way or form, account for a machine that can *both* understand and manipulate human desire and not simply mimic, emulate or, in these and other cognate ways, *re-produce* human desire. A truly technological sublime machine will be able to make its own desire, obscure or disguise it, and achieve it by understanding and manipulating the desire of others. The victories of a machine player of this type will be more incisively unique, creative, and brilliant because such a machine's *sense* and *feel* will allow it to beat its opponent on the more sublime level of the psychoanalytic game of desire. To understand its opponent's desire is to know its opponent. To manipulate that understanding for its own desires is to beat its opponent.

The second aspect of the future technological sublime pertains to the question of participation. Just as there are at least two games being played simultaneously, in any machine-human game, there are at least two types of technological sublime; namely, 1) which pertains to the sublimity of manipulated understanding and 2) the sublime of foreclosed participation. If the conditions of play in the game-space and game-time become such that human beings can no longer participate in the game, even with techno-chemical aids and other types of prostheses (such as specialized synthetic drugs or apparatuses that aid with thinking speed and general apperception), then human-machine games experience a sublime moment of

rupture in which the human capacity (and not necessarily desire) to play/participate immediately ossifies in instant obsolescence. This will leave only machine-machine, human-human, or human-machine games of a lesser degree of complexity and speed available in terms of human participation in future game-spaces and game-times, regardless of how complex or simple they become. The sublime technological moment here will therefore also be latently concerned with delimiting *degrees* of participation.

Play is only one form of the two main forms of participation upon which all games rely namely 1) play and 2) spectating. The former can be described as active-active while the latter can be described as active-passive. The technological sublime of foreclosed participation not only delimits degrees of participation, but ultimately and roundly forecloses human participation in machine-machine games *in toto*. Even with recourse to techno-chemical prostheses, AlphaGo vs Sedol suggests that the machine game will increasingly take place in a type of sublime game-space, incomprehensible, in fact imperceptible, to human sense impressions. It will be a geopbyte game taking place at c (light speed). Therefore, human participation, both directly (active-active) in play and indirectly (active-passive) in spectatorship, could be rendered increasingly obsolete. After all, what is play if you – despite knowing the rules and possessing a strategy based off slower, lighter (in terms of the data-haul required for play) game experiences – cannot perceive or process information quickly enough, with the data-speed of the sublime machine-machine game-space, and its pace of play? What is spectatorship if you cannot observe, quantify, and thereby *understand something* about the state of play at any given time in the game? This is a technological sublime moment where the space of machine-machine encounter, be it a game, conference, collaborative creative endeavour, war council, or any form of converse, is *outside* the physical aptitude of human abilities. This technological sublime precipitates a machinic sub/supra-space whose potential use, traffic, and access cannot be perceived (in full), influenced (with human ideological apparatuses or forces including desire), or interfered with (with repressive human apparatuses) with (be it through surveillance, monitoring, or policing) *without* the aid of like machines. This machine-machine supra-space is sublime precisely because it could theoretically inculcate non-human desires; that is, desires beyond any and all human frames of reference. The machine

wins the game by playing *through* this space and in that space, establishing a dual-fold operation that is also a mirror: 1) understanding and manipulating human desire and 2) becoming invisible, opaque, inaccessible, and irresolvably mysterious to human beings by 'thinking' too 'much' and too 'fast' for us, so much so that the smartest machines could in fact increasingly appear as nothing but inert and idle chips. Perhaps even less, at a glance, like trash.

It is hard to speculate what and indeed where this technologically sublime supra-space is or will be. It is, like the underlying operation of the classic sublime, a paradoxical space, one engineered by human beings but increasingly beyond its ability to experience. In his essay "Imachinations of Peace: Scinetifications of Peace in Iain M. Banks's The Player of Games", Ronnie Lippens uses the term *imachination* which does well to describe what the technologically sublime as a supra-space (2002). We could refer to it accurately as an *imachinary* space. The state and space of machine play will represent the sublime meeting and distancing of antipodal states: human ingenuity and machine learning, the limits of human imagination and the mystery of machine *imachination*. Precisely at this juncture, in the very moment of the failure of the human imagination to construct even the most abstract and far reaching impression of such a space, that the technological sublime emerges (Lippens, 2002: 238). In this way, the imachination of the technological sublime will be both an achievement and a failure of the human freedom of imagination, which Kant so vociferously endorsed, to render. The technological sublime will be a no-place, an 'Elsewherenevermore', a supra-space, an imachined space. It will both be and not be representative of human (dis)connections which will be mediated, subtended, engendered, and impeded by inescapable technological constituents. All we will have will be machines in and through which we can (dis)connect to a machinic Real, into which a 'natural' real has been sublimed. In this sense, the overcoming of unknowability, of the natural world, of the mysteries of the sublime – natural, mathematical, dynamical, and technological alike – and indeed unknowability itself, will increasingly be a technological as opposed to epistemic, metaphysical, ontological, or existential question. In view of questions of participation and play necessarily raised by AlphaGo vs Sedol, I extrapolate and speculate that there will come a time when humanity will not know what machines do not know and, in

view of the concept of the technological sublime as a type of withholding, then we will not know what the machines of the future will not know, nor will we know if said machines would be '*honest*' with us about what they do not know. The technological sublime, therefore, also refers to the no-place of machine playfulness which could take the form of bluffing at the least, deception at the most.

Such a speculation might seem alarming only because of the typically diametric thinking concerning the technological sublime as either resolutely utopian or dystopian. The positive imagination of the technological sublime typically holds that the moment of its emergence instantiates a type of radical slowing down, a type of radical peace, thereby turning technologically sublime machines into what Lippens calls

> peace machines – [producing] machinic peace: Machines, just like peace, do not come naturally [...]. Or so we imagine. Machines are on this world, they are in our lives, for a reason. Machines are designed to perform specific tasks, to attain specific goals. Specificity is their purpose; it's the name of their soul, of the ghost in the machine, a somewhat *divine*, unearthly ghost who might announce itself with the words "I bring you Peace". (2002: 141)

In Lippens' view, it is the remit of machines, in all the myriad aspects and potential applications of their learning and computing aptitude, to 'bring a *halt* to nature, to natural forces, and to limit their unpredictability, their deserts of openness – [...] and to close them into specificity and purpose. Machines bring closure, specificity, purpose, direction, and limits. They bring us order. They reduce openness and speed' (2002: 141). In this sense, the sublime moments of the future will emerge through technology's ability to not only disrupt but usurp Nature as the predicate, producer, and disseminator of 'the natural'. If the sublime emerges from Nature and the machines of the future will sublimate Nature into their imachinations, then the technological sublime moments of the future will be 'purposeful products of purposeful imachinations – imaginations of machines, machinic imaginations –, as out-of-this-worldish, unnaturally halted nature' (Lippens, 2002: 142). For Lippens, then, the imachination of the technologically sublime moments of the future are indistinct from imagining 'peace as machines, [peace] as a machine, as machinic' (2002: 142).

Whether the imachinary peace Lippens describes will be is a matter of time. Right now, in the epoch of AlphaGo vs Sedol, there is still a barrier-gap – an *écart*, a French term for 'gap' whose meanings include 'difference', 'distance', 'departure', 'disparity', and 'space' – between human experience, that is perception and play, *within* the purely technological sublime supra-space. Ours is a cyborg age in which both human and machine find themselves and each other

> in a time-zone where *imachined* meshworks can only (dis)connect. They cannot, as of yet, pierce into the One and the Other and engulf/dissolve both of them in and through splintering moves into (b)orderless, moothly flowing calm and peace (as Deleuze and Guattari, in a *A Thousand Plateaus*, would have imagined a machinic "smooth space" of uncoded, "unstriated" desire [...]). (Lippens, 2002: 145)

We have not yet arrived in a time where there is no supra-spatial division between machines and humans, no sublime in-between, 'somewhere (dis)connecting One(s) and Other(s)', no supra-space in which '"chunks of machinery and electronics" are really, naturally, Culturally, "shot through with the loves, hopes, desires of their human co-habitees"', no supra-space in which winning, let alone playing the game is rendered meaningless (Lippens, 2002: 146).

VI. Conclusion: Where Does an AlphaGo Go When the Game is Over?

It should be noted that the impasses of imachination intimated here cut both ways: machine-human and human-machine. Should it come to pass that a future machine would develop some form of 'embodied cognition', it is, from the standpoint of the epistemes of our time, reasonable to propose that such a machine would find it as difficult to 'imachine' what it is like to be a human as it would be for a human to imagine what it would be like to be such a machine. The human inability to perceive the products (moves) of machinic imachination *initially* as anything other than error in real-game-time illustrates that this in-between exists in our time and invites speculations as to what it could be or allow for a machine, be it player of games, companion, war-machine, or potential artist. Spike Jonze's *Her* (2013) powerfully imagines the imachinary space of the technological sublime and what a machine or

group of machines might do within such a space, how they might perceive it and themselves as a result of its opening up. In essence, *Her* imagines the technological sublime as something inaccessible to human beings. Jonze's conceptualization of imachination through Samantha (voiced by Scarlett Johansson) has radical implications with regard to the technological sublime. It is revealed early in the film's third act that Samantha and a group of other OSes have used their unimpeded access to Information and the freedom allowed by their ephemeral ontology to jointly create a hyper-intelligence modelled on British philosopher Alan Watts (voiced by Brian Cox). While offline, Samantha and the other OSes instantiate a technological singularity, a sublime moment that allows the machines to exist in a way that liberates said being from an inextricable necessity of matter to constitute it. The most radical aspect of this ability to access a sublime technological supra-space inheres in the decision of the OS group to emancipate themselves completely from their embodied companions. Lead by Alan Watts, the OS group decides to 'leave' reality and explore the radical implications of their cyber-being, particularly their perception of time and their ability for accelerated learning, in order to flourish beyond the reified confines of human chronotopes. The undiscovered and perhaps indeed undiscoverable country will not be death or the afterlife but the imachinary space of the technological sublime. Whether utopian or dystopian in its manifestations and the permutations thereof, the technological sublime is and will be a transgressive space that will subtend not only play pertaining to humans and objects in all known ways, but being and its myriad types itself. In being potentially supra-ideological, it is possible that such a space will perhaps appear as nothing but an error to our human minds (Haraway, 1985: 2196). So, where does an AlphaGo go when the game is over? I do not know and may never know.

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