Cognitive Science and Cultural Politics of Images: Tasks and Perspectives of Visual Cultural Studies in the Age of Ubiquitous Computing*

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Abstract

Augmented reality (AR), a third space that connects virtual and physical spaces in real-time, has embodied the disembodied vision of virtual reality (VR). While VR enforces visual immersion with one's body in a fixed position, AR enables users, as they move around in real-world environments, to interact with virtual objects. The commercialization of AR technology through smartphones during daily road travel is a clear indication that the "age of ubiquitous computing" has become a reality. In the near future, the third space will continue to expand, leading to significant changes in the way technology, media, subjects, and society interact. Among various changes, perhaps the most notable is the transformation in the nature of the image.

In Cinema 1: *The Movement-Image and Cinema 2: The Time-Image,* Deleuze aimed to renew philosophy by establishing a typology and expanding the concept of the image, which was crucial to understanding changes in the mode of perception. However, the role of the body is quite restrictive in his theory of image. Furthermore, some argue that his theory runs the risk of de-politicizing cinematic practices by giving more privilege to the time-image than to the movement-image, leading to an excess of metaphysical discourse on the image. Therefore, it is crucial to acknowledge Deleuze's contributions to the theory of image while overcoming the potential risk of disembodiment and depoliticization. To achieve this goal, we need to connect Deleuze's theory to that of Benjamin, who recognized the uniqueness of cinema as a new art form in the age of mechanical reproduction and viewed it as an expansion of the 'play-space' to seek the politicization of the arts.

This paper aims to critically reconstruct Deleuze's image theory by integrating recent findings from cognitive science research. Moreover, it will explore the feasibility of actualizing Benjamin's theory of cinema. To achieve this goal, the paper will combine the Deleuze-Benjamin connection with Mark B. Hansen's analysis of the intimate correlation between digital media and somatic performativity to identify new challenges and prospects for the cultural politics of the image in the age of ubiquitous computing.

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몸을 고정시킨 채 시각적 몰입만을 강제하던 가상현실과는 달리 가상현실과 물리적 현실을 실시간으로 연결시키는 증강현실의 제3의 공간에서는 탈신체화 되었던 시각이 다시 움직이는 몸과 연결되어 신체화된다. 일상적인 거리 이동 시에도 스마트폰을 통해 증강현실 프로그램 사용이 상용화되고 있다는 것은 소위 '유비쿼터스 시대'가 현실로 도래했음을 알리는 지표이다. 앞으로 제3공간은 다양하게 확장될 것이며, 이로인해 〈기술-미디어-주체-사회〉간의 상호작용에도 큰 변화가 야기될 것이다. 이런 변화 중에서 특히 주목할 점은 이미지의 성격 변화이다.

들뢰즈는 영화 1, 2에서 지각양식의 변화를 살피는 데에 핵심이라고 할 이미지 개념의 유형화와 확장에 크게 기여하면서 철학의 쇄신을 시도했다. 하지만 그의 이미지 이론에서 몸의 역할은 극히 제한적이다. 또 운동-이미지에 대해 시간-이미지를 특권화함으로써 이미지에 관한 논의를 지나치게 형이상학 쪽으로 끌고 나가 영화적 실천을 탈정치화할 위험을 초래했다고 할 수 있다. 따라서 들뢰즈의 이미지론의 성과를 계승하면서도 그의 이미지론이 안고 있는 탈신체화, 탈정치화의 위험을 넘어서야 할 필요가 있다. 이를 위해서는 기술복제시대의 새로운 예술인 영화의 특이성을 '유희- 공간'의 확대로 보면서도 이를 통해 '예술의 정치화'를 모색했던 벤야민을 들뢰즈와 연결해야 할 필요가 있다.

이런 관점에서 최근 인지과학의 연구 성과에 기대어 들뢰즈 이론을 비판적으로 재구성하고, 이를 토대로 벤야민의 영화이론을 현행화할 수 있는 가능성을 검토하고자 한다. 그리고 들뢰즈-벤야민의 연결을 마크 한젠이 제시한 디지털 미디어와 '신체적' 수행성의 내재적 연관 관계에 대한 분석과 결합하여 유비쿼터스 시대에 잠재된 이미지의 문화정치의 새로운 과제와 전망을 살피고자 한다.

Key words

Augmented reality, Movement-image, Duration-image, Dialectic of semblance and play, Body's en-framing

Introduction: Advent of Ubiquitous Era and Emergence of Third Space

The widespread use of smartphones has brought about significant changes in Korea. Currently, it is reported that one out of every two mobile phone subscribers in the country uses a smartphone. One of the biggest changes resulting from this trend is the explosive increase in the use of social networking services (SNS) such as Twitter and Facebook. A survey conducted by the Korea Communications Commission at the end of last year revealed that 44% of smartphone users and 65.5% of tablet PC users are using SNS.[1]

This means that cloud computing enables the production, communication, and consumption of various types of information and knowledge anytime and anywhere. The rise of cloud computing marks the arrival of the "ubiquitous" era, which literally connects the online and offline worlds in real time. Technological advancements are clearly driving various forms of social change. The surge in real-time networks of people, behavior, information, and technology is not only facilitating communication but also transforming our mode of perception and cognitive structures. As previously separate offline and online spaces are connected in real-time, our perception of space and time

is shifting. Moreover, we are witnessing a rise in diverse combinations of images, sounds, and texts. The use of smartphones while on the move is causing changes to the response modes and rhythm structures of our bodies and brains. Notably, the commercialization of AR technology represents the arrival of the ubiquitous era, in contrast to the virtual reality (VR) of the past.

While VR relies solely on computer-generated images, AR superimposes virtual images onto real-life backgrounds, creating hybrid synthetic images. In VR fighting games, the player's representation is a virtual character fighting virtual enemies in a virtual space. In contrast, AR fighting games allow the player himself/herself to engage virtual enemies in real-life spaces, providing a more realistic experience. VR is more commonly used in digital movies, while AR can be used by smartphone users in their daily lives, marking it a significant difference. After launching an AR app, the user can direct the smartphone's built-in camera to a specific location or building. The GPS receiver records the current location information, which is then transmitted to a geolocation system via the internet. The search results are subsequently sent back to the smartphone with detailed information about the area and surrounding streets, including driving directions, bus transit boarding stop information, and even virtual navigation for pedestrians. By pointing the smartphone camera down at the street, the user can see on the AR app screen a virtual arrow indicating the direction to take.

AR is easily accessible to users, its emergence on smartphones has brought about a new era of "third space" that merges virtual and real spaces through online networks. Unlike the previous experience of being visually immersed in a "virtual space" while stationary in front of a PC in a closed space, the third space allows users to create a "network of moving third spaces" in real-time while moving their bodies in an open physical space.[2] Compared to VR, which is characterized by "disembodied" vision, AR is characterized by active body movement or "embodied" vision. How will this shift to ""embodied vision"" impact the interaction between technology, media, subjects, and society, which has thus far been centered on disembodied vision?

To address this question, a media ecology approach developed by theorists such as Marshall McLuhan, Walter Ong, Neil Postman and, more recently Friedrich Kittler, is necessary. However, while media ecology has largely focused on the interaction between technology, media, and mode of perception, it should be noted that there has been less emphasis on the more complex question of how this interaction impacts the relationship between art, subjects, and politics. To address this question, we must revisit the work of Walter Benjamin, who delved deeply into the relationship between art and politics in the age of mechanical reproduction. In the early 20th century, Benjamin connected his ideas with those of Karl Marx and developed an original thought called "dialectics at a standstill." This served as Ariadne's thread, allowing a navigation of the complex labyrinth of studies from the 19th century to the present. Benjamin explored how the emergence of new reproduction technologies, such as photography and cinema, alongside the conflicting relationship between base and superstructure, influenced changes

in the concept, topology, and mode of perception of art. He also considered how these changes would impact the dialectics of popular art and popular politics. However, many of Benjamin's findings are overly concise or fragmented, and the concepts of "dialectics at a standstill" and "dialectical image" - the engines of his original thought - are complex and convoluted. As a result, it has been challenging for subsequent generation of scholars to carry his ideas forward.

One way to avoid such obstacles is to eliminate the concept of "dialectics" from Benjamin's notion of the "dialectical image" and systematically and philosophically reconfigure the relationship between the image and perception, as well as between the image and thought, while also rethinking the concept of the image itself. Deleuze's works, *Cinema 1: The Movement-Image* and *Cinema 2: The Time-Image*, can be regarded as exemplary illustrations of advancing this path. However, while Deleuze's approach has significantly contributed to expanding the concept of the image, which is crucial for examining the changes in the mode of perception induced by the paired configuration of technology and subject, it also raised new issues of "throwing out the baby with the bathwater" by "thinking" about how this paired configuration intertwines with more comprehensive structural changes in the paired configuration of society, technology, perception, and subjects. To better understand the various micro-level pairings of technology, perception, and subjects that are influenced by the constantly changing configurations of production, technology, media, and social structure in today's world, it would be beneficial to reposition Deleuze's theory within Benjamin's complex framework of historical materialism. However, this may be a daunting task, given that Deleuze rejected dialectics while Benjamin was a prominent practitioner of it. Nevertheless, there are points of resonance between the two. For instance, Benjamin's "dialectics at a standstill" was proposed as an alternative to the Hegelian dialectics rejected by Deleuze, and both philosophers emphasized the significance of the "image of thought" or the "thought of image." In addition, recent findings in cognitive science, including neuroscience, offer a new way of understanding the relationship between image and the body. These discoveries could potentially connect the previously disparate views of Benjamin and Deleuze.

From this perspective, this article aims to explore the points of resonance and divergence between Deleuze and Benjamin while examining how their theories may intersect and cross-connect in new ways through insights from cognitive science research. In addition, the article will investigate how these connections can relate to the issue of "somatic performativity" in digital media, as discussed by Mark B. Hansen in his book New Philosophy of New Media. By analyzing the multilayered articulation effect of "embodied" images and texts in the increasingly expanding "third space" of the ubiquitous age, the article will outline new tasks and prospects for visual culture studies, which may lead to new possibilities for progressive cultural politics.

Critical Reconstruction of Deleuze's Theory of Image

The publication of *Cinema 1: The Movement-Image* in 1983 and *Cinema 2: The Time-Image* in 1985 marked a departure for Deleuze from conventional concepts of cinema that focused on technical, critical, linguistic, and semiological aspects. Instead, he introduced a new set of cinematic concepts that categorized pre-verbal and semiotic images by type, thus creating new avenues for exploring relationships among images, movement, time, and thought in cinema. This development led to the emergence of a new field, which could be called the "philosophy of cinema" or the "cinematic turn of philosophy" in a pure sense, and the exploration of the "thought of image" and "image of thought."

> This book does not set out to produce a history of the cinema, but to isolate certain cinematographic concepts. These concepts are not technical [...] or critical ([...] the great genres). Neither are they linguistic [...] What we call cinematographic concepts are therefore the types of images and the signs which correspond to each type.[3]

The emergence of this new horizon was groundbreaking, as it provided an opportunity for philosophy and film, which had long been separated, to meet and enrich each other's potential. However, the extent to which Deleuze's intervention resulted in a successful contribution to the respective fields of philosophy and cinema is a separate issue. Rather, we need to ask whether it may have undermined or distorted the potential of philosophy and cinema or blocked off other possible connections between them. Deleuze's positive contribution lies in his aim to unfold the non-conceptual thought of images by focusing on their unique potential [*puissance*], explaining the singularities of the "cinematic" aspects that had been confined to the narrative of Hollywood films. In doing so, he opened a new horizon for philosophical thought through a thorough examination of these singularities. On the other hand, this contribution can also be seen as having caused a new metaphysical malaise by separating image and language and introducing the dichotomy of the time-image and the movement-image. The following interpretation of Deleuze demonstrates a typical example of such metaphysical ills:

> The inherent potential [puissance] of an image enables the transition from movement-image [image-movement] to time-image [image-temps]. Factors such as historical, social, cultural, and technological conditions do not offer any explanations. [...] The image is solely produced and transformed by its intrinsic potential. Predicting the evolution of an image is impossible, as the time-image is an image of both bifurca tion and heterogeneity.[4]

If our aim is to extract only the "singularities" of an image, we could make such a judgment. However, when the goal shifts to extracting the singularities of images from the real world of cinema-where images, languages, and actions intertwine-and from the reality in which audiences engage with films, the study becomes one solely of images. Although overlooking the metaphysical separation tendency inherent in Deleuze's thinking may be helpful when contemplating differences themselves, it is inadequate for considering the relationships and connections among differences. Indeed, this could pose challenges to our understanding of the perceptual and cognitive processes, which are a fusion of images, linguistic elements, time-images, and movement-images, and the actual flow of the cinema.

The emergence of such a problematic dichotomy appears closely related to the dichotomous tendency in Bergson's thought that Deleuze relies on. This is not to say that Deleuze is unaware of the issue of dichotomy inherent in Bergson's thought. He believed that Bergson's dualism should not be confined to dualism, as he understood it to be a "generative dualism" that leads to both monism and pluralism.[5] Ronald Bogue describes this issue as follows:

> Many assert that Bergson's philosophy is essentially dualistic, and some that its dualisms mask fundamental inconsistencies in his thought. Kolakowski, for example, argues that in Bergson's writings there are two philosophies incompatible with each other, one based on a theory of consciousness that opposes time and space, the other on a cosmology that opposes life and matter. Deleuze's object in Bergsonism is to demonstrate the coherence of Bergson's work by interrelating the central Bergsonian concepts of durée, memory, and élanvital, and to show that if Bergson is dualistic, it is in the most com plex of senses, the course of Bergson's analysis taking him from anillusory dualism to clarifying Deleuze's purpose in Bergsonism is to demonstrate the coherence of Bergson's work by interrelating central Bergsonian concepts such as durée, memory, and the élan vital (vital impulses), and to show that even if Bergson is dualistic, he is so in the most complex sense: that Bergson's analytical process leads from confused dualisms to explicit dualisms, then to higher dualisms, then to a higher monoism, and finally to a generative dualism and pluralism.[6]

Bogue argues that "durée, or duration, the dynamic movement of passing yet continuing time, remains a constant preoccupation of Bergson's throughout his work." According to Bergson, "durée should be thought of as a musical melody" which is "actually an invisible multiplicity changing qualitatively in an ongoing movement. The melody does not so much consist of discrete notes as it passes through the notes, the entire succession of notes forming a single process-a process which, however, is not a simple unity, but an invisible heterogeneity. [...] Against the background of subsequent notes, which together form a qualitatively distinct ensemble, an unpredictable

new note emerges, which then forms with the subsequent notes a new qualitatively distinct ensemble. Durée is in this regard fundamentally indeterminate, the future truly open and unforeseeable. [...] The deterministic universe is basically spatial, the fixed past and the inevitable future easily plotted on a single and complete graph. Durée, by contrast, is time that makes a difference, each moment bringing forth something qualitatively new."[7]

In *Creative Evolution*, Bergson seems to embrace a dualism of inanimate objects vs. living organisms and non-organic matter vs. vital impulses [*élan vital*]. However, Deleuze challenges this notion, arguing that such dualism is not factual. He puts forth his own interpretation, emphasizing that vital impulses should be systematically connected with the concepts of duration [*durée*] and memory. Duration is "essentially a virtual multiplicity," or, "more precisely, the virtual insofar as it is actualized, in the process of being actualized, inseparable from the movement of its actualization." Memory is "the coexistence of all degrees of difference in this multiplicity, in this virtuality." As for vital impulse, it "designates the actualization of this virtual following lines of differentiation that correspond to the degrees."[8]

From this perspective, the opposition between matter and life can be viewed as merely a different grade of relaxation and contraction of duration and memory. Ronald Bogue draws implications from many of Bergson's arguments in *Creative Evolution* that "the movement of matter is that of entropy, a dissipative tendency toward homogeneity, stasis, undifferentiation, and that of life is an inverse tendency toward heterogeneity, metamorphosis, and creative differentiation. In this regard, entropic matter is simply a decrease in the tension in a field of energy, and creative life is an increase in tension in that same field. Thus, 'the apparent differences' between matter and memory, quantities and qualities, bodies and minds, are ultimately only differences in the relative contraction or relaxation of durée."[9]

Pure matter and pure durée are, therefore, only ideal limits. Inert matter is durée's total relaxation to the end point, at which, like space in Newtonian physics, "the never realized limit of a timeless, instantaneously co-present expanse," is one extreme that is never realized. "Conversely, the extreme of an extensionless, totally contracted 'pure' durée, a consciousness separated from matter, is also an ideal limit." In contrast to this way of fixating on ideal extremes, i.e., ontological extremes, Bogue's interpretation of Deleuze suggests that "there is always extensivity in our durée, and always durée in matter. [...] The various forms of the universe, ranging from the most elemental entities to the most complex organisms, are simply different rhythms in a vibrational whole. This 'vibrational whole' we might call 'time-space' or 'movement-matter.' [...] The vibrations of this whole are not the movement of matter, temporal elements of space."[10]

Thus, "for Bergson, there are ultimately no things in the universe, but simply vibrations of a whole," in which "the water, sugar, glass, and observer are all merely perturbations, movements, flows, each a different rhythm of as unfolding durée." In the end, every individual movement is just a part of the whole. But with our survival often dependent on closed

sets, how can we grasp and "see" the dynamic and expansive durée? Bogue argues that Deleuze offers a solution by introducing two novel concepts that depart from Bergsonian thought: "durée as the whole of relations and movement as the expression of durée. [...] Movement thus has two faces, in a way," says Deleuze. "On one hand, it is what happens between objects or parts; on the other, it is what expresses durée or a whole."[11] Expression is a process of explication, or unfolding (Latin *ex-plicare*, to un-fold), whereby the One unfolds itself in the Multiple. But the One also is enfolded, or implicated, in each entity of the Multiple. Explication and implication finally imply a synthetic complication or simultaneous presence of the multiple in the one and the one in the multiple.[12]

Movement can be seen in two ways, then, as a translation of bodies and as a transformation of relations among bodies, and hence a closed set may also be taken in two ways: immobile cuts, closed sets in which movement is a translation of objects in space; and mobile cuts, slices of durée in which movement is a transformation of relations. Up to this point, there is a coherence in which all opposing elements are explained by the rhythm of the relaxation and contraction in the durée. But Deleuze seems to break this coherence by suggesting that the time-image exists independently as a movement beyond these two distinctions.

> 1) There are not only instantaneous images, that is, immobile sections of movement; 2) there are also movement-images, which are the mobile sections of durations; 3) there are, finally, time-images, that is, duration-images, change-images, relation-images, volume-images which are beyond movement itself.[13]

Here, a question arises regarding the most ambiguous point inherent in Deleuze's entire philosophy of cinema. If the durée is a vibrational whole with perturbations and flows, then doesn't the actual durée already encompass all the fundamental concepts of physics, such as time, space, matter, flow, and energy? Why should we draw a distinction between the dynamic cuts of the durée, which we refer to as movement-images, and the durée in its entirety, which we consider a time-image? If the time-image goes beyond movement itself, does this not suggest an untenable concept of vibration without movement (as an open whole) going beyond the movement itself? If the durée is "essentially a virtual multiplicity," or "more precisely, the virtual insofar as it is actualized, in the process of being actualized, inseparable from the movement of its actualization," how can we "see" the movement of a virtual entity that has no movement in itself? How can we resolve this paradox?

One possible way is to separate the two inseparable aspects of actuality and virtuality through conceptual manipulation. Consider a snapshot image and a duration-image and assume that just as we can directly see the snapshot image, one extreme of the actualized state, we can also directly see the duration-image, the other extreme of the virtual state. The only

difference is that the former is perceived, and the latter is intuited. By separating time-image from movement-image, Deleuze seems to follow Bergson in pushing the following idea to its extreme: "At one end, that of actual memory, the past contracts into a present moment; at the other, that of the dreams, the past dilates into a broad expanse."[14] Bergson's famous cone of memory provides a clear illustration of the relationship between these two extremes and is interpreted by Deleuze as follows:

> The present "would not pass on if it was not the most contracted degree of the past. In fact it is striking that the successive is not the past but the present which is passing. The past appears, in contrast, as the coexistence of circles which are more or less dilated or contracted, each one of which contains everything at the same time and the present of which is the extreme limit (the smallest circuit that contains all the past). Between the past as a pre-existence in general and the present as infinitely contracted past there are, therefore, all the circles of the past constituting so many stretched or shrunk re-gions, strata, and sheets: each region with its own characteristics, its 'tones,' its 'aspects', its 'singularities', its 'shining points' and its dominant' themes. [...] They coexist, in contrast, from the point of view of the actual present which each time represents their common limit or the most contracted of them. [...] The pre-existence of a past in general; the coexistence of all the sheets of past; and the existence of amost contracted degree. It is a conception that can be found in the first great film of a cinema of time, Welles's *Citizen Kane*.[15]
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> On this occasion there is no longer a future, present, and past in succession, in accordance with the explicit passage of presents which we make out. Adopting St Augustine's fine formulation, there is *a present of the future*, *a present of the present* and *a present of the past*, all implicated in the event, rolled up in the event, and thus simultaneous and inexplicable. From affect to time: a time is revealed inside the event, which is made from the simultaneity of these de-actualized peaks of present. [...] We find ourselves here in a direct time-image of a different kind from the previous one: no longer the coexistence of sheets of the past, but the simultaneity of peaks of the present. We therefore have two kinds of chronosigns: the first are aspects (like regions, layers), the second *accents* (peaks of view [*pointes de vue*]). This second kind of time-image is found in the work of Robbet-Grillet, in a kind of Augustinianism.[16]

Here Deleuze distinguishes between two types of time-images: the coexistence of sheets of the past and the simultaneity of peaks of the present. The former opens up to the virtual extreme, which is the open whole of the cone's expanse, while the latter concentrates toward the actualized extreme, which is the peak of the cone model. However, this analytical

approach is not from the perspective that time is "virtual to the extent that it is actualized, and essentially a virtual multiplicity that is inseparable from the actuality." Rather, it comes from dividing actuality and virtuality into two extremes. We can perceive these two approaches as two tendencies towards the extremes. However, is it reasonable to claim that these two tendencies reveal "a direct time-image, and no longer an indirect image of time deriving from movement?"[17] Does this not merely reinforce the dichotomy between pure virtuality and pure actuality and draw a sharp distinction between pure time and pure movement?

We can distinguish between the two tendencies without falling into such dichotomies, by distinguishing the difference of the two sides of the movement-image, which are the dynamic cuts of the durée: one side facing the broad surface of the cone, the other side facing the opposite extreme towards the peak of the cone. For this reason, it is necessary to modify the cone model of Bergson and Deleuze as illustrated in the figure below. The two sides of this dynamic cross-section, A-B and B-C, located in a certain cross-section B of the dynamic cuts of an actual duration and having a constant volume, flow towards two limit points which are A, a pure virtuality that is an infinitely open, vibrational whole, and C, a pure actuality reduced to local minimum points. There exists a significant disparity between points B-C and C, which may be explained as follows: on a physical level, the moment someone sees a red dot can be differentiated down to 400 trillion vibrations of light per second. If someone were to grasp each vibration in terms of the minimal temporal units of human consciousness of 0.002 seconds per unit, it would take 250 centuries to experience each vibration separately. Ronald Bogue suggests that "there are different temporal rhythms in the universe and that qualities and quantities form a continuum, my most fleeting perception of the quality of red being a temporal contraction of trillions of nearly identical oscillations into a single moment."[18]

However, this interpretation has things backwards. Rather, instantaneous human perception and consciousness are shaped through a process of "natural selection" (known as somatic selection or neuron selection in Edelman's terms), which selectively "abstracts" from the tens of trillions of physical vibrations that enter our bodies and only retains those essential to our survival. As we will see later, the perceived duration of "now" is limited to 0.3 seconds and the human body is not designed to perceive anything shorter than that. While machines are capable of differentiating time intervals of less than 0.3 seconds, the neural circuits of the human brain process a lot of information in shorter intervals, but only within a certain threshold.

All subsets within the ongoing reality of the universe exist within certain limits, not just the human body, in the form of B. This means they exist within a threshold point with upper and lower limits of A-B and B-C. When that threshold is exceeded, these subsets are dismantled and reduced to other subsets of the universe. For example, water retains its modal properties between 0 and 100 degrees Celsius, but, beyond those threshold,

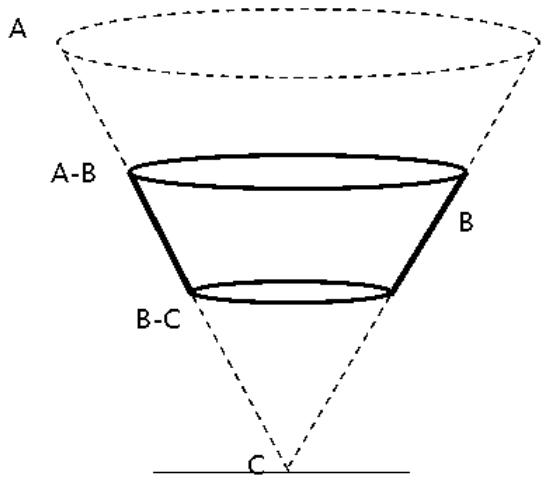

Figure 1. Modification of Bergson's cone model

it transforms into ice or water vapor. Temperature is a measure of the thermal energy emitted by the sun and is synonymous with the concept of potential [puissance]. A decrease in temperature signifies a loss of potential. The human body must maintain an average temperature of 36.5 degrees Celsius, with relatively small upper and lower limits. When the body temperature goes outside this threshold, death can result. The temperature range of B is the upper bound A-B and the lower bound B-C, within which the potential state of the entire enduring reality can be actualized as the individual organism of a human. These limitations apply to all plants, animals, and inanimate objects, not just organisms. If the temperature becomes too high, all organisms turn into a plasma state (of pure virtuality), and if it becomes too low, all organisms will freeze (into pure actuality). These represent the limit of virtuality and actuality that can be applied to living organisms. If we were to approach the universe as a vibrational whole at the physical level, we might encounter extremes A and C that go beyond the scope of life forms. However, from the perspective of life, we can never exceed the boundaries of A-B and B-C, which represent the dynamic cuts of B, the durée of the vibrational whole. To B, A is implied only through A-B, and C is implied only through B-C.

This is not to say that the allusions to these extremes that can be imaginatively revealed to humans are meaningless. They allow us to venture beyond the boundaries of B by differentiating the scope of B towards A, or towards C, and so on. However, even if we take a glimpse of such a possibility and embark on a new adventure, we still need to combine its results back into the critical point of B to ensure our survival. This is how humans can "represent" the ongoing totality through bodily movement. With this in mind, we need to modify Deleuze's schema in the following way.

The concept of the movement-image includes the "dynamic cut" [2],

which encompasses both the "static cut" of the photograph-image [1] and the open whole of the "duration-image" [3]. While the former [1] can be directly represented through photography, the latter [3] can only be expressed indirectly. Although, with the help of the fourth-generation synchrotron radiation accelerator that was introduced in 2010, we are now able to "make visible" the vibrations of matter at the femto level, this achievement requires a special mechanical device. However, Deleuze argues in his book *Cinema 2* that the duration-image [3] can be directly represented through the time-image.

In the wide cross-section of the cone, the coexisting sheets of past and simultaneously existing peaks of the present cannot exist together. However, using a "power of the false that replaces and supersedes the form of the true, because it poses the simultaneity of incompossible presents, or the coexistence of not-necessarily true pasts," it is possible to express A and C directly. Deleuze sees this transformative power of the false as the creator of a new truth and argues that this is the capacity of the creative artist. The power of falsehood is a generative force, the potential of time that includes both before and after in the ongoing movement of becoming. When such capabilities are at play, the standard distinctions between truth and falsehood, reality and fiction, become indeterminable.[19]

It can certainly be argued that the possibility of the coexistence of A and C is encountered in any moment of artistic creation grounded in the capacity for falsehood. To make this point, Deleuze previously used examples of the cinema of Orson Welles or Alain Robbe-Grillet. However, in reality, these moments of artistic creation are similar to a dream state, in which everything becomes blurred and ambiguous. When we are asleep, our sensorimotor system is at its most relaxed, and our mental world is filled with images from various moments of our past, all coexisting in a single domain. In dreaming, we find "depersonalizing, pronominalizing of lost or impeded movement" such that "the world takes upon itself the movement that the subject no longer or cannot execute."[20]

However, if we push forward the capacity for falsehood and the dream state by extracting pure A and pure C from artistic creation beyond B at the level of potentiality that "makes all the impossible coexist," how would this differ from potentiality for the sake of potentiality, falsehood for the sake of falsehood, creation for the sake of creation, dream for the sake of dream, art for the sake of art, and metaphysics for the sake of metaphysics? Unless we want to make a futile attempt to stay in this dimension and of eternal dream, we must return to B and question how these possibilities relate to B, even if it means that we must explore them to their fullest extent. Only then can we establish the true raison d'être of the metaphysical adventure in exploring A and C. How might Deleuze's theory of image be revised and recycled to reunite these achievements with the actual movement of the "actualized virtuality" of B, in the spirit of Bergson-Deleuze's metaphysical adventure? Drawing on Baruch Spinoza and Alfred North Whitehead, the following adjustments can be made.

1) Deleuze did not provide a clear explanation of the basis on which the monistic, dualistic, and pluralistic aspects of Bergson are in a coherent relationship with each other, and this is where the ambiguity arises. On the other hand, Spinoza defined the relationship between monism, dualism, and pluralism consistently and clearly by distinguishing and connecting the monistic substance, dualistic property, and pluralistic mode. Based on this perspective, Deleuze's assumptions can be adjusted as follows: the monistic substance is the open, vibrational whole of duration, the dualistic property is the pure actuality and pure virtuality, and the pluralistic modes are movement-images.

Spinoza defines the two properties known to us as extension and thought: for Whitehead these take the forms of physical and conceptual poles. These categories can be construed as a priori in a vein similar to Kant's distinction between space and time. It is essential to note, however, that Spinoza, Whitehead, and Kant do not conceive of these poles, properties, or categories existing independently: rather, they always coexist in combination or parallel. In this sense, what Deleuze calls the time-image can be understood as a property or conceptual pole of thought, and as inseparable from the movement-image on a modal level. Nevertheless, Deleuze separates time-images at the property level from movement-images at the modal level and argues that the two can be distinguished, which is a categorical error. Once this confusion is clarified, we will be able to say that there can be only one movement-image at the modal level, while at the property level we can distinguish between an extension-image (relaxation) and a thought-image (contraction), and between a physical image and a conceptual image.

In this context, it is important to note that the time-image is a property concept that should not be considered identical to the duration-image, (substance) which represents an open, vibrational whole, nor can it be separated from the movement-image (modality). By seeing it as having a modal existence, we may end up making the time-image a kind of "illegitimate child." To clarify the point, it is more appropriate to use the term "thought-image," which Deleuze introduces as a property-level name in the concluding chapter of *Cinema 2*. While Deleuze identifies several types of time-images, such as the crystal-image, mental-sign, lectosign, and thought-image, viewing them as subcategories of thought-images can resolve the confusion. By maintaining Spinoza's distinction between substance, property, and mode, we can move to a new level where Bergson's separation of physics and metaphysics can be reconciled. This is achieved by returning to Einstein's universe, which views time, space, matter, and energy as an integrated flow, rather than as separate and abstract concepts of metaphysical time and physical space. In doing so, we can attain a greater understanding of the universe instead of solely contemplating the abstract concept of metaphysical time separated from physical space.

2) Deleuze's concept of the "cinema of the body" forms a time series by combining "before" and "after" into a single dynamic force that unites everyday bodily attitudes and stylized gestures. This provides a creative driving force for the composition of each film. He suggests that the "time-image as a series" can be understood through the concept of the "cinema of the body," which uses two forms of theatricalization - one of attitudes and everyday body and the other of gestures [gests] and the ritual body. "Deleuze takes the term gest from Brecht's brief essay "On Gestural Music," in which Brecht differentiates mere gestures or gesticulation from gest, or action considered in relation to the 'overall attitudes' it expresses. Brecht's concern in his theater is to convey through 'social gests' the social relations inherent in actions, such that when a man chases away a dog, say, it is not as an abstract individual shooing a generic dog, but as an unemployed worker shielding himself from the bosses' watchdog. From this notion of the 'social gest' as a telling gesture that sums up a set of social relations, Deleuze develops a general definition of gest as "the tie [lien] or knot of attitudes, between them, their coordination with one another" which is "the development of attitudes themselves."[21]

While Brecht looks at social relations in a person's gesture, Deleuze abstracts a "generalized serialism [musique sérielle]" that arises from the attitudes themselves. Deleuze's focus is not on social relations, but on the idea that "in Godard, the attitudes of the body are the categories of the spirit itself, and the gest is the thread which goes from one category to another," and that the attitude of the body "is like a time-image, that which puts the before and the after in the body, the series of time." "The gest is necessarily social and political, following Brecht's requirements, but it is necessarily something different as well. [...] It is a bio-vital, metaphysical and aesthetic." In contrast to Brecht's attempt to capture the social and political categories inherent in the theatrical gesture [gestus], Deleuze emphasizes that Godard's cinema "goes from the attitudes of the body, visual and sound, to the pluri-dimensional, pictorial and musical gest, which constitutes their ceremony, liturgy and aesthetic organization."[22]

This reading approach would be a prime example of "abstracting" the political category — a central category for Brecht and Godard — and extracting aesthetic and metaphysical categories from it. Instead of following Deleuze's metaphysical desire to abstract and extract the time-image from the movement-image, could we instead follow Brecht and recombine the series of time-images that connect the front and back of gests with the various dimensions of movement-images? By doing so, we might be able to reclaim the political category that Deleuze has abstracted.

3) Looking at this problem from a Spinozistic perspective, how can we reverse the direction of time-images, also known as thought-images that can only be justified in the dimension of properties, so that they are combined with movement-images at the modal level? For this, we must reexamine the relationship between consciousness and the unconscious. Deleuze's crystal-image, mental-sign, and lectosign, all classified as

time-images, are only encountered in the unconscious dimension, such as in dreams or confusing perceptions. According to Freud, one characteristic of the unconscious is the translation of language and psychic images, as seen in dreams.

> Now for some other aspects of the matter. In the dream-work it is plainly a question of translating latent thoughts expressed in words, into psychic images, in the main, of a visual kind. Now our thoughts were developed from such psychic images, and the first materials are pre-memorized psychic images; their first material and the steps which led up to them were psychic impressions, or to be more exact, the memory images of these psychic impressions. Only later were words attached to these and them combined into thoughts. The dream-work therefore puts the thoughts through a regressive treatment, that is, one that retraces the steps in their development.[23]

Freud distinguished between the separation and combination of language and psychic images as the unconscious primary process and conscious secondary process, respectively. This distinction corresponds to the relationship between neuroscientist Gerald D. Edelman's primary and higher-order consciousness. Edelman defines primary consciousness as the non-linguistic conceptual categorization that is created by (1) current perception-categorization of various signals from the outside world processed by the primary and secondary cortices, (2) information about internal states and values processed by the brainstem, hippocampus, and autonomic centers, converging through (3) the limbic system (hippocampus, amygdala, etc.), processed through the prefrontal, temporal, and parietal lobes, and finally reintegrated and modulated with (4) information from the outside world. In contrast, higher-order consciousness is formed as this primary consciousness is linguistically processed through the Broca's and Wernicke's areas located in the left temporal lobe. Higher-order consciousness, formed during human evolution, adds a socially constructed individuality to the biological entity of primary consciousness. It enables anticipation of future states and planned behaviors by freeing conscious thought from the regulations of the immediate present and vast amounts of social communication.[24]

If we view the relationship between the unconscious and conscious in this way, then what Deleuze classified as the "time-image" can be seen as the world of psychic images, purely visual and auditory images, which are not combined with language. These images are unconscious because they cannot be expressed through language. Iain McGilchrist believes that the left hemisphere is "associated with the verbal, propositional thought [...] and the speechless, lower levels of ideation associated with the right hemisphere"; this corresponds to Freud's "distinction between the secondary (conscious) process and the primary (unconscious) process." EEG coherence data also point to the predominance of the right hemisphere in dreaming.[25]

If we reinterpret Deleuze's classification of the time-image as associated with the characteristics of non-linguistic thought in the right hemisphere, it becomes easier to understand why Deleuze saw the time-image as an open, vibrational whole of the duration-image: the right hemisphere is responsible not only for primary consciousness that operates with non-linguistic images, but also for public, holistic, and synthetic thinking. According to McGilchrist, "while the left hemisphere is tied to verbal, conscious processing that focuses attention on the explicit and narrow, the right hemisphere deals with all things implicit." The right hemisphere unconsciously captures everything that exists in the world outside of the self, a broad and open perspective, and agile reactions and subtle perceptions that spread widely. "In general terms, then, the left hemisphere yields narrow, focused attention, mainly for the purpose of getting and feeding. The right hemisphere yields a broad, vigilant attention, the purpose of which appears to be awareness of signals from the surroundings, especially of other creatures, who are potential predators or potential mates, foes or friends; and it is involved in bonding in social animals. It might then be that the division of the human brain is also the result of the need to bring to bear two incompatible types of attention on the world at the same time, one narrow, focused, and directed by our needs, and the other broad, open, and directed."[26] According to this distinction, Deleuze's snapshot-image, as an immobile cut, shows the characteristics of left-hemispheric thinking, while the duration-image, directed towards an open whole, shows the characteristics of right-hemispheric thinking.

> The right hemisphere underwrites breadth and flexibility of attention, where the left hemisphere brings to bear focused attention. This has the related consequence that the right hemisphere sees things whole, and in their context, where the left hemisphere sees things abstracted from context, and broken into parts, from which it then reconstructs a 'whole': something very different. And it also turns out that the capacities that help us, as humans, form bonds with others − empathy, emotional understanding, and so on − which involve a quite different kind of attention paid to the world, are largely right-hemisphere functions.[27]

> The right hemisphere is longer, wider, and generally larger, as well as heavier, than the left. Interestingly this is true of social mammals in general. ⋯ As well as differing in the size and shape of a number of defined brain areas, the hemispheres differ in the number of neurones, neuronal size (the size of individual nerve cells), and the extent of dendritic branching (the number of connective processes put out by each nerve cell) within areas asymmetrically. There is greater dendritic overlap in cortical columns in the right hemisphere, which has been posited as a mechanism for greater interconnectivity compared with the left. ⋯ The finding that there is more white matter in the right hemisphere, facilitating transfer across regions, also reflects its attention to the global picture, where the left hemisphere prioritises local communication,

transfer of information within regions.[28]

Based on this neurological asymmetry, McGilchrist compares the functional differences between the right and left hemispheres from multiple angles. The main areas of comparison can be summarized as follows: breadth and flexibility versus focus and grasp; the new versus the known; possibility versus predictability; integration versus division, the whole versus the part; context versus abstraction; individual versus categories; the personal versus the impersonal; the living versus the non-living; emotional asymmetry, emotional receptivity and emotional expressivity (right hemisphere dominance); how versus what; synchronic intuition versus sequential analysis; spatial-visual-musical signs versus linguistic meaning and symbol manipulation; integrated durational rhythm versus time fragmented by intermittent movements; depth and volume versus abstract schematics; uncertainty versus certainty; melancholy versus optimism; negative feedback versus positive feedback; independence and motivation versus passivity; existence versus representation; relationship and mutuality versus isolation; and fairness versus substance. McGilchrist argues that "ultimately if the left hemisphere is the hemisphere of 'what', the right hemisphere, with its preoccupation with context, the relational aspects of experience, emotion and the nuances of expression, could be said to be the hemisphere of 'how'."[29]

Given these two brains connected by the corpus callosum, each with their unique characteristics, how do we perceive and think? According to McGilchrist, the corpus callosum has a complex and paradoxical function of "forming a bridge that nonetheless separates the worlds of the hemispheres." Babies and young children are less reliant on the corpus callosum. They are also more reliant on the right hemisphere, which matures earlier than the left. However, over time, the importance of the corpus callosum and left hemisphere functions increases.[30] McGilchrist draws on David McNeill's work on gesture language and Benjamin Libet's research on free will to argue that our thinking process "begins in the realm of the right hemisphere, gets input from the left hemisphere, and finally reaches a synthesis of right with left." In this sense, the right hemisphere can be seen as the foundation of the left hemisphere world.[31]

Deleuze's categorization of three types of images — the photographic image, the movement image, and the duration image — can be interpreted in the context of cognitive science. Our perception and cognition begin primarily with the unconscious duration-images in the right hemisphere, and then progress through the corpus callosum by reconnecting snapshot-images extracted in the left hemisphere with duration-images in the right hemisphere. Though connected simultaneously through the corpus callosum, the snapshot-images under the control of the left hemisphere and the duration-image under the control of the right hemisphere play separate roles, resulting in a paradoxical connection/disconnection. This phenomenon can be visualized in the following diagram.

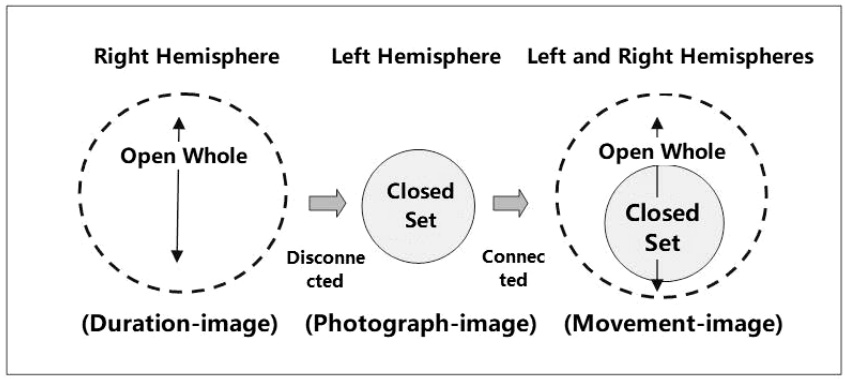

Figure 2. Connection and disconnection of left and right hemispheres by corpus callosum

This diagram is not in conflict Deleuze's theory because it corresponds to the method by which Deleuze distinguishes and connects the vertical and horizontal axes within the "system of movement-image" in his book *Cinema 2*. The vertical axis is associated with the process of differentiation, in which the movement expresses a whole in terms of static cuts, dynamic cuts, and the open whole (these distinctions correspond to the three dimensions of the cone diagram shown earlier), while the horizontal axis is the specification of movement images as "intervals" of perception-image, affection-image, and action-image.[32] Regarding this, Ronald Bogue suggests that "we might also identify the vertical axis as the axis of durée and the horizontal axis as the axis of pure perception, or movement without durée."[33]

The components of the vertical and horizontal axes include "a plastic mass, an a-signifying and a-syntaxic material, a material not formed linguistically even though it is not amorphous and is formed semiologically, aesthetically and pragmatically." When we approach the plastic mass in terms of virtuality rather than actuality, it becomes the plane of coherence for image, movement, matter, and duration. It contains a formative mass, a semiotic matter that "bears the characteristics of modulations of all sorts, sensory (visual and sonic), dynamic, intensive, affective, rhythmic, tonal and even verbal (oral and written)." This formative mass is the "material" used to make cinema. It is also the material that makes us. Deleuze explains that cimema works by shaping semiotic material "through the vertical process of framing, cuts, shots, and montage, and through the horizontal process of long-shot perception-images, medium-shot action-images, and close-up affection-images."[34]

Through this approach, it became possible to reconnect the time-image, which had been separated from the movement-image by Deleuze, with the movement-image. Moreover, it allowed the time-image, which has been elevated to the ontological level through contemplation of dynamic social relationships, to reintegrate with social and ecological relations. This reconnection enables us to connect primary and higher-order consciousness, non-linguistic images (open whole), and linguistic narratives (dynamic cuts). Instead of

assigning different frames for art cinema and popular cinema, we can now analyze both using a single framework. By connecting the cinema image to its social context, we can arrive at an integrated perspective that avoids losing sight of the fundamental Benjaminian issue of advocating for the "politicization of art" while rejecting the "artification of politics." The key to this approach is a layered analysis of cinema that focuses on the movement-image as a series of dynamic cuts. This includes incorporating the snapshot-image within the time-image, which allows us to reconnect the cinema image with conflicting social relations without undermining the specificity of the cinema image or subsuming it entirely within a preconceived narrative framework.

Reinterpreting Deleuze's analysis of the relationship between potential and actual, content and representation, can provide valuable insight when analyzing real cinema that combines non-linguistic audiovisual images with linguistic texts in a dynamic and layered manner. Park Sung-soo succinctly summarizes this relationship as follows:

> According to Deleuze, actualizing things does not simply involve a shift in time [Chronos] from possibility to reality, but rather a process that can be dichotomized into two layers: expression and content. Both of these processes involve actualization in the sense that they take on a particular form. On the one hand, actualization implies the transformation from material to form (meaning from material to form and to substance, or territorialization) along the horizontal axis. On the other hand, it involves a modal dualization that separates or removes representation from content or disjunct (a deterritorialization in a different direction from the previous axis of territorialization) along the vertical axis. … Deleuze refers to the process of actualization involving both the horizontal and vertical axes as stratification.[35]

By summarizing the relationship between the two axes of actualization, as well as the corresponding relationship between the photographic-image and the duration-image and the left and right hemispheres, we can represent these concepts in a single diagram, as follows:

Two axes of actualization: stratification = movement-image

Territorialization (Reduce, make partial, and represent potential matters)

	Material	Form	Actuality
Expression / discourse / illocution (left hemisphere: photograph-image)			
Content / non-discourse / visibility (right hemisphere: duration-image)			

Deterritorialization (in direction of opening up the potential, open whole, and logic of the senses)

Table 1. Two axes of territorialization and deterritorialization in movement-images

According to Deleuze, territorialization involves moving towards the idea as a representation of the object (resulting in a form that is reducible to the object). In contrast, deterritorialization involves moving towards the idea as a representation of the sensation (resulting in a form that can be reduced to the sensation). This is what Deleuze calls the "logic of the sensation" that produces the specificity and unity of art itself.[36] However, we must also be cautious of the potential for aestheticism in Deleuze's aesthetics, particularly the danger of the "aestheticizing of politics," which emphasizes only the "logic of sensation" (reduction to sensation) in art while disregarding the "logic of representation" (reduction to the object).

> In a movie, each consecutive image produces meaning when viewed as a whole. In other words, the montage, as a visual connection, gives final meaning to individual images. The meaning contained in impressions is uncertain and potential. Therefore, the montage determines the perspective corresponding to the narrative meaning. It is precisely at this point that Béla Balázs emphasizes the superiority of totality as a Marxist. He rejects experimental or avant-garde cinema that avoids narrative action in favor of arranging photographic and refined images. He believes that even if individual images are realistic, they are considered void if the perception of totality is not given together.[37]

To avoid such risks — and to be consistent with the neurological context of "connecting the right hemisphere to the left hemisphere and back to the right hemisphere, as previously suggested" — we need an extended framework that goes beyond the dichotomy of choosing the logic of sensation over the logic of reproduction. This framework should connect the "logic of sensation towards an open whole, to the logic of reproduction of closed subsets, and back to the connection of parts and the whole through the logic of sensation that includes the logic of reproduction." Without the left brain's focus, the right brain's acceptance of an open whole is void, and without the right brain's acceptance, the left brain is blind. From the perspective of the open whole that includes subsets, criticizing the ideology implied by a logic of reproduction that insists on a closed subset (territorialization) as a complete and fixed entity while excluding the open whole is crucial. By overcoming the danger of deterritorialization, which leads to detachment from reality because it extends infinitely towards the open whole, and by contemplating a dynamic and dialectical relationship between the parts and the whole, we can secure a broader ground for a dynamic form of the "politicization of art" that is not bound by instrumental logic. Félix Guattari has also called for the urgency of this kind of alternative reterritorialization.

> It concerns the urgency of reterritorializing political practice. [...] What is contested by communism are all types of conservative, degrading, oppressive reterritorialization. ⋯ The reterritorialization induced by

> communist practice is of an entirely different nature; it does not pretend to return to a natural or universal origin; it is not a circular revolution; rather it allows an ungluing of the dominant realities and significations, by creating conditions which permit people to make their territory, to conquer their individual and collective destiny within the most deterritorialized flows.[38]

This is why cinema or works of art that implicitly express the heterogeneous relationships among complex elements of perception, emotion, reflection, and action in the context of historical environmental change cannot be reduced to the logic of the senses alone. Rather, what is at issue in cinema is a progressive and alternative reterritorialization that rejects conservative and oppressive reterritorialization and is able to "secure its own territory within the deterritorialized flow." Without such a reterritorialization, there is no way to find the "reterritorialization of political practice" that Guattari advocates. What is needed, then, is not a dichotomy or substitution between the logic of representation and the logic of sense, between territorialization and deterritorialization, between ideology and ideological critique, or — to use Rancière's phrase — between policing and politics. Instead, we need to rethink the dynamic arrangement of multilayered dialectical relationships between the two.

Benjamin shared Deleuze's focus on the thought of the image, but he diverged from Deleuze in that he did not privilege unconsciousness over consciousness or duration over movement. Instead, Benjamin maintained a dialectic between consciousness and unconsciousness, and between illumination and dream, and understood the logic of artistic works as the "dialectic of semblance and play."[39] Building on our previous discussion, we can reinterpret this as a dialectic between closed subsets and the open whole. In the following discussion, we will explore the current implications of Benjamin's thesis on "politicization of art" in the age of mechanical reproduction by connecting it with the critical reconstruction of Deleuze's image theory and the perspective of "embodied mind" emphasized in third-generation cognitive science.

Current Implications of the Thesis on the Politicization of Art in the Age of Mechanical Reproduction

Benjamin evaluated cinema, a new form of art in the age of mechanical reproduction, as having two new possibilities that intersected with changes in the way people perceived things. One possibility was that, unlike past forms of art that focused on semblance and ritual value, cinema opened up a new axis by expanding play-space and exhibition value.[40] Another possibility was that cinema, based on second-generation technology, could train humanity to coordinate with nature.[41] However, as Benjamin himself

lamented, the liberating potential of play-space opened up by the new art form of cinema was closed off in the 1930s, both commercially and politically, by Hollywood and fascism. Hollywood did "all this to distort and corrupt the original and justified interest of the masses in cinema, interest in understanding themselves and therefore their class.[42] Fascism, too, attempted "to take second nature, which once let first nature step forth, back into first nature: blood and soil."[43] Benjamin proposed an alternative to the "aestheticization of politics," a cinematic "exploitation" (non-dialectical symbolization) in the manner distorted by Hollywood and fascism, namely the "politicization of art" ("dialectics at a standstill" and allegorical "redemptive criticism [rettende kritik]"). The continuing influence of the former, along with the elusiveness in the specific methodology for implementing the "politicization of art" thesis, has led scholars to view Benjamin's film theory as an unfulfilled utopian wish, thereby restricting further development.

To overcome this challenge, a more sophisticated understanding of two key aspects of Benjamin's thesis is necessary. One is the dialectic of semblance and play, while the other is Benjamin's unique concept of dialectics at a standstill. As these two aspects are inherently intertwined, failing to grasp either one properly would render the thesis of "politicization of art" nothing more than an unworkable slogan. However, as previously discussed, the neuroscientific reconstruction of Deleuze's image theory can play an important role in explaining the inherent relationship between these two aspects, for the following reasons.

Benjamin's essay, *The Work of Art in the Age of Mechanical Reproduction*, is commonly thought to say cinema has replaced the ritualistic semblance-space of the past with an exhibitionistic play-space. Nevertheless, it is essential to recognize that semblance and play are two dialectical poles of Benjamin's mimesis theory — a key concept in his aesthetics — and one can never be a substitute for the other.

> Art is a suggested improvement on nature: an imitation [Nachmachen] whose most hidden depths are a demonstration [Vormachen]. In other words, art is a perfecting mimesis. In mimesis, tightly interfolded like cotyledons, slumber the two aspects of art: semblance and play.[44]

> Seriousness and play, rigor and license, are mingled in every work of art, though in very different proportions. This implies that art is linked to both the second and the first technologies.[45]

In this sense, it would be contrary to Benjamin's intention to separate the two and substitute one for the other. Benjamin refused to return to the notion of "aesthetic semblance," which belongs to the first technological era of art, overlooking the situation of a society paralyzed by innervations destroyed by capitalism and the commodification of goods. Instead, he repeated the practice of "pre-making" the harmony between nature and

humanity through allegorical montage methods in the art of the second technological era. This expanded the narrow meaning of coordination and semblance in the first era to the broad meaning of coordination and open semblance in the second era. This approach can be seen as a way to reorganize the dialectical relationship between the two aspects of art of semblance and play. Then, more specifically, how should we understand the dialectic of semblance and play?

Reconstructing Deleuze's theory of imagery suggests that the human process of perception and cognition progresses from the right brain to the left brain and then to the both brains. As a result, what may seem like a contrasting whole and its parts are perceived as a combination of parts within an open whole. While this is only a hypothesis, could we apply this method to the relationship between semblance and play? In a culture dominated by the left brain, aesthetic semblances created in the past are often considered to have a ritual value worthy of worship. However, from the perspective of the right brain, such semblances are merely historically created subsets, and there are a wide range of possibilities for deconstructing and recombining historical semblances into new ones. Cinema, in particular, has opened up a play-space that had previously been forgotten by allowing for the free combination of numerous new semblances through camera-eye shooting and editing. However, because humans have physical bodies, they cannot move infinitely towards the de-territorialization of the play-space created by the brain. The play must be re-territorialized back into the body-space. This flow can be reconstructed diagrammatically as follows.

Why is re-territorialization around the body-space inevitable? The brain cannot function properly without combining the information it receives from the external world with the information it receives from the body. The left

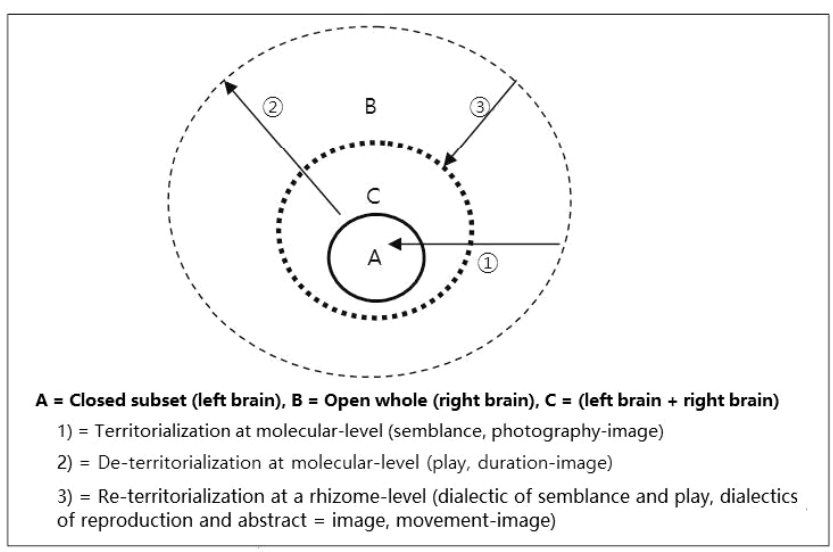

Figure 3. Dialectic of semblance and play

and right brains cannot exist independently, as they are separated but at the same time connected and interact with each other (in an articulated manner) by the corpus callosum. Benjamin explains that a living and moving body is not simply a tool of the brain, but rather plays an active role in setting the brain in motion:

> No one has ever felt this more clearly than Marcel Proust did when he learned of the death of his grandmother-an event which he found shattering but unreal, until the evening he burst into tears while taking off his shoes. Why? Because he bent down. In this way, the body is what rouses a profound pain; and it can serve no less to arouse profound thought. Both require solitude. Anyone who has climbed a mountain on his own and arrived at the top exhausted, and then turns to walk down again with steps that shatter his entire body, for such a person, time hangs loose, the partition walls inside him collapse, and he pushes on through the rubble of the moment as if in a dream. Sometimes he tries to stop, but cannot. Who knows whether it is his thoughts that shatter him, or the roughness of the way? His body has become a kaleidoscope that at each step presents him with ever-changing figures of the truth.[46]

Benjamin's assertion that bodily movement is the foundation of thought and emotion is supported by the work of Lakoff and Johnson, who are attempting to reconnect cognitive science and philosophy in today's world. They have demonstrated in various ways that our entire conceptual mind operates metaphorically, meaning that the basic categories that make up our most abstract thoughts are constructed from concepts inferred from the spatial relations that arise from our physical bodily actions. These basic spatial relations have a deep internal structure consisting of container schema, imaginary schema, profiles, and trajectory-landmark schema.[47]

(1) A container schema has the following structure: an inside, a boundary, and an outside. This is a gestalt structure, in the sense that the parts make no sense without the whole. There is no inside without a boundary and an outside, no outside without a boundary and an inside, and no boundary without sides. The structure is topological in the sense that the boundary can be made larger, smaller, or distorted and still remain the boundary of a container schema.

(2) The Source-Path-Goal Schema is also "topological in the sense that a path can he expanded, shrunk, or deformed and still remain a path. Trajectories are imaginative insofar as they are not entities in the world; they are conceptualized as a linelike "trail" left by an object as it moves and projected forward in the direction of motion.

(3) Bodily projections are especially clear instances of the way our bodies shape conceptual structure. Consider examples such as in front of and in back of. The most central senses of these terms have to do with the body. We have inherent fronts and backs." Pushing, pulling, propelling,

and balance diagrams come from our own bodies or the way we diagram objects we interact with every day.

(4) Other image schemas and elements of spatial relations include part-whole, center-periphery, connection, cycle, iteration, contact, adjacency, forced motion (e.g., pushing, pulling, propelling), support, balance, straight-curved, and near-far. Orientations also used in the spatial-relations systems of the world's languages include vertical orientation, horizontal orientation, and front-hack orientation.[48]

It is worth noting that all of the basic spatial relation schemes project the "topological" nature of movement that is inherent in our living bodies. This reaffirms Benjamin's view that the dialectics of consciousness and unconsciousness, which he drew from his various observations of city strollers, are grounded in the movement of the body through the environment. From a cognitive science perspective, it can be argued that the spatial nature of our bodily perceptions and thoughts is different from the gridded, Euclidean, absolute space. The topological space is continuously changing and varying, making it a relative, relational space. The "dialectics of the stroller" that Benjamin noted is not a "past" experience that is only possible at certain times in history, but an experience that is possible anytime and anywhere. Lakoff and Johnson's book *Philosophy in the Flesh* (1999) seeks to reconstruct all traditions of academic reasoning that are based on disembodied reason and text-centric concepts. It is urgent to perform "actualization" of the capitalist urban and social spaces that have been organized into disembodied absolute and relative spaces by subjecting them to topological transformations (such as crossing, connecting, folding, unfolding, and cutting), to create "relational-experiential spaces." These spaces should be viewed from the perspective of the dialectic experience of a stroller moving in Benjamin's "Kaleidoscopic body."

Mark B. Hansen, in his book *New Philosophy for New Media* (2006), presents a novel philosophical perspective on the relationship between the body, consciousness, and technology. He argues that the body serves as an active center that connects matter and consciousness, and this connection can be observed in media art, through a neurophenomenological interpretation of media art examples. Drawing on Shannon-Weaver's theory of "disembodied" information, Hansen critiques media theorist Friedrich Kittler's reconstructionist and linguistic fantasies, which predict the "end of media" under the digital system in which human perception and humanity itself will eventually become obsolete. Instead, Hansen proposes a new phenomenology in which the digital system relies on the constructive and creative capacities inherent in the "affective" and "tactile" dimensions of our embodied experience.[49]

In Hansen's thinking, the central issue is to provide an adequate explanation of how our bodies are modified through interaction with digital technologies. The key concept in this regard is the "frame." Drawing on Bergson's ideas, Hansen emphasizes that our body is the frame in that "the body is itself an image among other images − in fact a very special kind

of image Bergson calls a "center of indetermination," which acts as a filter creatively selecting facets of images from the universal flux according to its own capacities." Regarding Deleuze's philosophy of cinema, rooted in Bergson's ideas, Hansen argues that "in claiming Bergson for his own philosophy of the cinema, Deleuze recast essential components of Bergson's bodily aesthetic, most crucially the faculty of affection" by defining "the "affection-image" as the third component of subjectivity, filling the interval between the other two components, perception and action." Hansen continues his critique by saying that, in this process, "Deleuze has disembodied affect, locating it outside the subject in the world of technically assembled images. [...] In this account the body becomes relatively passive, a site of technical inscription of movement-images instead of the active source framing otherwise formless information."[50]

"Rather than erasing an active role of the sentient body in the production of media effects as Friedrich Kittler's interpretation of digital media would have it," Hansen argues, "media convergence under digitality actually increases the centrality of the body as framer of information" (which is in line with the Edelman's somatic selective systems).[51] "As media lose their material specificity, the body takes on a more prominent function as selective processor in the creation of images." He argues that "every image regime, including the digital, is primarily framed by an 'embryogenic' connection with the human body," and that "there is no information (or image) in the absence of the form-giving potential of human embodiment."[52]

In Hansen's interpretation, vision becomes "haptic" because meaning is created within the body. This demonstrates "the primacy of affective and interoceptive sensory processes that generate a "haptic spatiality," an internally grounded image of the body prior to and independent of external geometrical space."[53] This argument may bring interesting implications to new media. VR is not merely a product of technological advancements in computer graphics but is based on human biological potential. It is the fulfillment of a body-brain adaptation process using the technological extensions provided by new media. In other words, the affective body is a kind of "swimming pool" that "underpins consciousness and connects it with subperceptual sensorimotor processes." It is through this affective channel that Hansen wants materially to connect the flow of information in the digital image and the body as frame.[54]

Cognitive scientist Francisco Varela, who advocated "enactive cognition," also argued that "any mental act is characterized by the concurrent participation of several functionally distinct and topographically distributed regions of the brain and their sensorimotor embodiment. These various components require a frame or window of simultaneity which corresponds to the durée of lived present." Hansen relied on Varela's argument to explain the emergence of time through an endogenous bodily framing process anchored in self-organizing neural arrangements. This stands in contrast to Deleuze's perspective in *Cinema 2*, which emphasizes the use of an externally applied technical frame. Varela argues that "these endogenously constituted integrative frameworks

account for perceived time as discrete and nonlinear, since the nature of this discreteness is a horizon of integration rather than a string of temporal "quanta." The "now" lasts for 0.3 seconds, not as a stable string of "temporal quanta" like a ticking clock (in contrast to the informational-computational model of the brain), but rather as a "horizon of integration."[55]

> Thus, we have neuronal-level constitutive events that have a durée on the 1/10 scale, forming aggregates that manifest as incompressible but complete cognitive action on the 1 scale. This completion time is dynamically dependent on a number of dispersed assemblies and not on a fixed integration period; in other words it is the basis of the origin of durée without an external or internally ticking clock.[56]

Varela offers his definition of time as "dynamic self-organizing patterns of widely distributed regions of the brain," and supports one of Hansen's working hypotheses that "temporal flow is biologically linked to affection." Varela argues that affection precedes temporality and "sculpts" the dynamics of temporal flow. Affection provides a link between temporal flow and perceptual time.[57]

The fact that the active framing of the human body is central to the use of all technologies, including digital media, provides a scientific basis for moving away from the dichotomy between technophilia and technophobia. Contrary to the belief that technology makes humans passive, it is actually the active and voluntary choices of the human body that reposition technology as a mediating agent, and technology can help humans become consciously aware of unconscious choices.

Conclusion: Moving Bodies and Multi-Frame, Scale-free Networks

For Benjamin, "the founding concept (of historical materialism) is not progress but actualization [Aktualisierung]."[58] Emphasizing "actualization, not progress" means that it is more important and urgent to realize the rich potential already available in the present, instead of waiting for a more progressive future. This means that we need to realize the potential of the "relational" space inherent in the human body, which has been subordinated to and forgotten in densely structured "absolute" and "relative" spaces, and the potential of the "embodied experiential space,"[59] which has been enchanted and enervated by "disembodied physical space," "disembodied conceptual space," and the "here and now" (in the words of Karl Marx). This perception represents the dialectical illumination and transformation achieved by Benjamin, who tightly stretched the two poles of the dream of the 19th century and the current state of the awakened 20th century, much like a bowstring.[60]

How will this illuminated subject unleash the potential of the "embodied relational-experiential space" and bring about change in the external "materialized absolute-physical space" and "disembodied relative-conceptual space"? Although Benjamin emphasized the importance of the relational-experiential space discovered by Freud, Proust, and the Surrealists, he criticized the fact that their work did not lead to a "political transformation." Then, how did Benjamin himself think that the dialectical tensions inherent in relational-experiential space would lead to political transformation?

> That image space is "the world of universal and integral actualities, where the "best room" is missing − the sphere, in a word, in which political materialism and physical nature share the inner man, the psyche, the individual, or whatever else we wish to throw to them, with dialectical justice, so that no limb remains unrent. Nevertheless − indeed, precisely after such dialectical annihilation − this will still be a sphere of images and, more concrete, of bodies. [...] The collective is a body, too. And the physis that is being organized for it in technology can, through all its political and factual reality, be produced only in that image space to which profane illumination initiates us. Only when in technology body and image space so interpenetrate that all revolutionary tension becomes bodily collective innervation, and all the bodily innervations of the collective become revolutionary discharge, has reality transcended itself to the extent demanded by the *Communist Manifesto*."[61]

For Benjamin, art was assigned the important role of being able to cause a "demonstration" [Vormachen, i.e., simulation] through the embodied mimesis of these collective innervations, and thus prepare for the "coordination of humanity and nature" in advance. However, in today's era in which ubiquitous networks and AR penetrate the time and space of everyday life, it is imperative to understand dialectically the relationship between pairs that are inherent in the new idea of the "movement-image," such as virtuality and actuality, image and narrative, and the unconscious and consciousness, following Benjamin's approach. Through this understanding, if we can acquire a correct perception of the dialectical relationship between art and politics, we can provide the necessary technical conditions (ubiquitous technology) and cultural conditions (social networks) for such "coordination" and collective innervations, which will be very useful for "demonstration [Vormachen]." However, these conditions are necessary but not sufficient for what Benjamin called the "politicization of art." To create sufficient conditions, the following tasks need to be addressed in the future.

1) This article laid a theoretical foundation for analyzing the dialectics between image and narrative, two essential layers of cinema, by revealing that the relationship between image and narrative is not mutually exclusive but, rather, a combination of the territorialization and deterritorialization inherent in the movement-image. However, the dialectics referred to here

are not Hegelian dialectics, but Benjamin's dialectics at a standstill. The opposing bipolarity in the dialectics manifests itself in individuals as dreams and illuminations, in art as semblance and play, and in groups as solid masses and loose dots. For individuals or groups, this dialectical bipolarity should not remain in a non-dialectical state of separation or confrontation. Rather, the two sides should encounter each other and suddenly constitute a constellation, releasing an intense energy like "ball lightning." Such is the task of artistic training and can be summarized as the political function of the mimesis aesthetics described by Benjamin. The point here is to capture the moment when opposites, such as the past and present, the unconscious and conscious, and collective and individual innervations, suddenly form a single tense constellation, a dialectical image that covers the entire terrain to create lightning that flashes like ball lightning. This method is well suited to capturing a dialectical image that may arise at any moment between the multilayered movement-images that unfold in cinema and the narrative flow that emerges from the combination of language, behavior, and images. In other words, dialectics at a standstill or dialectical images are ways of locating the constellation of images in scattered frames and shots, a new approach to understanding a cinematic montage that has been trapped in a linear flow.

2) A contemporary understanding of Benjamin's dialectical constellation suggests that it is more akin to a dynamic network than to a single, complete constellation. This network can be compared to a "scale-free network," something found in the field of complex systems science and characterized by a flexible structure that consists of multiple nodes and links that are not fixed but constantly changing as the links and nodes are switched to change the network shape.[62] Therefore, the dialectical constellation that can be formed between movement-images as dynamic cuts is neither singular nor fixed. It is a "scale-free network," with the potential for various changes in its constellation-like structure as multiple images swap links with one another. The question then arises: how can the potential of such a network be realized? As mentioned earlier, the human body, which is always in motion, creates variability. As we bend over or sway while walking, our field of vision transforms into overlapping and moving multi-frames. Augmented Reality (AR) technology further stimulates this variability. Of course, a perspective of multi-frames of moving body-vision applies not only to AR but also to "camera movement" in general cinema and television shows.

Solving these two tasks will free the compositional methods of montage and frame-short from the linear narrative constraints imposed by 20th-century cinema. The ensuing liberation will pave the way for new possibilities in the dynamic construction of non-linear narratives and images, enriching Felix Guattari's concept of "alternative reterritorialization." Furthermore, rather than considering old media such as cinema and new media such as smartphones as separate entities, this new perspective secures a transmedia dynamic position that can enrich the "dialectic of semblance and play" by overlapping and connecting various social networks.

Notes

1. Statistics Korea, "The Age of Big Data," Financial News, accessed May 19, 2013. Every day, an unimaginable amount of data flows through time and space. This data includes information on our conversations, texts, transportation methods, and social media trends. This vast collection of data is commonly known as big data, and its inconsistent form and vast quantity make it challenging to collect, store, search, analyze, and visualize. With the rise of social media and channels like the cloud and smartphones, the accumulation of big data is growing exponentially. For example, according to Cisco's 2011 Mobile Traffic Survey, an average person in Korea generates 963 megabytes (MB) of mobile traffic per month, surpassing values in North America (360 MB) and Western Europe (458 MB). Large Korean companies are actively analyzing big data from social media to improve their services and develop new products.

2. Kwang-hyun Shim, *Knowledge Production and Cultural Politics in the Ubiquitous Age* (Seoul: Moonhwagwahak Publishers, 2009), 150-151. "The third space is not limited to the technological extension of space that connects physical and virtual spaces. Instead, it is a concept that encompasses the third logic and third perspective for bridging the dichotomy between heterogeneous dimensions that have been traditionally understood as analog and digital, matter and mind (memory), left brain and right brain, brain and body, environment and human, as well as science and technology and art. Furthermore, the term "third" is an ordinal rather than a cardinal number, which implies that it does not refer to a space that is separate from the first two spaces. So, if the dichotomous divisions of space, logic, method, and perspective are inherently (rather than transcendentally) connected, a dimensional shift from external to internal will occur, transforming them into a single dynamic network."

3. Gilles Deleuze, *Cinema 1: The Movement-Image*, trans. Hugh Tomlinson and Barbara Habberjam (Minneapolis: University of Minnesota Press, 1986), vix.

4. Suzanne Heme de Lacotte, *Deleuze: Philosophie et Cinema*, trans. Lee Ji-young (Paju: Youlhwadang, 2004), 102.

5. Ronald Bogue, *Deleuze on Cinema* (New York: Routledge, 2003), 20.

6. Ibid., 12.

7. Bogue, Deleuze on Cinema, 14.

8. Ibid., 16.

9. Ibid., 17. Contrary to this idealized way of fixing ontological extremes, Deleuze believed that there is always expansion within duration and that persistence can always be found within matter.

10. Ibid., 16.

11. Ibid., 26.

12. Ibid., 27.

13. Deleuze, *Cinema 1,* 11.

14. Bogue, *Deleuze on Cinema*, 116.

15. Gilles Deleuze, *Cinema 2: The Time-Image*, trans. Hugh Tomlinson and Robert Galeta (Minneapolis: The University of Minnesota Press, 1997), 98-99.

16. Ibid., 100-101.

17. Ibid., 98.

18. Bogue, *Deleuze on Cinema,* 17.

19. Deleuze, *Cinema 2,* 131.

20. Bogue, *Deleuze on Cinema,* 116-117.

21. Bogue, *Deleuze on Cinema,* 156.

22. Deleuze, *Cinema 2,* 194-195.

23. Sigmund Freud, *A General Introduction to Psychoanalysis,* trans. Stanley G. Hall, (Frankfurt: Outlook Verlag, 2020), 126.

24. See Gerald M. Edelman, *Bright Air, Brilliant Fire: On the Matter of the Mind* (New York: HarperCollins Publishers, 1992), 111-136.

25. Iain McGilchrist, *The Master and His Emissary: The Divided Brain and the Making of the Western World* (New Haven: Yale University Press, 2010), 253.

26. McGilchrist, *The Master and His Emissary,* 42-45.

27. Ibid., 45.

28. McGilchrist, *The Master and His Emissary,* 53.

29. Ibid., 63-136.

30. Ibid., 283-284.

31. Ibid., 256.

32. Deleuze, *Cinema 2,* 28-29.

33. Bogue, *Deleuze on Cinema,* 40.

34. Deleuze, *Cinema 2, 29; Bogue, Deleuze on Cinema,* 40, 205.

35. Sung-soo Park, *Deleuze and Cinema* (Seoul: Moonhwagwahak Publishers, 1998), 69.

36. Ibid., 88.

37. Ibid., 206.

38. Félix Guattari and Antonio Negri, *New Lines of Alliance, New Spaces of Liberty,* trans. Michael Ryan, Jared Becker, Arianna Bove, and Noe Le Blanc (New York: Autonomedia, 2010), 97.

39. Kwang-hyun Shim, "Dialectics at a Standstill and the Aesthetics and Politics of Embodied Mimesis (First Manuscript)," paper presented at *2013 Benjamin Connection: 10th Anniversary Conference of Gil Publishers,* March 10, 2013 (Seoul: Seoul Public Library Audio-Visual Room, 2013).

40. "This space for play is widest in cinema. In cinema, the element of semblance has been entirely displaced by the element of play. The positions which photography had occupied at the expense of cult value have thus been massively fortified." Walter Benjamin, *Work of Art in the Age of Mechanical Reproduction, and Other Writings on Media* (Second Edition), trans. Edmund Jephcott, Rodney Livingstone, Howard Eiland, and Others (London: Harvard University Press, 2008), 129.

41. "Whereas the former made the maximum possible use of human beings, the latter reduces their use to the minimum. The achievements of the first technology might be said to culminate in human sacrifice; "those of the second, in the remote-controlled aircraft which needs no human crew. The achievements of the first technology are valid once and for all (it deals with irreparable lapse of sacrificial death, which holds good for eternity. The results of the second are wholly provisional (it operates by means of experiments and endlessly varied test procedures." In this context, Benjamin sees the role of modern art, especially cinema, as training for this kind of interaction between

nature and humanity. Of course, this harmony through technology can only be achieved if "humanity's whole constitution has adapted itself to the new productive forces which the second technology has set free." Ibid., 77, 739.

42. Ibid., 77.

43. Walter Benjamin, *Walter Benjamin and Art,* trans. Andrew Benjamin et al (New York: Continuum, 2005), 259.

44. Ibid., 114.

45. Benjamin, *The Work of Art in the Age of Mechanical Reproduction,* 78.

46. Walter Benjamin, "Ibizan Sequence," *Walter Benjamin Selected Writings vol. 2, part 2, 1931-1934,* trans. Rodney Livingstone et al (Cambridge: Harvard University Press, 1999), 592-593.

47. Kwang-hyun Shim, "Dialectic of Time-space and a City Stroller," *Epoch and Philosophy* 21, no. 3 (2010), 299.

48. George Lakoff and Mark Johnson, *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought* (New York: Basic Books, 1999), 39-42.

49. Kwang-hyun Shim, *Knowledge Production and Cultural Politics in the Ubiquitous Age,* 175.

50. Mark B. N. Hansen, *New Philosophy for New Media* (Cambridge: MIT Press, 2004), xix, xx.

51. Hansen, *New Philosophy for New Media,* pp. xx-xxi; Edelman, *Bright Air, Brilliant Fire*, 75.

52. Hansen, *New Philosophy for New Media,* xxi.

53. Ibid., xxii-xxiii.

54. Kwang-hyun Shim, *Knowledge Production and Cultural Politics in the Ubiquitous Age,* 178.

55. Francisco Varela, "The Specious Present: A Neurophenomenology of Time Consciousness," in *Naturalizing Phenomenology: Issues in Contemporary Phenomenology and Cognitive Science,* eds. Jean Petitot, Francisco J. Varela, Bernard Pachoud, and Jean-Michel Roy (Stanford: Stanford University Press, 1999), 273.

56. Ibid., 276-277.

57. Tim Lenoir, "Haptic Vision," xxiii-xxv.

58. Walter Benjamin, *The Arcades Project,* trans. Howard Eiland and Kevin McLaughlin (Cambridge: Harvard University Press, 2002), N.2,2, 460.

59. The "embodied experiential relational space" is a space located at the center of a matrix that is a variation of the matrix of spatiotemporal dialectics presented by David Harvey in his article "Space as a Keyword," i.e., a matrix created by intersecting the axes of "physical space, experiential space, and conceptual space" and "absolute space, relational space, and relative space." For more information, see the article by Kwang-hyun Shim, "Dialectic of Time-space and a City Stroller," 255-312.

60. Ibid., 301.

61. Walter Benjamin, "Surrealism," *in One-Way Street and Other Writings,* trans. Edmund Jephcott and Kingley Shorter (Thetford: Lowe & Brydone Printers Limited, 1979), 239.

62. Kwang-hyun Shim, "Dialectics at a Standstill and the Aesthetics and Politics of Embodied Mimesis," 111.

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