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Heidegger on Information Technology

My aim in this paper is to begin a discussion about how, and to what extent, Martin Heidegger's thinking about technology offers helpful critical terms for thinking about the nature and global sway of today's most dominant and prevalent forms of technology, namely the interrelated technologies of information, communication, and (capitalist) commerce. My suggestion will be that Heidegger's thought does indeed have implications for critical thinking about these technologies, but that in order to see how it does, we may have to deepen and further radicalize some of Heidegger's suggestions about essence, being, and form. This need for deepening is connected with the way in which these specific technologies themselves depend on the character and structure of *language*, in that they present themselves as effective means for the manipulation, storage, retrieval and exchange of broadly linguistic, symbolic, and informational material. In fact, in the context of Heidegger's late thought about technology as well as language, the syntagm "information technology" itself – a term that, as far as I know, Heidegger himself never used – nevertheless points the way, as I shall argue, to a deepening of the Heideggerian inquiry into form which itself can facilitate an improved critical understanding of the implications of these technologies for life around the planet today.

I

We can reasonably begin to consider Heidegger's views on technology and their implicit application to information technology by recalling the outlines of his powerful argument in the 1953 essay "The Question Concerning Technology."[1] Here, Heidegger ventures to open a path of "questioning" about technology, its effects, and its essence, aiming to prepare the way for what he calls a "free relationship" to technology that overcomes its injurious effects on modern life. It is crucial for this, he argues, that we distinguish what he calls the "essence" of modern technology from any actual technological thing or system. This is not an "essence" in the sense of a timeless, unchanging definition, but rather, Heidegger suggests, the historical way that modern technology has come to be dominant and to exercise its global claim to shape life and material around the planet. By coming to understand this historical essence of modern technology, Heidegger suggests, we can grasp two important points that characterize any useful critical understanding of technology. The first is that technology, in terms of its historical essence, is not simply a means to an end. Unlike the various specific technological instruments and systems, we cannot understand the claim of modern technology itself as responsive to antecedently given human needs or desires; rather, understanding technology in its essence requires that we understand how it imposes upon *us*, "challenging" us to certain characteristic kinds of activity and production. Second, in this challenging claim upon us, technology is not, according to Heidegger, simply a "human" activity of

[1] "The Question Concerning Technology" in D.F. Krell, ed., *Basic Writings* (revised and expanded edition). San Francisco: Harper, 1993.

"making and manipulating." Rather, in the essence of modern technology, processes are active that pre-date any specifically modern activity of production and are linked to the original meaning of *techne* , which the Greeks experienced as an organic "bringing-forth" more closely connected to the arts and to the very meaning of truth than to any "production" in the modern sense.

According to Heidegger, then, technology is best understood as a mode of revealing or bringing-forth; its "place" is that of truth conceived as "*aletheia*" or disclosure, the bringing-forth of entities from their hiddenness. However, with respect to specifically *modern* technology, this original revealing becomes a "challenging forth," an aggressive attitude toward things and resources which puts to the natural world the "unreasonable demand that it supply energy which can be extracted and stored as such." (p. 320). This challenging is a "setting-upon" nature which sets nature in a certain, imposed order only so that resources can be extracted and efficiency optimized. For instance, the modern hydroelectric plant set up on the Rhine completely transforms the character of this ancient river, transforming it into a neutral resource or "standing-reserve" to be drawn upon at our command and constantly challenged to deliver more and more energy resources.

What is essentially at the root of this kind of transformation that modern technology accomplishes, according to Heidegger, is the essence of modern technology itself, which (as distinct from the earlier configurations of craft and individual production) has the character of an "enframing" or *Gestell*, a kind of total pre-delineation that operates in advance to ensure the possibility of the ordering, control, and calculation of entities. However, even this "challenging" which consigns entities to ordering and control, remains a kind of "revealing" of the nature of entities as a whole; moreover, like all such regimes of revealing, it is deeply historically "destined" (*Geschicht*) in a way that traces back to the very origins of the revelation of being to thought. As such, it bears witness not only to the deep and precipitous "danger" that man will come to treat himself only as a standing reserve, and even more disastrously, that this treatment will end up "banishing" man from any other understanding of, or relationship to, truth itself. Nevertheless, this "danger" correlates in a way that is "in a lofty sense ambiguous" to a kind of "saving power" that also, according to Heidegger, may lie precisely in the essence of technology (p. 334) and may indeed let "man see and enter into the highest dignity of his essence." (p. 337). This latter possibility is glimpsed, according to Heidegger, if we consider that a thoughtful understanding of what comes to light in *Gestell* is, as the most complete development of the destining of revealing, also a "granting" which "gives man entry into something which, of himself, he can neither invent nor in any way make." (p. 337). This is nothing other than entry into the "propriative event" of truth or *Ereignis*, the event of Being itself which brings to culmination and conclusion all previous forms of metaphysical thinking and relating to beings, and prepares a totally different and as-yet-unthinkable relationship of man to Being outside the closure of metaphysics.

This discussion of the ambiguous entanglement of the "danger" and the "saving power" of modern technology exemplifies a claim that is repeatedly mentioned by the later Heidegger in his discussions of the relationship of modern technology to what may lie beyond or supplant it, and so open a whole other kind of history or grounding of thought and action in Being, beyond the whole historical epoch of metaphysics itself. According to Heidegger, this historical epoch is uniformly determined by the

interpretation of Being as one or another form of presence or "beingness"; thus, from Parmenides up to Nietzsche, philosophical thought has determined the ultimate ground of Being as equivalent to the pre-dominance and sway of various kinds of superlative beings or entities thought as pre-eminent and basic. However, this dominance of the thought of Being as beingness is today, Heidegger suggests, entering its closure and culmination, thus preparing the way for the possibility of the utterly transformative event of "enowning", "appropriation," or *Ereignis*, wherein Being itself once again shows itself as such. One possibility that is concealed in the essence of modern technology or *Gestell* as the culmination and completion of the entire metaphysical tradition of thinking of being as presence (and it is only a possibility, since Heidegger emphasizes that nothing guarantees it) is that a heedful awareness of this essence may itself lead, by way of a kind of sudden and dramatic reversal, to *Ereignis* itself. Heidegger gives this possibility an evocative formulation in one of his last seminars, the Le Thor seminar of 1969:

> An excellent way of approaching enowning would be to look into the essence of enframing [*Ge-stell*] insofar as it is a passage from metaphysics to another thinking …for enframing is essentially ambiguous….Enframing is, as it were, the photographic negative of enowning.[2] (p. 60)

Though it is clear that we cannot yet say with any clarity that the transformative event of *Ereignis* is yet occurring or is indeed any closer to occurring than it was when Heidegger wrote, in the roughly 60 years since the writing of his essay much has nevertheless changed about the claim of technology upon entities and ways of life all around the planet. Whereas the effects of the kinds of industrial and mechanical technologies that Heidegger primarily considers in "The Question Concerning Technology" remain decisively important, these technologies are today supplanted and modified by the ever-more-pervasive technologies of information production, distribution, and exchange which today encircle the globe and affect practically every human life on the planet, through the possibilities of communication and economic transformation they facilitate. Since these technologies are defined, not by their capacities to shape and manipulate matter or natural forces, but rather by their relationship to the increasingly pervasive but elusive and ill-defined value of "information," the prospect of updating or applying Heidegger's analysis to the contemporary world dominated by them raises a number of difficult questions.

To begin with, though it may very well be true that the modern technologies of computers, cellular communication devices, and global finance (just to take a few examples) have their basis in a kind of advance "ordering" that has the purpose of ensuring total calculability and control, it is also clear that the object of this activity is no longer simply "nature" in the sense of the totality of natural resources and their effective exploitation. Indeed, if there is a kind of "*Gestell*" or enframing operative here to ensure universal accessibility and calculability, its object is apparently not nature or natural forces but (at least as much) the complex realm of (what we may call) "cultural" production and memory, including

[2] "Seminar in Le Thor 1969", in *Four Seminars*, transl. Andrew Mitchell and Francois Raffoul. Bloomington, IN: Indiana U. Press, 2003, p. 60.

the total artistic and intellectual accomplishments of humankind. Moreover, since these technologies do not operate primarily on the basis of any such naturally given ground, but rather depend in crucial ways on the production, distribution and communication of "information" (however we may define this very difficult-to-define term), it is not clear immediately to what extent (if any) Heidegger's terminology of "challenging-forth" and even "revealing" are applicable here. If "information" is neither (in any obvious sense) "given" in advance of the technological processes of its exchange, consumption, and development, nor evidently directly "grounded" in any set of objects or entities or their specific modes of presencing or revelation to human understanding, it becomes difficult to see that (or how) Heidegger's determinate conception of the essence of modern technology and both the danger and the "saving power" that it conceals can apply to the technological and everyday world increasingly determined by it.

Nevertheless, if something like the Heideggerian analysis of modern technology does indeed offer illuminating terms through which to understand the power and claim of mechanistic and industrial forms of technology upon the total context of life on the planet, it ought to be possible to inflect this analysis toward the more characteristic forms of "information" technology, which themselves arguably arise, like the earlier industrial forms, through a similar or even identical claim for the orderability and manipulability of the whole. If this is right, then just as the earlier industrial technologies witness a claim of enframing that is total and world-dominating in its own right, bringing to fruition the historical destining that arises already with the very first revelation of beings to human understanding, so the newer forms of post-industrial information technology too should witness a distinctive and destined kind of revealing of beings as a whole, and even bring to yet fuller completion the historically destined development of the process that begins with that first revelation, the history of metaphysics itself.

And in fact, Heidegger quite presciently anticipated just such a development of information technology in the 1966 essay "The End of Philosophy and the Task of Thinking." Philosophy, he here declares, is today coming to an end because the historical tradition of metaphysics is coming to its completion in the development of the sciences and the cultural effects of the technologies spawned by them:

> It suffices to refer to the independence of psychology, sociology, anthropology as cultural anthropology, or to the role of logic as symbolic logic and semantics. Philosophy turns into the empirical science of man, of all that can become for man the experiential object of his technology, the technology by which he establishes himself in the world by working on it in the manifold modes of making and shaping. All of this happens everywhere on the basis of and according to the criterion of the scientific discovery of the individual areas of beings.
>
> No prophecy is necessary to recognize that the sciences now establishing themselves will soon be determined and regulated by the new fundamental science that is called cybernetics.
>
> This science corresponds to the determination of man as an acting social being. For it is the theory of the regulation of the possible planning and arrangement of human labor. Cybernetics

> transforms language into an exchange of news. The arts become regulated-regulating instruments of information.[3]

Heidegger's reference to "cybernetics" here – at that time, this was the dominant term for the project of a total informational theory of human and cultural as well as natural "systems" – comprehends not only "information science" in the narrow sense but the whole configuration of life determined by the technologies of information and their effects, including the "media" representation of global information as "news" and the both regulated and increasingly regulative (in the sense of uniform and determinative) information-mediated and popular-cultural fields of the arts and entertainment. This configuration of "modern" life (and here we may say "modern" in the sense of "contemporary") indeed witnesses, Heidegger suggests, one completion or culmination of metaphysics, as well as the whole historical regime governed by it. In this completion, philosophy comes to an end with the "triumph of the manipulable arrangement of a scientific-technological world and of the social order proper to this world." (p. 435). This is the culmination of the "metaphysical" interpretation of the Being of beings as presence, as the determination of the total character of beings in terms of one or another type of grounding principle. This interpretation culminates in the contemporary total "cybernetic" assumption of the calculability and uniformly effective manipulability of all beings through the total sciences of information and calculation. Yet there may remain, Heidegger cautiously suggests, the possibility of a different kind of culmination and end of the metaphysical tradition, one that, after the end of philosophy, nevertheless ventures a kind of "thinking" that surrenders the metaphysical tradition heretofore to what Heidegger calls the "matter for thinking," offering to restore our openness to the very place of the happening of unconcealment and truth.

II

If it is thus possible to see in the dominant forms of modern information technology not only a continuation of the "essence" of modern technology as Enframing but also an even more complete development of the completion of metaphysics that modern (industrial) technology already represents, then it is reasonable to look to the specific features of information technology in order to understand the still-open possibilities for thought and its continuance beyond the metaphysical tradition of the interpretation of being as presence. In particular, although, as suggested, it may not be possible to see the kind of "destining of revealing" that contemporary information technology represents simply as a matter of the further unlocking of natural forces and shaping of material objects, it may be that the specificity of information technology in its global dominance today nevertheless bears witness to a distinctive kind of claiming and ordering that offers, even more completely (and in a somewhat different way) to evince a transformative total "revealing" of beings as a whole and complete transformation of our human relation to them.

[3] "The End of Philosophy and the Task of Thinking" in D.F. Krell, ed., *Basic Writings* (revised and expanded edition). San Francisco: Harper, 1993, p. 434.

The distinction between the primarily industrial technologies that Heidegger considers in "The Question Concerning Technology" and the primarily informational technologies that dominate today clearly has important consequences, for instance, for the specific sorts of ways we can imagine taking up an altered and more "free" relationship to technology in the wake of metaphysics and beyond its closure. At the end of "The Question Concerning Technology," Heidegger invokes the Greek experience of the phenomenon then known as *poiesis*, a kind of original and non-confrontational artistic experience of the revealing of beings that was not, Heidegger says, separate from what was then experienced as *techne*. This may be taken to indicate that Heidegger is here suggesting that the futural experience of technology, beyond its metaphysical determination as enframing and challenging-forth, amounts to what he elsewhere celebrates as *Gelassenheit*: a respectful and ecumenical attitude of "letting beings be" that lets the innate essences of beings shine forth in all their diversity and plurality. The suggestion of this attitude as the successor to a modern "enframing" attitude toward beings has been both endorsed on Heidegger's behalf and, elsewhere, criticized as fundamentally regressive and "nostalgic."[4] Without deciding this dispute, however, it is helpful to consider here the implications of the thought that it is in *information* technology that the metaphysical tradition reaches its most definitive culmination and exhaustion. If this thought is right, it is not at all clear that the overcoming of modern technology and the metaphysical tradition it represents would issue primarily in an altered relation to *beings*, or simply in transfigured ways of allowing them to show up for us. If information and its character are indeed decisive here, the overcoming of modern technology might well involve, just as much, an altered understanding or experience of *language* and *thinking* that precedes and underlies whatever changes may occur in our lived relation to things.

In fact, Heidegger seems to envision such a changed relationship to language and thought outside the closure of metaphysics elsewhere, as for instance in *What is Called Thinking?* where he sharply criticizes what he there calls "calculative" or "one-track thinking" and the kind of impoverishment and diminishment of language to which it leads. This line of critique is itself a development of Heidegger's longstanding critical consideration of the prevailing modern determination of the essence of thought as subjective representation, a determination that seems to culminate in the modern conception of the computer as a kind of "thinking machine." If any of this is right, then the distinctive possibility of a "saving power" inherent in information technology would not lie simply in the celebration of the arts or in a general attitude of *Gelassenheit*, but would rather be correlative to (and the reverse of) the specific kind of effectivity that information technology claims, the specific way in which information technology exerts its claim to encapsulate and pre-delineate human phenomena and ways of life.

[4] It is not often noted that in discussing the "saving power," Heidegger actually *contrasts* the possibility of a recovery of poiesis with what he treats explicitly as the *distinct* possibility of a sudden transformation of Gestell into Ereignis: "Whether art may be granted this highest possibility of its essence in the midst of the extreme danger, no one can tell. Yet we can be astounded. Before what? Before this *other* possibility: that the frenziedness of technology may entrench itself everywhere to such an extent that someday, thoughout everything technological, the essence of technology may unfold essentially in the propriative event of truth." (p. 340; emphasis added).

At any rate, we can move closer to the issue by considering a decisive and foundational actual instance of the development and institution of the technologies of information, the actual conceptual creation of what were soon perceived as "thinking machines" themselves. In a remarkable paper in 1936, Alan Turing essentially created the logical structure of the modern electronic computer by developing the abstract architecture of what is now called a "Turing machine," and serves as the conceptual basis for all forms of digital computers and computer-based technologies.[5] The core of his demonstration is the rigorous conception of what has been called "effective" computability; that is, the capacity of a problem to be solved by means of a system comprising only a finite number of determinate and explicitly stateable rules, including a finitely stateable problem-solving procedure or algorithm. Given such a configuration of rules and algorithm, it is possible to treat its process as a purely "mechanical" computation or cognition, one that does not imply or demand any irreducible appeal to the role of human consciousness, intentionality, or meaning in the course of its operation. In fact (and highly suggestively for any interpretation of the actual relationship of human thinking or rationality to computational processes), it was Turing's larger aim to prove, as a result of mathematical logic, that there are actually perfectly well-defined mathematical problems whose answers are *not* "effectively computable" in this precise sense, and he did in fact succeed in proving this in the paper. Nevertheless, the architecture of the digital symbolic computer (as composed of the various units of input/output, memory, and computational algorithms) was thereby born along with the specific conception of "effectivity" that underlies the functioning of digital computers and all of the informational and communicational technologies that are based upon, or derive from, them. This is the effectivity of the manipulation of symbols according to a set of determinate and explicitly specifiable rules, the effective total "programming" of language and symbolism according to the effectively specifiable "program" of rules and algorithms.

In the context of a Heideggerian-style inquiry into the nature and essence of (different kinds of) technology, this appears to have at least two direct implications.

First, the specific *kind* of effectivity that information technology depends upon means that the global effects of its dominance and sway are essentially different than those of the "modern" regime of primarily industrial technology. Whereas the global effects of industrial technology are comprehensible in terms of its production and manipulation of entities and its unlocking and control of natural forces, the effects of information technology are much more closely, and in a wholly different way, connected to the regimentation and manipulation of *language*, and hence to the capture and control of whatever can be symbolized or communicated in a regular and repeatable manner. In that this regimentation and manipulation is indeed prepared by the very abstract but effectively capturable and general structure of "information," this remains a kind of "enframing" or *Gestell*, but it is also essentially different from the pre-delineation and capture of primarily "natural" forces and substances that Heidegger calls by that

[5] Turing, A."On computable numbers, with an application to the Entscheidungsproblem." In *The Essential Turing*. Ed. B. J. Copeland. Oxford: Clarendon. (2004).

term. Rather, since the contemporary dominance of information technology is prepared and conditioned by a calculative manipulation of symbols, it appears impossible to understand the way in which it holds sway over modern life without first grasping, in a profound way, what is involved in the basic underlying structure and nature of language itself.

This connects the problematic of information technology back to a problem that is avidly pursued by Heidegger, especially in his later works: the problem of the "being of language" and of its claim upon truth and our understanding of the world, a claim he famously and enigmatically formulates in the "Letter on Humanism" by designating language "The house of Being." In relation to this problematic, Heidegger recurrently emphasizes, beginning in the 1930s, the contemporary experience of a kind of "exhaustion" or dysfunction of language that corresponds to the completion and using-up of the possibilities of metaphysical thinking, and points recurrently to the need for a new thinking, and experience, of the human relation to the word that once again re-animates its power to come to itself in living speech. From this perspective, if modern informational and computational technology represents something like the ultimate impoverishment of the vital power of originary speech in that it treats words as completely abstract and interchangeable signs cut off from any original ground or animating context, an adequate grasp of the ultimate historical basis of these forms of technology nevertheless offers to reveal once more their basis in the progressively forgotten foundational interplay of being and language themselves.

Second, the actual conceptual *basis* of Turing's dramatically transformative discovery points to the relevance (for any future-directed thinking of what is involved in information technology) of another phenomenon that Heidegger considers throughout his career: the phenomenon of *logos* that, according to Heidegger, organizes Western thinking about language from Parmenides to the present. Here, in fact, it is possible to envision developing the analysis, in view of the specific character and basis of information technology, in a somewhat different direction than Heidegger himself does. For the actual basis of Turing's discovery is a profound development of the *formal and mathematical logic* first inaugurated in its modern form by Frege, Russell, Cantor, and Hilbert; it is this *formal* logic that provides both the immediate backdrop and all of the conceptual materials for Turing's development of the abstract architecture of the computer. Whatever we may think of the merits or limitations of formal and symbolic logic and the kinds of formalization and abstraction it represents, to truly understand the essence of informational technology it thus appears necessary to reckon with this particular contemporary development of the ancient phenomenon of the "logos" in a way that Heidegger himself seldom or never does. For as is well known, from nearly the beginning of his career, despite his deep and penetrating inquiries into the nature and original experience of the *logos* itself, Heidegger consistently rejects the claim that modern *symbolic* logic has anything to teach or show us about the actual structure of historical languages or even about the originary phenomenon of the *logos* from which modern "logic" takes its name.

Still, although it is doubtful that Heidegger ever read Turing or really understood the formal structures underlying the modern theory of computation and information processing, there is a passage in the 1959 essay "The Way to Language" that discusses the link between formalization and information and

gestures, again in a remarkably prescient way, at some the very concerns and linkages that would have to be operative here:

> Propriation [*Ereignis*] is telling [*sagend*]. Accordingly, language speaks after the manner of the given mode in which propriation reveals itself as such or withdraws. A thinking that thinks back to propriation can just barely surmise it, and yet can already experience it in the essence of modern technology, an essence given the still odd-sounding name *Gestell* ["enframing"]. The enframing, because it sets upon human beings – that is, challenges them – to order everything that comes to presence into a technical inventory, unfolds essentially after the manner of propriation; at the same time, it distorts propriation, inasmuch as all ordering sees itself committed to calculative thinking and so speaks the language of enframing. Speech is challenged to correspond to the ubiquitous orderability of what is present.
>
> Speech, when posed in this fashion, becomes information. It informs itself concerning itself, in order to establish securely, by means of information theories, its own procedure. Enframing, the essence of modern technology that holds sway everywhere, ordains for itself a formalized language – that kind of informing by virtue of which man is molded and adjusted into the technical-calculative creature, a process by which step-by-step he surrenders his "natural language.[6]

Here, Heidegger accordingly confirms that the global dominance and sway of "information" as a mode of the "ubiquitious orderability of what is present" corresponds to a formalization of language that envisions the total abandonment of "natural language" in favor of formal and technically tractable methods of symbol manipulation such as Turing's. It may be, Heidegger says, that this process of "formalization" is recognized as impossible to complete in principle, since the interpretation and meaning of the specialized formal languages and calculi always depends on a foundation in some already spoken "natural" language. Still, even this recognition does not, he says, go far enough, for even if it is admitted that "natural" language is not fully formalizable, this amounts simply to a purely negative definition of "natural" language in terms of its incapability of formalization. On the other hand, a different kind of thinking, or experience, of what is involved in language and its relationship to "information" might arise through a new opening of what "speaks" in language itself:

> However, what if "natural language," which for information theory remains but a disturbing remnant, drew its nature – that is, the essential unfolding of the essence of language – from the saying? What if the saying, instead of merely disturbing the devastation that is information, had already surpassed information on the basis of propriation that is not subject to our ordering? What if propriation – when and how, no one knows – were to become a *penetrating gaze* [Ein-Blick], whose clearing lightning strikes what is and what the being is held to be? What if

[6] "On the Way to Language" in D.F. Krell, ed., *Basic Writings* (revised and expanded edition). San Francisco: Harper, 1993, pp. 420-21.

> propriation by its entry withdrew every present being that is subject to sheer orderability and brought that being back into its own?
>
> Every language that human beings possess propriates in the saying. Every language is, as such, in the strict sense of the word, language proper, allowing for variations in the measure of its nearness to propriation. Every proper language, because it is allotted to human beings through the way-making movement of the saying, is sent, hence fateful.[7]

In direct connection with the issue of information and its growing dominance as the predominant mode of the organization of technology and life, Heidegger suggests that what is needed for a genuinely historical understanding of the provenance of technology – and hence of the whole of Western metaphysics as well as what may lie beyond – is an explicit recovery of what lies at its root, namely the original character of language as such. As we have seen, this suggests not only an explicit being-historical inquiry into the "Being of Language" – an inquiry that the later Heidegger of course took up explicitly in many places, most directly with the aim, as he says elsewhere in "The Way to Language," of "bringing language as language to language" – but also, just as much, a linked inquiry into what remains concealed in the ancient experience of the phenomenon of the *logos,* and comes to light in a certain way only with the modern development of the formal theory of logic that itself underlies Turing's epochal discovery. Such an investigation would pursue, along broadly Heideggerian lines, the ultimate origins of the twentieth-century theory of formal, symbolic logic back to the original thinking of logic and language in the Western tradition, which is simultaneous with the first inauguration of the western thought of Being in Parmenides and Plato.[8]

III

It is impossible to pursue this investigation very far today, or probably even really to begin it properly. However, it may be possible to provide a few indicative touchstones from the Heideggerian text, points along the itinerary of such a potential thinking of what remains concealed in the original "logical" relationship of Being and language itself.

To begin with, the historical inquiry that reckons with the domination of information today and its possible consequences for an as-yet-unthinkable future must, as we have seen, grasp the profound linkage between the metaphysics of technology – what Heidegger grasps as Enframing – and the ever-expanding capture of human thought and experience in abstract, symbolically repeatable forms. The discussion in "The Question Concerning Technology" (focusing as it does on forces and objects) does not

[7] "On the Way to Language," pp. 421-22.

[8] In many discussions, Aristotle is credited as the founder of symbolic logic, owing to his discovery of the forms of the syllogism. However, as the connections that Heidegger draws out make clear, the notion of logic and even a certain embryonic conception of "symbolic" logic are already present in Plato's investigations into the structure of predication and the sentence, and are there even inspired by Parmenides' original logical distinction between "the way of Being" and the way of non-being.

bring out this linkage explicitly, but there is in fact an earlier discussion in Heidegger's corpus that does so much more directly. In the enigmatic treatise "Beiträge zur Philosophie: vom Ereignis," composed between 1936 and 1938, Heidegger devotes several pages to what he there calls "machination" [*Machenschaft*] and its link, in the metaphysical understanding and practice of the modern world, to the capture and regimentation of *Erlebnis* or lived-experience.[9] Although this is one of the first, if not the first, sustained discussions of the total character of technology anywhere in Heidegger's *corpus*, many of the features of what he later calls technology or *Technik* are already clearly present in this early discussion of machination. For instance, Heidegger emphasizes (pp. 125-27) that machination is not a specifically human activity or comportment of production or productivity and that it rather has its ground in a much deeper and older phenomenon of disclosure or revealing. Moreover, the character of machination as a kind of revealing grounded ultimately in the most original disclosure of beings to thought is already the key for the possibility of a *futural* thinking beyond the metaphysical interpretation of being as presence (or beingness); thus, Heidegger here holds (anticipating by more than 30 years the late remark about *Gestell* as the "photographic negative" of Ereignis) that "Machination as the essential swaying of beingness yields a faint hint of the truth of be-ing itself." (p. 127).

What is perhaps somewhat more surprising in the *Beiträge* discussion is the linkage that Heidegger there draws between the growing dominance of machination and what he sees as its correlative "value" on the level of the human: the dominance of the value of *Erlebnis* or "lived-experience." Owing to this linkage, as Heidegger explains it, the more the essence of machination, in its growing sway and claim on the interpretation of beings, hides itself from positive investigation, "the more it insists on the pre-dominance of that which seems to be totally against what is ownmost to machination and nevertheless belongs to its ownomost: *lived-experience*." (p. 127). Heidegger's most immediate concern here is to identify and criticize the most predominant forms of the contemporary metaphysics of subjectivity, a metaphysics that primarily takes the form of "anthropologism" in various religious, natural-scientific-psychologistic, or "humanistic-personalistic" versions. Nevertheless, the picture that he draws (already by 1938!) of the dominance of a regime in which only what can be captured and repeated as "liveable" in lived-experience counts as "real" (p. 124) is already a recognizably accurate depiction of the contemporary global capture of human activities and "cultural productions" of the most diverse types in informational media and digital formats. If, then, we take seriously Heidegger's claim that this regime of media and information technology indeed manifests, in a profoundly interpretable way, the underlying "metaphysics" of the contemporary age, we also must take seriously his claim that this metaphysics represents the culmination what is already implicit in the very origin of the Western thought and experience of beings:

> The belonging together of machination and lived-experience can be grasped only by returning to their broadest non-simultaneity and by dissolution of the illusion of their utmost oppositionality. When thinking-mindfulness (as questioning the truth of be-ing and only as this) attains the

[9] *Contributions to Philosophy (From Enowning)*. Transl. by Parvis Emad and Kenneth Maly. Bloomington, Indiana: Indiana U. Press, 1999.

> knowing awareness of this mutual belongingness, then the basic thrust of the history of the first beginning (history of Western metaphysics) is grasped along with that, in terms of the knowing awareness of the other beginning. Machination and lived-experience are formally [*formelhaft*] the more originary version of the formula for the guiding-question of Western thinking: beingness (being) and thinking (as re-presenting com-prehending).[10]

That is, if we can grasp what actually links the values of "machination" and "lived-experience" which, although seemingly opposed, come to joint dominance in today's global regimes of information and media, we can also grasp, Heidegger suggests, the "basic thrust" of Western metaphysics itself, and so prepare the way for an insight into the futural "other beginning" beyond metaphysics. But this requires as well that we see how the contemporary linkage of machination and lived-experience in the metaphysics of information is itself linked back to the most original experience of thought in the West: the original relationship between being and thinking itself.

As the late Heidegger often suggested, this relationship comes to exemplary and definitive expression in the writings of Parmenides, the first philosopher to envision and describe the systematic connection between being and thinking as such. The connection comes to light in remarks such as the one that Heidegger interprets in various late seminars and lectures:

> to gar auto noein estin te kai einai.

This can be translated, as Heidegger himself suggests, "For the same perceiving (thinking) as well as being" or less awkwardly though perhaps more controversially, as "For the same is there for thinking as well as being" or even, perhaps, as "thinking and being are the same." However it is translated, the remark suggests a linkage between thinking (*noos*) and being (or what it is to be) (*einai*) that has or bears on the character of sameness (*auto*). In the late (1957) lecture "The Principle of Identity," Heidegger considers the relationship of this sameness to what may be taken as the highest logical principle of Western thought, the "law of Identity" A=A.[11] The law of identity says that every entity is identical with itself; this is what makes it possible for science to identify and be sure of the stable identity of beings, and thus in a certain respect pre-conditions the very possibility that "beings can appear in their Being." (p. 26). Its own basis, Heidegger suggests, lies in the fact that "Our language, like the Greek, offers the advantage of making clear with one and the same word what is identical and again clarifying that word in the unity of all of its various forms." (p. 24). And here way may in fact note that this "advantage" is also closely linked to the conceptual basis of any possible "symbolic logic," namely the self-identity of the sign in its abstract repeatability, the unity of its meaning across infinitely diverse possible contexts and applications. This "abstract unity" and repeatability of the sign as such is certainly

[10] *Contributions*, p. 128.

[11] "The Principle of Identity" in *Identity and Difference*. Transl. by Joan Stambaugh. U. of Chicago Press: Chicago., 1969.

and in a very direct way the precondition for all modern symbolic logic, and thus also for the informational technologies to which it leads (for instance in Turing).

Nevertheless, the modern principle of identity, which expresses the unity of "abstract identity," does not say quite the same thing, according to Heidegger, as Parmenides' original statement. For Parmenides' statement does not say that thinking and being are identical in the sense of abstract unity or repeatability, but rather that they belong together in a different way, in what Parmenides calls *to auto* or "the Same." This "sameness of thinking and Being" which comes to expression in the fragment of Parmenides, Heidegger says, "stems from further back than the kind of identity defined by metaphysics in terms of Being as a characteristic of Being." (p. 28). In fact, he suggests, we can only grasp this more original kind of belonging-together of thinking and being if we can come to see it in the light of the most original relationship of "correspondence" between Being and man; in terms of this relationship, Heidegger says in a formulation that directly echoes *Being and Time's* definition of Dasein as the entity that has within itself a concern for Being itself, "Man *is* essentially [the] relationship of responding to Being, and he is only this." (p. 31). This means, Heidegger says, that man and Being belong together in that they are "appropriated" to one another in a relationship of mutuality much more originary than the notion of representational thinking or the correspondence between subject and object (p. 32). In the modern configuration of technology, this original mutual appropriation becomes rather a "mutual confrontation" of man and Being, a confrontation that (as in "The Question Concerning Technology") determines the whole character of the modern age in terms of enframing and challenging-forth. Nevertheless, as was also suggested in that earlier article, properly understanding what is involved in this modern relation of mutual challenging can also give us a kind of transformative insight into the essential and originary relationship of co-belonging or mutual appropriation that ultimately underlies it, and so as well prepare for a first insight into the futural event of appropriation or *Ereignis* itself. Thus:

> Assuming that we could look forward to the possibility that the frame [*Gestell*] – the mutual challenge of man and Being to enter the calculation of what is calculable – were to address itself to us as the event of appropriation which first surrenders man and Being to their own being; then a path would be open for man to experience beings in a more originary way – the totality of the modern technological world, nature and history, and above all their Being.[12]

IV

To summarize, we have seen how the essence of modern technology according to Heidegger gives rise, in an ambiguous way, both to the danger of a complete loss of our relation to Being and, through the possibility of a radical, surprising, and unanticipated reversal, to the possibility of the futural event of *Ereignis* itself, which concludes and upends the epoch of metaphysics and its characteristic thinking of

[12] "The Principle of Identity", p. 40.

Being as presence. If, however, the essence of modern technology is grasped as primarily comprehensible in the specific forms of information technology that indeed increasingly shape life on the planet, this suggests that the possible futural reversal into *Ereignis* involves, in a fundamental and direct way, a profound transformation in our very relationship to the language we speak as well as the very logic of thought. If we are to understand this possibility, then, we must think through the implications of the conceptual bases and forms of effectivity characteristic of information technology in ways that suggest both deepening and (in some cases at least) modifying Heidegger's own profound historical inquiries into language, *logos*, and presence.

In particular, I would like to conclude by raising just a few questions about the continuance of these inquiries, both inside and outside the ambit of the Heideggerian text itself.

1) First, there is a question about the underlying relationship that yields the obvious etymological kinship between "information" and "form" itself. One aspect of this is the question of whether Heidegger's consistent way of considering the implications of "formalism" and "formalization" can really do justice to the deeply essential aspects of the "formal" character of information that presumably underlie this etymological connection. In particular, whereas Heidegger consistently considers the formalization of language and symbolism to amount to a kind of limitative and exterior movement, a capture of, at best, the empty and exterior aspects of symbolism in an abstracting and repetitive movement that robs signs of their relation to animating presence, it seems possible that the process of formalism and formalization, as it is developed over the course of the history of Western thought up to the modern theory and practice of computation, actually evidences a more profound and direct connection between "form" and "essence" than Heidegger ever allows. If this were right, then the original etymological connection between "form" and "information" (according to which the production of information is the imposition of form) might indicate that something remains, and remains active, in the essence of information technology that (far from simply being an exterior and diminishing capture of mere signs abstracted and cut off from their present "meanings") still indicates an important aspect of the original and profound essence of language itself.

2) As a second question, connected to the first but posing a different kind of challenge to the itinerary of Heidegger's thought, it is possible to ask whether the Heideggerian inquiry into the *logos*, (as complex and articulated as it is), really contains the internal resources that would be necessary to fully grasp what comes to light in the twentieth-century development of formal, symbolic logic and hence in the vast range of computational and informational technologies that result directly from it. From at least *Being and Time* on, Heidegger in fact consistently understands the structure of the *logos* as a *secondary* and derivative form of presentation or presence, essentially subordinated to the presence to thought or comportment of the pre-logical "things themselves." This conception, which persists even in the very last treatments of the *logos* as a kind of "gathering" of beings in presence, leads him recurrently to criticize and aim to undermine what he sees as the "traditional" determination of beings in terms of logical structures, including prominently the logical structure of the unified judgment or proposition. In light of the current analysis, however, it seems possible that modern symbolic logic captures a kind of "truth of beings" (or at any rate of language) that cannot simply be reduced to exterior manipulations of

the pre-existing presence or presencing of entities. Rather, in establishing and enforcing the abstract structure of information in practices and ways of life around the planet, up to and including its structuring of a whole "global economy" which has long ago left behind any specific relation to material forms or fixed standards of value, the modern regime of information technology would seem to manifest the irreducible effectivity of the specific structure of the *logos*, and even of its contemporary development as symbolic logic, in a way that simply cannot be grasped as a matter of the secondary manipulation of antecedently given beings or entities.

3) Finally, there is a question of what kind of claim upon life actually speaks in the contemporary dominance of information technology around the globe, and accordingly of what would actually come to light if it were suddenly reversed (as Heidegger suggests it might be). As we have seen, throughout his analyses of technology and its modern claim upon life, Heidegger emphasizes that technology cannot be thought as a "human" activity of production or shaping, or indeed under the heading of any form of "anthropologism." At the same time, though, he specifies (for example in "Identity and Difference") the futural relationship that comes to light after metaphysics as a more original relationship of correspondence between, precisely, "man" and Being. It is difficult to tell on the basis of what Heidegger says to what extent this "man" remains, in his futural correspondence to Being, in any distinctive way "human." At any rate, the very existence and dominance of "thinking machines" and all of the related technologies of media, communication, and economic exchange appear to bear witness to a kind of inherent automaticity of information or language, an automaticity of functioning that, although deeply linked to the underlying nature or "being" of language itself, also seems to evidence something like a deeply "inhuman" aspect to this nature, witnessed in the separability of abstract language and symbolism from any specific authorizing intentionality or form of animating lived experience or presence.

These are simply questions, and I can hope to have done no more than vaguely indicate the kind of path a more developed inquiry into the "being" of information technology might find itself taking. However, if, as Heidegger says, "Questioning builds a way," then it seems possible that through such questioning we may yet succeed in opening the way to a more revealing inquiry into the being of information technology, and what still remains, in a "loftily ambiguous" sense, to be thought and enacted from within it.