For an Aesthetic Definition of Information

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Presented at the event *Information and Art*, launching Sarah Cook's *Information* (MIT, 2016) and Armin Medosch's *New Tendencies: Art at the Threshold of the Information Revolution, 1961-1978* (MIT, 2016), closing the exhibition *All Watched Over by Machines of Loving Grace*, Hannah Maclure Centre, Abertay University, Thursday 9 March, 2017.

These remarks are related to a research project I currently have in development. Hence their brief and provisional nature.

0. I want to argue for *why* it is important that artists have engaged with information technologies from a specifically philosophical angle. It is important because it widens the possibilities and cultural impact not only of these technologies themselves, but of the concept of 'information' which underlies them and pervades contemporary culture. From a philosophical perspective, it does this in a specific way by *challenging* the meaning of the concept of information as it operates in philosophy, as well as in disciplines such as computer science and communication studies, and which impacts wider culture. I will speak primarily about the meaning it has had in philosophy. Here, the understanding of 'information' has been dominated by focuses on *knowledge* ('epistemology') and on *language* (the 'linguistic turn'). Through challenging such narrow conceptions, information arts pave the way for what I want to call a *General Aesthetic Definition of Information* (GADI), according to which it is 'that which in-forms forms,' of any and all types. This is important because it displaces the negative effects of information understood in the narrow epistemic and linguistic senses, as these have been diagnosed by prominent continental philosophers such as Heidegger and Deleuze.

1. How we understand the concept of information, I would argue, has just as much of a role in shaping the society characterised by information technologies as the effects of those technologies themselves. In fact the concept has changed somewhat over time, and from a philosophical perspective can be traced back to theories of *eide*, 'forms' in Plato and Aristotle, through all the permutations in between leading to modern conceptions arising from technological innovations. Only in the contemporary world, however – beginning roughly from the end of the Second World War – has information become a concept with a claim to encapsulate the *Zeitgeist* of our time the so-called 'information age.' And it has become so, of course, through technological innovations and the theory behind them – information technologies and Information Theory.

2. Behind today's information revolution, as important as transistors, is the theory of information invented by Claude E. Shannon, and publicised by Shannon and Warren Weaver in 1949 (Shannon and Weaver 1963). It is called simply Information Theory, or the Mathematical Theory of Communication (MTC). MTC is a theory of *data transmission*. It is a form of applied mathematics, and was developed to solve an engineering problem: how to transmit signals most efficiently from a sender to a receiver, through a medium. As a theory which

deals with the engineering problem of the physical transmission of signals, MTC be understood as concerning only *data* and not *semantic* information. Data may be understood, following Gregory Bateson's famous definition, as any 'difference which makes a difference' – as any form of discrete distinction capable of making something stand out, as a datum, as something 'given' (in French, *donné*, a term used both for phenomenological givenness and computer data). Shannon himself was clear and insistent on such a distinction, and as Weaver specifies: 'The word *information*, in this theory [MTC], is used in a special sense that must not be confused with its ordinary usage. In particular, *information* must not be confused with meaning.' (Shannon and Weaver 1963: 8) Despite these specifications, Shannon information was almost immediately taken up by researchers in other fields as something that must be connected with semantic information, that is, meaning, that is, something related to knowledge and means of communicating it such as language. Hence the 'common sense' understanding we have of the word 'information' as useful knowledge. Such an uptake was facilitated by the famous interdisciplinary *Macy* conferences, through which cybernetics was born. And it was widely popularised by Norbert Weiner, the most prominent voice of cybernetics, who in his popular book *The Human Use of Human Beings* (1949) conflated 'amount of information' and 'amount of meaning.'

3. Philosophical meanings of information, based on Shannon's mathematical theory, quickly emerged, first with a 1953 paper by famous Vienna Circle logical positivist Rudolph Carnap and Yehoshua Bar-Hillel. An important development was Fred Dretske's 1981 book *Knowledge and the Flow of Information*, which plugged Shannon's theory into traditional concerns with epistemology, the philosophical theory of knowledge. Over the last twenty years or so, philosophers have increasingly become interested in information, and perhaps most influentially, Oxford philosopher Luciano Floridi's work has catalysed a new field called Philosophy of Information (PI). While now consciously working to expand this field across many of the major areas of philosophy, such as metaphysics, ethics, and even aesthetics, Floridi's work began with epistemology and his understanding of information arguably remains dominated by epistemic concerns.

According to Floridi, *true semantic content* is the most common sense in which information seems to be understood (Floridi 2011: chpt. 5; Floridi 2013, citing for example Quine 1970). He notes that

> [p]hilosophical analyses usually adopt a propositional orientation and an epistemic outlook, endorsing, often implicitly, the prevalence or centrality of factual information […]. They tend to base their analyses on cases such as 'Paris is the capital of France' or 'The Bodleian Library is in Oxford'. (Floridi 2013)

Floridi proposes that semantic information can be understood as 'meaningful data,' and, suggesting that this is based on an industry standard working model in various areas of information science, specifies the *General Definition of Information* (GDI) in terms of *data + meaning*:

σ is an instance of information, understood as semantic content, if and only if:

(GDI.1) σ consists of one or more *data*;
(GDI.2) the data in σ are *well-formed*;
(GDI.3) the well-formed data in σ are *meaningful*.

(Floridi 2013)

Floridi then explains that

[i]n (GDI.2), 'well-formed' means that the data are clustered together correctly, according to the rules (*syntax*) that govern the chosen system, code or language being analysed. Syntax here must be understood broadly (not just linguistically), as what determines the form, construction, composition or structuring of something (engineers, film directors, painters, chess players and gardeners speak of syntax in this broad sense). (Floridi 2013)

Semantic information may be instructional (such as directives in a user's manual) or factual. Factual information may be ascribed truth values, and Floridi develops and defends a definition of *factual semantic information as well-formed, meaningful and truthful data* (Floridi 2005; 2011: chpt 5). Floridi and others working in the Anglo-American Analytic tradition of philosophy have most typically embraced information positively, Floridi even proclaiming it as a new *philosophia prima* ('first philosophy'), and claiming that information theory is the most powerful conceptual tool philosophy has yet received.

4. Things could not appear more differently with respect to information in the Continental tradition of philosophy. While some philosophers in Europe, such as Gilbert Simondon and Raymond Ruyer, have developed information theory in positive directions, much of the tradition's reactions to information theory, cybernetics, and computing technologies have been critical. Leading the way were Heidegger's criticisms of information and cybernetics as exemplary manifestations of 'the essence of technology,' and he characterises them as a form of nihilism on the model of his broad ontological critique of modernity. For Heidegger, the capacity to apprehend anything as significant depends upon a background of assignments and relations between things which together form a ground against which things can appear as significant, and from which projects in life can be formulated. What is important here is that this 'background significance' is not itself readily graspable by reason, and in fact the attempt to do so undermines the effective functioning of this background to provide significance (this is one of the things Heidegger means by the oblivion of Being, or, as he sometimes calls it, nihilism). Heidegger criticises the essence of technology as a way of determining things (beings) which abstracts them from a meaningful world and views them simply as resources to be used for specified ends. Dominating the modern world, the essence of technology plunges us into the deepest nihilism the West has yet witnessed. Heidegger characterises cybernetics as the apogee of modern technology, and information as the form that the essence of technology takes in language. Information is contrasted with poetry, which exemplifies the meaningful, ontological power of language. He writes:

> Because this [power] is scattered in systems of formalized reports and signals, the technological language is the severest and most menacing attack on what is peculiar to language: *saying* as showing and as the letting-appear of what is present and what is absent, of reality in the widest sense. (Heidegger 1998: 140-1)

For Heidegger, meaning is disclosed aesthetically (through *showing*), and the hyperrationalisation of information forecloses such aesthetic disclosure. Important to Heidegger's critical analysis is the fact that, like Floridi, Heidegger understands information as propositional reports of factual information, formalised and reduced to 1s and 0s. Similarly (though I cannot expand on this here), Deleuze draws on an understanding of information as formalised and semantically impoverished language when he develops the idea in relation to the 'societies of control,' new modes of domination made possible by information technologies.

5. In addition to the philosophical and other receptions of information theory and technology which have been underway since the fifties, artists have been exploring the possibilities of information technologies, interrogating the concept of information, and critically reflecting on the impact of both on human life and culture. The milestones of these important artistic experiments are charted in the two books we are launching this evening, Sarah Cook's *Information* and Armin Medosch's *New Tendencies: Art at the Threshold of the Information Revolution, 1961-1978*. I will take just one example from Sarah Cook's book to demonstrate why such experiments are important, at least from the philosophical perspective I'm entertaining here. In short, they are important because they free both the concept of information and information technologies from the narrow epistemological and linguistic understandings which remain prominent. Through doing this, they mitigate the negative effects of information diagnosed by the likes of Heidegger and Deleuze, and open possibilities for transforming the way we live in the contemporary world, where information pervades us like an atmosphere.

The example is the art of glitch, as discussed by Charu Maithani in her 2013 article 'Error/Glitch/Noise: Observations on Aesthetic Forms of Failure,' excerpted in Sarah Cook's *Information* volume. Glitch exemplifies the ways in which artists are adept at evading and perverting the teleologies with which information technologies are programmed. Glitch puts to 'bad use' the technologies of information which were designed to transmit clear and distinct messages as 'noiselessly' as possible. As Maithani elegantly puts it, 'The otherwise conceivable error confronts the viewer as a tool to announce the cryptic.' (Maithani, in Cook, 103). When the technologies work as designed, they are practically transparent media; we see and hear only the message, like reading a relatively easy text in our first language: we experience the meaning transmit itself directly to our brains. But glitch calls our attention to the forms of transmission, to the media themselves, by breaking them, by ampplifying and exploiting the tendencies to noise which inevitably haunt any channel. The transformation of information technologies into art through glitch might be likened to the Cézannean revolution in pictorial space according to Jean-François

Lyotard (whose exhibition *Les Immatériaux* is the subject of a number of essays in Cook's book): by breaking the good form of perspective, from Cézanne on avant-garde painting no longer sought to function as the illusion of an open window onto a scene beyond, but drew the viewer's attention to the painting, to the paint itself (see Lyotard 2011; 2015). By experimenting with glitch, such art draws our attention to the technologies themselves, awakening a critical attitude. As Maithani writes,

> in various forms of error [and] glitch, failure confronts the medium with its limitations. [...]The unexpected nature of glitch makes the encounter with error very special. The error makes other ways of seeing not only possible, but necessary. The event created out of this encounter invents a space-time arrangement that leads to a re-evaluation of existing values. (105-6)

Moreover, this confrontation also transforms a *cognitive* experience into an *aesthetic* experience. Glitch involves data which are not 'well-formed,' and demonstrates the way that artists' use of information technologies subverts the neat and tidy General Definition of Information. A reflection on glitch, and other information arts, I argue, forces us to reconsider our conceptual understanding of information.

6. Allow me to end by quickly sketching how I believe such a reconsideration should take place. I propose an alternative definition of information, the *General Aesthetic Definition of Information* (GADI): information is that which in-forms forms. Recall what Floridi says about what it means for data to be "well-formed": 'Syntax here must be understood broadly (not just linguistically), as what determines the form, construction, composition or structuring of something (engineers, film directors, painters, chess players and gardeners speak of syntax in this broad sense).'

When we consider information in its General Aesthetic Definition, we are picking up on what Floridi says about determining form, and this in relation to all sorts of forms, of all varieties of things. But we are also following Lyotard, against Floridi, by insisting that what is not 'well-formed' is not senseless, and – far more than this – it is in fact the most essential thing about aesthetic experience and 'the secret power of art.' For Lyotard, what makes art something special is precisely its power to defy received, habitual forms, a power he refers to in his early work as the figural, a plastic, energetic power which explains the genesis of new forms, and also works to disrupt 'good form.' Good form is what conforms with old form, with habits of form, which are readily intelligible and act as apparently transparent means of communication because we are so habituated to them; their code is known, their messages are transmitted and received along well-worn paths. If good form is what conforms with old form, we must understand aesthetic information not simply as the new application of old forms, but the power to deconstruct old forms and to form new forms, a power which is not itself formed, but which in-forms forms. We might call this power the 'in-form' or the 'un-form.'

This plastic, energetic power is akin to Lyotard's figural, and to Catherine Malabou's plasticity (Malabou acknowledges their similarity in a note in *Plasticity at the Dusk of Writing*), applied to the informational *dispositif*. Some current discussions around new media art continue to view the concept of information as essentially epistemic and linguistic, and seek elsewhere for the conceptual tools to understand them aesthetically. For example, Karl Hanson writes:

> I would like to believe that a figural approach would be a way to orient the discourse on new media and new technologies from information to aesthetics.' (Hanson 2004, 28)

I believe on the contrary that it is rather information that needs to be reconceived *as* aesthetic. However, arguably the most important work is still done by the artistic avant-garde who 'lead the way.' The society of information remains 'in formation,' and the arts make an essential contribution to what form it might take.

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