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Chapter 9

Gilles Deleuze, a Reader of Gilbert Simondon

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Several years ago, at a conference on the work of Gilbert Simondon, Bernard Stiegler announced that an English translation of Gilbert Simondon’s *L’Individuation psychique et collective* (*Psychic and Collective Individuation*) was being undertaken and would be published with the University of Minnesota Press. According to Stiegler, the publishers were convinced of the viability of the project thanks to the following argument: ‘if we love Deleuze, then we need Simondon’. Indeed, not only does Gilles Deleuze’s 1966 review of Simondon’s work already mention several concepts which Deleuze would later develop in his own particular way – the concepts of ‘singularity’ and ‘intensive magnitude’, for example – we also find Simondon cited in support of key arguments in works such as *Difference and Repetition*, *The Logic of Sense* and *A Thousand Plateaus*. These citations, however, contain very little explication of the precise way in which Deleuze understands and appropriates Simondon’s work. It is thus clear that, in line with Stiegler’s argument, a full appreciation of these Deleuzian texts will require some knowledge of Simondon, a knowledge which has so far been denied Deleuze’s English-language readers.

It is nevertheless the case that Stiegler’s argument would be better applied to the publication of a translation of Simondon’s *L’Individu et sa genèse physico-biologique* (*The Individual and its Physico-Biological Genesis*), since this is the only Simondon text to which Deleuze explicitly refers. In the – let us hope, temporary – absence of such a translation, what we would like to do here, whilst avoiding the highly technical analyses that Simondon undertakes in relation to developments in twentieth-century physics and biology, is to outline for the English-language reader the main concepts and arguments of *L’Individu et sa genèse physico-biologique* and to indicate how Deleuze takes up certain aspects of this work in his 1968 *Difference*
and Repetition. In doing so, we shall also refer to some of the French secondary literature surrounding Simondon’s work, in order to give the reader an appreciation of the attention currently being paid to Simondon in France.

GILBERT SIMONDON AND THE THEORY OF PHYSICO-BIOLOGICAL INDIVIDUATION

Simondon’s *L’Individu et sa genèse* is an attempt to think the individual as the result of ontologically prior ‘processes of individuation’, as opposed to thinking individuation with reference to already constituted individuals. According to Simondon, such a project runs counter to the Western philosophical tradition which has generally always taken one of two paths: the substantialist path or the hylomorphic path (see INFI 23–5 on this). On the one hand, metaphysicians of substance tend to begin with the already constituted individual and subsequently ask about its coming to be, thereby thinking the nature of individuation uniquely in terms of the characteristics of this already given individual. But as Simondon asks, what if processes of individuation ‘overflow’ what we ordinarily think of as individuals? What if processes of individuation are not exhausted in the production of individuals and simultaneously produce something more than the individual? If this were the case, then by beginning their investigation on the basis of the already constituted individual, the metaphysician of substance risks masking a more fundamental reality.

On the other hand, taking their inspiration from Aristotle, some philosophers have tended to begin with a ‘principle of individuation’ whose function is to explain that the individual is an individual because, for example, it is a particular combination of matter and form (or sensation and *a priori* spatio-temporal and conceptual form, and so on). In this case, whilst it is a principle of individuation and not the individual itself which is presupposed, the principle is nevertheless a ‘first term’: that is to say, an individual which the philosopher gives him or herself, in thought, in order to explain individuation. Once again, therefore, philosophy fails to think individuals in general as the result of prior processes of individuation.

In order to avoid presupposing anything already individuated, either in reality or in thought, Simondon proposes to think individuation through a simultaneous and corresponding individuation of the thought of individuation. As he puts it, this task ‘consists in following being in its genesis, in accomplishing the genesis of thought at the same time that the
genesis of the object is carried out' (INFI 34). So how is this 'immanent double genesis' of being and thought to be achieved?7

First of all, in order to account for individuation without recourse to an already constituted individual, Simondon hypothesizes the existence of what he calls the 'pre-individual' and a corresponding operation of individuation which will be carried out in relation to it (INFI 149). As will be examined more fully below, the pre-individual internalizes a difference or potential which the individual will be said to have structured or resolved, although not without remainder, through a process of individuation (INFI 25). Now, at first glance, it appears that Simondon has once again postulated an individual 'thing' with certain determinate characteristics — a type of dynamized 'primordial soup' — in order to think individuation, thereby failing once more to think the ontological priority of individuation with respect to individuals in general. More precisely, however, Simondon bases his hypothesis of the pre-individual and its corresponding operation of individuation on an 'encyclopedic', but in principle open, series of investigations into the processes of individuation of entities in different domains: physical entities, but also biological, psycho-social and technological.8 As will be seen below, he will then argue that his concept of 'transduction', which picks out the characteristic general features of processes of individuation in these diverse domains, also characterizes the individuation of the very thought of individuation in these domains (INFI 36). In other words, individuation will be 'known' through transduction understood as a process which generates both individuals and the thought of their individuation, rather than by means of a fixed concept of transduction.9

In the second place, Simondon affirms what he calls a 'realism of relations', whereby a relation is not an accident with respect to a substance but rather a prior and constitutive condition of substance (INFI 82–3).10 As he puts it, the 'individual is the reality of a constitutive relation', a constitutive relation which does not depend for its existence upon already given terms, but rather refers only to other relations (INFI 62).11 Granting primacy to relations over individuals 'all the way down' is a consequence of Simondon's commitment to an anti-substantialist approach to individuation. Indeed, it is for this reason that, for Simondon, being is not a unified 'one', identical to itself. As he writes,

[a] relation must be grasped as a relation in being, a relation of being, a manner of being and not a simple relationship between two terms that could be adequately known by means of concepts because they would have effectively separate existences . . . If substance is no longer the model of
being, it is possible to think of relations as the non-identity of being with respect to itself, the inclusion in being of a reality which is not identical with it, with the result that being as being, before individuation, can be grasped as more than a unity and more than an identity. (INFI 32)

So what is the link between pre-individual processes of individuation and this realism of relations? Simondon argues that the first characteristic of the pre-individual is that it is distributed according to different ‘orders of magnitude’ (INFI 31–2). These orders of magnitude take a variety of different forms depending on the domain under consideration: for example, the different inter-elemental forces in the clay and in the mould in the operation of casting a brick (INFI 43–4); the different potential energies corresponding to two different structures such as a supersaturated solution and a seed crystal (INFI 76–7); the difference between, on the one hand, different species of chemicals in the earth and atmosphere and, on the other hand, solar energy, in the case of the individuation of a plant (INFI 34, n. 12); the difference between an organism’s internal organization and its external environment in the case of the individuation of an animal (INFI 28, 225–6), and so on. Following Simondon, what we are dealing with in each of these cases is a pre-individual which is comprised only of disparate orders of magnitude that may be, primitively, without communication (INFI 34). What is crucial, then, is that relations are established between these orders by processes of individuation (INFI 26). In other words, following Simondon, the pre-individual will form a system of relations governing the genesis of the individual, but only in so far as the individual, in its coming to be, actualizes or structures these relations. Indeed, this manner of conceiving the pre-individual both allows us to think the individual in terms of relations, and prevents us from postulating Simondon’s ‘orders of magnitude’ as themselves the types of already individuated things between which there could be relations.

Now, Simondon talks about pre-individual relations between different orders of magnitude in a variety of ways. In thermodynamic terms, Simondon speaks of a ‘metastable system’ wherein there is a ‘potential energy’ between different orders of magnitude and where the process of individuation corresponds to the progressive degradation of this potential energy through a series of transformations (a potential energy is said to be actualized by these transformations) (INFI 26). In terms of the theory of vision, Simondon speaks of a ‘disparation’ between two orders of magnitude, whereby two twin sets which are not totally superimposable, such as left and right retinal images, are seized together in a system
and allow the formation of a single set of a higher degree which integrates all their elements (INFI 205–6, n. 15). Indeed, it is in light of these various characterizations that Deleuze says that we may, in speaking of individuation, speak as much of the establishment of interactive communication between different orders of magnitude or disparate realities, as the actualization of a potential energy or the integration of singularities, as the resolution of the problem posed by disparate realities by the organization of a new dimension of a higher degree.\(^4\) In any case, what is important is that a pre-individual relation between different orders of magnitude both is established by and governs a process of individuation which actualizes or structures these relations.

But now, what brings these orders of magnitude into communication if it cannot, strictly speaking, be the individual? To be sure, since the individual does not exist prior to the relation that it will have been said to actualize, it cannot be what initially establishes the relation. For Simondon, then, it is a ‘singularity’ which begins individuation (INFI 62, 97). As he writes, concretely, a singularity may be ‘the stone that begins the dune, the gravel which is the seed for an island in a river carrying sediment’ (INFI 44, n. 5); or again, it may be the ‘information’ contained in a seed crystal such that it induces further crystallization when added to a supersaturated solution (INFI 78).\(^5\) In other words, the individual which is coming about is said to ‘prolong’ a singularity. But interestingly, it also appears that an already constituted individual may play the role of a singularity when it enters into another system in a state of metastable equilibrium and brings about a transformation (INFI 82, n. 9). As Deleuze notes in this regard, however, it is important to distinguish carefully between singularity and individual, for singularities are by definition pre-individual.\(^6\) Indeed, it appears that the capacity of an individual to function as a singularity for a pre-individual metastable system ultimately depends on the nature of the metastable system in question. In other words, a singularity is simply whatever is capable of bringing about a ‘break’ in a metastable system and of causing its heterogeneous orders to communicate in a process of individuation which actualizes the system’s potentials and transforms it in the production of new individuals (INFI 78). A singularity is thus ‘pre-individual’ in the sense that it has a local and functional definition which is strictly relative to the different orders between which it brings about communication.\(^7\)

It is in this manner that, for Simondon, a singularity is also ‘information’ (INFI 48, n. 8; 97), in a sense that can be generalized from cybernetics and information theory. In the theory of information, information is what ‘passes’ between an emitter and a receptor (or a cascade of such
emitters and receptors) when the receptor can be said to make a ‘decision’ with respect to the state of the emitter (whether this decision be a reaction, an adaptation, a decoding or some other transformation, depending on whether one is dealing with systems that are physical, biological, technological and so on). However, it is essential to note that information must not here be equated with a ‘message’. Information rather depends upon relations between the natures of the emitter and the receptor: that is, upon relations between the ‘possible states’ or ‘events’ which define each of them, and factors such as the background interference or ‘noise’ due to the nature of the information channel. In this sense, then, information is essentially, in the words of one early cybernetician, a ‘set of possibilities’, and the problem which cybernetics and information theory were originally designed to deal with is that of formalizing the probabilistic conditions under which the correct or intended message can be reliably selected from a set of possible messages. Technical details aside, what is important for Simondon’s philosophical concept of information or singularities is that it must obey certain purely relational (or again, ‘purely operational’ – INFI 220) conditions with respect to the different orders between which it functions. On the one hand, information must be in some sense ‘unforeseeable’ for the receptor if it is not to be received as the simple external repetition of an already existing internal state or simply confused with background ‘noise’. (In information theory, the total probability for the receptor of a particular state of the emitter, as much as the non-distinction of the information signal due to noise, means no information: that is, no ‘decision’ or transformation on the part of the receptor with respect to the emitter.) On the other hand, information must be in some sense ‘foreseeable’ if it is to be meaningful for and capable of being integrated by the receptor, since the receptor already has its own possible states and mode of functioning with which to make a ‘decision’ with respect to the state of the emitter (or again, more technically, if all states of the emitter are equiprobable for the receptor, then there is no information) (INFI 221–3). It is thus clear that there is information only when what emits the signal and what receives it can form a differential system in relation to something ‘non-immanent’ to, but ‘almost entirely’ coinciding with, that particular system (INFI 79, 223). As Simondon writes, ‘information is between the two halves of a system in a relation of disparation’ (INFI 223, n. 30), meaning thereby that, if there is information, a system is formed which integrates the elements of the two disparate realities in a common process. In other words, ‘information is that through which the incompatibility of the non-resolved system becomes the organizing
dimension in its resolution' (INFI 31, emphasis in the original). And indeed, extrapolating from this, in so far as it refers to the system’s ‘constitutive difference’, information is something like the sense or meaning (Simondon typically writes, ‘signification’) of this system, provided that one also adds that this ‘sense’ only emerges in the concrete transformations that actually take place in the system.\textsuperscript{19} Sense, for Simondon, is relational (INFI 223).

But precisely how, for Simondon, does the individual emerge from such communication between heterogeneous orders? The concept that Simondon introduces in order to account for the emergence of the individual is that of ‘transduction’.\textsuperscript{20} As he writes,

We understand by transduction an operation, physical, biological, mental, social, through which an activity spreads step by step within a domain, this propagation being founded on a structuring of the domain which is carried out from place to place: each region of the constituted structure serves as the principle for the constitution of the following region, in such a way that a modification is thus progressively extended at the same time as this structuring operation ... A crystal which, from a tiny germ, grows and spreads in all direction in its solution furnishes the simplest image of the operation of transduction: each constituted molecular layer serves as the structuring basis for the layer which is currently being formed. (INFI 32–3)

In effect, transduction is the name given to the ongoing actualization or structuring of the potentials of a metastable system whose constitutive, heterogeneous orders have been brought into communication by a singularity functioning as a ‘structural germ’. It is in this way that, as mentioned above, the structured individual which emerges from this process is said to ‘prolong’ this singularity (INFI 78, 82, 532). For Simondon, a ‘complete’ individuation would correspond to the total use of potential energy contained in the metastable system before structuring. ‘Incomplete’ individuation, on the other hand, corresponds to a structuring which has not absorbed all of its potential energy (INFI 79–80). But in fact, incomplete individuation is the general case, since the individual always tends to emerge at the same time as a characteristic ‘milieu’ or environment (such as a crystal and its solution) (INFI 24–5). This milieu emerges precisely because the individual is not capable of exhausting all of the potentials of the pre-individual reality from which it emerges. And indeed, this is why Simondon says that the milieu is itself a system, synthetically grouping together two or more levels of reality (INFI 30, n. 6). It can thus be considered the individual’s ‘reserve' of
pre-individual charge (INFI 62–3). In any case, the picture that emerges here is of a world composed of heterogeneous orders between which there exists a ‘potential energy’ which may be actualized in various ways by appropriately structured singularities. The individuals which are produced by these transductive operations may in turn serve as singularities for other systems or even as relatively amorphous structures (in themselves, or in relation to their milieus) which may be restructured in encounters with other singularities. As Simondon writes, a being

is genetically constituted by a relation between an energetic condition and a structural condition which prolong their existence in the individual, an individual which can at any moment behave like a structural germ or like an energetic continuum; its relation differs depending on whether it enters into a relation with a milieu which is equivalent to a continuum or with a milieu which has already been structured. (INFI 110–11)

Of course, these processes of individuation may be more or less complex, depending on the number of systems and subsystems involved. For example, transduction is direct and at a single level in physical systems, and indirect and hierarchized in the living being (INFI 160). And things are even more complex when we consider the relation between the physical and the biological, or again, the biological and the psychic. At the limit, such a conception of transduction would ‘consider the energetic regimes and the structural states as convertible into each other through the becoming of the whole’ of Nature (INFI 148–9). It should be noted, however, that this ‘whole’ does not dissolve the difference between, and the specificity of, the different domains of individuation. The individual does not have a direct relationship with the whole of Nature (INFI 65). On the contrary, each regime, as we have seen, is characterized by the type and number of relations and processes it implicates or in which it is implicated. This is precisely what allows Simondon to specify the difference between, for example, the biological and the physical in terms of information and transduction:

There is physical information when the system is capable of receiving information just once, then develops and amplifies this initial singularity. If the system is capable of successively receiving several contributions of information, of compatibilizing several singularities instead of repeating the initial singularity, the individuation is vital. (INFI 152)

So we have our characterization of processes of individuation via the concept of transduction. However, Simondon also gives us another and at first sight unrelated definition of transduction:
Transduction is a mental process [procédé] and, even more than a process, a movement [démarche] of the mind which discovers. This movement consists in following being in its genesis, in accomplishing the genesis of thought at the same time that the genesis of the object is carried out . . . Transduction is thus not only movement of the mind; it is also intuition, since it is through transduction that, within a problematic domain, a structure appears as bringing about the resolution of the problems posed. (INFI 34)

So how is this second definition of transduction to be reconciled with the first? We have already examined two aspects of Simondon’s thought which allow us to see how these two aspects of transduction are to be thought together. The first is Simondon’s anti-substantalist assertion that being is through and through relational. In other words, if relations virtually precede their terms in all domains, then not only will we have to characterize concrete processes of individuation in systems that are physical, biological and so on in a relational way, but also the very thought of these processes, and thus the determination of the terms in which these processes are characterized, must emerge in a relational way. It can thus be said that Simondon’s dual definition of transduction as both objective and mental is in line with this requirement for a relational description of processes of all kinds. Indeed, even the relation between the objective and the mental – the relation typically called knowledge – must be described in relational terms. What this means is that, as Simondon writes, ‘knowledge is not a relation between a substance object and a substance subject, but the relation between two relations, one of which is in the domain of the object and the other in the domain of the subject’ (INFI 82–3).

The second and related aspect of Simondon’s thought which shows us precisely what Simondon means by ‘transduction’ is his method: that is, as has been seen, his encyclopedic, if in principle open, investigation of processes of individuation in diverse domains. This method incorporates both the objective and the mental aspects of transduction in a single, speculative philosophy. Indeed, as a number of commentators have noted, Simondon’s initial analysis of the formation of crystals through transduction functions as the ‘elementary paradigm’ for the individuation of the thought of individuation. In other words, the use of this paradigm in different and increasingly complex, ‘problematic’ domains of knowledge acts as a ‘structural germ’ for the gradual transformation of our understanding of transductive processes of individuation in these other domains, and in turn leads to an ongoing individuation of our knowledge of individuation (INFI 33, 83–4). As Simondon describes his method:
Having thus attempted to seize, on the one hand, the epistemological role of the notion of the individual in this domain, and on the other hand the phenomenological contents to which this notion refers, we will try to transfer the results of this first test to domains which are logically and ontologically subsequent . . . [This method] is founded . . . on the search for a structure and an operation which is characteristic of the reality that one may name the individual; if this reality exists, it can be applicable to different forms and levels, but must authorize the intellectual transfer from one domain to another, by means of necessary conversions; the notions that it will be necessary to add in order to pass from one domain to the next will thus be characteristic of the order of reality which makes up the content of these domains. (INFI 555)²⁴

Or more simply, as Jean-Hugues Barthélémy has put it, if we are dealing with relations ‘all the way down’, as it were, then ‘to pass from the polarization of the crystal to that of the living being, is to pass from one degree of individuality to an other by a multiplication of the relation.’²⁵ In short, transduction thus describes, at once, ‘real processes of individuation in their analogically connected diversity and the kind of thought which allows them to be understood’.²⁶

But what now of Deleuze’s relation to the philosophy of individuation which Simondon establishes in L’Individu et sa genèse physico-biologique?

SIMONDON IN DELEUZE’S DIFFERENCE AND REPLICATION

Although it will be necessary to remain schematic in our comments, we can indicate several points at which Simondon’s influence on Deleuze’s Difference and Repetition can clearly be felt. First of all, in terms of general aims, Deleuze, like Simondon, wants to think of ‘identities’ as ontologically derived entities. What Deleuze calls ‘identities’, here, have traditionally been understood to be ontologically primary, self-identical individuals, differing from all others, and whose differential ‘criteria of identity’ can be conceptually specified using an appropriate means (Platonic division and dialectic, Aristotelian generic and specific difference, Leibnizian compossibility, Hegelian contradiction and so on). Deleuze, however, wants to think identity in terms of difference rather than difference in terms of identity. In other words, as opposed to thinking difference as a relation between two, already given, self-identical individuals, Deleuze want to think a differential difference from which all apparently self-identical individuals would ultimately be derived. As he writes, ‘[d]ifference is the state in which one can speak of determina-
tion as such’. The task is thus to show how this differential determination or individuating difference ontologically precedes constituted individuals ‘all the way down’ (DR 38).

In relation to this aim, as is well known, Deleuze posits two intimately related ‘halves of difference’: a purely differential, problematic or virtual ‘Idea’ made up only of differential relations and singularities, which is actualized or differenciated by ‘spatio-temporal dynamisms’ or ‘intensive processes of individuation’ (DR 279–80). This parallels, quite precisely, the way in which Simondon posits transductive processes of individuation as actualizing a purely relational pre-individual, made up only of different orders of magnitude and singularities. Indeed, Deleuze himself makes this parallel explicit when he writes that:

Gilbert Simondon has shown recently that individuation presupposes a prior metastable state – in other words, the existence of a ‘disparateness’ such as at least two orders of magnitude or two scales of heterogeneous reality between which potentials are distributed. Such a pre-individual field nevertheless does not lack singularities: the distinctive or singular points are defined by the existence and distribution of potentials. An ‘objective’ problematic field thus appears, determined by the distance between two heterogeneous orders. Individuation emerges like the act of solving a problem, or – what amounts to the same thing – like the actualization of a potential and the establishing of communication between disparates. The act of individuation consists ... in integrating the elements of the disparateness into a state of coupling which ensures its internal resonance. The individual thus finds itself attached to a pre-individual half which is not the impersonal within it so much as the reservoir of its singularities. In all these respects, we believe that individuation is essentially intensive, and that the pre-individual field is a virtual-ideal field, made up of differential relations ... Individuation is the act by which intensity determines differential relations to become actualized, along the lines of differenciation and within the qualities and extensities it creates. (DR 246)

This, then, is Simondon’s second influence on Deleuze. In short, Simondon provides Deleuze with a means of speaking about the concrete actualization of those purely problematic Ideas through which every difference can be determined as a difference of difference. Indeed, it would appear that Simondon’s work directly inspired two of Deleuze’s philosophical concepts bound up with his conception of the actualization of virtual Ideas: ‘intensity’ or ‘intensive magnitude’, and ‘singularities’. To speak, first of all, about the concept of intensity, we do not think it is a coincidence that both Simondon and, subsequently, Deleuze make use of a thermodynamic vocabulary in order to speak about the way in which
relations or differences are primary in relation to 'things'. As was seen above, Simondon speaks of 'orders of magnitude', 'metastable systems' and 'potential energy' in order to characterize the pre-individual and defend his commitment to an anti-substantalist 'realism of relations'. Similarly, Deleuze employs the concept of 'intensive quantity' precisely in order to talk about the purely differential basis of 'what happens' and 'what appears'. As he writes:

Anything which happens and everything which appears is correlated with orders of differences: differences of level, temperature, pressure, tension, potential, *difference of intensity* . . . Every intensity is E − E', where E itself refers to an e − e', and e to e − e', etc.: each intensity is already a coupling (in which each element of the couple refers in turn to other elements of another order). (DR 222)\(^{28}\)

In terms of the concept of 'singularity', it is again clear that Deleuze's concept resembles Simondon's in many respects. We know that while Simondon privileges an 'informational' model for his concept, Deleuze refers primarily to Weierstrassian analysis (at least implicitly) and Albert Lautman's analysis of Henri Poincaré's 'qualitative theory' of differential equations (DR 175–7; 324, n. 9).\(^{29}\) However, what both of these models have in common is that they define the concept of singularity entirely in relational terms: that is, as that which allows for the communication and actualization of a purely differential or problematic relation within a new form or individual. More precisely, for both thinkers, a singularity refers to the differential conditions of a purely problematic instance; for Simondon, as has been seen, a singularity is defined by the way in which it 'almost coincides' with the different orders between which it establishes communication, just as, for Deleuze, singularities correspond to the 'values' of the relations between the purely differential elements of the virtual Idea (DR 175, 278).\(^{30}\) Furthermore, this same singularity is immanent in the real solutions which 'resolve' this problematic or differential instance; for Simondon, the individual resolving or structuring the relation between different orders of magnitude is said to 'prolong' the singularity which brought them into communication and initiated a transformation, while, for Deleuze, singularities are said to be 'enveloped' by the intensive series of individuating factors which determine the differential relations of the Idea to be 'actualized' in new forms (DR 246, 279).\(^{31}\) In other words, for both philosophers, the singularity refers to both pre-individual relations and to the real forms and individuals which specify the 'actual' nature of these pre-individual relations.

A third point of convergence between Simondon's and Deleuze's
respective projects is the claim that intensive processes of individuation concern all of the domains of being: physical, biological, social, psychological, perceptual, linguistic and so on. In Chapter 5 of *Difference and Repetition*, Deleuze discusses a number of ‘intensive systems’ belonging to diverse domains, and the various ways in which they have been and ought to be thought. He discusses, for example, classical thermodynamics (DR 222–4, 228–9, 240–1), Curie’s work on symmetry (DR 222–3, 234), the visual perception of space (DR 229–31), number theory and order theory (DR 232–3, 237–8), embryogenesis (DR 249–52), biological evolution (DR 255–6), and the relation between self and other in psycho-social systems (DR 256–61). In Chapter 2, Deleuze also analyses language in intensive terms, in particular in relation to literary systems (DR 121–4) and psychic systems (DR 122–6). In fact, Chapter 2’s discussion of the passive synthesis of habit in terms of the contemplations and contractions of elementary ‘repetitions’ is a discussion of the way in which individuals are constituted by syntheses of series of intensive differences, wherein each element of a contracted couple refers to (or ‘repeats’) coupled elements from other orders:

What we call wheat is a contraction of the earth and humidity ... What organism is not made of elements and cases of repetition, of contemplated and contracted water, nitrogen, carbon, chlorides and sulphates, thereby intertwining all the habits of which it is composed? ... [E]verything is contemplation, even rocks and words, animals and men ... even our actions and our needs. (DR 75)

Now, Deleuze further argues (as does Simondon, it can be recalled, when he argues that the individual does not have a direct relationship with the whole of Nature) that, even though all the systems and domains of being he discusses have a common ‘intensive character’, this ‘should not prejudice them being characterized as mechanical, physical, biological, psychic, social, aesthetic or philosophical and so on. Each type of system undoubtedly has its own particular conditions’ (DR 117–18). It is nevertheless clear that, for Deleuze as much as for Simondon, a number of systems from different domains can be conjoined in the production of certain individuals. For example, biological, social, psychic and linguistic intensive processes combine to produce modern human beings. What is more, it is evident that if, as Deleuze claims, difference must account for ‘determination as such’, the relation between these different systems must also be thought ‘differentially’: that is to say, in relation to purely differential or problematic Ideas (the Simondonian pre-individual).
Of particular relevance with respect to this question of the relation between different intensive systems is the question of the relation between those systems implicated in the production of the individual human being and those systems producing the individuals making up this being's 'world'. Indeed, it is clear that the determination of this relation will have some bearing on how we are to think about knowledge. The question is, in other words: how are we to determine the relation between the development of 'knowledge' embodied in concepts, the intensive constitution of the individuals which are 'known' in various domains, and the intensively constituted 'knowing' subject? We saw that, for Simondon, knowledge is the structuring of a relation between two relations in pre-individual tension, one of which is in the object and the other in the subject. Similarly, Deleuze speaks of a complex differential relation between knowledge, the known and the knowing subject. He argues that intensive processes of individuation progressively determine the actualization of virtual Ideas within concepts corresponding to the resulting individuals, through the intermediary of a 'divided subject' who, while thoroughly dissolved in intensive processes, thinks itself, its world and the relations between them in purely differential terms. With respect to the actualization of Ideas by processes of intensive individuation, Deleuze writes that 'the role of dramas [i.e., intensive processes of individuation] is to specify concepts by incarnating the differential relations and singularities of an Idea' (DR 218). Or again:

It is because of the action of the field of individuation that such and such differential relations and such and such distinctive points (pre-individual fields) are actualized – in other words, organized within intuition along lines differentiated in relation to other lines. As a result, they then form the quality, number, species and parts of an individual, in short, its generality. (DR 247)

As for the 'divided subject', on the one hand, it is a 'dissolved self', which is to say an event which takes place in pre-existing fields of [intensive] individuation: it contemplates and contracts the individuating factors of such fields, and constitutes itself at the points of resonance of their series' (DR 276). On the other hand, it is a 'fractured I' who does not so much actively and spontaneously think (since psychic systems are, properly speaking, systems of intensive individuation), as stand in a relation to those pre-individual and impersonal problematic Ideas wherein the psychological self, its intensive world and the relations between them can progressively be thought: that is to say, differentially determined 'all the way down' (DR 86). As Deleuze writes,
the individual in intensity finds its psychic image ... in the correlation of
the fractured I with the dissolved self ... [W]hat swarms around the edges
of the fracture are Ideas in the form of problems – in other words, in the
form of multiplicities made up of differential relations and variations of
relations, distinctive points and transformations of points. These ideas,
however, are expressed in individuating factors, in the implicated world of
intensive quantities which constitute the universal concrete individuality of
the thinker or the system of the dissolved Self. (DR 259)

As with Simondon, then, Deleuze understands ‘knowing’ to be the
actualization of a relation, in pre-individual or differential ‘tension’,
between two systems of differential relations, one constitutive of the
known individual and the other of the knowing subject. More precisely,
knowing is an ongoing, open-ended and differential process involv-
ing the simultaneous actualization of ideal, pre-individual relations in
persons, individual things, and the concepts corresponding to these
persons and individuals.

These striking parallels between Simondon’s and Deleuze’s philosoph-
ic projects, some of them explicitly recognized by Deleuze, can leave
us in no doubt as to the immense influence which Simondon had on this
latter. Indeed, several recent commentaries on Deleuze have pointed
out this philosophical debt. Alberto Gualandi, for example, signals
very clearly Simondon’s importance for Deleuze, and in particular for
his Difference and Repetition.39 Anne Sauvagnargues analyses in detail
Simondon’s ‘decisive contribution’ to Deleuze’s philosophy more gener-
ally.40 Finally, even though he cautions against taking any of Deleuze’s
privileged references as the ‘key’ to his thought, Alberto Toscano has
usefully mapped a number of ways in which a philosophical relation
between these two thinkers can productively be thought.41 It is hoped
that our above analyses have been able to contribute in some small way
to this growing literature on Simondon and on Simondon’s influence
on Deleuze. In particular, it is hoped that we have been able to supply
English-speaking readers of Deleuze with a solid overview of a number
of the themes to be found in Simondon’s yet-to-be-translated L’Individu
et sa genèse physico-biologique, and how these themes have been taken
up by Deleuze in his Difference and Repetition.

NOTES

1. ‘L’Individuation de Simondon’, Ecole Normale Supérieure, rue d’Ulm, Paris,
2. This text, consisting of the second part of Simondon’s 1958 doctorat d’état, was
published for the first time in French in 1989 with Aubier. A more recent edition
can now be found in the collection *L'Individuation à la lumière des notions de forme et d'information* (Grenoble: Jérôme Millon, 2005).

3. Stiegler was, however, also at pains to insist that we need to begin reading Simondon without reference to Deleuze, no doubt taking him in those directions indicated in Stiegler's own work.


5. The only published English translation of Simondon's work is of the introduction to *L'Individu et sa genèse physico-biologique*, which has been published in Jonathan Crary and Sanford Kwinter (eds), *Incorporeals* (New York: Zone, 1992), pp. 297–319, and more recently under the title 'The Position of the Problem of Ontogenesis', in *Parbesia*, 7 (2009), pp. 4–16.

6. Originally published at Presses Universitaires de France in 1964, *L'Individu et sa genèse physico-biologique*, the first part of Simondon's doctorat d'état, was reprinted in 1989 with Aubier and in 1995 with Krisis, and can now be found, reunited with *L'Individuation psychique et collective*, in *L'Individuation à la lumière des notions de forme et d'information*. Citations of this text will hereafter be referred to in the body of the essay as INFI, followed by the page number. All translations of this and other French language texts are my own.


9. It is in this sense, as Barthélémy notes, that Simondon's 'genetic ontology' is neither a science nor a philosophical Knowledge of the kind claimed by German idealism. In other words, it is not objectivizing. It represents a 'knowledge' of individuation, but this knowledge is inseparable from a process of the individuation of knowledge. See Jean-Hugues Barthélémy, *Simondon ou l'encyclopédisme génétique* (Paris: PUF, 2008), p. 37.


11. Indeed, for Simondon, a particular relation is only ever an aspect of the 'internal resonance' of the system (INFI 28–9): which is to say, of the entire set of relations constituting the system.

12. In this sense, the pre-individual does not, strictly speaking, come 'before' the operation of individuation. Barthélémy discusses this question of temporality in
Simondon ou l'encyclopédisme génétique, pp. 45–9. See also on this, Combes, Simondon: Individu et collectivité, p. 37.
13. On this, see Barthélémy, Penser l'individuation, p. 103.
15. As Muriel Combes writes,

'a physical system is said to be in metastable equilibrium (or false equilibrium) when the slightest modification of the system's parameters (pressure, temperature, etc.) is sufficient to break this equilibrium. It is in this way that, in supercooled water ... the slightest impurity having a structure which is isomorphic to the structure of ice plays the role of a seed crystal and is capable of causing the water to turn to ice.

See her Simondon: Individu et collectivité, p. 11.
19. As Simondon writes,

'an information is never relative to a unique and homogeneous reality, but to two orders in a state of disparation ... [It is the sense [signification] which will emerge when an operation of individuation discovers the dimension according to which two disparate realities can become a system ... [It] is the structure of a complex organism is not only integration and differentiation; it is also this institution of a transductive mediation of interiorities and exteriorities, going from an absolute interiority to an absolute exteriority through different mediating levels of relative interiority and exteriority. (INFI 226)

20. Gilbert Hottois suggests that Simondon derives the notion of 'transduction' from that of the 'transducer', which is any apparatus which is capable of transforming energy (for example, a microphone). See his Simondon et la philosophie de la 'culture technique' (Brussels: De Boeck, 1993), p. 45. See also Barthélémy, Penser L'Individuation, pp. 131–2. However, it should be noted that the notion of 'transduction' is also used in genetics and physiology in a sense which is analogous to its technological one.
21. It is in this way that relational being is said to have unity: not the unity of identity, but rather 'a transductive unity' (INFI 31).
22. This point is attested to in Combes, Simondon: Individu et collectivité, pp. 24–8 and Hottois, Simondon et la philosophie de la 'culture technique', p. 39. This is also, though with some reservations, the thesis of Isabelle Stengers in her 'Pour
une mise à l'aventure de la transduction', in Pascal Chabot (ed.), *Simondon* (Paris: Vrin, 2002), pp. 137–59. With regard to the ‘problematic’ nature of the domains of knowledge where the paradigm of crystallization will play the role of a structural germ, Barthélémy has pointed out certain ‘relational’ tensions that Simondon effectively exploits: the coexistence and reciprocal limitation of the individuality and interaction of particles in the physical world (following De Broglie’s concerns over the definition of ‘potential energy’); the opposition between mechanism and vitalism in biology; the problem of the relation between perception and action in the living creature; the opposition of ‘psychologism’ and ‘sociologism’ in thinking the ‘becoming-transindividual’ of the living creature; and the opposition of subject and object in epistemology. See, respectively, his *Penser L’Individuation*, pp. 110–11, 151–2, 174, 187, 224, 235 and 239–40. We could also add to this list: the problematic relation between the physical and the living in biochemistry, the problematic postulation of a neoteny between different species, and the problem of the different levels of individuality applicable to the study of collectivities in biology (INFI 152, 171, 157–8). It can also be noted that this understanding of Simondon’s method also explains his use of scientific notions outside of their usual contexts, for names such as metastability, order of magnitude, potential energy, singularity, information and so on stand for concepts which must now be understood, not in relation to the scientific domains from which they have been extracted, but from the point of view of an anti-substantialist, relational and transductive conception of being.

24. As Combes explains, ‘logical subsequence’ here refers to the process of going from the simple to the complex, while ‘ontological subsequence’ refers to the different levels of being which emerge as ongoing and related resolutions of the pre-individual: from the physical to the biological to psychic and social individuals and finally to the technological (even if higher levels are irreducible to lower ones, since each domain has its own particular characteristics). See her *Simondon: Individu et collectivité*, p. 27. It should also be said that, at each ‘ontological’ stage, the earlier paradigm does not determine a later process as such. Rather, in accordance with our relational definition of information and singularity, the transposition of the paradigm-germ from level to level is simultaneously a ‘construction’ of this germ.

27. Deleuze, *Difference and Repetition*, p. 28. Citations of this text will hereafter be referred to in the body of the essay as DR, followed by the page number.
29. An in-depth study of these mathematical resources in Deleuze’s *Difference and Repetition* can be found in Simon Duffy, *The Logic of Expression: Quality, Quantity and Intensity in Spinoza, Hegel and Deleuze* (Aldershot: Ashgate, 2006).
30. On this particular point, see also Deleuze, *The Logic of Sense*, p. 50.
31. As Alberto Gualandi puts it,

    [the] process of individuation actualizes the elements, relations and singular points which constitute the Idea... It is intensity which determines the idea to be actualized, for the distinctive feature of intensity is to resolve its differences in a process of individuation which creates new individuals.

32. Gualandi also makes this point in his *Deleuze*, p. 66.
33. In Curie’s work on symmetry, it is understood that a certain minimal *dissymmetry* is a necessary condition for physical phenomena in general. Simondon also discusses Curie’s principle of symmetry (see INFI 88–90).
34. See also DR 118: ‘words are genuine intensities within certain aesthetic systems’.
35. In fact, Deleuze argues that all intensities are differentially ‘implicated’ in one another, to one degree or another depending on the domain in question, and thereby express ‘the changing totality of Ideas’ (DR 252, 280–1).
36. Strictly speaking, Deleuze uses the terms ‘learning’ and ‘apprenticeship’ rather than ‘knowing’, in order to emphasize that ‘coming to know something’ should not be thought, as it traditionally has been, as the grasping of some pre-existing identity (by correctly specifying the criteria of its identity or essence). Rather, it should be thought of as a contingent and provisional ‘effect’ of a differential and open-ended process in which the student or apprentice is implicated (see DR 164–7, 192).
37. It should be noted that difference is here not so much represented in the concept in accordance with the requirements of establishing the criteria for recognizing pre-given identities. Rather, in its two ‘halves’ (indifferentiation – DR 246, 279), difference is what drives the progressive development of differentiated systems of concepts corresponding to individuals constituted by intensive processes. As Deleuze writes,

[q]ualities, extensities, forms and matters, species and parts are not primary; they are imprisoned in individuals as though in a crystal. Moreover, the entire world may be read, as though in a crystal ball, in the moving depth of individuating differences or differences in intensity. (DR 247)

The allusion to Simondon’s paradigm of both individuation and the thought of individuation – crystallization – should not go unnoticed here.
38. Gualandi puts this same point in more ontological terms when he writes that ‘[i]f the Idea is the capacity [puissance] that Being has to give itself to thought, intensity is the capacity that Being has to exist and affect us.’ See his *Deleuze*, p. 70.