

Fifty Key Terms in the Works of Gilbert Simondon

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Terms in bold are referenced elsewhere in the glossary.

Alienation

In the second chapter of the second part of MEOT, as well as in this book's conclusion, Simondon reproaches Marx for not having thought through the 'psycho-physiological' alienation of the worker in the machine era. Indeed, behind 'economico-social' (MEOT 118) alienation – which is linked to the private ownership of the means of production that Marxists criticize – there exists a more fundamental alienation that is 'physical and mental'. Around the same time that Simondon is writing this, Georges Friedmann makes the same argument in his book *The Anatomy of Work* and then also in *Sept études sur l'homme et la technique* [Seven Studies on the Human Being and Technics], insisting on the presence of such alienation in the communist countries themselves. The worker, who has become a simple auxiliary of the machine, finds her- or himself reduced to a status that is inferior to that of the one who 'carries tools' – in other words, inferior to the status of the **technical individual** (see **Individual and technical individual**) – that used to characterize the worker.

But Simondon does not plead for a condemnation of machines. Instead, he calls for their 'liberation'. The *autonomization* of the work of machines in the new technical sets would enable the human being from now on to be above the status of a tool-carrier – with the machine *fully* becoming the 'technical individual' instead of the human being, and with the latter taking on the task of repairing and overseeing the machines. Such a conception of course presupposes a complete reform of the system of work – understood here in the narrow sense of the word, as a system of labour, since the latter would need to be *redivided* in order to let the machines do the work that until now alienated

the human subject. Simondon thus inscribes himself in the movement of ‘utopic socialism’. As Jeremy Rifkin’s book *The End of Work* has shown, it may be that technical progress will force us to ‘utopic socialism’. The utopia is therefore only properly ‘utopian’ for a human egoism that is *cut off from the technical conditions of social becoming*. In this sense, psycho-physiological alienation is reinforced by another, *cultural* alienation, since culture – and thus the holders of capital themselves, this time – has not yet understood the *new technical normativity*: ‘The technical individual is not of the same age as the work that drives it and the capital that enframes it’ (MEOT 119). For more on new technical normativity, see **Culture and technical culture** and **Technics / work (labour)**.

Allagmatics

This term is used as the title for one of the ‘Supplements’ that were added to the French editions of IGPB and ILFI. Allagmatics is ‘the theory of operations’. For this reason, ‘it is, in the order of the sciences, symmetrical to the theory of structures, constituted by a systematized set of particular sciences: astronomy, physics, chemistry, biology’ (ILFI 559). One understands that the project of allagmatics, which is already formulated in ILFI and MEOT in passages where Simondon enters into a dialogue with cybernetics, brings the philosophical project in close connection with the idea of a science (see ILFI 561), even if this new philosophical science is by definition transversal and unifying; whereas each positive science is a science of *generic structures*, allagmatics is the science of *genetic operations*: ‘the operation is that which makes a structure appear, or that which modifies a structure’ (ILFI 559).

Analogy

In the same way that ILFI rehabilitates the philosophy of nature at a time (1958) when phenomenology (Merleau-Ponty) and existentialism (Sartre) are dominant in France, MEOT rehabilitates technics in a context that is largely technophobic. One of Simondon’s major aims is in fact a third rehabilitation: *in philosophy*, he seeks to rehabilitate analogy, defined as ‘identity of relations’ (ILFI 563). *In the sciences*, however, analogy is not constitutive of knowledge itself but only *heuristic*. ‘Theory of the analogical act’, a text that is featured in the ‘Supplements’ to ILFI, makes this very point.

However, such a rehabilitation of analogy in philosophy cannot be accomplished without specifying its restrictive conditions of validity. In order to do so, Simondon distinguishes between *operatorial* analogy and

structural analogy. The first is the only one he holds on to; the second he leaves aside as mere ‘resemblance’ (ILFI 563). Philosophy, whose role it is to unify the sciences that lack unity (on this point, see **Allagmatics** and **Encyclopedism**), is analogical ‘knowledge’, to the extent that it ceases to objectify the real so as to set free the processes of genesis. It unifies these processes according to identities of operatory relations, and by providing as the *methodological ground* for these analogies between operations a *mental and reflexive* analogy between the genesis of beings *and the thought itself of this genesis*. Simondon calls this analogy between geneses *that is also the operation of genesis itself* ‘**transduction**’. On the non-objectifying reflexivity of philosophical ‘knowledge’, see also **Ontogenesis**.

Anthropology

Simondon gives a new double meaning to this notion, which becomes the name of his great adversary in the theorization of human and technical reality. Indeed, in Simondon’s work the word ‘anthropology’ refers to two major Western tendencies that must both be resisted:

1. First of all, it refers to the tendency to separate the human being from the living, on the grounds that the human being would have an ‘essence’ that is either psychic (Freud) or social (Marx, Durkheim) – this is not to mention, even, the mythological human ‘reason’ (Aristotle, Descartes, Kant) that Simondon does not even discuss. Against this tendency, Simondon in IPC, and more particularly in the first chapter of this book’s second part, wants to think the human being as a living being that has become centrally and indissolubly psycho-social, with the ‘purely psychic’ and the ‘purely social’ being only ‘limit-cases’ (IPC 209 or ILFI 313). On this basis, Simondon seeks in FIP to refound the human sciences so that it would become possible to unify psychology and sociology, which have been artificially separated from one another. On this count, see the words **Axiomatic** and **Transindividual**.
2. Second, ‘Anthropology’ refers to the tendency to reduce technics to a set of means in the service of human work. In MEOT, and more particularly in its Conclusion, the paradigm of work is thus criticized because it is this paradigm that has led to what the beginning of MEOT denounces: the forgetting of the proper technicity of technical objects – that is to say, their *functioning*, in aid of their *usage* (see MEOT 19–20). One can only condemn usages, and not technics in its technicity. The originality and force of this critique of

the ‘anthropological’ conception of technics is that it shows, in the second chapter of the second part of MEOT, that there is a valuable human dimension in the technical object, but that this dimension resides precisely there where one least expects it: in the functioning itself. *First of all*, this functioning of the object is analogous to mental schemas that act upon one another in the subject at the moment when she or he invents the object (see MEOT 138). *Second*, that which Simondon calls the ‘normativity’ of technics is that which reveals itself in the *contemporary* age of *informational sets*, in which the functioning itself of technical objects enables the construction of a transindividuality (see **Transindividual**) that is at the same time human and technical. It is the culture of work that obstructs the construction of this transindividuality. See also **Technics / work (labour)**.

Anxiety

In the second chapter of IPC, Simondon dedicates a decisive chapter section (IPC 111–14 or ILFI 255–7) to the anxiety that in Martin Heidegger’s work is characteristic of *Dasein*. However, Simondon anchors this anxiety in the affectivity of the living animal. Anxiety is therefore this very particular emotion that calls for the realization – which is, however, most likely impossible – of the I without the We. This means that the passage from vital individuation to psycho-social or ‘transindividual’ individuation via the psychic ‘transitory path’ will have to be provoked by an emotion that is not anxiety. Unlike the latter, the emotion that opens on to the transindividual provokes a ‘disindividuation’ (see **Individuation / disindividuation**) that is merely *provisional* and that enables the **subject** to take hold of itself through the collective.

Art, aesthetic object and ‘aesthetic thought’

In the first chapter of the third part of MEOT, art is presented as the ‘neutral point’ between technics and religion, with the latter two resulting from a ‘**phase-shift**’ of the ‘**primitive magical unity**’. The function of such a neutral point is to recall, of course in an imperfect way, this lost unity of the ‘being in the world’ of the human being. ‘Aesthetic thought’ is therefore, in the second chapter of the same third part, that which precedes philosophical thought in the task of unifying the ‘phases of culture’; like **philosophy**, aesthetic thought is intuitive, but this intuition is not yet *reflexive*.

The difference between technics as a ‘phase of culture’ and art as a

‘neutral point’ between the phases does not mean that the technical object could not be at the same time an aesthetic object:

Any technical object, whether it be mobile or fixed, can have its aesthetic epiphany, to the extent to which it extends the world and inserts itself into it. But it is not only the technical object that is beautiful: it is the singular point of the world that is concretized by the technical object. (MEOT 185)

Reciprocally, ‘it is the technicity of the artwork that prevents aesthetic reality from being confused with the function of universal totality’ (MEOT 188). The aesthetic object in general ‘is not properly speaking an object, but rather an extension of the natural world or the human world, which remains inserted in the reality that carries it’ (MEOT 187).

Associated milieu

The thought of individuation cannot be constructed without taking into account the milieu that is associated with the individual, and this is why this notion of the associated milieu is of central importance in both ILFI and MEOT. Indeed, Simondon remarks in the introduction to ILFI that if **hylomorphism** presupposes a ‘principle of individuation’ – whether it is form or matter – that already comes from the mode of being of the individual that it was nevertheless supposed to explain, this is because hylomorphism sought to explain the genesis of the separate individual, without taking into account its associated milieu:

If, on the other hand, one presupposed that individuation does not only produce the individual, one would not seek to pass quickly through the stage of individuation to arrive at this final individuality which is the individual: one would seek instead to seize ontogenesis in the entire unfolding of its reality, and *to know the individual through the individuation rather than the individuation starting from the individual* (ILFI 24, Simondon’s emphasis)

One will observe that this is not a question of explaining the individual starting from its associated milieu, but of explaining *both* starting from a *pre-individual* reality.

With the living being, the associated milieu becomes the pole of a permanent exchange, whereas for the psycho-social personality (see **Personalization and personality**), the collective is no longer even a simple milieu but a group that has its proper unity and its proper personality, with which the personality of the individual is ‘coextensive’ (IPC 183 or ILFI 297). In so far as the ‘technical individual’ goes (see **Individual and technical individual**), it can be thought by analogy with

the living to the extent that its **individualization** is ‘recurrent causality’ with an associated milieu.

Automaton / Open machine

This opposition is one of the keys for understanding MEOT. In this book, Simondon is in constant dialogue with cybernetics. The latter privileges the automaton. However, ‘the meditation on automata is dangerous because it risks limiting itself to a study of the exterior characteristics and thus operates an abusive assimilation [of the machine to the living being]’ (MEOT 48). Indeed, ‘the notion of the perfect automaton’ is definitively ‘contradictory: *the automaton would be a machine that is so perfect that the margin of indeterminacy in its functioning would be non-existent, while it would still be able to receive, interpret, or send out information*’ (MEOT 140, Simondon’s emphasis). The perfect automaton is mythological, and quickly slips into the illusion of a possible identity with the living, whereas there is *analogy* between the technical object and the living being and *asymptotic* ‘concretization’ of the ‘technical individual’ (see **Individual and technical individual**).

For Simondon, true technological progress therefore lies in the ‘open machine’: that is to say, in the machine which integrates into its functioning its ‘associated milieu’. That is the significance of the famous example of the ‘Guimbal turbine’ (see MEOT 54–5).

Axiomatic

In Simondon, this notion does not designate a formal system as in the case of logico-mathematical axiomatics, but simply a set of principles, or first propositions, that enable the linking of fundamental concepts. It is in this sense that Simondon, in IPC in general and more specifically in FIP, struggles to work out a ‘common axiomatic’ (FIP, in IPC 35 or ILFI 533) for the human sciences – which enables the unification of psychology and sociology.

Concretization

This notion is used as the title of the famous first chapter of MEOT. Concretization is a ‘process’ through which technical objects progress analogically to the living beings thought by ILFI, who are the only ones who are ‘concrete from the beginning’ (MEOT 49). Technical objects, on the other hand, are never *absolutely* concrete. The concretization of technical objects has several aspects, depending on whether one approaches it at the level of the elements, the individuals or the sets

(see **Element / individual / set**). At the level of the elements, Simondon distinguishes two aspects:

1. The augmentation of the ‘internal resonance’ between elements that compose the object. This is the idea of a growing organicity, through which each piece ‘cannot be other than it is’ (MEOT 21).
2. The fact that an element of an object becomes *pluri-functional* instead of having a single function. Simondon develops here the example of cooling fans in the thermal internal combustion engine (MEOT 22–3).

A third aspect no longer pertains to the elements that compose the object, but to the relation of this object to its ‘**associated milieu**’ in so far as the latter is *external* and not internal resonance. This is the process of the ‘individualization’ of technical objects which only fully accomplishes itself in the machines of modernity understood as ‘technical individuals’. On this count, see **Individual** and **Individualization**.

Finally, in today’s age of informational sets the *convergence between science and technics* – and therefore the naturalization of technical objects – is fully accomplished, which is the last aspect of concretization. The entry on **Naturalization** addresses this point as well.

Culture and technical culture

The *fundamental stake* of MEOT is to reconcile culture with technics by supporting the introduction of a ‘technical culture’, which is necessary today for the very equilibrium of culture: ‘Culture must become general again, whereas now it is specialized and impoverished. Such an extension of culture, which would suppress one of the principle sources of **alienation** and would reestablish regulative information, has political and social value’ (MEOT 14). Culture is defined as: ‘that by which the human being regulates its relation to the world and its relation to itself’ (MEOT 227). In order fundamentally to reconcile culture with technics, Simondon will embark in MEOT on a complex operation that consists in reconciling nature simultaneously and to an equal extent with both culture and technics. Such an operation, which is perfectly attuned to the spirit of the fight already waged by ILFI against **anthropology**, takes its meaning first of all from the fact that it was contradictory to oppose nature to technics and to culture, while also opposing technics and culture to each other. ‘Technical culture’ is therefore that which must be introduced into culture, because ‘if culture would not incorporate **technology**, it would include an obscure

zone and would be unable to make its regulative normativity bear on the coupling of the human being and the world' (MEOT 227). As one can see here, that which Simondon calls 'technical normativity' (see **Anthropology and Technics / work [labour]**) is always, as such, a normativity of culture through technics – in other words, it is a normativity of culture thanks to 'technical culture'.

Element / individual / set

These three notions have to do with technical reality and correspond at the same time to *levels of analysis* of this reality and to *tendential eras* of technical progress (see also **Progress and technical progress**):

1. The levels of analysis are classic; in MEOT, the elements compose the individual, and the individuals compose the set. Thus, 'the infra-individual technical objects can be called technical elements' (MEOT 65). As far as the sets are concerned, they do not *fully realize* themselves before the information age:

One can confirm in this sense that the birth of a technical philosophy at the level of the sets is only possible through the in-depth study of regulations, that is to say of information. True technical sets are not those that use technical individuals, but those that are a network of technical individuals in a relation of interconnection. Any philosophy of technics that moves away from the reality of sets using technical individuals without putting them in a relation of information, remains a philosophy of human power through technics, and is not a philosophy of technics. (MEOT 126)

On the notion of the 'technical individual' in MEOT, see also **Individual and technical individual** and **Individualization**.

2. As far as the tendential eras are concerned, what precedes enables one to understand that

today, technicity has a tendency to reside in sets; it can therefore become a foundation of the culture to which it will bring a power of unity and stability, by rendering this culture adequate to the reality that it expresses and regulates. (MEOT 16)

The technical individual, for its part, had expanded itself with the age of the machinic, industrial revolution. One should add that this thesis is not incompatible with the idea that the elements are the 'carriers of technicity' (MEOT 73 and 76) because by doing this, the elements merely *transmit*, at least today, the technicity they have acquired by way of the set. On the 'normativity' of *contemporary*

informational sets that is glimpsed here, see also **Anthropology** and **Transindividual / interindividual**.

Encyclopedism

This notion is absolutely fundamental to characterize Simondon's project. Simondon's ambition is to initiate, in the twentieth century, a third type of encyclopedism after those of the Renaissance and the Enlightenment (on these three stages, see MEOT 96–106). The new encyclopedism is 'genetic', in the sense that it thinks the genesis of each thing (see **Individuation / disindividuation** and **Ontogenesis**). On the other hand, it resists a type of alienation that is different from those that its predecessors fought against:

In the sixteenth century, human beings were enslaved to intellectual stereotypes; in the eighteenth century, they were limited by hierarchical aspects of social rigidity; in the twentieth century, they are the slave of their dependence on unknown and far-away powers that direct them [. . .]. Having become machines in a mechanized world, human beings can only find back their liberty by assuming their role and by surpassing it through an understanding of technical functions from the point of view of universality. Every encyclopedism is a humanism, if one understands by humanism the will to bring back to a status of liberty that aspect of the human being which has been alienated, so that nothing of the human would be foreign to the human being, (MEOT 101)

In addition to this essential link between encyclopedism and **humanism**, it seems that the 'relation of the encyclopedic spirit to the technical object' is 'one of the poles of all technological consciousness' (MEOT 94).

Humanism

Simondon's opposition to 'facile humanism' (MEOT 9) should not lead one to think that Simondon would be a representative of anti-humanism. First of all, the proposal of MEOT is to reconcile culture with technics; 'facile humanism' thus refers to the humanism that rejects technics as foreign to culture. Simondon shows that contemporary technics has entered into an 'age of sets' (see **Element / individual / set**), in which 'technical normativity' is revealed to be the cultural dignity of technics – in other words, the capacity of *coupling* the human being and technics so as to make possible a true *transindividuality* (see **Transindividual / interindividual**). It is only through the latter that the **alienation** that has characterized the world of work since the machinic industrial revolution

will be overcome. Simondon thus seeks to found a new humanism, because 'humanism can never be a doctrine nor even an attitude that could define itself once and for all; each epoch must discover its humanism by orienting it towards the principal danger of alienation' (MEOT 102). On this count, see also **Encyclopedism**.

Hylomorphism

Simondon's critique of hylomorphism is fundamental. This is why Simondon presents it in the extraordinary first chapter of ILFI, which is also the first chapter of IGPB. Hylomorphism comes from Aristotle, and consists in explaining the 'genesis' of the individual starting from the union of a matter (*hyle*) with a form (*morphe*). Simondon argues that the hylomorphic schema is insufficient when it comes to thinking true genesis. In the case of hylomorphism, matter and form pre-exist their union; they are already of the same mode of being as the individual of which one is trying to give an account. Thus, Simondon shows that the hylomorphic schema has a *conscious* and an *unconscious* paradigm at the same time, and that the second is the one that led the first to be misunderstood and betrayed by the hylomorphic schema that claimed it. The conscious paradigm of Aristotle is in fact technical taking-form, of which the moulding of the brick is the classic example. However, this taking-form cannot be reduced to the union of a matter and a form. First of all, the matter introduced into the mould is already prepared or 'preformed'; in addition, and reciprocally, the form of the mould is already materialized; finally, the taking-form will be made possible by the specific energetic conditions that come from a *metastability*. If the hylomorphic schema has reduced its own paradigm of technical taking-form to a simple union of matter and form, this is because of another paradigm, and an unconscious one this time: the paradigm of the *impoverished social relation* between the slave who moulds the brick and the master who gives the order for the technical operation.

Imagination

In IMIN, Simondon proposes a new theory of the imagination, which is on every count opposed to Jean-Paul Sartre's: the imagination is neither always conscious, nor an 'irrealizing' function which should be opposed to **perception**. Indeed, Simondon shows that that which *precedes* perception – that is to say, the motricity of the living – is already the birth of a 'cycle of the image' that extends into perception itself in the form of 'intra-perceptive images', and then beyond perception through 'image-memories' which are called to become 'symbols', so as to finally

‘concretize’ the imagination into *invention*, founding a ‘new cycle of relation to the real’ (IMIN 138). On this last point, see **Invention**.

Individual and technical individual

Simondon distinguishes between ‘regimes of individuation’ and thus between degrees of individuality of the individual, in such a way that

one cannot, even with the highest rigour, speak of an individual, but only of individuation; one must go back to the activity, the genesis, instead of trying to apprehend the being as entirely made in order to discover the criteria by which one will know whether it is an individual or not. The individual is not a being but an act. [. . .] Individuality is an aspect of generation, can be explained by the genesis of a being, and lies in the perpetuation of this genesis. (ILFI 191)

This is why the crystal is not truly individual unless it is at the moment of crystallization. The living being, on the other hand, possesses a complex and durable individuality; its **associated milieu** participates in its being, which is therefore a ‘theatre of individuation’ rather than simply the ‘result of individuation like the crystal or the molecule’ (ILFI 27).

The machine is a ‘technical individual’ in so far as it ‘carries its tools’ and becomes capable even of doing without the human auxiliary (see **Alienation**). But the *individualization* of the technical object is also this aspect of the process of ‘concretization’ through which the technical object *calls forth* an associated milieu that it integrates into its functioning (see **Concretization**, **Individualization** and **Associated milieu**). Finally, in the order of the *levels of analysis* of the technical object, the technical individual is opposed to the *element*, which ‘does not have an associated milieu’ (MEOT 65) and transposes itself from one object to another.

Individualization

This notion applies at the same time to the living being (in ILFI) and to the technical object (in MEOT) because of an operative **analogy**: ‘It is because the living is an individual being that carries with it its associated milieu that the living is capable of inventing: this capacity to condition itself is in the beginning the capacity to produce objects that condition themselves’ (MEOT 58; see also MEOT 138–9).

With the living, individualization is, first, that which accompanies this ‘perpetual individuation’ which is life in so far as it is *continuous genesis*: Simondon has the tendency to reserve the notion of individualization to the *somato-psychic splitting* of the living. Whence the fact that, for him, ‘psychic individuation’ is not, properly speaking, an individuation (see

IPC 132–4 or ILFI 267–8) but an individualization and a ‘transitory path’ between vital individuation and psycho-social individuation (see **Regimes**).

In MEOT, then,

the individualization of technical beings is the condition of technical progress. This individualization is possible through the recurrence of causality in a milieu that the technical being creates around itself and that conditions it in the same way that this milieu is conditioned by the technical being. This milieu, which is at the same time technical and natural, can be called the associated milieu. It is that by which the technical being conditions itself in its functioning. (MEOT 56–7)

It is because of such technical progress that ‘human individuality finds itself more and more cut off from the technical function through the construction of technical individuals’ (MEOT 80). This is why, ‘when reflecting on the consequences of technical development in relation to the evolution of human societies, we must take into account the process of individualization of technical objects before everything else’ (MEOT 80). On this point, see **Alienation**.

Individuation / disindividuation

‘Genetic’ **encyclopedism** is a philosophy of individuation, or, for Simondon, of *genesis*. Individuation is thus not differentiating individualization, as was the case in the work of Carl Gustav Jung; for Simondon, individuation as genesis founds and encompasses the differentiation between individuals, which only becomes fully meaningful in the case of the living individual and its individuation. This is continuous and very different from the individuation of the physical individual (see **Individualization**). On individuation, see also **Ontogenesis**.

The term ‘disindividuation’ refers to a very particular phenomenon that can generate emotion in the *bio-psychic living*, and that makes possible in its turn, as long as this phenomenon is temporary, the passage to the psycho-social – or the **transindividual**. On the difference between temporary disindividuation and the disindividuation that generates *anxiety*, see **Anxiety**.

Information

This term is defined as the *centre* of a larger work of *conceptual reform* that Simondon is pursuing, because information can only become ‘the formula of individuation’ (ILFI 31) if it is first thought beyond what information theory has to say about it, and in which cybernetics has

remained stuck (see **Universal cybernetics**). Information theory and cybernetics have understood information as ‘negentropy’: that is to say, inversion of the growth of disorder and therefore the possibility of biological life. At the same time, however, information theory has dissociated information and *signification*, because of a *technical and probabilistic paradigmaticism* that is improper to the *universalization* of the notion of information. Simondon bet that he could make possible the application of the notion of information to psycho-social reality *by starting from a physical but autocomplexifiable paradigm* (see **Transduction**). At the same time, he was laying the foundations for bringing his reflection on information in relation with his reflection on *the wave-particle duality* in quantum physics. The reflection shows that both are *geneses* that can be theorized *at the same time* as probabilistic and *non-probabilistic*. This is the epistemological heart of his work, the insight with which it is shot through, which yields a programme rather than a complete theory.

Invention

Simondon is certainly the thinker not of innovation – the catchword of contemporary *technocracy*, which is not *technologist* – but of invention, a term he discusses in MEOT, IMIN and IT. In so far as the Simondonian analysis of technical becoming is established first and foremost in terms of *functioning* and by rejecting *usage* as extrinsic to technicity, properly speaking (see **Anthropology**), the analysis would appear to be under pressure, given that most inventions of functionings are made *with a preliminary view to a determinate usage*. Simondon is conscious of this, and it is for this reason that in the last subsection of MEOT’s first chapter, he introduces an idea that he will expand on in IMIN in 1965 to 1966. It is in this expanded discussion that he will develop a response to the objection that was just raised:

In MEOT, Simondon introduces the idea of ‘an absolute origin of a technical lineage’. He specifies:

The beginning of a lineage of technical objects is marked by the synthetic act of the constitutive invention of a technical essence. Technical essence can be recognized by the fact that it remains stable across an evolutionary line, and not only stable, but also productive of structures and functions through internal development and progressive saturation. (MEOT 43)

There thus exist lineages of technical objects that realize the becoming that is potentially contained in an ‘essence’.

2. The consequence of this will be developed by Simondon in IMIN in the form of a transcendence of the invented object in relation to first intentions of usage that had nevertheless demanded the object's invention: 'It would be partially false to say that invention is made to obtain a goal, to realize an effect that was known in advance' because 'true invention contains a leap, a power that amplifies and surpasses simple finality and the limited search for an adaptation' (IMIN 171–2).

One will therefore distinguish between:

1. the first invention of a technical *essence*, as the absolute origin of a lineage, such as the technical essence of 'the internal combustion engine'
2. the *continuous*, minor optimizations that take place within this technical essence as it progressively realizes itself
3. the *discontinuous* invention made necessary by the 'saturation of the system' that results from a continuous series of minor optimizations (see MEOT 27 and 39–40). This discontinuous invention is that in which the technical object really 'concretizes' itself as reality of a progress, such as the invention of the diesel engine (MEOT 44) within the technical essence of the 'internal combustion engine'.

Machine

In addition to the opposition **Automaton / Open machine** in MEOT, one must refer to the classification of machines in IT. Let us recall that MEOT defined the machine as 'that which carries its tools and directs them' (MEOT 78). On this point, see also **Alienation, Individual and technical individual** and **Individualization**.

In IT, Simondon follows Jacques Lafitte's *Reflections on the Science of Machines* when he *expands* our understanding of the machine. First, he distinguishes between:

1. 'simple machines' like 'systems of the transformation of movement' such as 'the handle' (IT 97)
2. 'machine-tools' that are 'semi-autonomous, namely autonomous for their energy and heteronomous for information' (IT 98)
3. the 'true machine' which is 'autonomous for both alimentation and information during its functioning, with information being delivered as a ground before the functioning' (IT 98)

Then, Simondon takes up and *rethinks* the distinction operated by Lafitte between:

1. the ‘passive machine’ and its different degrees, such as the tool with a handle and the architectural vault
2. the ‘active machine’ and its different degrees, such as the oil lamp and the engine
3. the ‘reflexive machine’: that is to say, the auto-regulative machine or the ‘information machine’.

See IT 158–226.

Metastability

This term, which is used by Norbert Wiener as well, refers in Simondon to a state that has been discovered by thermodynamics. It is a state that transcends the classical opposition between stability and instability, and that is charged with potentials for a becoming (see ILFI 26 or IGPB 24). The central importance that Simondon gave to this term is characteristic of the theoretical gesture that Gilles Deleuze so admired in IGPB:

Few books, in any case, make felt to such an extent how a philosopher can take his inspiration from contemporary science, while at the same time dealing with the great, classical problems of philosophy by transforming them and renewing them. The new concepts established by Simondon are of extreme importance; their richness and their originality capture and influence the reader. (Deleuze, ‘Gilbert Simondon, L’Individu et sa genèse physico-biologique’ [Gilbert Simondon, *The individual and its physico-biological genesis*], *Revue philosophique de la France et de l’étranger*, vol. CLVI, 1–3, 118)

The difference between the physical individual and the living individual is therefore that the second entertains within it a metastability, whereas the first has become stable and has exhausted its potentials. Life is for Simondon a ‘perpetual individuation’ (ILFI 27 or IGPB 25). On metastability as condition for the processes of individuation, see also **Pre-individual**.

Naturalization

This term, which is absolutely foundational, comes after **concretization** and **individualization** in the first part of MEOT. The naturalization of technical objects is the result of technical progress, since ‘the progressive evolution of technics, thanks to the increase in value of each invention

constituting an object, brings about natural effects in the world of technics, all of which results in the fact that technics becomes progressively naturalized' (IMIN 175). For Simondon, the consequence of this with respect to *knowledge* is an ever-increasing convergence between technics and science. This convergence has two reciprocal and complementary aspects, which he deals with in MEOT and NC respectively:

1. In MEOT, the technical object is conceived of as a physico-chemical system in which reciprocal actions take place according to a growing number of natural laws that are scientifically known. This is why the construction of the technical object can only be perfect if it proceeds from what Simondon calls a 'universal scientific knowledge'. Such is the path of *technology*, which is defined as an asymptotic path to the extent that 'the scientific knowledge which serves as a guide to foresee the universality in mutual actions taking place in the technical system, remains affected by a certain imperfection' (MEOT 35).
2. In NC, it is scientific knowledge that depends on technical activity, to the extent that the growing integration of natural laws into technical functioning turns the technical object into a mediator between the human being and nature that remains to be discovered: 'True technical activity exists today in the domain of scientific research that, because it is research, is oriented towards objects or properties of objects that are still unknown' (IPC 263 or ILFI 512). Technical normativity expresses itself fully in scientific research, because the machine does not mediatize there the individual's relation to the community, but the relation of the *active subject* to the *object*. Such is the *phenomenotechnical* path that had already been defined by Bachelard. On this count, Simondon certainly is, together with Bachelard, the precursor of a philosophy of what will later be called 'techno-science'.

Neoteny (generalized neoteny)

In biology, neoteny is the paradoxical process of slowing down that enables an early phase of development in a species (for example, the primate) to develop itself further in the immediately superior species (for example, the human being). As the French embryologist Alain Prochiantz writes,

the mature human being presents numerous characteristics that are also found in young chimpanzees but are absent in adult chimpanzees. [...] Certain of these characteristics may have played an important role in the human species' acquisition of properties as essential as standing upright

or cerebral development. (*Les Stratégies de l'embryon* [*Strategies of the Embryo*] [Paris: PUF 1988], pp. 137–8)

Simondon, who wants to overcome the opposition between *mechanism* and *vitalism* in a better way than Henri Bergson and Georges Canguilhem did, applies the term neoteny to the passage of the physical to the living:

Physical individuation is considered here as an individuation that takes shortcuts, that does not remain in abeyance long enough at its origin. Vital individuation would be a dilatation of the inchoative stadium, enabling an organization and deepening of the extreme starting-point. (ILFI 233)

The physico-chemical would thus be the *condition* of the living without, however, being its *cause*, which is ‘pre-physical and pre-vital’ because it is **pre-individual**.

Ontogenesis

This term is first of all a synonym of **individuation**, because individuation, for Simondon, is genesis. In biology, ontogenesis is also the genesis of the individual; in this case, it is distinguished from ‘phylogenesis’, which is genesis of the species. However, Simondon also applies this term to philosophical theory itself, because the ‘knowledge’ of individuation is ‘individuation of knowledge’ (ILFI 36). This is the properly Simondonian mode of overcoming the subject / object opposition in view of a non-objectifying philosophical ‘knowledge’.

One must point out that there exists a hesitation in Simondon when, in the introduction to ILFI, he writes that one must not ‘*consider individuation as only ontogenesis*’ (ILFI 24, Simondon’s emphasis); later, he writes that, in his theory, ‘*individuation is thus considered as the only operation that is truly ontogenetic, as the operation of complete being*’ (ILFI 25, Simondon’s emphasis). Ontogenesis – the French ‘ontogénèse’, which Simondon consistently spells as ‘ontogénèse’ – is *first* distinguished from individuation, to the extent that the latter is also the appearance of an **associated milieu** that one must take into account for a true explanation of the genesis of the individual. In the *second* instance, it is the term ontogenesis itself that is enlarged in order to refer to the ‘becoming of being’ (ILFI 25) in general, and thus to individuation as the genesis of the individual *and its associated milieu*.

Orders of magnitude

One of Simondon’s most original and cutting-edge contributions is to pursue the effects of the relation between orders of magnitude – which

are called ‘scales’ today – at the root of one’s understanding of the real. Indeed, if the individual *is* relation and not merely *in* relation, as the Simondonian doctrine of the **realism of relations** proclaims, then the individual can only be relation between orders of magnitude. The individual enables these orders to communicate; in the *pre-individual* state, on the other hand, they do not. These orders of magnitude, to the extent that they only exist *relative* to each other, are not terms that pre-exist their relation. Therefore, they do not put the realism of relations in question.

Thus, for example, the vegetative is presented by ILFI as an individual that puts in relation the order of the cosmic grandeur of sunlight – necessary for photosynthesis – and the molecular order of mineral salts that nourish the vegetative. This relation that *is* the vegetative individual is itself in relation with an **associated milieu** that is of the same order of magnitude as the individual. In CSI, Simondon tries to apply the thought of orders of magnitude to the difficult question of the instinct.

Perception

Simondon dedicates the voluminous CSP to the problem of perception, which he also addresses in the earlier ILFI. Together with *action* and *emotion*, perception is one of the three dimensions of the living animal, and one cannot understand its functioning without thinking its interferences with the two other dimensions, as the fourth and fifth parts of CSP do. After ILFI had already contested the ‘anthropological’ cut (see **Anthropology**) that the philosophers make between the human being and the living, Simondon proposes in the third part of CSP to singularize the simple human *degree* by the capacity of abstraction and symbolization; this is the very meaning of human privilege in the perception of forms. Perception exists with animals, too, but it does not have the same ‘semantic richness’ (CSP 204). The first part of the book consists in a historical trajectory of theories of perception and ends with an exposé on *Gestalt* psychology, which had been Simondon’s most important interlocutor on the theme of perception since ILFI.

Personalization and personality

After the individuation of the living as ‘absolute origin’ (ILFI 27 or IGPB 25), and its subsequent somato-psychic individualization as perpetual genesis, comes *personalization*. Personalization makes possible the passage from the properly vital **regime** of individuation to the *psycho-social* regime; individual *personality* is construed within a group that has its own unity and its own group personality (see IPC 183–4 or

ILFI 297–8). Whereas individuation is ‘unique’ and individualization ‘continuous’, personalization is ‘discontinuous’ (IPC 135 or ILFI 268); personality undergoes profound restructurations, but only periodical ones. See also **Transindividual / interindividual**.

Phases and phase-shift

First of all, the term ‘phases’ is always plural, because phases only exist in relation to each other. Thus, they are marked by their *relativity*. Second, the term also refers to *something other than a moment* within a temporal succession (see MEOT 159). Simondon highlights the *physical* origin of this term, which, together with the terms ‘relation’ (see **Realism of relations**) and ‘orders of magnitude’, lays down a new and difficult logic; if one does not want to misinterpret Simondon’s discussion of a particular regime, one must always keep this in mind when the ontology of ‘regimes of individuation’ – physical, vital and psycho-social – is being constructed. This new logic is made explicit in a foundational passage of ILFI, the one that starts off the conclusion of this work:

Here, the idea of a discontinuity [*discontinuu*] becomes that of a discontinuity [*discontinuité*] of phases, which is linked to the hypothesis of the compatibility of successive phases of being: a being, considered as individuated, can in fact exist according to several phases that are present at the same time, and it can change phases in itself; there is a plurality in being that is not the plurality of parts (the plurality of parts would be below the level of the unity of being), but a plurality that is above this unity, because it is that of being as phase, in the relation of one phase of being to another phase of being. (ILFI 317).

The notion of ‘phase-shift’ refers to this process through which the phases are constituted. One finds its most extensive illustration in the ‘phases of culture’ in the third part of MEOT. See **Art, Religion and Primitive magical unity**.

Philosophy

Philosophy’s specificity is to be able to take itself as object. This is why Simondon ends MEOT in the way he had started ILFI: that is to say, by announcing what he considers philosophy’s role to be. From being ‘knowledge of individuation’ at the end of the introduction of ILFI (see **Ontogenesis**), philosophy becomes the ‘intuition of the real’ (MEOT 237) at the end of MEOT. These two definitions can shed light on each other when they are considered in the context of Simondon’s dialogue with Henri Bergson. From now on, philosophical intuition is *reflexive*,

and this is why ‘philosophical thought can only constitute itself after having exhausted the possibilities of conceptual knowledge and knowledge through the idea. That is to say: after a technical and a religious becoming-conscious of the real’ (MEOT 237).

Polarization

Like the term ‘(generalized) neoteny’, Simondon uses this term to overcome, better than Henri Bergson did, the opposition between *mechanism* and *vitalism*. Mechanism reduces the living to physico-chemical processes; vitalism, on the other hand, renders the living incomprehensible by starting from the physical. In ILFI, Simondon takes up a decisive position in this debate, and he is in this sense the precursor of philosophies of ‘emergence’; he conceives of the physical and the living as different types of the same process of polarization. The crystal is polarized, in the same way that the affectivity of the living animal is, and between the two there is a polarization of the cellular membrane, where the first difference between the physical and the living is marked. In the crystal on the path of formation, the limit that is in progress is the one that separates *the past from the future*. In the living cell, on the other hand, the membrane separates *the interior from the exterior* since the interior is *not past but contemporaneous to the membrane*.

Pre-individual

This term, which is crucial to Simondon’s thought, refers to the state of **metastability** that makes possible each individuation. While metastability can exist within the process of individuation, as is the case with the living, the pure pre-individual actually exists ‘before’ this process – in an ‘anteriority’ that is not temporal, since time itself ‘*develops out of the pre-individual just like the other dimensions according to which the process of individuation takes place*’ (ILFI 34, Simondon’s emphasis). The conclusion of ILFI presents the pre-individual as a ‘hypothesis’ that is ‘derived from a certain number of thought schemas borrowed from physics, biology, technology’ (ILFI 327). It is important to specify that the pre-individual comes from physics – in IGPB and in IPC the *same* passage from the conclusion does not even mention biology or technology. Simondon’s inspiration for the pre-individual comes from thermodynamic metastability, and also from the famous wave-particle duality in quantum physics, in so far as this duality is ‘more than one’ and in so far as the particle is, strictly speaking, not an individual. Only *contemporary micro-physics* can give an idea of this primordial state, which Simondon sometimes qualifies as ‘pre-physical and pre-vital’, with

physical and vital individuation being only two *regimes* having the same source, and not two *substantial domains* of being (on this distinction, see **Regimes**).

Primitive magical unity

In the first chapter of the third part of MEOT, the theory of the ‘phases of culture’ leads religion and technics away from a ‘primitive magical unity’ that, in so far as it precedes them, is not yet a **phase**. The ‘magical mode of existence’ is ‘just above a relation that would be simply that of the living to its milieu’ (MEOT 156). In it, there only exist natural ‘key points’, such as the top of a mountain or the centre of a forest. This raises the question of whether, for Simondon, this means that artifacts are absent in the magical mode of existence – certain formulations in MEOT seem to indicate that this is the case – or whether artifacts are already present but not yet invested with the role of ‘first objects’ that they will have during the technical phase, which is complementary to the religious phase in which the first ‘subjects’ appear (see **Religion**). This debate may ultimately be irrelevant, given that, for Simondon, the *genesis* of phases is not a *history* (see **Phases and phase-shift**). This is an important question for the exegesis of an *œuvre* that has not completely made its aim explicit, but whose force of *invention* is matched only by its *actuality*.

Problematic

Simondon’s originality in this case lies in the fact that he gives an objective reality to a term that traditionally refers to the result of an activity of the thinking subject. With Simondon, indeed, every reality has its problematic to the extent that the potentials are not yet actualized and demand to be so; the problematic is the configuration *starting from* which something can ‘pose a problem’ and provoke a becoming, as the resolution of the problem. Thus, for example, the ‘problematic’ of psychic individuation can only fully resolve itself through the passage to psycho-social individuation. This is why psychic individuation is merely a ‘transitory path’ between vital individuation and psycho-social individuation; it is first and foremost an *individualization* rather than a true individuation.

Progress and technical progress

In the fourth part of IMIN, which deals with invention, Simondon maintains that

progress cannot be guaranteed as long as culture, on the one hand, and the production of objects, on the other, remain independent from one another. The created object is precisely an element of the organized real that is detachable because it has been produced following a code that is contained in a culture enabling one to use it at a distance from the place and time of its creation. (IMIN 164)

Culture and technics must therefore be linked in order to make progress possible. The stagnation of ‘animal cultures’ does not mean that they would not be cultures, nor even that they would not produce objects (primates produce objects). It simply means that this production of objects is not ‘cumulative’ (IMIN 163), and that it is not founded on the detachable character of the constituted object. Progress thus becomes synonymous with the *perpetual progress of humanization* [*hominisation*], and is defined as ‘the character of the development that integrates into a whole the meaning of discontinuous successive discoveries and the stable unity of a community’ (NC in IPC 267 or ILFI 515).

In MEOT, properly *technical* progress is thought in terms of the **concretization**, **individualization** and **naturalization** of technical objects. One should add that the *tendential eras* of technics will be redefined in IT, which will indeed divide the history of technics in two different ways, neither of which contradict the division proposed by the last page of the introduction to MEOT:

1. First, it divides the history of technics by distinguishing between four periods that are called, respectively, (1) ‘anterior to the use of the tool and the instrument’, (2) ‘of the tool, the instrument’, (3) ‘of the machine-tool and the machine’, and finally (4) of the ‘reticulation’ (IT 104).
2. Second, it also does so by distinguishing between three periods that are called (1) ‘pre-scientific inventions’, (2) ‘inventions made or completed with the help of the sciences’, and finally (3) a ‘third group of inventions’ in the ‘information’ age (IT 229 and 271–2).

The first division contains only four periods because the first of them precedes the artifact and concerns the very first ‘techniques’, understood here in the sense of *processes*: for example, ‘a primitive technique of hunting such as that which consists in chasing the animals towards the rocky coasts and frightening them’ (IT 86).

Real collective and community / society

The term ‘real collective’ can be used as another name for the **transindividual** when the latter is considered in its social rather than its psychic

aspect. Indeed, the paradox of the transindividual, as Simondon presents it in the second and third chapters of IPC, is that ‘psychological individuality appears as that which elaborates itself while elaborating transindividuality; this elaboration rests on two connected dialectics, one that interiorizes the exterior, and another that exteriorizes the interior’ (IPC 157 or ILFI 281). This means that where psychic individuality unfolds itself to the utmost, the collective equally becomes a ‘real collective’, immanent to each individuality. This paradox is an ontological consequence of the epistemological doctrine of the **realism of relations**.

It is by way of this paradox that one must understand the central distinction between ‘society’ and ‘community’ that Simondon makes in IPC and in MEOT. A community, such as the community of work, puts individuals in relation, but without founding itself on that which remains **pre-individual** in the **subjects** – that is to say, that which remains susceptible to individuating itself further to construct a transindividual reality through and beyond the individuals. It is the other way around in the case of the true society, and this is why Simondon refuses the distinction made by Bergson between ‘closed’ and ‘open society’. If, in his own way, he returns this distinction to the community / society distinction, he does so precisely without succumbing to the prejudice of ‘societies without history’. On this count, see also **Transindividual / interindividual**.

Real potential

This term refers to a potential that cannot be reduced to either the possible or the virtual. Instead, and paradoxically, it ‘actually exist[s] as potential’ (ILFI 313 or IPC 210). That is where the entire specificity of Simondon’s reinterpretation of the physical notion of ‘potential energy’ lies. Simondon follows here the Nobel Prize-winning French physicist Louis de Broglie: ‘The potential, conceived as potential energy, is *real*, because it expresses the reality of a metastable state, and its energetic situation’ (FIP in Simondon ILFI 547 or IPC 68, Simondon’s emphasis). See **Metastability**.

Realism of relations

This term refers to the epistemological doctrine of Simondon’s work, which provides the core of his genetic ontology. The term – which was curiously lacking in IGPB – is most completely developed in the third chapter of ILFI. The *realism* of relations consists in *desubstantializing the individual without, however, derealizing it*. It posits that the individuality of the individual increases through the demultiplication of the relations that constitute the individual. This is why the individual

does not dissolve in the relations that constitute it. Simondon's anti-substantialism thinks of relations as not being preceded by the terms that they relate. At the same time, it preserves the idea that the individual is the 'active centre' of the relation. For more on both these aspects, see **Orders of magnitude**.

The precursor of the realism of relations is Gaston Bachelard, the great French epistemologist and philosopher of physics, whose most important disciple was Georges Canguilhem, philosopher of biology, who was the director of both Simondon's main doctoral thesis and his secondary thesis.

Regimes (physical / vital / transindividual)

In contrast to Maurice Merleau-Ponty in *The Structure of Behavior*, Simondon does not distinguish between 'orders' of beings but between 'regimes' that, in line with the theory of the '**phases**' of being, are not substantial but *possible phases of every being*. In Simondon's work, the psycho-social regime of individuation takes up a privileged place with the human being. However, at times the latter is able – for example, through relations of work (in the sense that the ant works) – to function as a living individual, rather than as a **subject** individuating itself into a psycho-social or transindividuated personality. On the other hand (and vice versa), certain animals can, in a highly ephemeral but nevertheless real way, access the psycho-social or the **transindividual**.

Relaxation (the law of)

Simondon introduces the law of relaxation in the second chapter of MEOT. This law has to do with the tripartite division '**element / individual / set**'. It affirms that

in the evolution of technical objects, one can witness a passage of causality that goes from the sets, which are anterior, to the elements, which are posterior. When these elements are introduced in an individual whose characteristics they modify, they enable technical causality to return from the level of the elements to the level of the individuals, and then from that of the individuals to that of the sets. From there, in a new cycle, technical causality descends through a process of production to the level of the elements again, where it reincarnates itself in new individuals, and then in new sets. (MEOT 66)

Such a law does not undermine the idea that there is an 'era of elements', an 'era of individuals' and an 'era of sets', since these denominations are in any case relative and only define the *successive, privileged*

‘*sites*’ (the element, the individual or the set) of technical progress (see **Element / individual / set**).

Religion

In the first chapter of the third part of MEOT, religion is, together with technics, the result of a **phase-shift** of the **primitive magical unity**. It is therefore a phase of culture, and its particular function is to develop the ‘background qualities’ that, before this phase-shift, were still mixed up with the ‘figures’ in the primitive magical unity. This means that religion, due to its function of unifying totality, is complementary and symmetrical to technics, which for its part develops the ‘figures’ in the form of elements that are detachable from the foundation. It is in this way that religion and technics bring into the world the first *subjects* – the divine, the priest – and the first *objects* – the artifacts.

Spirituality

This notion has two meanings in IPC:

1. It is first of all – and surprisingly so – a synonym for ‘having a psyche’. This is because Simondon considers the ‘*spirit*’ to be the psyche (*mind as psyche*).
2. Spirituality is also the higher form of the **transindividual** and of the intuitive consciousness it has of its continuing ‘pre-individual charge’, and of the power that this charge represents for it always to overcome itself: ‘Spirituality is the signification of the relation of the individuated being to the collective, and therefore also of the foundation of this relation, that is to say of the fact that the individuated being is not fully individuated. (IPC 105–6 or ILFI 252)

Subject

Simondon uses the term subject in the following three ways:

1. In a classical sense, the *subject* is the one who is capable of transforming the components of the world into *objects*. It is in this sense that the first chapter of the third part of MEOT thematizes technics and religion as two *complementary phases* of culture that make appear, respectively, the first objects and the first subjects (see **Religion**).
2. In his battle against the anthropological (see **Anthropology**) split of the human being from the living, Simondon uses the term ‘subject’ to refer to the *bio-psychic* being that results from the ‘somato-psychic

splitting' that is internal to the *living*. The human being therefore does not have the monopoly of being a subject.

3. The 'subject' is also, and perhaps first and foremost, the *ensemble* constituted by the individual *and its pre-individual charge*.

The link between 2 and 3 is the following: by individualizing itself through somato-psychic splitting, the animal becomes a 'subject' that is no longer a simple individual, but the ensemble individual / pre-individual charge, with its psychic affectivity being capable of receiving the **metastability** maintained in the living from which this subject comes, and that it continues to be.

Substantialism

Simondon's strong opposition to **hylomorphism** is only one particular instance of his more general opposition to substantialism. Hylomorphism is a disguised or subtle figure of substantialism – because it pretends, against atomist substantialism, to account for the genesis of the individual. For Simondon, substantialism is the doctrine that posits a 'principle of individuation' without genesis, whether this principle be the individual itself as indivisible (*atomos*), or form, or matter. In HNI, Simondon turns Leibniz into substantialism's representative *par excellence*. This is because in Leibniz, 'the notion of the individual is universalized because everything is individual in the world: there are only individuals, and these individuals are substantial' (ILFI 454).

Technics / work (labour)

This opposition is fundamental, and captures the remarkable originality of Simondon's thought. Already in the second chapter of NC, which establishes the transition between ILFI and MEOT, Simondon asserts that "the specialists' are not truly technicians, but workers' (IPC 263 or ILFI 512). Work, in the narrow sense in which this term is understood in Simondon – namely, as labour – does not fall within transindividuality but within interindividuality (see **Transindividual / interindividual**). In the latter case, beings are not mobilized as 'subjects' in the sense that Simondon gives to this term since ILFI – that is to say, as carriers of a pre-individual charge of nature that enables them to transindividuate. The relation of labour merely puts individuals in relation with each other – it merely relates being as already individuated. Simondon adds another aspect to this first aspect of labour, which is meant to complete it but which remains, in truth, foreign to the transindividual: in labour, the interindividual relation between the workers is also a relation of the

human species to nature. In each case, however, the transindividual is missed, because humanity precisely does not realize itself in labour. For labour understood in this way is always too poor to found a transindividuality; it adds the intrasocial to the interindividual, but even this conjunction does not engender transindividuality. It merely falls within the ‘community’ that Simondon criticizes in ILFI (see **Real collective and community / society**).

By contrast, the activity of technical invention provides the ‘support’ of a human relation that is the ‘model of transindividuality’ (MEOT 247). NC already turned the technician into a ‘pure individual: in a community, the technician is part of another species [. . .] technical normativity is intrinsic and absolute; one can even remark that it is through technics that the emergence of a new normativity in a closed community is made possible’ (IPC 263 and 265 or ILFI 512 and 514). That technical normativity be intrinsic and absolute means that the adoption or the refusal of a technical object by a society says nothing for or against the validity of that object, as Simondon explains in this decisive passage. Indeed, it is in these lines that Simondon’s entire thought comes together, because in NC it was the same passage that, with respect to **naturalization**, addressed the convergence of science and technics. One cannot understand Simondon’s affirmation of technical normativity if, on the one hand, one does not distinguish between transindividuality and community, and if, on the other hand, one does not think of technics as ultimately concretizing itself in the informational set of contemporary scientific instruments, through which a human transindividuality is realized whose relation to nature is mediatized by the machine: ‘Free individuals are those who do research, and institute through it a relation with a non-social object’ (NC, in IPC 263 or ILFI 512).

Technology and the technologist

The ordinary meaning of the word ‘*techno-logy*’ refers to modern technics in so far as it would be the application of the *logos* of science. Simondon reinterprets this word as the study (*logos*) of technics. One of the main theses of MEOT is that ‘philosophical thought must achieve the integration of technical reality in universal culture by founding a technology’ (the title of the last chapter in the second part). The *technologist* – also called ‘mechanologist’ (MEOT 13) by Simondon – is thus the human being who makes it possible to ‘give back to culture the truly general character that it has lost’; it is through the technologist rather than through the psychologist or the sociologist that one can ‘reintroduce into [culture] a consciousness of the nature of machines, of their

mutual relations and their relations with the human being, and of values implied in these relations' (MEOT 13). On this count, see also **Culture and technical culture**.

Transduction

Like Jean Piaget before him, Simondon uses this term, which is at the same time technological and biological, in order to give it a new meaning, one that will become absolutely central in the thought of individuation. In Piaget's work, transduction refers to a mental operation that is different from both the deductive and inductive operations. One finds the same understanding of transduction in Simondon, but just as with the term **ontogenesis**, the term 'transduction' refers first of all to the process of individuation of the real itself. This is why transduction is defined as 'a physical, biological, mental, social operation through which an activity propagates gradually within a domain, by founding this propagation on a structuration of the domain that is realized from one place to the next' (ILFI 32). The paradigm or exemplary case of transduction is therefore *crystallization*, in so far as it is 'the simplest image of the transductive operation' (ILFI 33). It is understood here that the notion of transduction is susceptible to *auto-complexification*, so that it can apply to different regimes of individuation. This is why the 'transposition' of physical schemata used by Simondon is at the same time a 'composition' (ILFI 319), which enables one to avoid *reductionism*. The notion of transduction also enables Simondon to found a new thought of **analogy**.

Transindividual / interindividual

This opposition is decisive for understanding the psycho-social or 'transindividual' **regime** of individuation, but also for understanding the value of technical invention:

1. The transindividual, first of all, is defined as 'the systematic unity of interior (psychic) individuation, and exterior (collective) individuation' (IPC 19; ILFI 29). Unlike the interindividual, it is therefore not simply a bringing-into-relation of the individuals. The transindividual makes **subjects** intervene in so far as they carry a charge of **pre-individual** reality. The mistake of psychologism – which only sees the *interindividual* – as well as of sociologism – which merely sees the *intrasocial* – is to have forgotten this reality of the subject which is 'vaster than the individual' (MEOT 248) and which alone enables one to explain the birth of a **real collective** *and also* the ultimate

realization of the individual psychism that is becoming ‘personality’ (see **Personalization and personality**).

2. In addition, and this has already been explained in the context of the opposition ‘**Technics / work (labour)**’, the paradigm of the transindividual is the human relation, which is ‘supported’ by the invented technical object, as Simondon says in MEOT. It should be added here that it is by virtue of the *contemporary informational sets* that the properly called ‘modern’ human society of work – which was born from the industrial revolution, and which was made up of merely *interindividual* relations and as a consequence sometimes found itself alienated (see **Alienation**) by the machine – can from now on construct itself as a *transindividuality* that is indissociably human and technical. Simondon was already proposing this in NC, where he wrote that the ‘value of the dialogue of the individual with the technical object’ was ‘to create a domain of the transindividual, which is different from the community’ (ILFI 515 or IPC 268).

Universal cybernetics

This term is a synonym of ‘**allagmatics**’. Thus, it refers to a reformed cybernetics because it is genetic – understood as referring to the notion of genesis – in view of encyclopedic universalization. For Simondon, the aim is always to enter in competition with the **hylomorphic** doctrine that has been dominant from Aristotle to Kant – thinker of the ‘form’ and ‘matter’ of knowledge – and whose strength was its capacity to universalize its schema in order to apply it to the entirety of reality. Cybernetics had the benefit for Simondon of already being an analogic and inter-scientific thought. At the same time, it was nourished by the theory of **information**, which Simondon wanted to discuss. ‘Universal cybernetics’ must ultimately succeed cybernetics, which is too technicist and reductionist, but it is in the important debate with cybernetics that the tensions that operate the very unity of Simondonian thought become manifest. MEOT qualifies Norbert Wiener’s *Cybernetics* as ‘a new discourse on method’. MT, on the other hand, is the most ‘cybernetic’ text of Simondon’s.

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