16 pieces on ontology

Bart Nooteboom, June 2019

356. Dialectics on the move published 10-2-2018

Žižek tells us[i] that Hegel's dialectics has been falsely interpreted as a closed circle: he intended the end as a new beginning[ii]. This goes beyond the old Aristotelian idea that things have a potential that is realized in the end. With Hegel, on the path to realization of potential a new potential is created. The question now is how this works. Unless I missed something in Hegel, he gives no explanation how, by what logic, dialectics works, produces novelty, from opposition or tension.

In later items in this blog I will discuss ontology: the philosophy of being, of things in the world. There, I will use the idea, shared by Graham Harman and Tristan Garcia[iii], that there are two dimensions to objects in the world: first, how they are composed, 'what is in them' and second their position in their environment, 'what they are in'.

The first is the analytic view of science, breaking things down into their components, the second is the phenomenological view, considering the lived experience of things. The latter connects with philosophical pragmatism and Wittgenstein's notions of 'meaning as use'. I will now claim that the two arise from each other: how something is composed determines, in part, how it exists in its context, and that, in turn, affects how it is composed. How does that work?

For transformation, in this blog (item 31), and in a book published in 2000), I proposed a 'cycle' of discovery or invention. I did not develop it with Hegel in mind, at least not consciously, but was perhaps fed by prior readings of Hegel. I was inspired, more explicitly, by the theory of the developmental psychologist Jean Piaget concerning the development of intelligence in children. The basic idea there is that when one is confronted with new experience, the attempt is made to assimilate it in existing mental frames, and when that fails such frames are accommodated. I now wonder if it can be seen as a further development of Hegelian thought. In a later item in this blog I will propose that it clarifies ontology, in what I call dynamic ontology.

To recall, I proposed that the cycle of change starts with generalization, defined as application of a practice in novel contexts. In the novel context, the practice is challenged by new conditions of survival. What had been adopted as a universal is confronted with novel particulars.

Note the link with evolution here, with the idea that novelty, in speciation, arises from challenges in a new selection environment. The classic example is the emergence of new species after the disastrous crash of a meteor on earth, which made the dinosaurs and other species extinct. In innovation policy some firms now actively seek novel markets to find out limitations by identifying failures, as a source of innovation.

Faced with failure in a novel context, the first step, which stays as close as possible to the existing frame, is to 'tweak' that frame, in differentiation, in trying out different variants of the same, with recollection of earlier forms that were at play in the emergence of the present practice.

This may not suffice for survival in the new context. Here is where Hegelian opposition or contradiction kicks in. In the failure of the practice one gets to really know it, with its limitations that call for renewal.

From the conflict between practice and the novel context, experiments arise, in what (adopting the terminology of Piaget) I call reciprocation, inserting elements from practices met in the novel context that seem to succeed where the old practice fails, into the logic of the old practice. This yields misfits between the old and the new, novelties that conflict with existing logic.

This, I think, is the fundamental step in dialectics: experimenting with hybrids of the old and the new, to discover ways of relieving the tension between them. It allows for the exploration of the potential of novel elements, and of the limitations of the old logic that obstruct the realization of the new potential, which gives hints in what directions a novel logic might be explored.

Necessity is both the mother and the midwife of invention.

Novelty, as it emerges in a new basic logic, is hesitant at first, labouring with inconsistencies or frictions that remain, with fall-backs into the old, requiring further adjustments in the constellation of the new basic logic and its elements, until it settles into what in the innovation literature is called a ‘dominant design’.

In sum: in moving to a new place or context one encounters the need and insight to open up content to new possibilities. What was taken as a universal is confronted with deviant particulars (see the preceding item in this blog). Note the similarity to the hermeneutic circle (item 36, 252).

Note that the cycle is in fact a spiral, not a closed loop.

Is this helpful as an elaboration, elucidation, or twist of Hegelian dialectics?

357. The success of failure published 17-2-2018

A Hegelian principle is that one gets to know something best in its failure.

This appeared in my discussion of what I made of Levinas (item 61 in this blog): in order to achieve the highest level of freedom, which is freedom from pre-conceptions and errors, one needs opposition from the other.

It also appears in the Popperian principle of falsification in science. One cannot prove the truth of a proposition on the basis of evidence, but one can falsify it. Criticism of failures in science is needed, in the forum of science, for science to succeed.

It appears in democracy: cumbersome and often inefficient as it is, political opposition is needed to prevent survival of failed policies. In a centralized, non-democratic, authoritarian regime such failure is not recognized or acknowledged, to protect the prestige and position of the regime. The strength of democracy is that it can fail (item 339).

It appears in innovation: the failure of an innovative venture is not waste, but has value in showing what does not work, as a basis for further research and development. Entrepreneurs serve society in their failures.

The necessity arising from failure of what exists is the mother of invention.

Evolution arises from a selection environment that eliminates failures to fit. Humans, however, have a distinctive capacity to deliberately and consciously select or construct a favourable niche, and there failure may fail to succeed.

Similarly, a virtue of markets is that competition ensures that no waste of resources arises from failures that survive.

The present perversions of capitalism serve to clarify why and how capitalism fails, and to understand some of the sources of populism (item 47) and shortcomings of the political left.

The most fruitful failures are those that could not be foreseen, and were in that sense uncertain (as opposed to risky), because they most radically close off existing avenues, to open up new ones.

However, failures need to accumulate, to clarify the boundaries of validity of the old, to build up motivation to drop the old and search for the new, and to give indications of directions for the new. This progressive form of conservatism was recognized in a famous debate in the philosophy of science, between Popper, Kuhn and Feyerabend, in the 1960's, in which Popper consented that instantaneous falsification, at the merest falsification, was not rational. In ontology and epistemology, the need for outside opposition to success, in order to recognize failure, to motivate and indicate avenues for novelty, is the most convincing argument for objects in the world to exist independently from ideas, as a selection environment for the evolution of ideas.

Žižek argued that strict, universal rules demand too much from people, who are imperfect and are also caught in the vagaries of contingency, so that for the rules to succeed there must be some space for deviance, failure to conform (item 337).

All this is consistent with my argument for 'imperfection on the move' (items 19 and 127).

358. Existence published 27-2-2018

In this blog I have discussed realism, in items 28, 171, and 174, and here I elaborate on it, inspired by several lectures by Graham Harman.

As I said before: there is a world out there, but we cannot know in what sense or to what extent we know or can know it as it is in itself. Two questions remain: an ontological and an epistemological one. The ontological question is: what to think of objects 'out there', and their relations with humans and with each other. An epistemological question is: what is their relation to our ideas of them. I start with the ontological one.

To cut a long story short: Reality is what we can interact with. Largely in agreement with Harman I believe that:
1. Objects yield affordances: things we can do with them (tools, furniture, etc.). Affordances are not constant: there may be unrealized potential, and that potential can change, depending, among other things, on our intentions and competencies.
2. More widely: Objects are always partly hidden; do not reveal all their features (Harman adopts this principle from Heidegger). One cannot specify all its features, and what is revealed depends on the context, absorptive capacity and the intentionality of a subject.
3. Objects have an existence beyond how we experience them.
4. We can do things to objects, but do not necessarily control them (e.g. the environment).
5. Many objects are emergent: are not merely assemblages of components but have properties that their components don't have.
6. Objects and humans develop in interaction with each other.

Harman proposed that objects are looked at in two basic ways: in terms of their components, in science, or in terms of experience or use of them. Harman clams that they are both reductionist, and need to be combined. The first does not recognize emergence (point 5), and neither of the two deals with change (1 and 6).

I am a pragmatist in the sense that I believe that knowledge is constructed from interaction with things in the world, but not in the sense that an object is fully specified by its use.

Concerning point 2, features of an object may be hidden in several ways. One is tacit knowledge, where one can do more than one knows. In one form, knowledge once was explicit, but is now taken for granted and cannot be specified. An example is the grammatical rules of a language learned at school, now correctly used without the ability to specify them. In another form, the object could never be fully specified, as in skill learned from a master, in ostentation rather than specification of a practice.

The epistemological question is part of point 6. In this blog I proposed that humans develop their ideas on the basis of interaction with objects and each other. More in particular, I proposed, originally in a 2000 book, a 'cycle of discovery', of how ideas about the world develop and change as a function of experience in new environments (see items 138, 355).

That is not a matter of ongoing flux but occurs in stages, of alternating stability and change. I now find that Harman also argues in that direction.

Objects form the material cause of the formation of ideas. As I discussed in the preceding item in his blog, it is because of their existence outside our knowledge and control that they can contradict ideas and thereby contribute to their correction and change. If they were not to some extent independent of our ideas, our ideas would not develop. I think that is the most convincing argument for objects to have an existence of their own, beyond our ideas.

The formal cause of conceptualization is ways of thought, partly predisposed by evolution. Idea formation is not per se reliable. In particular, abstract ideas, such as 'meaning', suffer from an 'object bias' (item 29): they are conceptualized according to a metaphor of objects in time and space, resulting from the predominant need to adequately deal with such things during much of human evolution.

I now want to add that the process of development across situations does not only apply to our ideas but to all objects in the world. Indeed, I have pleaded for a process philosophy, seeing objects as processes (item 342). People and objects are constituted by interactions with other people and objects. However, they do have an existence that is stable relative to those relations.

In human and social affairs I have pleaded for a restoration of Aristotelian multiple causality of action (efficient, final, material, formal, conditional and exemplary causes).

Networks are conduits for all these causes, with nodes as points of accumulation: who is an actor where, and in what roles, the flow of information and knowledge, institutions as enabling constraints (regulation, competition), and role models. In sociology there are extensive studies of how structure of the network and position in it affect these causes.

I also like Harman's idea of 'hyperobjects', with three properties: 7. we get entangled in them, unable to get out (e.g. the environment) 8. they are not only local (the climate) 9. there can be object-object interaction without human involvement (in the environment)

This does not only apply to human-nature or object-object interaction. In this blog I have discussed the notion of 'system tragedy', where people get entangled in social structures (organization, institutions, markets), in a tangle of positions, roles, and interests, where they lose autonomy and freedom of ethical choice. This is an example of emergence. Such systems can be non-local (financial markets, for example).

This is a major problem for political economy: system tragedy arises, in particular, from multinational corporations that cater exclusively to shareholder interests, and can dodge government regulation or press for advantages, under the threat of moving business abroad, yielding a race to the bottom between nations, concerning social, legal and environmental conditions.

Now, do objects have an essence? That is the subject of a later item.

359. What things? published 3-3-2018

I follow Tristan Garcia and Graham Harman in adopting a very liberal, wide ranging notion of things, as I did in The preceding item in this blog. Things are anything one can think or talk about, be it dikes, dogs, dreams or delusions. Objects, somewhat more restrictively, I take as things one can interact with, and that can resist us, literally objecting to what we say, think or do. That notion of an object is still very wide, but does seem to exclude things like dreams and delusions.

What different kinds of objects are there? Heidegger distinguished 'Sein', non-human things, and ' Dasein', human things, which are different in having thought, self-consciousness, awareness of death, etc. Similarly, Sartre talked of things 'in themselves' ('en soi') and things 'for themselves' ('pour soi'), again non-human vs. human. Garcia objected to this.iv The difference between human and nonhuman is not absolute: Humans are also animals, some animals have something that looks, in part, like language, self-awareness, a sense of death, and altruism.

Nevertheless, this difference matters, even if it is not absolute. Humans do have features that animals don't, such as a language with a grammar.

Another customary distinction is that between material and abstract things. Garcia questions that also. If one accepts his view, discussed in the preceding item, that there are two aspects to any thing: what 'is in it' and 'what it is in', then a chair is not only something with legs, seat, armrests, made of wood or metal, but also something subject to use, or to discussion, generating experience. And the latter is mostly immaterial. Conversely, an abstract thing, such as an idea, is expressed by way of speech or writing, which are material.

Yet, here again, though not absolute, the difference is still important. Garcia proposes that things can be more or less spatially and temporally 'continuous'; 'chunky' and 'durable'. That also is not absolute, and depends on scale or perspective. Take a piece of slate, the example Garcia uses. When you look at it on a microscopic or submicroscopic level, continuity in space falls apart: you see molecules hanging more or less separately, non-continuously, in mostly empty space. The slate is durable but in the very long run that also will erode.

However, what is relevant to human experience is how continuous an object is on that scale, in human experience, between the microscopic and the macroscopic, and between the instantaneous and the long run. Sufficiently continuous in time and space, as seen by humans, to be relevant to activities like foraging, fighting, building, fleeing, attacking, etc.

And here the difference is important, as I argued earlier in this blog. Objects that are continuous, in human experience, behave differently, in important ways, from objects that are not. As I said in an earlier item, if you move a chair from one room to another, it remains the same. If you move a word from one sentence to another its meaning changes. Continuous objects were salient for survival in the long period of the evolution of humans as hunter-gatherers. Spatial discontinuity of an enemy in a group of enemies is a very different matter from a single enemy, a spear that can at any moment dissolve in the air is not of much use.

The salience of continuity was such, I propose, that it became defining for objects in general, imprinted as such in the evolution of the human mind, in its construction of concepts and language. And now we treat abstractions, such as meaning, happiness, identity, culture, democracy, and so on, by analogy to continuous objects, while the crux of them is that they are subject to differentiation between people, contexts, and moments. I have called this an 'object bias' in conceptualization, which is now putting humanity and society on the wrong foot, jeopardizing the current evolution and survival of humanity.

Garcia discusses how the intuition of 'substance' used to dominate old ontologies, such as those of Aristotle, Spinoza, and Descartes. I propose that this also was due to the salience of continuity in human experience. Substance is the pinnacle of both continuities.

360. Do objects have an essence? published 10-3-2018

I have taken the 'absolute' to mean two things: it is universal, applying everywhere, regardless of conditions, and it is fixed, applying forever. That is how I read Plato. For Hegel,

the absolute spirit is not absolute in that sense. It is moving, in a historical process of self-realization.

Does the universal have an essence? In my view, an essence is absolute: universal across all contexts, and fixed. An essence that varies with context, as I heard Harman claim, to me is a contradiction in terms. I do allow for some property of a thing to have salience, or to be characteristic, depending on the context. Of all the features of a thing, or manifestations of a universal, one is of particular salience at that place, context and time. It may be called essential, but only in and for that context. It also depends on whom you ask.

To connect with the idea, discussed in preceding items, that a thing is to be seen from two perspectives, of what 'is in it' and 'what it is in', especially the latter depends on context, on where it is in.

For example, would Amsterdam, where I live, still be Amsterdam if all the main canals, seen as characteristic of the city, were filled up? That depends on whether you live on one of the canals, or are a tourist, or a film maker. In Amsterdam, the Waterloo square offers a market for second-hand goods and tourist trinkets. It is somewhat anarchic, formed by independent-minded traders, indulging in traffic of mostly soft drugs, and a certain amount of stolen goods. The municipality is now planning a revised, more orderly, clean and planned market, without consulting the traders. There is now a rebellion brewing, with people chanting that the square is now 'losing its soul'.

But if there is no fixed, context-independent, objective essence, how, then, to account for the phenomenon that there is continuity of identity (of a boat, a person, a city) in combination with variation of qualities across context and time? First, I think that eternal identity is too much to expect: identity is at most stable relative to the change of features or qualities that vary most with context and perspective.

I am reminded of Neurath's story of the boat that one repairs, replacing plank by plank, while staying afloat in it. The planks are new, the boat retains its identity. Cities remain the same while having structures, streets, etc. replaced. People age, get sick, learn and forget while staying the same people. This suggests that there is a whole with replacement of parts. The whole retains its basic logic, design, or composition. This relates to the notion of 'emergence' mentioned before: the whole has features that the parts 'in it' lack. Parts may continue to contribute to that even when replaced.

To proceed, I think here of the notion of a script that I used at several places, in discussions of meaning and innovation (item 35 in this blog), as a logical, causal or sequential ordering of components called nodes. Then a restaurant retains an identity in the ordering of nodes of entry, seating, food selection, payment, eating, and exit, while a component node may change its identity, such as, say, the method of payment, which in turn has a lower level script, a subscript. Now, in the transformation into a self-service restaurant, the order of the nodes changed, with selection and payment preceding the seating and eating, and that may be seen as a change of identity.

The change of the composition of the script often requires a change in the nodes, the subscripts. Seating now includes carrying a tray of food, and the node of exit now includes the dumping of trash from the tray.

This also yields an example of emergence: A restaurant has a legal and a fiscal identity which its components don't have.

On no level can the activities involved be completely specified. To quote an example from Searle: the node of eating does not specify that food is to be put in your mouth, not your pocket, though doggy bags are sometimes allowed (in the US).

361. Incomplete specification published 17-3-2018

In item 358 in this blog, following Harman, I noted that one cannot completely specify anything. That certainly applies to the dimension of 'what a thing is in': in use and experience, since that is relative to context and to users, and open-ended, with new possibilities and uses emerging. That is a source of variety and change, whereby meanings change. I also mentioned the notion of 'tacit knowledge', where one can be competent in some practice without being able to catch it in complete protocols. That applies to bakers, engineers, doctors, comedians, and politicians.

In the literature on business and organization there is a stream of literature on 'communities of practice', where this is studied. To master the practice, people must engage in such a community for a time to master the tacit knowledge involved. Use is made of exemplary practices, and role models.

Role models are interesting because they do not give hard instructions but leave some room for difference in signification, Interpretation, style, and for improvisation. Rules of a game are exemplified by expert players.

The implication, not widely known and mostly ignored by regulators, is that the practice cannot be caught in closed protocols to eliminate error and fully codify best practices. Some slack must be allowed to deal with the tacitness of knowledge, the richness of professional practice, and its variability due to the creativity of practitioners and the emergence of new problems and opportunities.

However, incompleteness of specification also applies to the analytic dimension of 'what is in' a thing, since there is no undisputed lowest level of analysis, say in the most elementary elements or forces in nature, and what the relevant components are depends on the varying context of use and experience.

Incompleteness of specification applies especially, Harman argued, to art and (continental) philosophy. There can be no full disclosure or transparency. Also, reference is usually oblique, suggestive rather than exhaustive, often using metaphor rather than direct, 'literal' description.

The effect of a poem, or a joke, threat or compliment, gets lost in explaining or spelling them out. Harman used the example of 'this is a proposition you cannot refuse'. It is more threatening when left open, unspecified.

Harman also gives Socrates as an example. I have long been irritated by his unwillingness to commit himself to an answer to the riddles he poses (in Plato's dialogues), acting only as a

midwife (in maieutics) helping to give birth to ideas or assumptions by the interlocutors. After Harman, I see the point of it: there is never a final, correct answer.

In the practical wisdom, phronesis, of Aristotle one cannot supply universal moral recipes since moral judgement depends on contingencies, where different virtues have to be weighed against each other depending on the specific context. There also one can only learn from the exemplary mastery and tacit knowledge of an experienced judge.

When I was teaching at universities, students demanded recipes, and I had to explain that such universal recipes don't exist and at a university students had to learn to make their own recipes depending on the situation at hand.

The exclusively analytic view, with the pretence of full paraphrase, yields an atomization of work, organization, and communities, the loss of a sense of properties of the whole, emergence, of what is added in the whole, which is part of intrinsic value of action and participation.

In this blog I want to offer an ontology which takes change and variety, needed for change, as the crux of existence. This is in line with my arguments throughout this blog, in my discussion of the change of meaning along the hermeneutic circle, my approach to universals and their particulars, and the cycle of discovery that I proposed. In this area, I have also used ideas from Wittgenstein (the later, of the Philosophical Investigations), such as meaning as use and language games. However, the shortcoming here of the game as a paradigm is that games have fixed rules, while here rules may change. How that can be is the central challenge.

What does all this do to the proposals, in this blog, for truth as warranted assertibility, and debatable ethics? The warrant, of a proposition or ethical judgement, consists of such considerations as relevance, intent, available information, perspective, and enabling and constraining conditions, which all depend on the context. This includes arguments of fact, logic, meaning, workability, plausibility, and metaphor. Plausibility is coherence in a wider whole. Metaphor serves to loosen thought, see something from a different perspective.

The analytic, scientific perspective can appear as an ingredient in the pragmatic whole. Mathematics can help to contribute rigour of argument, given basic assumptions or axioms whose relevance and adequacy depend on the wider warrant of the context. Philosophy can help science in its embedding in a wider whole. The pragmatic, the consideration of what 'the thing is in', is primary, to decide what is relevant in the potential of the analytic, in 'what is in it'.

362. Relational ontology published 24-3-2018

I argue for a dynamic, relational ontology, where objects develop in relations with other objects that form, enable, object and oppose each other, in relations.

Andrew Benjamin also argued for a relational ontology[iv] He posited that the relation is primary to the singular object, because the individual object arises from the relation. I find it difficult to claim which is primary, since the relation between the object and the relation is circular: singulars produce relations, which produce singulars.

One thing is clear: the ‘thing in itself’ that has produced so much debate in philosophy, does not exist.

Relational ontologies arose before, among others with Alfred N. Whitehead and Bruno Latour. With the latter, the human being is constituted in networks. Against such ontology, two opposite objections have been raised.

The first objection is that relations change constantly, and if a human being is determined by those relations, then he/she no longer has a stable identity. And when they thus adapt to circumstance, they lose their role as opposing objects.

The second objection is that if all objects are formed by relations with all other objects then that also applies to those objects, so that there is only one all-encompassing object.

According to the first objection there is no identity, and according to the second there is only one single identity.

These objections are easily waved aside. The first assumes that with a change of relation an object changes entirely. The second assumes that there are relations with all other objects. Both can be untrue. A relation may affect only parts of an object, and most relations concern only some, not all other objects.

The question then is how an object can change only partly, not entirely or essentially. Is there, then, an essence that remains the same? As I argued earlier in this blog, I don’t believe in essences. How, then, can it work? How can an object change under a change of relations and yet maintain an identity, without having an essence?

According to Tristan Garcia the identity of an object is determined by what goes in and what goes out, in particular the difference between them. That reminds of the notion of added value of the added value of a firm, in economics: the difference of value of sales and value of purchases, as a measure of production (and the basis for VAT). But I want to open up the black box that transforms inputs into outputs.

That can be elucidated with the concept of a script that I discussed before (see the preceding item in this blog). I used it in my studies of innovation, and it is useful here also. A script is a network of nodes, connected by lines that can represent succession in time, causal effect, inference, or sharing of things (resources, ownership, legal identity, …). The structure constitutes identity, without need for any notion of essence.

The system is recursive, i.e. the nodes are themselves also scripts (subscripts), and the whole is embedded in a wider script (superscript). Take the example of a restaurant. That has a script of nodes of entry, seating, ordering, eating, paying and leaving. Paying itself has a script, or a collection of scripts, such as paying cash, by card or an app on the phone. The restaurant is embedded in a wider script of location, parking, supply of goods, monitoring by health authorities, insurance, safety measures, …

This yields an operationalization of the idea, adopted from ‘object-oriented ontology’, that an object has two dimensions: of what is in it, here the the nodes and their subscripts, and what it is in, the superscript. The script can change in several ways: in its component nodes, e.g. a

novel method of payment, in the restaurant script, where the basic character of the script, its overall structure, remains the same. Or it can change in its structure, the composition, say, in the transformation into a self-service restaurant, with a different sequencing of nodes: first selection of food, then payment, then seating and eating. Note that this has consequences for the nodes and their subscripts: selecting food now entails carrying a tray. Note also that it changes with many things, but not with everything: consumer tastes, new dishes, regulations, but not ice skating, mountain climbing, or elections.

Is there an essence? Eating, perhaps? But the service and self-service restaurants would then be essentially the same. And one can also eat at home. Is the essence 'eating out', then? That also applies to a picnic.

Does this solve the philosophical puzzle, and with that the criticism of relational ontology?

363. The causality of concepts published 31-3-2018

In preceding items in this blog I adopted ideas from 'object-oriented ontology' (3O). An object has an inside, of components that cohere in some way, with a certain endurance in time and across conditions, and it has an outside, where it has effects and from which it draws influence.

In the dynamics of change of objects, in the interaction between what 'is in them' and what 'they are in', for interactions in which humans are involved I use the multiple causality of Aristotle, with its efficient cause (actors), final cause (goals), material cause (things used), formal cause (method, knowledge, theory, technology), conditional cause (circumstances), and exemplary cause (such as role models).

Are concepts, universals, abstractions objects? Platonic ideas are eternal and identical across contexts. Do they have components? For universals, presumably the components would be its particulars. What is their coherence? One might say: by an essence of the universal, but I don't believe in such essences. The particulars have overlapping connotations. New particulars can arise, and they may shift the universal, in a shift of connotations, which raises some doubt about its endurance. For an example I used the case where someone used a stuffed cow for a chair.

Concepts do take part in causality. They produce effects. They can act as an efficient cause: playing a role in an argument. As a final cause, a goal: a concept to be analysed. As a material cause: the stuff of discourse. Formal: the method of investigation. Conditional: effects from the educational system, symbolic order/ideology. Exemplary: act as a paradigm.

According to Harman events are also objects. He gives the example of a collision between two airplanes. First there are two objects: the planes. Then a third object: the collision. Then a fourth object: the consequences of the crash. That seems odd. Yet there may be some argument for it. It does satisfy the criterion for an object of having components, with coherence in the form of succession in a causal process. But the coherence is hardly stable.

Take a stumble on the stairs. What are its components'? The initial loss of balance, bumps along the hobbling down, the final smack on the floor, the sprained ankle and a broken arm? What is their coherence? Stages in a process of causality? How stable is that coherence?

The crux of an object is (relative) stability of composition. It does allow for change at some 'lower' level, of the components, but not their structure. For example, a body that stays the same while changing its cells.

By contrast, the crux of an event is change, of the structure of an object (its 'inside') or of its relation to its 'environment' (movement, metabolism, effects, phenomenology). A train is a coherent object that moves in space.

Acts are also events, and in them actors can create objects, demolish them and affect them even while they retain their identity. If I say something to someone, and he/she understands and learns from it, he/she is affected while staying the same person. So, here again, there must be a way of affecting objects while they retain their identity, and for that I employ the notion of a script, as described in the preceding item in this blog.

Is a book an object, as 3O claims, or only a node in a network of sense, as Foucault claimed? I can be both at the same time, like an object as a node in a script as an object. But the network of meanings in books seems tenuous, as an object. What is the coherence of sense? Two books will share many words, but if sense varies with the context, those words have many different meanings across books. They do share grammar, within a language. Coherence will increase in a genre of books, or as an item in the oeuvre of a specific author. But the coherence within a book is much stronger: in spatial continuity (the book), coherence in a plot, continuity of characters, or line of argument, lettertype, font size, paper, authorship, readership, publisher, bookshop/website, reviews.

Is Alice wonderland an object? I think she is. What are her components and the coherence between them? They are not empirical. To investigate them you have to ask the author, who is likely to say that whatever is not mentioned in the book you would have to imagine yourself. Could she appear in a book as a cosmonaut? Perhaps. As a sausage? Hardly. Outside relations are with other characters in the book, the red Queen, for example, who tells her that you have to run to stand still. Coherence in fiction might be logical, though that does not always apply, not in the Snark, for example, who is probably hunted precisely to dodge logic. Whether it 'works' is a literary or dramatic matter, judged by critics. It has real effects, such as a reader buying the book, or being spired to write one him/herself.

364. Dynamic ontology published 3-4-2018

In this last item of the present series on ontology, I summarize the ontology that I propose. For this I use a few formulas.

Ont. (Ontology) = Ob (Objects) + C (Change) Ob = I (inside) x O (outside)

Science is the analysis of the inside (I), the coherent structure of components, while phenomenology lies in the much less coherent outside (O), of use, experience. An object cannot be reduced to either.

The inside (I) is a coherent structure of components, connected in some way, in some architecture, e.g. in a network. The connections can be spatial, causal, material, associative,

sequential, legal, organizational, employing a shared resource, grammar, syntax, sense, morality, rules, … An example of sequential coherence is that of the sequence of neurons in a string of DNA. Another is that of a restaurant, with a sequence of nodes of component activities, discussed before.

The whole as well as the components may be dynamic and yet stable, as in a standing wave that arises from the superimposition of component waves. Also, the composition may remain the same while the components change. Examples are a body with changing cells, or a restaurant with changing modes of payment. But the composition may change, as in genetic engineering, where genes may be taken out or added, forming new objects of life, or the transformation of a service restaurant into a self-service one, as discussed before.

To qualify as an object, this coherence must be stable relative to the time perspective (T) taken. An object can be stable in the short term but not in the longer term (e.g. due to decay).

Objects are nested, one object being a component of another, as genes on a chromosome. This is modelled with the concept of a script, discussed before. Objects can be misapprehended as compact, as Garcia called it, where the outside is folded into the inside, to become a 'thing in itself', autonomous. An example is the Platonic idea, independent from its particulars. Another is the Cartesian idea that thought is autonomous, not dependent on reality, and corresponding with reality due to divine intermediation. And the notion of essences, also independent from the outside.

The opposite can also happen, where the object diffuses into its outside. An example is perhaps wave dynamics, as in quantum-dynamics, where location and momentum are 'adjoint', not simultaneously determinable, and the strange phenomenon arises of 'entanglement', where two objects change their state simultaneously, acting as a single object, while no causality or other connection can be found. This is speculative and requires further thought.

The outside consists of other objects, which may include the focal object as a component, or may affect the structure of its components, or may be affected by it, in processes of change.
C (change) = T (Time) x O (outside) x I (Inside) x S (scale)

Events of change arise from the interaction between the inside (I) and the outside (O), typically but not necessarily in networks of connections, in some form or other of causality. For example: In physics fields of force; in chemistry chemical bonds of molecules; in biology composition and decomposition of cells, and recombination of genes, even artificially, in genetic engineering; in language sensemaking by means of connotations; in the brain synaptic adaptation of neurons, in the modification and generation of neuronal networks.

Change takes time (T), but is relative to the time frame taken: what is an object in one time frame, with a stable composition of elements, may be a process of change in another, where the composition changes.

Change is also relative to scale. I define the change of an object as a change of the structure of its components, but while that is stable, the components may change. The example I used, in terms of scripts, was the change of payment in a restaurant while that remains a restaurant.

In sum, every object in some time perspective and at some scale, is subject to change.

Change arises from interaction between objects, in some form of causality, such as Aristotelian causality. There is also an apparently universal drive, in nature, to carry what survives, and in that sense is successful, into a different environment, where the need and the means are found to adapt to the new circumstances, which through trial and error yields a novel object, according to what I called a 'cycle of discovery'.

In philosophy, this drive has variously been called: thymos (Plato), conatus (Spinoza), absolute Spirit (Hegel), and will to power (Nietzsche).

This is found in child's play, imperialism, missionary work, art, science, and capitalism. It solves a puzzle from Hegel's (and Schelling's) philosophy of how from the realization of potential, in the actual, one can go on to a new potential, a new possible.

Where does this come from? My hunch is: evolution, because this path to discovery contributes to survival and adaption.

Puzzles remain, such as the mysterious phenomena in quantum mechanics that are incomprehensible when put in ordinary language. I suspect that here we may run into what I have called 'object bias', where we see things according to metaphors from material objects moving in time and space and affecting each other, which is embedded in the very structure of language with objects (nouns) doing things (verbs). To avoid the bias we may have to escape from ordinary language into the different languages of mathematics. The question is what this does to the ontology that I propose.

After an interval of a year, with further reading and thought, here I continue the series on ontology. There is some overlap with the foregoing items, but with some changes and further development.

419. Essential capacity published 20-4-2019

A central issue in ontology is whether in order to exist a thing must have an essence, something that it must have to be what it is. At several places in this blog I discussed the question whether essences exist. Here I sharpen my arguments, based on reading a debate between Graham Harman and Manuel DeLanda[v], and a book by DeLanda on 'assemblage theory'.[vi]

I am suspicious of essences, for ontological but especially for moral reasons.

The essence of swans was their whiteness until black swans were found. The essence of cars was that they burn some form of gasoline, until electric cars came about. The human being was defined as a rational animal until its irrationalism became clear. The essence of democracy was elections, until autocratic regimes manipulated them.

Too often, essentialism imposes a familiar category on unfamiliar contexts. The freedom of markets is imposed as the essence of democracy. Essentialism feeds the identity politics that present society is suffering from. It reduces people to membership of a category, with a corresponding imposition of shared views and conduct. It hides, even disqualifies, variety between individuals.

There is a distinction between the *general* essence of a universal, or general concept, say that of 'chair', and the *specific* or *individual* essence of a specific chair, say the one I am sitting on. In earlier items in this blog (e.g. 36, 416) I rejected the notion of a general essence. Here I focus on the possibility and nature of a specific essence.

The most straightforward idea of such an essence is that of a quality that an object actually has and always has had, in fact or by necessity, during its existence. But this is open-ended: if the object has had the quality until time t, this does not prove that it will have it at t+1. In that sense one can never know for sure whether any quality is essential. In that sense one cannot know (for sure) what an essence is (as Graham Harman has argued).

This problem is similar to that of causality. As David Hume argued, consistent sequence does not prove causality. For a claim of causality, or essentiality, one needs an argument, or theory, of why or how it arises as causal or essential.

Now, how about a feature that is not actual but virtual, a *potential* to manifest a quality, or a range of them, depending on the context in which the object manifests itself. Could that be the essence of an object? I adopt the argument from DeLanda that an object has actual properties that yield the potential to produce features, in events of interaction with other objects.

Now there are several possibilities. One is that the range of possible manifestations is pre-established, as a repertoire of possible qualities from which one is selected according to the context. DeLanda talks of tendencies, understood as repetitive, limited in variation.

Another possibility is the *capacity* to *produce* new qualities, depending on the context. This more flexible and adaptive than a tendency. As Delanda noted, and I agree, this requires that the capacity to affect is coupled to the capacity to be affected.

Harman objected to potentialities and capacities because they would yield an excess of possible manifestations, a 'slum of possibilities' as Harman called it (quoting Quine). DeLanda accepted capacities only if one had a way of clearing the slum by separating 'significant from insignificant' manifestations. That seems a bit odd to me. What is significant appears to depend on purpose and context, and so one would quickly repopulate the slum with possible significances.

I see the problem of the slum only if one postulates that all possible manifestations have to be there (where?) from the start. But in my view possible manifestations are not predetermined but *produced* in context, in interaction with objects, while the range of possible interactions and their effects is open-ended, open to new interactions, and appearance of new objects and forms of relations.

However, the potential of capacity is limited by the structure and properties of the object's components and those of objects it interacts with, and laws of nature, logic or mathematics, legal laws and other institutional conditions. I think this may have to do with DeLanda's notion of 'relevance'.

One of DeLanda's proposals is to think of capacity in terms of possible trajectories in the state space of the object. The dimensions of that space are features the object can have. There is some process or logic that determines trajectories.

This notion of possible and actual trajectories in some space of possibilities is the kind of notion needed for the dynamic ontology that I try to pursue.

It is this constrained potential, I propose, that constitutes identity, the continuity of an object across contexts and relations. Perhaps one can call this constrained capacity its essence, if one wants.

DeLanda used the example of water. It has the capacity to be a fluid, which can have different structures, a piece of ice or a gas (steam), depending on outside temperature and atmospheric pressure, but it cannot turn into gold.

Earlier in this blog (item 8), I associated the identity of a living thing (human, animal, plant), with the coherence of different features in the 'body', needed for the body to exist. It must maintain homeostasis, keeping metabolic variables (temperature, fluids, feeds, disposals) within certain ranges for the organism to maintain existence. DeLanda also used that example.

The genome is a good example of a capacity, with neurons generating amino-acids, yielding cells, building organs, and thereby 'expressing' themselves, in interaction among neurons and their local metabolic environment as well as external conditions of the organism.

420. Types of objects

As discussed earlier, I define an object as having components that cohere more or less, in some 'assemblage', as DeLanda calls it, for some duration, and have a potential to manifest themselves outside, generate response, new properties, in interaction with other objects. That potential is limited by the object's components and their properties, as well as by the potential of outside objects, and principles of logic, design, natural laws, legal laws and other institutions.

Objects are often nested, with components being objects in their own right, and the object being a component of a larger object.

Here I consider different types of objects.

One distinction is that between material objects, such as bridges and molecules, objects that are largely immaterial but have some basis in matter or energy, such as organizations, institutions, and thoughts, and objects that are entirely immaterial such as characters in a novel, and notions of heaven and hell. The types of components and their coherence vary widely.

- For a bridge: the assemblage of parts, depending on properties of materials and principles of construction and design.
- For an organism: the assemblage of organs, made from cells constructed from amino-acids, guided and conditioned by genes, depending on the presence of foods, temperature, etc. Continuity of the organism is conditional upon homeostasis, keeping variables of metabolism within limits, such as temperature, nutrition, oxygen, waste disposal, …

- For a species: the gene pool, generating life forms in interaction with the selection environment. Its potential is limited by reproductive isolation. Horses can mate with donkeys, but the offspring is infertile.
- For a molecule: the composing atoms, with bonds between them from sharing electrons from the shells of waves orbiting their nuclei, depending on the composition of those nuclei of protons and neutrons, depending on external conditions such as temperature, pressure, …...
- For thought: patterns of neuronal connectivity in the brain on the basis of adapting thresholds of firing, in electro-chemical processes.
- For a firm: a constellation of people, machinery, and processes of design, production, sales, purchasing, and collaboration inside and outside the firm. In the following item in this blog I will consider what its potential and essence may be.
- For a language: words and connecting devices of grammar, syntax, rhyme, metre, depending on the context of discourse.
- For communities and institutions, such as markets, industries, economies, legal systems, parliament, etc.: a structure consisting of different levels of professions, materials, physical connections, communication channels, laws and regulations, cultural and social norms and habits, etc., and networks of interaction of people and organizations.
- In the following item in this blob I will discuss scientific fields.
- For a novel: its plot, and characters in it, with their positions and roles. Much is left unspecified, left to the imagination of the reader.
- For heaven and hell: religious doctrine, symbols, rituals, etc.

The connections between components need to have some persistence in time, across contexts, but need not be continuous in the sense of being uninterrupted. In building construction, actualisation of a given design is project based, actualized intermittently.

For a number of objects I have used the notion of a script, as a model of an object's identity. A script is a network of nodes connected by directed ties (also called 'edges') that may represent temporal sequence, logical implication, causation, collection, sharing of resources, communication, … Thus, a script may represent a theory, argument, story, production process, bridge, molecule, …Nodes harbour a repertoire of subscripts from which a selection can be made according to conditions, and the script is itself a component of a wider superscript.

The script models the potential, the capacity of an object, which constitutes its identity.

The classic example is a restaurant, with a sequence of nodes for entering, seating, ordering, eating, paying and leaving. Each of those can be done in a variety of ways, in alternative subscripts in the node. Thus, one can pay cash, by card, or cheque. The restaurant is a node in a superscript of location, roads of access, parking, and a supply chain.

An object can change in a minor way, locally, in nodes, with new subscripts and the shedding of old ones, while preserving the ordering of the nodes. For example, for payment cheques are no longer in use, and there is a new way of payment by smart phone. That applies to RESTAURANTS as well as shops, hotels, etc.

A larger change of the object is that of the order of nodes, and an even larger one that of new structures with old and new nodes adopted in interaction with outside objects. The latter,

frame breaking change I would see as a breakdown of identity and the emergence of a new object.

For example, the shift from a service to a self-service restaurant involved a change of the order of nodes, to arrival, food selection, paying, eating and leaving. However, this does not leave the nodes unaffected. For example, selection now entails carrying a tray with selected foods. So, a self-service restaurant is not the same type of object as the service restaurant.

The principle of self-service has been adopted by other kinds of objects, such as stores and hotels.

The script is one way of representing an assemblage. I don't know how far its validity or usefulness reaches, but I found it enlightening in studies of innovation.[vii]

In the following item I will consider in more detail some immaterial objects, such as science and firms.

421. Non-material objects: Research programmes and organizations,

published 4-5-2019

In the preceding item in this blog I proposed that the identity of objects is determined by their inner structures of components and properties, and the capacity they yield to produce novel properties in interaction with outside objects. Here I give examples of objects and their potential outside the realm of physical objects.

In the philosophy of science, Imre Lakatos proposed the notion of a *research programme*, consisting of a *hard core* of basic assumptions and methodological principles that is taken as unassailable, in the *negative heuristic*, plus a *protective belt* of subsidiary assumptions and tools, with the *positive heuristic* of seeking to deal with anomalies met by a theory by tinkering in that protective belt. I propose that this is a case of a capacity, here to generate different theories within the programme, with elements picked up along the way. This is an improvement on Kuhn's notion of *paradigm.* The programme ceases to exist when the hard core is broken up.

Generally, cores form a coherent whole that cannot be broken up in some remix from different cores. This resembles the reproductive isolation of species in biology. However, some principles may be shared across programmes.

For example, in the research programme of mainstream, neoclassical economics the core contains the assumption of rational choice and autonomy of the individual, is oriented to the efficient use of scarce resources and markets, and holds the methodological principle to model optimal or equilibrium outcomes, preferably (or exclusively?) in mathematical models. The different programme of evolutionary economics also considers markets and allocation of resources, but allows for limitedly rational individuals that develop in social interaction, and studies processes that may not achieve equilibrium.

The notion of a programme can also be used to illustrate the nestedness of objects. Going 'upwards', different programmes in economics all deal with markets in some form or other.

Going ‘downwards’, a programme embraces different theories, such as, in economics, theories of labour markets or international trade, in different ways in different programmes.

Another example of (largely) immaterial objects is that of a firm or business. What, if anything, constitutes its essence or core that determines its identity, yields its continuity, while allowing for change, adaptation, as it moves along, in markets and technological development?

In earlier work[viii] I proposed the notion of ‘the firm as a focusing device’, yielding a focus on its central purpose. That guides what are the causes of its action: its efficient cause: the people employed, its final cause: the markets and products it aims at, and its moral perspective, and its formal causes: knowledge and technology. This notion of focus is more specific than the wider notion of ‘organizational culture’. The focus determines its capacity to act and develop. By definition, the focus is constraining, and complementary competencies need to be found outside, in alliances with other organizations.

Part of the capacity to develop lies in absorptive capacity: the ability to understand what others say and do, which enables and constrains ability to collaborate with others. That capacity is subject to development, in the accumulation of knowledge, partly coded in patents, and experience in dealing with people who think differently.

An orientation towards radical innovation, or ‘exploration’, requires a wider focus, more internal variety, or ‘cognitive distance’, with weaker ties, within the firm, while an orientation to the efficient exploitation of existing resources requires a tighter, narrower focus. Particularly in the latter situation, a firm needs outside complementary sources to deal with changing conditions, in alliances or other forms of collaboration.

Firms have learned not to dilute their focus too much, in a conglomeration of diverse activities, and to stick to their ‘core competencies’. A firm loses its identity when it loses or substantially changes its focus. This is akin to the reproductive isolation of species in evolution.

This happens in a merger or acquisition. There, firms find it hard to survive and adapt their identity in trying to develop a new coherent focus from different foci from the component firms. This is easier the more they operate in similar markets, countries and technologies, i.e. have a similarity of focus. It is also difficult to successfully change from a narrow focus of exploitation to a wider one of exploration.

Sometimes, large firms with a dwindling capacity to innovate try to inject new variety by taking over a new, more innovative firm. The result most often is that the exploratory capacity of the acquired firm does not re-invigorate the large firm but gets squashed in it.

Here also, there are multiple levels of objects. Within the firm there are different departments, with foci that are differentiated, within bounds. Too many different foci within the firm dilute the identity and potential of the firm. Between firms there are network constellations of collaborating firms, of users, suppliers, specialists, advisors, mediators, etc. What would constitute identity of such assemblages? At the minimum some shared ethic, skill, practice and style of collaboration, with the ability to develop and maintain requisite trust.

422. Major and minor science published 11-5-2019

From Deleuze and Guattari, DeLanda[ix] adopts the distinction between 'major and minor science'. Major science is characterized as a more or less tight deductive, axiomatized system, preferably formalized with mathematics. Minor science lacks that, is looser, less structured, and is more inductive, messy.

DeLanda showed how chemistry, in contrast with physics, used to be minor, with a proliferating population of substances, and became major with the adoption of the Periodic table, formulae for molecular structure and nomenclature of substances based on that.

In economics one finds the contrast between mainstream, neoclassical economics, which is highly deductive, axiomatic and mathematical, and more inductive, informal, economics of institutions and business.

Interestingly, part, and perhaps the crux of the difference, offered by DeLanda, is that major science is oriented at the stable, and minor science towards the dynamic, processes of change. I find this interesting in the light of an experience I had as director of a research/PhD school at the University of Groningen, the Netherlands, in the 1990's.

I was given the task of aligning the faculties of economics and business in a joint organization. It was an almost total failure, but an interesting one, since it raised the question why this was so.

One feature was, I discovered, that business/management is oriented at processes, of production and development, while mainstream economics is oriented at equilibrium outcomes.

Mathematization and quantitative, econometric testing were possible for the second but not for the first. Therefore, neoclassical economics carried the most prestige, and won. The process led not to integration, a coupling between the two faculties but to a take-over by economics, but by that time I had left.

There was a similar outcome concerning a Max Planck Institute for Evolutionary Economics in Jena, which was abolished in favour of a take-over by established, mainstream neo-classical economics.

Evolutionary economics, similarly to organization theory, is process-oriented. Rather than being oriented at equilibrium outcomes, it is oriented at evolutionary processes that may or may not, and in general do not, yield equilibria. As a result, predictions and implications were less clear and unambiguous, depending on details of the evolutionary processes of variety generation, selection and transmission of success. That was less respectable. It was a minor science.

A way out for process research is computer simulation, enabled by the development of appropriate hard- and software. There, one can model and simulate out-of-equilibrium processes on the basis of what is known as 'agent-based simulation.[x]

The problem there is lack of determinacy, with outcomes sensitive to small changes of parameter settings, and an explosion of complexity of what is going one with an extension of

the number of interacting variables. With n variables there are n(n-1)/2 possible binary combinations, so that for ten variables there are 45 possibilities. And to that one must add triple and more interactions, and ranges of the values the variables can take.

Therefore, to make sense and allow for interpretation, simulations need some anchoring in the use of analytically derived equilibrium outcomes of different settings, as a benchmark to compare the simulation outcomes with.

With that, process study becomes more 'scientific', in the sense of determinacy and rigour of interpretation, but it does not thereby become a 'major' science in the sense of axiomatic, deductive structure.

423. Objects and events published 18-5-2019

Objects have components with properties, in what DeLanda called 'assemblages'.[xi] The components and properties are actual, and yield a potential or capacity that is virtual, actualized in interactions with objects in the environment, in events.

I agree with DeLanda that objects have a history, with a beginning and an end. Certain conditions have to be met for the object to retain its existence. In particular, to live, an organism must keep its metabolism (temperature, fluids, feeds, waste) within certain bounds of tolerance.

For potential, DeLanda used the example of a knife, which can be used in different ways: for cutting meat or for fighting. One enabling feature is its sharpness, which determines how and what it can cut.

In item 420 of this blog I proposed that the identity of an object is determined by its potential, which is open to unforeseeable actualisations. A screw driver may be used to drive in a nail, in the absence of a hammer. Potential is also limited, in unforeseeable ways, by the object's composition and its properties, and conditions for survival, as indicated above for an organism.

According to DeLanda potential cannot be enumerated, is open-ended, contingent upon conditions, but actual properties can be listed. I disagree with the latter. There are two problems with it.

First, how deep into the object does one go to specify its components? A physical object may be analysed into its molecules, but those can be analysed in its atoms, and those, in turn, are made up of fundamental forces that physicists have been unable to agree upon for 50 years.

Second, what criterion or perspective does one use to look at components or properties? Which would be relevant? Can one always know what is relevant? Encountering new contexts may shift the way of looking at components and properties.

So, I remain in agreement with Harman that one cannot enumerate all properties; some remain 'hidden'.

Potential is open-ended, in its actualization, and actualization can feed back into properties. Thus there is upward causation, where the object affects its environment, or the wider object it is part of, and downward causation, where the environment affects the properties of the object, within limitations imposed by composition and properties.

This is in contradiction to DeLanda, who proposed that downward causation does not affect the object's composition and properties. That, the underlying idea is, would jeopardize the independent, enduring existence and identity of the object, and hence realism.

The sharpness and design of a knife may be adapted depending on needs and opportunities encountered in its use. Serration may be added to the blade. Design may be differentiated for different uses, as DeLanda acknowledged. He used the example of stone tools, first used for cutting, boning, scraping meat, and for fighting, and differentiated for different uses.

To turn to an example of a non-material object, consider language. In a sentence, in an action context, words actualize one of their potential meanings (here meaning in the sense of reference), but new meanings may be added to its repertoire.

That is most pronounced in poetry, where meanings are shifted or new meanings arise.

In upward causation, the meaning of a sentence is a grammatical function of the words in it. In downward causation the sentence actualizes a possible meaning of a word in it.

In an earlier item in this blog (36) I used the hermeneutic circle to analyse this upward and downward causation of meaning. Insertion of universal concept ('paradigm') in a sentence ('syntax') actualizes one of several possible meanings, and the context can add a new meaning to the repertoire of meanings of the universal.

The actualization of an object's potential is an event, but can that also be an object in its own right? Harman saw events as higher order objects.

A word actualizes its possible meaning in a sentence, but the sentence is also an object, indeed of a higher order. But events do not necessarily produce objects.

Whether something is to be considered as an object or an event depends on the context, in particular the time frame (but not only on that). An organism is an object in the time frame of its life but in the time frame of evolution it is an instant, an event, in the actualization of the potential of a genome.

So, one condition for an object is continuity relevant to the context at hand.

Harman used the example of a crash between airplanes as a higher order object. I doubt that. There is hardly a coherence of parts relative to the time frame at hand, let alone an enduring coherence. Also, it is a bit of a stretch to see it as the realization of a potential. It is more the destruction of it. Can one meaningfully say that the crash has components that yield its potential?

However, the coherence between components can be intermittent, discontinuous but recurring. Earlier, I gave the example of the design of a house, to be built in projects.

DeLanda used the example of the constellation of warrior, horse, and bow with arrows that was used by nomad tribes (such as the Mongols conquering Europe). For that coherence to persist, the warrior does not have to sleep and eat on the horse (though they have been reported to do so).

424. How things change published 25-5-2019

In preceding items in this blog I proposed that objects adapt across contexts, while retaining their identity. How does this work?

Harman[xii] lauded the work of Lynn Margulis for offering a logic of change of objects from symbiosis, interactions of previously separate objects, and the notion of exaptation, where a feature that served a given purpose shifts to a new purpose under change of conditions. A famous example is bird feathers, which first served the purpose of thermic isolation, and because of their lightness later also served for flying. He also mentioned punctuated equilibria: the phenomenon that in a slow build-up of change, in evolution the breakthrough of change can be relatively sudden.

Here, I want to bring those ideas together in a wider frame. In particular, I want to add the role of the environment that enables, prods and constrains change.

In earlier items in this blog I adopted the perspective of Object Oriented Ontology (3O): objects have an internal structure of components with properties, which yield a potential to develop features in interaction with other objects in the environment.

The perspective I take is akin to evolutionary thought: development depends on the 'selection environment'. It is in a shift of selection environment that new challenges can elicit novel combinations of different features from previously separate forms of life.

These features, of novelty from interaction, relatively sudden transformation into new forms, in a shift of environment, are included in a theory of cyclical change that I proposed in earlier work[xiii] and discussed in this blog (item 31, 35, 356). It was first developed as a theory of invention, but later I generalized it to a more general theory of transformation of objects. I briefly summarize it below.

The process starts when an object in the form of a form of life is confronted with new conditions of survival, in a shift of the selection environment. This may be imposed from outside, as in a natural disaster, or invasion of new life forms, or a new environment may be sought, randomly or by some form of direction.

In the new environment, the attempt is made to *assimilate* novel conditions into existing processes in the object. I call this *generalization.* When that fails, such processes are adapted. The lightest form of that is *differentiation:* trying out a different selection from an existing repertoire of processes or features within the object, built up in previous development.

This may not suffice for survival in the new context. Then, and here symbiosis comes in, experiments arise, more or less randomly, of combining features from the object with features from objects in the new context. Here 'exaptation' comes in, with old features acquiring new functions. This happens largely by trial and error, but in human discovery, it is more directed,

less random, in selecting objects that seem to succeed where the object at issue fails, and adopting elements from that. Here symbiosis comes in. I called this *reciprocation*.

This yields hybrids, with partial fits and partial misfits between elements from the focal object and objects in its environment, in novel combinations that partially conflict with existing design logic. This may require work-arounds, duplication, and add-ons. Then, selection, in trial and error, operates on trials to eliminate the misfits, in different designs. In deliberate, human design, this is directed at limitations imposed by the old logic on realization of the potential of novel elements, adopted from outside objects. That gives hints in what directions a novel logic might be explored. I called this *accommodation*.

When a successful novel logic of design emerges, with less redundancy and more coherence of elements, it is tentative at first, occasionally falling back into old, habitual forms. Selection now is aimed at eliminating those, and further eliminating redundancies. There, it competes with old, still existing forms, until it fully realizes it potential and eliminates the competition, in a new 'dominant design'.

In comparison with the slow and stepwise development that occurred before, in generalisation, differentiation and reciprocation such breakthrough to a new logic that realizes new potential and eliminates misfits can be relatively sudden, yielding a 'punctuated equilibrium'.

In sum: in moving to a new place or context one encounters the need and insight to open up content to new possibilities, in interaction with objects encountered there. That can yield the emergence of a new object, with a new logic of structure and functioning.

An core issue in ontology is how to explain change of an object in which it retains its identity, in contrast with change that generates a breakdown of old identity, in the emergence of a new object. Here, I propose, in assimilation and differentiation identity is preserved, but it is shaken in reciprocation and broken down in accommodation.

425. How change is blocked published 31-5-2019

In the preceding item in this blog, I showed how ideas can develop, in a 'cycle of discovery'. From that one can also derive where and how obstacles for development can arise, as follows:

a. Obstructions to movement into new contexts, in 'generalisation', as the source of new insights in limitations and opportunities. This can arise by arguments of property (one is not allowed to take it away), or by entry barriers (one cannot enter the new context, obstacles to trade).
b. A blockage of 'differentiation' by rigidity in the composition of elements, perhaps to preserve advantages of scale or economies of experience with present arrangements. For business, the head office may forbid such local adaptation.
c. Obstacles to 'reciprocation', to incorporating new elements from the new context, for reasons of local ownership, unwillingness to upset existing roles, structures, institutions, reputations, or sheer mental myopia and prejudice.
d. Limitations to creativity and imagination or, again, institutional obstacles, that prevent radical change of basic logic or design principles, in configuring old and new elements in a new basic logic or design, in 'reciprocation'.

In b and c, the obstacle can arise from excess power. When one has the power to impose one's own, existing logics and designs on the new local context, the challenge and opportunity from local pressure to adapt is lost. That happened, for example, with US business entering first Japan and later China. They offered so much in terms of technology and access to US markets that they could afford to impose their modes of conduct.

I also want to give an illustration of how one can get locked into erroneous ideas, taken from the literature on trust (one of my subjects). There is an accumulating store of trust research that employs available measures of 'generalized trust', i.e. 'trust in people in general that one is not acquainted with', to study effects of trust on a variety of variables, such as economic performance, human development, happiness, democracy, peace, and so on. I recently had to review another paper doing that. The problem with this is as follows.

Trust has several dimensions that one needs to take into account. One is the difference between trust in competence and the trust in intentions: commitment, no cheating. Another is the difference between trust and the wider notion of reliance, which can be based on control or on trust. Control is based on enforcement, by contract or hierarchy, or on incentives. Trust in the strong sense, or 'real' trust, going beyond control, is based on solidarity or loyalty based on ethics, morality, or personal bonding and empathy.

The measure of generalized trust embraces both forms, and when they are not separated they produce ambiguity of results. What are we then talking about? The wider notion of reliance, including both control and trust, or 'real' trust? The measure should be replaced by one of 'real' trust or trust 'in the strong sense'.

When pressed, people making and using the measurement of generalized trust admit the problem but they stick to the measure of generalized trust for the pragmatic reason that no better measure is available. In particular, one wants to study the development of trust and its effects in time, and replacement with a new measure would eliminate its continuity. So one knowingly engages in research based on an misleading metric, and obfuscates it.

426. Upward and downward causation published 8-6-2019

Generally, objects are nested. They consist of components that may themselves be objects, and they are often components of larger wholes.

In 'upward causation', components cause changes in the whole, in 'downward causation', the whole causes change in the components.

DeLanda[xiv] denied that downward causation can 'determine' the components of an object. I think this comes from the idea that it would jeopardize the identity of the object and hence its reality as an ongoing entity under change of conditions.

Here I want to show how downward causation can affect (if not determine) the components of an object without surrendering its identity, and how it can go so far as to destroy it.

In an evolutionary view, the environment, as the larger whole, acts as the selection environment for the objects in it. It exerts pressures of survival necessitating adaptation. If the needed adaptation cannot be achieved, the object does not survive, loses its identity. In the

preceding item in this blog I showed how adaptations can be identity preserving, in ascending degrees of change, in what I called generalization, differentiation, and reciprocation, and frame breaking, identity destroying change in what I called accommodation, in the emergence of a new identity. If that survives it constitutes a new object.

Now this is a form of downward causation: the wider system of the environment offers prods and opportunities for adaptation by changes in the object. It goes further than adaptation in the frame-breaking of accommodation.

While the new object may retain elements from the objects from whose interaction it emerged, generally those elements are no longer the same as they were. The new structure will in general necessitate adaptation of them, in downward causation.

To clarify this, I use the model of a script, as I did before, in this theory of change.[xv] It is a useful tool, I suggest, for what DeLanda calls assemblage theory.

A script is a structure of connected nodes. The connections may signify causal connection, temporal sequence, logical implication, or sharing resources. The structure may dense or sparse, connections may be multiple or single, frequent or not. A scrip may be nested: the script may be part of a node in a superscript, and its nodes allow for a range of subscripts.

There is upward causation from nodes, enabling and constraining the script, determining its potential, its identity, and downward causation from the script, conditioning the nodes.

The classic example is a restaurant, with nodes of entry, seating, food selection, ordering, eating, paying and leaving. Each may be done in different ways, for example paying cash, by card, or by cheque, and each of those has its own script. The superscript is the structure of the environment in which the restaurant is inserted: roads, parking facilities, supply of goods.

Minor, identity preserving change affects the nodes but not their structure in the script. For example, the addition of a new payment mode, by smart phone. Here, downward causation does not break the basic logic of the restaurant.

Major, frame breaking, identity changing change alters or replaces the set of nodes and their connections. For example, in the emergence of self-service, the order of nodes changed to entry, food selection, paying, seating and eating. This does not leave the nodes unaffected. In self-service there is no ordering, and food selection now entails carrying a tray with food.

In a preceding item in this blog I presented of theory of change, in a ‘cycle of discovery’. The connection is as follows. In generalization, the script is shifted from one environment, say country, to another. There, conditions require differentiation and reciprocation, adoption of elements from the local context. In moving to Japan, say, seating is not on a chair but on the floor, eating is with chop sticks, and hot tissues are supplied to wipe one’s hands. It is still a restaurant. The shift from service to self-service, however, yields an accommodation, a change of identity. That, in turn, was generalized to other areas, such as shops and hotels, with the requisite differentiation.

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[i] In his Parallax view

[ii] The Latin word terminus can mean ‘end point’ as well as ‘starting point’

[iii] Graham Harman, 2018, Object-oriented ontology, Penguin. vii Tristan Garcia, 2014, Form and object, Edinburgh University Press.

[iv] Andrew Benjamin, 2015, Towards a relational ontology, Suny Press.
[v] Manuel DeLanda and Graham Harman, 2017, *The rise of realism*, Cambridge UK: Polity Press.
[vi] Manuel DeLanda, 2016, *Assemblage theory*, Edinburg University Press.
[vii] Bart Nooteboom, 2000, *learning and innovation in organizations and economies*, Oxford University Press.
[viii] Bart Nooteboom, 2009, *A cognitive theory of the firm*, Cheltenham: Edward Elgar.
[ix] Manuel DeLanda, 2016, *Assemblage theory*, Edinburg University Press.
[x] I had a PhD project and a postdoc project in that area.
[xi] Manuel DeLanda, 2016, *Assemblage theory*, Edinburgh University Press.
[xii] 1n December 2018, in Munich.
[xiii] Bart Nooteboom, 2000, *Learning and innovation in organizations and economies*, Oxford University Press.
[xiv] Manuel DeLanda, 2006, *Assemblage theory*, Edinburgh University Press, p.74
[xv] Bart Nooteboom, 2000, *Learning and innovation in organisations and economies*, Oxford University Press.