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Lecture 20: Actualisation

Introduction

Last week, we looked at the structure of the Idea, and compared it with the structures of essence and possibility. This week, I want to look at the process of actualisation – that is, the process by which Ideas determine real features of the world. While I want to focus on chapter four, I also want to spend some time looking at the final chapter, as it is the last week of the course. In particular, I want to ask why we need more than an account of Ideas to explain the nature of the world, and what the role of intensity is in the process of the development of structure.

Actualisation

If we understand the grounds of actual objects to be some kind of possibility, then clearly we will not have any problem explaining why the actual object has the properties that it has, since as we saw last week, these would be already mapped out in the structure of the possible. A possible object is only differentiated from an actual object by the fact that it actually exists. While this may appear to be a strength of an account that understands development in terms of the actualisation of a possibility, this in fact turns out to be a drawback of this kind of account, since, if the only difference between the possible and the actual is the fact of existence, then it becomes difficult to explain the *development* of the possible into the actual. '[W]e are forced to conceive of existence as a brute eruption, a pure act or leap which always occurs behind our backs and is subject to a law of all or nothing.' (DR 211/263) For Deleuze, on the contrary, there is no problem explaining *that* development takes place, but he needs to show how the distinct-obscure structure of the virtual becomes actualised in the clear-confused structure of actual relations. This is accomplished by a process called dramatisation, which involves the folding of spaces, and processes operating at differential rates. In chapter four, Deleuze sketches out this process from the perspective of the Idea.

As we have seen, Deleuze is interested in the conditions of production of actual objects and relations. In discussing the process of actualisation, Deleuze focuses on the science of embryology, which also deals with the genesis of forms and relations. When we look at an egg, we see that it develops from a completely undifferenciated form into one encompassing the various qualities that characterise its species. When we looked at Geoffroy's transcendental anatomy, we saw that his claim was that it was only by looking at the unity of composition governing two animals, and the way this was actualised, that we could determine how different parts were actualised in different organisms. As Deleuze notes, we can equally make this point about the egg itself: 'Take a division into 24 cellular elements endowed with similar characteristics: nothing yet tells us the dynamic process by which it was obtained - 2 X 12, (2 X 2) + (2 X 10), or (2 X 4) + (2 X 8) ... ?' (DR 216/268) In fact, Deleuze uses embryology to provide a more general model of actualisation. He delineates the various stages of the process as follows: 'The world is an egg, but the egg itself is a theatre: a staged theatre in which the roles dominate the actors, the spaces dominate the roles and the Ideas dominate the spaces.' (DR 216/269) 'Spaces' here does not refer to actual spaces that we might measure, but rather to what he calls 'spatio-temporal dynamisms.' (DR 214/266)

When we look at the development of a cell into an organism, we can note that the cell itself appears to have none of the properties that we would associate with the organism it develops into. If we are to understand its development, we cannot see it as a 'heap' of atoms and molecules, as this would obscure the nature of the processes that the embryo undergoes. Rather, Deleuze suggests, in line with work in embryology, that we should see the embryo as developing through a series of transformations of its surfaces that constitute the parts of the organism. Thus, we can view the development of the organism as involving 'the augmentation of free surfaces, stretching of cellular layers, invagination by folding, regional displacement of groups.' (DR 214/266) This process is governed by a 'kinematics' specified by the Idea. As Deleuze notes, this kinematics differs from the possible movements of the developed organism, as the embryo is capable of transformations that are simply not possible for a developed organism. What Deleuze is suggesting here is that we are confronted with a process that cannot be understood in terms of cause and effect operating on a collection of atoms. Rather, the appropriate model is that of a drama, or in Ruyer's terms, a sociology of development, where we understand the interactions between the elements in terms of the roles that they play, or the relations that they hold with other elements within the embryo:

> There is definitely, we shall see, a possible sociology of organic forms and their development, provided we give the word 'society' its true meaning, and don't understand by 'society' a simple juxtaposition of individuals. A society in general always implies that the individuals that compose it follow a series of themes of coordination, and they know how to play their 'roles' in various stimuli-situations; 'roles' that do not arise automatically, like the effect of a cause, the sole spatial situation of the individual in the social whole. We cannot dispel the mystery of differenciation by making it the effect of differences in situation produced by equal divisions. These differences are of stimuli and not of causes. (Ruyer 1958: 91)

These dynamisms are not purely spatial, however, and Deleuze takes up Geoffroy's suggestion that the differences between organisms can be understood by the relative speeds of the different processes that operate within the embryo. As such, the embryo constitutes its own time, which is defined by the differential relations of these processes. In fact, as Deleuze suggests, because we are talking about relationships between distances and time, at the level of the spatio-temporal dynamism, we cannot separate the dimensions of space and time themselves:

> Consider the following example, concerning sterility and fecundity (in the case of the female sea-urchin and the male annelid): problem - will certain paternal chromosomes be incorporated into new nuclei, or will they be dispersed into the protoplasm? question - will they arrive soon enough? (DR 217/270)

Thus, the process operate at a level prior to the constitution of the extensive field of space and time. Furthermore, this process operates on two levels simultaneously. We have the generation of the organism as an instance of a species (what Deleuze calls the element of qualitability), and on the level of the parts (the element of quantitability [DR 221/274]). Thus, differenciation is a process that generates both the extensive characteristics of the organism (its size) and the qualities it possesses. The process of cellular development therefore plays the same role in the world as integration of differentials plays in the sphere of mathematics. In both cases, they explain how we are able to move between two states that are different in kind. In the final chapter of *Difference and Repetition*,

Deleuze will look at this account from the perspective of intensity, to give an account of how Ideas are 'dramatised', or played out in a field of intensity.

Actualisation in Chapter Five

To understand why this account as it stands is incomplete, we can bring in some material from chapter five. To return to Geoffroy St. Hilaire, Geoffroy's intention in developing this structure was to provide a way of comparing different animals in terms of the way in which they actualised a universal set of relations between bones. Thus, the form of actual creatures differs depending on how the non-metric relationships between parts were given determinate magnitudes in extensive space. Thus, the anatomical structures of a giraffe and a bison can both be mapped onto the same unity of composition if we only consider the relationships between bones, and put to one side the sizes of the bones themselves as expressed in extensity. The Idea therefore is in some sense determinative of the structure of the organism. At this point, we encounter a potential danger in our account of the development of the form of the organism. If we see the unity of composition as determinative of the form of the organism, we risk merely reiterating the structure of the organism at a transcendental level. By doing so, we remove the essential characteristic of the Idea that it is different in kind from the structure it generates. Deleuze cited DNA as the modern formulation of the Idea of the organism, in that it presents a field of elements that are different in kind from the characteristics we find in the organism it relates to. Despite the fact that DNA differs in structure from the structure of the organism, there is still a temptation to understand it in terms of those structures. Thus, as the biologist Susan Oyama writes, 'though we all know that there are no hooves or noses in the genes, the accepted formulation is that the genes that are literally passed on make hooves and noses in ontogenesis.' (Oyama 2000: 43) Seeing a direct relationship between the Idea and the extensive form that it determines in fact rests on the same model of synthesis we saw in Kant's philosophy. The Idea here would be akin to the active subject that manipulates passive extensive matter into form, and the differenciation of the Idea would be the simple expression of its structure. To turn to Oyama once again, we can see that this model of active synthesis is indeed widespread in genetic theory:

> The discovery of DNA and its confirmation of a gene theory that had long been in search of its material agent offered an enormously attractive apparent solution to the puzzle of the origin and perpetuation of living form. A material object housed in every part of the organism, the gene seemed to bridge the gap between inert matter and design; in fact, genetic *information*, by virtue of the meanings of *in-formation* as "shaping" and as "animating," promised to supply just the cognitive and causal functions needed to make a heap of chemicals into a being. (Oyama 2000: 14)

Deleuze himself notes that seeing Ideas as solely responsible for the constitution of the world is a potential misstep in the philosophy of difference that we are prone to. 'In fact any confusion between the two processes, any reduction of individuation to a limit or complication of differenciation, compromises the whole of the philosophy of difference. This would be to commit an error, this time in the actual, analogous to that made in confusing the virtual with the possible. Individuation does not presuppose any differenciation; it gives rise to it.' (DR 248/308-9) Instead of the structure of the organism being governed by the operation of Ideas on passive extensity, Deleuze instead argues that it is governed by the interplay between the Idea and the field of

intensity: 'Individuation is the act by which intensity determines differential relations to become actualised, along the lines of differenciation and within the qualities and extensities it creates.' (DR 246/308)

The process by which intensity generates extensity is governed by a fourfold structure which Deleuze describes as 'differentiation-individuation-dramatisation-differenciation.' (DR 251/313) As the first category suggests, differentiation is the moment of the calculus, in particular, the wider calculus of the Ideas that we looked at in the previous chapter. At this level, we are not dealing with anything resembling the kinds of entities we encounter in sensibility, and hence, Deleuze refers to this moment as being structured by 'pre-individual singularities.' (DR 246/308) The second moment is the moment of intensity. As we saw, intensity is understood as a difference between two potentials. It is this difference between potentials which work to be done in the thermodynamic model of intensive quantities. To return to the example of the cell, we not only have the nucleus, which contains the genetic material, but also the cytoplasm, which appears to be a homogeneous field. Nonetheless, we find that the cytoplasm contains chemical gradients that determine differences between points within the egg. These differences set up potentials similar to the differences in temperature which allow the thermodynamic engine to function. This field of potentials is what Deleuze calls the 'field of individuation:' 'An intensity forming a wave of variation throughout the protoplasm distributes its difference along the axes and from one pole to another.' (DR 250/312) The interaction of these two moments, Deleuze calls 'dramatisation.' If we return to the archetypal model of the Idea: colour, we can see that the Idea can be actualised in a variety of forms, each of which excludes the actualisation of other forms. If we actualise the Idea of colour, it will have to take the form of a particular colour. Similarly, if we actualise the Idea of the unity of composition, we may get either a giraffe or a bison, but not both. It is the field of intensities which determines which form is actualised by determining the speed of development of various parts of the organism according to the distribution of intensities within the egg. Thus, the field of intensity determines how the relations between elements are determined in extensity. As Deleuze noted in chapter four, this process of dramatisation relies on movements by the embryo that are topological – that is, understood in non-metric rather than metric terms. While these movements are possible within the intensive field of constitution, they are not possible within the constituted field of extensity: 'Embryology already displays the truth that there are systematic vital movements, torsions and drifts, that only the embryo can sustain: an adult would be torn apart by them.' (DR 118/145) While it might be claimed that DNA differs from the unity of composition, in that it specifies one particular form or species, in fact, we can note that here too, the milieu in which the genetic material expresses itself is fundamental to the form generated:

> Development seems to involve dynamics as well as chemical computation. When the developing frog embryo turns itself inside out during gastrulation, it looks just like a viscous fluid, flowing in an entirely natural manner. Some of the information required to make this process work may be specified by the laws of fluids, not by DNA. Brian Goodwin sees development as a combination of natural free-flow dynamics and DNA-programmed intervention to stabilize a particular dynamic form. Why should nature waste effort programming the shape of the organism into DNA if the laws of physics will produce it free of charge? It's like programming into DNA the fact that salt crystals must be cubical. For example, the eye - a shape that puzzled both Darwin and his detractors - is dynamically very natural. Rudimentary eyes can occur naturally without any special DNA coding. Natural

> selection can then refine the rudimentary eye into something more sophisticated, but it is the dynamics that gives selection a head start. (Stewart and Cohen 2000: 294)

The process of dramatisation gives us the final moment: differenciation. The result of the process of dramatisation is the extensive form. We should note, however, that the intensive does not become extensive, but rather gives rise to it. To that extent, dramatisation is concomitant with differenciation.

We have already seen that Deleuze makes the claim that the world is an egg. This claim can be taken in two senses. The first is that the milieu of individuation is not circumscribed by the boundary of the egg. In fact, we can note that the *spatium* (the complete field of intensity) is not made up of discrete elements. As such, the field as a whole is responsible for the differenciation of each entity, although most moments of intensity will have a negligible effect in each case. The second sense is that all phenomena can be understood on the model of the egg. If we return to the opening of chapter one, for instance, we find the example of lightning:

> Lightning, for example, distinguishes itself from the black sky but must also trail it behind, as though it were distinguishing itself from that which does not distinguish itself from it. It is as if the ground rose to the surface, without ceasing to be ground. (DR 36)

Here, a difference in electrical potential between the cloud and the ground (individuation) leads to a process of equalisation of charge (differentiation) along a path of least resistance (dramatisation), leading to the visible phenomenon (differenciation). Intensity expresses itself as extensity without itself ceasing to be intensity. There are of course differences in the process of differenciation of biological, physical and social Ideas, but in each case, it is by being brought into relation with a field of intensity that the Idea becomes actualised.

We can now see why Deleuze makes the claim that 'it is not the individual which is an illusion in relation to the genius of the species, but the species which is an illusion - inevitable and well founded, it is true - in relation to the play of the individual and individuation.' (DR 250/311) As we saw in chapter one, species are defined by the addition of differences to an indeterminate subject. By progressively specifying the properties of an individual, we gradually limit the logical possibilities of what something can be, determining the nature of man, for instance, by addition of the properties material, animate, sensitive, and rational, to substance. Given that different individuals clearly do belong to different species, we might be tempted to therefore claim that this hierarchy of terms is what determines the nature of the individual. Thus, we saw that even though DNA differs in kind in structural terms from the organism it relates to, there was a strong temptation to see it as straightforwardly encoding the kinds of properties Porphyry's tree relied upon: 'there is a tendency to believe that individuation is a continuation of the determination of species, albeit of a different kind and proceeding by different means.' (DR 247/308) Once we recognise that individuation does not simply operate on homogeneous, or at best, recalcitrant, matter, but relies on the particular potentialities within the egg, then we can no longer see it as a process of active synthesis relying on the attribution of universal qualities to a particular subject. Rather, differences are always individual, to the extent that they are determined by the reciprocal interplay of Ideas and intensity. They only give rise to these generalised properties once we draw together these individual differences according to their resemblances within the structure of representation. Now, one final point to consider is that if it is the individuality of the intensive field that is responsible for

differences being individual, then it cannot be the case that the same intensive field exists in different eggs. If that were the case, then we *could* talk about there being a real existence to species, although this would derive from the intensive field, rather than the Idea. It therefore has to be the case that each egg possesses a different set of intensive potentials:

> The form of the field must be necessarily and in itself filled with individual differences. This plenitude must be immediate, thoroughly precocious and not delayed in the egg, to such a degree that the principle of indiscernibles would indeed have the formula given it by Lucretius: no two eggs or grains of wheat are identical. These conditions, we believe, are fully satisfied in the order of implication of intensities. (DR 252/314)

At this point, we can note the fundamental difference between Ideas and intensity. When we looked at Descartes' method at the opening to chapter three, we saw that Descartes based his method on clear and distinct ideas. The lack of separation between these two terms is, for Deleuze, a fundamental failing of representation: 'the weakness of the theory of representation, from the point of view of the logic of knowledge, was to have established a direct proportion between the clear and the distinct, at the expense of the inverse proportion which relates these two logical values: the entire image of thought was compromised as a result.' (DR 253/315) Now, as e saw in the previous chapter, the terms, clear and distinct, do not need to be associated with one another. If we consider the noise of the sea, we can conceive of it clearly, in that we can recognise it. Nonetheless, we do not perceive the differences which make it up (the noise of the individual drops of water that make it up and are below our threshold of perception). In this case, our perception of the noise of the sea is both clear and confused. If we instead focus on the noise of the individual waves, we can conceive of these distinctly, even though we cannot form a clear idea of them as they are too small to perceive. Thus, in this case, we either focus on the waves, which are distinct, but obscure, or the sea, which we perceive clearly but confusedly. Similarly, the pure Idea, is distinct, in that it is completely determined. Nonetheless, insofar as it is only in relation to a field of intensity that it can determine *how* it relates to an actual organism (whether it will instantiate a bison or a giraffe), it is obscure. Conversely, intensity expresses some relations clearly only at the expense of other aspects of the Idea which, while still present in the organism, are only present confusedly, on the basis of the domination of certain intensive potentialities. Thus, the process of differenciation can be seen as the movement from a distinct-obscure Idea to a clear-confused field of intensity. Likewise, the thinker, as an individual, is an intensive field. The thought he expresses, however, is the distinct-obscure of the Idea. What gives unity to the thinker is this intensive nature. Just as we cannot divide an intensity without changing its nature, a thinker cannot give up their unity without ceasing to be the particular thinker that they are.