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***The Logic of Expression: Quality, Quantity and Intensity in Spinoza, Hegel and Deleuze*, by Simon Duffy. Aldershot: Ashgate, 2006, 296 pp. ISBN: 978-0-7546-5618-0 hb £60.00**

If the import of a book can be assessed by the problem it takes on, how that problem unfolds, and the extent of the problem's fruitfulness for further exploration and experimentation, then Duffy has produced a text worthy of much close attention. Duffy constructs an encounter between Deleuze's creation of a concept of difference in *Difference and Repetition* (DR) and Deleuze's reading of Spinoza in *Expressionism in Philosophy: Spinoza* (EP). It is surprising that such an encounter has not already been explored, at least not to this extent and in this much detail. Since the two works were written simultaneously, as Deleuze's primary and secondary dissertations, it is to be expected that there is much to learn from their interaction. Duffy proceeds by explicating, in terms of the differential calculus, a logic of what Deleuze in DR calls different/ciation, and then maps this onto Deleuze's account of modal expression in EP.

While Hegel's name appears in the title and Hegel's thought is discussed early in the book, Duffy's treatment of Hegel serves mostly as a foil for establishing a great distance between the dialectical logic, founded on negation, and the logic of difference elaborated in DR in relation to the differential calculus which Duffy uses to explicate the logic of expression Deleuze finds in Spinoza. Duffy argues that Hegel forces Spinoza's understanding of determinateness into the pattern of the dialectic logic by distorting Spinoza's text and neglecting its complexity. Hegel's assertion that for Spinoza all determination is negation abstracts the determination of finite modes from their causes and thereby from the expressive order of nature in which finite modes are differentiated positively rather than by reciprocal limitation.

Duffy, then, arranges a series of readings of Spinoza's difficult and obscure Letter XII, on the infinite, to explore the significance of Spinoza's geometric diagram of the extreme orthogonal distances between two nested non-concentric circles. These readings chart a great distance between Hegel's crude misreading of the letter and Deleuze's understanding of the letter as an early anticipation of the differential calculus. Spinoza claims this diagram illustrates something infinite included between a maximum and minimum which cannot be expressed by any number. The readings differ regarding which infinite the diagram is supposed to illustrate. For Hegel, this infinite consists of the sum of the distances between the circles; this forms an algebraic sum of finite quantities. However, this reading fails to give any significance to Spinoza's description of the circles as non-concentric and his reference to the maximum and minimum orthogonal distances. Deleuze (along with Guérault) instead, argues that the infinite in question is an infinite sum of the successive differences between the orthogonal distances, a geometrical infinite sum of differentials, and so a precursor of the differential calculus.

It is this turn to the differential, to the infinitesimal difference between consecutive values, that Duffy extracts from these readings which shows how Deleuze exploits 17th- and 18th-century interpretations of the calculus (what Duffy following Carl Boyer calls 'the infinitesimal calculus from the differential point of view') in developing a

positive concept of difference. The differential point of view takes the derivative to be the quotient of two differentials  $dy/dx$  in which each differential is a quantity smaller than any givable quantity, a vanishing quantity, strictly equal to zero. From the differential point of view, moreover, the integral is understood primarily as an infinite sum of differentials de-emphasizing its role as the inverse function of the derivative. In an admirable illustration, Duffy shows how Spinoza's diagram can be seen as an integral sum of differentials by superimposing upon it a diagram given by Leibniz in his algebraic justification of the infinitesimal calculus. In addition, Duffy notes that Leibniz's diagram illustrates what Deleuze often refers to as relations independent of their terms by showing how the differentials  $dy$  and  $dx$  may equal zero while the differential relation, the derivative, retains a determinate value that cannot be equal to  $0/0$  which is undefined, and so indicates the function's rate of change and thereby the qualitative nature of the curve at each point.

Having affirmed the importance of the concepts of the calculus in Spinoza's thought with respect to the theory of relations, to the quantitative and qualitative aspects of functions, and to certain geometric concepts of the infinite, Duffy turns to his explication of Deleuze's concept of difference in terms of a logic of different/ciation. The differential point of view explicates different/ciation as a logic in that it articulates general dynamic structures of modal assemblages. Duffy's book is intricate and complex, ranging over the many themes of Deleuze's reading of Spinoza, but it is this explication of the logic of different/ciation and its extension to clarifying the distinction between intensive and extensive parts that then allows Duffy to create more than a mere exposition of Deleuze's reading of Spinoza. Even were there nothing else to recommend Duffy's book than his explication of the logic of different/ciation and its extension to intensity and extensity (and there is much else to recommend the book), this alone would make the book worth a reader's time and effort.

Different/ciation involves two distinct mechanisms marked by the  $t/c$ . Differentiation refines the theory of relations independent of their parts established by the differential point of view. Duffy's description of the history of the calculus is illuminating especially regarding Deleuze's bringing the differential point of view together with the modern static view first elucidated by Weierstrass. Duffy notes the irony that Weierstrass also investigated how to generate a function from differential relations, treating integration as summation of a series, which are aspects of the differential point of view, and consonant with Deleuze's emphasis on generativity. Differentiation operates by way of the differential,  $dx$ , which is undetermined, the derivative,  $dy/dx$  in which the differentials are reciprocally determined, and the power series which completely determines the values of the derivative at each point of the function. The differentials, then, are undetermined terms which can only be determined reciprocally in relation to one another by the derivative which expresses a determinable function. Here, Duffy could have more explicitly and directly clarified the status of the infinitesimal. For, he maps infinitesimals onto Spinoza's theory of the smallest bodies and evokes Abraham Robinson's rigorous formulation of the infinitesimal, and yet he asserts that for Deleuze invoking the infinitely small lacks sense and that whether infinitesimals are real or fictional is not at issue since differentials are implicated in differential relations.

Although Duffy does not undertake the task, his account offers the possibility of extending the exposition of the derivative from the differential point of view as a determinable relation between differentials so as to clarify Deleuze's remarks in *Nietzsche and Philosophy* involving  $dx$  as the differential of forces in comparison with  $dy/dx$  as the will to power which interprets the forces. It seems likely that Duffy's account of the

differential point of view could also be extended to explicate Deleuze's studies of the serial method in *The Logic of Sense* and in *The Fold*.

The complete determination of the values of the derivative by means of a convergent power series establishes the qualitative nature of the curve, its rate of change at a given point. Differentiation gives a local determination of a function which can be summed in an infinite series to determine the integral, and so the entire curve. A function locally given by a convergent power series is called an analytic function. A power series generates an analytic function by generating a continuous branch of the curve in the neighbourhood of a distinctive point, which can be extended by adjoining it continuously to nearby zones of convergence, ultimately generating the whole function. Since a power series expansion converges with an analytic function, it characterizes a concept of power by expressing an increasing capacity to converge as the series approximates the qualitative features, the curvature, of the function. Power is the capacity of a differential to be reciprocally determined in a differential relation repeatedly differentiated in the form of a power series. The shape of an analytic function, its qualitative structure and limits, can be determined by the number and distribution of its distinctive or singular points. These include turning points and points of inflection, so-called removable points, where the function is still continuous, and points of discontinuity where the gradient of the tangents to points of the function approach a point at infinity, or pole, where the power series no longer converges, the function is no longer differentiable, and analytic continuity breaks down. Since power series convergences play so important a role in Duffy's often dense exposition, it might have been facilitated by giving the standard diagram of a convergent power series.

Differentiation, the second part of Deleuze's concept of difference, combines local analytic functions to create composite functions and combines composite functions to create more and more inclusive composite functions. Analytic functions can be combined by constructing a line of discontinuity, a potential function, between the poles of the component functions, even when the components have no poles in common, by determining a differential relation as the quotient of the two functions, such that the numerator and denominator vanish at different points, at their respective poles. The potential function expresses the tendency of variables to jump between the poles of the component functions, so that the potential function ceases to be uniformly continuous. The potential function is further actualized when the analytic functions are joined by an essential singularity. Essential singularities are neither removable points nor poles, but express the fluctuation of the values of the composite function which do not stabilize but which give the enduring tendencies of the system. Differentiation, Duffy says, is 'the complete determination of the composite function from the reciprocal synthesis of local functions'.

Duffy's account carefully presents the complexities of the mathematics involved in this process of differentiation in instructive detail, explicating the nature of extensive quantity. Most illuminating, however, are Duffy's chapters explicating the concept of intensive quantity that is so important in Deleuze's work. Duffy, first, recounts the historical connections Deleuze finds between Duns Scotus and Spinoza, emphasizing Spinoza's affirmation of the univocity of being in the form of a strictly immanent cause expressed in the existence of singular modal essences. Singular modal essences are distinguished from finite existing modes, or individuals, in that they are intensive quantities expressing degrees of power. Since, for Spinoza, modes modify attributes or qualities, they can only differ from one another quantitatively. Deleuze's proposal is that modes differ as distinct internal differences of intensity. Intensive quantity divides into parts, exceeding any

number, which can be ordered linearly but neither added numerically nor distributively ordered. Historically variations in intensity were thought to be measured by time rates of change, and hence explicable by the calculus.

Duffy explicates the determination of extensive parts by the determinability of an infinite collection of differentials, corresponding to Spinoza's most simple bodies, in relation to the principle of reciprocal determination. He finds in Deleuze an explication of intensive quantity by the power series expansion which completely determines the extensive parts, but which is not itself composed of extensive parts. A power series is not a numerical sum; its successive terms consist of an infinite series of derivatives of increasing ordinal degrees produced by the repeated differentiation of a differential relation. Hence, Spinoza's modal essences, understood as degrees of intensity, form an actually infinite power series expansion which determines the combination of extensive parts. This analysis works both with regard to the generation of local functions and also when analytic functions are combined by the differential relation between their analytic functions which is actualized in an essential singularity that expresses a corresponding intensive part. In this way, Duffy is able to interpret Deleuze's reading of Spinoza's existing modes as expressive of modal essences in terms of extensive and intensive quantities explicable by his analysis of Deleuze's concept of *different/ciation* presented in DR.

The second half of the book further explores the relationship between the logic of *different/ciation* and Deleuze's reading of Spinoza. Duffy proceeds by contrasting Deleuze's reading of Spinoza with critiques and rival readings, especially that offered by Pierre Macherey, and then explicating the power of Deleuze's reading in terms of the logic of *different/ciation*. Duffy discusses whether for Spinoza an individual's power to act is fixed or variable. He distinguishes a physical view of modal existence in which, according to Macherey, a mode's capacity to be affected includes both its capacity to act and its capacity to suffer, from, in accord with Deleuze's reading, an ethical view in which a mode's capacity to be affected is solely expressed by its power to act. Duffy, then, devotes two chapters to the controversy over Deleuze's distinction between joyful and sad passive affections. Since, this dispute turns on how finite existing modes combine, Duffy is able to use the logic of *different/ciation* to explain the mechanism by which joyful passive affections increase a mode's power to act, and by means of which joyful passive affections help determine the transition from inadequate to adequate ideas. In the following chapter, Duffy discusses Spinoza's distinction between the duration of an existent mode and its eternity, using the logic of *different/ciation* to make sense of Spinoza's abstruse position that while finite modal existences have limited durations their modal essences are eternal. On this account, singular modal essences, intensive parts, once created continue to function as degrees of power in the power series expansion of an attribute even when their expression in extensive parts is dispersed.

In his final chapter, Duffy traces the distaff lineage in the history of philosophy in which Deleuze locates his project of constructing a philosophy of difference. This dual project connects Deleuze's concept of repetition with Spinoza's conception of an immanent cause as the generation of composite assemblages in which finite existing modes are further and further differentiated by means of the expansion of the power series of these composites. Repetition, then, elucidates substance as immanent cause on the basis of the modes; it operates by means of both the differentiations of the differentiated and the further differentiations of the differentiated. So repetition produces functions and more and more composite functions in which composites are further differentiated in more global assemblages as the relation between composites is repeatedly differentiated in expansion

of a power series creating an essential singularity. This produces a passage between the intensive actually infinite power series and the finite extensive function it determines, so that the infinite is expressed in the finite.

Over the last few years there has been a regular industry proliferating books on Deleuze. It is pleasing to find one which gives us such powerful and rigorous tools with which to extend our understanding and appreciation of Deleuze's work. We might only wish that it were issued in paperback.

*Philip Turetzky*  
*Department of Philosophy*  
*Colorado State University*  
*USA*  
*turetzky@colostate.edu*