

NOTES ON *BEING AND EVENT* (PART 6)

PART 6: QUANTITY AND KNOWLEDGE. THE DISCERNIBLE (OR CONSTRUCTIBLE): LEIBNIZ / GÖDEL

MEDITATION 26: THE CONCEPT OF QUANTITY AND THE IMPASSE OF ONTOLOGY

- 1) Intro: Badiou vs Kant on notion of quantity
 - a) First difference:
 - i) Kant: quantity and number are tied to
 - (1) intuition
 - (2) time / space
 - (3) part / whole
 - ii) Badiou: set theory multiples cannot be thought in those terms
 - b) Second difference: numerability and commensurability of infinite multiplicities
 - i) Kant: infinite multiplicities are not possible as objects of experience
 - ii) Badiou: we have to explore the “impasse” around commensurability of infinite multiples
- 2) The quantitative comparison of infinite sets
 - a) Cantor turned a paradox into a concept
 - i) Galileo couldn't handle the idea that there were just as many squares as whole numbers
 - ii) Because this conflicted with the part / whole relation
 - iii) But Cantor then freed multiplicity from part / whole intuition relative to quantity
 - b) Cantor developed notion of correspondence and function
 - i) A function establishes a correspondence between an element and one other element alone
 - ii) So one-to-one correspondence is foundation for quantitative comparison of multiples
 - (1) Two sets are equal in number
 - (2) Or “have the same power”
- 3) Natural quantitative correlate of a multiple: cardinality and cardinals
 - a) Natural multiples / ordinals now comparable to any multiple via correspondence procedure
 - i) Ordinals name the chain of previous ordinals
 - ii) Ordinals can thus be a measuring stick for any multiple / set
 - (1) Every multiple has the same power as at least one ordinal
 - (2) Every multiple will have a belonging-minimal ordinal (= “cardinal”) indicating its size
 - b) Cardinals
 - i) No one-to-one correspondence w/ a smaller multiple (i.e., with preceding ordinals)
 - ii) Multiples of same size represented by their cardinals
 - iii) We can use total ordering of cardinals as measuring scale for pure multiples
 - c) Construction of a measuring ordinal / cardinal
 - i) As it involves the “illegal” function of choice
 - ii) This is a “dialectic of the illegal and the height of order” characteristic of ontology
- 4) The problem of infinite cardinals
 - a) Every finite ordinal is a cardinal (as many as there are natural numbers)
 - b) A multiple is infinite if its quantity is named by a cardinal \geq aleph-null

- c) Aleph-null is the first infinite cardinal
- d) There are infinitely many quantitatively distinct infinite multiples
- 5) The state of a situation is quantitatively larger than the situation itself
 - a) Cardinal of the power set is always larger than that of initial set
 - b) Established via a “diagonal” reasoning revealing remainder of supposedly exhaustive procedure
 - c) We knew power set (=“state”) was separated from situation (via theorem of point of excess)
 - d) Now we know power set / state “dominates” the situation
- 6) First examination of Cantor’s theorem: measuring scale of infinite multiples, or sequence of alephs
 - a) So, now we know that cardinal of power set of aleph-null is larger than cardinal of aleph-null
 - b) Ordinal w/ property of being smallest ordinal / cardinal larger than aleph-null (= “successor”)
 - c) Using operations of replacement and union, we can produce as big an infinite as one wants
 - d) Thus the proliferation of infinite multiples is itself unlimited (i.e., “infinite”) dissemination
 - e) This means that neither Nature nor God exists
- 7) Second examination of Cantor’s theorem: what measure for excess?
 - a) We know power set cardinal is larger than initial set cardinal. But how much larger?
 - b) We cannot determine (or it’s arbitrary) where we locate the power set cardinal: “errancy”
 - c) Political consequences
 - i) We can’t know size of power of state; we can only estimate by arbitrary decision
 - ii) Natural measuring scale of presentations doesn’t work for representations
 - iii) You must wager rather than calculate
- 8) Complete errancy of the state of a situation: Easton’s theorem
 - a) Easton’s theorem is an example of “extreme science” as “science of ignorance”
 - b) You can choose any cardinal as value of power set of an infinite initial set
 - i) If it is larger than cardinal of initial set
 - ii) And it is a successor cardinal
 - c) This means that denying Cantor’s continuum hypothesis is coherent w/ ZF AST
 - i) Cantor hoped that successor ordinal to aleph-null was equal to power set of aleph-null
 - ii) But Easton showed you can pick an arbitrary value, as long as it is a successor cardinal
 - iii) So it’s a choice how you fill in the chasm btw presentation and representation
 - iv) Thus quantity as pure objectivity leads to choice as pure subjectivity

MEDITATION 27: ONTOLOGICAL DESTINY OF ORIENTATION IN THOUGHT

- 1) Aleph-null and its power-set is relation of whole number series and geometrical continuum
- 2) Thought is constantly trying to fix this relation
 - a) Of discrete and continuous
 - b) Of state and situation
- 3) Three great orientations to thought, seeking to address the excess
 - a) Grammarian or programmatic: language (Gödel and constructible sets) / Leibniz
 - b) Matheme of the indiscernible (Cohen and generic sets) / Rousseau
 - c) Transcendence (doctrine of large cardinals) / classical metaphysics
- 4) A fourth way: the Subject
 - a) You needn’t be horrified at errancy of excess of state / “unbinding of being”
 - b) Because it’s in unbinding of being that event / intervention / truth procedure occur

MEDITATION 28: CONSTRUCTIVIST THOUGHT AND THE KNOWLEDGE OF BEING

- 1) Introduction: constructivism as desire to limit errancy

- a) Constructivist thought is “nostalgic” for solutions to errancy that would limit itself to naturals
- b) But the fundamental approach is to restrict errancy by basing thought on language
 - i) Only that which has a name is presented (and this allows designation of properties)
 - ii) And parts are only recognized on basis of a common property
 - iii) In this way you relate parts to terms; you rein in errant excess
 - iv) Language is thus a “filter” btw presentation and representation
- 2) Constructivism and the state
 - a) Bond btw part and defined terms grounds conviction that state doesn’t exceed “too much”
 - b) So constructivist thought has an ambiguous relation to the state (as “master of language”)
 - i) It seems to reduce its power by restricting its count to nameable parts
 - ii) But it increases authority of state by connecting parts and mastered language
 - iii) Constructivism and nominalism
- 3) Constructivism’s relation to Badiou’s theory
 - a) An indiscernible part does not exist for constructivism; the state legislates existence
 - b) The event:
 - i) Event has no place in which to take place [*il n’y a nul lieu pour l’avoir lieu d’un événement*]
 - ii) Constructivism cannot conceive either self-belonging or the supernumerary
 - (1) Self-belonging
 - (2) Supernumerary nomination drawn from void (“secret of intervention”)
 - (a) Change and nominalism
 - (i) Support for idea of change is the infinity of language
 - (ii) Different situations = different languages (Wittgenstein’s “language games”)
- 4) Constructivism as confinement of being w/in knowledge
 - a) Neo-classical aesthetics (outlawing “wild, senseless” avant-garde)
 - b) Positivist epistemology (maintaining “apparatuses of discernment”)
 - c) Programmatic politics (agent of realization is the State)
- 5) Coda: constructivism as “latent philosophy of all human sedimentation”
 - a) Knowledge “tames the passion of being”
 - b) This is good or at least necessary / inevitable
 - i) Constant adventure on edge of void is impossible / undesirable
 - ii) You need knowledge as background for surprise of intervention

MEDITATION 29: THE FOLDING OF BEING AND THE SOVEREIGNTY OF LANGUAGE

- 1) Introduction: the continuum hypothesis: Cantor , Easton, and Gödel
 - a) Cantor proposed continuum hypothesis
 - b) Easton (1970) showed it was coherent w/ AST to be arbitrary
 - c) Godel showed (1930s) that CH was coherent w/ AST if you limit yourself to constructible sets
 - i) Axiom of choice is no longer a pure decision but now a theorem (rather than an axiom)
 - ii) This deducibility robs axiom of choice of its interventional value
- 2) Construction of the concept of constructible set
 - a) Restricting parts to what can be separated by
 - i) Well-defined properties (language)
 - ii) Relative to initial set
 - (1) Quantifiers
 - (2) Parameters
 - (3) Field of application
 - b) Constructible hierarchy (starting from void): normalizing a “distance” from void

- 3) The hypothesis of constructibility
 - a) It's impossible to demonstrate that some sets are not constructible (nominalist argument)
 - b) Thus you can't refute proposition "every multiple is constructible" w/in AST to this point in BE
- 4) Absoluteness
 - a) "absolute" = restricting a proposition to constructible universe doesn't affect its truth value
 - b) Concept of constructible hierarchy is absolute for constructible universe
 - i) This means hypothesis that every set is constructible is a theorem of constructible universe
 - ii) Thus you can't produce a refutation of it in ontology per se
 - iii) Thus you can choose constructability w/o risk of refutation via counter-example
 - c) With constructability you get a "flattened and correct universe"
 - i) Folding of being and sovereignty of language / restriction of excess to strict measures
 - ii) Three consequences to be explored (in next three numbered subsections)
 - (1) The event is not
 - (2) Intervention is legalized
 - (3) Excess of state is measurable
- 5) The absolute non-being of the event
 - a) Whereas general ontology required axiom of foundation to outlaw the event (hence a decision)
 - b) In the constructible universe, you can demonstrate that no constructible multiple is eventual
 - i) That is, axiom of foundation becomes a theorem
 - ii) The key is that hierarchical generation bars self-belonging
- 6) The legalization of intervention
 - a) Similarly, the axiom of choice is reduced to a theorem in the constructible universe
 - b) That is, the existence of a function of choice can be demonstrated
 - c) Thus robbing axiom of choice of its ability to serve as form of intervention
 - i) Illegality
 - ii) Anonymity
 - iii) Existence w/o an existent
- 7) The normalization of excess
 - a) The generalized CH is true in the constructible universe
 - b) That is, the (cardinal of the) power set of an aleph is (that of) the successor to that aleph
- 8) Scholarly asceticism and its limitation
 - a) Constructible universe is the "ontological symbol of knowledge"
 - i) It seeks to maintain the multiple w/in grasp of writing and verification
 - ii) It is "narrow"; it restricts the "wealth of being"
 - iii) But we can't see that restriction w/o ability to exhibit a non-constructible set
 - b) Large cardinals and the transcendent orientation in thought
 - i) Although this move often fails, it can show us how limited constructivism is
 - ii) Strongly inaccessible cardinals are larger than power set of any smaller sets
 - iii) Ramsey cardinals
 - iv) Rowbottom's theorem:
 - (1) A matter of general ontology; not immanent to constructible universe
 - (2) Allows us to see the "sacrifice" required by constructivism
 - (a) Truth exceeding strict law of language
 - (b) Confidence in "prodigality of being" leading us to admit Ramsey cardinals
 - c) Inside and outside the constructible universe
 - i) Inside: complete order; minimal excess; event and intervention are consequences
 - ii) Outside: we see how impoverished is the constructible universe
 - d) Constructivism: knowledge needs / desires decidability and the exclusion of ignorance