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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 ≥ 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 / undesireable
      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 evental
      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 ascesis 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