

Lecture: Kant of Phil Sci - Newton

15 Oct 2014
①

- start w/ Newton's stroke 'by' - 'by force, by causes unknown' - \Rightarrow Hypothetic-Deductive method
- \Rightarrow briefly discuss Mechanical ϕ (read passage for Huygens), distinguish Newton's project - general relative
- discussion of genus in preface < sensibility vs pure understanding > both needed? Contr. or w/ Kant?
- status of def's - what is required to formulate them

- 1. place
- 2. change of place
- 3. interval of time
- 4. equal intervals of time
- 5. velocity
- 6. uniform velocity
- 7. change of velocity
- 8. straight line
- 9. measure of deviation from straightness

\Rightarrow solution

35 { absolute vs relative, true vs apparent, mathematical vs common

\Rightarrow so as to divorce them from reference to sense-perception,

- place vs space; abs vs rel for each
- absolute vs relative motion

\Rightarrow how to distinguish the two, when absolute space cannot be perceived? (purpose of whole treatise!)

\Rightarrow stroke of genus: by their properties, causes of effects

- i) properties: defined w/ absolute vs relative place (space)
- ii) causes: true from apparent forces
- iii) effects: the masterstroke - bucket (contra Descartes - no naive relationalism (relative motion defined by relation to bodies in direct contact))

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 \Rightarrow way of getting at things that are strictly speaking beyond perception \Rightarrow doorway to Kant's Pure Categories - synthetic a priori?

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(1.5)

[To ~~at~~ top of p. 2 of these notes]

emphasize role of dynamics and laws in need for
Newton to postulate absolute space, when discussing,

e.g., Bucket example

[⊕ see p. 1-5 of these notes]

Laws & Corollary

- basis of mechanics in geometry
- could state a NM, which Kant (argues) is necessary → his analysis of causality, system of laws, etc. of instants?
- corollary 5 & 6: imp difficulty (impossibility?) of determining "true motion" of center of gravity of Solar System
- corollary 4: basis for sol'n to Copernicus vs Ptolemy
- scholium: necessity of using method of successive approximations (antithetical to Kant)

Rules of Nat'l φ

- note equation w/ which Newton formulates them, qualify them in all cases so as to respect imperfection of experimental knowledge, upon which all other knowledge in physics is to be based

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General Scholium

- noumena vs phenomena (picking up on what was distributed in Preface).

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 sketch Newton's use of successive approximations

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 Newton's modesty at end of Preface

Home - deeply inspired by a profound understanding of Newton, that colored all following (all knowledge from impression, succession of cases of facts)