

Evidence

Study Questions for Lecture 3 (18. May 2022)

Newton's Investigations on Light and Color, Part II

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Reading

1. Newton (1726), *Philosophiæ Naturalis Principia Mathematica*: Book III, “Rules of Reasoning in Philosophy”
2. Newton (1672), “Letter of February 6, 1671/72, to Henry Oldenburg, Secretary of the Royal Society, Outlining Newton's Researches on Light and Color”: pp. 53–59
3. Curiel (2018), “Glossary for Newton's Studies on Light and Color”

I give a brief, severely incomplete list of questions both to keep in mind and think about while doing the reading for tomorrow's lecture, and to review after you have completed the reading. Please come up with your own questions as well, to discuss in class.

1. In Newton's Rule III of Reasoning in Natural Philosophy, what does Newton mean by “The qualities of bodies, which admit neither intensification nor remission of degrees, and which are found to belong to all bodies within the reach of our experiments”? Why are they “to be esteemed the universal qualities of all bodies whatsoever”? Are they the *only* qualified to be so esteemed? Give examples of such “qualities” from Newton's framework of light and color, and explain in what sense they “admit neither intensification nor remission of degrees” and “are found to belong to all bodies within the reach of our experiments”. What does Newton use these claims as evidence for?
2. What exactly is the evidential content of the *Experimentum Crucis*, and what does it provide evidence for? Do you agree with Newton's assessment of its evidential content and weight?
3. Newton iterates his doctrine in 13 steps (pp. 53–56). What is the formal and semantical character of the claims in each step? Do the differences among them correspond to differences in the types of evidence Newton gives for them?
4. On p. 57, Newton avers, “I shall not mingle conjectures with certainties.” Why does he feel he does not have evidence—at all? or just inadequate?—for what he calls ‘conjectures’?

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References

- Curiel, Erik. 2018. “Glossary for Newton’s Studies on Light and Color”. Unpublished manuscript, available at <http://strangebeautiful.com/papers/curiel-newton-light-color-glossary.pdf>.
- Newton, Isaac. 1672. “Letter of February 6, 1671/72, to Henry Oldenburg, Secretary of the Royal Society, Outlining Newton’s Researches on Light and Color”. In *Isaac Newton’s Papers & Letters on Natural Philosophy*, edited by I. Bernard Cohen, 47–59. Cambridge, MA: Harvard University Press. English translation printed alongside the Latin original, itself published in the *Philosophical Transactions of the Royal Society*, 80(February 16, 1671/72):3075–3087.
- . 1726. *Philosophiæ Naturalis Principia Mathematica*. Third. Volume II. Berkeley, CA: University of California Press. The translation by A. Motte of the third edition (1726), originally produced in 1729, revised by F. Cajori and published in 1934. The first edition of the *Principia* was published in 1686, the second in 1713.