Lakatos-Feyerabend-Kuhn as Cooperating Defenders of Vienna Circle Unified Science

(Extended Abstract)

1. Introduction - Vienna Circle Unity of Science

There have been a number of recent publications discussing the Vienna Circle (VC) and its theory of unified science (for example Stadler[1997], Uebel[2005] and Mirowski[2004]). Unfortunately, those discussions have mainly adopted the descriptive methods of intellectual history instead of attempting to understand the Vienna Circle (VC) as its members intended their discoveries concerning method and unified science to be understood - as both an empirical and objective theory of science and an empirical and testable theory of philosophy.

The VC members held many different views but were studying the same problems and were unified in opposing metaphysics (maybe dogma is a better translation of the German Metaphysik). The VC agreed that a methodological theory of science needs to be unified in the sense that it applies to all sciences, not that all sciences are identical. Also, there was agreement that any philosophical theory should be empirical in the same sense that scientific theories must be empirical. The VC saw themselves as defenders of rationality in a pre WWII world where irrationality was dominant. For members of the VC who had mostly been students of the founders of modern physics, philosophy of science must either explain scientific research programmes or provide prescriptive assistance to scientists attempting to solve problems. This common belief can be seen in Otto Neurath’s letter to Karl Popper (VC Archive Neurath to Popper letter (4.2.1936), my translation). Neurath writes that Popper lacks a concept of research programmes and writes "Einstein and Planck believed in schools."

In the 1930s, there was hope that knowledge and rationality and therefore scientific method could be reduced to formal logic or a formal language. Unfortunately, after WWII it was realized that the 1930 hope for formal rationality was a degenerating research programme (See Hempel’s remarks on his 'The Empiricist Criterion of Meaning’ in Ayer[1959], 127-129). The Neurath idea of Ballungen became interesting because it defended a weaker form of rationality that seemed much more likely to be correct (Cartwright[1996], 188-195 describes the concept). This paper attempts to show that the three best known philosophers of science of the mid 20th century Imre Lakatos, Paul Feyerabend, and Thomas Kuhn explicitly worked together to defend the VC unity of science theory and viewed themselves as successors to the VC.

A good way to see the continuity from the VC unified science ‘school’ to the Lakatos-Feyerabend-Kuhn (LFK) less formal but more defensible prescriptive scientific methodology is to consider Neurath’s carpentry metaphor. Neurath expresses his view of unified science by writing:
"There is no way of taking conclusively established pure protocol sentences as the starting point of the sciences. No tabula rasa exists. We are like sailors who must rebuild their ships on the open sea, never able to dismantle it in dry-dock and to reconstruct it there out of the best materials. Only the metaphysical elements can be allowed to vanish without trace. Vague linguistic conglomerations always remain in one way or another as components of the ship. If vagueness is diminished at one point, it may well be increased at another." (from Erkenntnis 1932/1933 ‘Protokoll Sætte’ article see Ayer[1959], 201).

John Watkins continues the analogy in explaining Lakatos’ answer to Popper’s falsificationism:

"It is as if he [Lakatos] had claimed that the basic unit of [architectural] appraisal is not buildings or streets, but plans for urban renewal. So far as I [Watkins] know Lakatos never attempted to justify the final step, from series-of-theories to research programmes (Kampis[2002], p. 8)."

My explanation would be that there was no need for Lakatos to justify the step because he was continuing the development of VC unified science.

To continue the analogy, LFK all worked on the same building each providing prescriptive and methodological theories. Kuhn tells scientists to either continue working to improve your current structure or if too many anomalies (antinomies) develop start over (normal science versus revolutions) (Kuhn[1962]). Feyerabend advices to apply methodological anarchya and create innovative architecture (Feyerabend[1981], 105-106), and Lakatos advises to consider construction progress by evaluating progression versus degeneration to decide whether to follow Kuhn’s or Feyerabend’s advice. Following VC unified science, the LFK programme must be tested and improved in the same way the scientific theories are tested. I claim this is direct continuation of VC anti-dogma because there is no room for social values and the possibly of progress exists at least up to situations where too many anomalies build up.

2. LFK Prescriptive Methodology as One Research Programme

The close cooperation and self perception of Lakatos, Feyerabend and Kuhn as working on one philosophical research programme is not difficult to show because of the Lakatos Archive at the London School of Economics (LSE). Lakatos kept a copy of all sent and received correspondence some of which have been published in Lakatos[1999]. One of the strongest indications of the self conscious shared development of a philosophical research programme is that most criticism was aimed at each other while replies to critics was mostly aimed at philosophers LFK viewed as considering irrelevant external philosophy of science theories that, following the VC, they viewed as non empirical metaphysics or sociology of science (science studies).

Kuhn and Feyerabend are connected because they were colleagues at UC Berkeley in the late 1950s and early 1960s. The story believed by graduate students in the 1970s was that Kuhn’s The Structure of Scientific Revolutions was developed during coffee discussions between Kuhn and Feyerabend at the Cafe Mediterranean. The cooperation
between Feyerabend and Lakatos is documented in the Motterlini (Lakatos[1999]) book.

Kuhn’s connection with Lakatos is documented in the LSE Lakatos Archive. Kuhn was the main recommending scholar for Lakatos’ professorial appointment. Here is an abridged version giving the references to the Lakatos Archive to demonstrate the unified research programme. June 1964 Kuhn to Lakatos (13/512:148-149), Kuhn describes himself as philosopher of science within the Lakatos research programme. July 1969 Lakatos to Kuhn thanking Kuhn for “great insights into the nature of scientific growth”(13/512:163). July 1969 Kuhn’s reply saying he wanted a role in superceding Popperian naive falsificationism (13/512:126).

The full paper will answer a number of objections to my view from for example Larry Laudan who claims Feyerabend and Kuhn disprove each other (a positive Ballungen?) and Paul Hoyningen-Huene who claims incommensurability between the LFK theories.

3. LFK Methodology as Defense of VC Unity of Science

Likewise, Lakatos-Feyerabend-Kuhn viewed their work as succeeding the VC and defending rationality (albeit in a weaker form) against dogmatism (Metaphysik). For example, in April 1970 Minnesota Center for the Philosophy of Science Professor Hanson wrote that the importance of the LFK programme extended outside the "European-Vienna Circle sphere" (13/373:1 and 13/373:2).

The LFK research programme was aimed at solving the same problems as the VC. Feyerabend was a doctoral student of VC member Victor Kraft. Both Lakatos and Feyerabend were students of Karl Popper and both criticized Popper with arguments similar to those used by VC member Neurath. See VC archive letter Neurath to Popper (27.07.1934) for Popper’s invitation to the 1935 Unity of Science Conference because Popper was studying the same problem as the VC, and also letter Neurath to Popper (04.02.1936) that offers the same criticism of Popper’s falsificationism that LFK later used.

4. Modern Science Studies Out of Touch with Science

During the 1960s and 1970s, the LFK research programme was seen by scientists and mathematicians as helpful for their work. One example is the wide acceptance of quasi-empirical mathematics by logicians from Lakatos’ work in the philosophy of mathematics (Lakatos[1978b], 24-41). Kuhn’s work was thought important enough so that he was given the task of interviewing the founders of modern physics for the Archive for the History of Quantum Physics (AHQP) interview transcripts. Possibly because of Austrian Gunter Stent, UC Berkeley neurobiologists needed the help of the LFK programme. On one hand, there was skepticism at the time toward many published neuron electronic signal measurements so better normal science was needed. On the other hand, many felt that some type of radical new ideas were needed.

I believe the LFK programme correctly predicts the current change in philosophy of science toward sociology and intellectual history and the accompanying arguments for non empirical beliefs. One obvious example is science studies advocate Steve Fuller who
rejects evolution and believes in intelligent design (ID) (Fuller[2007]). Application of the
LFK programme shows that ID is nothing more than metaphysics (in the VC sense) or
dogma (or maybe simpler just a religious belief). First, following Kuhn evolution does
not have scientific anomalies - the revolution occurred. If there are anomalies, they are
sociological not empirical. ID does not fit the Feyerabend model of theory proliferation
because it is non empirical (even in the loose Feyerabend sense of empirical). ID does
not offer any new "anything goes" method. For Lakatos methodology of research
programmes, it is hard to imagine a programme more progressive than evolution.

Perhaps Fuller anticipated the problem LFK unified science presents to his beliefs
by criticizing Kuhn in his 2004 book Kuhn vs. Popper: The Struggle for the Soul of
Science (Fuller[2004]), and perhaps LFK anticipated future attacks on VC unity of
science and constructed their multi-faceted theory with such expectation.

5. References

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