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## PECULIARITIES OF CHEMISTRY

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The obvious persistent neglect of chemistry by philosophers of science - in spite of its powerful influence on everyday life - raises the question whether there are some hitherto unobserved peculiarities of chemistry compared to other well examined sciences like physics or biology. The paper gives an initial list, in order to stimulate an interest in philosophy of chemistry.

1. Unlike any other science, chemistry is concerned with material objects by abstracting from extensive and spatial properties like coordinates, size and structure. That does not imply (as currently misunderstood) to deal with macroscopic and presupposed continuous bodies, but actually to abstract from the micro/macro and continuous/discontinuous distinctions and to give up the spatial reference frame.

2. Chemistry is interested in material properties, i.e. dynamic or dispositional, properties irreducibly dependent on contextual/experimental conditions: mechanical forces, thermodynamical conditions, electromagnetic fields, biological organisms, ecological systems, and especially chemical substances (see below).

3. When exposed to certain conditions material objects can be separated into objects with different material properties, while the separability itself is a material property. This provides a peculiar kind of classification: According to an ordered sequence of separation techniques material objects can be ordered by an operational decision tree (heterogenous vs. homogenous, mixed vs. pure, compound vs. elementary). Pure materials, also called chemical substances, are particularly interesting.

4. Chemical properties (in the nearer sense) are dynamic relations which describe the interchangeabilities of chemical substances. They include informations about the potential of a chemical substance either to produce different chemical substances under certain conditions or to be produced by different chemical substances under certain conditions.

5. The chemical relations constitute a complex classificatory network that works as chemical reference frame. It provides identity criteria and reference rules for chemical substances in the sense of laboratory rules to produce them.

6. Because chemistry is a science of dynamic relations, any successful theoretical account of chemistry has to systematize chemical relations. Independent of quantum mechanics this is achieved by the (semiotic) system of reaction mechanisms and structural formulae allowing the prediction of new chemical substances, including laboratory rules to realize them.

7. Due to the peculiar method of classification, most of the ten million classificatory objects have been produced by chemists which seems to undermine current distinctions between natural science and technology.

Unlike physics, chemistry is interested in the variety of extrinsic changeabilities to achieve a classification of its manifold objects. Unlike biological or geological classifications on the base of phenomenological similarities or original relationships, classification in chemistry is based on dynamic relations performed by experiment. And unlike technology, the poetical activity in chemistry is mainly guided by the aim of classificatory completeness on theoretical grounds. Because it is hard to decide whether in terms of methodology chemistry more resembles physics, biology, technology or what ever, I propose to handle it as its own type of science.