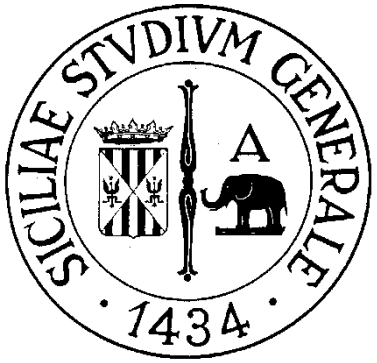

Multiple Criteria Decision Aiding as art and science of reasoning about decision

Salvatore Greco
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The basic intuition of Multiple Criteria Decision Aiding

EURO Working Group on Multiple Criteria Decision Aiding Group (EWG – MCDA) has produced many theoretical concepts, operational instruments and methods that lay original foundations for art and science of reasoning about decision.

However, looking from a time perspective, for the development of the field, it is the crucial that a community has a **vision** and goals to attain.

Our community, united in EWG – MCDA was lucky to have a visionary leader, like **Bernard Roy**. We have followed him in his far reaching intuitions and pioneering work.

The constructive approach to MCDA

Taking the *path of constructivism* consists of considering concepts, models, procedures and results to be *keys* capable (or not) of opening certain locks likely (or not) to be appropriate for organizing a situation or causing it to develop.

The concepts, models, procedures and results are here seen as suitable tools for developing convictions and allowing them to evolve, as well as for communicating with reference to the bases of these convictions.

The goal is not to discover an existing truth, external to the actors involved in the process, but to construct a 'set of keys' which will open doors for the actors and allow them to proceed, to progress in accordance with their objectives and systems of value.
(Roy, 1993)

Why the art and the science?

Why the art and the science?

- MCDM is a **science** because it uses formal models.
- MCDM is an **art** for the specific nature of the used decision models.

Which is the nature of a model for decision aiding?

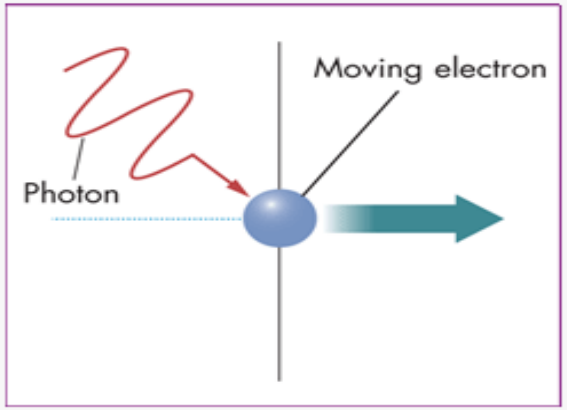
René Magritte ***The Treachery of Images*** – 1928-1929

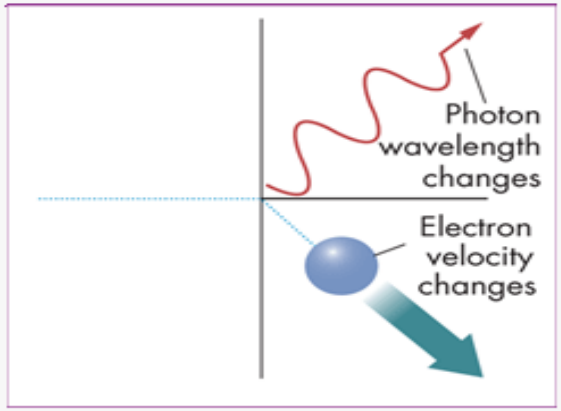
As for any model, the "map is not the territory" …

… as models in other domains, there is an interaction between observer and the observed system…

The Heisenberg Uncertainty Principle

Before collision: A photon strikes an electron during an attempt to observe the electron's position.

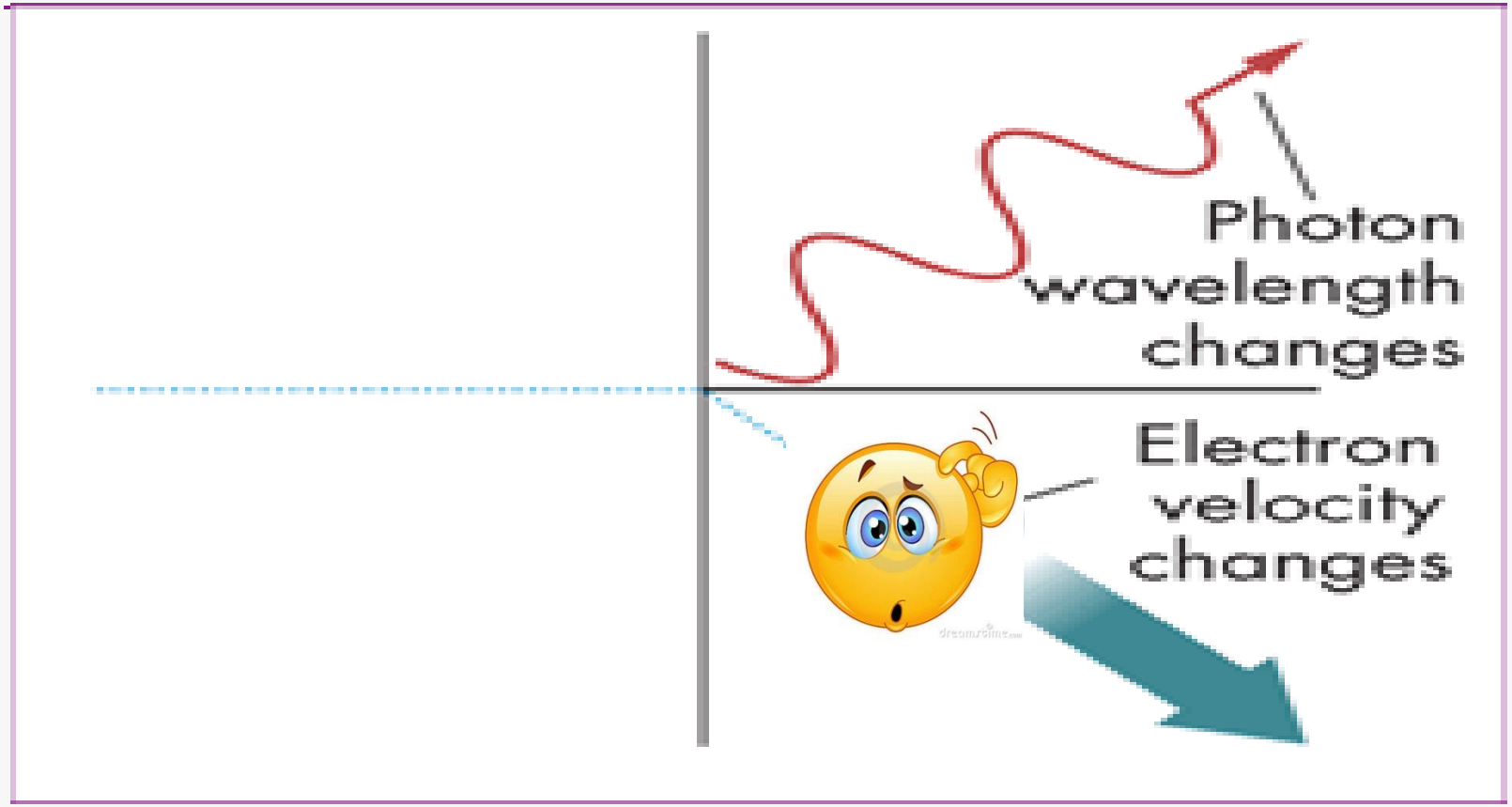




- **After collision:** The impact changes the electron's momentum, making it uncertain.

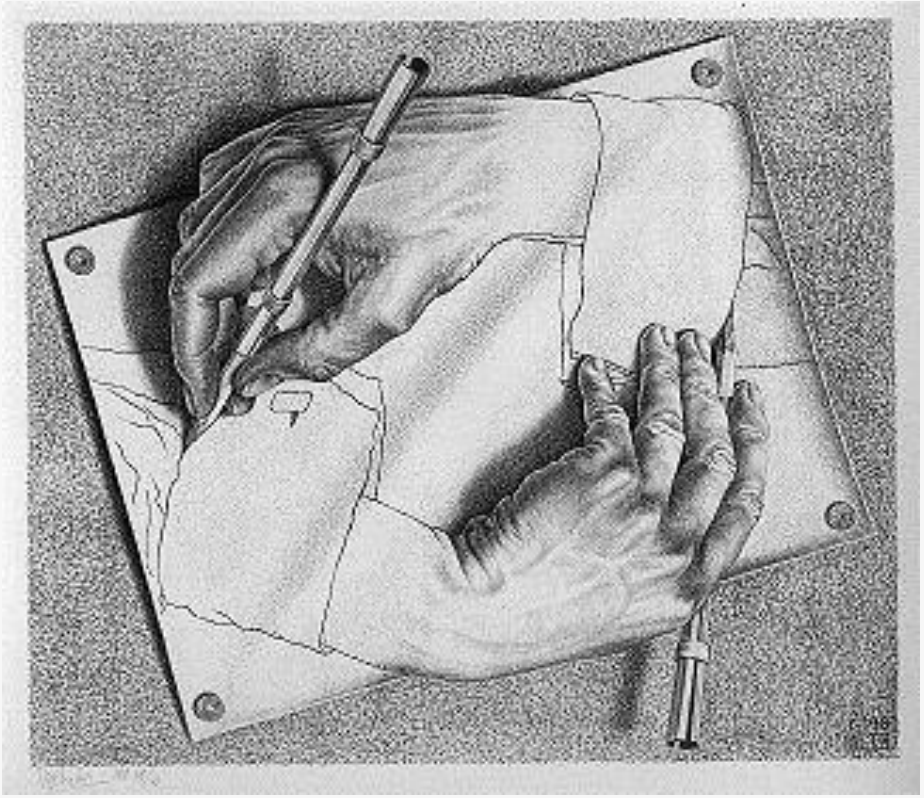
… but for a decision model there is something more…

…because an electron never will ask to understand the model and it never will take some decision on the basis of the results of the model…



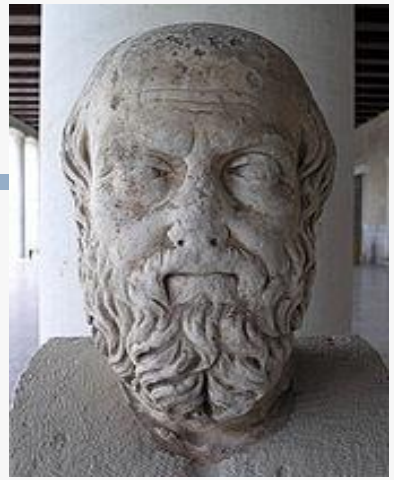
… and it is fundamental to understand the "circularity" in constructing a decision model…

… so the model represents the preferences of the DM that in fact constructs his/her own preferences on the basis of the results of the model …



Drawing hands, M. C. Escher

Conclusions



“There is nothing more profitable for a man than to take good counsel with himself; for even if the event turns out contrary to one's hope, still one's decision was right, even though fortune has made it of no effect: whereas if a man acts contrary to good counsel, although by luck he gets what he had no right to expect, his decision was neverless foolish”.

- Herodotus (c. 490-425 B.C.)
"Histories, Book VII"

THANK YOU