Feedback strategies versus non-anticipative strategies and viscosity solutions in differential games

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At least apparently, in Biology and Medicine there are plenty of "conflictual processes", including some that could be controlled by human action ; however, at the moment, do not seem to exist "plausible", significant, examples of *differential games* modelling such processes ; it is to be hoped that the development and the refinement of mathematical modelling in Biology and Medicine will provide, sooner or later, significant examples of differential games in these domains.

In this perspective, we present here very succintly the basic mathematical problem in the theory of differential games and the two main current approaches of this problem : the first one, based on *feedback strategies*, originating from R. Isaacs' book (1965) and developed recently by the present author and, on the other hand, the much more "abstract" approach based on the so called *non-anticipative strategies* and the associated VREK value functions, described mainly as the unique *viscosity solutions* of the associated Hamilton-Jacobi-Isaacs equation ; we point out the main theoretical and "practical" differences between the two approaches.

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