Value of a Game

The assignment of values to objects such as outcomes and coalitions, i.e., the construction of value functions, is a fundamental concept of game theory. Value (or utility, or preference) is not a physical property of the objects being valued, that is, value is a subjective (or psychological, or personal) property. Therefore, the definition of value requires specifying both what is being valued and whose values are being measured.

Game theory's characteristic function assigns values to coalitions so that what is being valued by this function is clear but von Neumann and Morgenstern do not specify whose values are being measured in the construction of this function. Since it is not possible to construct a value (or utility) scale of an unspecified person or a group of persons, game theory's characteristic function is not well-defined. Likewise, all game theory solution concepts that do not specify whose values are being measured are ill-defined.

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Kaplansky's Lecture Notes

Kaplansky's works and influence were aptly presented in "Irving Kaplansky (1917–2006)", *Notices* of the American Math. Soc. **54** (2007), 1477–1493. It seems strange that three lecture notes of Kaplansky were not mentioned in this article. Nor were they included in the bibliography contained in *Selected Papers and Other Writings of Irving Kaplansky*, Springer-Verlag, 1995. These lecture notes belong to the *Lecture Notes in Mathematics* series published by the department of mathematics, the University of Chicago. They are

Topics in commutative ring theory, 1974;

Bialgebras, 1975;

Hilbert's problems (preliminary edition), 1977.

The first two lecture notes were reviewed in *Math Reviews*. However, the third one has not been reviewed anywhere; only three chapters of it were translated into Swedish and Norwegian.

When I was a graduate student studying commutative algebra at Chicago during the 1970s, I was stumped by the definition of multiplicities of local rings defined purely algebraically through Hilbert-Samuel polynomials. Kaplansky gave me a copy of the chapter on the 15th problem of his lecture notes on "Hilbert's problem". It provided an excellent lesson of learning mathematics. A panorama of this famous and important problem was exhibited. Many names, e.g., Hilbert, van der Waerden, Weil, Serre, etc., appeared in this article and they became my heroes henceforth. It was really an effective way of teaching and a blessing to a naive graduate student.

After thirty years, although there have been many new publications on Hilbert's problems (e.g., Felix Browder's *Proceedings of Symposia in Pure Mathematics*, vol. 28, and B. H. Yandell's *The Honor Class: Hilbert's Problems and Their Solvers*), I still believe that Kaplansky's preliminary edition of Hilbert's problems should stand in the bookshelf of every graduate student's desk. Together with the expository books about Riemann and Poincaré (is there any such book?), Kaplansky's lecture notes will tell you what is good mathematics. It confirms Kaplansky's motto "Spend some time every day learning something new that is disjoint from the problem on which you are currently working. And read the masters."

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Octonion Algebras and Cohomology Classes

In the *Notices* November 2007 issue, p. 1297, the theorem on the first line is not correct (same for the last two lines of p. 1296). The author claims that the octonion algebras over a field F (of characteristic not 2) are in 1-1 correspondence with the elements of the cohomology group $H^3(F, Z/2Z)$. No. These algebras correspond to the elements of $H^3(F, Z/2Z)$ which are "decomposable" (or "symbols"), i.e., which are cup products of 3 elements of $H^1(F, Z/2Z)$. In a few simple cases, such as $F = \mathbb{Q}$, every element is decomposable. Not so in general: it is usually a difficult problem to decide when this happens. See for instance my Bourbaki seminar report no. 783 (1994).

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Non-English Names of Prominent Mathematicians

There are some names which are internationally well-known and pronounced in the same manner all over the world. Such are the names of prominent musicians, artists and politicians like Mozart, Gandhi, Gauguin. It is important also for the mathematical community to treat its prominent representatives with due respect and pronounce their names in a uniform manner. This will enhance their international recognition and standing. The natural choice is their original phonetics. Thus Euler should be pronounced ['Oy-lehr] (first syllable stressed) and Cauchy should be [Ko:'shi] (second syllable stressed). It is painful to hear the names of Weierstrass, Lie, Hurwitz, Poincaré, Dirichlet, Plancherel (and many others) pronounced sometimes in a strange, unrecognizable manner. The Voice of America (http://names.voa.gov) has developed a pronunciation guide for prominent foreign politicians. Following the spirit of that guide, I have written a short list of some European (non-English) mathematicians published under the Pronunciation guide at http://www2.onu.edu/%7Emcaragiu1/bonus_files.html. Any suggestions and corrections are very welcome.

I think the AMS could do the same as the VOA and create an online pronunciation guide for the names of prominent mathematicians.

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