

Hoover, Douglas N.

Synonymity, generalized martingales, and subfiltrations. (English) Zbl 0545.60040
Ann. Probab. 12, 703-713 (1984).

The notion of synonymity of two processes X and Y refines the notion of "X and Y having the same law" by taking into account the relation of the processes to their underlying filtrations. Synonymity was introduced by *D. J. Aldous* [Ecole d'Été de Saint-Flour 1983, to appear in *Lect. Notes Math.*] and further investigated by the author and *H. J. Keisler* [Adapted probability distributions. *Trans. Am. Math. Soc.* 286, 159-201 (1984)].

In this paper the author shows that generalized martingale properties, such as the semimartingale property, are preserved under synonymity, and that synonymous semimartingales have decompositions with the same distribution law. [For interesting applications of synonymity to stochastic differential equations see the author and *E. Perkins*, Nonstandard construction of the stochastic integral and applications to stochastic differential equations I,II, *ibid.* 275, 1-58 (1983)]. Furthermore the author gives a relatively elementary proof of the theorem (due to *C. Stricker*) that a semimartingale remains a semimartingale with respect to any subfiltration to which it is adapted.

Reviewer: [M.Dozzi](#)

MSC:

[60G07](#) General theory of stochastic processes
[60G48](#) Generalizations of martingales

Cited in **1** Review
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Keywords:

[synonymity](#); [semimartingale](#); [decompositions](#)

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