Learning Volatility of Discrete Time Series Using Prediction with Expert Advice: Experimental study

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Institute for Information Transmission Problems Russian Academy of Sciences

SAGA 2009, Sapporo 26-28 October 2009

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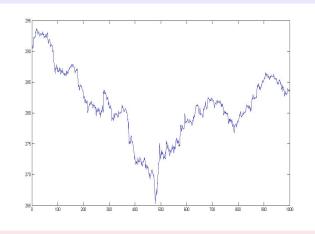
Experimental results

Data types in examples:

- Evolution of a stock price (additional information: evolution of the volume, fluctuation)
- Gain of the FL (Follow Leader) algorithm (no randomness)
- Gain of the FPL algorithm (randomized)



Stock price

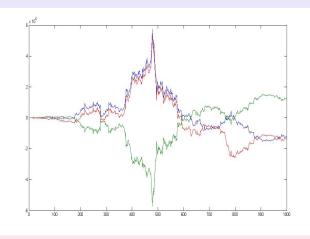


Evolution of the stock price (s=2000,1000)



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Merging strategies

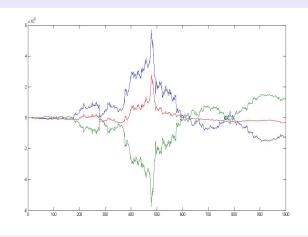


Gain of the FL(Follow Leader algorithm) (s=2000,1000)



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Merging strategies

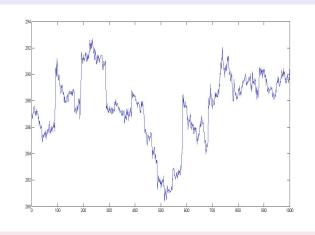


Expected gain of the FPL algorithm (s=2000,1000)



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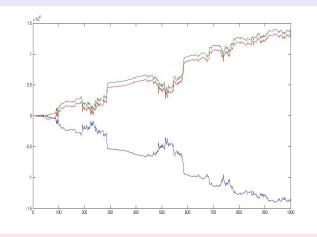
Stock price



Evolution of the stock price (s=1000,1000)

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Merging strategies

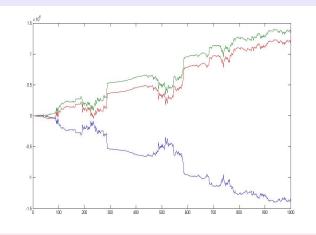


Gain of the FL algorithm (s=1000,1000)

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Merging strategies

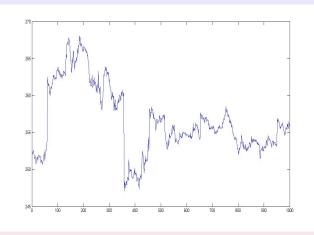


Expected gain of the FPL algorithm (s=1000,1000)



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Stock price

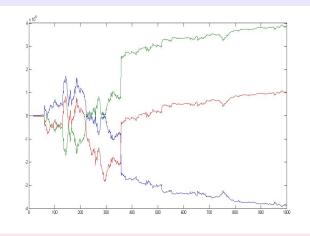


Evolution of the stock price (s=4000,1000)



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Merging strategies

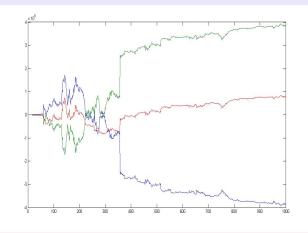


Gain of the FL algorithm (s=4000,1000)

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Merging strategies

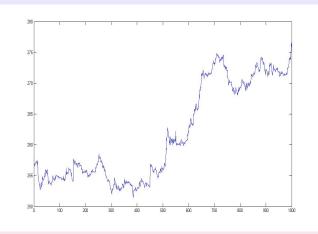


Expected gain of the FPL algorithm (s=4000,1000)



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Stock price

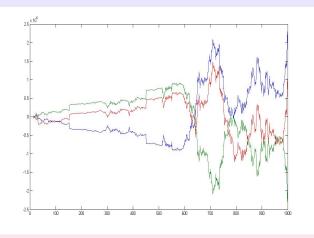


Evolution of the stock price (s=4500,1000)



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Merging strategies



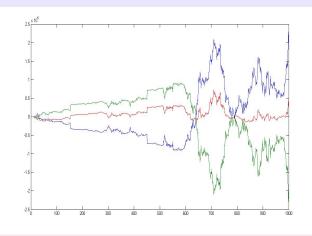
Gain of the FL algorithm, (s=4500,1000)



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Merging strategies

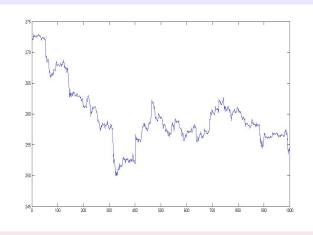


Expected gain of the FPL algorithm, (s=4500,1000)



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Stock price

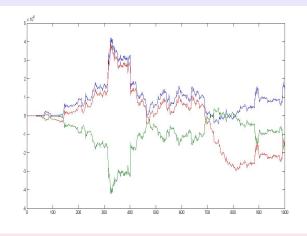


Evolution of the stock price (s=6400,1000)



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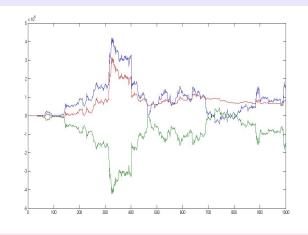
Merging strategies



Gain of the FL algorithm, (s=6400,1000)

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Merging strategies

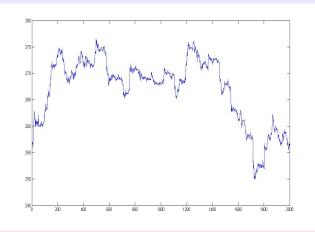


Expected gain of the FPL algorithm, (s=6400,1000)



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Stock price

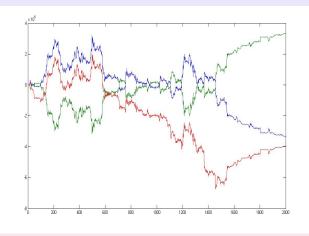


Evolution of the stock price (s=5000,2000)



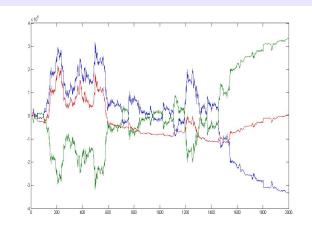
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Merging strategies



Gain of the FL algorithm, (s=5000,2000)

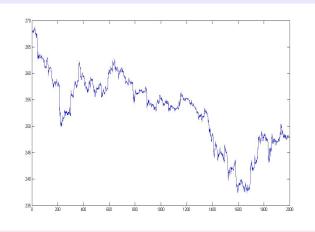
Merging strategies



Expected gain of the FPL algorithm, (s=5000,2000)



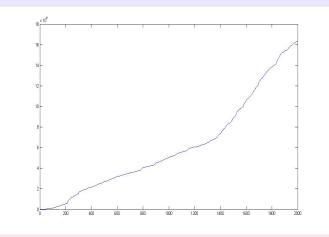
Stock price



Evolution of the stock price (s=6500,2000)

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Volume

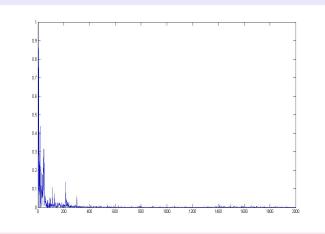


Evolution of the volume of the game (s=6500,2000)



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Fluctuation

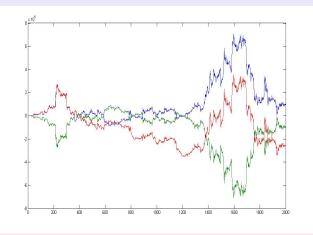


Fluctuation of the game (s=6500,2000)



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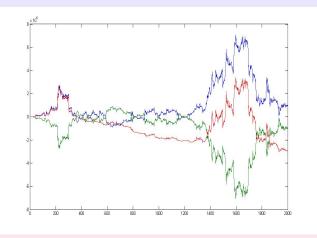
Gain of the FL algorithm



Gain of the FL algorithm (s=6500,2000)



Merging strategies

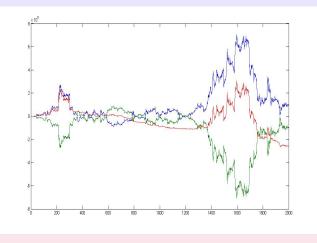


Gain of the FPL algorithm, randomness= 0.5, s=6500,2000



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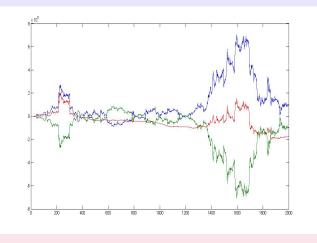
Merging strategies



Expected gain of the FPL algorithm, randomness= 0.4, (s=6500,2000)

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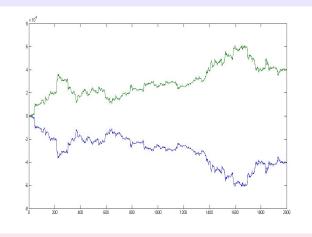
Merging strategies



Expected gain of the FPL algorithm, randomness= 0.3, (s=6500,2000)

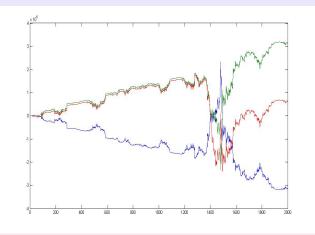
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Shares



Evolution of the number of shares of two experts, (s=6500,2000)

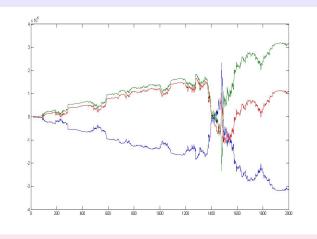
Gain of the FL algorithm



Gain of the FL algorithm (s=1000,2000)

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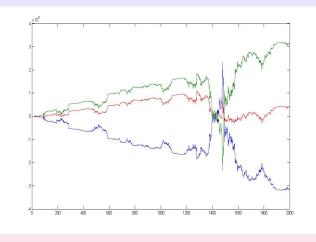
Merging strategies



Gain of the FPL algorithm, randomness= 0.5, (s=1000,2000)



Merging strategies

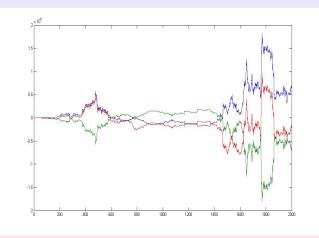


Expected gain of the FPL algorithm, randomness= 0.3, (s=1000,2000)

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Gain of the FL algorithm

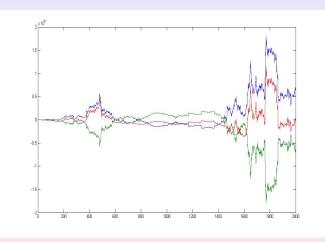


Gain of the FL algorithm (s=2000,2000)

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Merging strategies

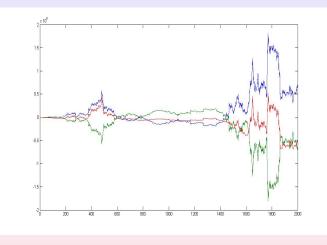


Gain of the FPL algorithm, randomness= 0.5, (s=2000,2000)



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Merging strategies

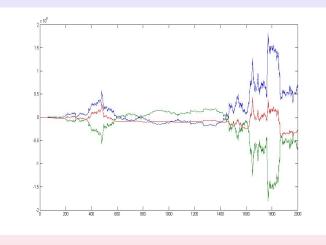


Expected gain of the FPL algorithm, randomness= 0.4, (s=2000,2000)



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Merging strategies



Expected gain of the FPL algorithm, randomness= 0.3, (s=2000,2000)

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