

## **Memes in the Marketplace**

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We explore the transmission and evolution of memes (e.g. ideas, rumors, news items) through a social network of traders, and the resulting impact on trades in a virtual market. The novel feature of our study is that we consider various sub-groups of traders who are focused on trading in different financial asset classes (e.g. different currencies, or different stock sectors) and look at the contagion within and between these different asset classes. In particular, we investigate the extent to which a given idea, rumor or news item may either remain localized within one given class, or spread to neighboring classes. In addition, we look at combinations of such memes, whereby the fact that a given idea, rumor or news item has already passed through the population will then affect the spread and impact of further such rumors or news items. We also investigate the extent to which the structure of the inter-group trader connectivity affects this spread of memes and its impact on the market.

## **Advanced text authorship detection methods and their application to biblical texts**

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Authorship attribution has a range of applications in a growing number of fields such as forensic evidence, plagiarism detection, email filtering, and web information management. In this study, three attribution techniques are extended, tested on a corpus of English texts, and applied to a book in the New Testament of disputed authorship. The word recurrence interval based method compares standard deviations of the number of words between successive occurrences of a keyword both graphically and with chi-squared tests. The trigram Markov method compares the probabilities of the occurrence of words conditional on the preceding two words to determine the similarity between texts. The third method extracts stylometric measures such as the frequency of occurrence of function words and from these constructs text classification models using multiple discriminant analysis. The effectiveness of these techniques is compared. The accuracy of the results obtained by some of these extended methods is higher than many of the current state of the art approaches. Statistical evidence is presented on the authorship of the book of the New Testament examined.

\*Keywords:\* Authorship attribution; stylometry; word recurrence interval; trigram Markov model; multiple discriminant analysis.