

# Baby Bond Connect: Software for Combined Value Trading

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## ABSTRACT

BabyBondConnect (BBC) is a software package for trading goods with combined-value in a call market. The software was developed at Caltech under the direction of Dr. John O. Ledyard.

The poster session will explain in detail the problem of trading combined-value goods, the mechanism used by BBC, and the technical specification of the software package. The poster will suggest further development of the BBC software package, the role software engineering and experimental economics can play in understanding traditional markets and electronic markets, and how new market mechanisms can be developed and tested.

## Categories and Subject Descriptors

H.1.2 [Information Systems]: User/Machine Systems – Human information processing.

H.3.3 [Information Systems]: Information Search and Retrieval – Information filtering.

H.3.5 [Information Systems]: Online Information Services – Web-based services.

H.4.2 [Information Systems]: Types of System – Decision support, Logistics.

J.4 [Computer Applications]: Social and Behavioral Sciences – Economics.

## General Terms

Algorithms, Management, Documentation, Performance, Design, Economics, Experimentation, Theory.

## Keywords

Combinatoric Market, Combined Value Market, Mechanism Design, Experimental Economics, Experimental Finance, Liquidity, Portfolio Trading, Financial markets.

## 1. INTRODUCTION

BBC has been used in an experimental economics setting at Caltech to study the validity of financial models (e.g. CAPM), and the ability of a market to aggregate individuals' private

information. BBC is interesting because it shows the potential richness in exploring the research areas that border economics, psychology, and computer science.

From an economics perspective, BBC addresses the issue of designing an incentive compatible mechanism that improves liquidity. BBC improves liquidity by allowing participants to trade in packages (or fractions of a package), and by calculating prices such that participants have incentives to reveal their true preferences.

From a psychology perspective, BBC deals with issues of what information to present and how the information should be presented. The software was designed to keep track of enough information for a detailed examination of individual behavior after the experiments.

In the process of designing BBC, several computer science research questions were raised. What is the computational complexity of a given mechanism? What effects Artificial Intelligence agents can have on a market, and how different market rules can shape Artificial Intelligence agents' behaviors? Is it possible to develop a protocol for a "web of markets" where each node in the web is a market, and the "web" itself serves as a meta-market so that the market infrastructure is more robust?

## 2. ACKNOWLEDGMENTS

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## 3. REFERENCES

- [1] Bossaerts, Peter, Fine, Leslie, Ledyard, John, "Inducing Liquidity in Thin Financial Markets Through Combined-Value Trading Mechanisms". *European Economic Review*, Oct 2002.