

Demystifying asynchronous communication and its variants*

Subtitle[†]

ANONYMOUS AUTHOR(S)

Text of abstract

Additional Key Words and Phrases: keyword1, keyword2, keyword3

1 INTRODUCTION

- Interleaving based semantics VS partial order/graph based semantics
- Synchronous and asynchronous communication
- The problem of synchronizability

2 PRELIMINARIES/BASICS

- Communicating systems (communicating finite-state automata with bag channels)
- MSCs and conflict graph
- Monadic Second-Order logic on MSCs
- (Language of a system as a set of MSCs)
- (Model checking and synchronizability)

3 ASYNCHRONOUS COMMUNICATION MODELS OVERVIEW

- Overview of asynchronous variants
- High-level description of each variant along with references to implementations (if existing)
- (Definitions based on linearization, intuitive)
- (Language of a system with a given communication model as a set of MSCs)
- Hint of hierarchy result

4 ASYNCHRONOUS COMMUNICATION MODELS OPERATIONAL SEMANTICS

- TODO...

5 ASYNCHRONOUS COMMUNICATION MODELS AS CLASSES OF MSCS, MSO-DEFINABILITY

- Definition of MSC class for each communication model (alternative definitions)
- MSO-definability of each class

6 EQUIVALENCE OF THE TWO DEFINITIONS

- TODO...

7 HIERARCHY OF ASYNCHRONOUS CLASSES OF MSCS

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*Title note

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8 AN APPLICATION: SPECIAL TREewidth AND DECIDABILITY OF THE SYNCHRONIZABILITY PROBLEM

- The synchronizability problem
- Special treewidth and how the results regarding the hierarchy are useful for detecting STW-boundness of certain classes
- MSO-decidability and STW-boundness tables

9 CONCLUSION

A APPENDIX

Text of appendix ...

B (3) ASYNCHRONOUS COMMUNICATION MODELS OVERVIEW