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Learning Cache Replacement Policies using Register Automata

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Introduction

- What is the cache memory?
- What is a replacement policy?
- What is an RMM?



What is the cache memory?

- Memory organized by a hierarchy
- Fastest memory in the hierarchy
- Hidden characteristics
- Limited space

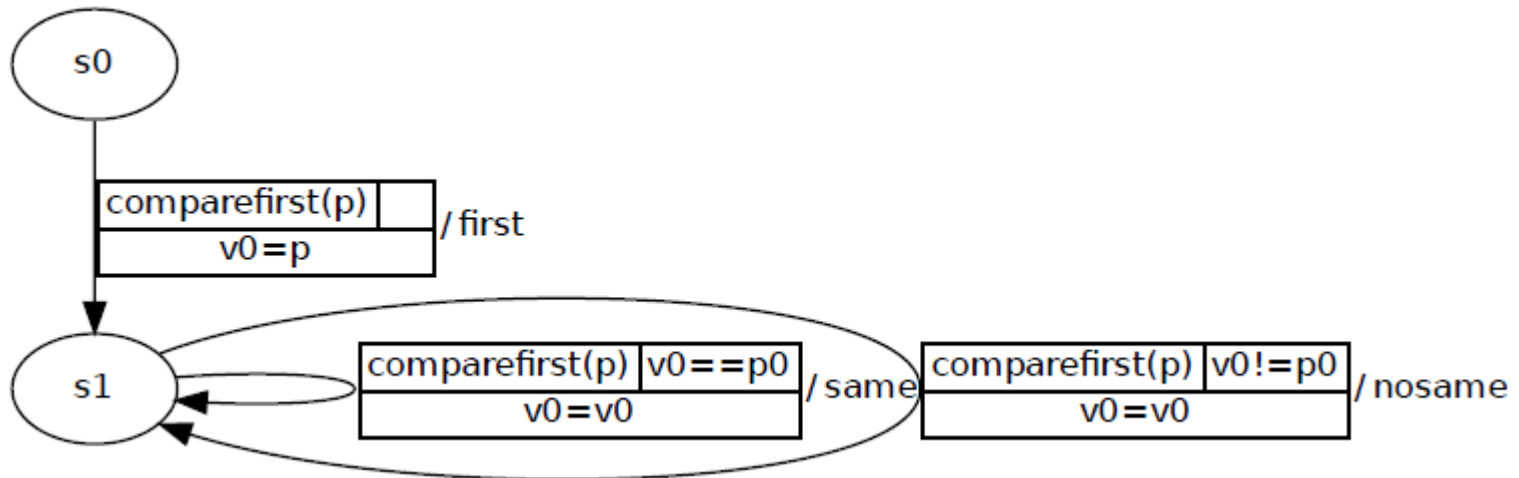


What is a replacement policy?

- Management of the contents in the cache memory
- Hit
- Miss
- FIFO, LRU, PLRU, MRU



What is an RMM?





Previous works

- Already exists a method to infer the replacement policy
- This method is called Permutation Vectors
- This method have some limitations



Objectives

- Modelling replacement policies with RMM
- Use a Learning Process to infer the replacement policy
- Design a method to use the Learning process over a real system