(not) How to join the LFCS

Jane Hillston

April 13th 2016

1st July 1989

My journey

My journey

Fallowfield High School for Girls, Manchester 1982

My journey

BA in Mathematics, York University 1985

My journey

LEHIGH UNIVERSITY

MSc in Mathematics, Lehigh University 1986

My journey

The City of London working for Logica 1987-1988

My journey

I dreamt of a return to a purer world...

1st July 1989

I arrived to take up a research assistant position on an EU-funded project (IMSE) in the Department of Computer Science at the University of Edinburgh with a plan to take a PhD part-time.

A Divided World

At that time the Department of Computer Science consisted of:

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- The LFCS

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- The Computer Systems Group (CSG)

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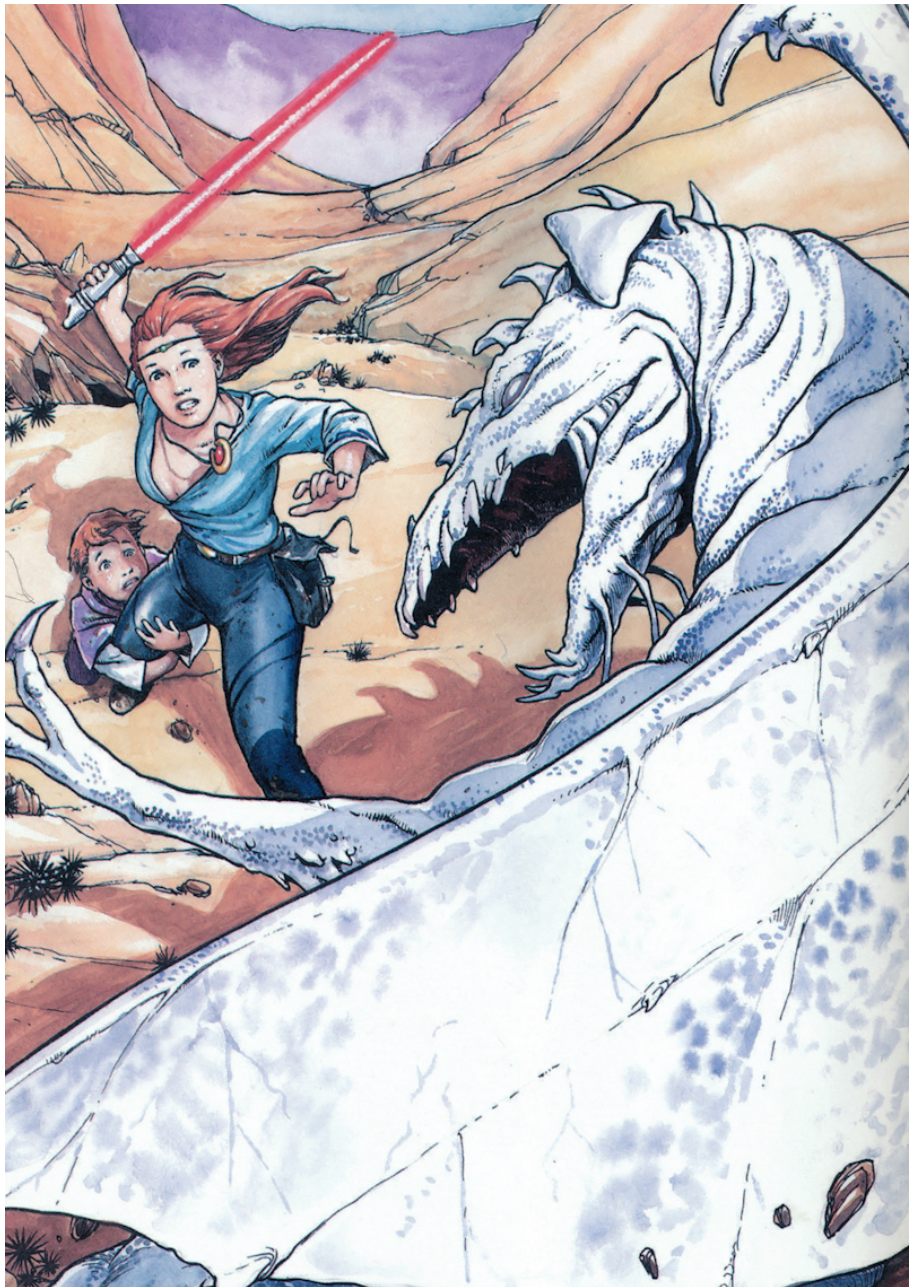
Department of Computer Science, circa 1990

Department of Computer Science, circa 1994

A noble quest...

How do you become eligible to join the LFCS?

Proving myself worthy



Proving myself worthy

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Proving theorems

Proving theorems is one of the great terrors.

The IMSE project

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- The formalisms considered were queueing networks, generalised stochastic Petri nets and simulation models.

Greener pastures...

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Through reading and attending seminars I discovered process calculi and fell in love!

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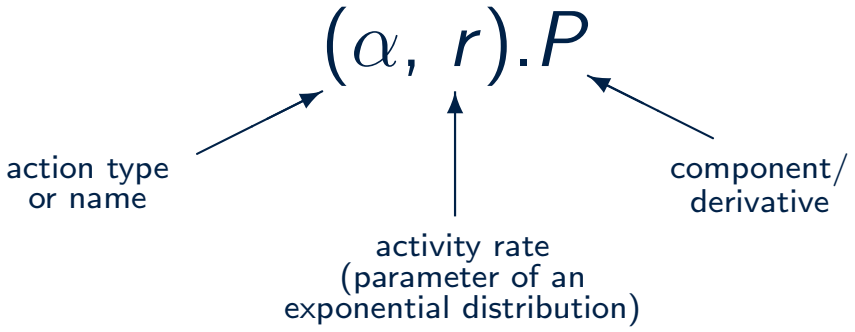
- Performance Evaluation Process Algebra (PEPA) sought to address these problems by the introduction of a suitable process algebra.
- The PEPA project sought to investigate and exploit the interplay between the process algebra and the continuous time Markov chain (CTMC).

Performance Evaluation Process Algebra

- Models are constructed from components which engage in activities.



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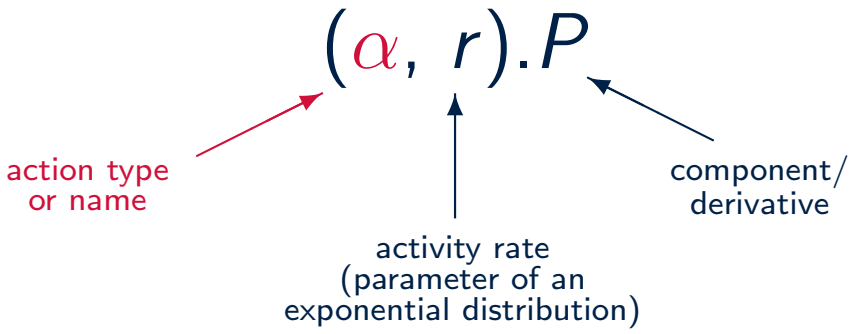

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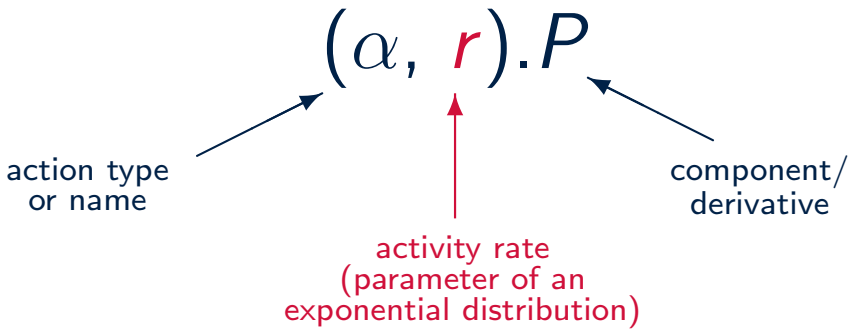

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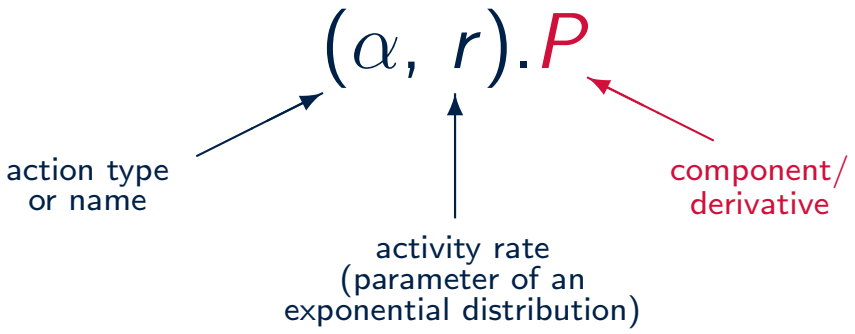

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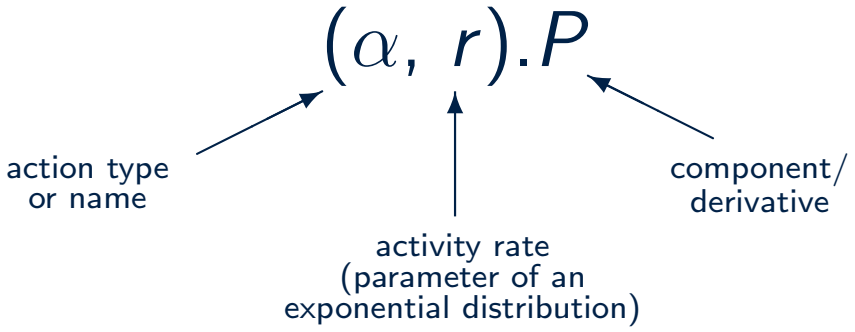

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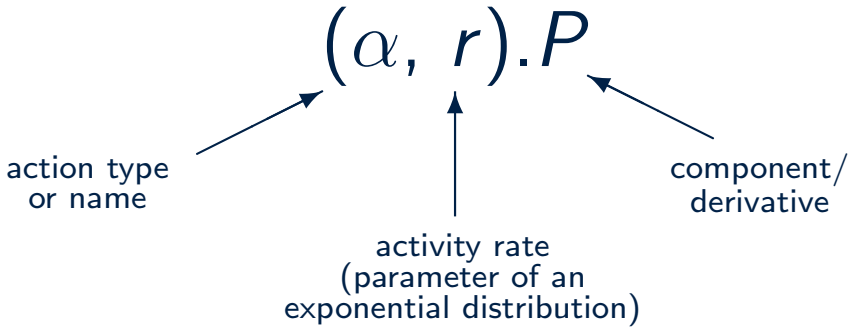

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PEPA
MODEL

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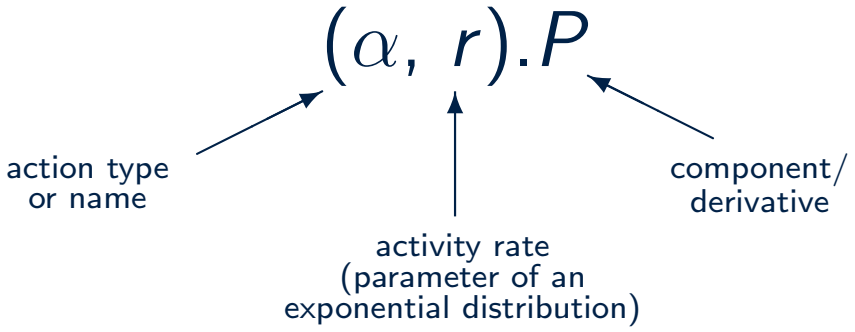

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PEPA MODEL $\xrightarrow{\text{SOS rules}}$

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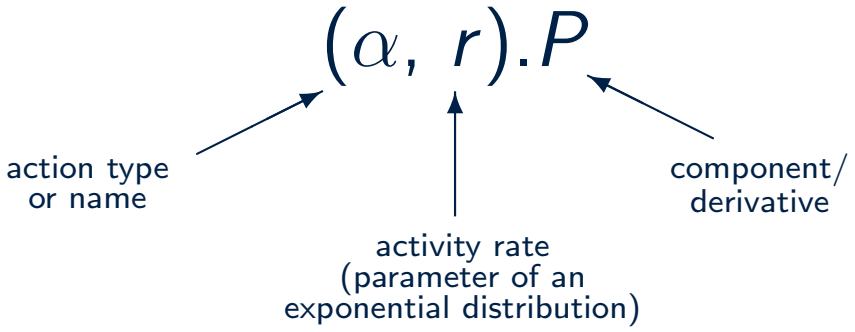

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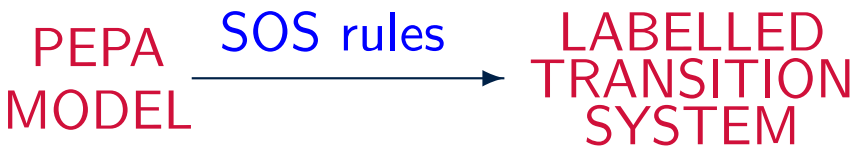

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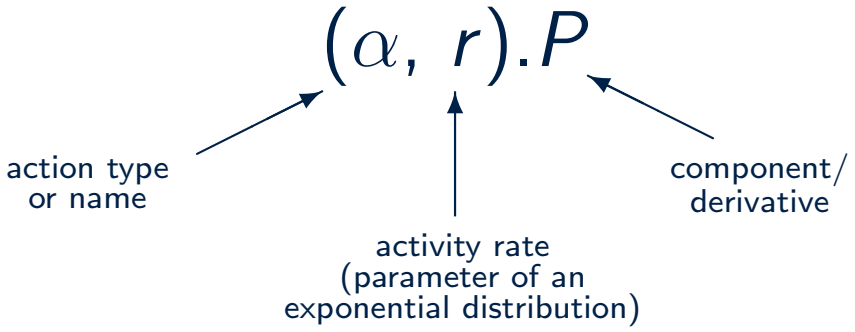

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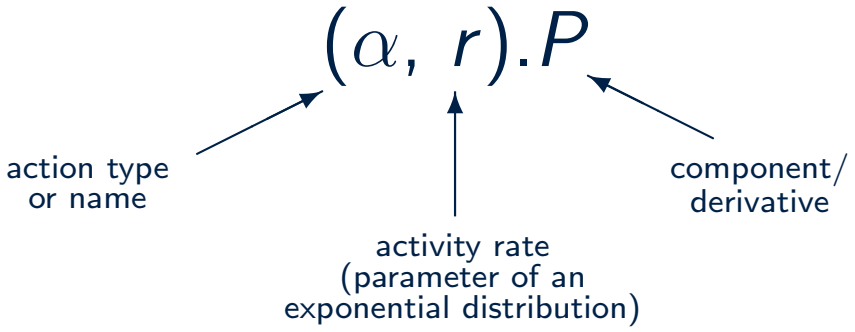

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Integrated analysis

- Qualitative verification can now be complemented by quantitative verification:

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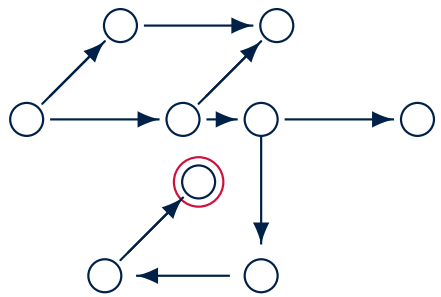
Reachability analysis

How long will it take for the system to arrive in a particular state?

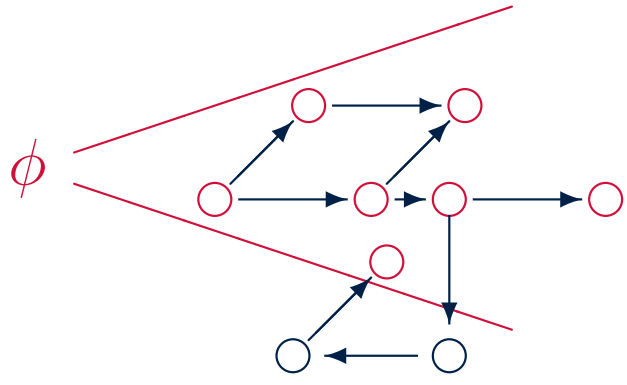


Integrated analysis

- Qualitative verification can now be complemented by quantitative verification:

Model checking

Does a given property ϕ hold within the system with a given probability?

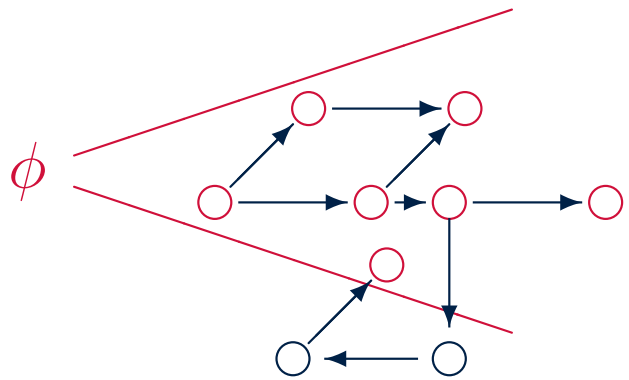


Integrated analysis

- Qualitative verification can now be complemented by quantitative verification:

Model checking

For a given starting state
how long is it until
a given property ϕ holds?



Completing the PhD

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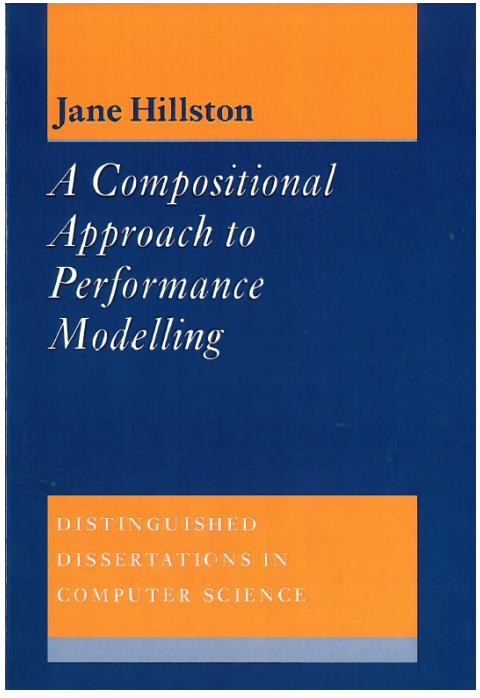
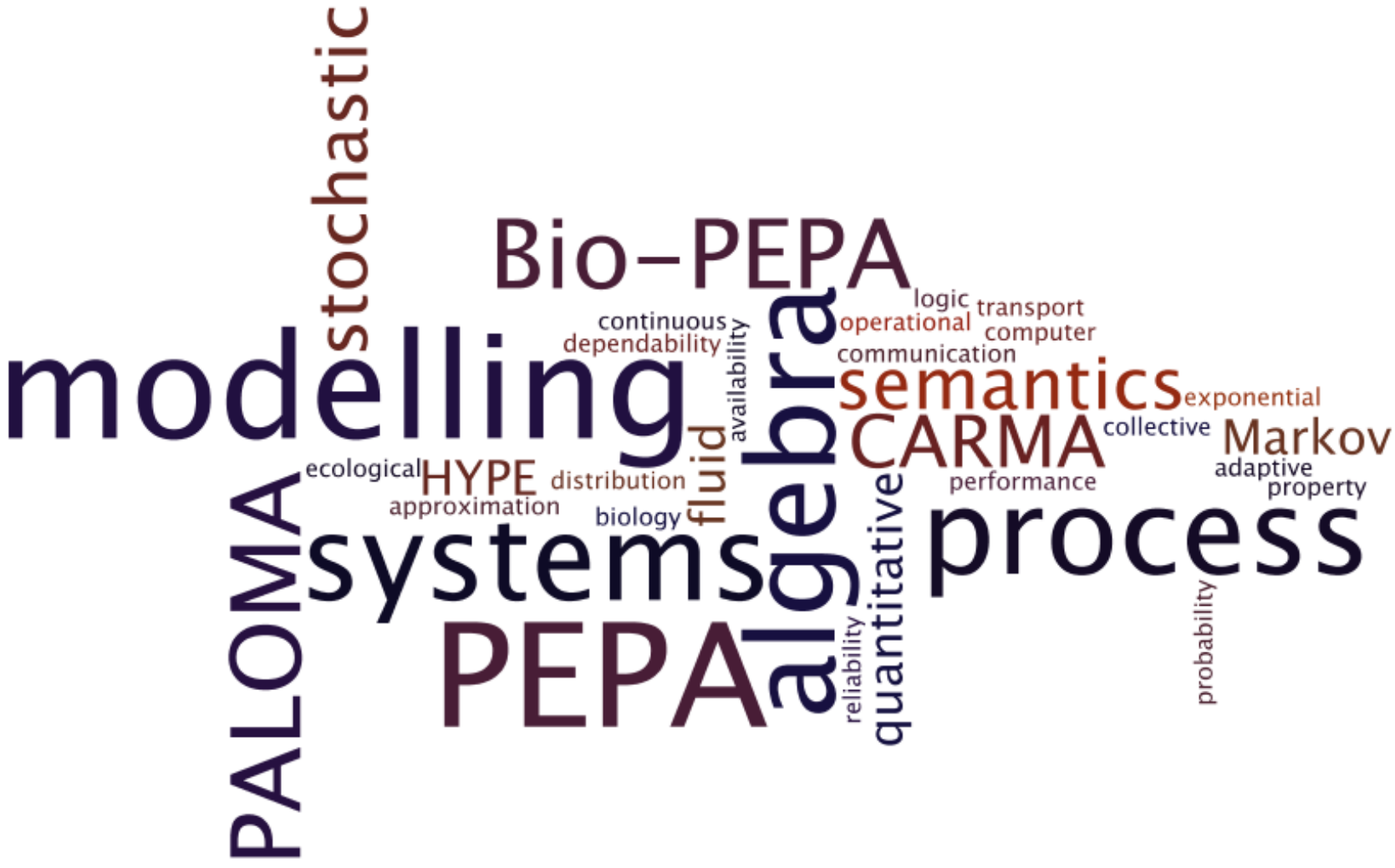
The thesis

I completed my dissertation at the end of 1993 and took up a post-doctoral fellowship in the LFCS in 1994.



And the project continues...



And they all lived happily ever after...

And they all lived happily ever after...

I was very honoured to serve as Director of the LFCS 2011-2014.

How do you become eligible to join the LFCS?

Just by wanting to!