

PACE

April 22/23, 2013, Bologna

PACE – basic information

- ▶ 4 years 1/1/13 - 31/12/16
- ▶ funded by **ANR** (France)
and **Natural Sciences Foundation of China** (NSFC)
plus some extra funding (from China) for visits (2013 only)
- ▶ acknowledgements in papers:

This work has been supported by project **ANR 12IS02001 PACE**.
(at least for “us french”)

- ▶ three partners
 - ▶ **BASICS**, Shanghai Jiao Tong University
 - ▶ **INRIA**
 - ▶ Sophia Antipolis (Focus)
 - ▶ Saclay (Comete)
 - ▶ **École Normale Supérieure de Lyon**

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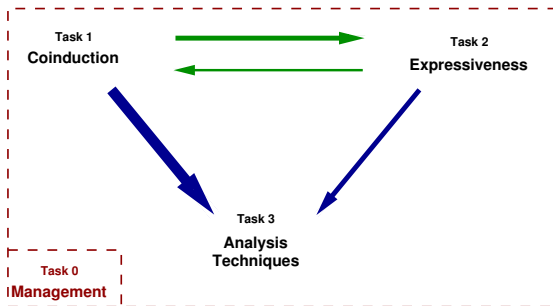
<http://perso.ens-lyon.fr/daniel.hirschkoff/pace/>

(not really googlable)

PACE

beyond plain Processes:

Analysis techniques, Coinduction and Expressiveness



Genesis

$$\tau_b^+ | a(c).dc$$

τ is a PO

Interpretation Source of τ
- Probability measure

τ_b^+ = costs
for τ at node b

τ_b^+ = costs
for τ at node b

τ_b^+ = costs
for τ at node b

Interpretation of
costs = costs
for τ at node b
for τ at node b
for τ at node b

(P.1.1)



Capabilities (logique)

W to
help
prob
quant
ccp

Concl

Expr

Analysis

quantum
algorithms
up-to
fragments
disables
probabilities

(symbolic)

algorithms

up-to

fragments

disables

probabilities

algorithms

up-to

fragments

disables

probabilities

generic framework

(X, L, T)

P, R, Q
dualities
to X in
calculus

quantum

algorithms

up-to

fragments

disables

probabilities

algorithms

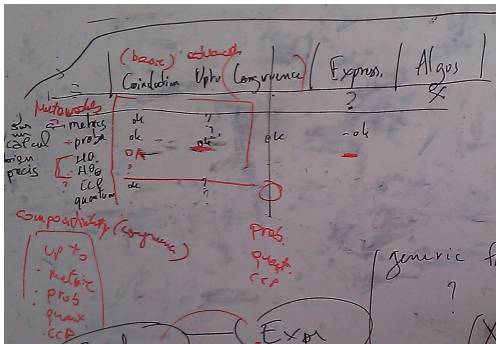
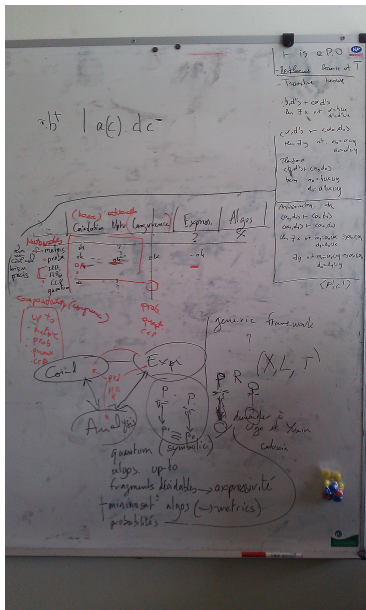
up-to

fragments

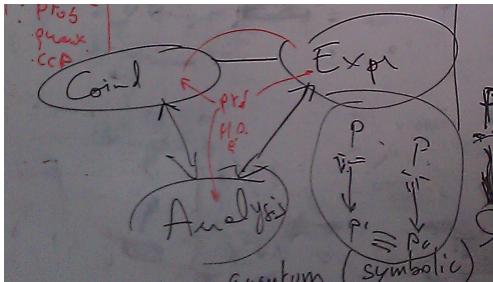
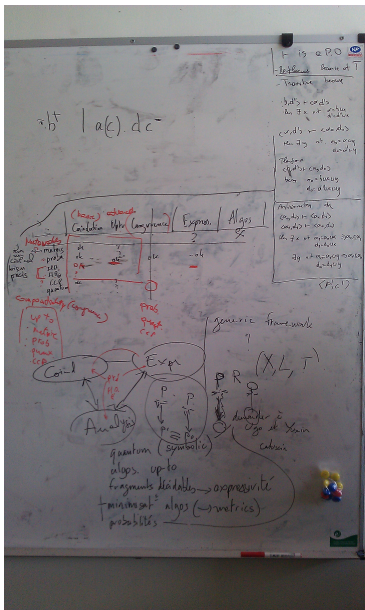
disables

probabilities

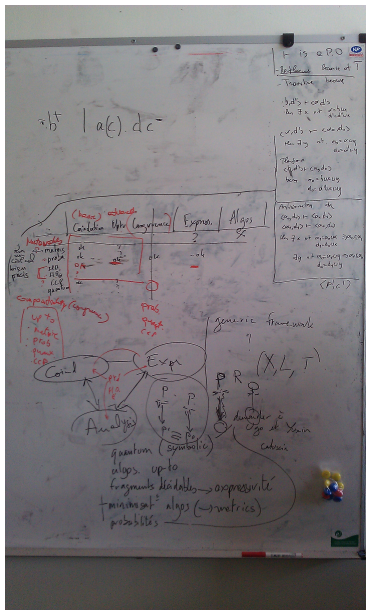
Genesis



Genesis



Genesis



generic framework
?
 (X, L, T)
P R
demande à
Ogo et Xuxin
catuwin

Rather boring administrative matters

- ▶ Frank Valencia has presented PACE at the **ANR meeting on January the 24th, in Paris** (*thanks!*)
- ▶ INRIA bi-localisation for funding
(Sophia sends money to Saclay)
- ▶ **Consortium agreement**, to be signed by all parties, is ready
(INRIA Saclay doesn't see this)

Faites une réunion de lancement !

Présence de tous les partenaires

Contenu minimum recommandé

Planification

Rôles de chacun

Management et coordination du projet

Aspects logistiques, réunions, outils

Dissémination, valorisation

Propriété Intellectuelle

Accord de consortium

Et évidemment, aspects scientifiques et techniques

Compte-rendu dans le rapport à T0+6

February 2014: meeting in Lyon

Mathematical Structures of Computation - Lyon 2014

January 13 - February 14



[Home](#) [Week 1](#) [Week 2](#) [Week 3](#) [Week 4](#) [Week 5](#) [Participants](#) [Informations](#) [Registration](#)

[Contact](#)

Track: [week 2](#) • [start](#)

Mathematical Structures of Computation ■

■ Presentation

The weeks "Mathematical Structures of Computation" address several aspects of the interaction between Mathematics and Computer Science.

On the one hand, mathematical methods play a crucial role in several fields of Computer Science, such as the formal verification of programs and the theory of programming languages : logic and proof theory in particular are historical tools in this regard, and more recently, others theories such as algebraic topology discovered interesting applications.

On the other hand, concepts and techniques coming from Computer Science have notable applications in Mathematics. For instance, rewriting gives algebraic decision procedures and algorithms to compute homological invariants.

The central theme of this five-weeks session is the notion of computation. It will be developed under several aspects: algebraic computation, certified numeric computation, execution of concurrent processes, etc.

We illustrate this crossed enrichment between Mathematics and Computer Science through five workshops about of these expanding research fields.

■ Program

- Week 1 : [Recent developments in Type Theory](#), January 13-17.
- Week 2 : [Algebra and Computation](#), January 20-24.
- Week 3 : [Directed Algebraic Topology and Concurrency](#), January 27-31.
- Week 4 : [Formal proof, Symbolic computation and Arithmetic of computers](#), February 3-7.
- Week 5 : [Concurrency, Logic and Types](#), February 10-14.

■ Organisation

- Patrick Ballew,
- Yves Guiraud,
- Philippe Malbos

- ▶ <http://smc2014.univ-lyon1.fr>
- ▶ Week 5: Concurrency, Logic and Types
From February 10 to February 14, ENS Lyon.
- ▶ **PACE days: february 10 & 11, 2014**

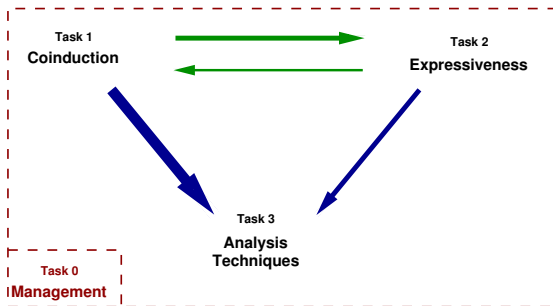
Please keep me informed

- ▶ hiring of people within PACE (postdocs)
 - ▶ new members (PhD students, ...)
 - ▶ anything else
-
- ▶ I will be asking for input from all of you to prepare the reports to ANR (june 30th is the next one)

PACE

beyond plain Processes:

Analysis techniques, Coinduction and Expressiveness



Description of the tasks

► Task 1: Advanced Coinductive Techniques

Task leader: Davide Sangiorgi / Deputy task leader: Xu Xian

- T1.1: Up-to techniques Tu 11.30
- T1.2: From equivalences to metrics Tu 14.00
- T1.3: Probabilistic and quantum higher-order languages Mo 16.00
16.45
- T1.4: Quantum processes Tu 9.30

► Task 2: Expressiveness

Task leader: Fu Yuxi / Deputy task leader: Catuscia Palamidessi

- T2.1: Absolute theory Mo 9.30
- T2.2: Expressiveness in social networks Mo 14.30
- T2.3: Applications to privacy, confidentiality and anonymity Mo 11.00

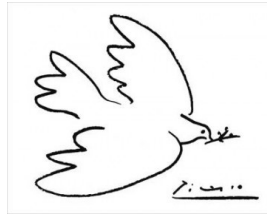
► Task 3: Analysis techniques

Task leader: Damien Pous / Deputy task leader: Deng Yuxin

- T3.1: Algorithms relying on up-to techniques Tu 11.30
- T3.2: Up-to techniques in algorithms for metrics Tu 14.00
- T3.3: Algorithms for quantum bisimulations Tu 9.30
- T3.4: Minimization algorithms for symbolic bisimulation

Let us vote for a logo

Let us vote for a logo



Let us vote for a logo



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Local arrangements

- ▶ access to wireless
- ▶ lunch
- ▶ dinner