Holographic treatment of noncommutative actions and a forgotten algorithm of MPS.

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In all what follows, MPS stands for Marcel-Paul Schützenberger, see

`https://en.wikipedia.org/wiki/Marcel-Paul_Sch\"{u}zenberger//`
`http://mps2016.labri.fr/`
`http://www-igm.univ-mlv.fr/~berstel/Mps/index.html`

Then, MPS was a master in many things, in particular within the domain he created[1] : automata theory, transition systems, theory of codes, varieties of languages all domains which eventually revealed to be connected to representation theory, paths in categories, Hopf algebras, quantum groups and modern physics.

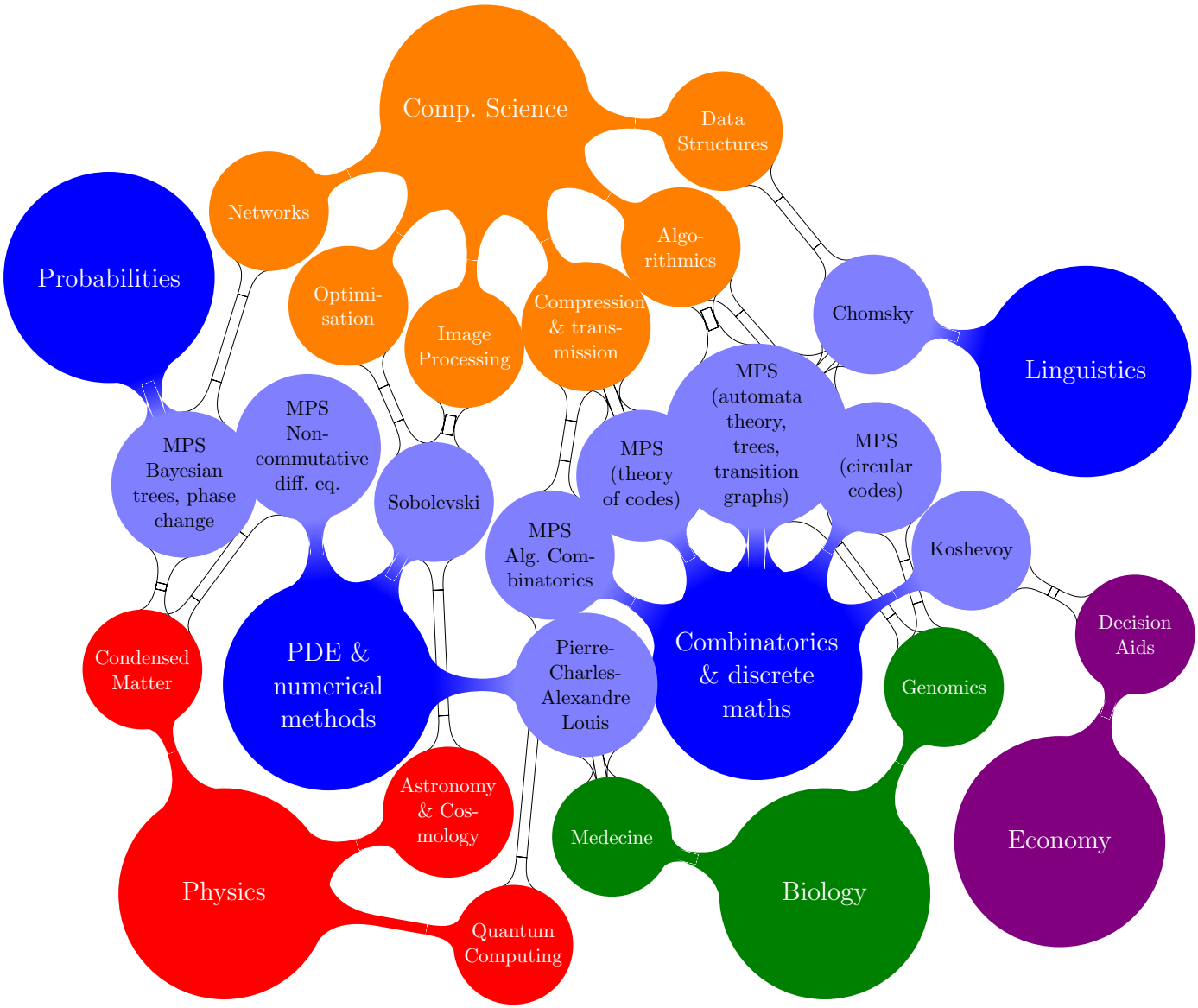
In the next page, can be found a (fat) graph illustrating the place of MPS within the scientific neighbourhood of computer sciences.

Here, we will provide a very general procedure to deal with *transition graphs* which can be endowed with *costs* or *weights* and can be finite as well as infinite and can have cycles as well as be (bayesian or not) trees.

When we talk about *automata in the large* in the theory of languages, in fact we are really thinking about transition systems because although automata are commonly thought as "finite state machines", they can serve as well as a good inspiring metaphor for "infinite state" transition processes and also, they are a natural representation of actions on a graphs. In general succession of actions do not commute and this was the genius of MPS to show how to cope with sets of non-commuting actions encapsulating them as a holographic parallel treatment. In this talk, we will explain this transformation, give examples and the quick algorithm which is derived from this viewpoint.

We hope that this theory of pathes which enlightens the rationality phenomena will inspire efficient collaborations.

1. Theoretical Computer Science


Comp. Science
Data Structures
Networks
Algo-rithmics
Probabilities
Optimi-sation
Image Processing
Compression & trans-mission
Chomsky
Linguistics
MPS Non-commutative diff. eq.
MPS Bayesian trees, phase change
Sobolevski
MPS (theory of codes)
MPS (automata theory, trees, transition graphs)
MPS (circular codes)
MPS Alg. Com-binatorics
Koshevoy
Decision Aids
Condensed Matter
PDE & numerical methods
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