

Open problems in object and distributed programming

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Here are some open problems and/or non-trivial programming tasks: some of them may lead to a Ph.D. thesis, others may result in a publication. We have more open questions and many programming tasks that may lead to a scientific result. Every person interested in solving the problems is welcome. Contact: salwicki (at) mimuw.edu.pl.

1. Does the alien call protocol, known in Loglan'82 is implementable in Java? If so then show the corresponding classes. If not then send a proof.
2. Can you implement the alien call protocol in C++?
3. Implement coroutines in Java.
4. The present version of Loglan proves that it is possible to manage concurrent as well as distributed computations in a uniform way. Is it possible to extend this model onto parallel computations?
5. Prove that coroutine statement `attach(x)` may be viewed as cyclic rotation of the stack of activation records such that the new top of the stack is the most recent activation record of dynamic chain of the coroutine `x`. (Observation due to Brian Mayoh 1972)