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Extending a parallel CLP language to support the development of multi-agent systems

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Abstract: An extension of Me parallel constraint logic programming language ElipSys is presented. This extension is directed towards the development of multi-agent systems which have to deal with large combinatorial problems that are distributed in nature. Problems of this kind, after being decomposed into subproblems, may be tackled efficiently by individual agents using ElipSys’ powerful mechanisms, such as parallelism and constraint satisfaction techniques. The proposed extension supports the communication requirements of the agents, in order to have them cooperate and solve the original combinatorially intensive problem. The communication scheme among the agents is viewed as a three-layered model. The first layer is socket oriented, the second realizes a blackboard architecture and the third supports virtual point-to-point interaction among the agents.