Beldiceanu, N.; **Contejean, E.**
Introducing global constraints in CHIP. (English) ‖ Zbl 0816.68048
Math. Comput. Modelling 20, No. 12, 97-123 (1994).

Summary: The purpose of this paper is to show how the introduction of new primitive constraints (e.g., among, diffn, cycle) over finite domain in the constraint logic programming system CHIP result in finding very rapidly good solutions for a large class of difficult sequencing, scheduling, geometrical placement and vehicle routing problems. The among constraint allows us to specify sequencing constraints in a very concise way. For the first time, the diffn constraint allows us to express and to solve directly multi-dimensional placement problems, where one has to consider nonoverlapping constraints between n-dimensional objects (e.g., rectangles, parallelepipeds). The cycle constraint makes it possible to specify a wide range of graph partitioning problems that could not yet be expressed by using current constraint logic programming languages. One of the main advantages of all these new primitives is to take into account more globally a set of elementary constraints. Finally, we point out that all the previous primitive constraints enhance the power of the CHIP system significantly, allowing us to solve real life problems that were not within reach of constraint technology before.

MSC:

68N17	Logic programming
68M20	Performance evaluation, queueing, and scheduling in the context of computer systems

Cited in **37** Documents

Keywords:

scheduling; constraint logic programming system; rectangles, parallelepipeds; graph partitioning problems; CHIP system

Software:

CHIP

Full Text: DOI

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