5.326 power

DESCRIPTION LINKS

Origin [137]

Constraint power(X, N, Y)

Synonym xexpyeqz.

Arguments

X	:	dvar
N	:	dvar
Y	:	dvar

Restrictions

$X \geq 0$
$N \geq 0$
$Y \geq 0$

Purpose Enforce the fact that Y is equal to X^N.

Example $(2, 3, 8)$

The power constraint holds since 8 is equal to 2^3.

Typical

$X > 1$
$N > 1$
$N < 5$
$Y > 1$

Arg. properties

Functional dependency: Y determined by X and N.

Algorithm In [137] a filtering algorithm for the power constraint was automatically derived from the algorithm that multiplies X by itself N times by using constructive disjunction and abstract interpretation in order to approximate the behaviour of the while loop of that algorithm.

Systems xexpyeqz in **JaCoP**.

See also **common keyword:** gcd (*abstract interpretation*).

Keywords **constraint arguments:** ternary constraint, pure functional dependency.

constraint type: arithmetic constraint, predefined constraint.

filtering: abstract interpretation.

modelling: functional dependency.