

## 5.325 power

	DESCRIPTION	LINKS
<b>Origin</b>	[137]	
<b>Constraint</b>	<code>power(X, N, Y)</code>	
<b>Synonym</b>	<code>xexpyeqz</code> .	
<b>Arguments</b>	X : <code>dvar</code> N : <code>dvar</code> Y : <code>dvar</code>	
<b>Restrictions</b>	$X \geq 0$ $N \geq 0$ $Y \geq 0$	
<b>Purpose</b>	Enforce the fact that Y is equal to $X^N$ .	
<b>Example</b>	(2, 3, 8)	
	The power constraint holds since 8 is equal to $2^3$ .	
<b>Typical</b>	$X > 1$ $N > 1$ $N < 5$ $Y > 1$	
<b>Arg. properties</b>	<b>Functional dependency:</b> Y determined by X and N.	
<b>Algorithm</b>	In [137] a filtering algorithm for the <code>power</code> constraint was automatically derived from the algorithm that multiplies X by itself N times by using constructive disjunction and <a href="#">abstract interpretation</a> in order to approximate the behaviour of the while loop of that algorithm.	
<b>Systems</b>	<code>xexpyeqz</code> in <a href="#">JaCoP</a> .	
<b>See also</b>	<b>common keyword:</b> <code>gcd</code> ( <a href="#">abstract interpretation</a> ).	
<b>Keywords</b>	<b>constraint arguments:</b> ternary constraint, pure functional dependency. <b>constraint type:</b> arithmetic constraint, predefined constraint. <b>filtering:</b> abstract interpretation. <b>modelling:</b> functional dependency.	

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