# Introduction

This Model form is a short description of the Eratosthenes' sieve model that comes, for the Model Checking Contest @ Petri Nets, with: a set of PNML files, a set of properties to be checked (possibly one file per model instance) and an optional set of properties concerning the model (invariants, etc. – possibly one file per model instance). For Coloured Nets, equivalent PNML P/T net files are proposed too.

Eratosthenes' sieve
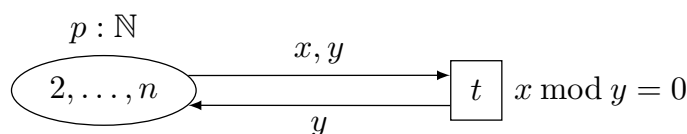
Presentation

Description: This model implements an Eratosthenes' sieve: place p contains all the integers from 2 to scaling parameter n, to be filtered by the sieve. Each firing of t consumes two integers x and y from p if y is a divider of x and returns only y to the place. When t cannot be fired anymore, p is marked with only prime numbers.

An unfolding can be provided but would reduce the complexity of the model because all the guards would have been already validated. But this is exactly one of the difficulties with coloured Petri on this model: the combinatorial when choosing token x and y such that $x \bmod y = 0$. So we strongly suggest that unfolding, if allowed, should be included into the analysis time of P/T net tools.

This model have been produced from a high-level colored net (python-like description).

Origin: None

Scaling parameter

Name	Description	Values
n	size of the sieve	to be defined by tests

Information about the Model

Data on the Model

Number of places	Number of transitions	Number of arcs	Scaling parameter value
1	1	2	10, 20, 50 ,100, 200, 500

Stated Properties

safe	✔	free choice	?	event graph	?
deadlock	✔	state machine	?	reversible	?

Other Properties (not mandatory)