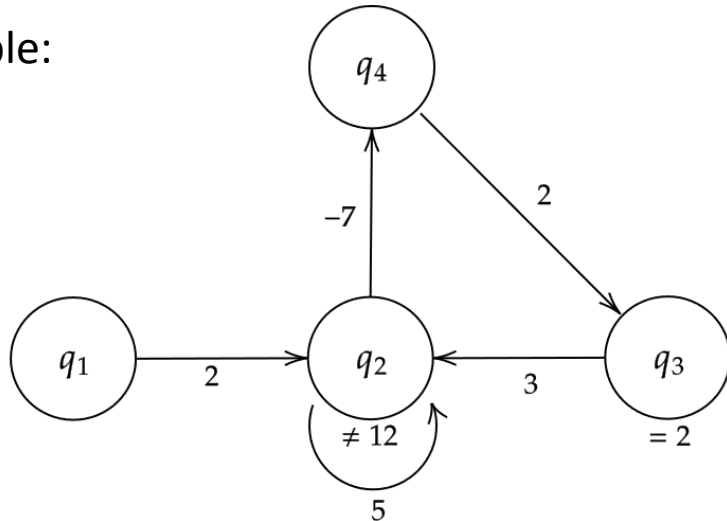


# Reachability in 1-VASS with tests

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1-VASS with = &  $\neq$  tests

Example:



Reachability = existence of a run from  $(s, 0)$  to  $(t, 0)$

State of the art on 1-VASS with tests:

Without tests	With = tests	With = & $\neq$	with $\leq$ & $\geq$
NP-complete	NP-complete	Open (PSPACE & NP-hard)	PSPACE-complete

My contribution:

NP-completeness when all  $\neq$  are on the same state

To give a NP-certificate, we have to find a new run that is easy to remember and to verify. The hard part is for the certificate to prove that the run does not hit the  $\neq$  guards.

Core idea: « Compression » arguments:

