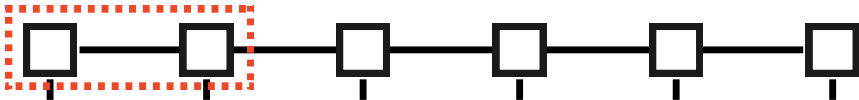
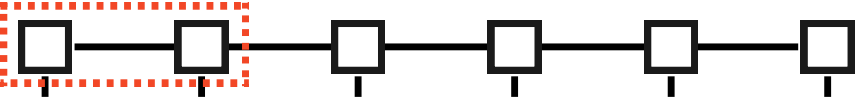


MPS kung fu

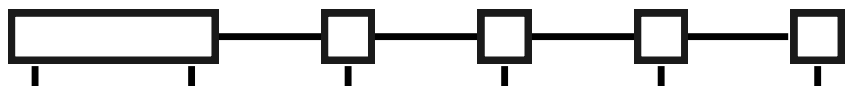
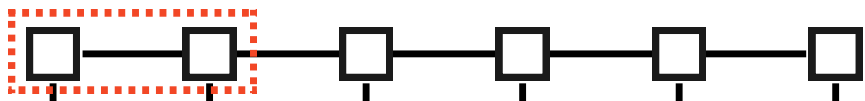
Canonization



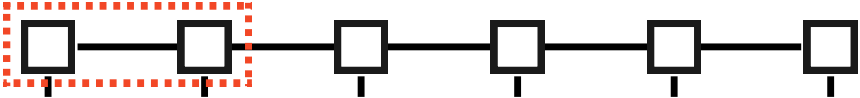
Canonization



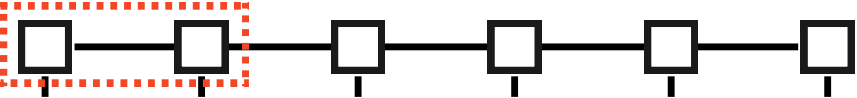
Canonization



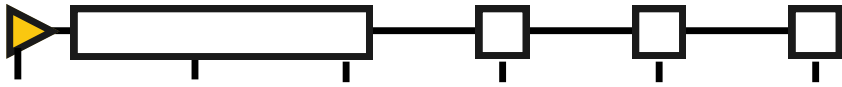
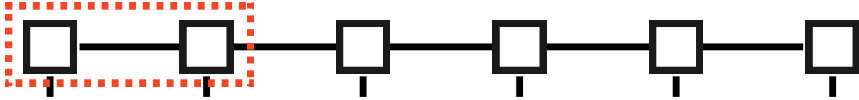
Canonization



Canonization



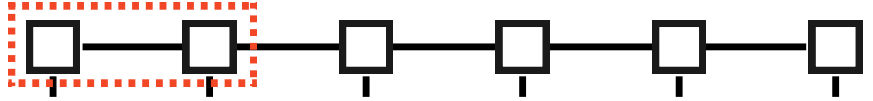
Canonization



canonical form:



Canonization



⋮

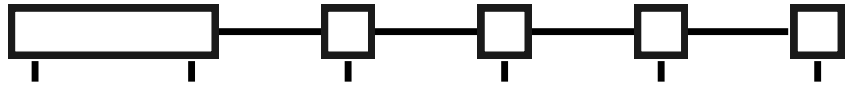
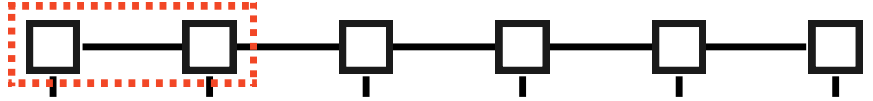
canonical form:



Shift bipartition



Canonization



⋮

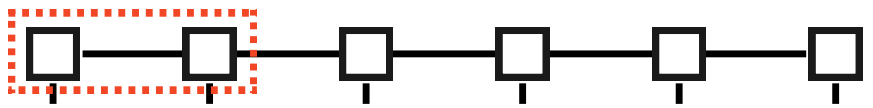
canonical form:



Shift bipartition



Canonization



⋮

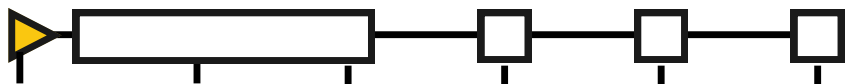
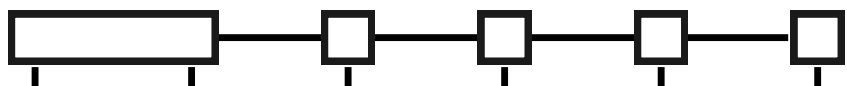
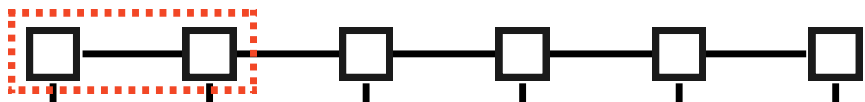
canonical form:



Shift bipartition



Canonization



⋮

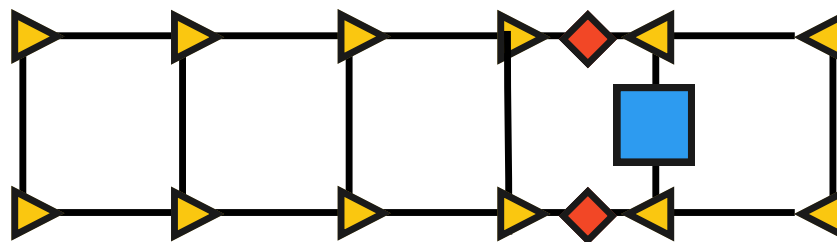
canonical form:



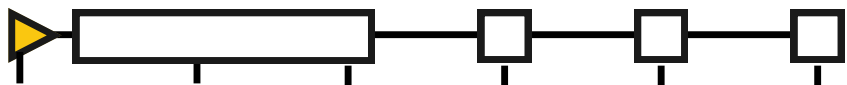
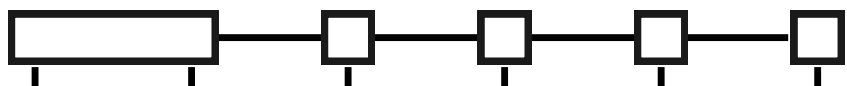
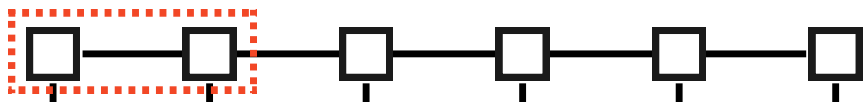
Shift bipartition



Observables: $\langle \psi | \hat{O}_i | \psi \rangle$



Canonization



⋮

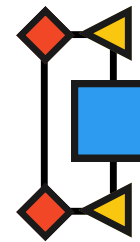
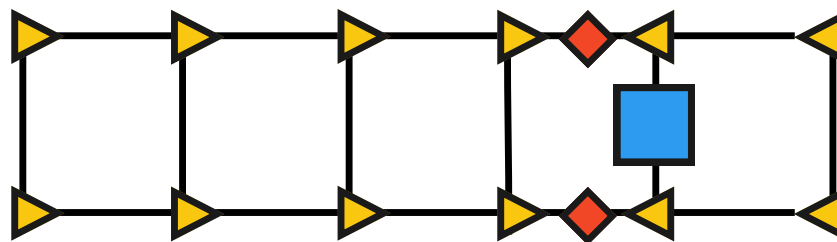
canonical form:



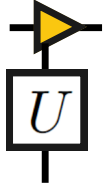
Shift bipartition



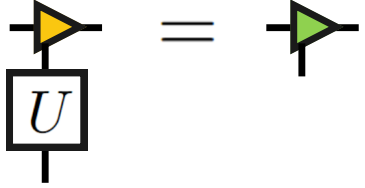
Observables: $\langle \psi | \hat{O}_i | \psi \rangle$



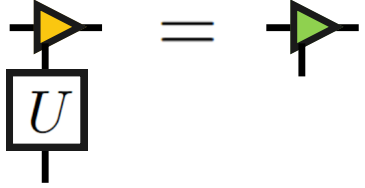
1-qubit unitary



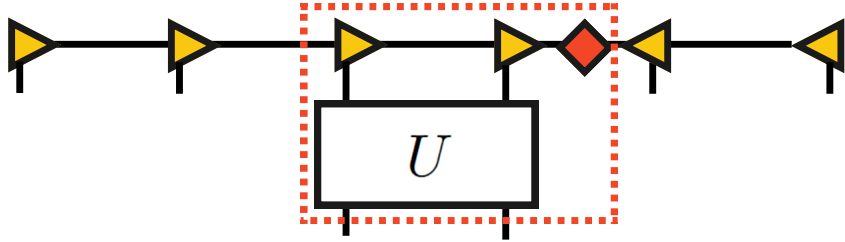
1-qubit unitary



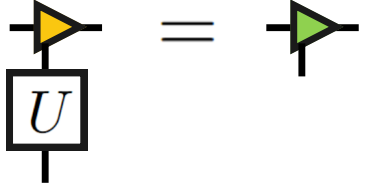
1-qubit unitary



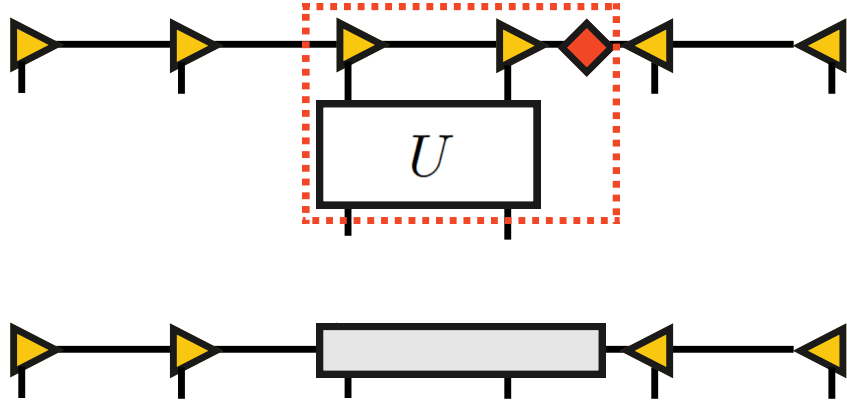
2-qubit evolution



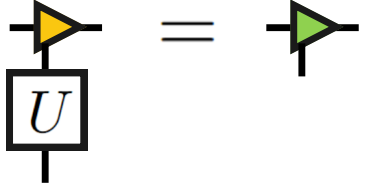
1-qubit unitary



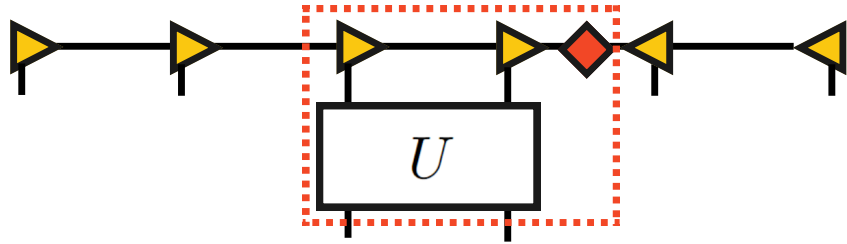
2-qubit evolution



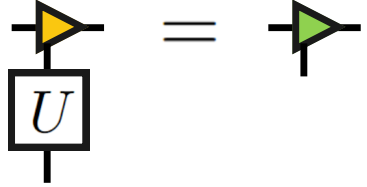
1-qubit unitary



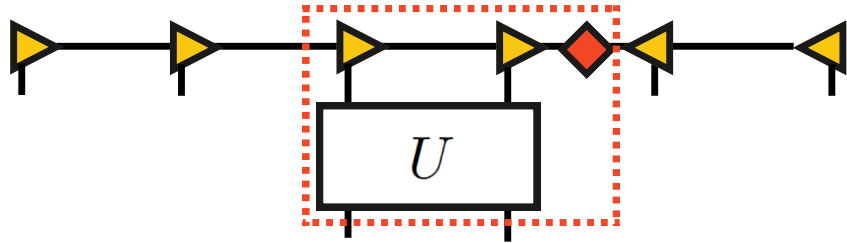
2-qubit evolution



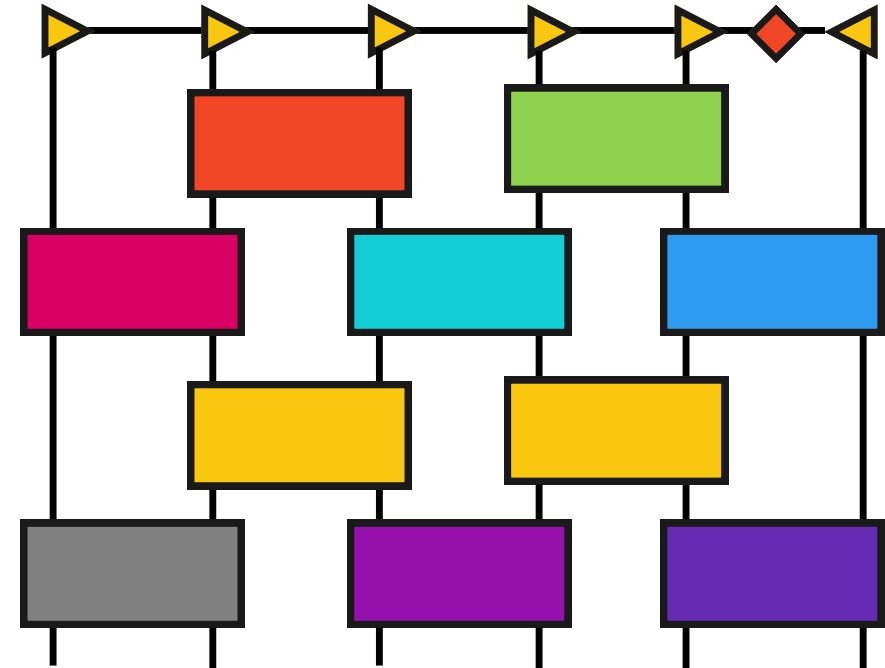
1-qubit unitary



2-qubit evolution



Quantum circuits / Trotter evolution



- real-time: quantum dynamics
- imaginary-time: find ground state