

From Communicating Machines to Graphical Choreographies

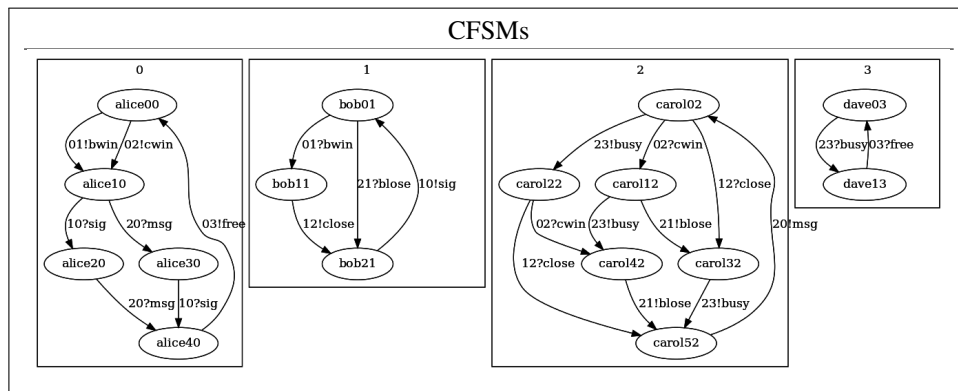
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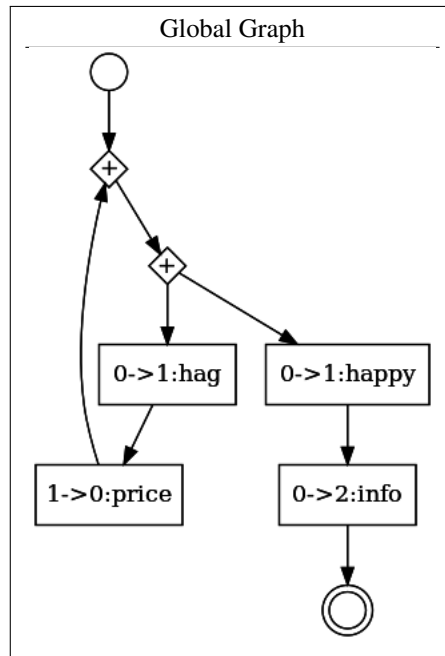
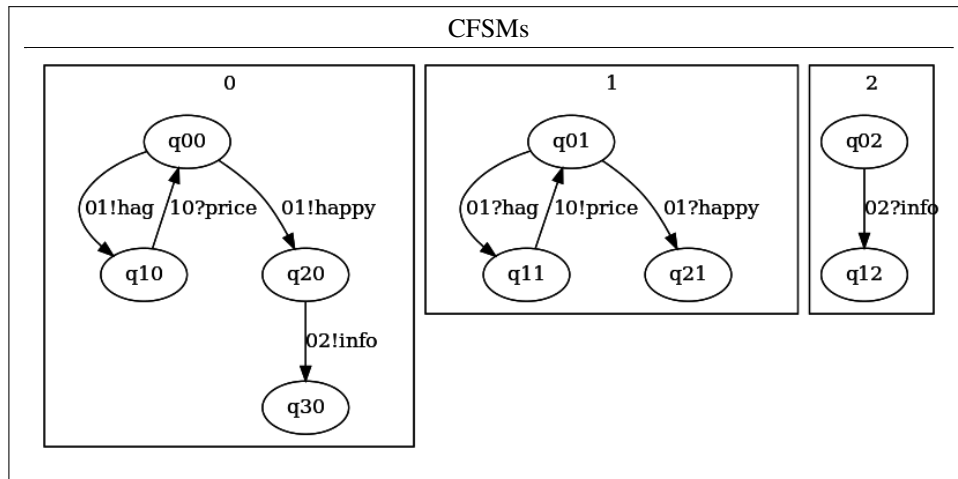
¹ Imperial College London, UK ² University of Leicester, UK

In this document, we give a graphical representation of each protocol used in the benchmark. Textual representations of these are also available in [2] (cf. `gmc-synthesis/tests/benchmark/gmc` directory).

0.1 Running Example

This is our running example.

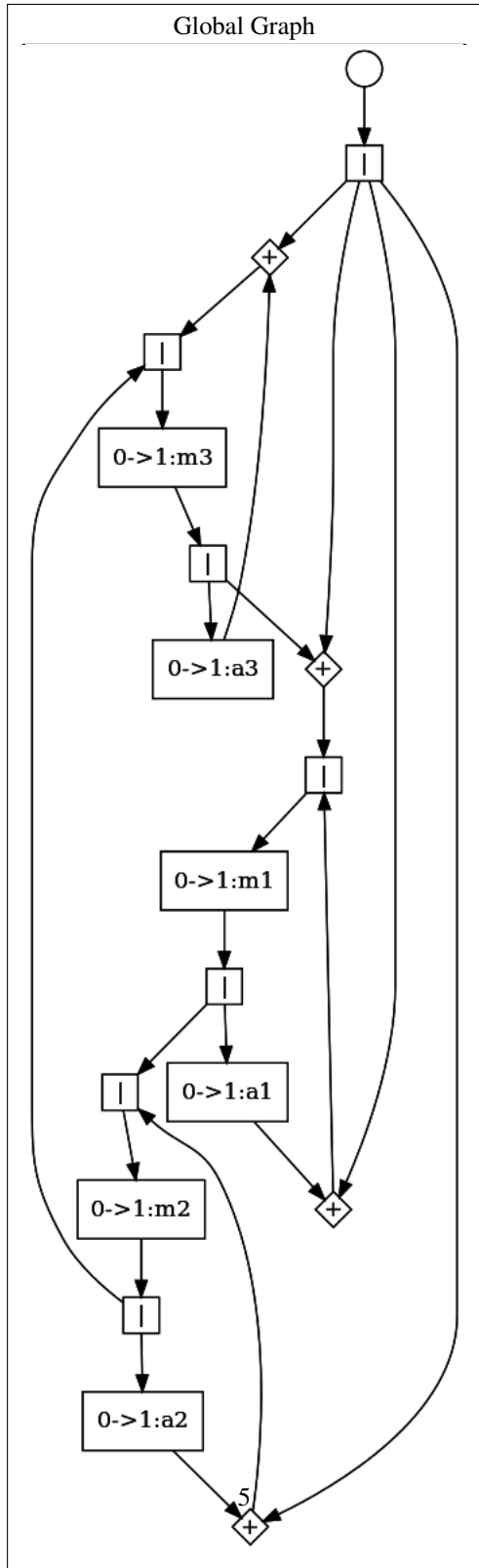




0.3 Alternating 3-bit protocol

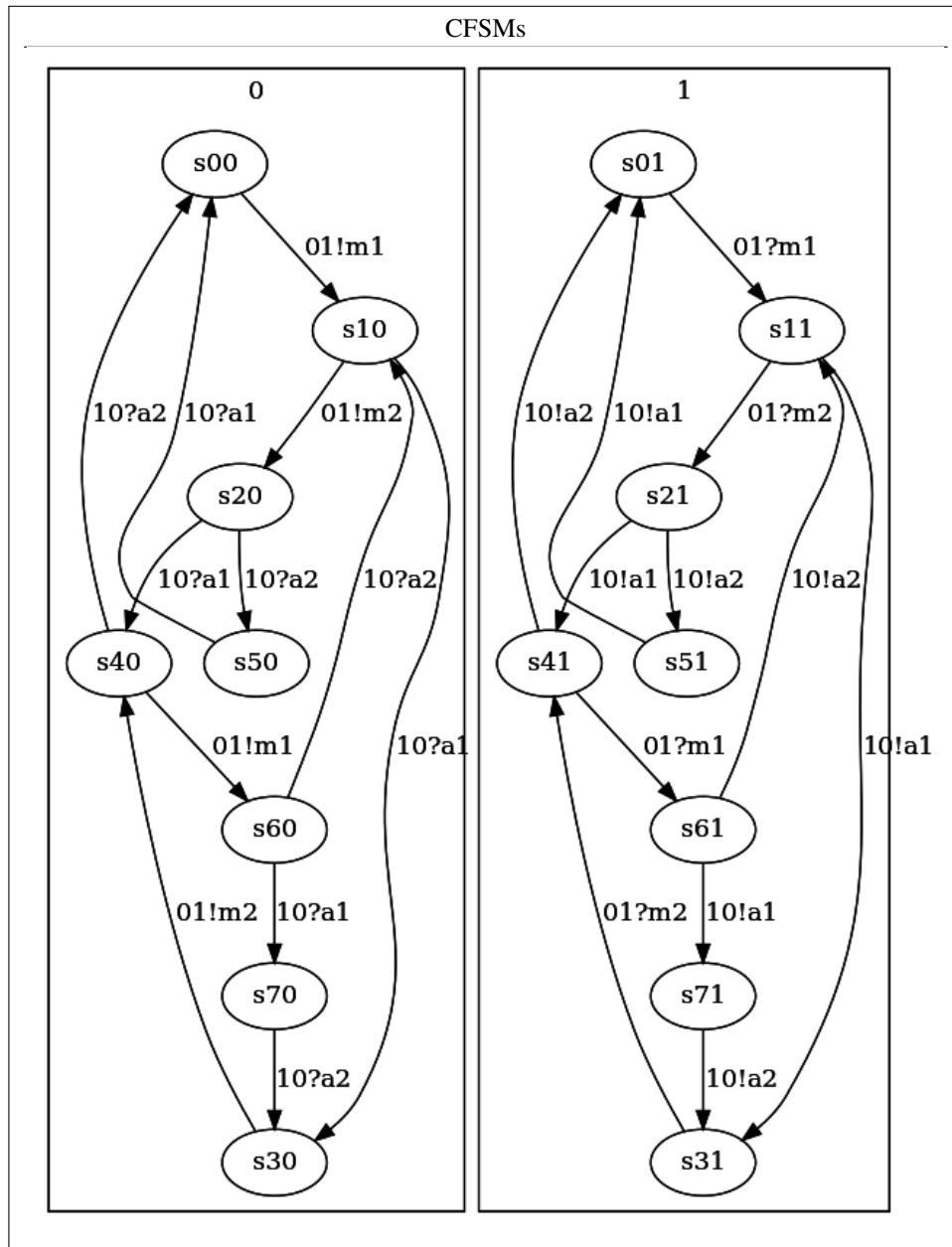
This protocol, adapted from [4], models a protocol where machine 0 repeatedly sends to machine 1 alternating messages m_1 , m_2 , and m_3 but will always concurrently wait for the acknowledgement a_i before sending m_i .

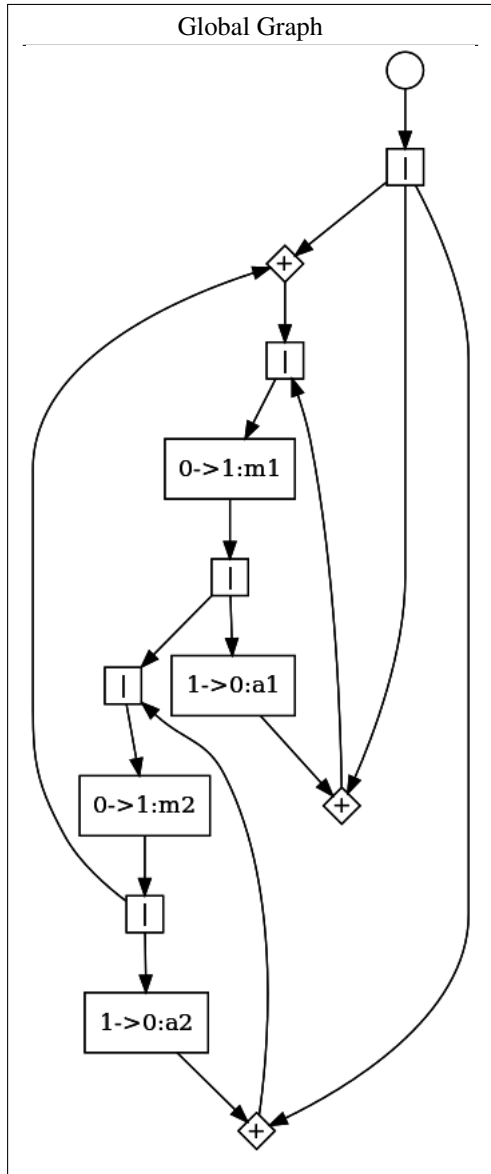
Global Graph



0.4 Alternating 2-bit protocol

This protocol is adapted from [4], this is the 2-message version of the above protocol.

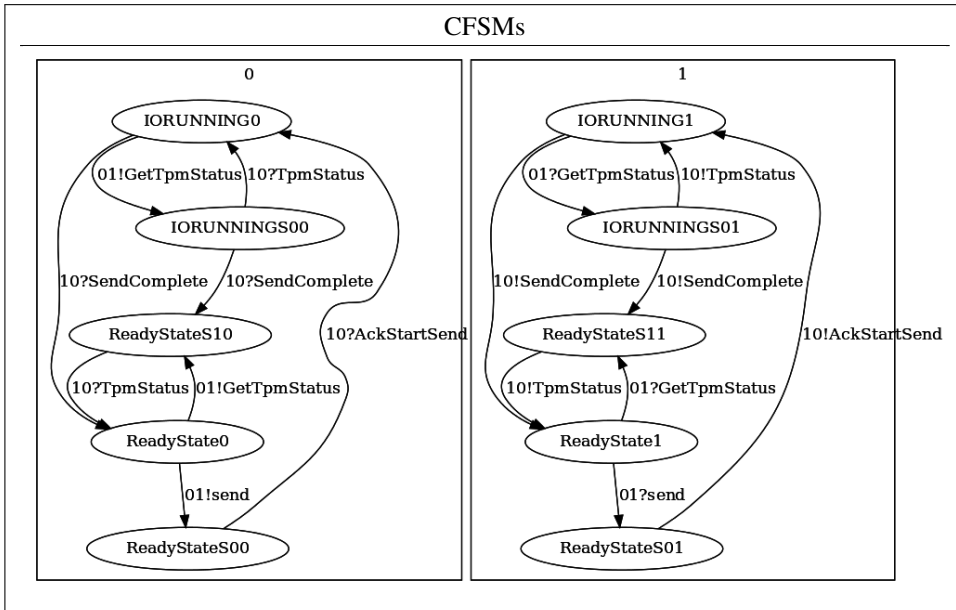


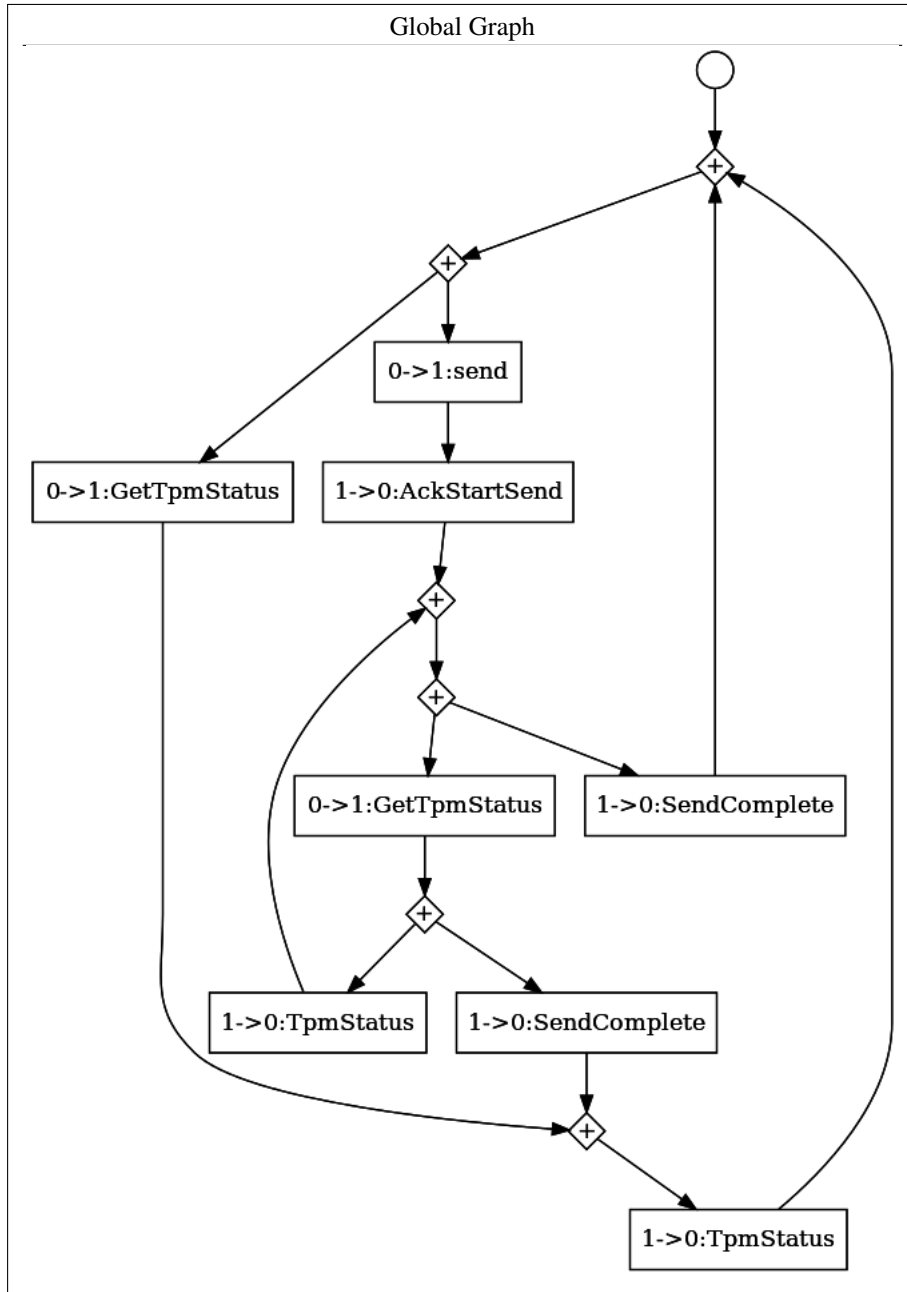


0.5 TPM Contract v2

This protocol models a Singularity channel contract, it the minimised version of the corrected contract proposed in [6].

CFSMs

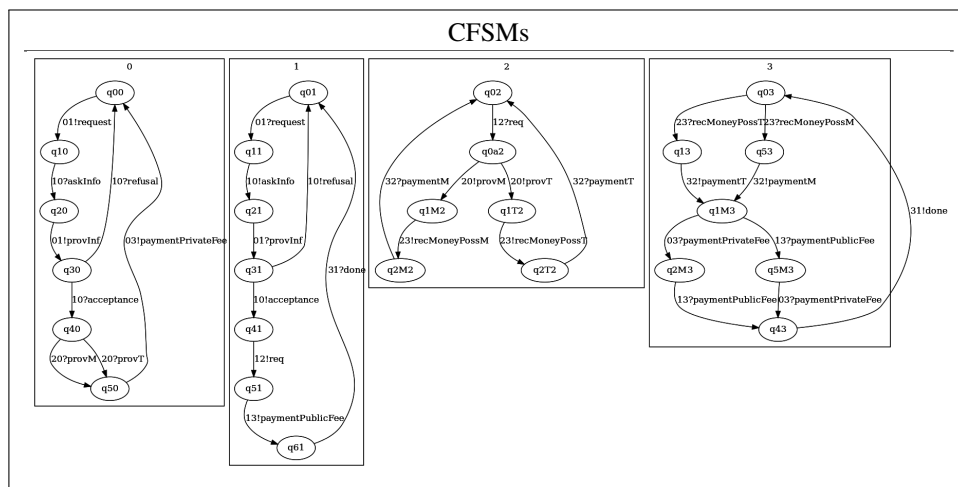


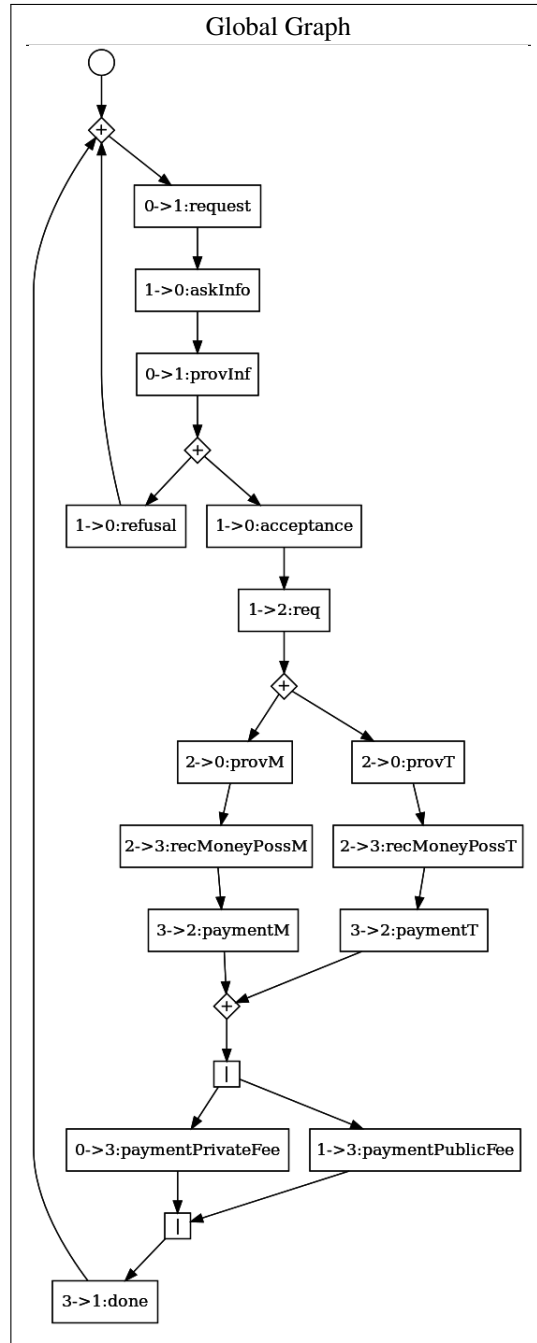


0.6 Sanitary Agency

This protocol, adapted from [7], models a software system that aims at “supporting elderly citizens in receiving sanitary assistance from the public administration”. In our

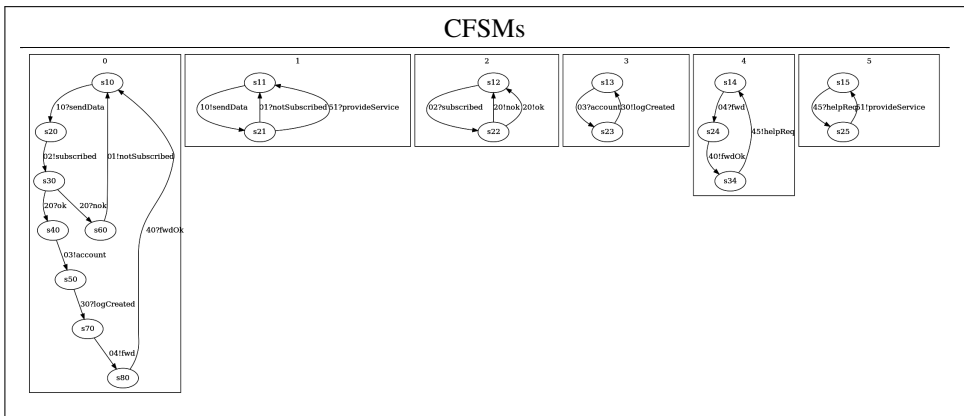
formalisation, machine 0 is the *Citizen*, machine 1 is the *Sanitary Agency*, machine 2 is the *Coop*, and machine 3 is the *Bank*.

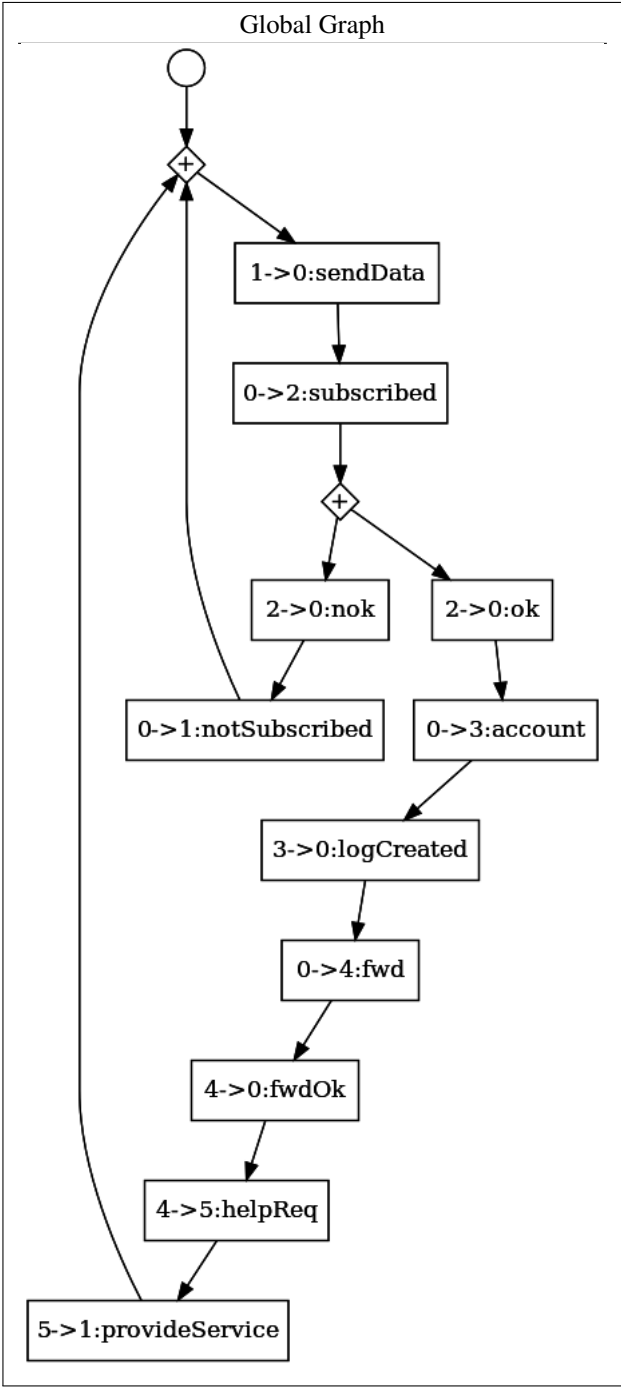




0.7 Health System

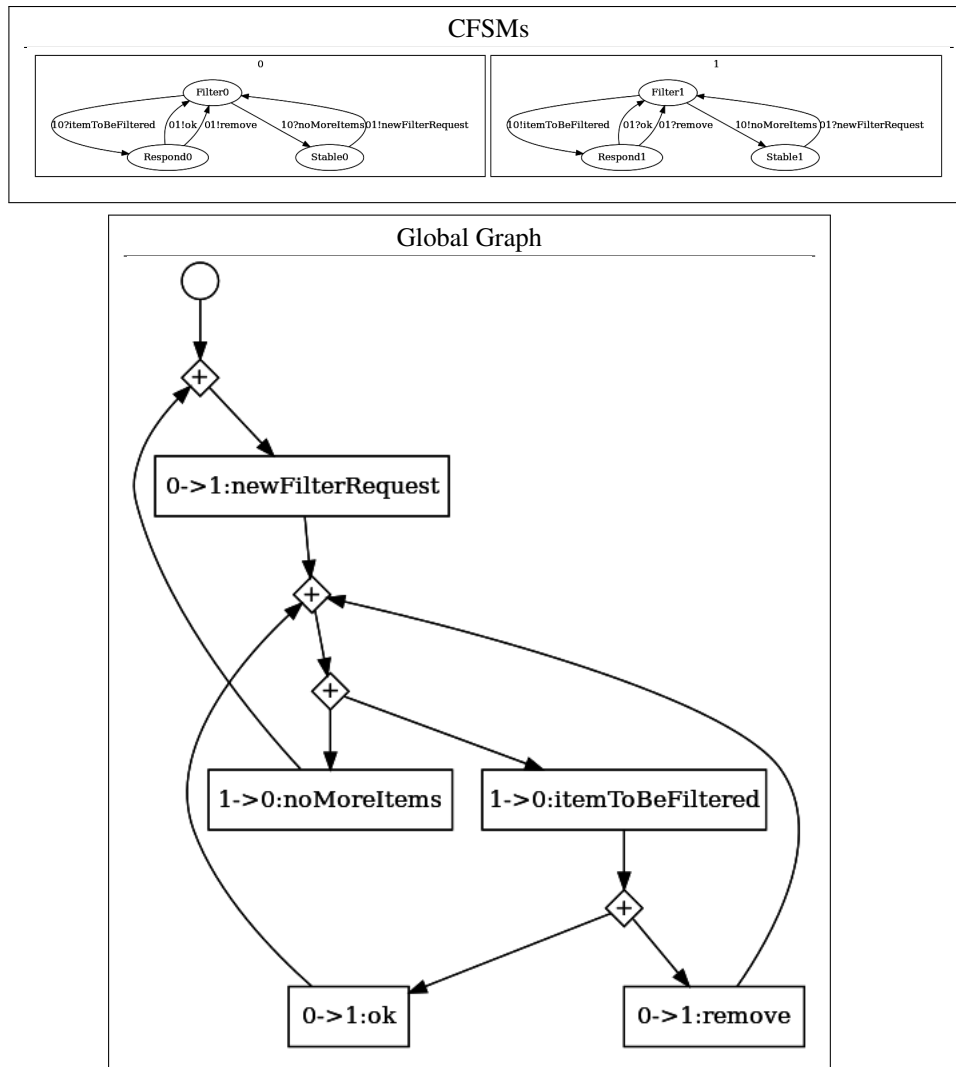
This protocol is adapted from [3], where machine 0 is *HS*, machine 1 is *P*, machine 2 is *SS*, machine 3 is *AS*, machine 4 is *T*, and machine 5 is *ES*.





0.8 Filter Collaboration

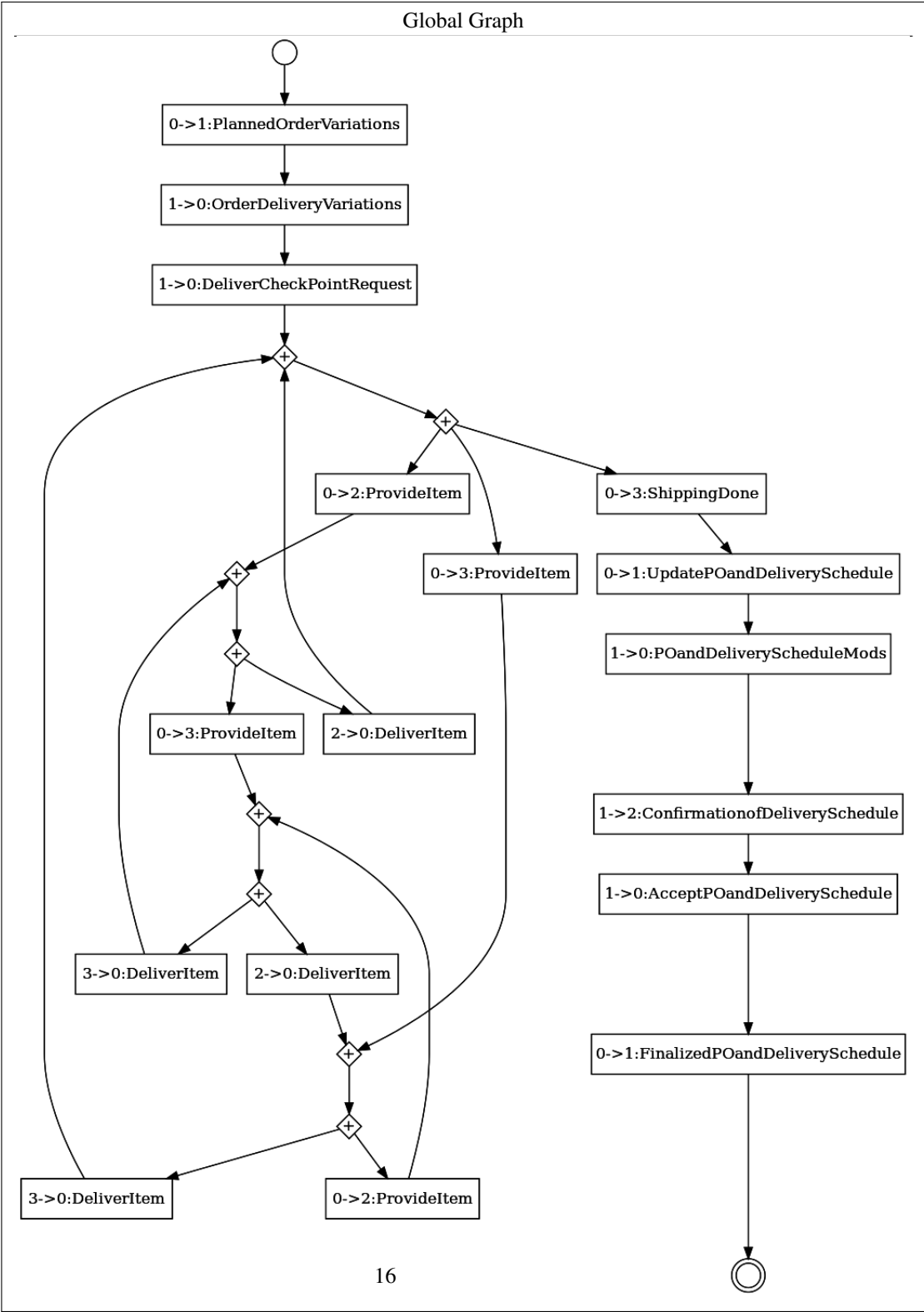
This protocol is adapted from [8].



0.9 Logistic

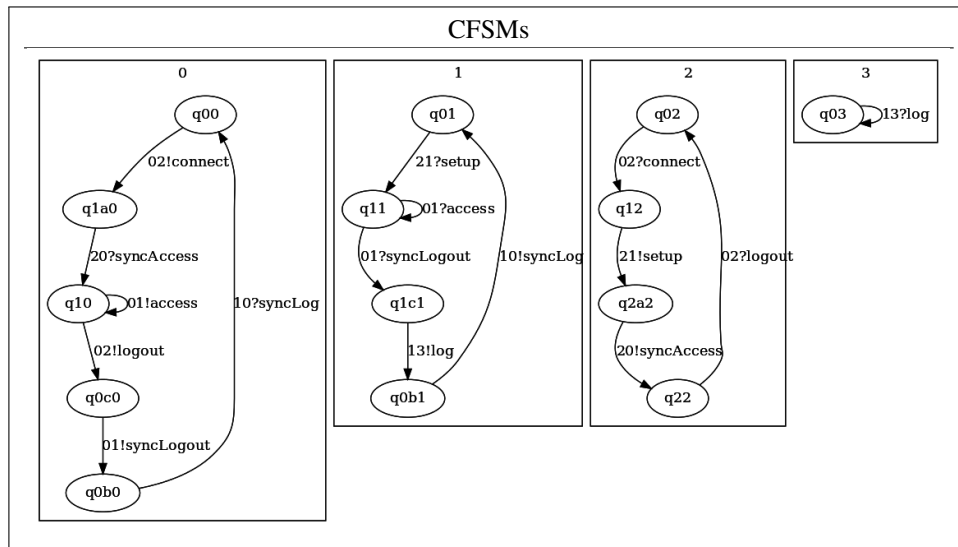
This protocol is adapted from [1], it is one of the example given in the reference for BPMN Choreography, where machine 0 is *Supplier*, machine 1 is *Retailer*, machine 2 is *Consignee*, and machine 3 is *Shipper*.

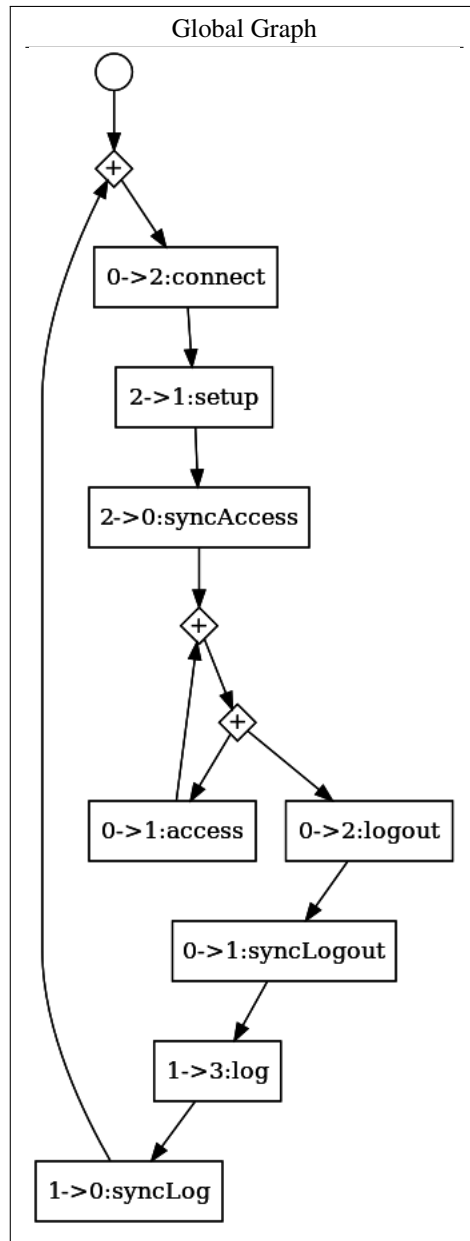
Global Graph



0.10 CloudSystem v4

This protocol is adapted from [5], machine 0 is *CL*, machine 1 is *APPLI*, machine 2 is *INT*, and machine 3 is *DB*.





References

1. Business Process Model and Notation. <http://www.bpmn.org>.
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