Business Processes Modelling

MPB (6 cfu, 295AA)

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03 - Examples

Insurance claim example

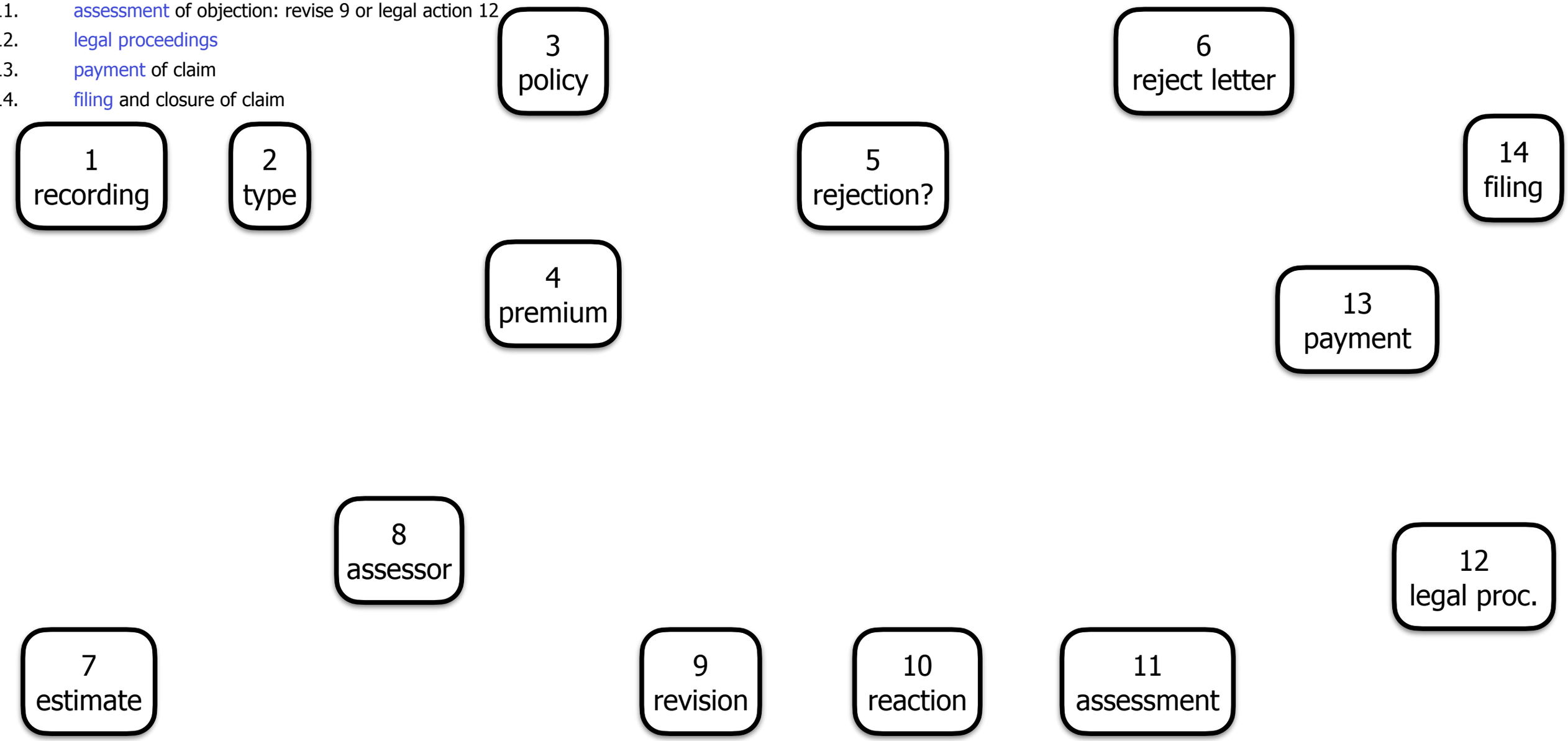
Sect.1.3 of Workflow Management: Models, Methods, and Systems

An example: insurance claim

1. recording the receipt of the claim
2. establishing the type of the claim
3. checking covering of client's policy
4. checking the premium (payments up to date?)
5. rejection, if 3 or 4 has negative result
6. producing a rejection letter
7. roughly estimate the amount to be paid, if 3 & 4 have positive results
8. appointment of an assessor, if needed
9. revision of the amount offered to the client
10. recording client's reaction
11. assessment of objection: decision to revise 9 or take legal action 12
12. legal proceedings
13. payment of claim
14. filing and closure of claim

Tasks

1. recording the receipt of the claim
2. establishing the type of the claim
3. checking covering of client's policy
4. checking the premium (payments up to date?)
5. rejection, if 3 or 4 has negative result
6. producing a rejection letter
7. roughly estimate the amount to be paid, if 3 & 4 have positive results
8. appointment of an assessor, if needed
9. revision of the amount offered to the client
10. recording client's reaction
11. assessment of objection: revise 9 or legal action 12
12. legal proceedings
13. payment of claim
14. filing and closure of claim



Order/Links

1. recording the receipt of the claim
2. establishing the type of the claim
3. checking covering of client's policy
4. checking the premium (payments up to date?)
5. rejection, if 3 or 4 has negative result
6. producing a rejection letter
7. roughly estimate the amount to be paid, if 3 & 4 have positive results
8. appointment of an assessor, if needed
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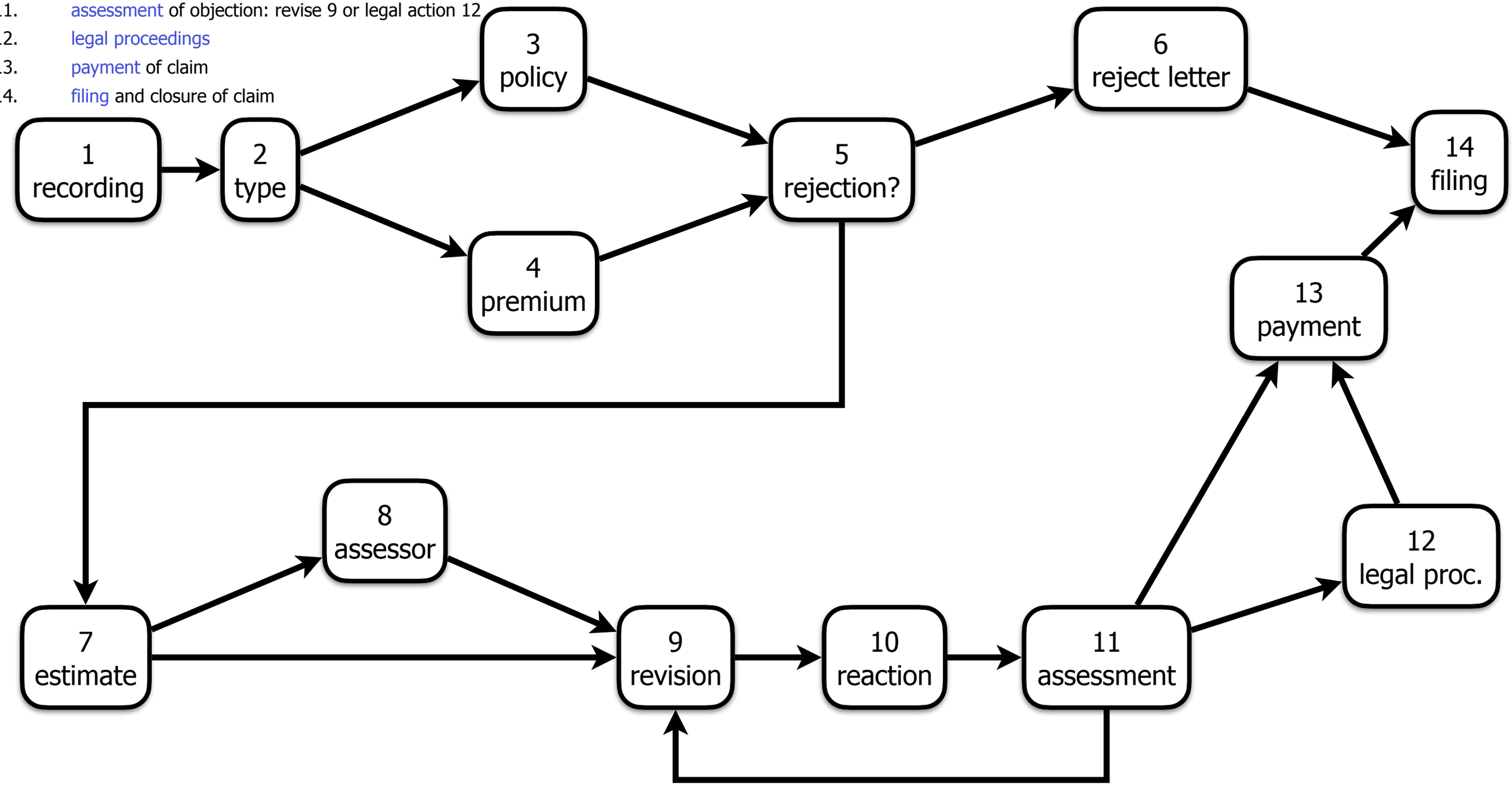
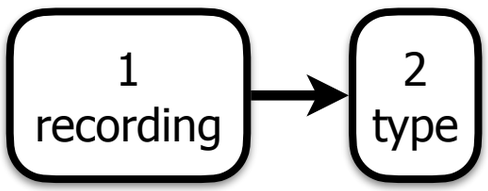
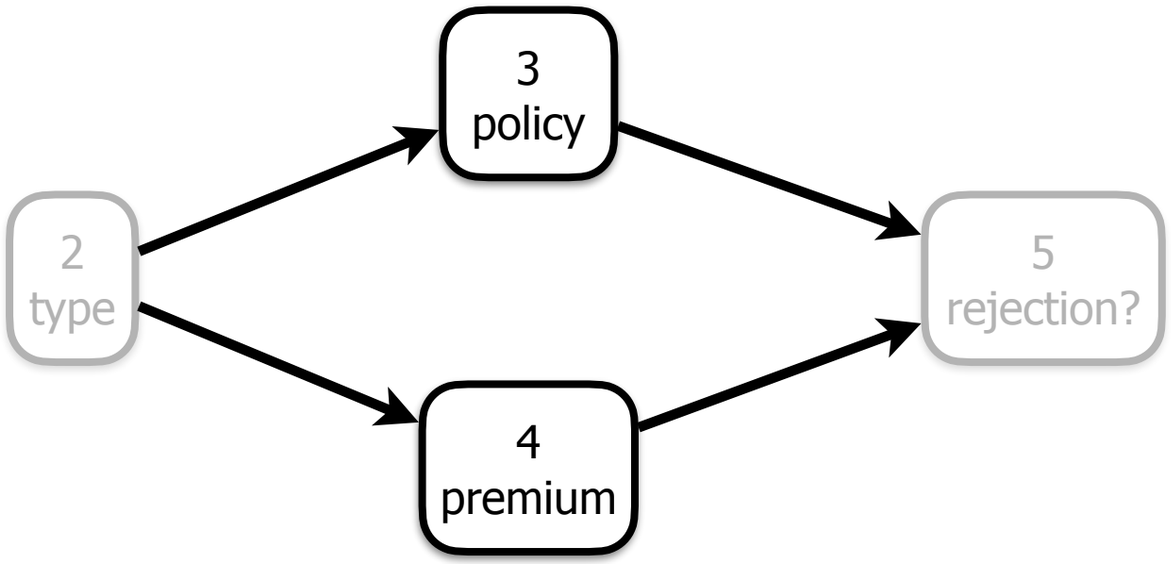


Some patterns

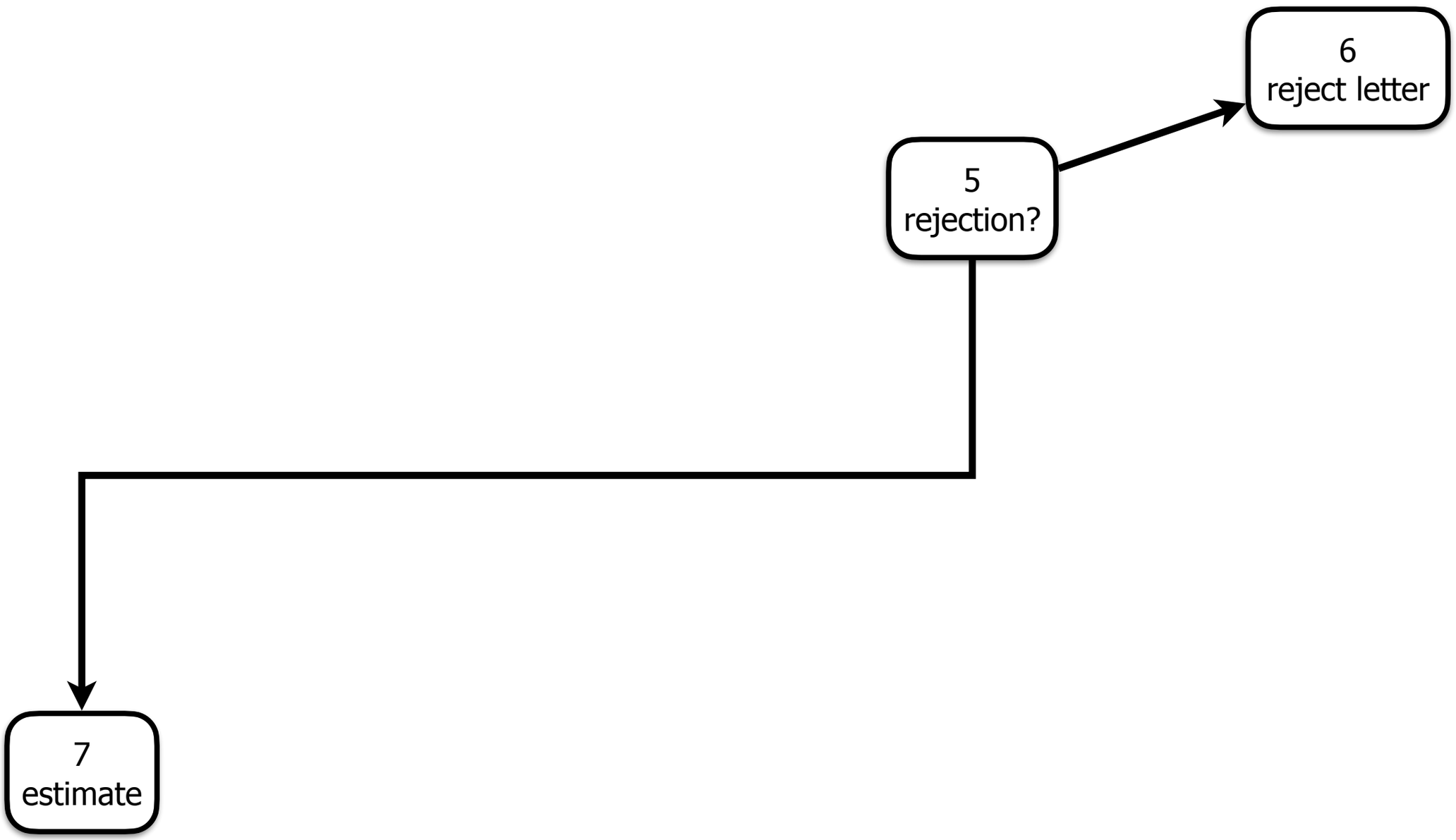
Sequence



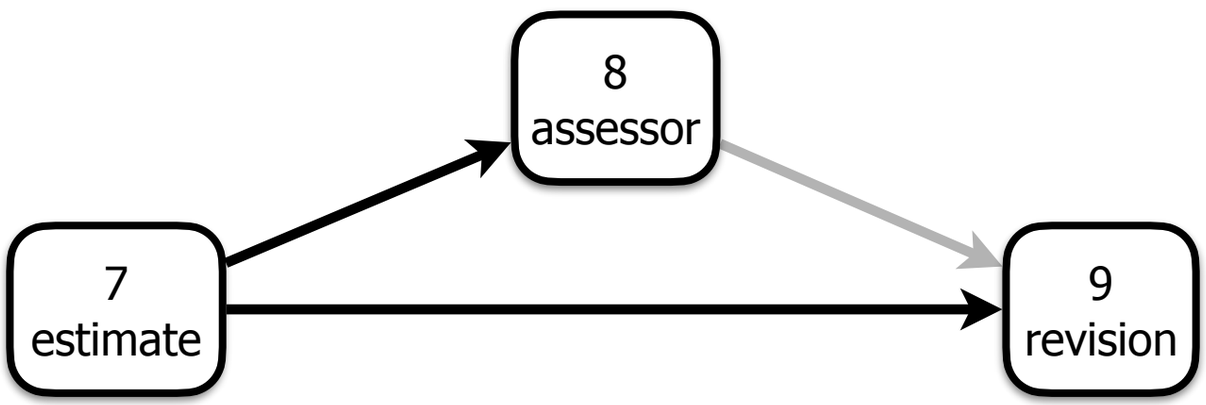
Parallel



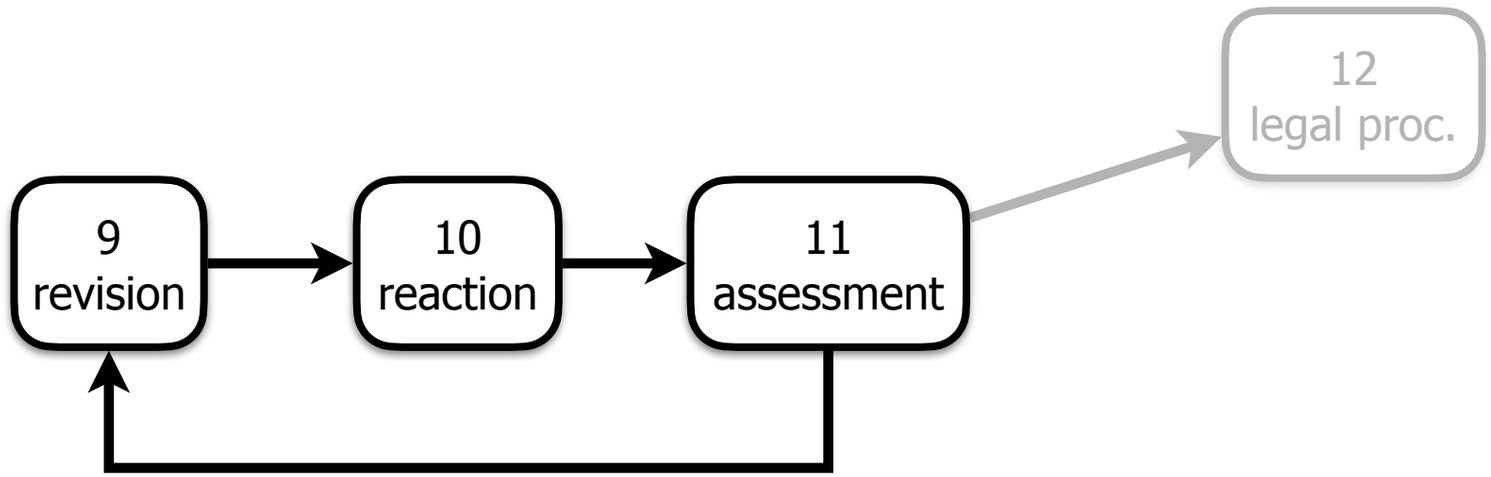
Choice / Selection



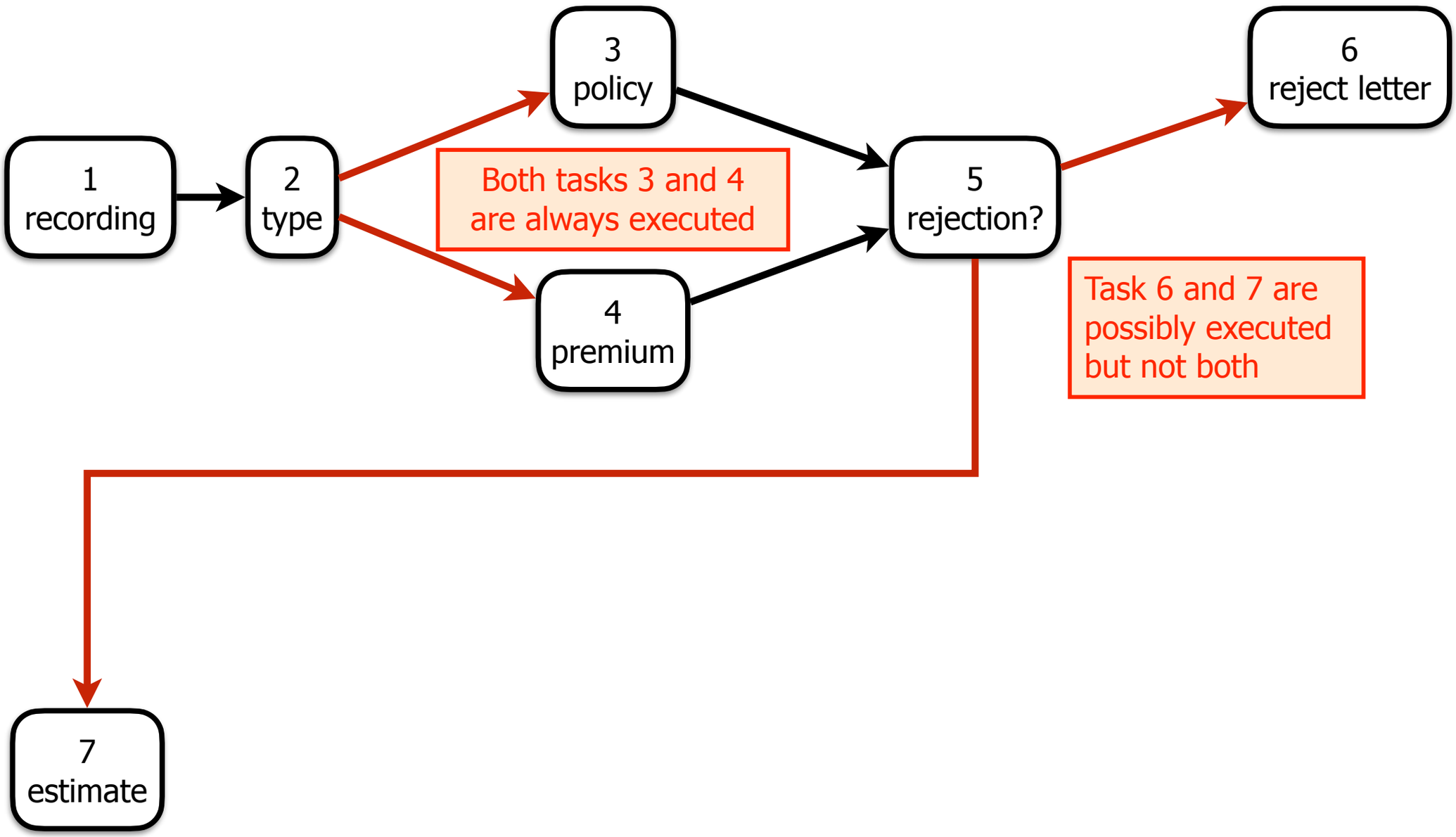
Another selection



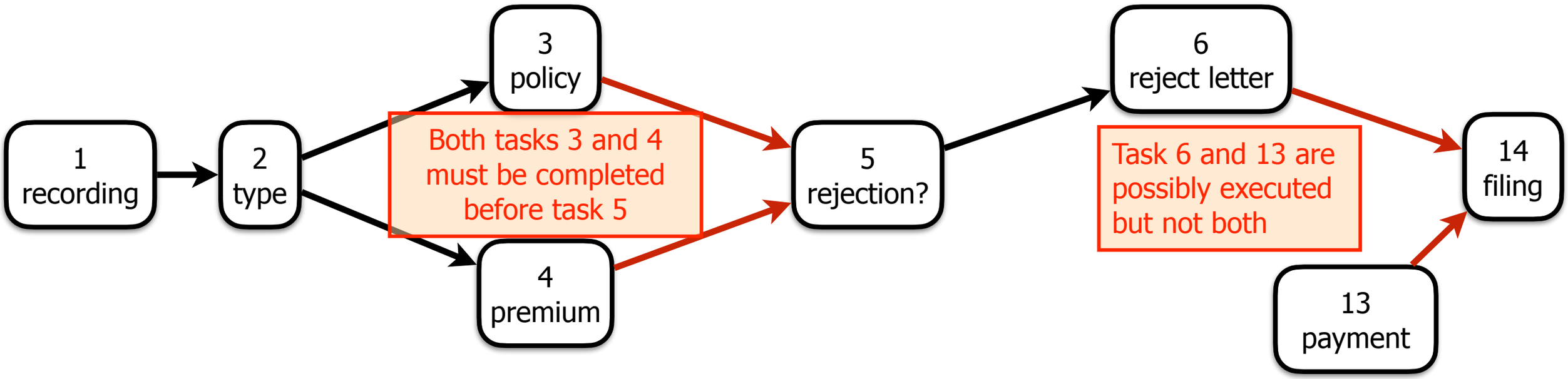
Iteration



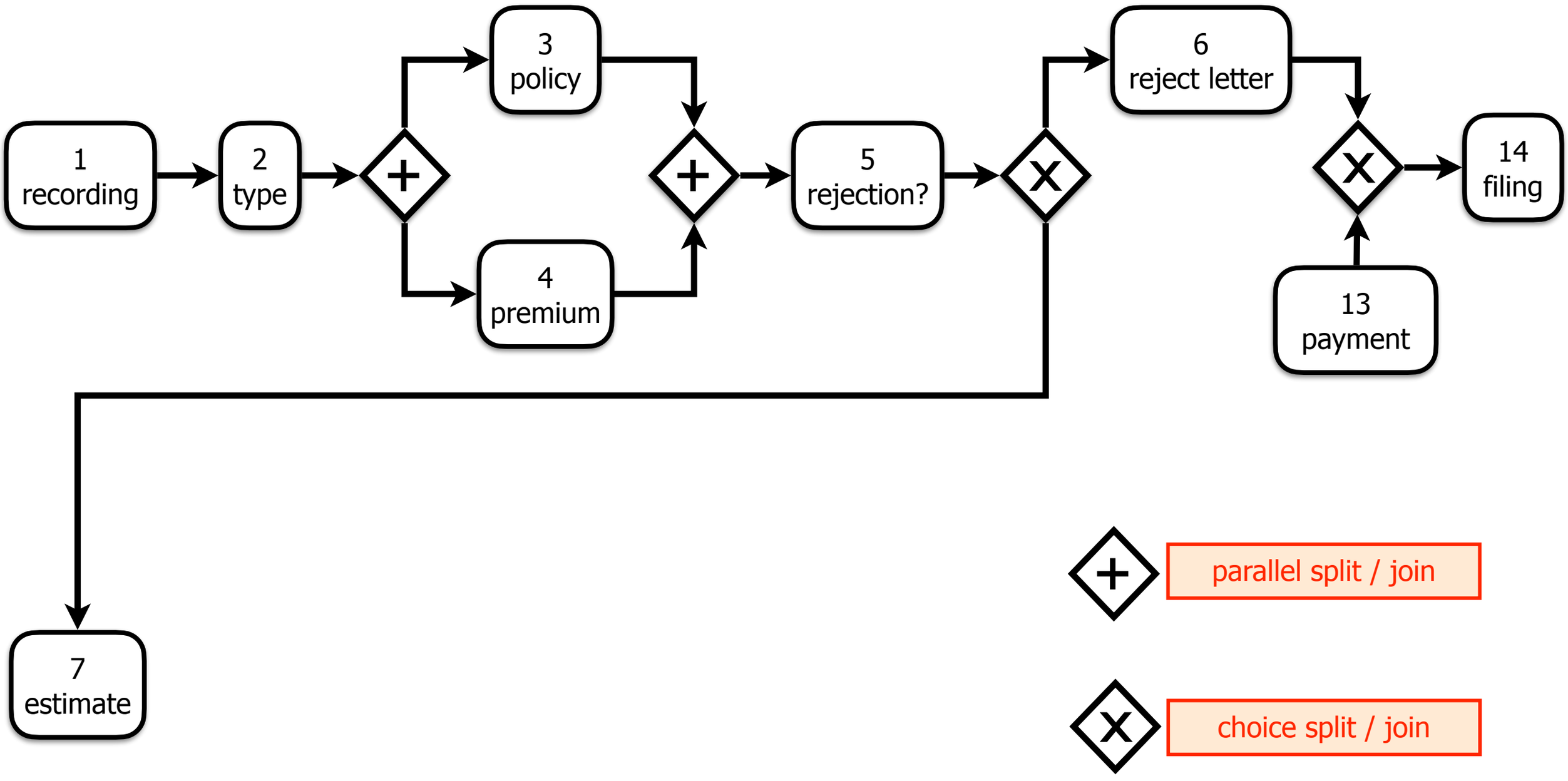
Ambiguity!


1
recording
2
type
3
policy
4
premium
Both tasks 3 and 4
are always executed
5
rejection?
6
reject letter
Task 6 and 7 are
possibly executed
but not both
7
estimate

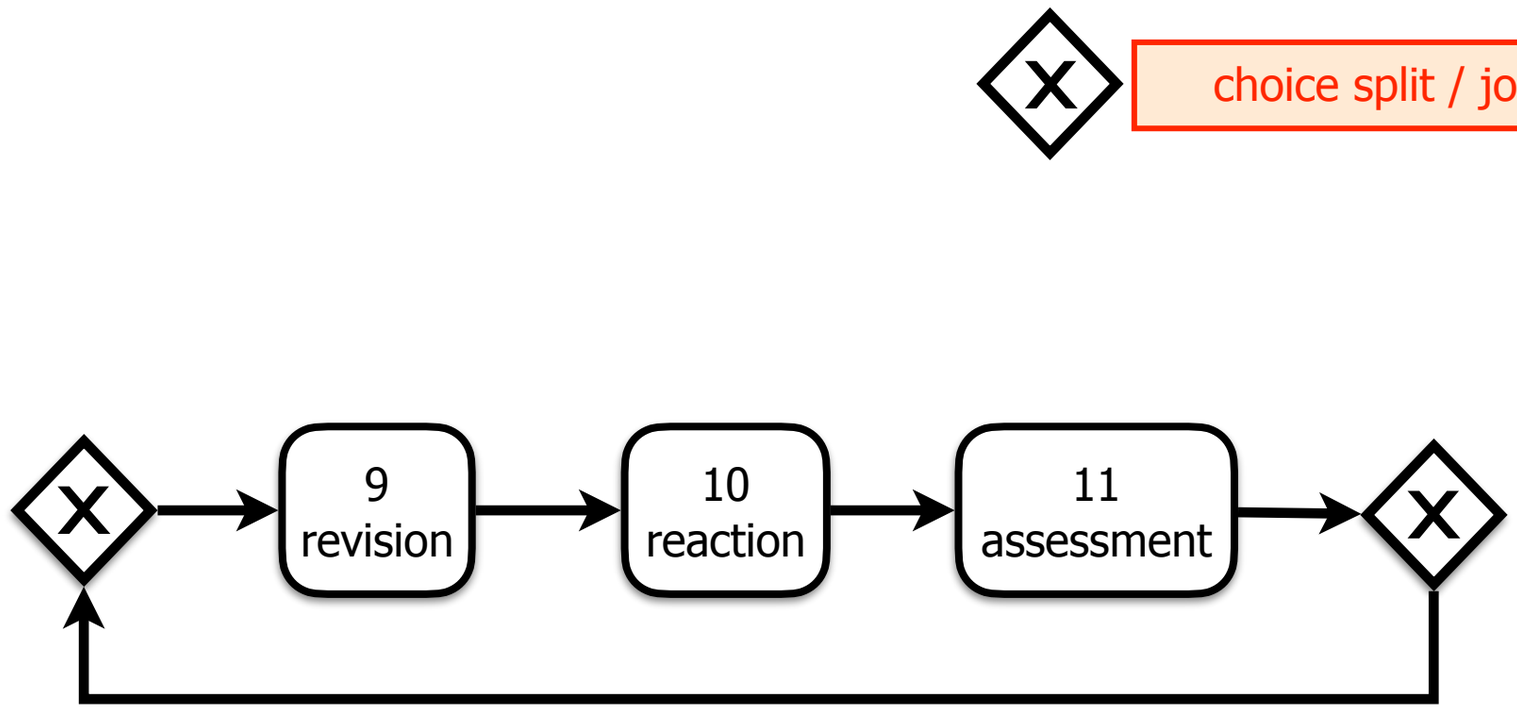
Ambiguity!


1
recording
2
type
3
policy
4
premium
Both tasks 3 and 4 must be completed before task 5
5
rejection?
6
reject letter
Task 6 and 13 are possibly executed but not both
14
filing
13
payment

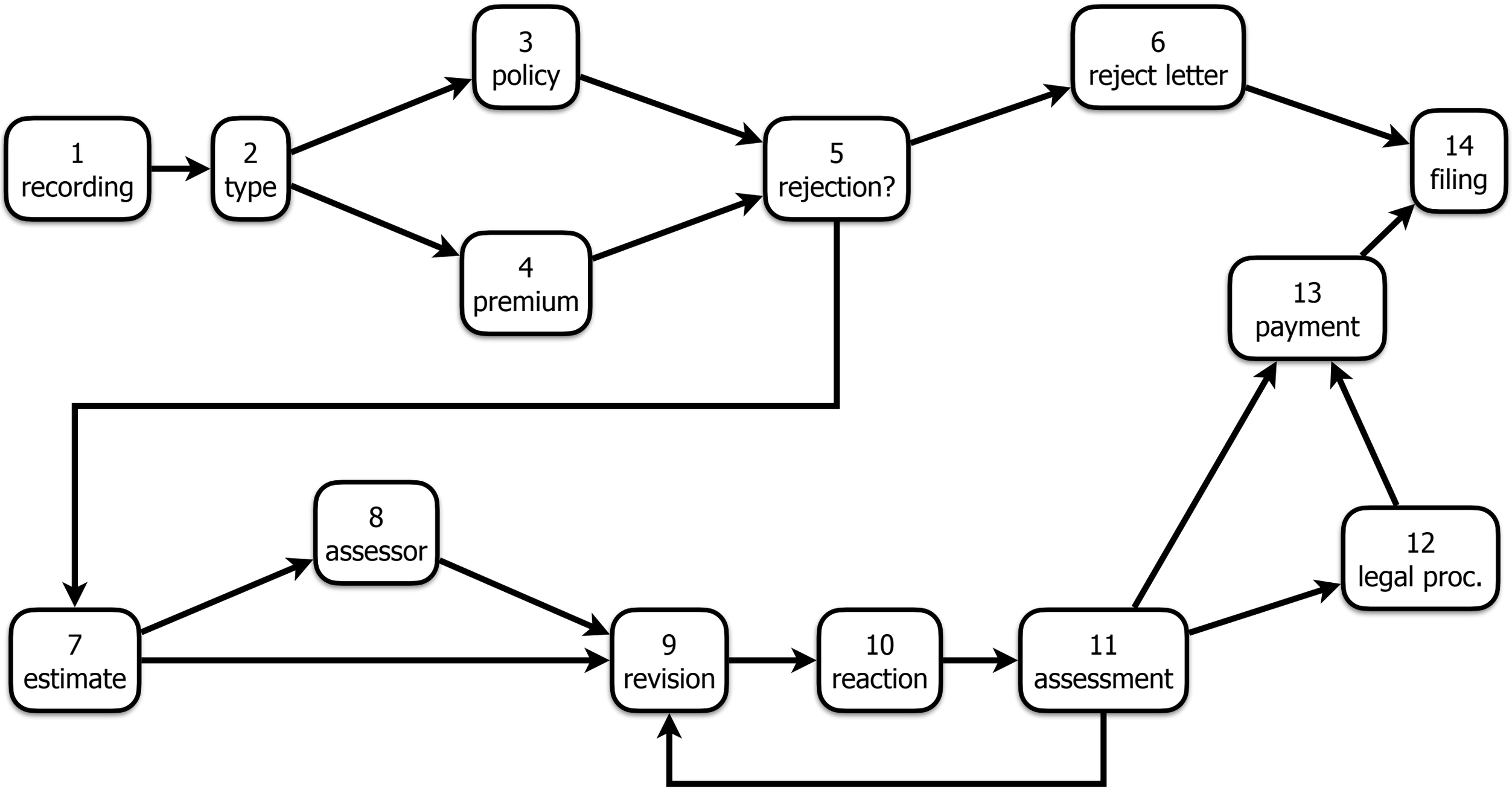
Disambiguation



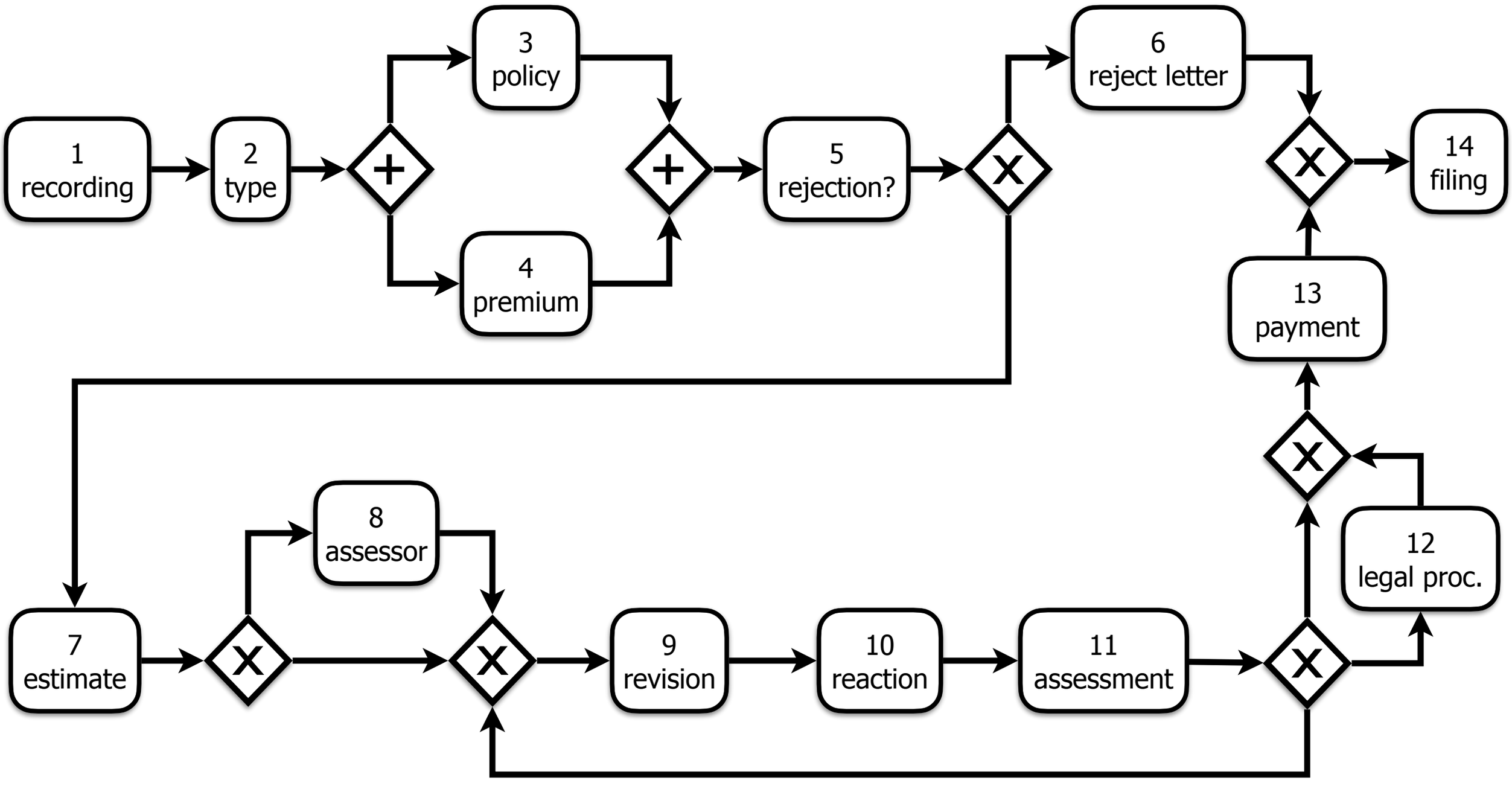
Iteration, again



Disambiguation



Disambiguation



Orchestration

Business process models are performed in a single organization by definition

Thus, the **ordering of activities** can be controlled by a **business process management system** as a **centralized** software component run by the organization

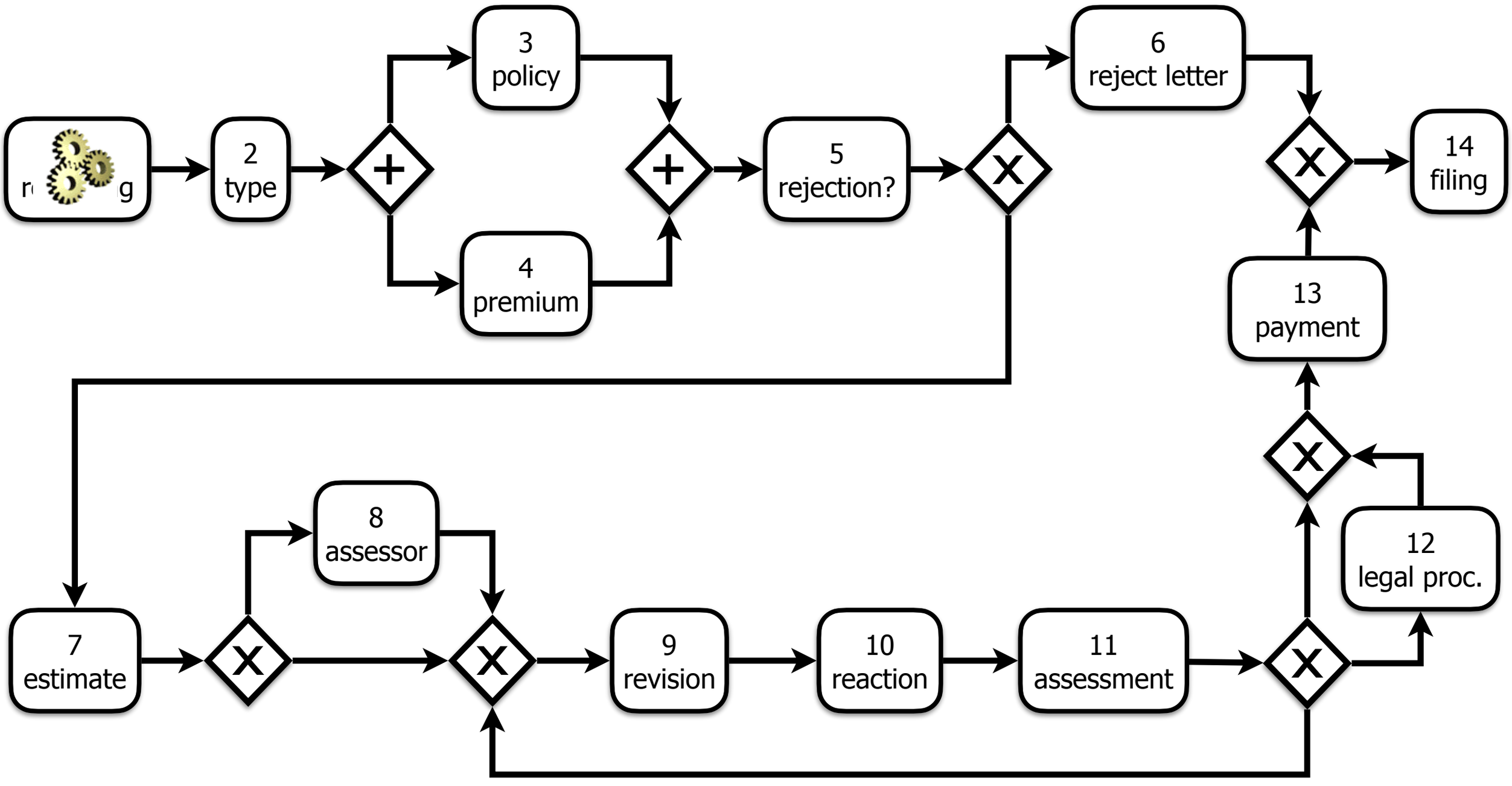
This kind of control is called **orchestration**

Orchestration

Orchestration is about describing and executing a single view point model

The analogy is with the conductor who centrally controls the musicians in an orchestra

Model execution

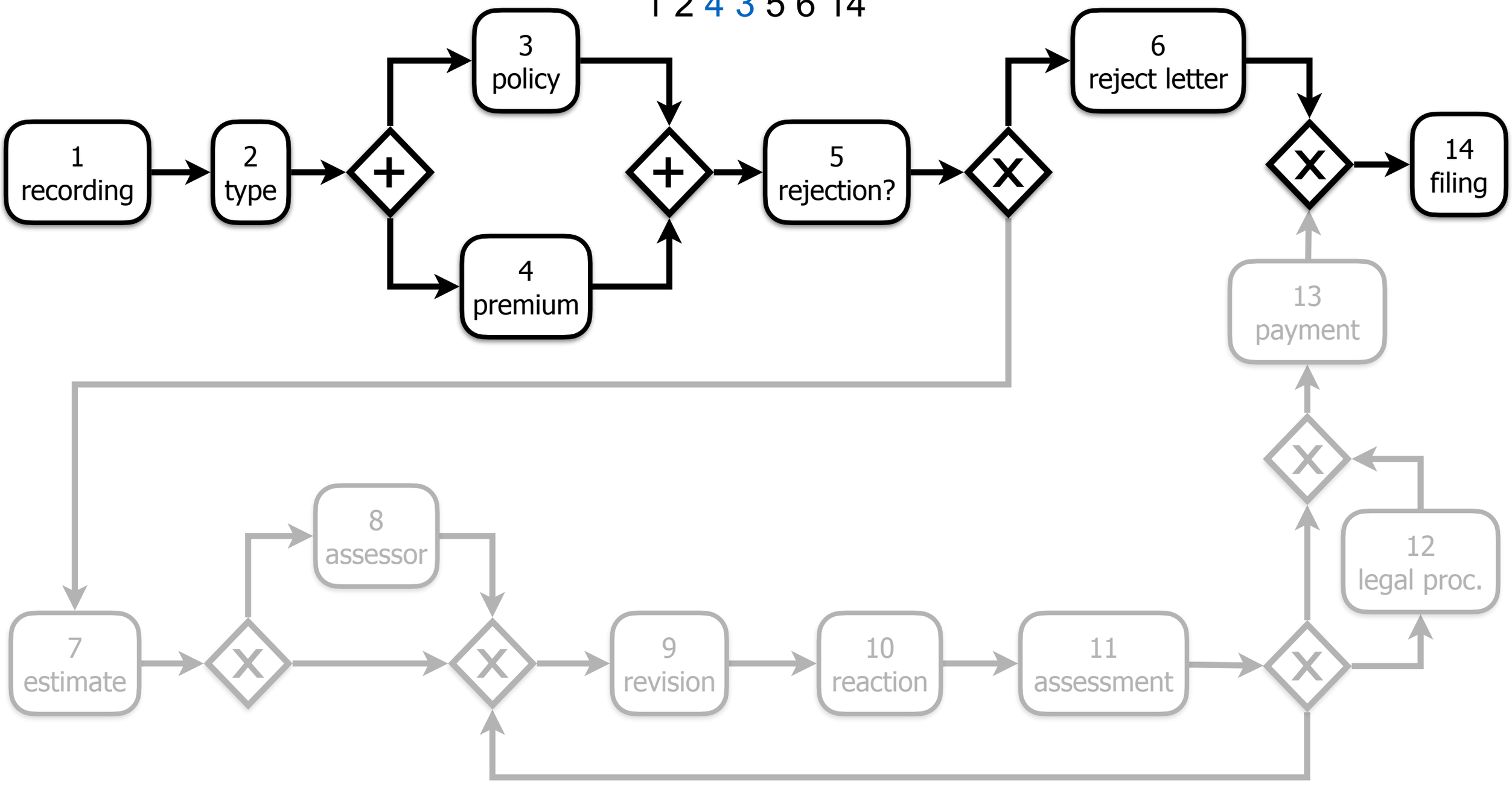


A process instance

1 2 3 4 5 6 14

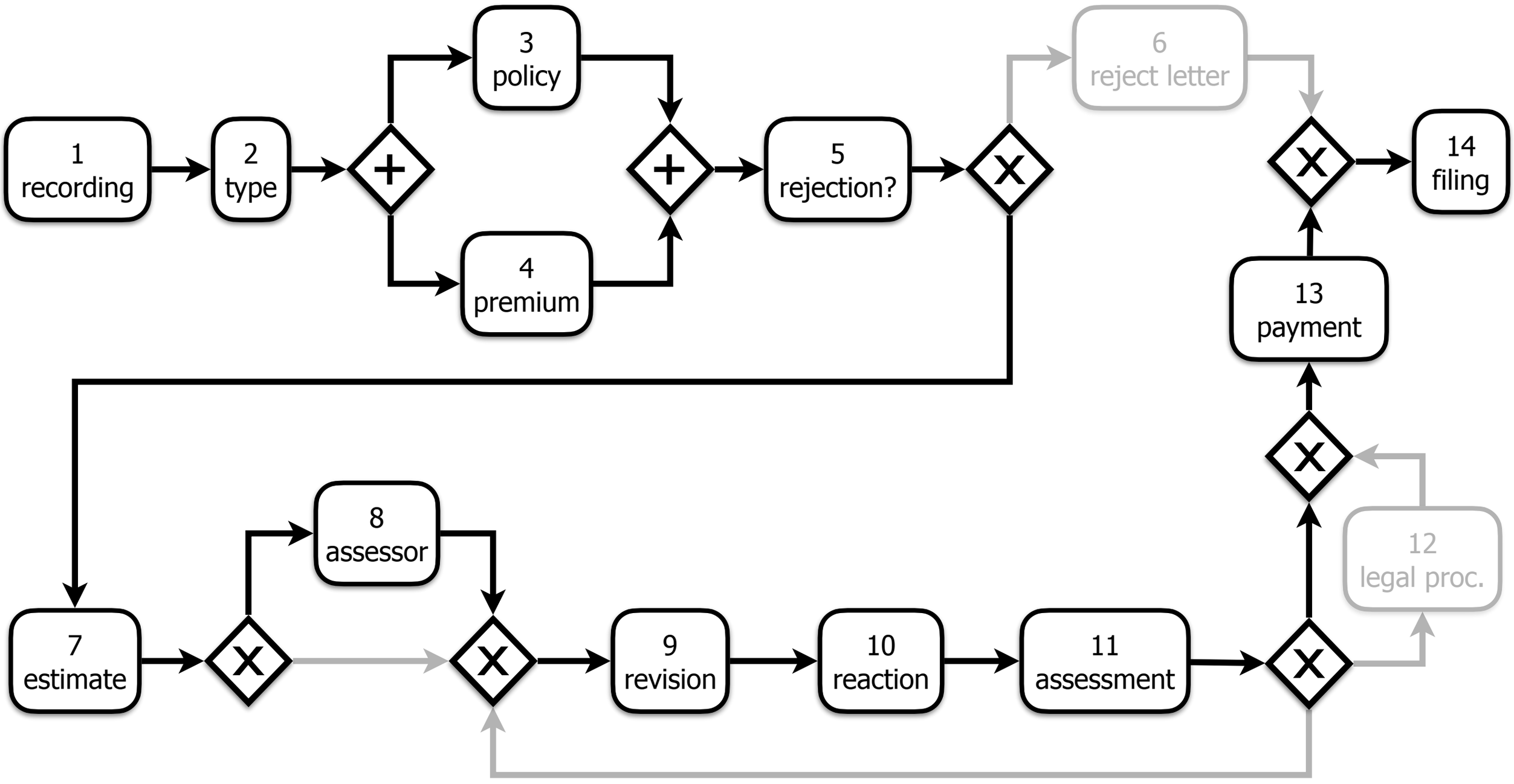
1 2 4 3 5 6 14

Order of parallel activities is not important!



Another instance

1 2 3 4 5 7 8 9 10 11 13 14
1 2 4 3 5 7 8 9 10 11 13 14



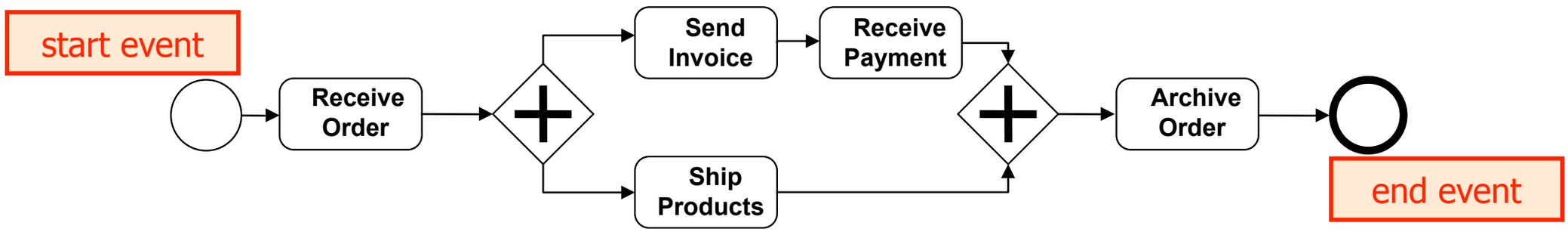
Exercise

Travel agency orchestration:
define a series of tasks for
booking a flight, a hotel and optionally a car, with the possibility
to change dates,
to cancel the booking,
to confirm the booking.
Then, draw a process diagram relating the tasks.

Buyer & Reseller example

Sect.1.1 of Business Process Management: Concepts, Languages, Architectures

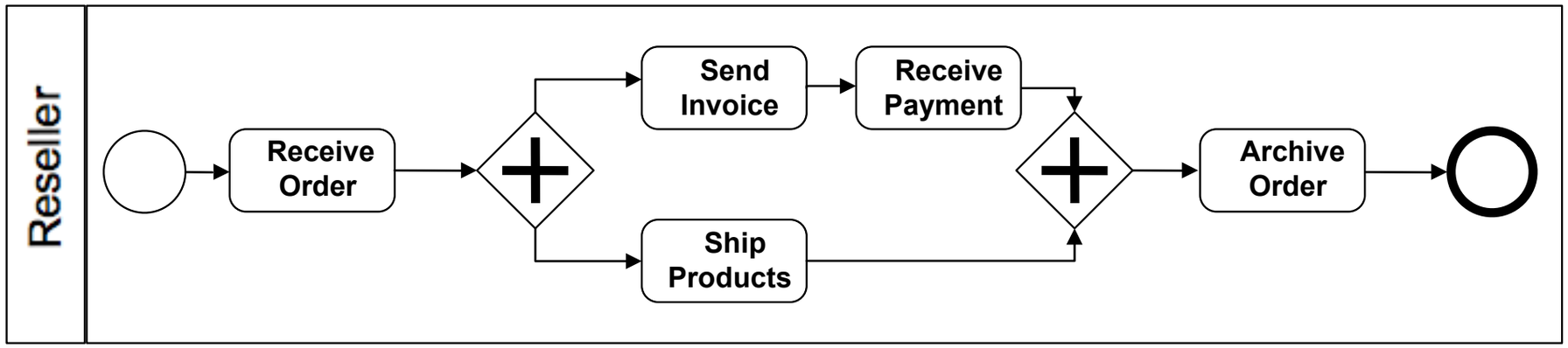
Example: Reseller



We move to BPMN-like syntax

Example: Reseller

pool

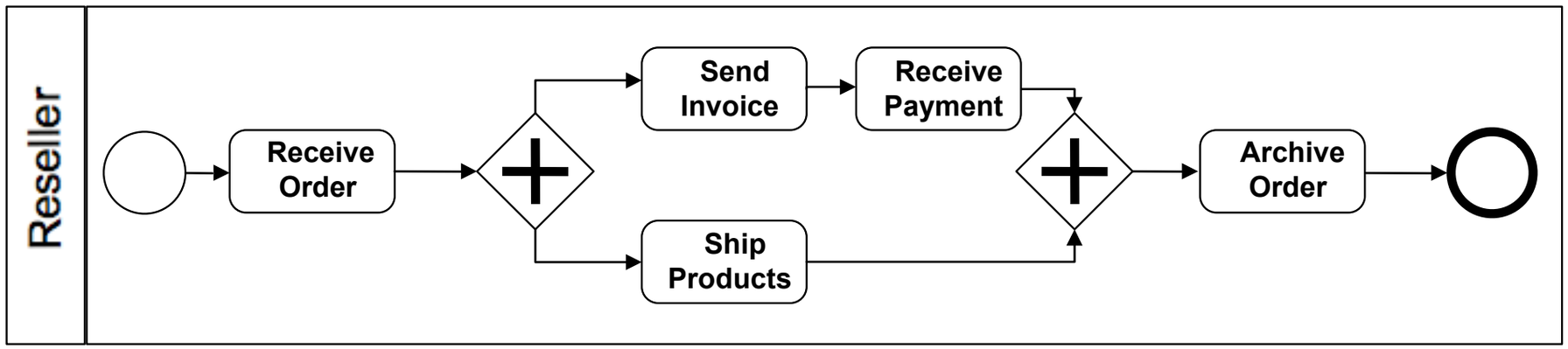


We move to BPMN-like syntax

A **pool** is a rectangle
that encloses a business process

(it can be divided in **lanes**
to distribute tasks to different actors)

Example: Reseller



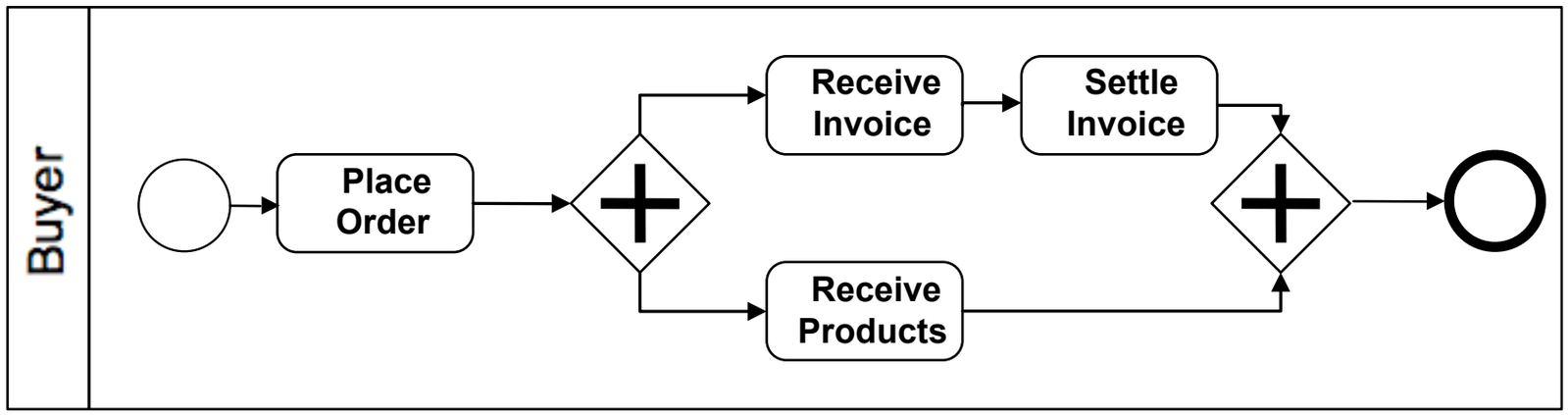
R_1

A reseller can use the business process model above to configure the business process management system accordingly

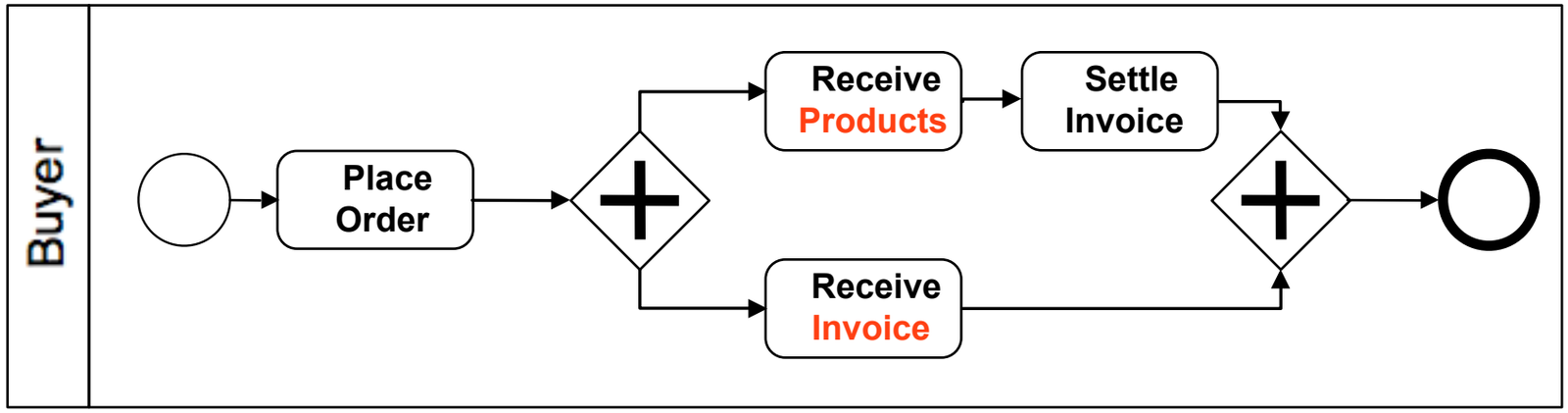
All instances will be executed as specified (after receiving the order, send and ship activites are concurrently executed)

Example: Buyers

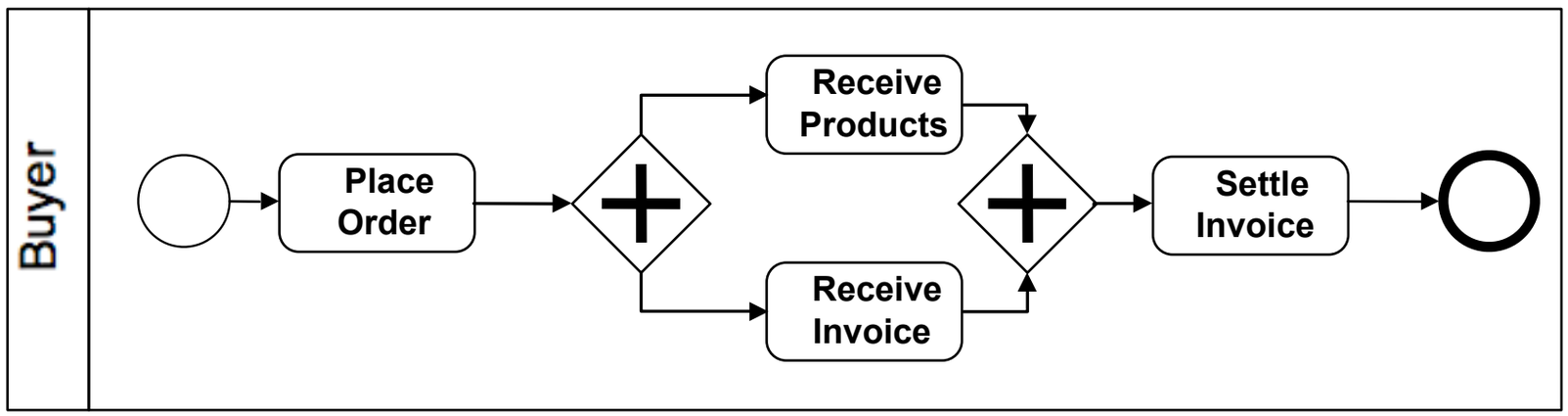
Different processes are possible, but… do they all make sense?



B_1

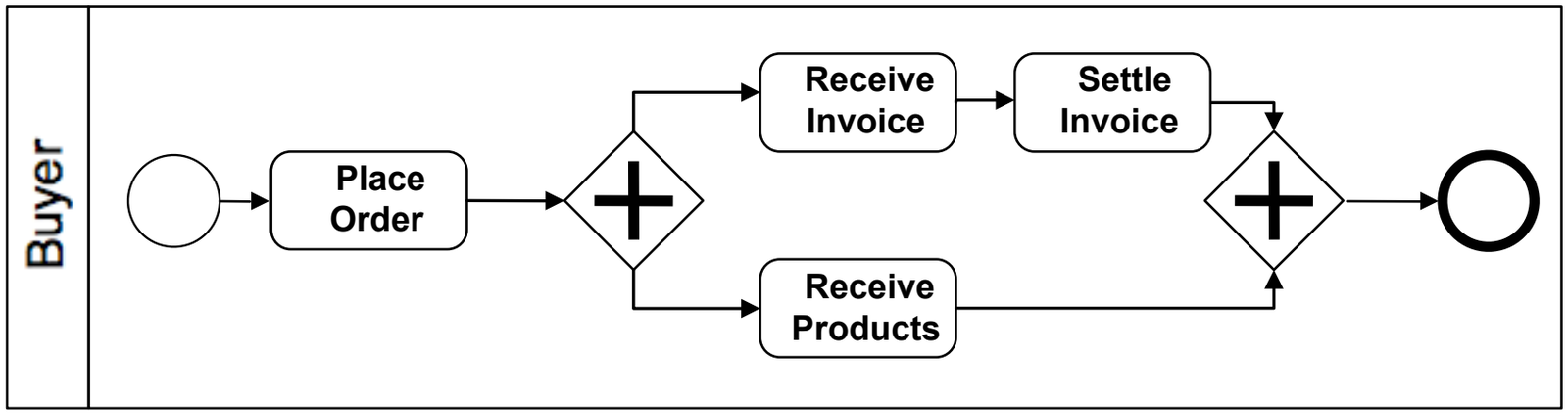


B_2

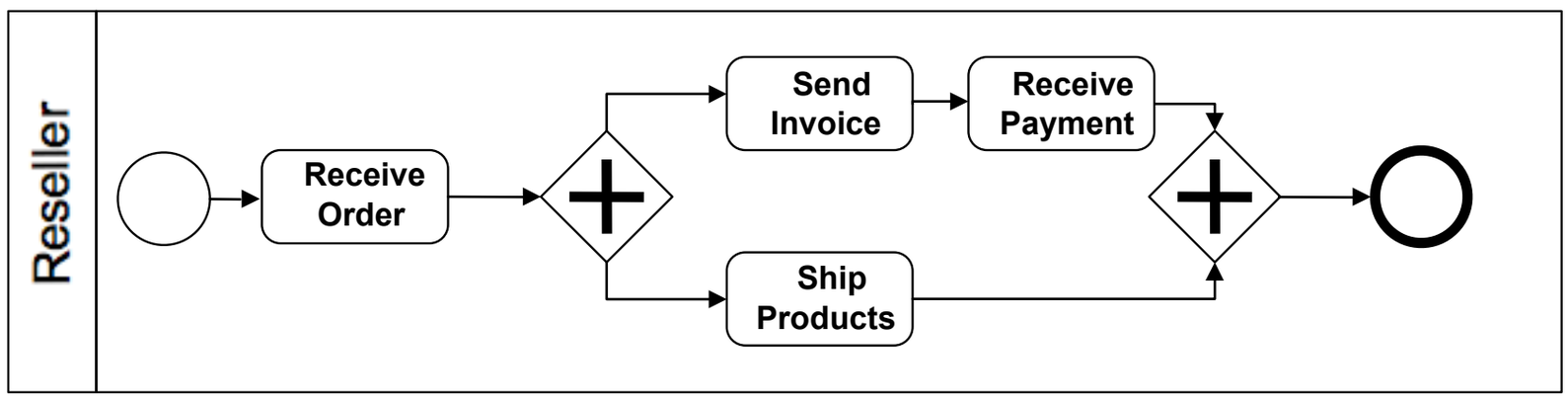


B_3

Buyer & Reseller



Separately developed processes need to communicate!



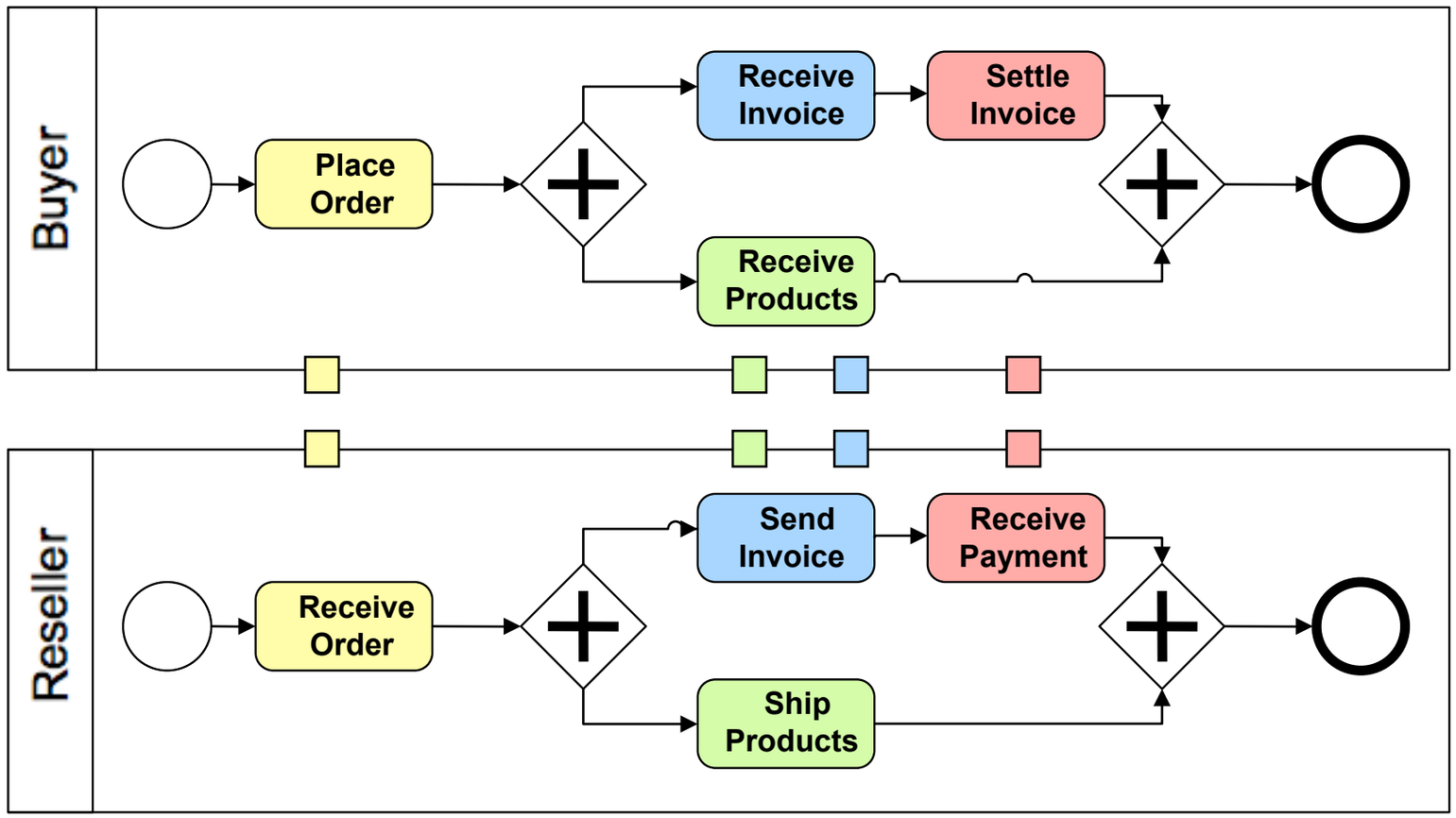
Cross-organization interaction

Each business process is enacted by one organization

Business processes can interact with each other

Interacting activities of business processes must be related together

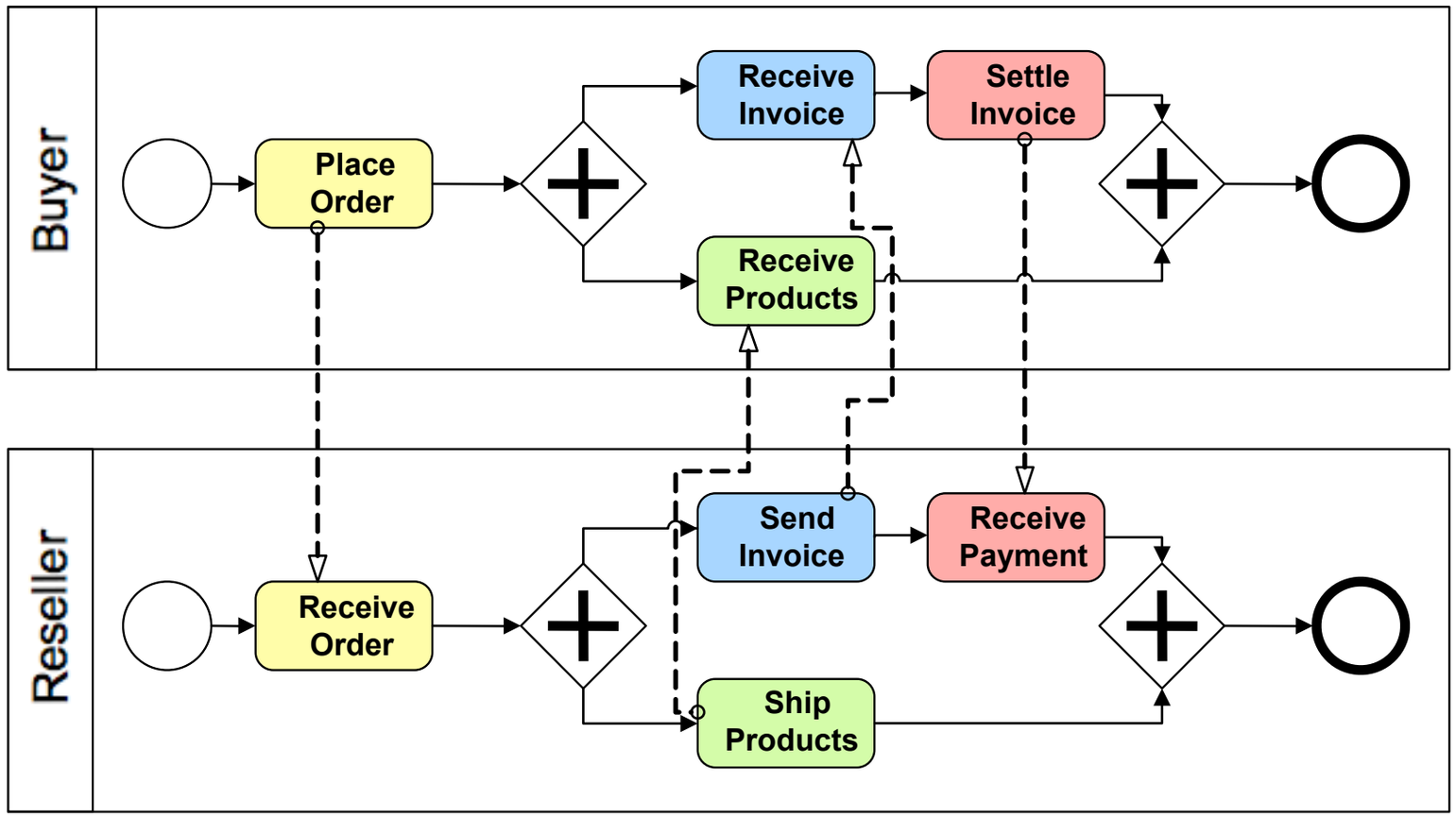
Interacting processes



Interacting processes can exchange information (electronic messages, physically transported objects)

Interacting processes

We move to BPMN-like syntax



Message flow is represented by dotted arcs

Collaboration

Collaboration is about describing the interactions between autonomous business processes and how they can influence reciprocally to achieve some common goal

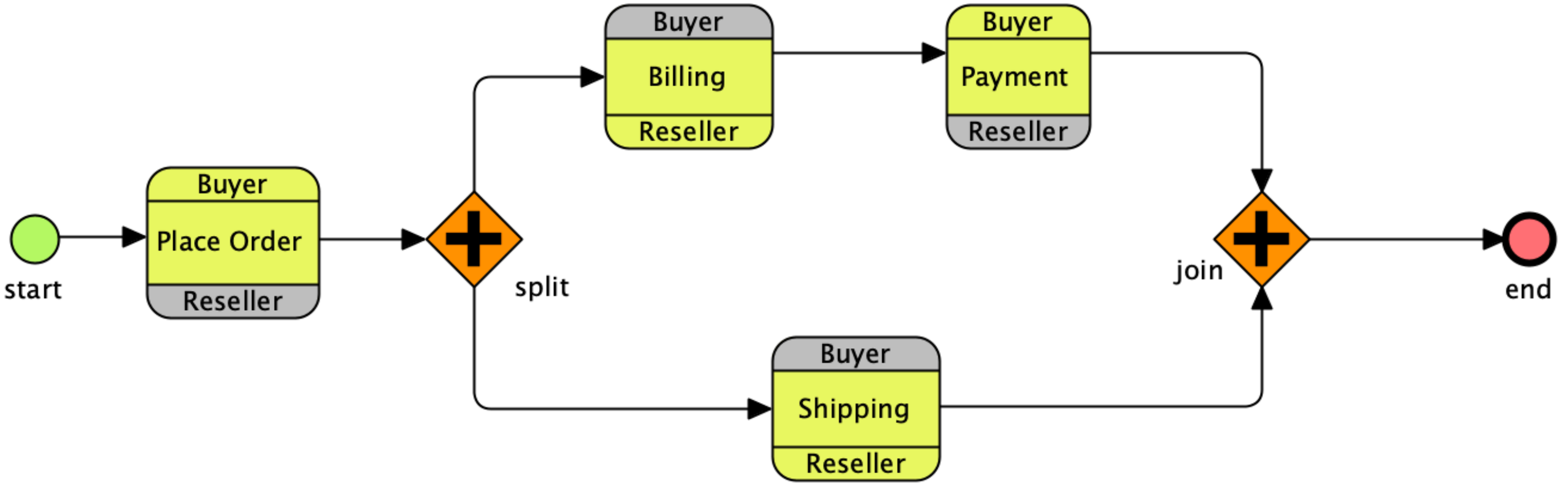
Choreography

The interactions of a set of business processes can be specified in a **process choreography**

Difference w.r.t. orchestration:
The absence of a central agent that controls the activities in the business processes involved

Difference w.r.t. collaboration:
Only contains activities that are related to interactions between participants

Choreography



Choreography

Choreography is about describing a global model
(multi-point view)

The analogy is with the dancers who behave autonomously, but follow their parts in the choreography

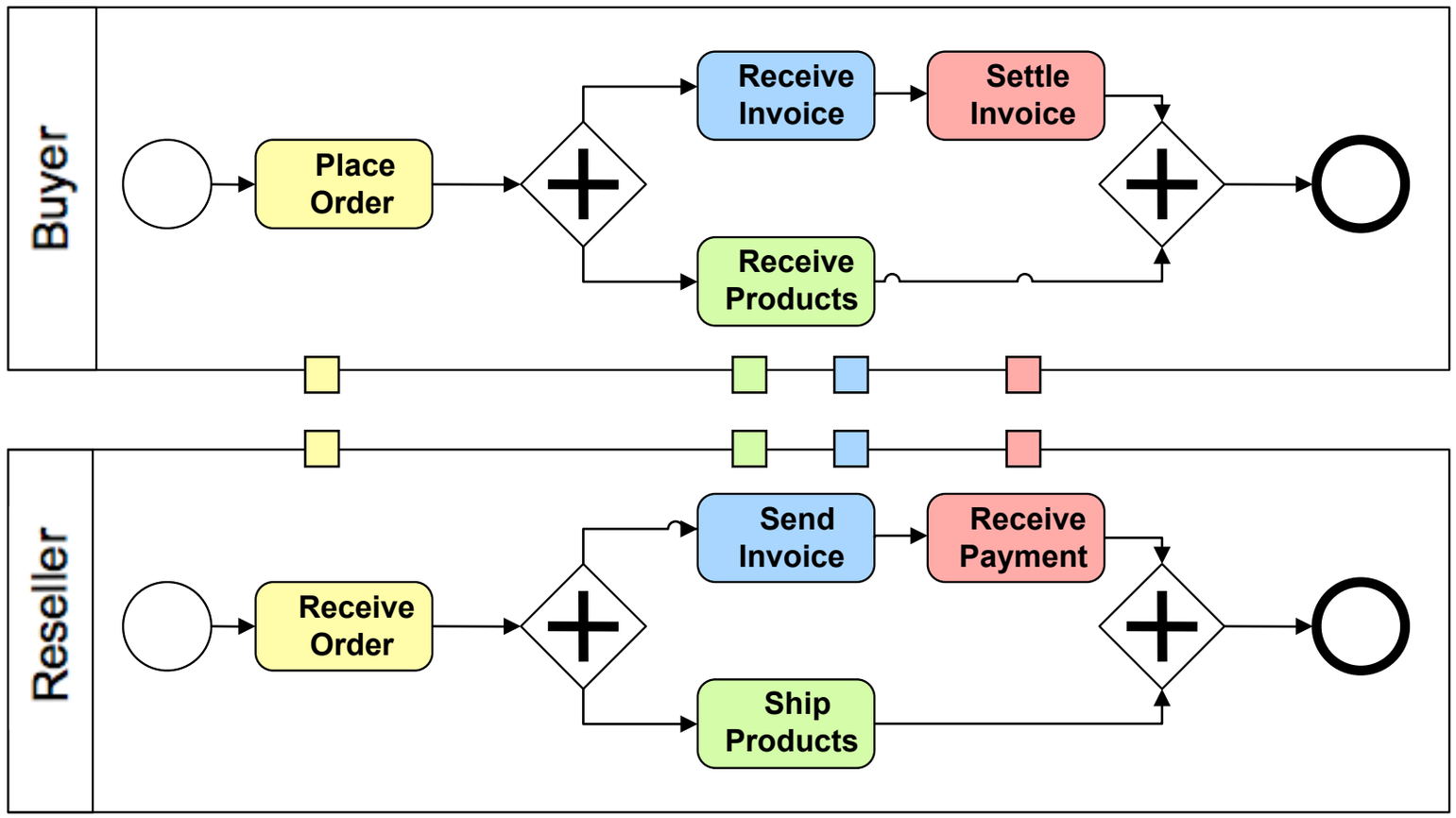
Different viewpoints

Orchestration diagram: single viewpoint

Collaboration diagram: multiple viewpoints

Choreography diagram: global viewpoint

Question time

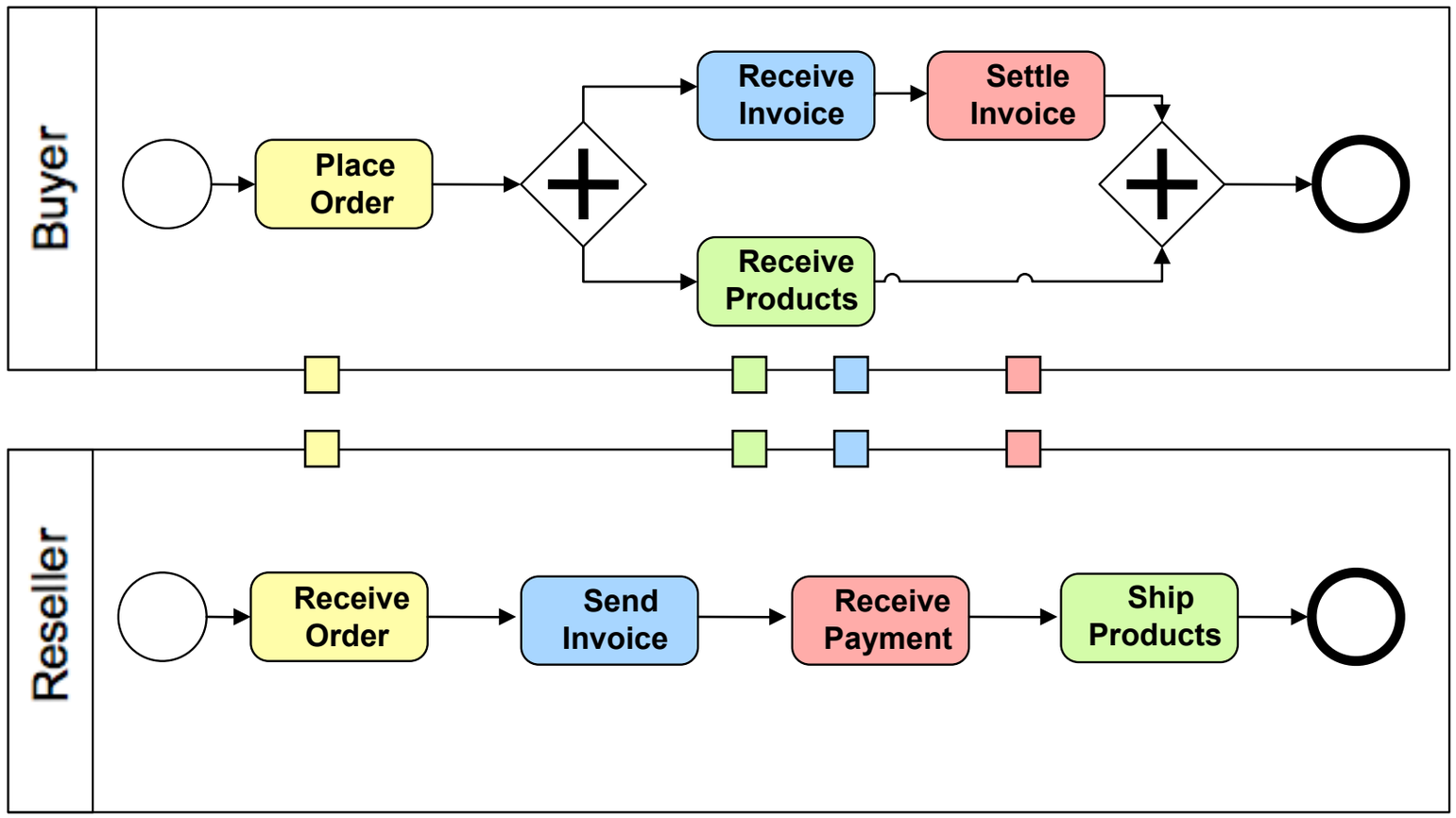


B_1

R_1

Work fine together!

Question time

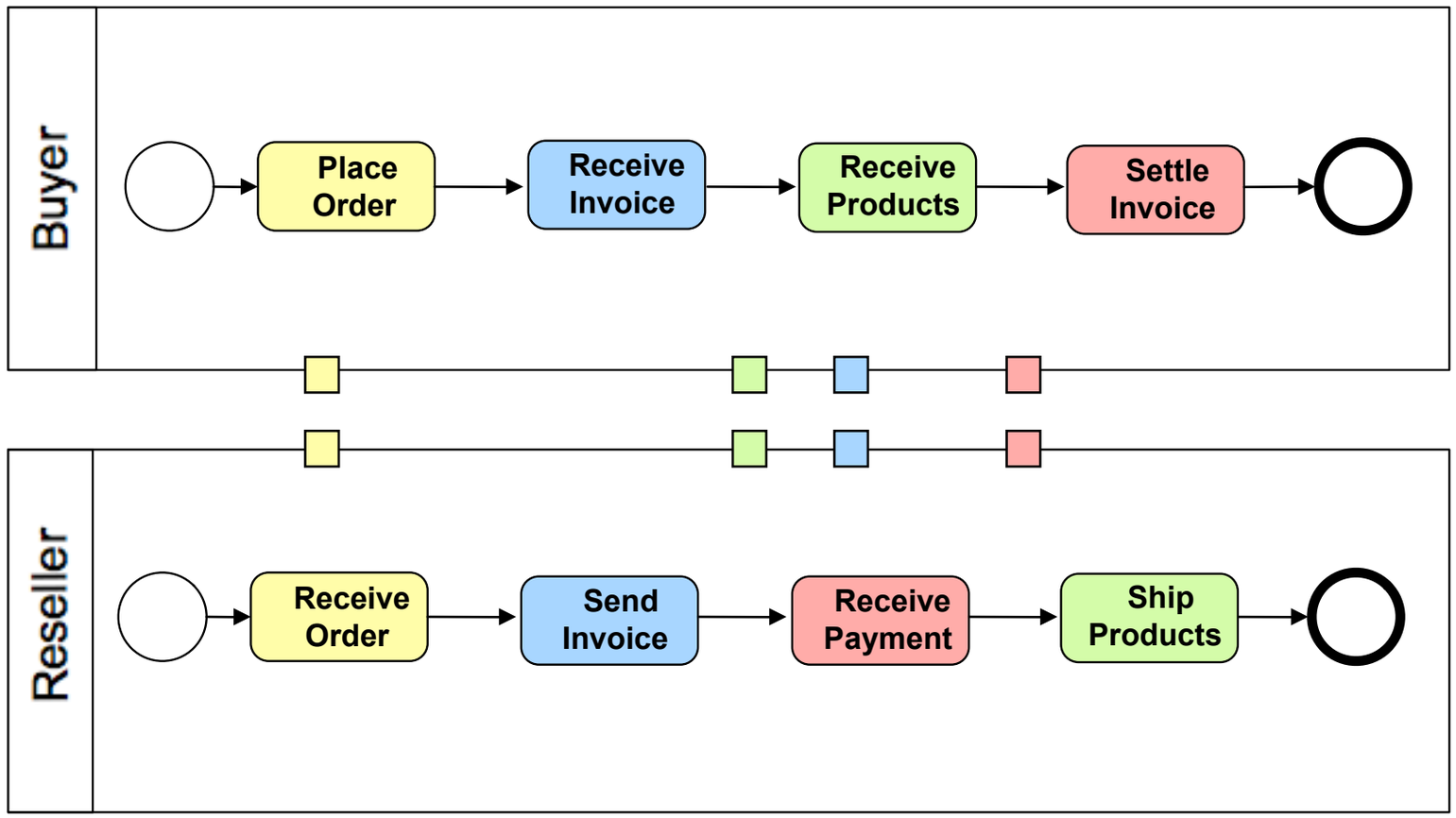


B_1

R_2

Still working fine?

Question time



B4

R2

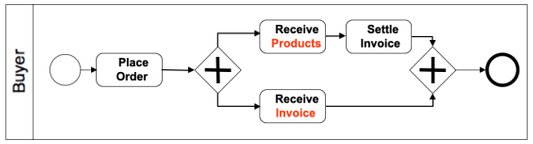
Still working fine?

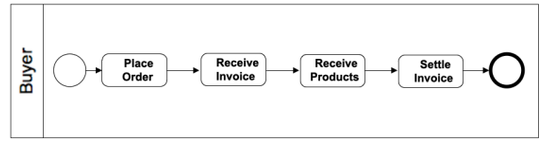
Exercises

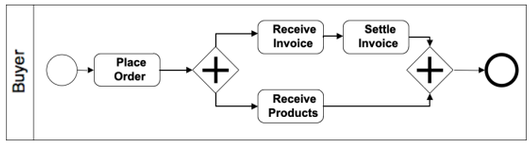
In previous slides, we have seen many variants of business processes for resellers (two) and buyers (four).

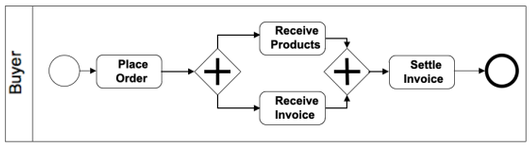
Build a “compatibility” matrix with two rows and four columns and mark all the combinations for which some problems may arise during the interaction because activities are not implemented in the expected order.

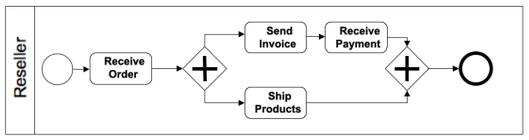
You are also free to consider other process diagrams, by adding the corresponding rows / columns to the matrix.

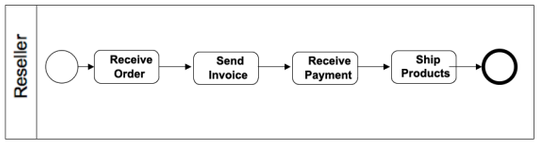




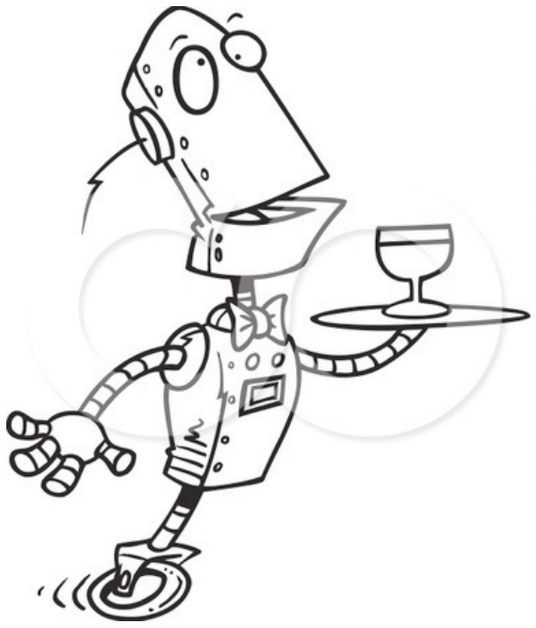








	B_1	B_2	B_3	B_4
R_1	ok			
R_2	ok			no



Exercise

Coffee break collaboration:
Draw the process diagram for a vending machine
that accepts a coin,
then gives the possibility
(1) to get a coffee or
(2) to insert another coin and get either a
cappuccino or a tea.
Draw the process diagrams for
a compatible butler robot
and a "problematic" butler robot.