Reading EPC charts

Event-driven Process Chains · cheat sheet for the Pepa use-case charts · page 1

event → function → event

Event

A passive state, before or after work. It never decides and never acts.

Word it: noun + past tense, “Wake word heard”

Function

An active task that turns one state into the next.

Word it: verb + object, “Parse the command”

Connector

AND ∧ · XOR × · OR ∨. Splits one flow, or joins several.

Word it: no words, only the symbol

Control flow

The order things happen in. It says nothing about how long.

Word it: unlabeled, except yes / no

Process interface

A hand-off to another EPC chart; control does not come back.

Word it: the other process’s name

CONNECTORS: SPLIT (1 IN) OR JOIN (1 OUT)

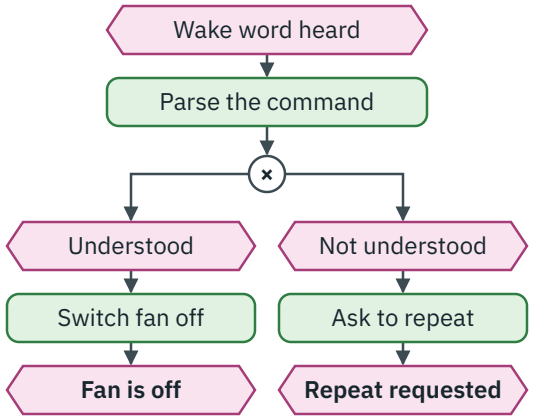
Symbol	As a split	As a join
∧ AND	All branches start, in parallel	Wait until every branch finishes
× XOR	Exactly one branch is taken	Go on when the one branch arrives
∨ OR	One or more branches	Wait for all that started

Events cannot decide. An XOR or OR split always follows a function; only AND may follow an event.

RULES OF A WELL-FORMED CHART

1. Every path starts on an event and ends on an event.
2. Events and functions alternate; connectors in between do not count.
3. No arrow from event to event, or from function to function.
4. Close each split with a join of the same type (convention; keeps charts sound).
5. A function that can fail shows its failure event too, e.g. “Nothing found” (Pepa practice).

WORKED EXAMPLE · UC4 FAN



READ ANY CHART IN 7 STEPS

1. Find the start events: no arrow in.
2. Find the end events: one per outcome.
3. Walk the happy path aloud.
4. Check the alternation along each path.
5. At each split, the function before it says what is decided.
6. Match every split to its join.
7. Last, read who does it and what data it uses.

TRAPS

- Reading an event as an action
- An XOR right after an event
- OR join: ask which branches really ran
- Arrows show order, never time

Sources: Mendling, Neumann & Nüttgens (2005), “Yet Another Event-driven Process Chain,” EMISA 1(1) · Bruni (2023), EPC lecture notes, Univ. of Pisa · ai4aging.org

eEPC for Pepa

Extended Event-driven Process Chain satellites, mapped onto the Head, the Arms and the people · page 2

who · with what · under which rules



Organizational unit

In Pepa: the Head or an Arm, e.g. Sensory Arm (house scope).



Role, person

In Pepa: the senior, a co-authority, an escalation contact.



Information carrier

In Pepa: house state, telemetry, memory store, documents, health record.



Application system

In Pepa: Home Assistant, Paperless-ngx, Open Notebook, the local model.



Software robot

In Pepa: a requested house action. *Attended*: a check-in waiting for “estoy bien”.

LINES CARRY VERBS (RASCI)

Letter	The line reads	Meaning
R, Responsible	carries out	Does the work
A, Accountable	decides on	Owns it; can say no
S, Supportive	contributes to	Helps with the work
C, Consulted	has consulting role in	Is asked before
I, Informed	must be informed about	Is told after

Data lines: arrow into the function = reads; out of it = writes.

OTHER SATELLITES, IN PEPA

- **IoT object:** presence sensor, ceiling fan, watch, scale
- **Location:** a room, e.g. office, bathroom, porch
- **Risk:** wrong device, a memory recalled wrong, a misheard command
- **Business policy:** Memory Is Not Authority, governance tiers
- **KPI instance:** response time of a voice command
- **Requirement:** an item from a use-case spec

Crowded? Move a function’s satellites to its own Function Allocation Diagram (FAD).

PEPA’S RULES, READ AS EEPC CHECKS · a proposed convention for the use-case specs

1. **People decide; arms carry out.** An action on the house or outside world has a person on its *decides on* line.
2. **Retrieval is not authority.** Memory and Knowledge Arms only *contribute to*, never *decide on*.
3. **One voice to people.** Every *informed* line to a person runs through the Sensory Arm’s house scope.
4. **The human scope looks inward.** Telemetry feeds the Human Sentinel Arm, never a conversation.
5. **Observations, not conclusions.** No diagnosis; calling someone is its own function, decided by a person.
6. **A check-in is an attended robot.** Nothing further happens until the person answers.
7. **Abstention is an output.** A retrieval shows both events: a result, or “nothing found”.
8. **No camera objects.** No camera appears as an IoT object on any Pepa function.

Sources: Software AG (2023), “EPC for ARIS” cheat sheet · Pepa architecture as published at ai4aging.org · full text: ai4aging.org/reference/reading-epc-charts