Deriving Requirements From LEL

Requirements Specification

- IEEE standard 830–1998 recommend using the expression “the system shall…”

User Stories

As a <role>,
I want <desire>
so that <reason>

As a client,
I want to close an account
so that I cease to operate the account.

Uses Cases

Use Case: <name: goal as a short verb phrase>

Goal in Context: <a longer statement of the goal >

Preconditions: < the state of the world to allow the execution of the use case>

Success End Condition: <the state of the world upon successful completion>

Primary Actor: <role of the primary actor >

Main success scenario

<actions description>

Uses Cases

Use Case: Close an account

Goal in Context: Cease to operate an account.

Preconditions: The account must be activated

Success End Condition: The account will be closed

Primary Actor: Client

Main success scenario

The client withdraws money from his account.

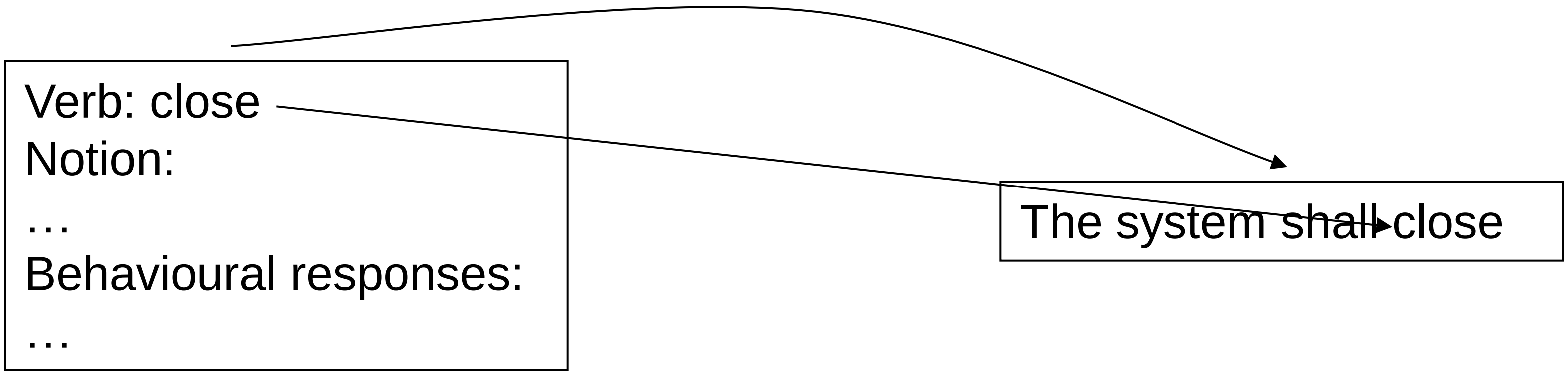
The bank denies any account operation

Derivation strategy

- Inspired by Hadad’s strategy for deriving Scenarios from LEL.
  - Verbs correspond to Scenarios which have actors who perform the actions.
  - These actors correspond with the symbols of the category subject

From LEL to requirements statements

```
rule LEL2RequirementStament  {
from s : Symbol (s.isVerb())
to r : RequirementStament (statement <- 'The
  system shall '+ s.name) }
```

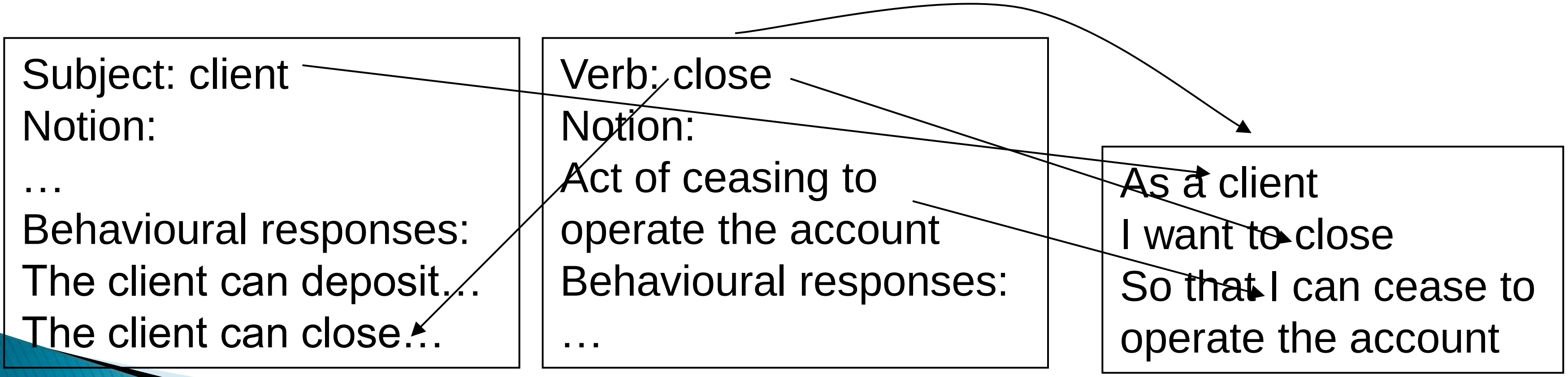


Verb: close
Notion:
…
Behavioural responses:
…

The system shall close

From LEL to user stories

```
rule LEL2UserStory  {
from s : Symbol (s.isVerb())
to u : UserStory (
u.role <- s.referencedInBehaviouralResponsesFrom() -> select (x| x.isSubject()) -> first()
u. desire <- s.name
u.reason <- s.notion }
```

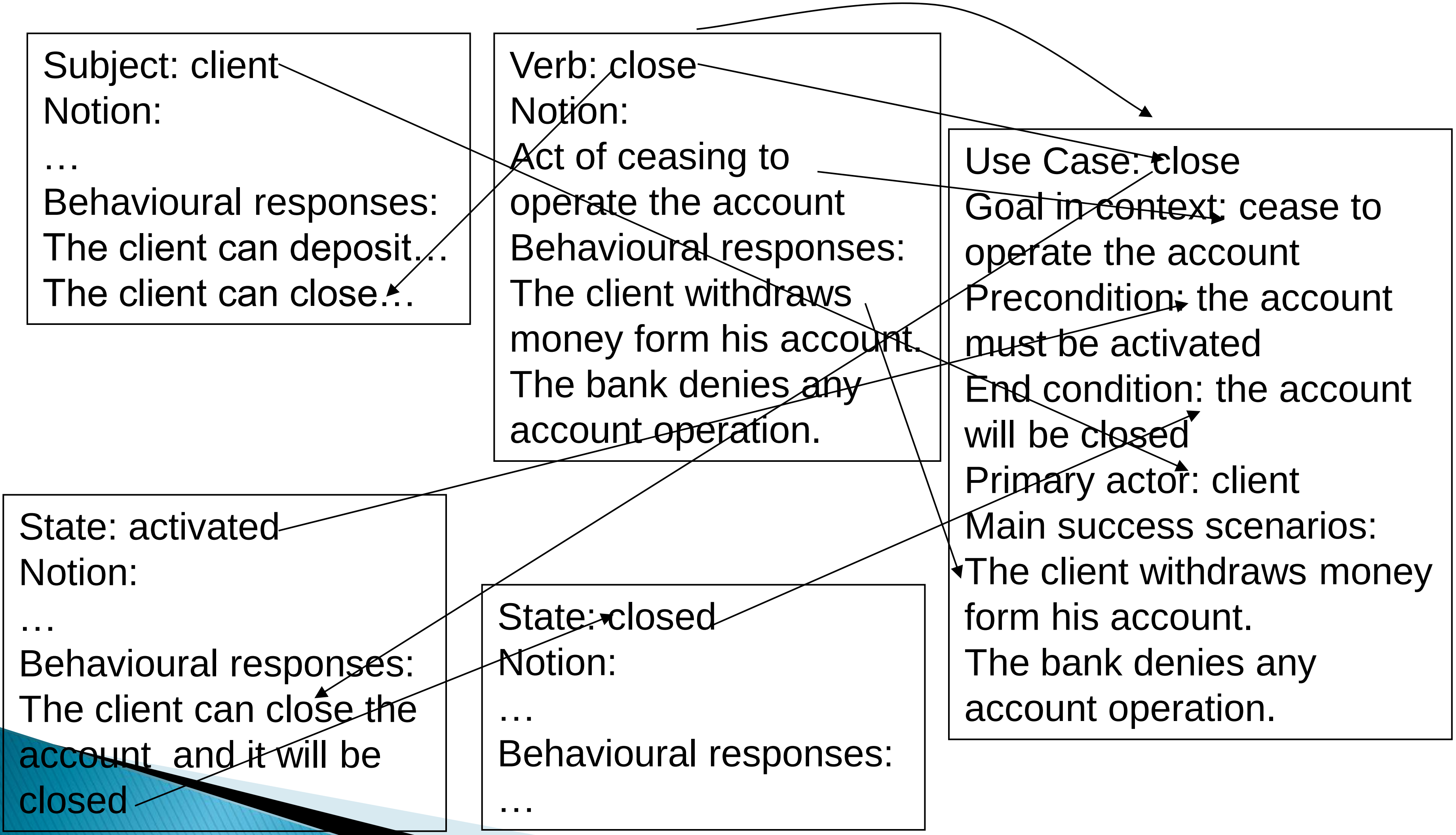


Subject: client
Notion:
…
Behavioural responses:
The client can deposit…
The client can close…

Verb: close
Notion:
Act of ceasing to
operate the account
Behavioural responses:
…

As a client
I want to close
So that I can cease to
operate the account

From LEL To Use Cases



Subject: client
Notion:
…
Behavioural responses:
The client can deposit…
The client can close…

Verb: close
Notion:
Act of ceasing to operate the account
Behavioural responses:
The client withdraws money form his account.
The bank denies any account operation.

Use Case: close
Goal in context: cease to operate the account
Precondition: the account must be activated
End condition: the account will be closed
Primary actor: client
Main success scenarios:
The client withdraws money form his account.
The bank denies any account operation.

State: activated
Notion:
…
Behavioural responses:
The client can close the account and it will be closed

State: closed
Notion:
…
Behavioural responses:
…

From LEL To Use Cases

```
helper LEL def: StateUsingVerbAsTransition(): Symbol =
(self.referencedInBehaviouralResponsesFrom()->select
   (x|x.isState())-> first ())
rule LEL2UseCase  {
from s : Symbol (s.isVerb())
to u : UseCase (
u.useCase <- s.name
u.goalInContext <- s.notion
u.preconditions <- (StateUsingVerbAsTransition).name
u.successEndCondition <- (StateUsingVerbAsTransition)
   .behaviouralResponses() -> select (x|x.isState()) -> first()).name
u.primaryActor <- s.referencedInBehaviouralResponsesFrom() ->
   select (x|x.isSubject()) -> first()
u.mainSuccessScenario <- s.behaviouralResponses }
```