Institute for Information Systems Research

University of Koblenz-Landau

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Business Process Management

SS 2022

Exercise 3

Group 03:

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Formalities for submitting your solution:

- Please submit your solution in OLAT
- The solution is due on **14.06.22 at 23:59 (UTC+2)**
- Please provide one single PDF file per group
- Please include all screenshots into your PDF file
- Please include the names of all group members into your solution
- You can reach up to 10 points in this exercise sheet

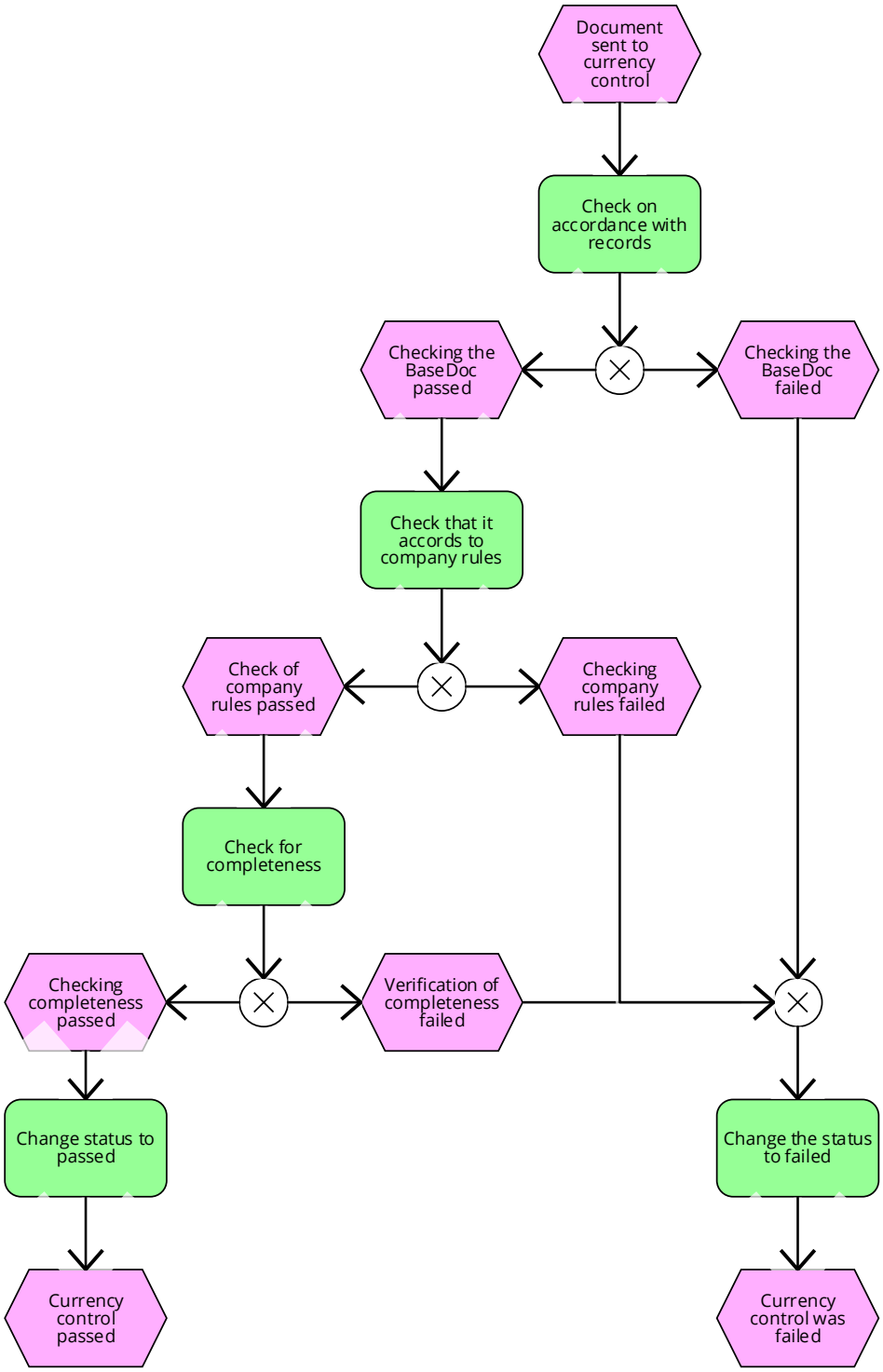
Tools needed for this exercise:

In this exercise, you are asked to provide an EPC diagram. To create your diagram, you are required to use the Signavio process editor. Signavio has provided an academic workspace, which is free of charge. The online tool must therefore only be used in the scope of this lecture, i.e. not for commercial projects.

To register, please use the following link and sign up with your university email address:
https://academic.signavio.com/p/register?link=563d1c8d72404514b73bd96ba20ddada

If you already registered for Signavio in the first exercise or a previous course, you can just use that login data.

Please consider the following currency control process model. It originates from a real-world modeling project of the SAP company.
The process was modeled jointly by two different process modelers. There were no real modeling conventions, meaning that there were also no conventions for the labels of model elements. The company sees a problem here. Before they continue modeling, they want to implement terminological standardization in order to force conventions on the captions.



Please assume that you are working for a consulting company, that is hired to implement such a standardization.

Task 1 (4 points)

Analyze the process model regarding the phrase structures used in functions and events.
Extract the phrase structures used in the model and derive phrase structure categories, differentiated in function and event categories (please document this in a table)
Please propose a minimal/restricted set of standardized phrase structure types that could serve as modeling conventions

Task 2 (2 points)

Analyze the given process model according to the domain terms used within it. Are there redundancies or synonyms respectively? Are there terms that can be omitted?
Propose a minimal domain thesaurus that contains verbs, nouns and adjectives and – if necessary – mark dominant synonyms. Please document this in a table.

Task 3 (2 points)

Please re-model the depicted currency control process using Signavio.
The model element captions must be standardized according to your phrase structures and domain vocabulary
For one single event or function, please show how a "wrong" caption (i.e., a caption that does not follow the allowed conventions) is standardized (i.e., the individual steps how it is transformed).

Task 4 (2 points)

In the lecture, an approach for enforcing that labels adhere to naming conventions was introduced. Here, individual words are tagged, meaning that their so-called part of speech (POS) is determined. As words can have multiple POS, depending on context, many tagger implementations return all respective POS for a given input.

Example: The word "check" could either be a noun ("I will write you a *check*") or a verb ("I will *check* the address")

Assume that a tagger has returned {<check, noun>, <check, verb>} for the label "check invoice". As a human, you may see that for this label, the word "check" is actually a verb. Still, the tagger has returned all possible POS.
Describe how this problem could affect (a) searching for synonyms in the general (English) lexicon, and (b) the construction of suggestions for the modeler.
Then, propose an idea how this problem could be counteracted (meaning partially or completely resolved) - for example a modification to the tagger or the approach in general. It does not matter if your idea is feasible yet, just describe in general an idea on how you would solve this if you were implementing (= programming) the approach.

General Phrase Structures

Events:

	Events	Phrase Structures
1.	Document sent to currency control.	<noun, singular><verb, past participle><preposition><noun, singular>
2.	Checking the BaseDoc passed.	<verb, present participle><article><noun, singular><verb, past participle>
3.	Checking the BaseDoc failed.	<verb, present participle><article><noun, singular><verb, past participle>
4.	Check of company rules passed.	<verb, imperative><preposition><noun, plural><verb, past participle>
5.	Checking company rules failed.	<verb, gerund><noun, plural><verb, past participle>
6.	Checking completeness passed.	<verb, gerund><noun, singular><verb, past participle>
7.	Verification of completeness failed.	<noun, singular><preposition><noun, singular><verb, past participle>
8.	Currency control passed.	<noun, singular><verb, past participle>
9.	Currency control was failed.	<noun, singular><Auxiliary verb, past participle><verb, past participle>

Functions:

	Functions	Phrase Structure
1.	Check on accordance with records.	<verb, imperative><preposition><noun, singular><preposition><noun, plural>
2.	Check that it accords to company rules.	<verb, imperative>< determiner><pronoun, singular> <verb, present participle><preposition><noun, plural>
3.	Check for completeness.	<verb, imperative><conjunction, coordinating><noun, singular>
4.	Change status to passed.	<verb, imperative><noun, singular><preposition><adjective>
5.	Change the status to failed	<verb, imperative><article><noun, singular><preposition><adjective>

Standardize Phrase Structure

Events:

	Standardize Event Phrase Structures
1.	<noun, singular><verb, past participle><preposition><noun, singular>
2.	<verb, present participle><article><noun, singular><verb, past participle>
3.	<verb, gerund><noun, plural><verb, past participle>
4.	<verb, gerund><noun, singular><verb, past participle>
5.	<noun, singular><verb, past participle>

Functions:

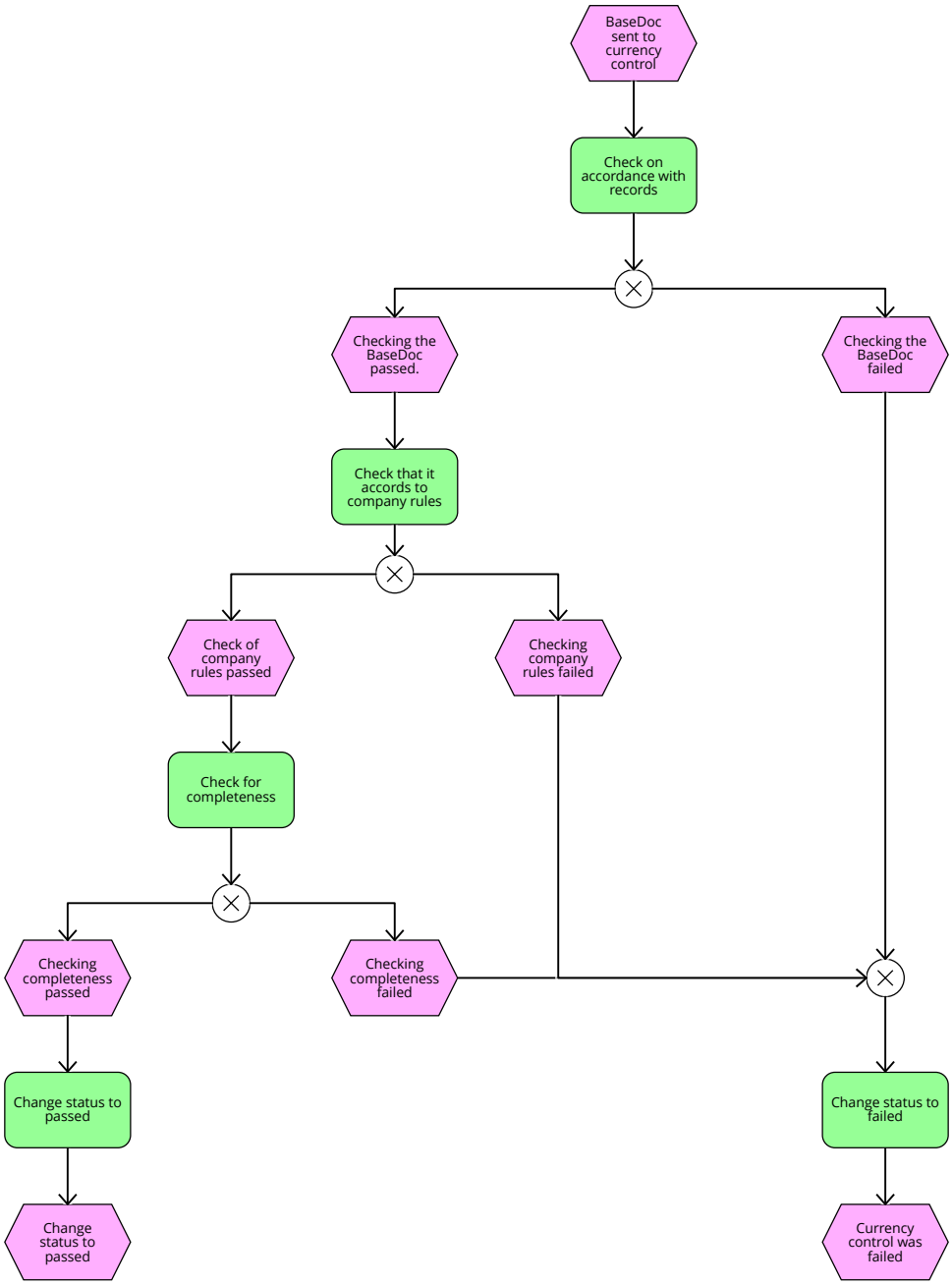
	Standardize Function Phrase Structures
1.	<verb, imperative><preposition><noun, singular><preposition><noun, plural>
2.	<verb, imperative>< determiner><pronoun, singular> <verb, present participle><preposition><noun, plural>
3.	<verb, imperative><conjunction, coordinating><noun, singular>
4.	<verb, imperative><noun, singular><preposition><adjective>

Task 2

Domain Thesaurus

Domain Vocabulary	**Class**	**Dominance**	**Synonym(s)**
Currency control	noun		
Accordance	noun		accords
Basedoc	noun	dominant	document
document	noun		Basedoc
records	noun		
accords	noun		accordance
verification	noun		
status	noun		
completeness	noun		
failed	adjective	dominant	
passed	adjective	dominant	
to check	verb	dominant	to verify
to change	verb		
to verify	verb		To check
to send	verb		
to pass	verb		
to fail	verb		

Task 3


BaseDoc sent to currency control
Check on accordance with records
Checking the BaseDoc passed.
Checking the BaseDoc failed
Check that it accords to company rules
Check of company rules passed
Checking company rules failed
Check for completeness
Checking completeness passed
Checking completeness failed
Change status to passed
Change status to failed
Change status to passed
Currency control was failed

Task 4 (2 points)

(a) Searching for synonyms in the general (English) lexicon:

In such a scenario there is no clear meaning regarding the context, and we might end up with a wrong synonym from the general (English) lexicon.

(b) The construction of suggestions for the modeler:

The modeler will build the phrases based on these ambiguities and the phrases won't be valid.

(c) An idea how this problem could be counteracted.

- We can use semantic web techniques like OWL and RDF to map the context of each word.
- Machine Learning algorithms can be useful in classifying 'check' as either a noun or verb.