

# LOGICO-ANALYTICAL EXPERTISE OF TEXTS WITH A DESCRIPTION OF PROCEDURES BASED ON INTELLIGENT TECHNOLOGIES

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***Abstract.** Analysis of existing approaches to the development of procedures in a textual form containing description of branching processes (in particular in legal texts) was made. It was established that visualization with the help of the system analysis methods (in particular, logical schemes made in BPMN notation) is the most effective tool for developing branching processes. It was also established that the absence of clear rules for development of Procedures in a textual form causes a fairly large number of errors in descriptions of the branching processes worked out by the specialists having no sufficient skills in using algorithmizing. The Intelligent Technology was developed for checking textual Procedures containing descriptions of branching processes. It is based on visualization using BPMN notation which allows one to find errors of logical coherence and completeness. Effectiveness of the proposed Intelligent Technology was demonstrated on the examples of checking legal texts with a description of branching processes of legislation of a number of countries of the world. The developed Intelligent Technology is quite simple in its mastering for the specialists possessing a certain level of skills in algorithmization and can be applied in any sphere of activity describing processes in a textual form.*

***Keywords:** branching processes, BPMN notation, logical errors in legal texts, textual description of processes, visualization of process description.*

## **Introduction**

A procedure is the document determining the order of interaction between departments and employees of an organization within a certain process (McQuate, 2002). Probably, there is no such area of human activity in which there are no procedures. A work of state bodies, institutions and organizations or implementation of any Business Process (BP) depend on how the procedure is built. The procedure becomes a key element of the public administration system effectiveness of which influences effectiveness of the entire public administration system. Therefore, one of the main tasks of ensuring sustainable work is support of functional safety of the system based on analysis of the system's procedure realizability. To this end, it is necessary to realize a methodology that makes it possible to automate the process of development and ensure control of a procedure execution.

The basis of public administration procedures are legal documents. Therefore, the feasibility of procedures depends on how correctly legal documents are described. At the same time, errors may occur in the texts of legal documents of various purposes: “Errors can happen in leases, employment agreements, real estate contracts, sales agreements, tax forms...any legal document” (Murray, 2017). Legal texts are written by people and to err is human. So, it is very easy to draw a conclusion that the texts of laws and other regulations may be incorrect. Most often regulations contain simple logical inconsistencies, grammatical errors, missed words and so on. Most of all it falls to the Codes’ lot because their purpose is to collect the rules of law for an individual branch and state them in a systematized form. What is added to "usual" errors arising in writing a legal text are systematization errors, for example, incorrect cross-references, etc. (Obolentsev et al, 2020).

From the view point of technical problems, procedure is an algorithm, so certain skills of algorithmizing are necessary for developing procedures. However, the vast majority of the procedures developed in the spheres of human life are in a textual form. This is the consequence of "one-sidedness" of specialists trained by higher education

institutions. On the one hand, the vast majority of technical specialists possessing knowledge of Intelligent Technology (IT) focus their attention on the use of algorithms for creation of exceptionally software products. And on the other hand, most professionals involved in solving practical problems do not possess such skills (Bondarenko et al., 2004).

Consequently, development of Intelligent Technology for analysis of textual schedules (procedures) is a topical task.

### **Literature review and problem statement**

From the view point of Legislation on the same issue the author (Dickerson, 1955) says: "... in general the job of legislative drafting is being done very poorly... one of the most important reasons why this is so is that lawyers in general do not understand the role of the draftsman and that many draftsmen don't understand it either. It is very important to know clearly what that role is... Briefly, the draftsman's job is to help his client do legislatively exactly what the client wants to do in fact and to help him do it in a way that will work as smoothly as possible".

At the same time, peculiarities of human perception and information processing do not enable a complete estimation of the procedures presented in a textual form for their logical coherence and completeness which results in appearance of errors (Timofeev et al., 2017).

There are very few recommendations on the correct description of procedures that represent branching processes in literatures describing the Drafting Legal Documents. For example, "If," "when," "where." If the application of a provision is limited by the occurrence of a condition that may never occur, use "if" to introduce the condition, not "when" or "where." Use "when" to indicate a particular time for an event that is assumed will occur. Example: "When the parties have completed their closing arguments, the judge shall instruct the jury." Use "where" to indicate a particular place" (Thiessen et al., 2017) or "If only one or two simple conditions must be met before a rule applies, state the

conditions first and then state the rule. If two or more complex conditions must be met before a rule applies, state the rule first and then state the conditions. If several conditions or subordinate provisions must be met before a rule applies, use a list” (Drafting Legal Documents..., 2022).

In general, they are talking about the correct construction of proposals, the use of words and terms, ways to avoid the most common mistakes (for example, see (Barrons, 2017), as well as the course "Legal Writing" in all Schools and Colleges of Law without exception).

The writing of the Policy and Procedures in organizations can be fully attributed to the Drafting Legal Documents (Sandvick, 2025). However, it should be noted that the vast majority of publications on Policies and Procedures contain rather generalized recommendations aimed just at facilitation of their development without touching the verification process.

For example, the author (Timofeev et al, 2016) asserts that the textual procedures (namely such procedures constitute the majority) are suitable for completely unprepared and less qualified employees since they are conventional and, historically, the first descriptions of the BP. With a practically only advantage consisting in simplicity of description (I write what I see), they have a lot of shortcomings (laboriousness of making corrections, unstructured process, inconvenience of perceiving a solid text and describing parallel or branching processes). To eliminate above shortcomings, it is proposed to use graphics because clear visualization makes it possible to avoid errors and "extra" steps (the process structure and its interrelations are seen at a glance). The visualization also contributes to a rapid understanding of logic and sequence of the work processes by both experts who elaborate procedures and personnel.

The author (Obolentsev et al, 2021) confirmed that a Flowcharts reflecting actions and branching (conditional transitions) is the simplest and accessible language for understanding procedures. It was recommended that hierarchical decomposition of processes must be used to achieve clarity of the schemes when not only the boundaries

but also nesting of processes are determined. At the same time, a conclusion was drawn that schemes cannot completely replace the procedures text: "Practice shows that the scheme with insufficient detail needs explanations. As a rule, too detailed scheme is unreadable. In addition, not all employees of even a very "advanced" organization are able to correctly read schemes. One of the main difficulties is description (in any language) of schemes of various branches, rules with exceptions and similar phenomena prevalent in business. Well-structured texts willy-nilly cope with solution of these tasks but a good scheme will not be superfluous."

Authors of paper (Manktelow et al, 2016) strongly recommend using the Flowchart method in case of simple processes and the Swim Lane Diagrams method for more complex processes to write the Policy and Procedures. But as the only recommendation leading to reduction in errors when developing the Flowchart of the process, the author suggests to assure that you don't complicate your chart with too many unfamiliar symbols or too much text. If you need to, break it into a series of smaller flowcharts.

In the paper (Flick, 2016), in order to increase quality of the procedures being developed, it is suggested to focus on the things people need to be told in order to execute the process, and leave out pointless directions and unnecessary explanations. And to verify the procedure must be subjected to "real world" conditions, the results you see may not be the ones you want or expect.

Some attempt to concretize requirements for better development of procedures using logical schemes was made in (Snelleksz, 2017). For example, it was proposed to develop a short and punchy procedure for what do it in a step-by-step format in short, punchy points rather than blocks of text and paragraphs, which your employees may find cumbersome to follow. Visualise the Policies and Procedures you are trying to convey. Also, "... try and avoid having a bulky physical document that may be slow to amend and update. Rather, have it as a living and breathing document on your computer or business network." Constantly use feedback with executors of the procedure: "You'll find they have a wealth of information and knowledge, given that they are embedded deep within

and throughout your business. They are often the best people to ask how to improve things."

As regards the procedure, the term "completeness" is used in the context of logic but it was disclosed in a rather generalized form in (Schwartz, 2015). For example, "... in documenting policies and procedures by adhering to the seven Cs: context, consistency, completeness, control, compliance, correctness, and clarity ... In terms of completeness, the policies and procedures should logically explain the processes without information gaps." There are no recommendations for visualizing the procedures.

The most extensive recommendations concerning the Drafting of textual procedures (without process schemes) are presented in (Griffin, 2014). But, nevertheless, these recommendations are of a general nature. For example, description of requirements to "Clarity, Conciseness, and Coherence" of the procedure: "Make every word advance your meaning. Weed out unnecessary words. Delete redundancies, needless phrases, overblown phrases, and clichés. For your policy to be clear and... to be exact, each and every policy that you write should contain accurate and complete information expressed concisely. Coherence is about good logic, linking sentences, and discernable threads of thought. Coherent writing will lead the reader through your policy manual.... Policy manual readers look for coherent thought and logic... Your policy manual will be coherent if the relationships between the sentences in each paragraph are clear and logical and the links or relationships between paragraphs and sections are readily apparent."

The use of the graphical schemes as a tool for the process analysis was considered in (Hutsa et al, 2017). The conditions necessary for creating a qualitative scheme of the process are given. The method of verification of schemes using check-lists the structure of which contains such sections as "Absence of logical and contextual errors" and "Absence of omitted important Activities" is discussed in (Hutsa et al, 2017). Possible lines of contextual analysis of the process schemes were suggested. It was concluded that graphical schemes are a powerful tool for analyzing processes. However, in order to use this tool, the following has to be done:

- learn to create quality process schemes;
- develop the method for analyzing processes using graphical schemes;
- train managers and specialists, form their skills in developing graphical schemes and their use within the framework of the projects of analyzing and optimizing the company's BP.

It should be noted that the author (Hutsa et al, 2017) used analysis mainly as a monitoring tool in the course of creation of the process scheme per se, and it was proposed to study the actually created and checked scheme by applying simulation.

Thus, in terms of processes description, existing procedures may have errors related to the process logic because:

1) specialists who do not have or have insufficient skills in algorithmizing (in comparison with those who work in the field of Computer Technologies) cannot effectively apply the visualization in the drafting of procedures;

2) there are no clear recommendations (i.e. a Technology) for the drafting of procedures containing a description of branching processes without the use of graphical schemes.

The visualization of a process description can become the Tool for detecting errors in such procedures. Consequently, development of IT for elaboration and analysis of procedures texts is a Topical Task.

The present work proposes an IT for checking procedures texts containing a description of branching processes based on logical schemes (visualization) with the use of Business Process Model and Notation (BPMN) which is “a standard for business process modeling that provides graphical notation for specifying business processes in a Business Process diagram (BPD), based on traditional flowcharting techniques” (BPMN, 2024). Using of this notation will provide finding in errors of logical coherence and completeness in specified texts.

## **Developing the IT for checking logical coherence and completeness of textual procedures**

### **Developing the information model of the procedure "Text → Scheme"**

In the course of development of the IT for creating an on-line procedure's guide (Timofeev et al, 2016), a need for a procedure for converting a branching process into a text has appeared. Following the analysis of the results obtained in development of the procedure, the following questions were formulated:

1. If there is the procedure "Scheme → Text", then should there be the reverse procedure "Text → Scheme"?
2. Are the existing texts describing branching processes that were developed without the use of visualization correct?

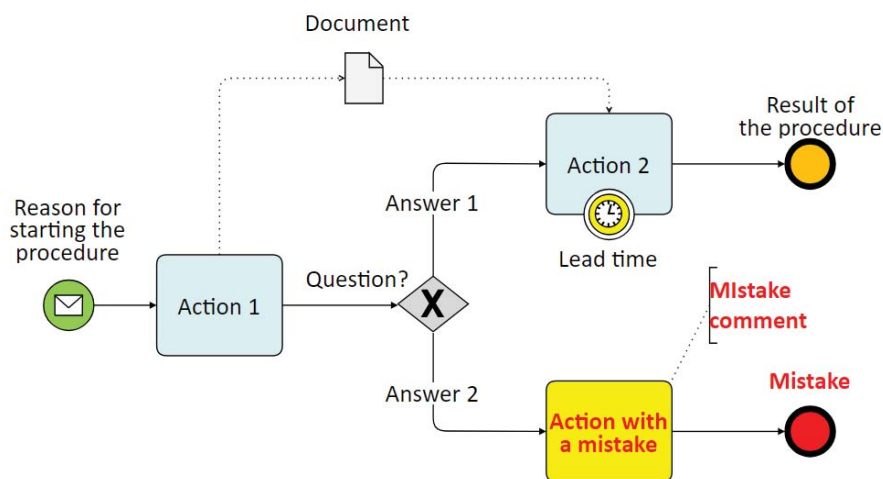
To find an answer to the first question, it is proposed to form models of the implementation of procedures using the capabilities of BPMN. In accordance with the original purpose, BPMN was developed for direct use by stakeholders who design, manage and implement business processes. The use of BPMN has become a standard for visualizing business processes for most designers. It has an easy-to-use notation similar to a flowchart, which does not depend on any specific implementation environment, convenient for understanding by design participants. Considering that legal documents often describe the implementation of procedures, BPMN should successfully cope with the task of their visualization. The main factor in favor of using BPMN is that it is intuitive, which means that the diagrams generated will be understandable for specialists without technical education. In addition, in modern conditions, the "understanding" of diagrams can be assigned to artificial intelligence.

The BPMN notation defines four ways to represent business process participants, each of which has its own diagram type: Business Process diagram, Collaboration diagram, Choreography diagram, and Conversation diagram. The presence of several diagram types is determined by the fact that this notation was developed without reference

to a specific area of application. As a result, the notation provides opportunities for modeling real processes in a wide range of activities.

It was previously determined that procedures are subject to modeling. Their peculiarity is that they represent processes that have branches. A sufficiently deep examination of the text description of the procedure implementation process revealed similarities with linear calculation algorithms. And the Business Process diagram (BPD) is most suitable for representing such models.

An example of presenting the implementation of a procedure by constructing a business process diagram is shown in the Figure 1. When developing a BPD, four groups of elements are used: events, actions, flows, information elements. The variety of event representation options allows you to take into account a wide range of nuances that need to be reflected in the model.



**Figure 1.** *An example of representing of the procedure using BPMN business process model*

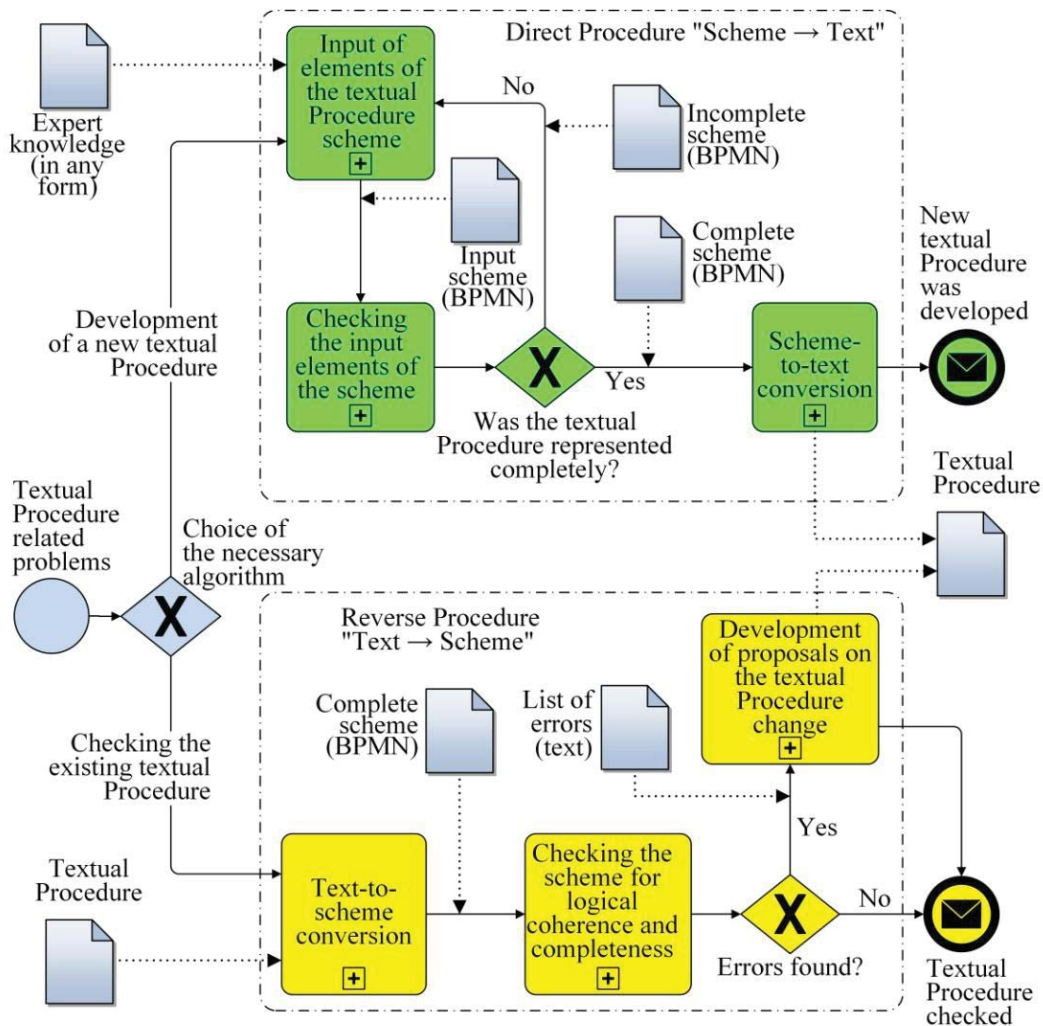
From the point of view of procedure modeling, it was important to be able to show:

- a simple implementation sequence, as well as implementations with branches;
- implementation sequences that are cyclical, as well as implementations with subprocesses;
- processes with branches of parallel actions;

– processes with interrupts and waits.

Using BPD allows us to present the distribution of individual stages of procedure implementation by executors (for which pools and tracks are used), and also to explicitly show which documents are input for the implementation of stages, as well as to show the documents that will be the result of implementation.

To answer the first question was development of a joint information model for the procedures “Scheme → Text” and “Text → Scheme” (Figure 2). The model became the basis for development of the proposed IT.



**Figure 2.** Information model of the procedures “Scheme → Text” and “Text → Scheme”

The model was developed in a BPMN notation and describes the type of input, internal and output information, as well as the basic stages of information conversion.

To answer the second question, the studies described below were carried out.

### **Determining the subject area and signs for finding textual description of branching processes and choosing the means for their visualization**

Legal texts were chosen as the subject area for the studies. There are several reasons. The reasons for the appearance of logical errors in legal texts were described above: lawyers do not have the sufficient skills of algorithmization and there is no a technology for developing the texts of procedures without visualization. Also, the proposal to apply logic in the legislative process is not something exceptional, see (Glenn et al, 2017). And, finally: "The law should be logical ... In general, this rule can be formulated as follows: the statutory act must be stated from the general to the particular. Therefore, the law structure should provide a consistent logical presentation of the statutory material, be readable and thereby contribute to its correct understanding. That is why it is very important to consistently and logically state statutory provisions in the law when drafting it" (Heinrich, 2016). The requirement concerning elaboration of laws "from general to particular" set forth in the quotation fully corresponds to the methodology used in elaboration of the process schemes, in particular decomposition.

In order to clearly define what exactly will be analyzed in legal documents, two concepts should be defined.

The logical coherence of a legal document will be understood as a characteristic of the document, which is determined that the document has a clear and orderly text structure, while all parts of the document are presented in the order of consistent reasoning and do not contradict each other. The logical coherence of a legal document is achieved by strict adherence to logical laws, such as the law of non-contradiction and the law of sufficient reason, the presentation of the provisions of the document using clear wording that

excludes ambiguous interpretation, the presentation of clear cause-and-effect relationships between the stated facts and arguments and understandable.

The completeness of a legal document will be understood as the document covering all the necessary aspects of the issue under consideration, leaving no gaps or omissions. A complete document provides comprehensive information sufficient for understanding and decision-making without the need to refer to additional sources. Ensuring the completeness of a legal document is achieved by carefully elaborating the content, including all essential details and ensuring the absence of ambiguity.

A document that is logically coherent and complete ensures that the legal rules contained in it are correctly understood and applied.

From technical point of view checking legal texts on correspond to two described properties means find and studying in than branching processes because such fragments first can be reasons of violations. To search for texts containing description of branching processes, the following three signs were defined:

1) the title should have a description of the actions (for example, verbal nouns “checking”, “registration” or such terms as “procedure”, “order”, etc.);

2) in the text found, there should be description of actions (for example, verbs “draw up”, “book”, “send”, etc.);

3) in the text found, there should be signs of the process branching (for example, conjunction “if”, preposition “in the case”, etc.).

The detection of such features in the text can now be fully automated. Modern capabilities of programming languages allow reading texts from files of any format into the memory of the computing system, and then searching for the necessary words or combinations of words, taking into account the rules for the formation of word forms for the corresponding part of speech. Therefore, it is more important to present a solution to the issue of analyzing the semantic content in a text with branches. Development of a model allowed represent steps of decision described task will be look in next item.

## **Development and implementation of the information model of the procedure for creating rules of conversion of a text**

By analogy with the procedure “Scheme → Text”, version 2.0 of BPMN notation (BPMN, 2024) was chosen as the means for visualizing process descriptions which is an intuitive common language for developing the process models. Experience shows that experts immediately begin to “read” process schemes represented in BPMN notation despite their age and the degree of technical education.

To develop the procedure (Figure 3), structural methods of system analysis and design were used, such as partitioning the system into "black boxes", hierarchy, and functional decomposition (Bondarenko et al, 2004).

The procedure was developed in a BPMN notation. Five steps were chosen in the procedure model and corresponding tasks were fulfilled at each of them.

### Step 1. Initial definition of recommendations

Task 1. 1. Define initial set of rules for converting the text of the process description into a scheme (corresponds to the part of the rules from the procedure for converting the branching process scheme into text (Timofeev et al, 2016) by the principle "from the reverse").

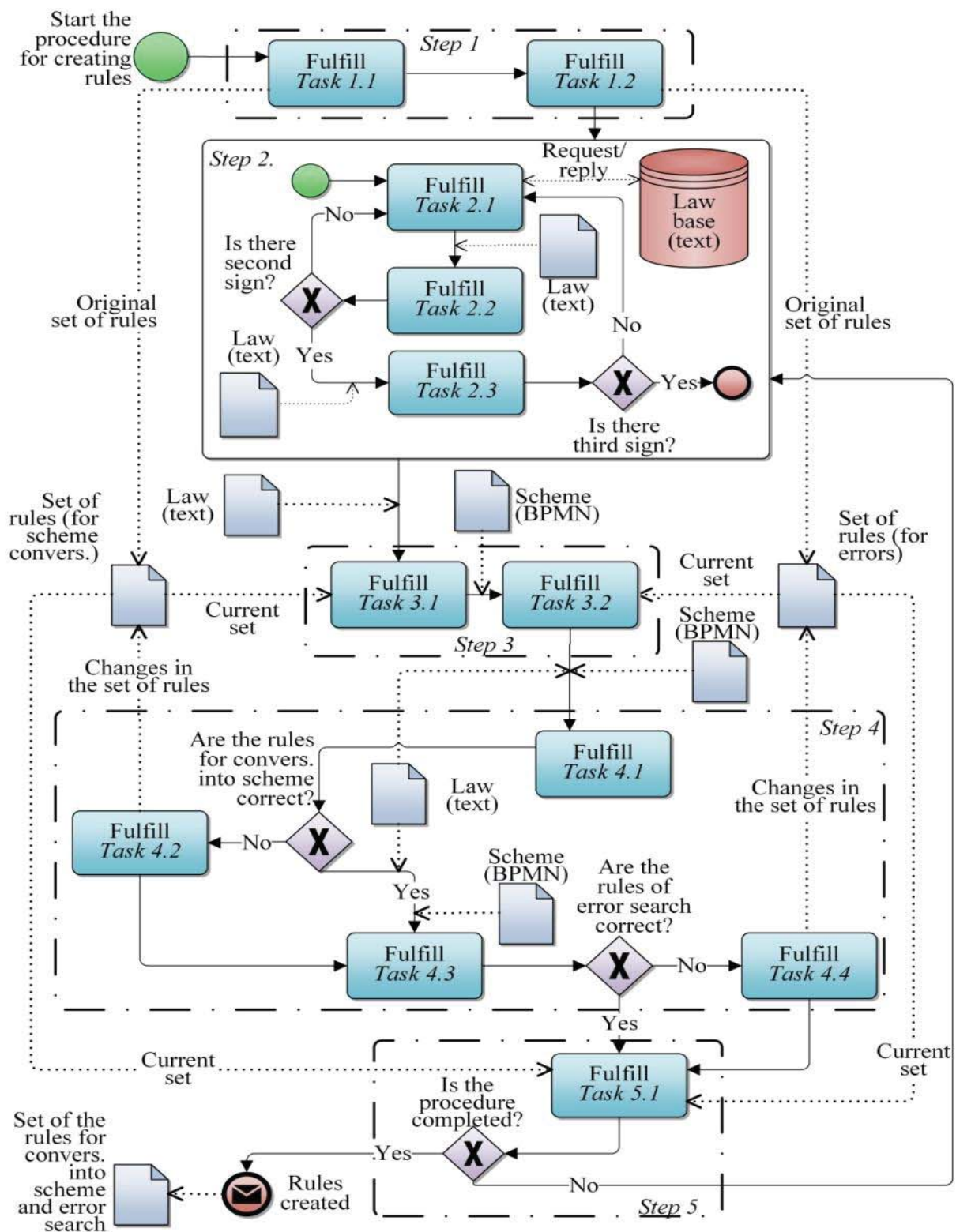
Task 1. 2. Determine initial set of rules for detecting errors: missing or incorrect reference; absence of task (from the publications on errors in laws).

### Step 2. Selection of material for studies

Task 2. 1. Search in Ukrainian legislation (mainly in the Codes) for laws or papers with texts where there is a description of actions (for example, verbal nouns “checking”, “registration” or terms “procedure”, “order”, etc.) in their titles.

Task 2. 2. Search for description of actions in the selected text (for example, verbs “draw up”, “book”, “send”, etc.)

Task 2. 3. Search for the signs of process branching in the selected text (for example, conjunction “if”, preposition “in the case”, etc.)



**Figure 3.** Information model of the procedure for creating rules of converting a text with a description of a process into a schema and identifying of errors

Step 3. Conversion of a textual process description into a scheme and identifying of errors

Task 3. 1. Convert textual description of a process into a scheme in accordance with the current set of rules.

As experience has shown, it was usually required from 3 to 5 iterations for conversion during which the scheme gradually got corresponding to the process description.

Task 3. 2. Analyze the obtained scheme for errors in accordance with the current set of rules.

Step 4. Analysis of the results obtained during conversion and error search.

Task 4. 1. Analyze the results obtained during conversion of the process description text into a scheme for their correspondence to the study objective.

Task 4.2. Introduce appropriate changes to the current set of rules for converting the process description text into a scheme.

Task 4. 3. Analyze the results obtained in the course of identifying errors in accordance with the study objective.

Task 4. 4. Make appropriate changes to the current set of rules for identifying errors.

Step 5. Decide on the development completion.

Task 5. 1. Analyze the results of steps 3 and 4 for their conformity with the state of the IT being developed and the study objective. If no conformity was reached, go back to step 2 “Selection of material for studies”.

### **The results of the IT development**

Three stages can be defined in the IT:

- 1) conversion of the process description text into a logical scheme;
- 2) checking the obtained Scheme for logical coherence and completeness;
- 3) development of proposals on introduction of changes in the process description.

## 1. Conversion the process description text into a scheme.

The main recommendations that can be used when converting text:

– the text is analyzed for the presence of subprocesses, that is logically isolated parts and/or commonly used parts, i.e. which are referenced from various parts of the procedure. Such parts must be converted separately. Usually, such parts are the structural elements of the document: sections, subsections, paragraphs, subparagraphs;

– the first action from which the process begins its development has to be found in each part. It must be remembered that every action should be atomic (indivisible);

– as usual, the tasks in the scheme that follow one after another correspond in the text to the actions that are also recorded one after another or arranged as a list;

– in the case of finding words like “if”, “in the case” or other words which imply variants of development of events, it is necessary to reflect an exclusive gateway in the scheme and formulate the corresponding question. After that, other answers to this question should be found in the text: these will be the starts of new scenarios of the process development;

– the parts of the document in which there is no description of actions are not represented in the scheme;

– if the text contains references to an external procedure, this is represented in the scheme as a reference to a subprocess;

– if the text refers to drawing up or filling-in a document, then its graphical image with a comment has to be attached to the corresponding task. Similarly, templates of phrases are attached to the tasks, if any.

## 2. Checking the obtained scheme for logical coherence and completeness.

There are three main lines of checking:

– broken or missing links.

Broken or missing links are easy to detect in the scheme: it is either a gateway that has only one output or a task that has no output at all;

– absence of tasks.

The check for absence of tasks follows from the logic of the process, e.g., if ahead of an exclusive gateway (the one with outputs being answers to the questions), a task is found and its work result is unambiguous (that is, no question can be there as a result of its fulfillment). This means that the process is missing a task which so to speak “puts” this question or the tasks were described one after the other but with no logical coherence between them, and so on.

– absence of analogy.

The check for absence of analogy is based on the fact that the procedure is usually a set of more or less repetitive actions. Therefore, if these actions or connections exist in one case but are absent in other case, then this may be an error: there are no tasks or connections are broken or absent.

3. Development of proposals on introduction of changes in the process description.

This step is performed if errors are found in the scheme in the course of checking for logical coherence and completeness.

During this stage, analysts together with the procedure drafters correct errors or reject comments if they are not like that.

### **Examples of application of the IT**

Legal texts describing the branching processes from the following Rules and Codes were analyzed:

- Rules of the Supreme Court of the United States;
- Rules of the Supreme Court of the Western Australia;
- Rules of the European Court of Human Rights;
- Rules of the European Parliament;
- Tax Code of Ukraine;
- Rules of the Supreme Court of the United Kingdom;
- Rules of the Supreme Court of Canada;

- Rules of the Supreme Court of New Zealand;
- Rules of the Supreme Court of India.

After each scheme there is the description of the detected errors and questions from the point of view of the logic of the development of the process. Hereinafter in logical schemes: detected errors and questions are highlighted in red.

### **The Supreme Court of the United States: Rule 17. Procedure in an Original Action**

The logical scheme is shown in the Figure 4.

Text of the Rule:

1 This Rule applies only to an action invoking the Court's original jurisdiction under Article III of the Constitution of the United States. See also 28 U. S. C. § 1251 and U. S. Const., Amdt. 11. A petition for an extraordinary writ in aid of the Court's appellate jurisdiction shall be filed as provided in Rule 20.

2 The form of pleadings and motions prescribed by the Federal Rules of Civil Procedure is followed. In other respects, those Rules and the Federal Rules of Evidence may be taken as guides.

3 The initial pleading shall be preceded by a motion for leave to file, and may be accompanied by a brief in support of the motion. Forty copies of each document shall be filed, with proof of service. Service shall be as required by Rule 29, except that when an adverse party is a State, service shall be made on both the Governor and the Attorney General of that State.

4 The case will be placed on the docket when the motion for leave to file and the initial pleading are filed with the Clerk. The Rule 38(a) docket fee shall be paid at that time.

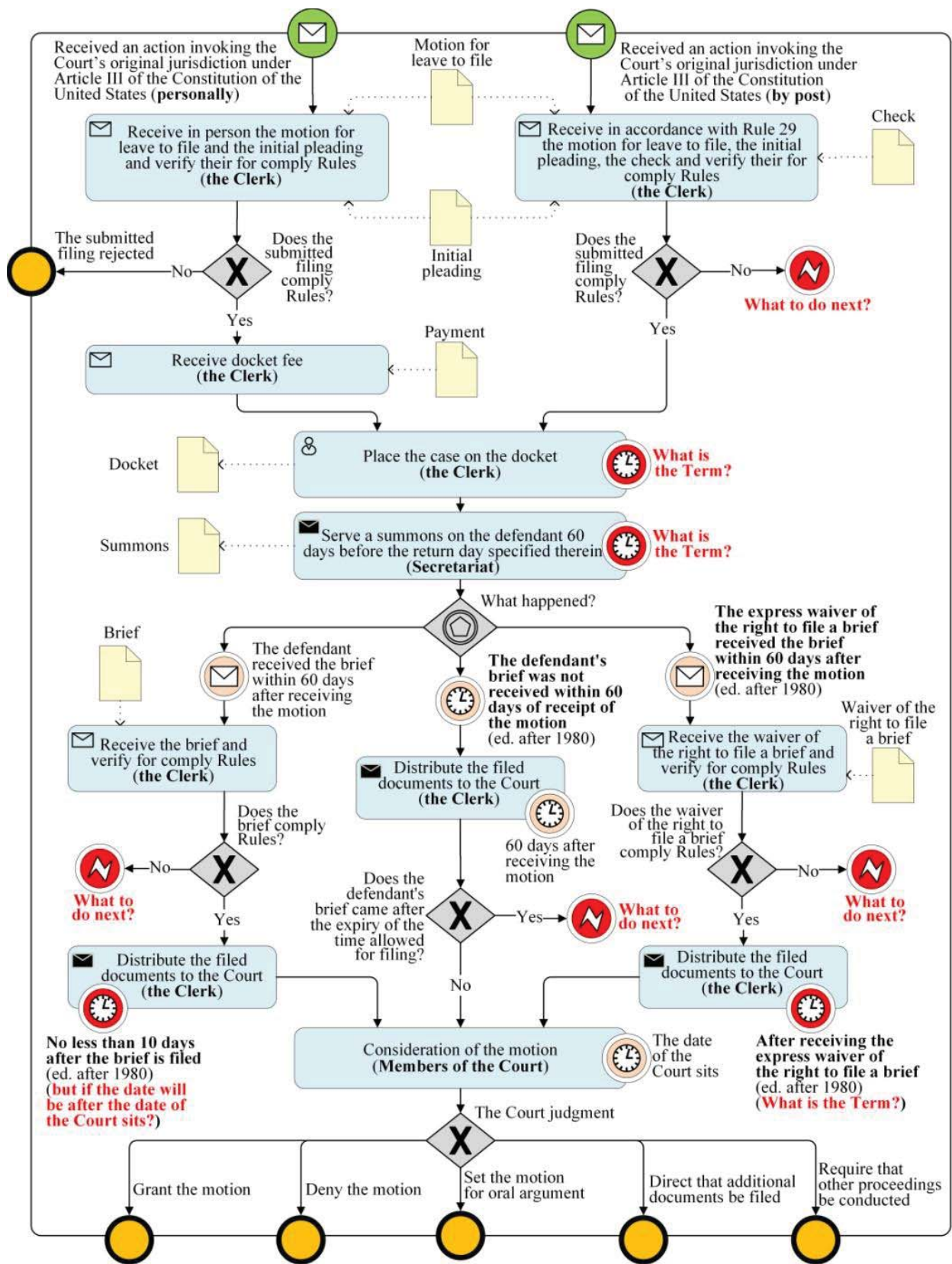


Figure 4. The logical scheme of Rule 17 after conversion and verification

5 No more than 60 days after receiving the motion for leave to file and the initial pleading, an adverse party shall file 40 copies of any brief in opposition to the motion, with proof of service as required by Rule 29. The Clerk will distribute the filed documents to the Court for its consideration upon receiving an express waiver of the right to file a brief in opposition, or, if no waiver or brief is filed, upon the expiration of the time allowed for filing. If a brief in opposition is timely filed, the Clerk will distribute the filed documents to the Court for its consideration no less than 10 days after the brief in opposition is filed. A reply brief may be filed, but consideration of the case will not be deferred pending its receipt. The Court thereafter may grant or deny the motion, set it for oral argument, direct that additional documents be filed, or require that other proceedings be conducted.

6 A summons issued out of this Court shall be served on the defendant 60 days before the return day specified therein. If the defendant does not respond by the return day, the plaintiff may proceed ex parte.

7 Process against a State issued out of this Court shall be served on both the Governor and the Attorney General of that State.

Errors and Questions:

– What to do if documents (the motion for leave to file, the initial pleading, or the brief) received by mail do not comply with the Rules?

– What is the Term after receipt and verification of documents, the Clerk should place the case on the docket?

– What is the Term after the case is placed on the docket, should the Secretariat serve a summons?

– What is the Term after receiving the express waiver of the right to file a brief, the Clerk distribute the filed documents to the Court (immediately or after the established 60 days)?

– Can there be a date for distributing the filed documents to the Court (not less than 10 days after the receipt of the brief, for example, received on the last of the 60 days indicated in the summons) after the date of the Court sits?

– What to do with the brief received after the case is distributed to the Court?

It should be noted that after 1980, new logical conditions were introduced into the text (in the figure they are highlighted in bold), which were absent in the original wording. Those the part of the logical errors admitted in the original text has already been corrected.

### **The Supreme Court of the Western Australia: Order 80 — Escheat (Procedure) Act 1940 rules**

The logical scheme is shown in the Figure 5.

Text of the Order:

1. Term used: said Act

In this Order the Escheat (Procedure) Act 1940, is referred to as the said Act.

2. Applications for Order of Escheat, making

(1) Subject to subrule (2), an application for an Order of Escheat shall be commenced by originating motion.

(2) Where a person has claimed title to property the subject of the application, application for an Order of Escheat shall be commenced by originating summons which shall be served upon every such person.

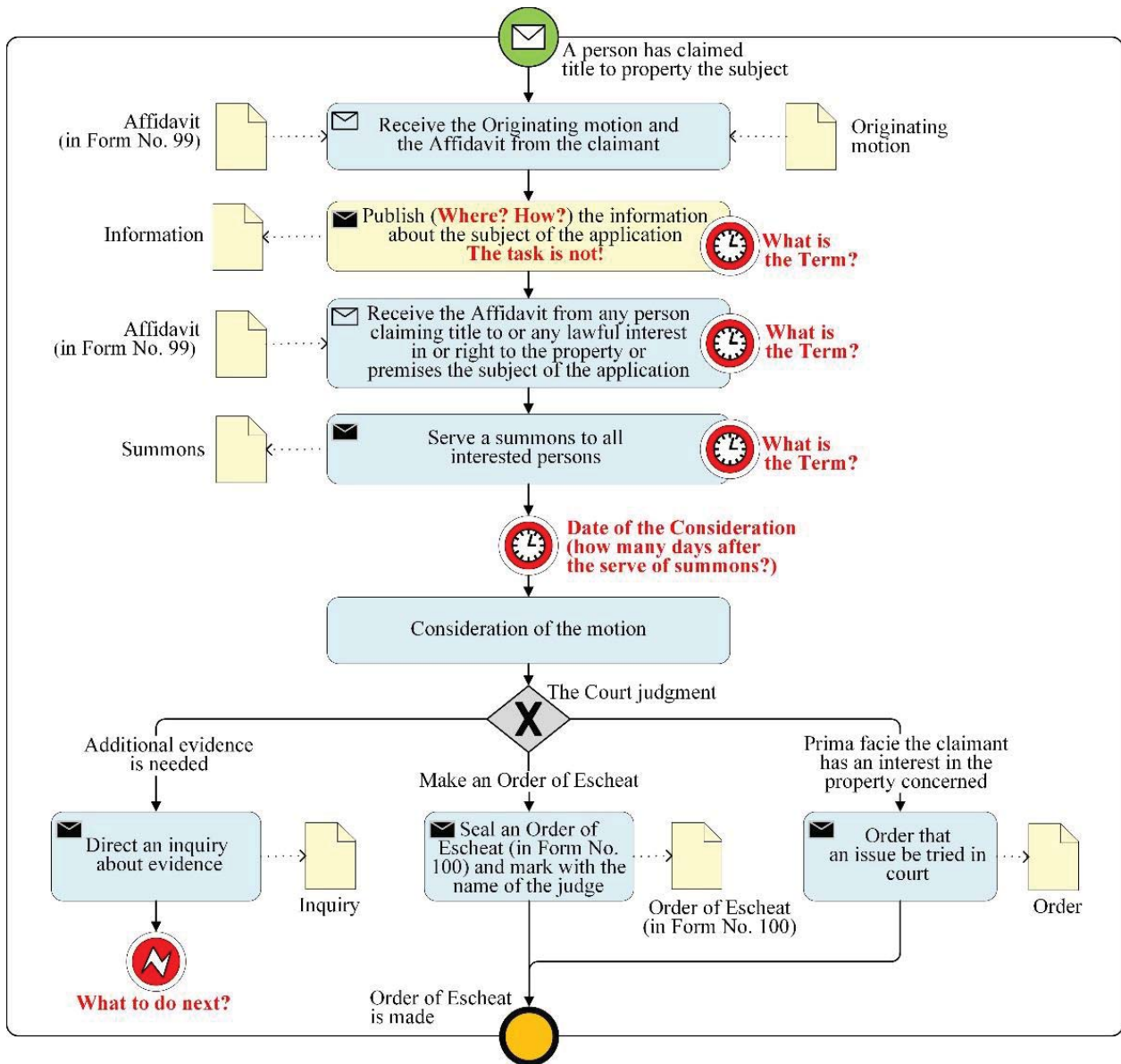
(3) An application for an Order of Escheat, however commenced, shall be intituled “In the matter of ..... deceased, Ex parte the State of Western Australia” and shall be supported by an affidavit of the facts relied on.

3. Notice of applications, form of

The notice referred to in section 5 of the said Act shall be in Form No. 99.

4. Evidence; judge may direct inquiry

(1) Upon the hearing of an application for an Order of Escheat, such evidence shall be adduced as the judge may require.



**Figure 5.** *The logical scheme of Order 80 after conversion and verification*

(2) The judge may direct an inquiry to be held into all such matters as he may consider necessary, and may prescribe the steps to be taken for that purpose.

#### 5. Claimants to file affidavit verifying claim and may be heard

Any person claiming title to or any lawful interest in or right to the property or premises the subject of the application must file an affidavit verifying his claim, and may attend on the return day of the summons and be heard either personally or by his solicitor or counsel.

#### 6. Judge may order issue to be tried

If it appears to the judge on reading the affidavit verifying the claim, that prima facie the claimant has an interest in the property concerned, he may order that an issue be tried in court, but otherwise the judge may make an Order of Escheat, or such other order as the justice of the case may require.

#### 7. Order of Escheat, form of

An Order of Escheat shall be in Form No. 100, and shall be sealed and marked with the name of the judge by whom it is made.

#### 8. Costs

On the hearing of an application the judge may make an order for payment of costs out of the property concerned, but no costs shall be allowed to any person making an unsuccessful claim to the property unless the judge certifies that there were substantial grounds for making the claim.

#### Errors and Questions:

– How can persons (who claim title to or any lawful interest in or right to the property or premises the subject of the application) find out about the originating motion received from the claimant?

– What is the Term these persons can submit affidavits?

– What is the Term to serve summons to all interested persons?

– What to do after directing an inquiry about evidence? What is the Term the waiting of the answer? What to do if the answer is not received on time?

### **The European Court of Human Rights: Rule 614 – Pilot-judgment procedure**

The logical scheme is shown in the Figure 6.

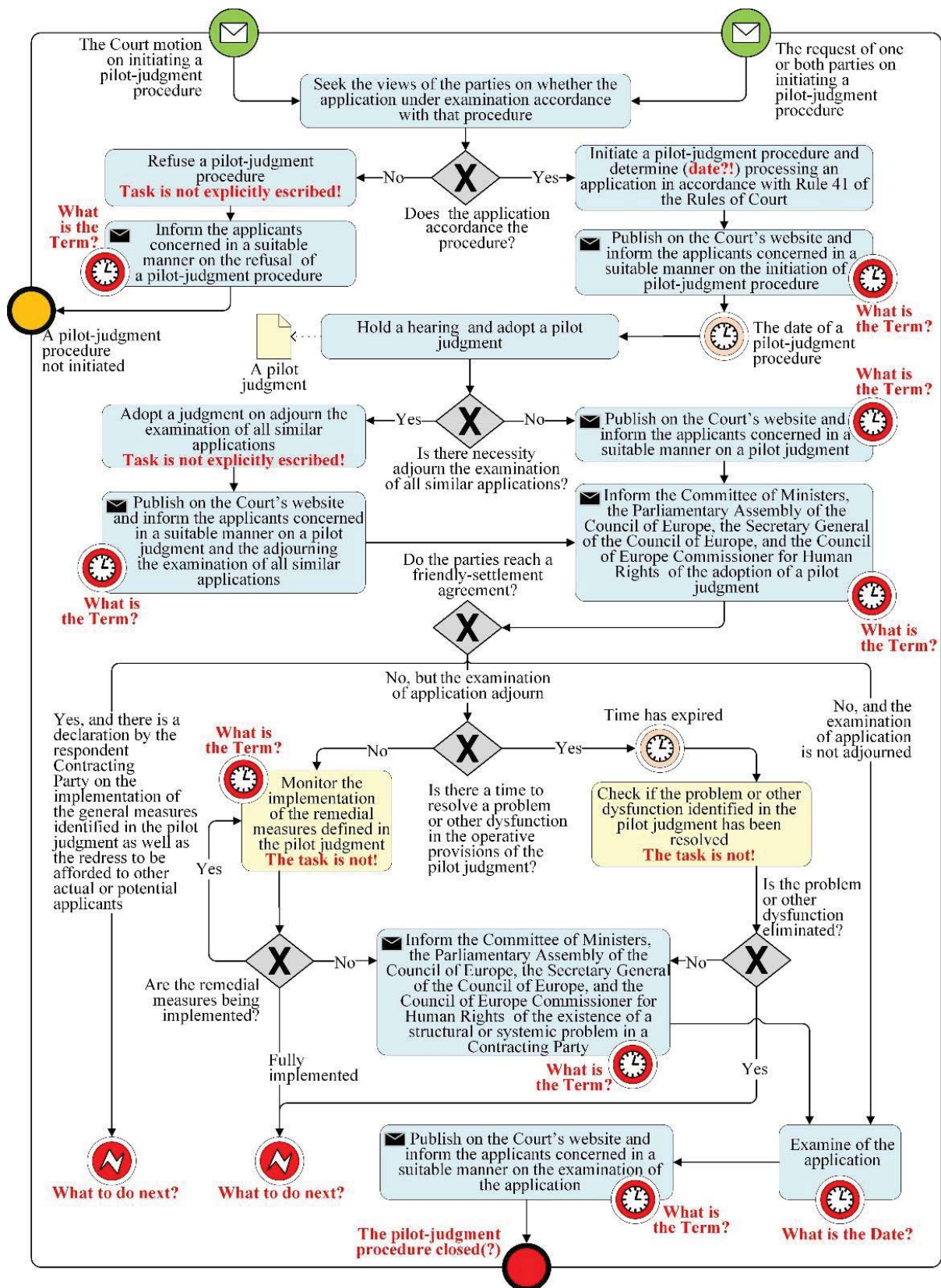


Figure 6. The logical scheme of Rule 614 after conversion and verification

Text of the Rule:

1. The Court may initiate a pilot-judgment procedure and adopt a pilot judgment where the facts of an application reveal in the Contracting Party concerned the existence of a structural or systemic problem or other similar dysfunction which has given rise or may give rise to similar applications.

2. (a) Before initiating a pilot-judgment procedure, the Court shall first seek the views of the parties on whether the application under examination results from the existence of such a problem or accordance with that procedure.

(b) A pilot-judgment procedure may be initiated by the Court of its own motion or at the request of one or both parties.

(c) Any application selected for pilot-judgment treatment shall be processed as a matter of priority in accordance with Rule 41 of the Rules of Court.

3. The Court shall in its pilot judgment identify both the nature of the structural or systemic problem or other dysfunction as established as well as the type of remedial measures which the Contracting Party concerned is required to take at the domestic level by virtue of the operative provisions of the judgment.

4. The Court may direct in the operative provisions of the pilot judgment that the remedial measures referred to in paragraph 3 above be adopted within a specified time, bearing in mind the nature of the measures required and the speed with which the problem which it has identified can be remedied at the domestic level.

5. When adopting a pilot judgment, the Court may reserve the question of just satisfaction either in whole or in part pending the adoption by the respondent Contracting Party of the individual and general measures specified in the pilot judgment.

6. (a) As appropriate, the Court may adjourn the examination of all similar applications pending the adoption of the remedial measures required by virtue of the operative provisions of the pilot judgment.

(b) The applicants concerned shall be informed in a suitable manner of the decision to adjourn. They shall be notified as appropriate of all relevant developments affecting their cases.

(c) The Court may at any time examine an adjourned application where the interests of the proper administration of justice so require.

7. Where the parties to the pilot case reach a friendly-settlement agreement, such agreement shall comprise a declaration by the respondent Contracting Party on the implementation of the general measures identified in the pilot judgment as well as the redress to be afforded to other actual or potential applicants.

8. Subject to any decision to the contrary, in the event of the failure of the Contracting Party concerned to comply with the operative provisions of a pilot judgment, the Court shall resume its examination of the applications which have been adjourned in accordance with paragraph 6 above.

9. The Committee of Ministers, the Parliamentary Assembly of the Council of Europe, the Secretary General of the Council of Europe, and the Council of Europe Commissioner for Human Rights shall be informed of the adoption of a pilot judgment as well as of any other judgment in which the Court draws attention to the existence of a structural or systemic problem in a Contracting Party.

10. Information about the initiation of pilot-judgment procedures, the adoption of pilot judgments and their execution as well as the closure of such procedures shall be published on the Court's website.

Errors and Questions:

- What is the Term to publish of the Court's decisions on the website?
- What is the Term to inform the applicants concerned about the decisions of the Court?
- What to do after the parties of the pilot case reach a friendly-settlement agreement?

– There is no verification of the respondent Contracting Party's implementation of remedial measures and there is no established frequency of such verifications (in the absence of deadlines for the implementation of measures).

– What should be the end of the procedure in each of the scenarios?

### **The European Parliament: Rule 3: Verification of credentials**

The logical scheme is shown in the Figure 7.

Text of the Rule:

1. Following general elections to the European Parliament, the President shall invite the competent authorities of the Member States to notify Parliament without delay of the names of the elected Members so that all Members may take their seats in Parliament with effect from the opening of the first sitting following the elections.

At the same time, the President shall draw the attention of those authorities to the relevant provisions of the Act of 20 September 1976 and invite them to take the necessary measures to avoid any incompatibility with the office of Member of the European Parliament.

2. Members whose election has been notified to Parliament shall declare in writing, before taking their seat in Parliament, that they do not hold any office incompatible with that of Member of the European Parliament within the meaning of Article 7(1) or (2) of the Act of 20 September 1976. Following general elections, the declaration shall be made, where possible, no later than six days prior to Parliament's first sitting following the elections. Until such time as Members' credentials have been verified or a ruling has been given on any dispute, and provided that they have previously signed the above-mentioned written declaration, they shall take their seat in Parliament and on its bodies and shall enjoy all the rights attaching thereto.

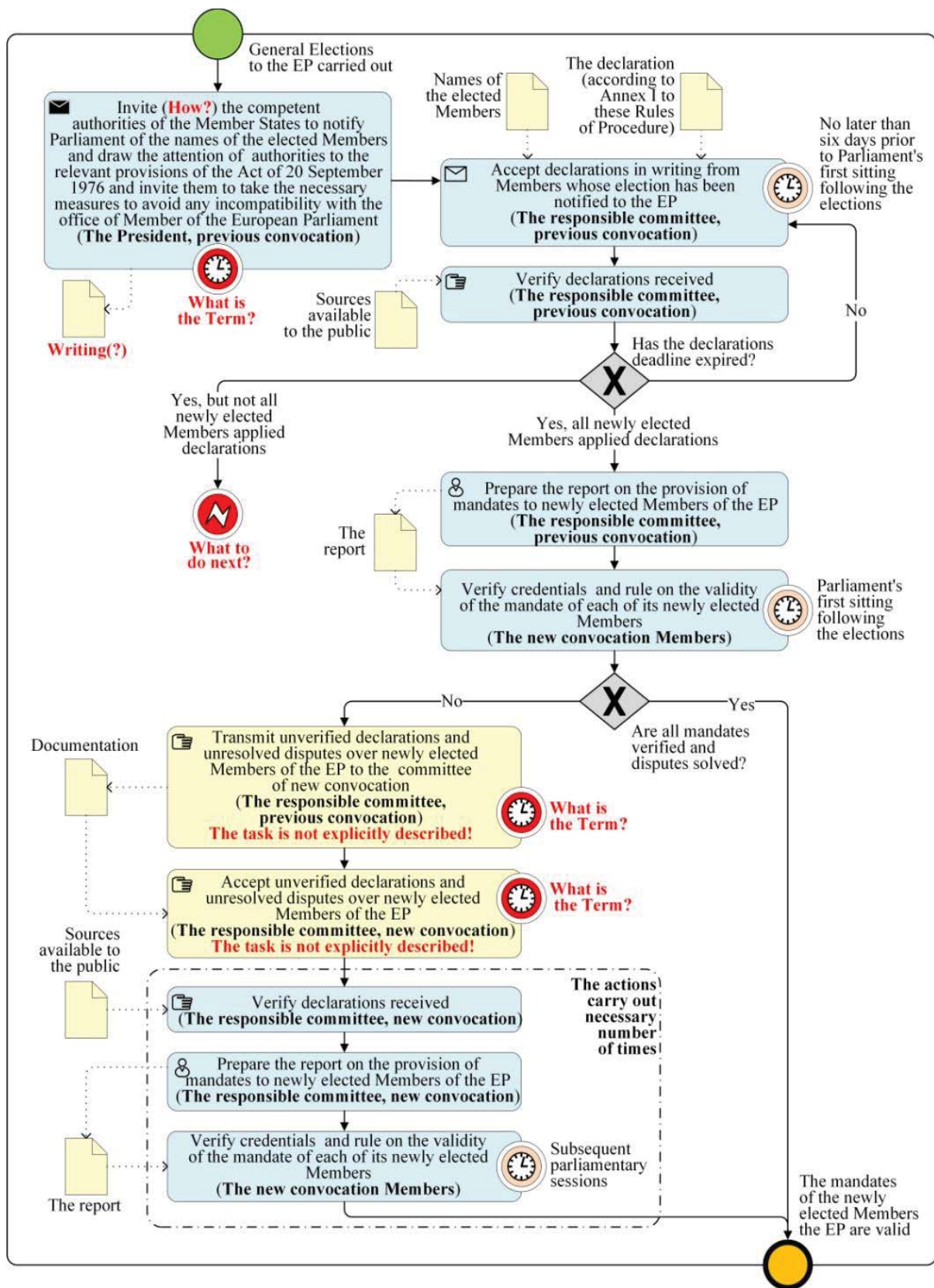


Figure 7. The logical scheme of Rule 3 after conversion and verification

Where it is established from facts verifiable from sources available to the public that a Member holds an office incompatible with that of Member of the European Parliament, within the meaning of Article 7(1) or (2) of the Act of 20 September 1976, Parliament, on the basis of the information provided by its President, shall establish that there is a vacancy.

3. On the basis of a report by the committee responsible, Parliament shall verify credentials without delay and rule on the validity of the mandate of each of its newly elected Members and also on any disputes referred to it pursuant to the provisions of the Act of 20 September 1976, other than those which, under that Act, fall exclusively under the national provisions to which that Act refers.

The committee's report shall be based on the official notification by each Member State of the full results of the election, specifying the names of the candidates elected and those of any substitutes, together with their ranking in accordance with the results of the vote.

The validity of the mandate of a Member may not be confirmed unless the written declarations required under this Rule and Annex I to these Rules of Procedure have been made.

Paragraph 4, 5 and 6 are not shown in the procedure diagram.

The part of the procedure only is presented: describes the verification of the credentials and rule on the validity of the mandate of the newly elected members of the European Parliament.

Errors and Questions:

– What is the Term and in what manner should be the President of the European Parliament invites the competent authorities of the Member States to notify the Parliament of the names of the elected Members?

– In what form and from which officials should the President of the European Parliament must receive information about the elected members?

– What if the newly elected Members did not have time to made declarations in writing before the deadline (no later than six days prior to Parliament's first sitting following the elections)?

– The Rules do not specify the deadline for the transfer of unverified declarations and unresolved disputes over newly elected Members of the EP by the responsible committee of the previous convocation to the new composition of the committee.

– The procedure for resolving the problems with newly elected Members of the EP whose credentials have not yet been verified or whose violations have been identified during the verification process has not been determined.

### **Tax Code of Ukraine: Article 86 Documentation of Inspection Results**

Text of the Article:

86.1. The results of inspections (except for office ones) are drawn up in the form of an act or certificate that are signed by officials of the state tax service body and taxpayers ... In the event of establishment of ... violations, an act is drawn up. If ... there are no violations, a certificate is drawn up. The act (certificate) ... is presented to the taxpayer ... who is obliged to sign it ... In the case of disagreement of the taxpayer with the conclusions of the act, such taxpayer is obliged to sign such inspection act with his comments ... within the time limits stipulated by this Code

86.2. Based on the results of the office inspection, in a case of finding violations, an act is drawn up in duplicate which is signed by the officials ... and after registration by the state tax service body, it is handed in or sent to the taxpayer for signing within three working days in the order stipulated by Article 42 of this Code.

86.3. The act (certificate) of a documental on-site inspection ... is drawn up in two copies, signed by officials of the state tax service body ... and registered by the state tax service body within five working days from the date of ... the end of the period established for inspection (within ten working days for the taxpayers who have affiliated branches and/or are on a consolidated payment). In the event of a taxpayer's refusal from signing

the act (certificate)..., a relevant act is drawn up... One copy of the act or certificate... is handed in or sent to the taxpayer ... on the day of signing or refusal from signing. In the event of the taxpayer's refusal ... from receipt of such act or certificate ... or impossibility of its handing in and signing, ... such an act or certificate is sent to the taxpayer in the manner stipulated by Article 58 of this Code ... In the cases specified in this paragraph, the body of the state tax service draws up an appropriate act.

86.4. The act (certificate) of the documental nonfield inspection is drawn up in duplicate, signed by the officials of the state tax service body, ... and registered by the state tax service body within five working days from the day of ... the end of the period established for inspection (within 10 working days for the taxpayers having branch offices and/or who are on a consolidated payment)... After its registration, the act (certificate) is handed in personally to the taxpayer ... In the event of the taxpayer's refusal ...from signing the act (certificate) of inspection, a corresponding act is drawn up to certify the fact of such refusal. ... The objections concerning inspection are considered in the order and terms stipulated by paragraph 86.7 of this Article. The tax notice-decision shall be accepted in the order and the time limits stipulated by paragraph 86.8 of this Article

86.5. Act (certificate) on the results of actual inspection ... is drawn up in duplicate, signed by officials of the state tax service body, ... registered not later than the next working day after the end of the inspection. Act (certificate) on the results of this inspection is signed ... by the taxpayer ... Signing of the act (certificate) of such inspection ... is done at the place of inspection or at the premises of the state tax service body. In the event of a taxpayer's refusal ... from signing the act (certificate), officials of the state tax service body draw up an act certifying the fact of such refusal. One copy of the act or certificate on the inspection results shall be registered in the register of acts of the tax service body and handed in or sent to the taxpayer ... not later than the next day after its registration. In the event of the taxpayer's refusal ... from receipt of a copy of the act (certificate) of the inspection results or impossibility of its handing in to the taxpayer, ... such act or certificate is sent to the taxpayer in the manner stipulated by Article 58 of this

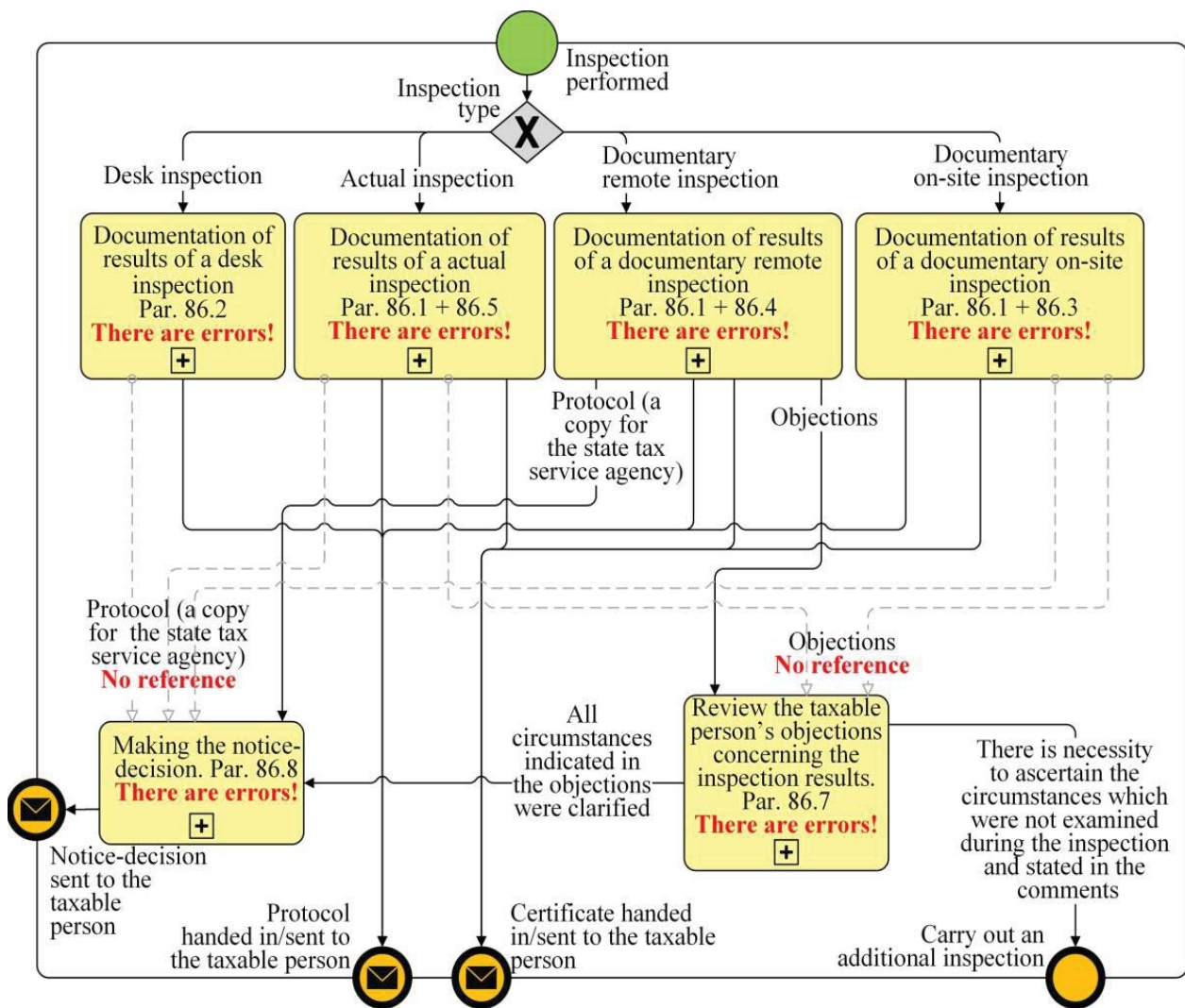
Code ... In the cases mentioned in this paragraph, a relevant act is drawn up by the state tax service body or a note is made in the act or a certificate of the inspection results".

Paragraph 86.6 is not considered since it does not describe the procedure.

"86.7. In case of disagreement of the taxpayer ... with the inspection conclusions or the facts and data stated in the act (certificate) on the inspection, he has the right to file his objections within five working days from the date of receipt of the act (certificate). Such objections are considered by the state tax service body within five working days following the day of their receipt (the day of completion of the inspection conducted in connection with the need to clarify circumstances that were not investigated during inspection and indicated in the comments) and a response is sent to the taxpayer in the order stipulated by Article 58 of this Code ... The taxpayer ... has the right to participate in consideration of his objections what is indicated in his objections. In the case when the taxpayer wishes to participate in consideration of his objections to the act of inspection, the state tax service body has to notify the taxpayer about the place and time of such consideration. Such notification shall be sent to the taxpayer not later than the next working day from the date of receipt of objections from him but not later than two working days before their consideration ...

86.8. The tax notice-decision shall be made by the head of the tax service body ... within ten working days from the day following the day when the act of inspection was handed in to the taxpayer in the order stipulated by Article 58 of this Code ... and when there are objections ... of the taxpayer to the act of inspection, this notice-decision shall be made taking into account the conclusion on the results of considerations of objections to the act of inspection within three working days following the day of consideration of the objections and handing in (sending) the written response to the taxpayer.

To ensure necessary visualization, the scheme of the Article was presented in a form of a two-level hierarchy. The Figure 8 shows level 1 of the Article decomposition - interaction between its paragraphs (subprocesses):



**Figure 8.** *The logical scheme of Article 86 after conversion and verification, level 1 of decomposition*

- “Documentation of results of a desk inspection, par. 86.2”;
- “Documentation of results of a documentary on-site inspection, par. 86.1 and 86.3”;
- “Documentation of results of a documentary remote inspection, par. 86.1 and 86.4”;
- “Documentation of results of a actual inspection, par. 86.1 and 86.5”;
- “Review of objections of the taxable person, par. 86.7”;
- “Making a tax decision notification, par. 86.8”.

The interaction is determined by the references between paragraphs.

Paragraph 86.1 is common to paragraphs 86.3, 86.4 and 86.5, therefore the actions described in it in the logical scheme are accordingly combined.

Errors and Questions:

– According to the law, the notice-decision on the amount of fine is made in the event of drawing up a protocol after any inspection but the reference to paragraph 86.8 is only made from paragraph 86.4. The same is with consideration of objections.

Schemes of paragraphs 86.2 and 86.4 are shown in the Figure 9 and 10 (as the most typical examples, although there are errors in each of paragraphs, in the Figure 9 are highlighted in yellow).

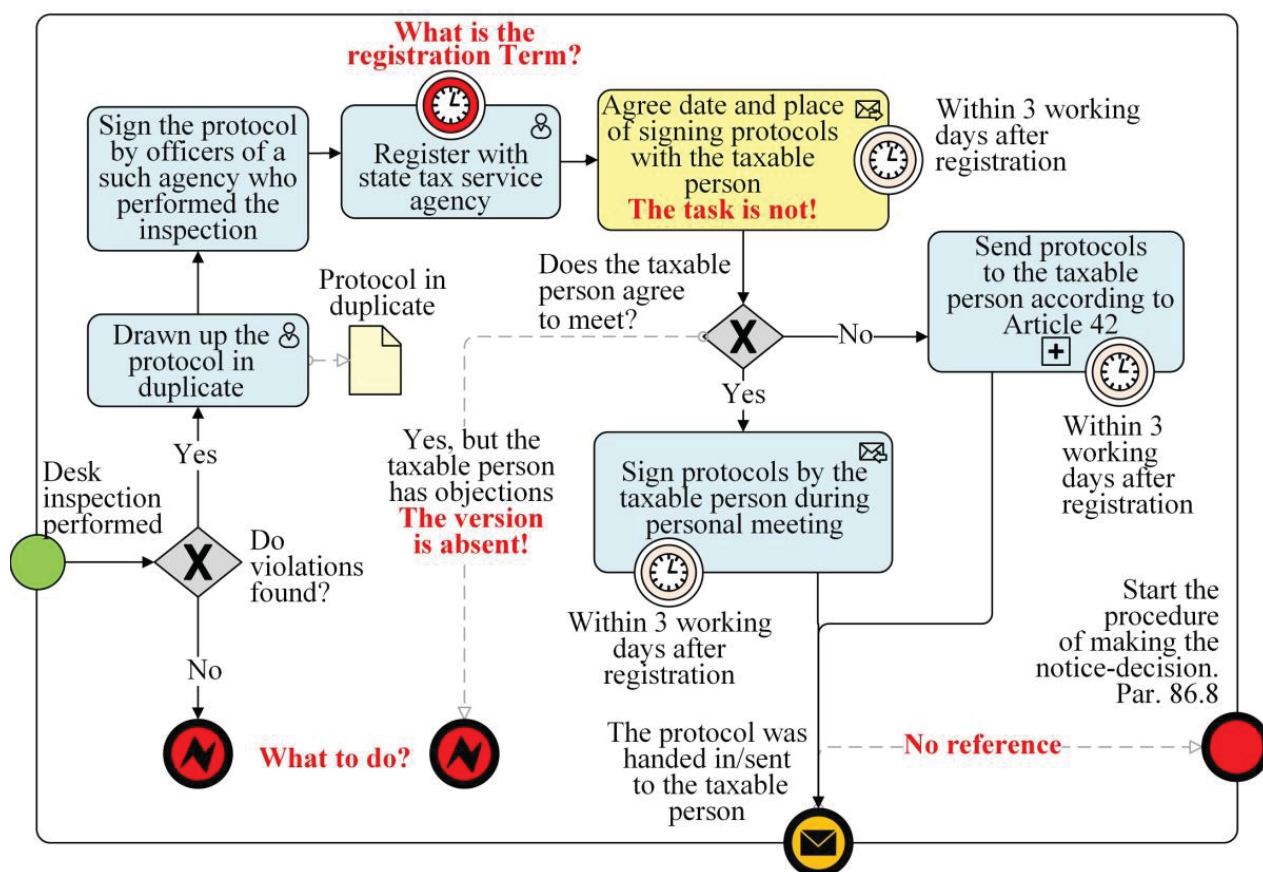
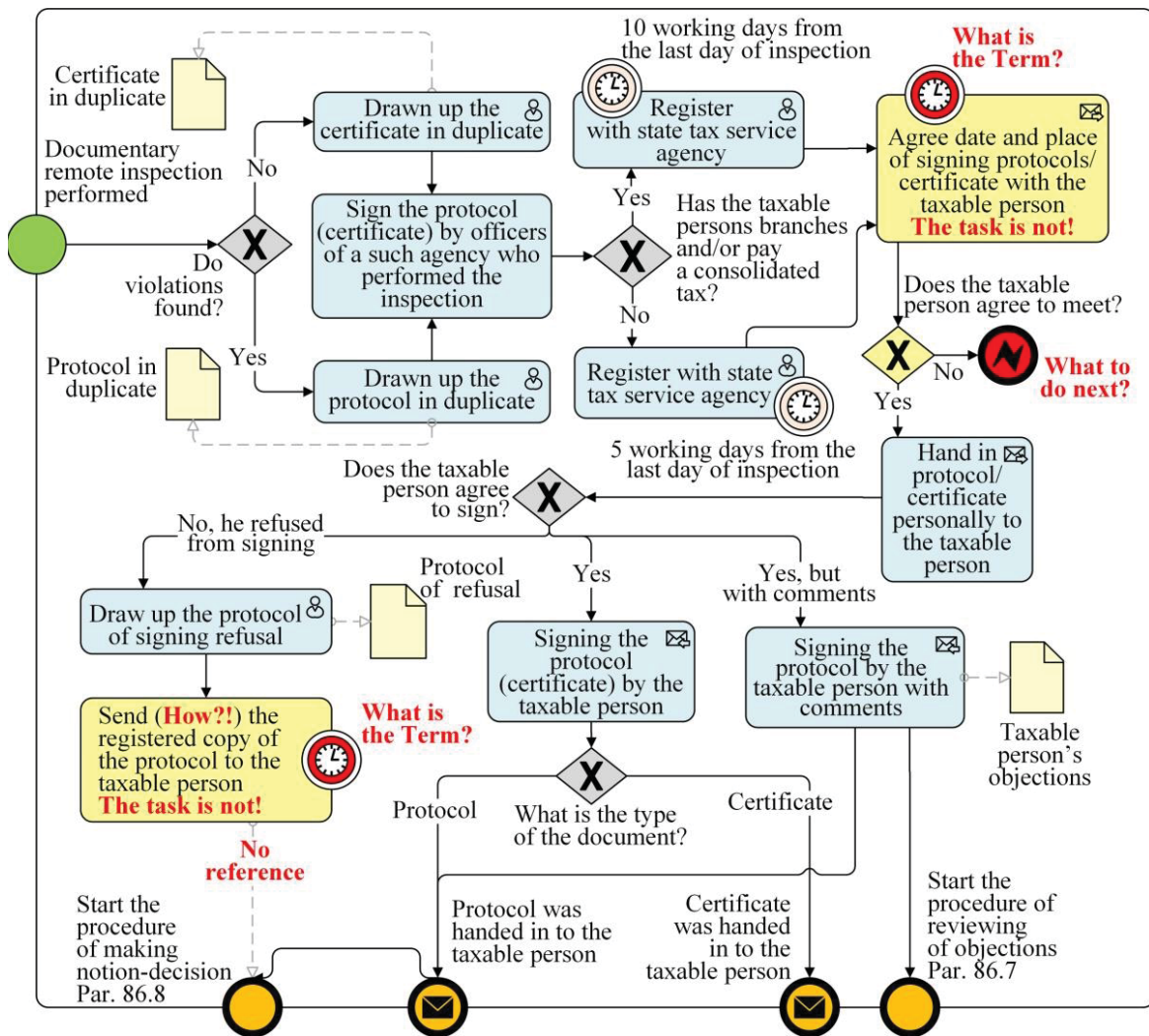


Figure 9. The logic scheme of paragraph 86.2 after conversion and verification; level 2 of decomposition



**Figure 10.** The logic scheme of paragraph 86.4 after conversion and verification;  
level 2 of decomposition

**Errors and Questions:**

- What to do if inspection has not found any violations?
- The deadline for registering is not specified of the protocol with the state tax service agency (for other inspections there is).
- The text of the paragraph describes the scenarios for the development of the process, starting with the question (gateway) “Does the taxable person agree to meet?”, but there is no task “Agree date and place of signing protocols with the taxable person”, which sets the question.

– There is no provision for the taxable person to apply objections (for other inspections there is).

– There is no reference to paragraph 86.8 for making a notification-decision on the protocol (should be).

– In the text of the paragraph after the registration of the document (protocol/certificate) in the state tax service agency, the scenarios of the development of the process associated with the signing of the document are described, but there is no task “Agree date and place of signing protocols with the taxable person” and the question (gateway) “Does the taxable person agrees to meet?” these scenarios begin.

– What to do if the taxable person refuses to meet?

– After the task “Draw up the protocol of signing refusal” there is no task and the further continuation of the process on how the protocol/certificate of the results of the inspection will be handed to the taxable person and what to do next.

### **Rules of the Supreme Court of the United Kingdom: Rule 22. Documents for appeal hearing**

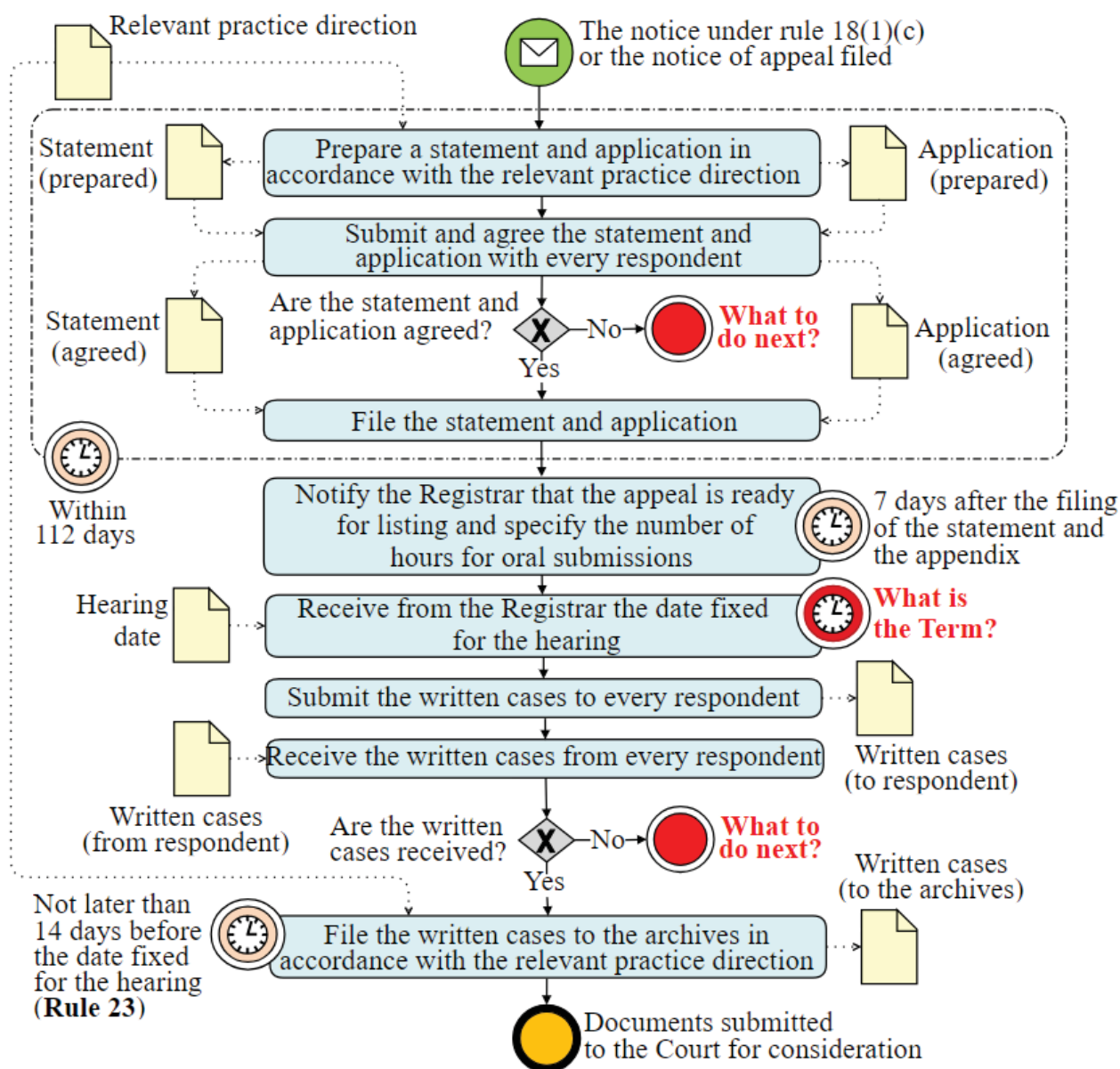
The logical scheme is shown in the Figure 11.

Text of the Rule:

22.–(1) Within 112 days after the filing of the notice under rule 18(1)(c) or the filing of the notice of appeal, the appellant must file–

(a) a statement of the relevant facts and issues; and

(b) an appendix (prepared in accordance with the relevant practice direction) of the essential documents which were in evidence before, or which record the proceedings in, the courts below.



**Figure 11.** *The logical scheme of Rule 22 after conversion and verification*

(2) Both the statement and the appendix must be submitted to, and agreed with, every respondent before being filed.

(3) Within 7 days after the filing of the statement and the appendix, every party must—

(a) notify the Registrar that the appeal is ready for listing, and

(b) specify the number of hours that their respective counsel estimate to be necessary for their oral submissions

and the Registrar will subsequently inform the parties of the date fixed for the hearing.

(4) The appellant and every respondent (and any intervener and advocate to the Court) must then sequentially exchange their respective written cases and file them, and every respondent (and any intervener and advocate to the Court) must for the purposes of rule 23 provide copies of their respective written cases, in compliance with the relevant practice direction.

Errors and Questions:

– If all Actions of a procedure have a deadline, then why is the deadline not specified for the Action “Receive from the Registrar the date fixed for the hearing”? At the same time, the deadlines the following Actions of the procedure depend on the deadline the Action.

– What should the appellant do if the respondent does not agree to the documents within the deadline specified in rule 22(1)?

– What should the appellant do if the respondent fails to submit the documents within the deadline specified in Rule 23?

### **Rules of the Supreme Court of Canada: Rule 32. Submission of Applications**

The logical scheme is shown in the Figure 12.

Text of the Rule:

32 (1) The Registrar shall submit to the Court for consideration

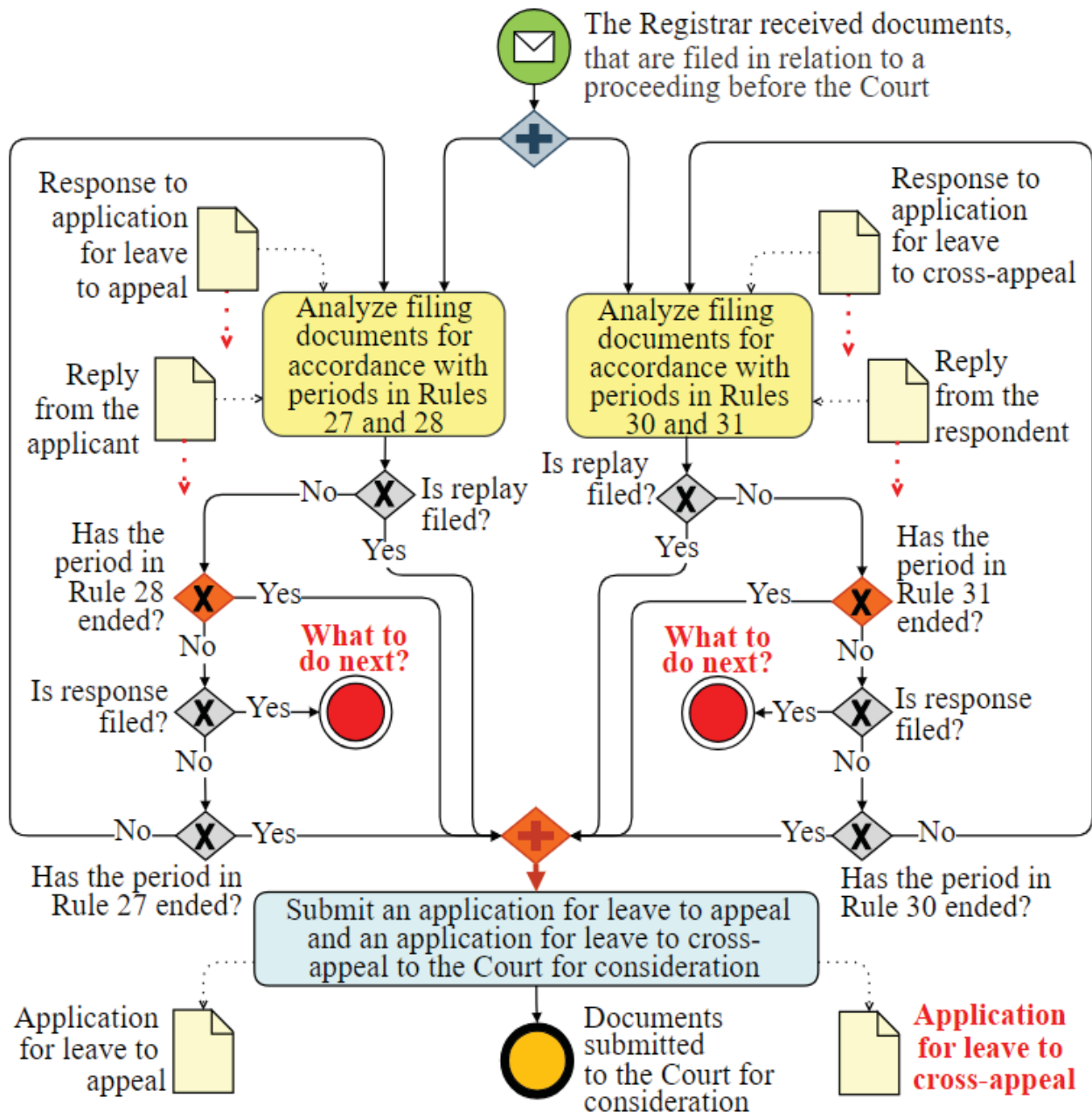
(a) an application for leave to appeal, either

(i) after the reply is filed or at the end of the 10-day period referred to in Rule 28, as the case may be, or

(ii) if no response is filed, at the end of the 30-day period referred to in Rule 27;

and

- (b) an application for leave to cross-appeal, either
  - (i) after the reply is filed or at the end of the 10-day period referred to in Rule 31, as the case may be, or
  - (ii) if no response is filed, at the end of the 30-day period referred to in Rule 30.



**Figure 12.** The logical scheme of Rule 32 after conversion and verification

(2) Documents shall not be filed after the application for leave to appeal or leave to cross-appeal, as the case may be, has been submitted to the Court unless the Registrar otherwise directs.

(3) The Registrar shall set down for hearing any application for leave to appeal for which an oral hearing has been ordered pursuant to paragraph 43(1)(c) of the Act.

Errors and Questions:

– In the logical construction of subparagraph 32(1)(a)(ii) describes only one condition – “if no response is filed”. What to do “if response is filed”? Moreover, Rule 28 starts only after filing the document “Response to application for leave to appeal”.

– First the conditions from Rule 28 are checked and only then the conditions from Rule 27. But if there is no document “Response to application for leave to appeal” then the condition “at the end of the 10-day period referred to in Rule 28” cannot be checked - there is no start date for the period.

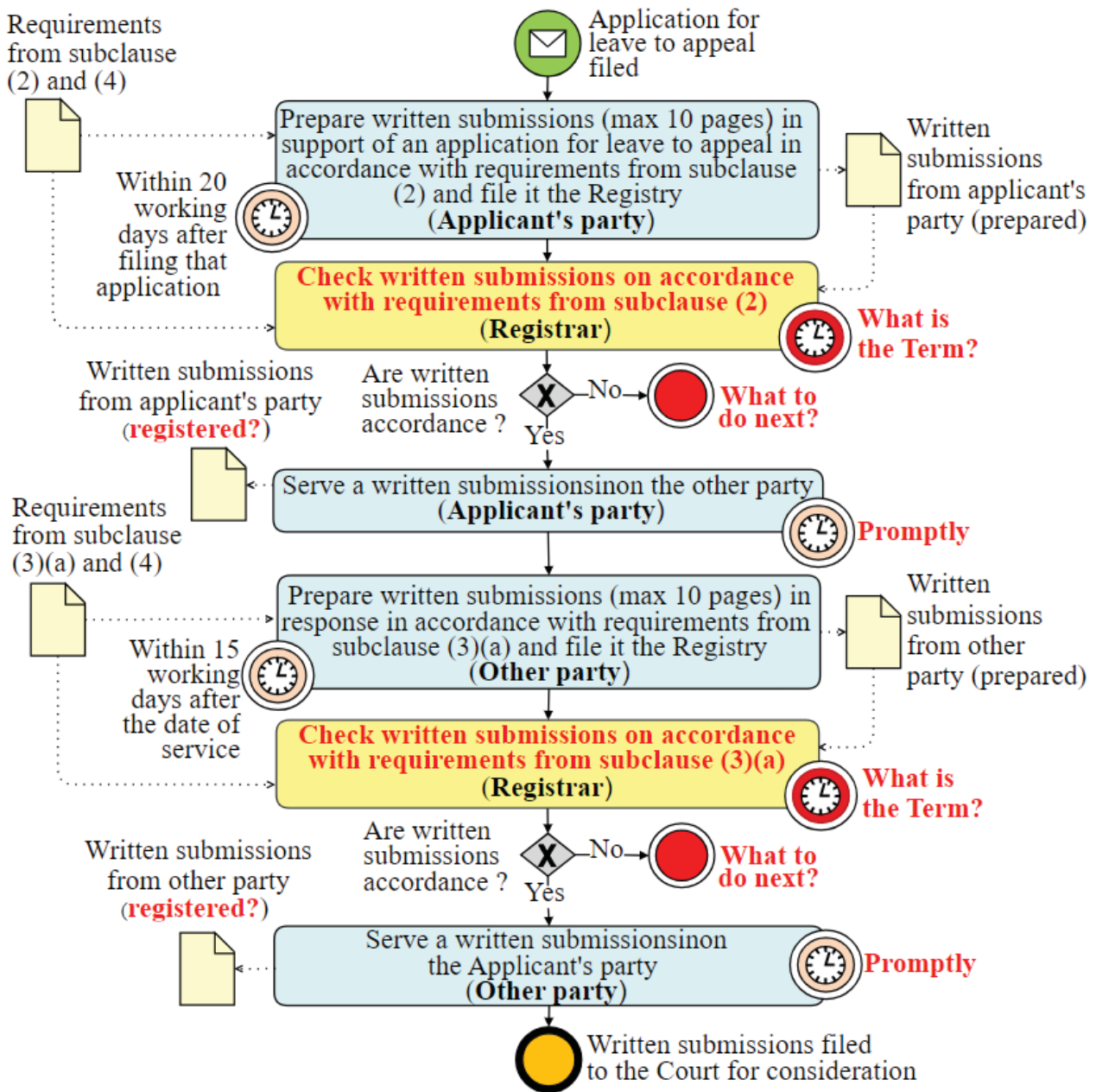
– Exactly the same mistakes in the logical construction from subparagraph 32(1)(b).

– Paragraph 32(1)(a) is connected to paragraph 32(1)(b) through “AND” logic. That is, the Registrar always submits an application for leave to appeal and an application for leave to cross-appeal for consideration by the Court together, otherwise the logical construction will not work. But is an application for leave to cross-appeal made for every application for leave to appeal? What if there is no such application? Then, according to the logic described in the text, an application for leave to appeal cannot be submitted to the Court.

– Why is there no mention in the text of other documents that must be submitted along with applications?

### **Rules of the Supreme Court of New Zealand: Rule 20. Written submissions on leave application**

The logical scheme is shown in the Figure 13.



**Figure 13.** *The logical scheme of Rule 20 after conversion and verification*

Text of the Rule:

- (1) Any written submissions by a party in support of an application for leave to appeal may not exceed 10 pages, and must —
  - (a) be filed in the Registry within 20 working days after filing that application; and
  - (b) be promptly served on the other party.

(2) A party's written submission under subclause (1) must set out clearly and succinctly —

(a) a narrative of the facts of the case relevant to the appeal:

(b) the points of law involved:

(c) the decision to be appealed against:

(d) the reason why, in terms of the criteria set out in section 74 of the Senior Courts Act 2016, leave to appeal should be given.

(3) Any written submissions by a party in response to the other party's written submissions under subclause (1) may not exceed 10 pages, and must —

(a) set out clearly and succinctly the reasons that support the arguments advanced in response; and

(b) be filed in the Registry within 15 working days after the date of service under subclause (1)(b); and

(c) be promptly served on the other party.

(4) The written submissions of each party represented by counsel must provide an indication of counsel's preferred dates for the hearing of the appeal, in the event that leave is given.

(5) This rule is subject to any direction given by the Court in a particular case.

(6) Subclauses (1)(a) and (3)(b) do not apply to an application for leave to appeal that is a pre-trial leave application.

Errors and Questions:

– If there are requirements for the content of written submissions in support of an application for leave to appeal, then there must be an Action to verify implementation with the requirements and registration?

– What is the deadline for Action performing?

– What should do if the contents of the written submissions do not correspond with the requirements of Subclause (2)?

– Are written submissions included into the Registry (registered) serve to the other party? Or are these Actions performed in parallel?

– “Promptly” means how long? Within a minute, an hour, a working day or longer? And, if “Promptly”, then simultaneously with filing to the Registry (i.e. with possible errors) or after registration (verified)?

– If there are requirements for the content of written submissions of the other party, then there must be an Action to verify implementation with the requirements and registration? What is the deadline for the Action performing?

– What should do if the contents of the written submissions do not correspond with the requirements of Subclause (3)(a)?

– Are written submissions included into the Registry (registered) serve to the appealing party?

### **Rules of the Supreme Court of India: Order XXVII. Issue and service of summons**

The logical scheme is shown in the Figure 14.

Text of the Order:

1 When a suit has been duly instituted a summons shall be issued to the defendant to appear and answer the claim.

2 Every summons shall be signed by the Registrar, and shall be sealed with the seal of the Court.

3 Every summons shall be accompanied by a copy of the plaint.

4 The summons shall be served by being sent by registered post to the Attorney-General for India or the Advocate-General for the State, as the case may be, or to an advocate-on-record of the defendant empowered to accept service.

5 There shall be endorsed on every summons a notice requiring the defendant to enter an appearance within twenty-eight days after the summons has been served.

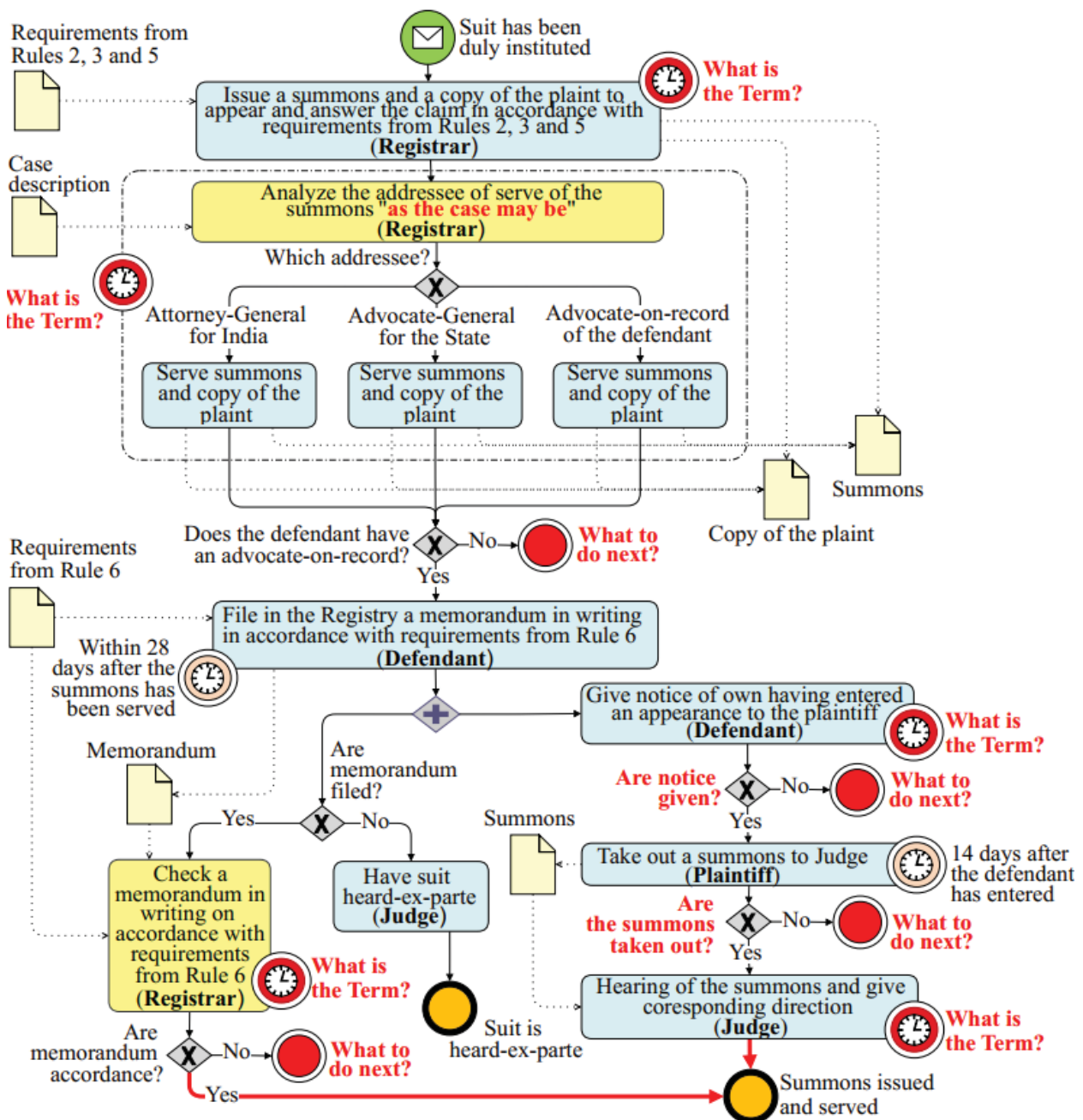


Figure 14. The logical scheme of Order XXVII after conversion and verification

6 A defendant shall enter the appearance by filing in the Registry a memorandum in writing containing the name and place of business of his advocate-on-record if any, and in default of appearance being entered within the time mentioned in the summons, or as here in after provided, the suit may be heard-ex-parte.

7 The defendant shall forth with give notice of his having entered an appearance to the plaintiff.

8 The plaintiff shall within fourteen days after the defendant has entered an appearance take out a summons for directions returnable before the Judge in Chambers, and the Judge shall on the hearing of the summons give such direction with respect to pleadings, interrogatories, the admission of documents and facts, the discovery, inspection and production of documents and such other interlocutory matters as he may think expedient.

Errors and Questions:

- What is the deadline for performing the first Action of the procedure?
- Where is the Action with the analysis of these cases?
- What is the deadline for Actions “Analyze the addressee...” and “Serve summons...” performing?
- What to do if the defendant does not have an advocate-on-record?
- Where is the Action with verification of requirements fulfillment? What is the deadline for the Action performing?
- What should do if there are mistakes in the memorandum?
- What is the deadline for the Action “Give notice of own having entered an appearance to the plaintiff” performing?
- Who verifies that the defendant fulfilled or failed the Action?
- What should do if the defendant did not give notice within the specified period?
- Who verifies that the plaintiff fulfilled or failed the Action “Take out a summons to Judge”?
- What should do if the plaintiff does not take out a summons within the specified period?
- What is the deadline for the Action “Hearing of the summons and give corresponding direction” performing?

– After what Action of the procedure can such the result “Summons issued and served” occurs?

### **Discussion of results obtained during application of the IT**

As a result of the conducted investigations, an IT for checking text procedures for logical coherence and completeness was developed. The IT is based on the information model of the “Text → Scheme” procedure which represents conversion of the textual process description into a logical scheme (visualization). The Business Process Diagrams from BPMN was used as a visualization tool.

This procedure is a conceptual continuation of the previously developed “Scheme → Text” procedure for conversion of the process scheme into its textual description used in the IT for creation of on-line procedure`s guide (Timofeev et al, 2016).

The results of using IT to demonstrate the principles of its practical application are presented above. Summarizing the above results, we can conclude that the use of the proposed approach to formalizing the implementation of procedures allowed us to find errors and inaccuracies in each of the presented legal documents.

The studies were also conducted based on the database of legal documents of Ukraine. In the course of this study, to confirm the reliability of the theoretical results obtained, about forty texts of Ukrainian laws were selected according to the three previously considered features, which contain descriptions of branching processes. Errors and questions were found in 75% of the completed process diagrams. This result allows us to conclude that the use of the developed IT is sufficiently effective.

This high percentage of logical errors in descriptions of the branching processes can be explained by two reasons:

- the skill of applying visualization in the course of description of such processes is absent in arsenal of the corresponding specialists;
- there are no technologies for description of branching processes without the use of visualization.

The advantages of the IT include versatility of its application and sufficient ease of learning.

One of disadvantages of the IT is that it is rather informal and the solutions proposed in it are empirical, based on experience. This is because the task that it solves is akin to translating from one language to another (in this case, from the procedure text into the scheme in BPMN business process diagram). Such processes are still difficult to automate and therefore experience of an interpreter, in this case business analyst, is very much decisive.

Further studies are planned to aim at elimination of this shortcoming. For example, if the text of the schedule is preliminarily formalized, say, in a form of a table (each column has its own, strictly defined content), then automation of checking for broken or missing links can be realized. It is worth noting that the proposed IT can be used not only in the public sector. The presented solutions can be used to analyze instructions for daily activities, analyze order processing algorithms and customer service in the service sector. Considering that the implementation of procedures in the management sphere can also have strict time frames for execution, then the implementation of building a network schedule for assessing the feasibility of procedures over time can be used as directions for expanding the verification aspects.

The proposed IT can be used in two ways:

- to search for errors in already existing (or being developed) procedures in any of the fields of activity that describes processes in a textual form;
- as an element of training the business analysts to expand their professional skills.

Considering that it is faster to organize the training of analysts, it is worth exploring the introduction of additional disciplines into the training process to formalize the implementation of procedures.

## **Conclusions**

1. Visualization using methods of system analysis (in particular, Business Process Diagrams (BPD)) is the effective tool for developing branching processes. The set of components that the BPD represents allows us to represent the various implementation features of procedures that can be found in legal documents.

2. The lack of clear rules (technology) for development of procedures in a textual form leads to a fairly large number of errors in the descriptions of the branching processes that are developed by specialists having no sufficient skills of using algorithmization.

3. The IT for checking textual procedures for logical coherence and completeness based on visualization using the BPMN notation has shown its high efficiency in analyzing descriptions of branching processes (e.g., errors and questions were found in 75% of the performed schemes of processes in the case of Ukraine and in each of the schemes of processes in other countries: Australia, Canada, India the EU Parliament and the Court of Human Rights, New Zealand, United Kingdom and the United States).

4. The developed IT can be applied in any field of activity that contains process descriptions in a textual form. However, despite its sufficient easiness, it requires a certain level of skill in algorithmization to reach proficiency in its use. To a certain degree, such requirement is called forth by unformalized content of the IT rules. Formalized rules will ensure development of a software product realizing the developed IT and, consequently, availability of the proposed IT to a wider circle of specialists.

5. The developed IT and the IT presented in (Timofeev et al, 2016) are a complex solution of the problems associated with both creation and checking textual procedures.

6. Qualitatively elaborated from both the legal and the process viewpoint procedures become able to be a basis of e-Justice.

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