



# Supervisor's statement of a final thesis

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**Student:** Bc. Matěj Malý  
**Thesis title:** Data Type Support in a Graphical Proof Assistant  
**Branch / specialization:** Software Engineering  
**Created on:** 27 May 2025

## Evaluation criteria

### 1. Fulfillment of the assignment

- ▶ [1] assignment fulfilled
- [2] assignment fulfilled with minor objections
- [3] assignment fulfilled with major objections
- [4] assignment not fulfilled

An extraordinary aspect of the assignment is that its fulfillment needs both formal reasoning and software engineering skills.

### 2. Main written part

90/100 (A)

The thesis is very nicely written. It is well-arranged and has a clear global structure. The student managed to master both the formal aspects of the project (formal syntax and proof rules) and the more informal aspects, for example, concerning testing of the resulting tool.

In terms of choice of material, the thesis contains the necessary information, but does not contain any superfluous material. The writing style is concise and to the point. As far as I am able to judge, the thesis is also very well-written in terms of the English language. I found only very few problems with English grammar, for example with word order ("In this chapter are described the problems") or usage of articles.

The only improvement I could suggest is to use more examples to illustrate abstract aspects in a concrete way (e.g., an example for each syntactic element introduced in Section 2.1.3), and to explicitly introduce and explain the term "proof stack".

### 3. Non-written part, attachments

95 /100 (A)

The created proof assistant look nicely and works very well. I was not able to detect and bugs or glitches, only an example of a class of formulas that is disallowed in logic, but allowed as input for the proof assistant (formulas such as  $p(f(x)) \wedge f(p(x))$  where the same symbol occurs both as a predicate and as a function symbol).

I especially appreciate the fact that at the end of the project, the tool was further improved based on feedback from current students of the formal methods course.

### 4. Evaluation of results, publication outputs and awards

100 /100 (A)

The results of the thesis will be used in the course NI-FME. I am also considering a related publication in the area "didactics of formal methods".

### 5. Activity of the student

- ▶ [1] excellent activity
- [2] very good activity
- [3] average activity
- [4] weaker, but still sufficient activity
- [5] insufficient activity

### 6. Self-reliance of the student

- ▶ [1] excellent self-reliance
- [2] very good self-reliance
- [3] average self-reliance
- [4] weaker, but still sufficient self-reliance
- [5] insufficient self-reliance

## The overall evaluation

95 /100 (A)

The thesis is well-fulfilled in all of its aspects.

## **Instructions**

### **Fulfillment of the assignment**

Assess whether the submitted FT defines the objectives sufficiently and in line with the assignment; whether the objectives are formulated correctly and fulfilled sufficiently. In the comment, specify the points of the assignment that have not been met, assess the severity, impact, and, if appropriate, also the cause of the deficiencies. If the assignment differs substantially from the standards for the FT or if the student has developed the FT beyond the assignment, describe the way it got reflected on the quality of the assignment's fulfilment and the way it affected your final evaluation.

### **Main written part**

Evaluate whether the extent of the FT is adequate to its content and scope: are all the parts of the FT contentful and necessary? Next, consider whether the submitted FT is actually correct – are there factual errors or inaccuracies?

Evaluate the logical structure of the FT, the thematic flow between chapters and whether the text is comprehensible to the reader. Assess whether the formal notations in the FT are used correctly. Assess the typographic and language aspects of the FT, follow the Dean's Directive No. 52/2021, Art. 3.

Evaluate whether the relevant sources are properly used, quoted and cited. Verify that all quotes are properly distinguished from the results achieved in the FT, thus, that the citation ethics has not been violated and that the citations are complete and in accordance with citation practices and standards. Finally, evaluate whether the software and other copyrighted works have been used in accordance with their license terms.

### **Non-written part, attachments**

Depending on the nature of the FT, comment on the non-written part of the thesis. For example: SW work – the overall quality of the program. Is the technology used (from the development to deployment) suitable and adequate? HW – functional sample. Evaluate the technology and tools used. Research and experimental work – repeatability of the experiment.

### **Evaluation of results, publication outputs and awards**

Depending on the nature of the thesis, estimate whether the thesis results could be deployed in practice; alternatively, evaluate whether the results of the FT extend the already published/known results or whether they bring in completely new findings.

### **Activity of the student**

From your experience with the course of the work on the thesis and its outcome, review the student's activity while working on the thesis, his/her punctuality when meeting the deadlines and whether he/she consulted you as he/she went along and also, whether he/she was well prepared for these consultations.

### **Self-reliance of the student**

From your experience with the course of the work on the thesis and its outcome, assess the student's ability to develop independent creative work.

### **The overall evaluation**

Summarize which of the aspects of the FT affected your grading process the most. The overall grade does not need to be an arithmetic mean (or other value) calculated from the evaluation in the previous criteria. Generally, a well-fulfilled assignment is assessed by grade A.