



# Supervisor's statement of a final thesis

**Student:** Jan Jindráček  
**Supervisor:** Ing. Filip Křikava, Ph.D.  
**Thesis title:** Pattern matching in C11  
**Branch of the study:** Web and Software Engineering

**Date:** 10. 6. 2019

<i>Evaluation criterion:</i>	<i>The evaluation scale: 1 to 4.</i>
<b>1. Fulfilment of the assignment</b>	<b>1 = assignment fulfilled, 2 = <u>assignment fulfilled with minor objections</u>, 3 = assignment fulfilled with major objections, 4 = assignment not fulfilled</b>
<i>Criteria description:</i> 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.	
<i>Comments:</i> The difficulty of this assignment can vary a lot based on the approach chosen to solve it. This solution is going the easier path and uses language workbench to add support for basic pattern matching. The resulting match statement can pattern match basic values as well as structures and unions providing an initial support for Algebraic Data Types (ADT) over plain C values. I would have wished for a slightly different syntax, ideally making match an expression with an exhaustion check for ADTs, yet that would require more effort. Where most of the improvement should have gone is in the written part of the thesis.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
<b>2. Main written part</b>	<b>70 (C)</b>
<i>Criteria description:</i> 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. 26/2017, 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.	
<i>Comments:</i> The text is in English and I believe it to be the student's first larger English-written text. The student underestimated not only the time it takes to write the text, but also the theoretical preparation to better understand the fundamentals of programming languages. Both are therefore reflected in quality of the text and its formatting.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
<b>3. Non-written part, attachments</b>	<b>75 (C)</b>
<i>Criteria description:</i> 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.	
<i>Comments:</i> Despite a recommendation to start with MPS, the student had tried Eclipse first and thanks to that lost a lot of valuable time. In the end it felt that when he finally managed to have a working prototype the time was up and we could not experiment with it and explore some interesting cases of using the pattern matching in C programming. The evaluation therefore feels dry and the testing rather limited.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
<b>4. Evaluation of results, publication outputs and awards</b>	<b>75 (C)</b>
<i>Criteria description:</i> 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.	

*Comments:*

Having cleaned the implementation I can see an interesting blog post about extending C in MPS with pattern matching. For a more serious publication (for example a workshop paper) the work will be mostly in motivation, showing some compelling examples where pattern matching could be useful in modern C system programming. The success of this will most likely rely on the possibility of using existing system structures (for example the Linux kernel network stack) as ADTs. The writing style will also need a major editorial revision.

*Evaluation criterion:*

*The evaluation scale: 1 to 5.*

**5. Activity and self-reliance of the student**

5a:  
1 = excellent activity,  
**2 = very good activity,**  
3 = average activity,  
4 = weaker, but still sufficient activity,  
5 = insufficient activity  
5b:  
1 = excellent self-reliance,  
2 = very good self-reliance,  
**3 = average self-reliance,**  
4 = weaker, but still sufficient self-reliance,  
5 = insufficient self-reliance.

*Criteria description:*

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 (5a). Assess the student's ability to develop independent creative work (5b).

*Comments:*

The student was coming regularly for meetings. I also appreciated that he has decided to write the thesis in English.

*Evaluation criterion:*

*The evaluation scale: 0 to 100 points (grade A to F).*

**6. The overall evaluation**

75 (C)

*Criteria description:*

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.

*Comments:*

I believe this thesis has served the student as a light introduction to the field of programming languages. He has created a small extension to C and touched on a more advanced concept such as ADTs. I hope that by now he realizes that extending a language is far more complex process and requires a careful design. While there are many points that could have been improved, overall he realized the assignment.

Signature of the supervisor: