BACHELOR'S THESIS ASSIGNMENT

I. Personal and study details

Student's name: **Štěpančík Vojtěch** Personal ID number: **483531**

Faculty / Institute: **Faculty of Electrical Engineering**

Department / Institute: **Department of Computer Science**

Study program: **Open Informatics**

Specialisation: **Software**

II. Bachelor's thesis details

Bachelor's thesis title in English:

Computational trinitarianism and linear types

Bachelor's thesis title in Czech:

Výpočetní trinitarismus a lineární typy

Guidelines:

Computational trinitarianism describes the intimate relationship between logic, category theory and type theory. This relationship identifies propositions of a logic with a type of a corresponding type system, and also establishes a correspondence between a proof of a proposition, a term (program) of a given type, and a generalised element of an object in a category.
A linear type system is a special kind of a substructural type system with important applications in computer science. An advantage of a linear type system resides in its ability to place constraints on the usage of (or access to) variables (resources).
The aim of the bachelor thesis is to describe linear logic as an example of a substructural logic, to construct a linear type system stemming from that logic, and to give their categorical semantics via categories with structure.
The style and presentation of the thesis will be theoretical.

Bibliography / sources:

[1] G. Restall, An introduction to substructural logics, Routledge, 2000
[2] P. Wadler, A taste of linear logic, In: Borzyszkowski A.M., Sokołowski S. (eds) Mathematical Foundations of Computer Science 1993. MFCS 1993. Lecture Notes in Computer Science, vol 711. Springer, Berlin, Heidelberg. 1993
[3] R. L. Crole, Categories for types, Cambridge University Press, 1994

Name and workplace of bachelor's thesis supervisor:

Ing. Matěj Dostál, Ph.D., Department of Mathematics, FEE

Name and workplace of second bachelor's thesis supervisor or consultant:

Date of bachelor's thesis assignment: **04.03.2021** Deadline for bachelor thesis submission: **29.05.2021**

Assignment valid until: **19.02.2023**

Ing. Matěj Dostál, Ph.D. Supervisor's signature	Head of department's signature	prof. Mgr. Petr Páta, Ph.D. Dean's signature

III. Assignment receipt

The student acknowledges that the bachelor's thesis is an individual work. The student must produce his thesis without the assistance of others, with the exception of provided consultations. Within the bachelor's thesis, the author must state the names of consultants and include a list of references.

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Date of assignment receipt

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Student's signature