



LOGIC CAFÉ

FROM THE 16th TO THE 18th OF JANUARY 2019

ABSTRACT



KATEDRA INFORMATIKY

Department of Computer Science





Miloš Kosterec: Substitution contradiction, its resolution and the Church-Rosser Theorem in TIL

I present an analysis according to which the current state of the definition of substitution leads to a contradiction in the system of Transparent Intensional Logic (TIL). I entail the contradiction using only the basic definitions of TIL and standard results. I then analyse the roots of the contradiction and motivate the lines of path I take in resolving the the resolution of contradiction. I provide a new amended definition of collision-less substitution which blocks the contradiction in a non-ad hoc way. I elaborate on the consequences of the amended definition, namely the invalidity of the Church- Rosser theorem (the so-called diamond property). I present a counterexample to the validity of the theorem in TIL with an amended definition of substitution.

Ivo Pezlar: TIL and proof analysis

Analysis of proofs, especially in terms of their equivalence, is an open and ongoing topic in proof theory. The main focus of interest is, however, often limited to correct proofs only. In this talk, I will outline a general framework based on TIL for analyzing both correct and incorrect proofs.

Daniela Glavaničová: Fictional characters as hyperintensions

The main claim of the present talk is that fictional names should be analysed in terms of hyperintensions. I will sketch and compare two hyperintensional accounts of fictional names. The first proposal distinguishes hyperintensional, intensional and extensional occurrences of fictional names. HolmesH stands for a hyperintension (an individual concept of Sherlock Holmes). HolmesI stands for an intension (an individual role of Sherlock Holmes; a function from possible worlds and times to individuals). HolmesE stands for an extension: an individual, were there such individual. The second proposal distinguishes hyperintensional and extensional occurrences only. One level disappears, what means that the work done on this level should be moved "upwards" (hyperintensionality) or "downwards" (extensionality). My suggestion is to move upwards. Both proposals will be illustrated with sample analyses in terms of TIL.



Bjørn Jespersen: Impossibility and hyperintensionality

This paper presents work in progress. TIL is in the process of developing a theory of analytic impossibilities, such as the distinct, necessarily vacant roles of the man without properties and of the fake banknote that is a banknote. We conceptualize such roles as hyperoffices, which are hyperintensional counterparts of the offices developed within intensional logic.

Pavel Materna: TIL and PTs

Non-classical vs. Classical logics: Classical: Russell (-Whitehead) Rebels: Intuitionists. Dummett: manifestation argument. The meaning of an expression must be manifestable as a condition of its assertability. This condition cannot be defined truth-conditionally where truth does not reflect the cognitive process of understanding: the anti-realistic conception forbids using the classical rules dependent on classical features of truth, therefore some classical laws are rejected (double negation, bivalence...) Dummett is not only an intuitionist: he shows already some other way of rebelling than the intuitionist one: the meaning fulfilling the anti-realistic conditions of (canonical) derivability is conferred to the expression in a Natural deduction system, where the assertability is given by derivability chains instead of models (truth-conditions). The classical notion of truth was rejected, we have to think expression to expression rather than thing to thing. (like function to value). Thus some new problems arose. The problem, which one of classics vs. Intuitionism would be better for a metaphysics? Maybe, it is a pseudo-problem but assuming that it could be a real problem we had to be able to logically distinguish between classical and intuitional logic. Kurbis in his (2006) argues that if we use logic in distinguishing these two logics we cannot do it: in the case that the use happens in 'normal' setting, where only "decidable" sentences are considered, the distinction "classical text" vs. "intuitional text" cannot be discovered: the positive text can be unambiguously distinguished from its negation so that the first logical negation leads to the same result as the second version of negation. Kurbis expects therefore that only such a use of expression that its form reveals a not decidable setting could (as the arcane setting) be able to distinguish the classical and the intuitionalistic version of logic. Kurbis adduces three cases of such arcane texts which behave as the classical text: Future, Counterfactuals and some fictionals. This is strange. A general result of Kurbis' thoughts should be either positive or negative. I succeeded to do this generalization for him: All the members of this strange class of settings, being



“arcane” and at the same time not able to tell classics from intuitionistic logic are empirical sentences. Indeed, the logical structure of empirical sentences is a topic not accessible to PTsystems because trying to discover the logical structure of expressions is in a sense forbidden in such systems: logical structures of propositional logic are simply given by e.g. Natural deduction and the subsentential expressions of natural language is still a problem.

Further, an appendix follows, where a systematic comparison of the notion of meaning in TIL and the notion of meaning in PTS is given.

Aleš Horák, Marek Medved: Question Answering

Open domain question answering system AQA is optimized for work with morphologically rich languages and makes use of syntactic cues provided by the morphosyntactic analysis. In our talk we introduce two new modules that have been developed for the AQA processing pipeline. The new answer type detection module is able to recognise the question type and extract an appropriate answer type from the text of the question. We introduce two different implementations of this module. The first one is a rule based system utilising Czech WordNet for hypernym detection. The second one uses a machine learning approach in a form of a neural network. The new answer selection module is based on recurrent neural networks processing the question and answer sentences to derive the most probable answer sentence. In our talk, we present the architecture of all modules and their evaluation on the Czech SQAD v2.1 benchmark dataset consisting of more than 8,500 question-answer pairs.



Michal Peliš: Epistemic Logic of Questions

Logic of questions based on dynamic epistemic systems will be presented informally. There are some important aspects that form a general framework of dynamic epistemic logic with questions. Logic of questions is seen as a formalization of communication in multi-agent systems. Communication requires static model of knowledge (individual as well as group) and a dynamic model of epistemic change (change of epistemic states). The procedure of communication is under control of questioning agenda (epistemic erotetic search scenarios).

Karel Šebela: Kant and the Problem of Conceptual Containment

TIL's theory of concepts is often compared with the traditional, pre-modern theory of concepts. In accordance with Bolzano, it is frequently noticed that the traditional theory has a problem with the content of a concept, which is usually treated as a set or mereological sum of concepts. In my talk I would like to vindicate the traditional theory by 1) presenting the systematic version of traditional theory 2) then showing that this version is immune from the Bolzano-style objections 3) on the example of Kant's theory of concepts showing that the content of a concept is according to the traditional theory definitely not simply a set or sum of concepts.

Ludmila Dostalová: Aristotelian Logic: Extensional or Intensional?

It is widely assumed, that Aristotle is the founder of logic as an independent scientific discipline. Being so, he is therefore regarded as the predecessor of modern classical logic. Hence Aristotelian logic is quite often regarded as being classical as well. Classical logic is every system of logic that fulfils two basic principles – the principle of extensionality and the principle of bivalence. When investigating traditional interpretation of Aristotelian logic both principles hold. However, when we check Aristotles' writing De Interpretatione it appears that truth conditions of statements are not checked through extension of terms but through their intension. Hence, original Aristotelian logic is rather intensional and therefore not classical.



SCHEDULE

Wednesday 16th

13:30 – 14:00 Invitation and registration

14:00 – 14:45 Miloš Kostelec: Substitution contradiction, its resolution and the Church-Rosser Theorem in TIL

15:00 – 15:45 Ivo Pezlar: TIL and proof analysis

16:00 – 16:45 Daniela Glavaničová: Fictional characters as hyperintensions

17:00 – 17:30 Coffee Break

Thursday 17th

9:30 – 9:45 Morning awakening

10:00 – 10:45 Bjarne Jespersen: Impossibility and hyperintensionality

11:00 – 11:45 Pavel Materna: TIL and PTS

12:00 – 13:45 Lunch time

14:00 – 14:45 Aleš Horák, Marek Medved: Question Answering

15:00 – 15:45 Michal Peliš: Epistemic logic of questions

16:00 – 16:45 Karel Šebela: Kant and the Problem of Conceptual Containment

17:00 – 17:15 Coffee Break

18:00 – ... Social Evening

Friday 18th

8:30 - 8:45 Morning Awakening

9:00 – 9:45 Ludmila Dostalová: Aristotelian Logic: Extensional or Intensional?

Student's session - not only logic

10:00 – 10:30 Vojtěch Patschka

10:45 – 11:15 Adam Albert

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11:30 Closing Ceremony :)