Abstractionism 2
10–12 August 2023
UConn Logic Group, University of Connecticut, Storrs

Tentative Schedule

Thursday, August 10

9:00 – 9:15 Welcome
9:15 – 10:45 Sean Ebels-Duggan (Northwestern)
The Logical and the Mathematical
11:00 – 12:30 Fiona T. Dogherty (Bios Centre) – online
Frege, Hilbert, and Neo-Fregean Logicism: What’s in a Name?
12:30 – 1:30 lunch (catered)
1:30 – 3:00 Stewart Shapiro (OSU / UConn)
The Syntactic Priority Thesis
3:15 – 4:45 Roy T. Cook & Emery Carlson (Minnesota)
Structure, Identity, and Abstraction
5:00 – 7:00 Keynote: Crispin Wright (Stirling)
Arithmetical Logicism Redux
8:00 conference dinner

Friday, August 11

9:15 – 10:45 Will Stafford (Bristol)
Is Arithmetic Logical according to proof-theoretic standards?
11:00 – 12:30 Shay A. Logan (Kansas State)
The “Plus” in “Logic Plus Abstraction”
12:30 – 1:30 lunch (catered)
1:30 – 3:00 Alan Weir (Glasgow)
Abstractionism, Individuation, and Sortals
3:15 – 4:45 Walter Pedriali (St Andrews)
Logicism and Singular Thought
5:00 – 6:30 Eileen Nutting (University of Kansas)
Metaphysical Analogs of Abstraction Principles
Abstracts

Roy T. Cook & Emery Carlson (Minnesota)
Structure, Identity, and Abstraction
We investigate a generalization of the C-R Problem (Cook & Ebert 2005) to the framework of structural abstraction (Leach-Krouse 2017a,b). In particular, we investigate the conditions under which substructures of distinct mathematical structures are identical, motivated by the intuition (not universally shared, of course!) that the natural numbers identified as a subcollection of the rational numbers are identical to the naturals given to us sui generis. We examine increasingly restrictive principles governing cross-structural identities, and in each case we provide a relatively simple counterexample. Ultimately we suggest, but do not outright prove, that there are no genuine identities between substructures of distinct structures.


Fiona T. Doherty (Bios Centre, London)
Frege, Hilbert, and Neo-Fregean Logicism: What’s in a Name?
I argue that the numbers ‘given to us’ by Scottish neo-Fregean logicism are not Fregean objects. To show this I consider several places in Hale and Wright’s canon where they have defended logicism at the cost of a Fregean ontology, such as their solution to the Caesar problem and their requirement that the objects given by abstraction may not admit of an independent means of specification. I conclude that the implicit ontology of Hale and Wright’s account is a thin conception of objects, distinct from Frege’s own.

Sean Ebels-Duggan (Northwestern)
The Logical and the Mathematical
(Coming soon.)
Shay A. Logan (Kansas State)

*The “Plus” in “Logic Plus Abstraction”*

The Basic Abstractionist Formula is this: math = logic + abstraction. There’s been decades of discussion about what exactly “math”, “=”, “logic”, and “abstraction” have to mean for this to turn out true. In this talk, I’ll finish the job by thinking carefully about what “+” needs to mean. I do this by moving to a setting where it might possibly mean something interesting, which is to say a logic weak enough to allow us to actually distinguish meaningfully different interesting ways of combining theories. When we do this, what we see is that the “+” has a lot more going on than we might initially have thought.

(Joint work with Francesca Boccuni)

Eileen Nutting (University of Kansas)

*Metaphysical Analogs of Abstraction Principles*

Abstraction principles are sometimes taken to be metaphysically generative. If they are, they should have robust metaphysical analogs, through which abstracted entities are generated from base entities. But different abstraction principles seem to have differently-behaving metaphysical analogs. This paper explores two apparent differences. The first is an intuitive difference: some abstraction principles (e.g., Direction Equivalence) generate abstracted entities by generalizing away from base entities, while others (e.g., Plural Law V) generate abstracted entities by building on base entities. The second is an apparent difference in existence conditions: some abstracted entities (e.g., sets) depend for their existence on the existence of any of their base specifications, while others (e.g., directions) only depend on the existence of some base specification. The case of Basic Law V is complicated, but it arguably suggests that the two kinds of differences can come apart. More clearly, differences in existence conditions appear to be explained by appeal to features of the relevant equivalence relations, while the intuitive difference cannot be so explained.

Walter Pedriali (St Andrews)

*Logicism and Singular Thought*

(Coming soon.)

Stewart Shapiro (Ohio State University / UConn)

*Objects, singular terms, and syntactic priority*

The purpose of this talk is to articulate and assess the Syntactic Priority Thesis and the Dummett-Hale criteria for identifying singular terms in natural languages, specifically English.

Will Stafford (Bristol)

*Is Arithmetic Logical according to proof-theoretic standards?*

The invariance criteria for logicality imply that many arithmetical concepts are logical. This approach takes general applicability to be the border between the logical and the non-logical. It rejects concerns, like those of Quine, about the strength of certain logics. The proof-theoretic criteria for logicality requires logical terms to have well-behaved proof rules. It privileges not the general applicability of logic but its self-evidence. This talk will
show how results in proof theory preclude well-behaved proof rules for arithmetic. The differing results from the two criteria of logicality demonstrate how generality and analyticity are not aligned.

William Stirton
Julius Caesar: Another Round

This abstract begins with two definitions (taken from The Reason’s Proper Study):

1. For any sortal concept \( F \), \( \text{eq}_F \) is that relation such that \( \text{eq}_F(x,y) \) is canonically sufficient for \( x \) and \( y \) to be judged identical, when \( x \) and \( y \) are both \( F \)'s.
2. A sortal concept \( C \) is a category just when any other sortal concept \( F \) with the property that \( \text{eq}_F \) is the same relation as \( \text{eq}_C \) has an extension included within that of \( C \).

Crispin Wright and I have had a long-running debate about whether he has succeeded in solving the Julius Caesar Problem. In Logic, Language, and Mathematics (ed. Alexander Miller, OUP, 2020, p. 314f.) Crispin has put forward a new would-be solution to the Julius Caesar Problem which is designed to be invulnerable to objections that I have raised earlier. I will dissect the argument with a view to showing that it depends crucially (as I think Crispin would agree) on the thesis that no object falls under more than one category. Crispin presents an argument in support of that thesis which is based inter alia on what he calls the “co-membership axiom”:

3. \((\forall x)(\forall y)((x \in C \land y \in C) \leftrightarrow (x = y \leftrightarrow \text{eq}_C(x,y)))\)

So, the question now becomes whether there is a way of understanding “\( \leftrightarrow \)” that makes (3) both true and strong enough to do the work Crispin wants it to do. I think it is either difficult or impossible to find such a way, but I may be prejudiced (a little reflection shows that (3) is false if “\( \leftrightarrow \)” is taken to express material equivalence), so suggestions from the audience will be welcome! 😊

Even if Crispin’s argument is unsatisfactory, the conclusion that no object falls under more than one category could still be true. The lecture will end with some inconclusive ruminations about whether it is.

James Studd (Oxford)
Caesar and Stipulation

A neglected response to the Caesar problem maintains that the content of ‘mixed’ identity contexts such as ‘\( \#X = \text{Julius Caesar} \)’ is just as open to stipulation as the content of ‘unmixed’ contexts such as ‘\( \#X = \#Y \)’. I defend this stipulative response against some objections, including those raised by Fraser MacBride and by Bob Hale and Crispin Wright.

Alan Weir (Glasgow)
Abstractionism, Individuation, and Sortals

Abstractionist principles are a sub-category of principles of individuation aka “identity criteria” (terminology I’ll probably moan about). And principles of individuation are often though of as providing individuating criteria for sorts or sortal nominals. Of course ‘sortal’, like most philosophical terms, is very likely a polysemic one. In this talk I’ll argue for a
strongly sceptical attitude towards, if not the whole idea of principles of individuation and sortals, at any rate towards the claim that they can do interesting philosophical work. If true, that would seem to have very negative consequences for neo-logicism but I'll end by discussing whether it has life independently of the views on individuation and sortals which have often been closely linked with it.