

# Abstractionism 2

Celebrating 40 Years of  
*Frege's Conception of Numbers as Objects*

**UConn**

PHILOSOPHY

# Abstractionism 2

Celebrating 40 Years of  
*Frege's Conception of Numbers as Objects*

UConn Logic Group

Organized by Marcus Rossberg, Philip A. Ebert, and Özcan Karabağ

University of Connecticut, Storrs

**We are grateful for the support provided by:**

- Philosophy Department, University of Connecticut
- University of Connecticut Humanities Institute
- College of Liberal Art and Sciences, University of Connecticut
- Office of the Vice Provost for Interdisciplinary Affairs, University of Connecticut
- Office of the Vice President for Research, University of Connecticut

## Location & Parking

This conference will be held in the Carolyn Ladd Widmer Wing in Augustus Storrs Hall Room 16 (231 Glenbrook Road). Guest parking is available in the South Parking Garage (2366 Jim Calhoun Way). Rates are \$2.00 per hour for the first three hours, and \$1.50 thereafter to a cap of \$30 for the day. Payment must be made upon entry for the expected duration of the visit. Payment is via online app (paybyphone or flowbird) or kiosk.

### Directions from South Parking Garage:

[goo.gl/maps/XshYpKLMTs5Yt9Ck6](https://goo.gl/maps/XshYpKLMTs5Yt9Ck6)



## Conference Dinner

The conference dinner will be held at 8:00 PM on August 10th at Stone Row Kitchen + Bar (948 Main Street, Willimantic). RSVP is required and is limited to the first 30 respondents. Waiters will take orders for the first round of drinks, paid by the Logic Group. Subsequent drinks will be placed on individual tabs. If you require a vegan meal please notify your server.

### Directions from South Parking Garage:

[goo.gl/maps/S8rj3Vb5TZ22Mz3B9](https://goo.gl/maps/S8rj3Vb5TZ22Mz3B9)



## Dinner Menu

Hummus with Pita Chips and Crudite  
Cheese Board  
Market Salad  
Roasted Beet Salad  
Korean BBQ Chicken  
Whole Roast Salmon

Roasted Fingerling Potato  
Broccoli Rabe/Seasonal Vegetable  
Sour Dough Bread with Whipped Butter  
Assorted Desserts  
Soft Drinks, Coffee, Tea



## Thursday, August 10

|               |   |
|---------------|---|
| 9:00 - 9:15   | Welcome   |
| 9:15 - 10:45  | Sean Ebels-Duggan (Northwestern)<br>The Logical and the Mathematical<br>Chaired by Philip A. Ebert  |
| 11:00 - 12:30 | Fiona T. Doherty (Notre Dame, London Global Gateway) - <i>Online</i><br>Frege, Hilbert, and Neo-Fregean Logicism: What's in a Name?<br>Chaired by Philip A. Ebert |
| 12:30 - 1:30  | Lunch (Catered)   |
| 1:30 - 3:00   | Stewart Shapiro (OSU / UConn)<br>The Syntactic Priority Thesis<br>Chaired by Richard Kimberly Heck  |
| 3:15 - 4:45   | Roy T. Cook & Emery Carlson (Minnesota)<br>Structure, Identity, and Abstraction<br>Chaired by Richard Kimberly Heck   |
| 5:00 - 7:00   | Keynote: Crispin Wright (Stirling) - <i>Online</i><br>Arithmetical Logicism Redux<br>Chaired by Alan Weir   |
| 8:00          | Conference Dinner   |

## Friday, August 11

|               |   |
|---------------|---|
| 9:15 - 10:45  | Will Stafford (Bristol)<br>Is Arithmetic Logical according to proof-theoretic standards?<br>Chaired by Eileen Nutting |
| 11:00 - 12:30 | Shay A. Logan (Kansas State)<br>The "Plus" in "Logic Plus Abstraction"<br>Chaired by Eileen Nutting                   |
| 12:30 - 1:30  | Lunch (Catered)   |
| 1:30 - 3:00   | Alan Weir (Glasgow)<br>Abstractionism, Individuation, and Sortals<br>Chaired by Stewart Shapiro                       |
| 3:15 - 4:45   | Eileen Nutting (University of Kansas)<br>Metaphysical Analogs of Abstraction Principles<br>Chaired by Nathan Kellen   |
| 5:00 - 6:30   | Roundtable Discussion<br>Chaired by Philip A. Ebert   |

## Saturday, August 12

|               |  |
|---------------|--|
| 9:15 - 10:45  | James Studd (Oxford) - <i>Online</i><br>Caesar and Stipulation<br>Chaired by Sean Ebels-Duggan |
| 11:00 - 12:30 | William Stirton<br>Julius Caesar: Another Round<br>Chaired by Sean Ebels-Duggan                |

Sean Ebels-Duggan (Northwestern)

## ***The Logical and the Mathematical***

Logic, it is said, is indifferent to particularity. One way to explicate this claim is that logical notions are invariant according to how objects are rearranged. When applied to abstraction principles, this can mean many things. Cook (2017) gives us four options and points out that Walsh and Ebels-Duggan (2015) give a “characterization” for two of them. This raises the question: what characterizes the remaining two? It turns out this is not one, but several questions, which I will address in this presentation. The results suggest interesting answers to the question of what counts as (near enough to) logical, and what might divide it from the non-logical, and yet still “mathematical”.

Fiona T. Doherty (Notre Dame, London Global Gateway)

## ***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.

Stewart Shapiro (Ohio State University / UConn)

## ***CV<sup>^</sup>YWgžG]b[ i `Uf`HYfa gžUbX`GnbhUWjW Df]cf]hm***

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.



Roy T. Cook and 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 sub-collection 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.

Will Stafford (Bristol)

## ***Is Arithmetic Logical According to Proof-Theoretic Standards?***

The invariance criteria for logicity 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 logicity 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 logicity demonstrate how generality and analyticity are not aligned.

Shay A. Logan (Kansas State)

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

The Basic Abstractionist Formula is this:  $\text{math} = \text{logic} + \text{abstraction}$ . 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)

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 thought 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 skeptical 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.

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.

James Studd (Oxford)

## ***Caesar and Stipulation***

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



William Stirton

## ***Julius Caesar: Another Round***

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

1. For any sortal concept  $F$ ,  $eq_F$  is that relation such that  $eq_F(x,y)$  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  $eq_F$  is the same relation as  $eq_C$  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.  $(\forall x)(\forall y)((x \in C \ \& \ y \in C) \leftrightarrow (x = y \leftrightarrow eq_C(x,y)))$

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! 😊

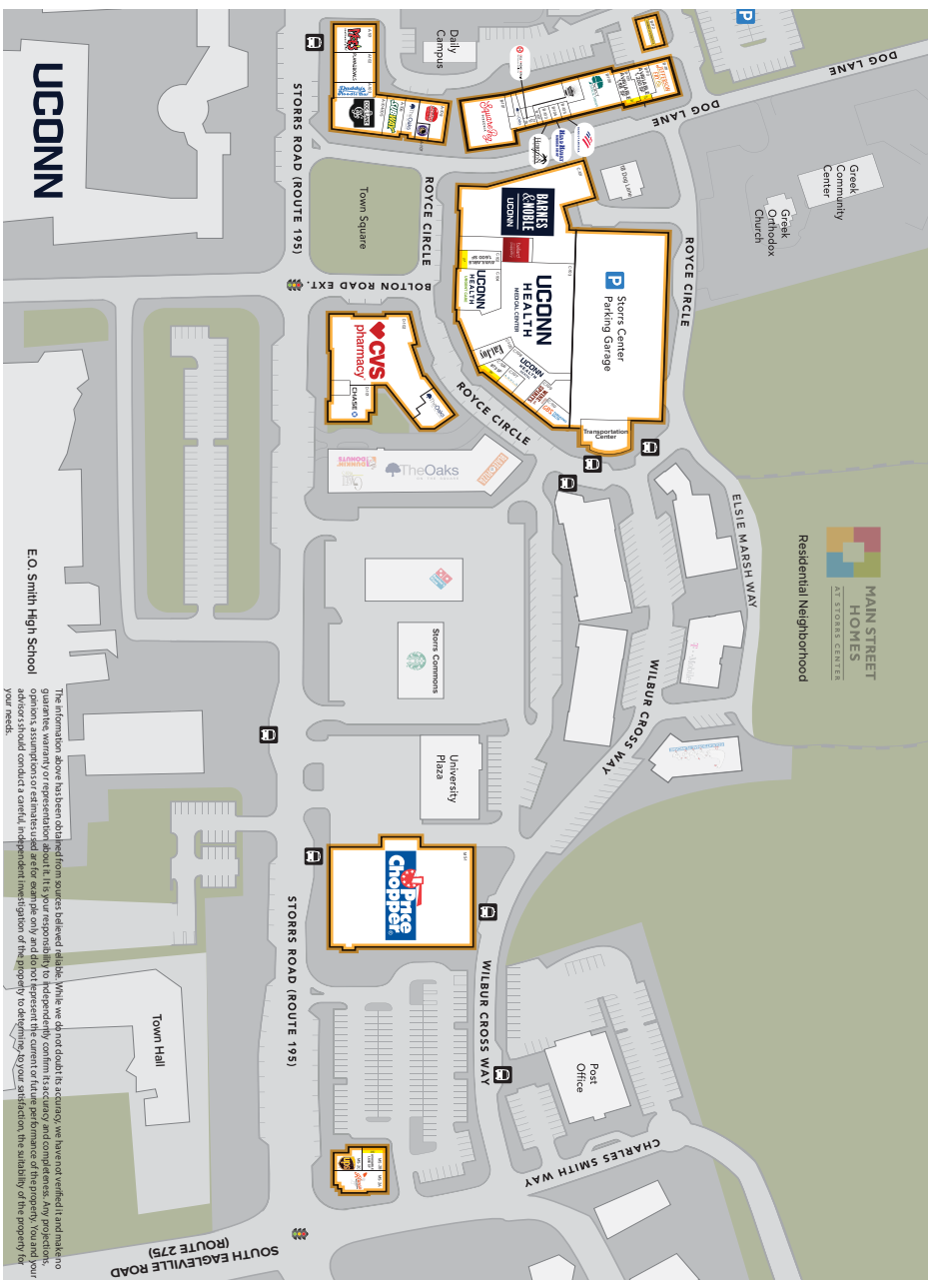
Even if Crispin’s argument is unsatisfactory, the conclusion that no object falls under more than one category could still be true. The lecture will end with some inconclusive rumina-tions about whether it is.





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Town Hall

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If you require an accommodation to participate in this event, please contact the Department of Philosophy at [philosophy@uconn.edu](mailto:philosophy@uconn.edu) or (860) 486-4416 by August 3, 2023.