Proposal for a FLoC workshop in honour of Dana Scott's 85th birthday and 50 years of domain theory

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Abstract

We propose a FLoC 2018 workshop on domain theory, affiliated with LICS, to celebrate Dana Scott's 85th birthday and 50 years of domain theory.

1 Scientific justification

Fifty years ago, Dana Scott introduced domain theory for the purposes of denotational semantics of programming languages when he was in Oxford, where he worked with Christopher Strachey. This work has had a vast and lasting impact on logic, computer science, and mathematics. We plan to celebrate 50 years of domain theory and Dana's 85th birthday in the *Domains Workshop* series, which we propose to be part of FLoC.

The applications of domain theory include programming logics (LCF), design of programming languages, models of the lambda calculus, applications to recursion theory (higher-type computability, Kleene-Kreisel countable functionals), general topology (injective spaces, function spaces, locally compact spaces, Stone duality), topological algebra (Lawson semilattices) and analysis (measure, integration, dynamical systems). Moreover, these applications are related — for example, Stone duality has given rise to a logic of observable properties of computational processes.

The Domains workshop series is aimed at computer scientists and mathematicians alike who share an interest in the mathematical foundations of computation. The workshop series focuses on domains, their applications in mathematics and computer science, and related topics. Previous meetings were held in Darmstadt (1994, 1999, 2004), Braunschweig (1996), Munich (1997), Siegen (1998), Birmingham (2002), Novosibirsk (2007), Brighton (2008), Swansea (2011), Paris (2014), and Cork (2015).

2 Organization

2.1 Workshop title

Domains Workshop
50 years of domain theory

2.2 Workshop organizers

The workshop will be organized by Andrej Bauer and Martín Escardó:

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They will act as an organizing committee, taking care of all organizational matters. Through communication with the leading researchers in the area of domain theory, they will help form a programme committee.

2.3 Affiliated conference

A workshop on domain theory is naturally affiliated with *Logic in computer science (LICS),* as domain theory is one of the standard LICS topics.

As discussed above, we plan to make the meeting an instance of the Domains Workshop series. The organizers of the series, Klaus Keimel and Achim Jung, support the idea.

2.4 Anticipated number of participants

We estimate that the workshop would be attended by 70 to 80 participants. While this is a bit higher than a typical Domains Workshop, we anticipate good attendance because of the festive nature of the meeting, and synergies created by FLoC.

3 Proposed format and agenda

3.1 Programme committee

A program committee would likely consist of four senior researchers, with expertise in all aspects of domain theory, and good knowledge (first-hand when possible) of the history of domain theory.

3.2 Workshop format

The two-day meeting will open with a plenary session by Dana Scott. The meeting will have three further plenary invited talks, and a number of short invited and contributed talks covering current topics in domain theory. A provisional organization of the talks

is shown in Table 1. The ratio between invited and contributed talks is to be determined by the programme committee. Depending on the number and quality of submissions, the contributed talks may be a bit shorter than the invited talks. In any case, we shall comply with the standard FLoC workshop format.

Day 1		
Morning	Dana Scott's plenary talk	90 minutes
		coffee
	Two short talks	60 minutes
		lunch
Afternoon	Invited plenary talk	60 minutes
	Short talk	30 minutes
		coffee
	Short talks	up to 120 minutes
Day 2		
Morning	Invited plenary talk	60 minutes
	Short talk	30 minutes
		lunch
Morning	Two short talks	60 minutes
		lunch
Afternoon	Invited plenary talk	60 minutes
	Short talk	30 minutes
		coffee
Afternoon	Short talks	up to 120 minutes

Table 1: A possible workshop format

3.3 Procedures for selecting papers and participants

The program committee will select plenary speakers, invited speakers, as well as contributed papers based on submitted two-page abstracts. The selection of plenary speakers will reflect the breadth and historic development of domain theory, while the short invited and contributed talks will be devoted to current topics in domain theory.

3.4 Plans for dissemination

We plan to produce post-proceedings in a scientific journal to be determined by the organizing committee. This is common practice for the Domains Workshop series, which published post-proceedings in journals such as *Mathematical Structure in Computer Science* and *Electronic Notes in Theoretical Computer science*. Other possible journals are *Logical Methods in Computer Science* and *Leibniz International Proceedings in Informatics*.

3.5 Duration

Give the breadth and depth of domain theory, as well as Dana Scott's work, and the many connections of domain theory to logic and computer science, we request **2 days** for this workshop. Our preference is for the workshop to take place after LICS and during FLoC.