Preface

Mark with serene impartiality
The strife of things, and yet be comforted,
Knowing that by the chain causality
All separate existences are wed
Oscar Wilde, "*Humanitad*"

This Festschrift is dedicated to Maciej Koutny on the occasion of his 60th birthday. As Maciej's colleagues are undoubtedly aware, *causality* (with Petri nets used as the harness) is a prominent unifying topic of Maciej's research, and it was selected as the topic of this Festschrift.

It turns out that causality is a very complicated phenomenon. E.g. this book is 'caused' by Maciej's 60th birthday – even though its creation had preceded this remarkable occasion. This constitutes an instance of reverse temporal causality, whose formal modelling would undoubtedly require Petri nets with inhibitor arcs, contextual loops, and step semantics, not to mention the heavy mathematical artillery that Maciej uses so fluently. It is left to the reader to complete this formal model. ~~(I didn't get research funding for this.)~~

Attendees of Petri Nets 2018 (Bratislava) on the way to the conference banquet. Maciej is on the left, holding the conference banner. Photo credit: Juraj Mazari.

Apparently, the number 60 has some special significance, which I could not comprehend (being only 42, i.e. having accomplished only 70%). Hence, I have commissioned a personal research project to discover the secrets of 60, using the computational resources at my disposal. The experiment was conducted on a PC with a 64-bit Intel® Core™ i7-6700K 4.00GHz CPU with 4 cores (hyperthreaded) and 64Gb RAM. "60" was entered into Wikipedia's search box, and the results were carefully analysed. It turns out that 60 is:

- the natural number following 59 and preceding 61;
- being three times 20, it is called "three score";
- the number of seconds in a minute, and the number of minutes in an hour (a legacy of the Babylonian number system);

- a *highly composite number* (a.k.a. *anti-prime*), as it has more divisors than any smaller positive integer has;
- the sum of a pair of twin primes (29 + 31), the sum of four consecutive primes (11 + 13 + 17 + 19), adjacent to two primes (59 and 61), and the smallest number that is the sum of two odd primes in six ways (it takes a lot of courage being anti-prime surrounded by primes on all sides!);
- a *unitary perfect number*, as it is equal to the sum of its proper *unitary divisors*, excluding the number itself; a divisor *d* of a number *n* is a unitary divisor if *d* and *n/d* share no common factors;
- an *abundant number*, as the sum of its proper divisors is greater than the number itself.

There are many more interesting and potentially relevant mathematical and non-mathematical facts about 60, but the penny dropped when I noticed this:

> *The number of miles per hour an automobile accelerates to from rest (0-60) as one of the standard measurements of performance.*

The moment of truth! 60 is the standard performance measurement point, so we can now officially conclude that Maciej has been accelerating up to 60 impressively well (and continues to do so). Wikipedia also tells that the forthcoming *perfect number* is 496, which is the next goal for Maciej.

This book presents a collection of essays and papers written by Maciej's friends, colleagues, and disciples (these categories are not mutually exclusive – in fact, their overlaps are conjectured to be considerable). The contributions include personal essays as well as technical papers – both kinds of ingredients are essential for a balanced Festschrift.

I would like to thank everyone who contributed papers, supported or helped with the production of this Festschrift and with the organization of the presentation event. Finally, on behalf of all these people, I would like to congratulate Maciej on this occasion and wish him many happy returns!

Victor Khomenko
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Newcastle upon Tyne