

Kosta Došen  
1954–2017  
Obituaries

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Kosta Došen, Nancy 2011  
(14th Congress of Logic, Methodology  
and Philosophy of Science)



Kosta Došen, Tübingen 2015  
(Conference on  
General Proof Theory)

## Preface

On 21 October 2017, my friend, colleague and collaborator Kosta Došen died. This online publication compiles the obituaries I have written: First, the announcement distributed via the relevant mailing lists, including a Serbian version in the Belgrade newspaper *Politika*. Then my eulogy at the funeral ceremony on 24 October 2017 at the New Cemetery Belgrade. Furthermore, the text of the *In memoriam* section of the newsletter of the Association for Symbolic Logic. And finally, the obituary written for the journal *Synthese*, which is, so to speak, my ‘official’ tribute to Kosta Došen addressed to the scientific community. It should also be noted that a detailed curriculum vitae of Kosta Došen was edited by Miloš Adžić and is available online (DOI: [10.15496/publikation-23600](https://doi.org/10.15496/publikation-23600)).

Tübingen, July 2022

Peter Schroeder-Heister

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Obituary notice distributed via major mailing lists in logic,  
category theory and foundations of mathematics

### **Obituary Notice: Kosta Došen (1954–2017)**

On 21 October 2017, our dear friend and colleague Kosta Došen passed away; losing his long struggle with cancer. He is survived by his daughter Ana. The service and funeral took place at the New Cemetery in Belgrade on 24 October 2017, 12:00 (noon).

Born 1954 in Belgrade (Serbia), Kosta Došen graduated from the University of Belgrade in 1977 and received a doctorate from the University of Oxford in 1981. He became a professor at the Mathematical Institute Belgrade in 1982, was professor at the Department of Computer Science of the University of Toulouse (France) from 1994 to 1998, and held the Chair of Logic in the Philosophical Faculty of the University of Belgrade since 2003. He had visiting posts at universities including Notre Dame (USA), Montpellier (France) and Tübingen (Germany).

Kosta Došen's D.Phil. on "Logical Constants" was supervised by Michael Dummett and Dana Scott. As part of this, and in subsequent publications, he developed a proof-theoretic characterization of logical constants by means of so-called "double-line rules", which has become widely discussed since and is one of the major approaches in the debate on what logicality should mean. Working on the proof theory (and partly also model theory) of logics with restricted structural rules, he coined the term "substructural logic" at a conference in Tübingen in 1990. However, the main topic of his intellectual life was the field of categorial proof theory that was opened up by Lambek, Lawvere and others. Kosta Došen shaped the development of this field in many respects, in particular by his books on "Cut Elimination in Categories" and "Proof-Theoretical Coherence" (the latter together with Zoran Petrić). He was a strong adherent and promoter of what Prawitz called "general proof theory", which is the study of proofs as objects in their own right rather than under the aspect of provability. This implied for him that the question of the identity of proofs was the central topic of general proof theory, where he was particularly interested in the relationship between normalization-based and generality-based approaches. In recent years he worked with great passion on Gödel's work including unpublished manuscripts in his Nachlass. A critical edition (together with Miloš Adžić) of Gödel's Notre Dame course in logic has just appeared.

Kosta Došen was a gifted and dedicated teacher, who was an inspiration to students and colleagues alike. His explanations will live on in the pages of his textbook on elementary logic (in Serbian).

A further, and more thorough discussion of Kosta Došen's achievements will be published at a later stage.

Kosta will be greatly missed by relatives, friends and colleagues, and all who had the good fortune to know him.

*Peter Schroeder-Heister*



## Одлазак Косте Дошена

*Петер Шрегер Хајсјер\**

У Београду је 21. октобра у 64. години преминуо редовни професор Филозофског факултета у Београду, проф. др Коста Дошен, један од водећих логичара данашњице.

Рођен у Београду 1954, Коста Дошен је дипломирао на Универзитету у Београду 1977. и докторирао на Универзитету у Оксфорду 1981. Постао је члан Математичког института у Београду 1982. Био је професор на одељењу за теоријско рачунарство на Универзитету у Тулузу, у Француској, од 1994. до 1998, као и шеф катедре за логику на Филозофском факултету Универзитета у Београду од 2003. па до смрти. Био је и гостујући професор универзитета у Нотр Даму у САД, Монпељеу у Француској и Тибингену у Немачкој.

Докторска теза Косте Дошена о „логичким константама” написана је под менторством Мајкла Дамета и Дејне Скота. Као део те тезе, и у каснијим радовима, он је развио једну доказно-теоријску карактеризацију логичких константи помоћу такозваних дволинијских правила, о којој се од тог времена нашироко расправља и која је један од главних приступа у расправи о томе шта би то „логичко” у логичким константама требало да значи. Бавећи се теоријом доказа (а делом и теоријом модела) логика са ограниченим структуралним правилима, он је 1990. године на конференцији у Тибингену сковао израз „супструктуралне логике”. Међутим, главна

област његовог интелектуалног рада била је категоријална теорија доказа чији су родоначелници Ламбек, Лоувир и други. Коста Дошен је утицао на развој ове области на многе начине а посебно својим књигама *Cut Elimination in Categories* и *Proof-Theoretical Coherence* (ова друга је написана у коауторству са Зораном Петрићем). Био је присталица и поборник области коју је Правиц назвао „општа теорија доказа”, која се бави проучавањем доказа као објекта који су сами по себи занимљиви и која на њих не гледа само са становишта доказивости. Ово је, по његовом мишљењу, питање једнакости доказа чинило централним питањем опште теорије доказа и он се посебно занимао за однос два приступа овом питању – једном који се заснива на нормализацији и другом који се заснива на општости. Последњих година био је веома посвећен проучавању Геделових радова као и необјављених рукописа који се налазе у његовој заоставштини. Критичко издање Геделовог курса из логике на универзитету Нотр Дам (које је приредио заједно са Милошем Адићем) управо је објављено.

Коста Дошен је био талентован и предан предавач и био је инспирација како студентима тако и колегама. Његова предавања ће наставити да живе на страницама уџбеника Основне логике, који је он написао.

*\*редовни професор Универзитета у Тибингену и почасни докјор наука Универзитета у Београду*



Eulogy given at the funeral ceremony on 24 October 2017  
at the New Cemetery Belgrade

Dear Ana, dear congregation, dear friends,

Kosta was a much more accomplished public speaker than me. It would have been better for him to speak at my funeral, than me at his. But we do not get a choice in this matter, so I shall try my best.

Today we are saying our final farewells to a brilliant mind, inspired teacher, and kind friend.

Kosta was not only one of my closest scientific friends, but one of my best friends in general; and a dear friend of our whole family. My wife Gabi and I met him for the first time at a conference in 1982 in Florence, where it turned out that we had both written doctoral theses that tried to give justice to a scientific field called “general proof theory”. We have been friends ever since. In the 1980s and 1990s Kosta and his late wife Tanja visited us frequently, and he spent a year as a Humboldt fellow in Tübingen. We celebrated many feasts together, including Christmas and Easter.

I remember vividly discussions with him on all sorts of matters, mostly, in fact, of a non-scientific nature. Those close to Kosta know that these discussions sometimes turned into mini lectures on his part. However, they would always be the most interesting of lectures. Kosta was a brilliant thinker and an extremely well-educated person with an enormously broad spectrum of interests, reaching from politics and history to art and medicine. One could always learn a lot from him. This breadth of interests and expertise extended to his professional academic life, in which he held positions both at the Mathematical Institute of the Serbian Academy of Sciences, and the Philosophical Faculty of the University of Belgrade.

Needless to say, that for Kosta scholarship and intellectual achievement was absolutely fundamental - a value in itself. It ranked much higher than material values such as income or financial security. He left France in 1998, giving up a secure and well-paid professorial position to return to war-torn Serbia, because he considered Belgrade superior from an academic perspective, and wanted to live in his home country during those difficult times.

Being offered the Chair of Logic by the Belgrade Philosophical Faculty was a great honour for him. In that way he formally became the scientific director of the Belgrade logic group, whose de facto leader he had been for a long time, shaping the outlook and ensuring the quality of this group, which went far beyond what one was used to from elsewhere in Europe.

Those of us who have published with him will confirm that it was always extremely enjoyable to work with Kosta, although, as with many great minds, this was sometimes a challenge. He often held strong opinions, in particular on matters of presentation. But the result reached was always something of which one could be proud.

Kosta was an inspiring teacher. If you talk to his students; they are full of praise for the way he explained things and elicited their interest even in the driest of topics, if he was convinced of their significance.

Scientifically, Kosta was a hero. I have tried to convince him of this fact on many occasions, without success. I regret that Kosta cannot read the replies to his obituary notice, including those from global leaders in logic. He might then perhaps have believed himself how important his scientific contributions were.

When asked what remains most strongly of Kosta in our memories, apart from his immense intellectual achievements, I would answer: The memory of somebody with a great sense of humour, who, when he was in a certain mood, could tell all sorts of jokes, and easily imitate people, which was always great fun. He was also an extremely loyal, kind-hearted and generous person, who enjoyed sharing not only his knowledge, but his home and table with those around him.

Kosta was a deeply religious academic. Therefore, I would like to conclude with the very appropriate motto of the University of Oxford, where Kosta reached his first scientific achievements: *Dominus illuminatio mea*, "The Lord is my light".

Kosta, requiesce in pace.

## Obituary in *ASL Newsletter*, Association for Symbolic Logic, January 2018

- **In Memoriam: Kosta Došen.** On October 21, 2017 Kosta Došen died in Belgrade, Serbia, aged 63. He graduated from the University of Belgrade in 1977 and received a doctorate from the University of Oxford in 1981. He became a professor at the Mathematical Institute Belgrade in 1982, was professor at the Department of Computer Science of the University of Toulouse from 1994 to 1998, and held the Chair of Logic in the Philosophical Faculty of the University of Belgrade since 2003. He had visiting professorships at universities including Notre Dame (USA), Montpellier (France) and Tübingen (Germany).

Kosta Došen's D.Phil. on *Logical Constants* was supervised by Michael Dummett and Dana Scott. As part of his thesis, and in subsequent publications, he developed a proof-theoretic characterization of logical constants by means of what he called "double-line rules". This continues to be widely discussed and is one of the major approaches in the debate on what logicity should mean. Working on the proof theory (and partly also model theory) of logics with restricted structural rules, he coined the term "substructural logic" at a conference in Tübingen in 1990.

The main topic of his intellectual life was the field of categorial proof theory, founded by Joachim Lambek, William Lawvere, and others. Kosta Došen shaped the development of this field in many respects, in particular with his books *Cut Elimination in Categories* and *Proof-Theoretical Coherence*, the latter with Zoran Petrić. He was a strong adherent and promotor of what Dag Prawitz called "general proof theory", which is the study of proofs as objects in their own right rather than from the point of view of provability. This implied for him that the question of the identity of proofs was the central topic of general proof theory, where he was particularly interested in the relationship between normalization-based and generality-based approaches. In recent years he worked with great passion on Kurt Gödel's work, including unpublished manuscripts in his Nachlass. A critical edition Gödel's Notre Dame course in logic, edited by Miloš Adžić and him, has just appeared.

Kosta Dosen was a gifted and dedicated teacher who was an inspiration to students and colleagues alike. His explanations will live on in the pages of his textbook on elementary logic (in Serbian). He will be greatly missed by relatives, friends and colleagues, and all who had the good fortune to know him.



PETER SCHROEDER-HEISTER

**Kosta Došen**  
**(1954-2017)**

Kosta Došen died on the 21st of October 2017 in Belgrade, Serbia. Born in Belgrade on the 5th of June 1954, he graduated from the University of Belgrade in 1977 and received his doctorate from the University of Oxford in 1981. From 1982 onwards he was assistant professor, from 1995 full research professor at the Mathematical Institute Belgrade. He was full professor at the Department of Computer Science of the University of Toulouse (France) from 1994 to 1998, and from 2003 until his death he held the Chair of Logic in the Philosophical Faculty of the University of Belgrade. He had visiting professorships at universities including Notre Dame (USA), Montpellier (France) and Tübingen (Germany).

Kosta Došen's DPhil on *Logical Constants* [3] was supervised by Michael Dummett and Dana Scott. As part of his thesis, and in subsequent publications, he developed a proof-theoretic characterization of logical constants as 'punctuation marks' by means of what he called 'double-line rules'. This continues to be widely discussed and is one of the major approaches in the debate on what logicality should mean. In the 1980s he also published a number of articles on Kripke semantics of plain and modal intuitionistic logic. Working on the proof theory (and partly also model theory) of logics with restricted structural rules, he coined the term 'substructural logic' at a conference in Tübingen in 1990, which, together with its proceedings of 1993 [7] led to a rapid development of the subject, establishing it as a well-recognised field within the logic community.

However, the main topic of his intellectual life was categorial proof theory which was founded by Jim Lambek, William Lawvere and others. Kosta Došen shaped the development of this field in many respects, in particular with his books *Cut Elimination in Categories* [4] and *Proof-Theoretical Coherence* [6] (the latter with Zoran Petrić). The first book demonstrates

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that many methods of proof theory, in particular cut elimination, have a categorial counterpart (called ‘cut disintegration’) with direct applications in the categorial framework. Even more importantly, it shows that categorial concepts such as functor, adjunction and comonad can be better understood when the idea of cut disintegration is taken into account. The second book studies a variety of logical categories and proves that they can be viewed as subcategories of a properly understood Boolean category, that is, of a ‘categorification’ of the notion of a Boolean algebra.

Kosta Došen was a strong adherent and promotor of what Dag Prawitz called ‘general proof theory’, which is the study of proofs as objects in their own right rather than from the point of view of provability. This implied for him that the question of the identity of proofs was the central topic of general proof theory, where he was particularly interested in the relationship between normalization-based and generality-based approaches. In fact, his work on coherence can be viewed as an elaboration of his claims on identity of proofs, since categorial proof theory provided him with the proper framework to deal with this problem. Kosta Došen agreed that hypothetical judgements should be considered primary to categorial judgements (‘categorial’ in the sense of traditional theory of judgements, not in the sense of modern category theory), and that, when proofs are made explicit by means of terms, the proper notation for a hypothetical judgement leading from  $A$  to  $B$  would be something like ‘ $f : (A \vdash B)$ ’, which corresponds to an arrow in categorial logic, rather than ‘ $x : A \vdash t(x) : B$ ’ as is standard in the Curry-Howard approach.

In recent years he worked with great passion on Kurt Gödel’s work, including unpublished manuscripts in Gödel’s Nachlass. A critical edition (with Miloš Adžić) of Gödel’s Notre Dame course in logic [2], meticulously carried out, appeared a few weeks before his death.

Kosta Došen was a highly educated person far beyond his (multiple!) fields of research. His knowledge and spectrum of interests reached from politics and history to art and medicine. Touching a point of modern political history could start a conversation of several hours while meandering the streets of Belgrade. He was also an inspiring teacher. Students are full of praise for the way he explained things and elicited their interest even in the driest of topics if he was convinced of their significance. His elementary textbook on logic [5] in Serbian shall continue to guide students of the field.

Kosta will be greatly missed by family, friends, and colleagues, and all who had the good fortune to know him.

A detailed *Curriculum Vitae* provided by Kosta Došen himself, as well as a photograph, can be found in [1].

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