Material for the *Annual Report 2019*

Christer Oscar Kiselman

1.   Seven publications (registered in DiVA)

During 2019, seven publications have appeared with me as the author.

1.1.   Language choice in scientific writing: The case of mathematics at Uppsala University and in a Nordic journal

Nordisk Matematisk Tidskrift. Normat **61**, No. 2–4, 111–132. ISSN 0801-3500. Accepted for publication in 2016. Published in March 2019 (19-a).

1.2.   Werner Fenchel, a pioneer in convexity theory and a migrant scientist

Nordisk Matematisk Tidskrift, Normat **61**, No. 2–4, 133–152. ISSN 0801-3500. Accepted for publication in 2016. Published in March 2019 (19-i).
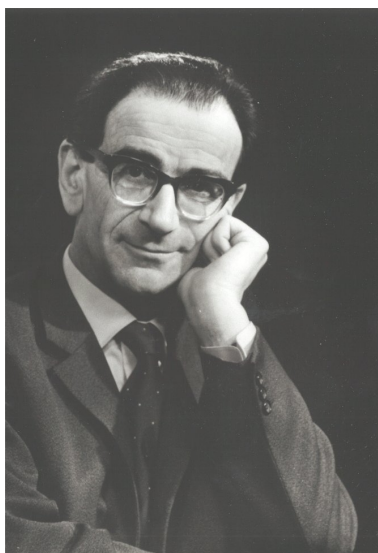

Figure 1.1. (Publication 1.2.) Werner Fenchel (1905–1988).

1.3.   Hans Rådström and how to define smooth functions on any set

The Bulletin of the Swedish Mathematical Society, 2019 May 15, pp. 20–23. ISSN 2003-055X (print), 2003-0541 (online). (19-ii).

1.4.   Kion faris Zamenhof antaŭ 1887?

La Espero, 2019:2, p. 3. ISSN 0014-0694. Published in June 2019 (19-b).

1.5.   Memore al Ebbe Vilborg

La Espero, 2019:2, p. 5. ISSN 0014-0694. Published in June 2019 (19-iii).

1.6.   Memore al Jarlo Martelmonto

La Espero, 2019:2, p. 5. ISSN 0014-0694. Published in June 2019 (19-iv).

1.7.   Generalized convexity: The case of lineally convex Hartogs domains

Ann. Polon. Math. **123**, no. 1, 319–344 (19-1).

Manuscript submitted on 2018 September 29; in revised form 2019 March 18. Accepted for publication on 2019 April 03; published online 2019 July 31. Print version published 2019 October 29. See *Mathematical Reviews / MathSciNet* under number MR4025021 (Pending).

2.   One paper accepted for publication (registered in DiVA)

2.1.   Akademio de Esperanto fronte al novaj taskoj

Manuscript based on a presentation during the Conference on Esperanto Studies in Buenos Aires on 2014 July 31, organized by Esther H. Schor and José Antonio Vergara. Accepted to appear in: *"Esenco kaj Estonteco": Lingvoscienco, Tradukado kaj Komunumo. Aktoj de la 37-a Esperantologia Konferenco en la 99-a Universala Kongreso de Esperanto, Bonaero 2014*, pp. 23–32. Editors: José Antonio Vergara and Esther Schoor. Accepted for publication on 2015 December 17. Not yet published as of 2020 January 25.

3.   Two submitted manuscripts

3.1.   Duality of convolution operators: A tool for shape analysis

Manuscript submitted on 2019 April 30; 19 pp.

3.2.   Zamenhof's Yiddish grammar and his Universal Language

Manuscript submitted on 2019 December 13; 83 pp.

4.   Four invited talks and three invited presentations

4.1.   A conference to the memory of Józef Siciak, 2019 February 18

On February 18, there was a one-day conference dedicated to the memory of Professor Józef Siciak (1931 February 05 — 2017 December 17) in Kraków, at the Instytut Matematyki, Uniwersytet Jagielloński. I was the only speaker from abroad; my title was "Józef Siciak, a great mathematician and a faithful friend."

There were three other speakers, first of them Arkadiusz Lewandowski, who spoke about Siciak's doctoral students (18 of them from the years 1971–1995), their students, and their students, thus Józef's mathematical greatgrandchildren, and even one of the fourth generation. He has a total of 113 desendants.

Sławomir Kołodziej talked about "Siciak extremal function and capacities."

Wiesław Pleśniak's title was "The Bernstein–Walsh–Siciak theorem—a fundamental tool in multivariate polynomial approximation."

4.2.   Symposium in Wrocław, 2019 May 23–26

I was invited by Małgorzata Komarnicka, President of the *Europejskiego Centrum Edukacji Międzykulturowej* (*European Centre of Intercultural Education*), to participate in a symposium in Wrocław, May 23–26. My talk, on May 24, had the title "Lingvoj kaj scienco" (Languages and science).

4.3.   Symposium in Złotoryja, 2019 May 27–30

I was invited to participate in a symposium in Złotoryja, May 27–30 (a continuation of the one in Wrocław). My talk, on May 29, had the title "La kvin artefaritaj lingvoj de Zamenhof" (Zamenhof's five constructed languages).

4.4.   The Annual National Esperanto Congress of Sweden, 2019 May 31 – June 02

I was invited by the organizers of the Annual National Congress of Esperanto held in Stockholm May 31 through June 02, to give a talk on May 31. My title was "La jidogramatiko de Zamenhof kaj lia Lingvo universala" (Zamenhof's Yiddish grammar and his Universal Language); cf. Subsection 1.4.

4.5.   Esperanto Studies, 2019 July 25

During the Conference on Esperanto Studies in Lahti on July 25, I was invited to give a short presentation of the journal *Esperantologio / Esperanto Studies* and what should be important for the future of Esperanto Studies.

4.6.   Science Forum at the World Congress of Esperanto, 2019 July 26

During the World Congress of Esperanto in Lahti, July 20–27, I was invited during the Science Forum on July 26 to give a short presentation of my work on science in Esperanto.

4.7.   Conference on Esperanto Studies and Interlinguistics, 2019 July 27

During the Conference on Esperanto Studies and Interlinguistics (KEI) in Lahti on July 27, I was invited to give a short presentation of my teaching of Esperanto and in Esperanto, about the book *Aliroj al esperanto* (*Approaching Esperanto*), published in 2018, and plans for similar activities in the future.

5.   Organization of meetings

5.1.   *Analysis Day in Memory of Mikael Passare*, Stockholm University, 2019 September 11

A conference to the memory of Mikael Passare (1959–2011) is organized annually by Mats Andersson, Christer Kiselman and Pavel Kurasov (main organizer). The 2019 conference featured four presentations.

6.   2019 Memberships in academies

Royal Academy of Arts and Sciences, Uppsala	1983−date
Royal Society of Sciences, Uppsala	1984−date
International Academy of Sciences, San Marino (AIS)	1984−date
Internacia Scienca Akademio Comenius	1986−date
[Esperanto Academy	1989−2015-12-15]
Royal Swedish Academy of Sciences	1990−date
Polska Akademia Umiejętności (Polish Academy of Arts and Sciences)	2002−date
Confirmed by the President of the Republic of Poland on	2002 July 12
The diploma handed over by the Ambassador of Poland to Sweden, Marek Prawda, on	2003 June 10

7.   2019 Memberships in learned societies

Swedish Astronomical Society (Life member)	1954−date
Swedish Mathematical Society (Life member)	1960s−date
American Mathematical Society (Life member)	1966−date
Société Mathématique de France	1960s−date
European Mathematical Society	1990s−date
Uppsala Humanistiska Förbund (The Uppsala Union for the Humanities)	1990s−date
Scandinavian Society for Iranian Studies (Associate member)	2010−date

8.   Commissions

8.1.   The Austrian Science Fund

I was asked by the *Fonds zur Förderung der wissentschaftlicher Forschung* (FWF, The Austrian Science Fund) to give my opinon on a proposal for a two-year postdoc. Report submitted on 2019 February 25.

8.2.   Dean at the International Academy of Sciences

I was appointed as Dean of the Faculty of Structural Sciences of the International Academy of Sciences on 2017 July 28 and served until 2019 December 31.

9.   Participation in conferences without giving a talk

During 2019, I have participated in five conferences without giving a talk:

9.1. 2019 March 25: Conference in honor of Gilles Bertrand at ESIEE, Paris-Est.

9.2. 2019 March 26–28: *Discrete Geometry for Computer Imagery* (DGCI 21) at ESIEE, Paris-Est.

9.3. 2019 July 08–10: *International Symposium for Mathematical Morphology* (ISMM 14) in Saarbrücken.

9.4. 2019 September 11: *Analysis Day in Memory of Mikael Passare* held at Stockholm University with four lectures. See also Subsection 5.1 above.

9.5. 2019 October 26: Conference on astronomy organized at Stockholm University by the Swedish Astronomical Society.

10.   Visitors

10.1.   Giorgio Silfer and Perla Martinelli

Giorgio Silfer and Perla Martinelli visited me 2019 June 20–23 for discussions on Esperanto.

10.2.   Hélène Serra

Hélène Serra, researcher at Lund University, visited Gunilla Borgefors, Shiva Samieinia and me on 2019 December 15 for discussions on many topics.

11.   Visits

11.1.   Armen Edigarian

2019 February 19: Armen Edigarian, one of five Vice-Rectors at the Jagiellonian University, Kraków, invited me for discussions on mathematics and Polish policy on education and research.

11.2.   Lawrence Gruman and Ahmed Zeriahi

I visited Lawrence Gruman and Ahmed Zeriahi at Université Paul Sabatier in Toulouse for mathematical discussions, 2019 March 21—24.

11.3.   Henri Skoda

I met Henri Skoda, Université Pierre-et-Marie-Curie (Paris VI), on March 28 for discussions on complex analysis and related themes.

11.4.   Jean Serra and Marie-Françoise Colomé-Serra

Jean Serra and Marie-Françoise Colomé-Serra accepted me in Paris on 2019 March 29 for discussions on mathematical morphology and many other subjects.

11.5.   Rahul Gaurav

On 2019 March 30, I met Rahul Gaurav in Paris for discussions on digital geometry, PhD studies and related topics.

11.6.   Hélène Serra

I visited Hélène Serra, researcher at Lund University, Centre for Environmental and Climate Research (CEC), on 2019 November 23 and 24 for discussions on her research projects in ecotoxicology.

12.   Eight current research projects

Of the eight projects mentioned here, five have been reported to the *Vi2 Project Database*—those in which there has been a presentation, a publication or a submission. The other three are under way but with little activity during 2019.

⋆ **Good problems**

> Problems worthy
> of attack
> prove their worth
> by hitting back
> (Piet Hein)

⋆ **An explanation . . . or is it an excuse?**

> The primates are notable by reason of their activity and restlessness, and especially because of their curious concern with what goes on around them.
> (Colbert, Edwin H. 1966, p. 272. *Evolution of the Vertebrates: A History of the Backboned Animals Through Time.* New York, NY: John Wiley & Sons, Inc.)

12.1.   #70. 2019.P1. Complex convexity (reported to *Vi2 Project Database*)

Project manager: Christer Oscar Kiselman.

Project description: A bounded open set with boundary of class C^1 which is locally weakly lineally convex is weakly lineally convex, but, as shown by Yuriĭ Zelinskiĭ, this need not be true for unbounded domains. We construct explicit examples, Hartogs domains, showing this. Their boundary can have regularity $C^{1,1}$ or C^∞.

Obstructions to constructing smoothly bounded domains with certain homogeneity properties are presented.

A current activity is a study of one-sided regularity of subsets of $\mathbf{R}^n$ or $\mathbf{C}^n$. Preliminary results on this kind of regularity were presented at a conference at Stockholm University on 2015 September 16; cf. Subsection 1.7.
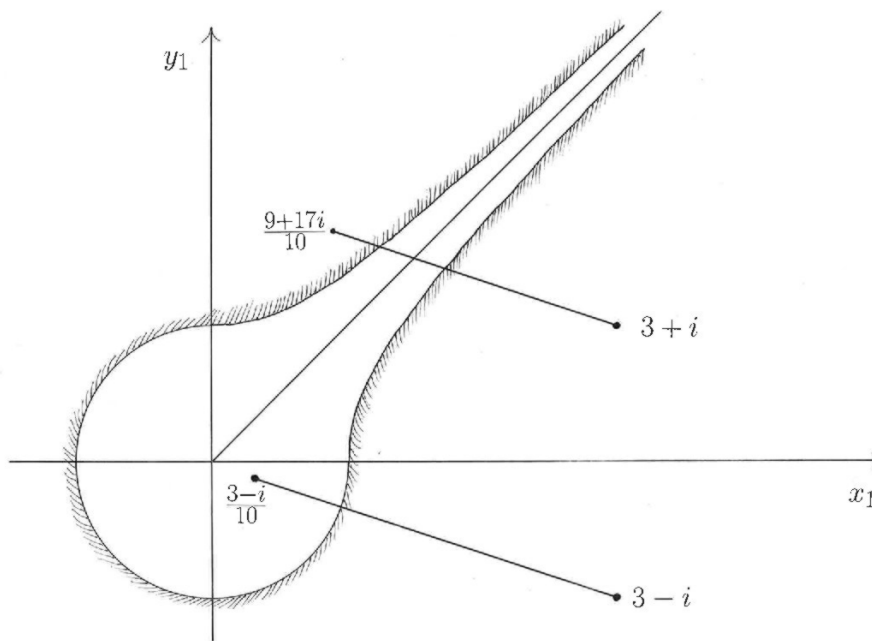
Period: 1967-10-01 — .

Figure 12.1. (Project 12.1.) The base in the complex plane of a locally lineally convex set in $\mathbf{C}^2$ which is not lineally convex (from publication 16-1; courtesy Hania Uscka-Wehlou).

Advisors: Jan Boman, Ragnar Sigurdsson, and Mats Andersson.
Financed by:
  (1). Université de Nice 1967-10-01 — 1968-09-30;
  (2). Uppsala University 1968-10-01 — 2006-04-30;
  (3). Kingdom of Sweden 2006-05-01 — .
Publications: There are several publications in this project; the latest (19-1) appeared online in July 2019; the print version was published in October 2019—see Subsection 1.7 above.

12.2. #196. 2019.P2. Elements of Digital Geometry, Mathematical Morphology, and Discrete Optimization (reported to *Vi2 Project Database*)

Project manager: Christer Oscar Kiselman.
Project description: A book on fundamentals of three related fields of knowledge: digital geometry, mathematical morphology, and discrete optimization.
Partners: Erik Melin, Hania Uscka-Wehlou, Shiva Samieinia, Adama Arouna Koné.
Advisors: Jean Serra, Jesús Angulo.
Period: 2002 — .
Financed by: Christer Oscar Kiselman:
  (1). Uppsala University 2002 — 2006-04-30;
  (2). Kingdom of Sweden 2006-05-01 — .
Hania Uscka-Wehlou:
  (1). Man In The Middle AB (MITM);
  (2). Uppsala University 2017 August 15 — 2019 August 13;
  (3). Mälardalen University 2019 August 14 — .
Shiva Samieinia:
  (1). The Royal Institute of Technology;

    (2). Stockholm University;

    (3). The Ruth and Nils-Erik Stenbäck Foundation.

Adama Arouna Koné:

    (1). International Science Programme (ISP) 2011–2016;

    (2). Université des Sciences, des Techniques et des Technologies de Bamako (USTTB), Bamako I, 2011 — 2018 January 07;

    (3). École Normale d'Enseignement Technique et Professionnel (ENETP), 2018 January 08 — .

Publication: Lecture notes from 2002 (78 pages) and 2004 (95 pages) are available on my web site.

    Lecture notes with the title *Digita geometrio, matematika morfologio kaj diskreta optimumado* (69 pp.) from a course held in Warsaw in September 2017 (18-2). Published in 2018 at the web site of the International Academy of Sciences (AIS).

A book manuscript, comprising xii + 445 pages, is now close to a final state.

12.3. #83. 2018.P3. Existence of continuous right inverses to linear mappings in elementary geometry (not reported to *Vi2 Project Database*)

Project manager: Christer Oscar Kiselman.

Project description: A linear mapping of a compact convex subset of a finite-dimensional vector space always possesses a right inverse, but may lack a continuous right inverse even if the set is smoothly bounded. Examples showing this are given as well as conditions guaranteeing the existence of a continuous right inverse, also for other sets.

Period: 2005-09-08 — .

Partner: Erik Melin; possibly others.

Advisor: Hiroshi Yamaguchi.

Financed by: Christer Oscar Kiselman:

    (1). Uppsala University 2005 — 2006-04-30;

    (2). Kingdom of Sweden 2006-05-01 — .

Erik Melin: Uppsala University 2005–2008.

Publication: A manuscript is in preparation.

12.4. #175. 2019.P4. Convexity of marginal functions in the discrete case (reported to *Vi2 Project Database*)

Project manager: Christer Oscar Kiselman.

Project description: We define, using difference operators, classes of functions defined on the set of points with integer coordinates which are preserved under the formation of marginal functions.

    The duality between classes of functions with certain convexity properties and families of second-order difference operators plays an important role and is explained using notions from mathematical morphology.

    Several generalizations are now being studied.

Period: 2010-01-11 — .

Partner: Shiva Samieinia.

Figure 12.2. (Project 12.4.) Shiva Samieinia.

Financed by: Christer Oscar Kiselman: Kingdom of Sweden.
Shiva Samieinia:
    (1). The Royal Institute of Technology;
    (2). Stockholm University;
    (3). The Ruth and Nils-Erik Stenbäck Foundation.
Publications: An article (10-4), joint with Shiva, was published as a part of her PhD
    thesis. A joint paper (17-5, mentioned in the report for 2017) was published in
    September 2017. Part of the results will be covered by the book manuscript men-
    tioned in Subsection 12.2 above. The paper on duality, mentioned in Subsections
    1.7 and 3.1 above, is also relevant here.

12.5. #79. 2018.P5. Digital hyperplanes (not reported to *Vi2 Project Database*)

Project manager: Christer Oscar Kiselman.
Project description: Digital planes in all dimensions are studied. The general goal is to
    generalize to any dimension the results of Kiselman's 2011 paper in *Mathematika*
    (11-1).
        An important part of the study was finished with Adama Arouna Koné's thesis,
    presented on 2016 January 14. There are, however, several possible generalizations
    which are now being investigated.
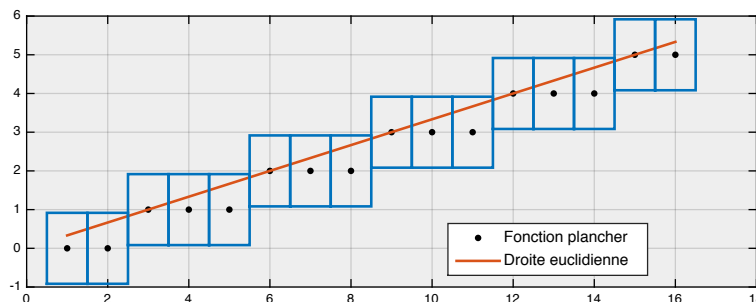*Period:* 2010-01-11 — .

Figure 12.3. (Project 12.5.) Covering the Euclidean straight line of equation
$y = \frac{1}{3}x$ by a dilation obtained using the floor function and with structuring set
equal to the rectangle $[-\frac{1}{2}, \frac{1}{2}] \times [-\frac{5}{6}, \frac{5}{6}]$ (courtesy Adama Arouna Koné).

Partner: Adama Arouna Koné.

Financed by: Christer Oscar Kiselman: Kingdom of Sweden.

Adama Arouna Koné:

  (1). International Science Programme (ISP) 2011–2016;
  (2). Université des Sciences, des Techniques et des Technologies de Bamako
       (USTTB), Bamako I, 2011 — 2018 January 07;
  (3). École Normale d'Enseignement Technique et Professionnel (ENETP),
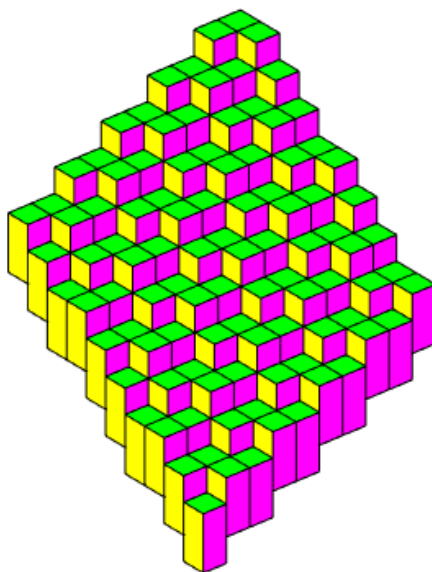   2018 January 08 — .

Figure 12.4. (Project 12.5.) Covering a Euclidean plane by a dilation, using the floor function and with structuring set equal to the box $[-\frac{1}{2}, \frac{1}{2}] \times [-\frac{1}{2}, \frac{1}{2}] \times [-\frac{9}{8}, \frac{9}{8}]$ (courtesy Adama Arouna Koné).

Publications:

Koné, Adama Arouna. 2016. *Géométrie digitale utilisée pour la discrétisation et le recouvrement optimal des objets euclidiens.* PhD Thesis, 114 pages. Bamako: Université des Sciences, des Techniques et des Technologies de Bamako I (USTTB).

Koné, Adama Arouna. 2017. Covering a Euclidean line or hyperplane by dilations of its discretization. *Vietnam J. Math.* **45**, no. 3, 351–368.

Part of this project will be covered by the book manuscript mentioned in Subsection 12.2.

Figure 12.5. (Project 12.5.) Adama Arouna Koné.

12.6.   #84. 2019.P6. Discrete convolution equations
(reported to *Vi2 Project Database*)

Project manager: Christer Oscar Kiselman.

Project description: We study solvability of convolution equations for functions with discrete support in $\mathbf{R}^n$, a special case being functions with support in the integer points. The more general case is of interest for several grids in Euclidean space, like the body-centered and face-centered tesselations of three-space, as well as for the non-periodic grids that appear in the study of quasicrystals. The theorem of existence of fundamental solutions by de Boor, Höllig & Riemenschneider is generalized to general discrete supports, using only elementary methods. We also study the asymptotic growth of sequences and arrays using the Fenchel transformation. Estimates using the Fourier transformation are studied.

Now duality of convolution operators is being investigated.

Advisors: Jan Boman, Ragnar Sigurdsson.

Period: 2012-01-11 — .

Financed by: Kingdom of Sweden.

Publications: A paper was published on 2015 May 07 in *Mathematika* (15-2). A second paper appeared in 2017 (17-2); see the report for 2017.

A study of quasicrystals is part of this project. So is the paper on duality mentioned in Subsections 1.7 and 3.1. Part of this project will be covered in the book manuscript mentioned in Subsection 12.2.

12.7.   #75. 2019.P7. Zamenhof's Yiddish grammar
(reported to *Vi2 Project Database*)

Project manager: Christer Oscar Kiselman.

Project description: Zamenhof wrote a Yiddish grammar (in Russian) around 1880. It was published in full only in 1982. A study of this grammar has been undertaken. In particular, a comparison with his language project *Universal Language* from about the same time is of interest.

Figure 12.6. (Project 12.7.) Л. Заменгофъ, L. Zamenhof (1859–1917) around 1879.

Presentations:

- 2016 July 29 at a conference in Nitra: "La jidogramatiko de Zamenhof kaj lia Lingvo universala."
- 2017 November 19 at the *Limmud* conference in Stockholm: "Zamenhofs jiddischgrammatika och hans språk Lingvo universala."
- 2017 December 13 at the conference *The Heritage and Legacy of Ludwik Lejzer Zamenhof Between Judaism and Esperanto* at *Muzeum Historii Żydów Polskich POLIN* (The Museum of the History of the Polish Jews, Polin), in Warsaw, 2017 December 13–15. Title: "Zamenhof's Yiddish grammar and his Universal Language."
- 2018 February 28 at Uppsala University, Forum for Jewish Studies: "Zamenhof's Yiddish grammar and his five constructed languages." Invited by Lars M. Andersson.
- 2019 May 29 at *Zespół Szkół Ogólnokształcących w Złotoryi*, a public school in Złotoryja, "La kvin artefaritaj lingvoj de Zamenhof" (Zamenhof's five constructed languages). Invited by Małgorzata Komarnicka and Aleksander Pecyna.
- 2019 May 31. I was invited by the organizers of the Annual National Congress of Esperanto held in Stockholm May 31 through June 02, to give a talk on May 31. My title was "La jidogramatiko de Zamenhof kaj lia Lingvo universala" (Zamenhof's Yiddish grammar and his Universal Language).

Publications: An article was published in November 2016 (16-b), and a short paper appeared in 2019 (19-b), mentioned in Subsection 1.4.

   Two new manuscripts are ready, each of about 80 pages, one in English and one in Esperanto. The ms in English was submitted for possible publication on 2019 December 13; see Subsection 3.2.

Period: 2015-08-01 — .

Financed by: Kingdom of Sweden.

12.8.   #80. 2018.P8. Mathematical concepts and their linguistic expression in a multicultural setting (not reported to *Vi2 Project Database*)

Project manager: Hania Uscka-Wehlou (Figure 12.7).

Figure 12.7. Hania Uscka-Wehlou.

Partners: Christer Oscar Kiselman, Adama Arouna Koné (Figure 12.5).

Advisors: Lars Mouwitz, Fanja Rakontondrajao, Amites Rasho, Shiva Samieinia (Figure 12.2), Xiaoqin Wang.

Project description: To study the relation between mathematical concepts and their expression in several languages. Special attention is devoted to the use of non-native languages.

Project description in more detail: The languages of interest here are Swedish as the main language in Sweden, and all other languages that are used in schools in Sweden. Since the project manager's native language is Polish and since she has perfect command also of Dutch and Swedish, it is natural that these languages come into focus. There are many students and teachers in Swedish schools with Polish as their first language. Persian, Arabic, and Kurdish are also present in Swedish schools, and the group possesses, in its advisors, competence also in those languages.

However, other languages that are not common here can be of interest, among them Bamanankan and Malagasy. In Madagascar, the language in higher education is French, but the students' first language is usually Malagasy, a language of the Malayo-Polynesian branch of the Austronesian language family, with some 18 million native speakers. Fanja Rakotondrajao is very active in the creation of mathematical terms in Malagasy. As a small example, she has created the word *tampaha* for fractal, the concept introduced and popularized by Benoît B. Mandelbrot (1924–2010), and this term has been widely accepted in Madagascar. I received a research grant from the Royal Academy of Arts and Sciences for a visit by Fanja to Uppsala, which took place in February 2018.

The creation of scientific terms, which has a rich history and is still going on in many languages, proceeds along two distinct avenues. One is the method of etymological translation, where a term (in Classical Greek, Latin, or other languages with a strongly developed terminology) is analyzed in its components and the components are translated. Typical examples are the Dutch *sterrenkunde* and the Icelandic *stjörnufræði*, which both mean 'astronomy' (*fræði* means 'science'). When this does not work, the other method comes into focus: the phonetical translation, yielding terms like *algebra* and *geometri* in Swedish, *aljebra* and *jeometria* in Malagasy—in contrast to the Dutch and Icelandic *meetkunde* and *flatarmálafræði*, which both mean 'geometry' (*to meten* means 'to measure'; *flatarmál* means 'sur-

face'), and are created according to the first-mentioned method of etymological translation.

The current work with Malagasy terminology illustrates basic principles in mathematical language policy and is therefore a valuable help in illustrating quite general problems, problems present in Swedish and many other languages.

Period: 2016-04-01 — .

Financed by:

Hania Uscka-Wehlou:

   (1). Man In The Middle AB (MITM);
   (2). Uppsala University 2017 August 15 — 2019 August 13;
   (3). Mälardalen University 2019 August 14 — .

Christer Oscar Kiselman: Kingdom of Sweden.

Adama Arouna Koné:

   (1). Université des Sciences, des Techniques et des Technologies de Bamako
          (USTTB), Bamako I, 2016 — 2018 January 07;
   (2). École Normale d'Enseignement Technique et Professionnel (ENETP),
          2018 January 08 — .

Presentations: Hania Uscka-Wehlou has given five presentations related to this project, of which two were given in 2018. See the report for 2018.

13.   Completed research projects

For some research projects finished earlier, see the reports for 2015 through 2018.

14.   Eight referee reports

2019.R1. *Annales Polonici Mathematici*

Slawomir Kołodziej asks about a submitted manuscript. Received 2019 January 28; referee report sent 2019 February 28.

2019.R2. *Journal of Mathematical Imaging and Vision*

David Coeurjolly asks about a submitted manuscript. Received here 2019 February 04; referee report sent 2019 March 04.

2019.R3. *Annales Polonici Mathematici*

A second report, sent 2019 April 04, on manuscript 2019.R1 mentioned above.

2019.R4. *Annales Polonici Mathematici*

A new version, received 2019 April 08, of manuscript 2019.R1 mentioned above. Third report sent 2019 April 15.

2019.R5. *Journal of Mathematical Imaging and Vision*

David Coeurjolly asks about a revised version of the manuscript mentioned in 2019.R2 above. Received here 2019 May 21; referee report sent 2019 June 17.

2019.R6. *Annales Polonici Mathematici*

A revised version, received 2019 July 02, of manuscript 2019.R1 mentioned above. Fourth report sent 2019 July 17.

2019.R7. *Proceedings of the Japan Conference on Discrete and Computational Geometry, Graphs and Games* (CDG³ 2018)

Regionaldo Marcelo asks about a submitted manuscript. Received 2019 July 05. Referee report sent 2019 August 29.

2019.R8. *SIAM Journal of Imaging Sciences*

Alex Bronstein asks about a submitted manuscript. Received 2019 September 20. Referee report sent 2019 October 08.

15.   Objects with the name of Kiselman

The largest known material object with the name of Kiselman is the asteroid with number 12673, officially named for my eldest son Dan Samuel Kiselman. Its estimated diameter is 7.837 km. A Euclidean ball of that diameter has a volume of some 252 billion cubic meters, but the gravity on Kiselman is much too small to force the material to form a ball. Whatever the shape may be, Kiselman 12673 is certainly much larger than the roundabout Kiselman in Uppsala, at the intersection of Dag Hammarskjölds väg and Regementsvägen, inofficially named so for my efforts during my time as dean to get a roundabout built there. However, there are also some non-material objects, to be described below.

15.1.   Kiselman's minimum principle

In my paper in *Inventiones Mathematicae* in 1978, item 78-1 in my web site, I proved a result on convexity of marginal functions of plurisubharmonic functions. It became known as "Kiselman's minimum principle" and has since been used in many situations and referred to by that name. The name appears in the following titles of published articles.

Berndtsson, Bo. 1998. Prekopa's theorem and Kiselman's minimum principle for plurisubharmonic functions. *Math. Ann.* **312**, no. 4, 785–792.

Darvas, Tamás; Rubinstein, Yanir A. 2016. Kiselman's principle, the Dirichlet problem for the Monge-Ampère equation, and rooftop obstacle problems. *J. Math. Soc. Japan* **68**, no. 2, 773–796.

Deng, Fusheng; Wang, Zhiwei; Zhang, Liyou; Zhou, Xiangyu. 2019. A new proof of Kiselman's minimum principle for plurisubharmonic functions. *C. R. Math. Acad. Sci. Paris* **357**, no. 4, 345–348.

15.2.   Kiselman's semigroup

In my paper in the *Transactions of the American Mathematical Society* in 2002, item 02-1 in my web site, I studied a semigroup of order eighteen with three generators,

which later became known as "Kiselman's semigroup" or "Kiselman's monoid." Generalizations to any number of generators are easily done, which explains the plural in the title of seven of the following nine articles.

The name can appear in the text of a publication or even in its title without being mentioned in the bibliography—for an example, see the paper by Mȩcel & Okniński (2019a) below. In those cases it will be missing in bibliometric analyses, which lists references but not names in titles, and I will not receive any points in the race.

Kudryavtseva, Ganna; Mazorchuk, Volodymyr. 2009. On Kiselman's semigroup. *Yokohama Math. J.* **55**, no. 1, 21–46.

Ganyushkin, Olexandr; Mazorchuk, Volodymyr. 2011. On Kiselman quotients of 0-Hecke monoids. *Int. Electron. J. Algebra* **10**, 174–191.

Aragona, Riccardo; D'Andrea, Alessandro. 2013. Hecke-Kiselman monoids of small cardinality. *Semigroup Forum* **86**, no. 1, 32–40.

Ashikhmin, D. N.; Volkov, M. V.; Zhang, Wen Ting. 2015. The finite basis problem for Kiselman monoids. *Demonstr. Math.* **48**, no. 4, 475–492.

Collina, Elena; D'Andrea, Alessandro. 2015. A graph-dynamical interpretation of Kiselman's semigroups. *J. Algebraic Combin.* **41**, no. 4, 1115–1132.

Grensing, Anna-Louise. 2016. Monoid algebras of projection functors. *Journal of Algebra*, **369**, 16–41. [This paper does not quote any paper by me, but has *Hecke–Kiselman semigroup* as a keyword and refers to Ganyushkin & Mazorchuk (2011) and Kudryavtseva & Mazorchuk (2009) that mention me in their titles.]

Forsberg, Love. 2017. Effective representations of Hecke-Kiselman monoids of type A. *arXiv:1205.0676*.

Mȩcel, Arkadiusz; Okniński, Jan. 2019a. Growth alternative for Hecke–Kiselman monoids. *Publicacions Matematiques* **63**, no. 1, 219–240. [Does not mention any paper by me in the list of references, although the name Kiselman appears in the title.]

Mȩcel, Arkadiusz; Okniński, Jan. 2019b. Gröbner basis and the automaton property of Hecke-Kiselman algebras. *Semigroup Forum* **99**, no. 2, 447–464.

So the name appears in eight titles, but in *MathSciNet* only two citations from references and two from reviews of my original publication from 2002 are listed.

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