

Vladimir Uspensky

Highlights

A. Family History

Ithaca, April 20, 1990 (00:00-4:18)

E. D. Volodya¹ – please allow me may call you so, as in the old days – let us recall everything from the very beginning. Your friends, whom I interviewed before you, usually started with their ancestry. So let us start there as well. What do you know about your ancestors?

V. U. I don't know any of my ancestors beyond my grandparents.

E. D. Did your grandparents belong to the working class?

V. U. Not quite. My grandfather on my father's side was a veterinary doctor, while his father, that is my grandfather (his name was Vasili Dmitrievich), was a village sacristan or something of that sort.

E. D. In fact, your last name seems to suggest a religious background.²

V. U. Yes, it does. On my grandfather's side my ancestors belonged to the lower levels of the church hierarchy. By contrast, my grandmother's family on my father's side boasted a number of clergymen higher up on the ecclesiastical ladder. Their last name was Vinogradov.

E. D. Aren't they relatives of the famous Vinogradov³ by any chance?

V. U. I doubt that.

E. D. The name is quite common.

V. U. Somebody once explained to me that in the past, when seminary students finished their studies, they were given last names (as a rule these students were of humble origins and had no last names) depending on the level of their academic success. The better

¹ Diminutive of Vladimir.

² Uspensky – from *uspenie*, “dormition”, an event that the Roman Catholic Church commonly refers to as the Assumption of Mary.

³ http://en.wikipedia.org/wiki/Ivan_Matveyevich_Vinogradov

students were named Preobrazhensky,⁴ Archangelsky⁵ etc. Those who were less successful were named after various types of fruit: Vinogradov,⁶ Yablokov,⁷ Grushin⁸ etc. They were also given last names that derived from the names of birds: Drozdov,⁹ Skvocov¹⁰ etc.

My family on my mother's side wasn't working class either. My grandfather was an electrical engineer.

E. D. And what can you tell about your parents?

V. U. What can I tell about my parents?

E. D. This, I assume, you must know.

V. U. Yes, I do. What can I tell you about them? They got married quite early. My grandfather was a veterinary doctor and the head of the vet clinic in Kislovodsk. He was a very important person in town. Kislovodsk was a resort town with a lot of horse-cabs, and he took care of sick horses. So when he passed away and my grandmother had to support herself on her own, she opened a guest house offering lodging and board. My mother and her parents happened to stay there. The son of the landlady, my father, made quite an impression on her because he was completely bald, was wearing a *kosovorotka*,¹¹ was walking around barefoot and reading a self-help manual on how to play the accordion. Being raised in an intelligentsia family, my mother hadn't seen anything like that and was very much impressed. After twenty days they eloped somewhere and got married. My grandmother sent them a telegram containing the following words: "Outraged. Mother."

E. D. (*Laughs*).

V. U. Despite their young age, their marriage proved to be long-lasting. They had two kids, me and my younger brother.

E. D. What does he do for a living?

V. U. He is a philologist.

E. D. I've never heard of him.

⁴ From *preobrazheniye* (lit. "transfiguration").

⁵ Self-explanatory.

⁶ From *vinograd* ("grape").

⁷ From *yabloko* ("apple").

⁸ From *grusha* ("pear").

⁹ From *drozd* ("thrush").

¹⁰ From *skvorec* ("starling").

¹¹ A traditional Russian shirt (<http://en.wikipedia.org/wiki/Kosovorotka>).

V. U. Unlike me, he is very famous. He is a well-known specialist in the history of the Russian language.¹²

B. First Steps in Mathematics

Ithaca, April 20, 1990 (5:29-6:03)

E. D. How did you get involved in my math circle?

V. U. I developed an interest in math on my own, before I joined the circle. I don't know what the source of this interest was. I know I already had it before the war when I was in the 3rd grade. I remember how during the war I used to haunt the bookstores of Novosibirsk buying math books with my lunch money. My main criterion for buying a book was the degree of sophistication in the title. It was simply impossible for me not to purchase a book with a title like *The Theory of Determinants*. The first book I read was the popular book (which I now realize is quite mediocre) by Okunev, entitled *Complex Numbers* or something of that sort.

E. D. Yes, I know this book.

Vvedenskaya's Party

(Attended by Eugene Dynkin, Vladimir Uspensky, Nikita Vvedenskaya, Fridrikh Karpelevich, Alexander Yushkevich, Robert Minlos, Roland Dobrushin)¹³

(Part 1, 36:00-42:16; Part 2, 00:00-12:00 and 26:00-31:01)

E. D. Tell us how did you join my math circle?

V. U. I met you for the first time in the spring of 1945. I saw posters announcing that a mathematical Olympiad was taking place at the University (the old building of course) and that various fascinating bi-weekly lectures were offered on Sundays for the duration of the Olympiad. I attended one of these lectures. It was the end of the academic year, and

¹² http://en.wikipedia.org/wiki/Boris_Uspensky

¹³ Interviews Nikita Vvedenskaya, Fridrikh Karpelevich, Alexander Yushkevich, Robert Minlos, and Roland Dobrushin are a part of this collection.

therefore I am not entirely sure if your circle was still running. Anyhow, after the lecture representatives of different circles, including you, took the stage.

E. D. With their recruitment ads, of course.

V. U. Yes. I don't remember whether you were recruiting students for this year or for the following one. I don't remember exactly what the schedule of the circle activities for the spring of that year was. I do remember, however, that I met Zhenya.¹⁴ There were also other recruiters.

E. D. Yagloms¹⁵ were most likely there as well.

V. U. Perhaps, but I don't recall anyone except you. I know I sound like a sycophant.

E. D. (*Laughs*).

V. U. At any rate, in the fall of 1945 I came to your circle and attended it throughout the 8th grade. I skipped the 9th grade and went straight to the 10th because you told me to do so. Apparently, you wanted me to get into Mekhmat as soon as possible. Later, while in Mekhmat, I attended your seminar, and then you transferred me to Kolmogorov. I think it is an act of strong will to transfer one's student to someone else.

E. D. I could not force you to work with me, could I? (*Laughs*).

V. U. What do you mean force? I didn't even know Kolmogorov at that time. Zhenya produced a very strong impression on me. I don't think that anyone exerted greater mathematical influence on me than him. I think that Kolmogorov's influence was equal to his. Moreover, I must say that I didn't like anyone as much as I liked Zhenya. As a teenager, I loved him with all my heart and idolized him. I am no longer a teenager, and my affection is not quite as strong these days. (*Everyone laughs*).

N. V. I can confirm that.

V. U. And Nikita is confirming that. These are the two points that I want to emphasize. First, nobody exerted a stronger mathematical influence on me than Zhenya. Second, I didn't love anyone more than I loved him.

As I said earlier, he assisted me in skipping the 9th grade. It's real pity I hadn't met him in the 1st grade. (*Everyone laughs*). It would have been much easier to skip the 2nd grade. The 9th grade proved to be very difficult for me, but this is a separate story. I will

¹⁴ Diminutive of Eugene.

¹⁵ Interview with A. Yaglom is part of this collection.

only say that it burned me out so much that I got close to being left in the 10th grade for another year.

I also remember how I brought a letter to *RONO*¹⁶ signed by Professor-Doctor Bakhvalov¹⁷ and Professor-Doctor Lusternik.¹⁸ The title “Professor-Doctor” sounded extremely impressive to me. The letter was typed up on some lousy typewriter and certified with the seal of the Mathematical Society. Despite its shabby appearance the letter produced the desired effect. It was unusual in those Stalin times to skip a grade in school. What do you mean you want to skip a grade? If you are required to study 10 years, that’s what you must do.

Another thing is that Zhenya helped me to publish my first academic paper. It is an interesting coincidence that today I came across an offprint of this paper while sorting through my stuff. I wasn’t looking for it on purpose. I opened one of the old boxes and discovered it. The title is “Geometric Deduction of Basic Properties of Harmonic Functions.”¹⁹ Even Karpelevich remembers it. I wrote the paper under Zhenya’s guidance while in my first year in Mekhmat. I remember he told me to write a draft, and I wrote one in a very formal style with a lot of definitions and notations. The style was incredibly pretentious, and I was thoroughly disappointed and amazed when Zhenya told me that I had to rewrite the paper from scratch. The end result was, however, quite good. It was characteristic of his teaching style to assign a series of problems solving which could naturally result in a publication of an article.

I want to say that it was a grand gesture on Zhenya’s part to hand me over to Kolmogorov.

E. D. You already mentioned that, but never mind, go ahead.

¹⁶ “*Raionnyi Otdel Narodnogo Obrazovaniia*” (i.e. District Department of People’s Education). *RONO* was the lowest level unit of educational administration in the USSR. Above it were the city, regional, and provincial education departments. The main functions of *RONO* had to do with the preparation of school budgets, estimating enrollment and volume of school facilities needed, and making sure that individual schools and teachers conform to the directives of the Ministry of Education.

¹⁷ Bakhvalov Sergei Vladimirovich (1898-1963), professor of the Moscow State University ([http://ru.wikipedia.org/wiki/ Бахвалов,_Сергей_Владимирович](http://ru.wikipedia.org/wiki/Бахвалов,_Сергей_Владимирович)).

¹⁸http://www.computer-museum.ru/english/galglory_en/Lusternik.htm

¹⁹ *Uspekhi Mat. Nauk*, 1949, Volume 4, Issue 2(30), Pages 201–205 (<http://www.mathnet.ru/links/a5e1577247133bfc7299f78730461945/rm8612.pdf>).

V. U. This was done in a very elegant way. First, he told Kolmogorov about me. I learned about that when I talked to Kolmogorov during the break in one of his lectures which I attended in my second or third year. He asked me who I was. When I said “Uspensky”, he said: “So you are that famous Uspensky of Dynkin.” I was pleasantly surprised. It meant that not only I was commanded to go to Kolmogorov, but Kolmogorov himself was given instructions to accept me as his student. Shortly after, Kolmogorov invited me to his house in Komarovka²⁰ and officially proclaimed me as his student.

E. D. Tell us more about the circle. Who else was in it?

V. U. I don’t remember other participants very well. I can name with certainty Karpelevich.

E. D. He joined later.

F. K. Yes, I joined later. You attended the circle for the previous year when I joined it. I was there for only one year.

V. U. Correct. I attended it in the 8th and in the 10th grade, 1945-6 and 1946-7. During the sessions of the circle I gave my full attention to Zhenya Dynkin, and this is why I don’t remember other participants. I remember the following people: Karpelevich, Rozenknop, Balash.

E. D. Yes, Balash appeared later, and I think he didn’t attend all our sessions.

V. U. I remember well Rozenknop and Karpelevich.

F. K. There were also Probst, Kolya Korst, and Yura Boldakov.

E. D. Alik Yushkevich too. Somebody told me that Gelman was there too.

A. Yu. Alik Berezin too. Gelman, Berezin, and Korst were in the same class in school.

E. D. And Bob Minlos was there too.

V. U. Didn’t you have a notebook with the records of the circle? Where is it?

E. D. I used to have it. I don’t think I took it with me to the US. I probably left it to someone. You know, a lot of my archives find their way back to me these days.

²⁰ This house and activities that took place in it are discussed in Shiryaev’s “Biographical Sketch” in a collection of essays entitled *Kolmogorov in Perspective* published by the American Mathematical Society in 2000. [Some photographs of the interior can be found on this web site.]

F. K. Didn't Kolya Chentsov²¹ attend too?

E. D. Yes, Kolya Chentsov attended when he was in the 10th grade.

V. U. True, but this was later.

N. V. Kolya Chentsov couldn't join us today. He said he had some construction project at his summer house.

V. U. I didn't mention Kolya Chentsov not because I don't remember him but because I knew him even before I joined the circle. So I have a separate place reserved for him.

The circle was very well organized. Everything was documented in a very meticulous manner.

E. D. Yes, I recorded in my notebook the problems that I assigned and on the margins I recorded the names of people who solved them.

A.Yu. Agranovich²² attended too.

E. D. Yes.

V. U. Agranovich, yes. Anyhow, it was a sheer pleasure to attend your circle.

E. D. It was an enormous pleasure for me as well. It was my last year as an undergraduate and the first year as a graduate student. It used to take me one full day to prepare for each session.

F. K. And to clarify things a bit, we must add that after our sessions were over some people stayed overtime and in effect the session continued.

V. U. I also was extremely lucky in that Zhenya used to live on Pravda Street; well, to be more precise on Leningradsky Road, behind the Belorussian train station. If you took a trolley, you had to get off on Pravda Street. I lived on Novoslaboskaya Street. In other words, I was the only person who lived in roughly the same neighborhood as Zhenya. Therefore, I also had the distinct privilege of going home together with him. When our sessions were over, we lingered in the auditorium for a while. Then the whole crowd would leave the building, and as we walked the crowd would start to dissipate. We would walk to the National Hotel, then to the Moscow Hotel. At this point Rozenknop would usually get a little uneasy. You see, there was a post or a garbage bin there. If we passed this landmark, it

²¹ Chentsov, Nikolai Nikolaevich (1930-1992), http://ru.wikipedia.org/wiki/Ченцов,_Николай_Николаевич

²² http://en.wikipedia.org/wiki/Mikhail_Semenovich_Agranovich

was faster for him to get home on foot. But if not, he could still dive into the subway station and take the train to Novokuznetskaya station.

E. D. This sounds fictional to me.

V. U. Not at all. This is a true story. Then Zhenya and I would get on the trolley. At the time the price of the ticket was commensurate to the distance of the trip. So I used to buy a ticket to the Belorussian Train Station, whereas Zhenya went a few stops further. One time we were so engrossed in our conversation that missed my stop and I stayed with him all the way to his stop. As we were about to get off, a ticket inspector entered the trolley. Zhenya made a grand gesture by paying the fine on my behalf, but he could hardly conceal his exasperation as he said to the ticket inspector: "Can I get my change faster please." I remember he handed to the inspector a very large banknote. [*Everyone laughs*].

E. D. I think you are inventing this stuff. I don't remember anything of the sort. [*Laughs*].

V. U. I was very honored and happy to take a trolley with Zhenya after the sessions of the circle. Another privilege that he conferred upon me was his offer to write together a book containing problems and materials that we covered in the circle. I was still a student, and I am not sure why he offered me to be his co-author. After all, I was more of a nuisance than assistance. He had to rewrite and edit all of my texts. He had to teach me how to write. Obviously he wrote his texts on his own. I don't know if he relied on his earlier drafts, but it goes without saying that I didn't criticize what he wrote.

E. D. Please do not exaggerate. If I remember correctly, the first part was written almost exclusively by me (the section on colors and so on), whereas you wrote the sections on the Fibonacci series and probability theory.

V. U. I don't remember. What I do remember is that I learned how to write in the process of writing. Zhenya wrote the section on colors, whereas I wrote solutions for this section. But as I was writing these solutions I was gradually learning how to write the main text. Thus, when there was a need for a supplement to the section on colors, I wrote it myself. By that time I learned how to write. And so when we got to probability theory ...

E. D. I think that you wrote the section on probability theory entirely on your own. I only edited it.

V. U. It was a huge learning curve for me. I don't know if I would have been able to write my own books without it.

E. D. I am sure you would have written them just fine. [*Laughs*]. But you are right, as a matter of fact there is such a teaching method, i.e. to teach writing by assigning to write supplementary materials.

V. U. Later in my life I wrote a number of books aimed at a popular readership. It is a distinct genre.

E. D. Yes, it is a distinct art form.

V. U. I would never have mastered this genre without having this experience.

E. D. You are exaggerating again. Just tell us plain facts. Don't worry about praising me. I will find a way to do that myself. [*Laughs*].

V. U. Alright, but when I am trying to present facts, like the story about the ticket inspector, you are saying: "Nonsense, I don't remember that at all." [*Laughs*]. When I am telling you that Rozenknop was afraid to walk with us beyond a certain point, you are saying: "This is fiction."

E. D. [*Laughs*].

F. K. I also remember that very often after our sessions we would walk with Zhenya along Gorky Street, all the way to the Belorussian Train Station.

V. U. No, this happened later, when we took his seminar in the University. I took this seminar in my first and second year. I left the seminar when I started working with Kolmogorov. At this point the focus of the seminar shifted to specific research areas. There was a big event at the end of my second year, in the spring of 1949. Your birthday is on May 12th, right?

E. D. 11th.

V. U. This was when I first met Nikita. It was at Dynkin's 25th anniversary. It was a huge event for us. Back then we thought of being 25 years old as we now would think of being 185 years old. [*Everyone laughs*]. We were discussing what to buy for him as a present. I don't remember what we bought, but I remember that I wrote a poem for him.

E. D. It was very nice of you.

V. U. And here it is:²³

On the day of Zhenya's 25th anniversary

On the last day of our sessions

This was spring, the end of our seminar.

I am so happy to bring you these salutations

To you, O repository of all talents!

[*Everyone laughs*].

We know that a sign of unrivaled genius

Marks the brow of our dear Evgeni,

Of our beloved Evgeni Borisovich,

May he nurture many thousands of Dynkinites!

[*Everyone laughs*]

E. D. I completely forgot about this poem, but now I am recalling the last line.

V. U. Zhenya's reaction to this poem wasn't as kind at the time. He listened to the poem silently, but after a few days he approached me and said: "So it was you who recently slipped into my mailbox an anonymous poem that pokes fun at my last name."²⁴ I was flabbergasted. I had no idea who could have possibly done that.

E. D. By the way this still remains a mystery to me.

V. U. I thought to myself: "Is this the reward I get for my literary efforts?!" [*Everyone laughs*].

E. D. After the first batch of my math circle students were admitted into the university, I asked to be relieved from my duties as the circle leader and requested that Volodya Uspensky be appointed in my place.

V. U. So far I have been talking about Zhenya strictly in superlative terms. One awful thing that he must be held accountable for is that he contributed toward the demise of the math circles that we witness even today. This demise began when he put me in charge of his circle. I had Rozenknop and Balash as my assistants. It bears mentioning that all circles, not only his, were run in an authoritarian manner. There were three leaders but they were not equal. One of them had more authority than the other two.

²³ This is a prose translation. It does not aim to reproduce the literary qualities of the original.

²⁴ Dynkin ~ *dynya* ("melon").

E. D. I had Godunov²⁵ and Soloviev as my assistants.

R. M. I was just about to say that. You have forestalled me.

E. D. [*Laughs*].

V. U. Yes, Godunov²⁶ and Soloviev. So I was appointed the leader of the circle with Balash and Rozenknop as my assistants. Why was it a problem? Because it was the first time that freshmen were appointed to run a math circle. This had never happened before. Zhenya himself was a graduate student. Sometimes fifth year students served as leaders, and only on extremely rare occasions third years were allowed to serve as assistants.

E. D. Godunov and Soloviev were second years.

F. K. They were freshmen, a year older than we.

V. U. Alright, I concede the point. But it was unthinkable to have a freshman as the leader of the circle. This was a precedent setting decision.

E. D. And you're saying this practice continued?

V. U. Of course it did. There was nothing good about it, although there were a few people in my circle who later rose to prominence ...

E. D. ... as mathematicians.

V. U. Not only as mathematicians but physicists as well. Take for example Leonid Veniaminovich Keldysh,²⁷ member of the Academy of Sciences, the son of Lyudmila Vsevolodovna²⁸ but not of Pyotr Sergeevich.²⁹ I once met him many years after and asked him if he remembered that. He said he did.

E. D. That's a pleasant recollection.

V. U. He was a very strong student. I even remember the kinds of problems that he was capable of solving.

R. D. Later he became the director of the Lebedev Physics Institute,³⁰ didn't he?

V. U. I have no idea.

N. V. Yes, he did.

²⁵ http://en.wikipedia.org/wiki/Sergei_K_Godunov

²⁶ http://en.wikipedia.org/wiki/Sergei_K_Godunov

²⁷ <http://physics.tamu.edu/directory/showpeople.php?name=Leonid%20Keldysh&userid=keldysh>

²⁸ http://www-history.mcs.st-andrews.ac.uk/Biographies/Keldysh_Lyudmila.html

²⁹ http://en.wikipedia.org/wiki/Pyotr_Novikov

³⁰ http://en.wikipedia.org/wiki/Lebedev_Physical_Institute

V. U. I do not follow his career.

N. V. He ousted Basov from this position.

E. D. You see, one could say you played a very positive role in history.

V. U. Another problem was that I inherited Zhenya's circle with all its students. But the circle was attended by both 10th and 9th graders. The 10th graders –Balash, Karpelevich, and I – became freshmen at the MSU, while the former 9th graders became 10th graders who continued to attend Dynkin's circle. Imagine how surprised and perplexed they were to discover that their former peers were now running Dynkin's circle. Some of them dropped out.

C. Kolmogorov's Illness

Ithaca, April 20, 1990 (14:30-21:15)

E. D. Tell me a little bit about Kolmogorov. He is a truly historical figure. He is not with us anymore, and even people who knew him have started to pass away.

V. U. What can I tell you? I don't even know.

E. D. Maybe some details of your interaction with him? It doesn't have to be in a chronological order. You showed me his last pictures.

V. U. From his funeral.

E. D. Yes.

V. U. Knowing him was one of the most memorable episodes of my life, as it is for pretty much anyone who encountered him. But his last years were very tragic because Kolmogorov was an exceptionally active person. He had Parkinson's, but the disease didn't manifest itself in tremor. There are two types of Parkinson's: one that manifests itself in tremor and one that manifests itself in stupor. He had the second type. His reaction time was significantly delayed.

E. D. His brain was seriously damaged, right?

V. U. Evidently so. But I remember very well that on the 4th or the 5th of November of 1980 it became clear that he had Parkinson's. Yet it was absolutely unclear how this condition was to be treated. The most difficult thing, however, was the lack of proper management. There were a lot of good doctors around, and every single one of them was

willing to help. But it wasn't a matter of finding an expert. It was a matter of finding someone who would take full responsibility for developing a treatment strategy, including questions that are not medical. For example, a decision to hospitalize or not is not a purely medical decision. I would draw an analogy with the US Department of Defense which is normally run by a civilian. In much the same way the person in charge of developing a treatment strategy does not necessarily have to be a medical professional. Kolmogorov's wife didn't qualify for this role. She was old and not without her own oddities. For her the highest authority was a doctor at the hospital of the Academy of Sciences [who was much like a regular district doctor, but only worse because the hospital of the Academy of Sciences is a terrible place].

I decided to take matters into my own hands. Dobrushin once very aptly observed that he who has no moral strength to divest himself of responsibility is the one who acts. I had no moral strength to divest myself of responsibility. I opened the *Great Soviet Encyclopedia*, 3rd edition, and looked up the author of the entry on Parkinson's. The entry was written by Edward Izrailevich Kandel.³¹ I called him, explained the situation, and brought him to Kolmogorov's place, or, to be precise, he brought me there in his car. He was very surprised that I didn't have a car. His apartment in Moscow was roughly the size of your house here in Ithaca. It was clear that he was very well-off. He didn't charge us any fee, and we didn't know how to thank him. We should have bought him a vase or something like that. So I brought him to Kolmogorov's place. He asked Kolmogorov: "Andrey Nikolaevich, what are your complaints? What ails you?" Kolmogorov was still in good shape. He could still walk and speak, and he replied: "Recently I started experiencing some difficulties swimming on the back." I remember that Kandel's jaw dropped because I was explaining to him on our way that I was taking him to an elderly academician who suffers from Parkinson's. I assume he saw many of those, but he clearly didn't see anyone with these kinds of problems.

E. D. (*laughs*)

V. U. The very idea that an old person with Parkinson's would engage in strenuous physical exercise seemed preposterous.

³¹ <http://neurosurgery.org/society/bio.aspx?MemberID=14669>

Well, how can you treat Parkinson's? Andrey Nikolaevich himself found a doctor, not a very good one though. People around Kolmogorov rushed him from one doctor to another, invited some luminary from the Institute of Gerontology in Kiev, but to no avail. His condition was getting worse and worse.

E. D. Probably even the Western medicine would have been helpless. We have a lot of problems with Parkinson's here as well.

V. U. The main drug prescribed to Parkinson's patients is Nakom. It has significant side effects. When people take more, they start drooling and hallucinating. But when they take less, they become completely immobilized. In the end he needed somebody to take him out for walks. He couldn't walk on his own. And later somebody had to be with him at all times.

E. D. I heard that people scheduled shifts to look after him.

V. U. Yes, there was always someone on duty around-the-clock.

E. D. Who took part in it from among the mathematicians?

V. U. I never had a shift at night. Tikhomirov³² and younger people worked the night shifts. Arnold took part in it too.

E. D. Shiryaev?³³

V. U. I don't remember whether Shiryaev was on duty or not.

E. D. I heard about this from Shiryaev himself.

V. U. To be honest, I don't remember. But don't get me wrong, it's not that I am trying to blame him. Shiryaev contributed a lot. He was sorting papers, he was finding medicine, he was taking him places and so on and so forth. In fact, I think Shiryaev contributed more than anyone else. But Tikhomirov was Kolmogorov's favorite. Tikhomirov was like a son to him, and Tikhomirov returned this affection. He was carrying Kolmogorov around literally on his hands. Still, in terms of planning and organizing things, Shiryaev did more than Tikhomirov. Tikhomirov was the main source of moral support for Kolmogorov.

E. D. I know that Tikhomirov is a person of high moral character.

³² Interview with him is part of this collection.

³³ http://en.wikipedia.org/wiki/Albert_Shiryaev

V. U. I would say that both of them contributed more than anyone else. I don't mean to give preference to one or the other. They complemented each other. Tikhomirov provided moral support, while Shiryaev handled all practical and organizational matters.

D. Kolmogorov and the Bernoulli Congress

Ithaca, April 20, 1990 (28:50-31:56)

E. D. In his last years Komogorov was in a very bad condition. When you gave your joint paper, I think it was much like the case of the Hilbert and Courant book on partial differential equations: Courant presented there Hilbert's ideas and developed them further.

V. U. All ideas in that talk belonged to Kolmogorov.

E. D. But these were his old ideas, weren't they?

V. U. Yes, indeed. It was the first Congress of the Bernoulli Society³⁴, and it was obvious that Kolmogorov had to open it. But, to be precise, the organizers of the Congress simply reached an agreement with Kolmogorov that there would be a joint talk by Kolmogorov and Uspensky with such and such title. After the agreement had been reached, Kolmogorov was no longer involved in this matter. I visited Kolmogorov in Komarovka in August – the Congress was scheduled to take place in September – and brought it to his attention that we had to prepare a talk. He didn't respond to me at all, and I realized that I shouldn't have even bothered him with that.

E. D. Yes, given his condition, there was no point in doing that.

V. U. ... although initially he agreed to give a talk at the Congress.

E. D. To what extent do you think he was capable of contributing to the publication of his selected works?³⁵

V. U. It is a very good question. You know, this project was conceived a long time ago. If you take a look at the first volume ... I don't remember what's in the second volume.

E. D. The second volume is on probability theory. That's the one I am most familiar with.

³⁴ <http://www.bernoulli-society.org/index.php/about-the-bs>

³⁵ *Selected works of A.N. Kolmogorov*, 3 vols. Tikhomirov, V. M., ed., Volosov, V. M., trans. Dordrecht: Kluwer Academic Publishers (1991-3).

V. U. Do you have the first one?

E. D. Yes, I have all of them.

V. U. All the volumes have the following structure. The main part comprises a number of works by Kolmogorov followed by commentaries written by his students. I am not sure how it's done in the second and third volumes, but in the first volume the commentaries do not accompany individual papers but rather whole series of Kolmogorov's papers. These commentaries are themselves, however, prefaced by brief commentaries written by Kolmogorov. No matter how bad his condition was, he wrote them himself. I think he did that in the second volume as well.

He had nothing to do with the talk that I gave at the Bernoulli Congress, but if you take a look at the proceedings of the Congress you will find that I read out the greeting address by Kolmogorov. If you look closely, you will understand that this greeting address was written by Kolmogorov himself. Obviously the speech was dictated to Tikhomirov because Kolmogorov couldn't hold a pen, but Kolmogorov's style in this speech is unmistakable.