Prasanta K. Pattanaik

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The interview was conducted on April 30, 2015, in the office of Prasanta Pattanaik (PKP) at the University of California, Riverside, by Taradas Bandyopadhyay and Yongsheng Xu (BX).

BX: How did you get into economics?

PKP: There were no clear reasons for my choosing economics. In my time, economics was not being taught in Indian schools. So when I completed my school education, I had no clear idea about what economics was like. When I joined the college, I first opted for mathematics, logic, and Sanskrit. But, following a suggestion of my maternal grandfather, I switched from Sanskrit to economics.

BX: So you declared major in Economics.

PKP: We did not have the system of choosing a major in the first two years of college. In those two years, we had to study three different elective subjects in addition to the mandatory courses on English literature and Odia literature (Odia is my language). It is only in our 3rd and 4th years of college that we had to choose a subject to specialize in. Mathematics, logic, and economics were my elective subjects in the first two years of college. In the 3rd and 4th years of college, I chose to study economics as my subject of what we called the "Honours" program.

BX: So you had some training in logic in your earlier education.

PKP: Yes, I had a good education in basic logic. It was all traditional logic and not modern logic. But Gopal Patnaik, the professor, who taught me logic, was a wonderful teacher, and I learned much from his course on logic.

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BX: Did that help you in future when you engaged in research in axiomatic social choice theory?

PKP: Actually, before I started studying social choice theory, I had taught myself some logic beyond what I had studied in my undergraduate classes, though I did not know its usefulness for my future research. After I enrolled in the Masters program in the Delhi School of Economics, I came across a copy of Alfred Tarski's *Introduction to Logic and to the Methodology of Deductive Sciences* (Oxford University Press, Oxford, 1941) in a used book shop. I found it very interesting and studied it. So I had some understanding of modern logic when I started my work on social choice theory. Subsequently, I studied several other books on logic, including Patrick Suppes' *Introduction to Logic* (D. Van Nostrand Company, New York, 1957).

BX: So basically apart from that class, you taught yourself logic by reading different books.

PKP: That is right.

BX: Did you take any classes in philosophy during your undergraduate studies?

PKP: I never took a formal course in philosophy, but I had strong interest in philosophy. Until I went to the Delhi School of Economics, I had read mainly books on Hindu and Buddhist philosophy. My father had a fairly large collection of books which included many volumes on Indian philosophy. As an undergraduate, I read most of them, sometimes without understanding them well. I recall one of the books - *Eastern Religions and Western Thought* (Clarendon Press, 1940) by S. R. Radhakrishnan, the second President of India. It had several chapters on early western philosophical thinking. That was probably my earliest exposure to western philosophy.

BX: So, you did not take any philosophy course in college. You came to Delhi in 1963 and in 1968 JPE paper you demonstrated your knowledge and appreciation of moral philosophy. Did you take any class in moral philosophy during your graduate studies at the Delhi school?

PKP: I did much of my study of moral philosophy as a graduate student in Delhi. It is there that I read books such as R. M. Hare's *Language of Morals* (Oxford University Press, Oxford, 1952) and *Freedom and Reason* (Oxford University Press, Oxford, 1963), P. H. Nowell-Smith's *Ethics* (Penguin Books, Harmondsworth, Middlesex, England, 1954), and C. J. Stevenson's *Ethics and Language* (Yale University Press, New Haven, 1944). In particular, I was fascinated by how many moral philosophers analyzed the structure of the moral language involving terms such as "good", "right", etc.

BX: This was when you were doing your masters in the Delhi school.

PKP: I read most of these books when I was doing my Ph.D. As a part of my M. A. course on microeconomic theory, I had studied I. M. D. Little's *A Critique of Welfare Economics* (Oxford University Press, Oxford, 1950), where Little discusses the language of welfare economics. That first aroused my interest in the structure of moral language.

BX: And the structures that you had in the Delhi School helped. You didn't have semester or quarter system and so you had more flexibility in arranging your time.

PKP: Absolutely. It was more like the old British system which gave you a lot of freedom to read whatever you liked. There were examinations that you had to pass, but those examinations were not in every quarter or anything like that.

BX: You did not have to take classes?

PKP: We had to take classes for our M.A. But we were not continuously under the pressure of examinations, such as a quiz every week, two examinations for each subject in each term, and things like that. We did not have that pressure.

BX: That helped, actually.

PKP: That helped a lot.

BX: After doing your masters, you taught in an undergraduate college for a few months.

PKP: Yes, for two months or so.

BX: How come you decided to do a Ph.D. in welfare economics?

PKP: It came as a mixture of choice and accident. I was interested in three subjects. They were microeconomic theory, trade theory, and portfolio choice. We were lucky to have some outstanding teachers. One was Amartya Sen. He joined the Delhi School of Economics in 1963, the year in which I joined the Delhi School of Economics as an M.A. student. Another outstanding teacher was Jagdish Bhagwati. I was keenly interested in both trade theory and microeconomic theory. I did not have any specific interest in welfare economics to start with. It was under Amartya Sen's direction that I developed my interest in welfare economics. My choice of welfare economics was partly accidental and partly a matter of conscious choice.

BX: So you taught for two months. And within those two months, you made up your mind to go to the Ph.D. program or you already knew?

PKP: Even before leaving my teaching job in an undergraduate college, I had registered for the Ph.D. program. What happened was that I took up this job as a fallback to support myself as a Ph.D. student in case I would not get a fellowship to do my Ph.D. There was only one fellowship for Ph.D. students and I could not be sure of getting it. As soon as I was given a fellowship in the Delhi School of Economics, I resigned from my teaching job. But, since I had not followed certain administrative procedures in applying for the fellowship, I faced some amount of trouble in the college where I was first teaching. Apparently, there were some rules that, if you were employed by any college of the university, then, to apply for a fellowship, you needed to get permission from the college first. But I had no idea about those rules and had applied for a fellowship without any permission from my college. There was some problem about that, but it got resolved.

BX: So when you applied for the Ph.D. program at that time you knew that you would work in welfare economics?

PKP: Yes. By that time, I had made up my mind.

BX: So, for the Ph.D., you did not have to take any classes and just to write some papers on the areas that you had interests, right?

PKP: That is right. After your M. A., you had to choose a topic for your Ph.D. dissertation and you had to work on your own chosen topic. There was no course work for Ph.D.

BX: So you started to write your dissertation once entering into the program.

PKP: I had to do some reading in welfare economics first because, by the time I decided that I would work in this area, I had not read much beyond contributions such as Hla Myint's *Theories of Welfare Economics* (Harvard University Press, Cambridge, 1948), the first essay in T. C. Koopmans' *Three Essays on the State of Economic Science* (McGraw-Hill, 1957), and I. M. D. Little's *A Critique of Welfare Economics* (Clarendon Press, Oxford, 1950).

BX: And Graaff?

PKP: Yes, I had also studied J. de V. Graaff's *Theoretical Welfare Economics* (Cambridge University Press, Cambridge, 1957) and various articles on Pareto optimality, the two optimality theorems, compensation principles, externalities, public goods, and so on.

BX: At that stage, (modern) social choice was relatively new, was born just a few years earlier.

PKP: Yes, in 1965 it was still quite new. There were some papers on social choice theory but not very many.

BX: Arrow's book was not available at that time in Delhi?

PKP: It was available. All the journals that I was interested in were also available. But Arrow's theorem was yet to get into the standard curriculum. So, when I did my M.A., there was little about Arrow's theorem in our curriculum. We studied mainly the two optimality theorems, the compensation criteria, externalities, public goods, etc.

BX: Bergson-Samuelson social welfare function was there introduced in Graaff?

PKP: Yes, it was also in our course. The Bergson-Samuelson social welfare function was there, but not Arrow's impossibility theorem.

BX: So who helped you to choose the problems for your dissertation?

PKP: Amartya Sen. He was a wonderful supervisor. Many people encouraged me to go from Delhi to some university in the U.K. or the U.S.A. to do my Ph.D. That was the standard practice among Indian students at that time. Somehow I decided to stay on in the Delhi School of Economics. I think that was one of the best decisions that I have taken in my life. I doubt that I could have got as good an academic supervisor anywhere else, especially since I did not have much idea about British and American universities and was in no position to make my choice of a university wisely.

BX: So, did he guide you to read the literature before you started working in actual problem?

PKP: He first asked me to read K. J. Arrow's *Social Choice and Individual Values* (Wiley, New York, 2nd edition, 1963). So I read the book, and, for nearly three months, I read it again and again.

BX: And Blau, who made the corrections?

PKP: Yes, I also read J. Blau's "The existence of social welfare functions" (*Econometrica*, 25, 1957).

BX: What was your first research problem?

PKP: My first paper was a small note, "A note on Leibenstein's 'Notes on welfare economics and the theory of democracy"' (*Economic Journal*, 77, 1967), and my second paper was "Risk, impersonality and the social welfare function" (*Journal of Political Economy*, 76, 1968). As I have mentioned, I was reading Arrow's book

repeatedly for the first three months or so, but it was difficult to read only Arrow's book for three months. So, during that time, I also read a few papers, such as J. Harsanyi's two papers, "Cardinal utility in welfare economics and the theory of risk-taking" (*Journal of Political Economy*, 61, 1953) and "Cardinal welfare, individualistic ethics, and interpersonal comparisons of utility" (*Journal of Political Economy*, 63, 1955), and some books, such as K. Popper's *The Logic of Scientific Discovery* ((Hutchinson, London, 1959) and *The Open Society and Its Enemies*, Volumes 1 and 2 (Routledge & Kegan Paul, London, 1945).

BX: So you had quite a bit philosophy while doing your dissertation. That must have helped you to understand Harsanyi's paper.

PKP: Yes. In particular, R. M. Hare's notion of universalizability of moral judgments (see his *Language of Morals*, Oxford University Press, Oxford, 1964) helped me quite a bit to understand Harsanyi's concept of "impartiality" and Rawls' notion of an "initial situation", where nobody knows anything about his/her specific position in the society.

BX: Rawls did not have a book at that time so presumably you read his papers.

PKP: Yes, I read his papers, "Outlines for a decision procedure for ethics" (*Philosophical Review*, 60, 1951) and "Justice as fairness" (*Philosophical Review*, 67, 1958).

BX: You spent three months reading Arrow. Anything coming out from reading the book?

PKP: My reading of Arrow led me subsequently to work on the restricted preference approach. But that was a little later. I took quite some time to understand and appreciate the intuition underlying Arrow's problem. The formal part was difficult, but was not as difficult as understanding the intuition. Why is the problem of interest? Where does it exactly fit in welfare economics? Questions such as these perplexed me quite a bit. One thing that puzzled me much was I. M. D. Little's paper ("Social choice and individual values," *Journal of Political Economy*, 60, 1952) on Arrow's theorem. Little claimed that Arrow's impossibility theorem did not have much to do with welfare economics. As a student starting to work on welfare economics and trying to read Arrow's book as thoroughly as I could, I was completely baffled when I came across this claim of Little, a highly respected welfare economist. Only later, after reading Amartya Sen's "Social choice theory: A re-examination", *Econometrica*, 45, 1977), I saw clearly what Little's own conception of welfare economics was. About 40 years later after I completed my Ph.D., I also wrote a paper ("Little and Bergson on Arrow's concept of social welfare", *Social Choice and Welfare*", 25, 2005) on the intuition underlying Little's conception of welfare economics.

BX: At that time, you had Bergson, Little, and Arrow. Did it strike you that they were talking about very different things?

PKP: At that time, the received wisdom was that, underlying every Bergson-Samuelson social welfare function, there was an Arrow-type social welfare function. When Bergson and Little were claiming that Arrow's aggregation was not welfare economics but something else, the standard counterargument to that was that, underlying every Bergson-Samuelson social welfare function, there must be an Arrow aggregation procedure. Only later, I could see the intuitive distinction between the

two problems. Actually, I think Little's 1952 paper was a profound paper. Arrow's impossibility theorem was so new at that time. Even at that very early stage, Little (1952) saw exactly what Arrow was doing and the distinction between Arrow's problem of aggregation of opinions or preferences and Little's own conception of welfare economics as dealing with the social welfare judgments of individuals and the ethical bases of such judgments. The distinction was lost sight of until Sen stated it much more sharply in his *Econometrica* (1977) paper.

BX: So, on that aspect, how do you see Arrow's contribution fitting into welfare economics at that point?

PKP: As I have indicated, it was quite some time after I completed my Ph.D. that I saw clearly the distinction between the conception of social welfare of Little (1952) and A. Bergson ("On the concept of social welfare", *Quarterly Journal of Economics*, 68, 1954) and that of Arrow (1951). The distinction, as I see it, is this. Little (1952) and Bergson (1954) are talking about the values underlying the welfare judgments of individuals while Arrow is concerned with how social decisions are to be taken, given the preferences/opinions/judgments of the individuals in the society. As I see it, both the issues are important and have their legitimate places in welfare economics. It is not clear to me why Little thought that Arrow's concern was not a part of welfare economics.

BX: In the early years, people seemed to say that they understood each of those independent conditions (considered in Arrow's book) and combining of those conditions have some implications that seemed a big jump, not immediate. Did that present any problem to you when you were working on your dissertation?

PKP: The impossibility result, by itself, did not cause me too much of a problem. While the formal proof of the result was difficult, once one mastered it, the difficulty was over. But where I had much more difficulty was in figuring out how the different aspects of welfare economics and social choice theory that I had studied fitted together.

BX: you took a very short time (a year or so) to complete your dissertation. So what did you do after that?

PKP: I continued to work in the same area. Also, I had a fascination for the moral language, and I did some more reading on that. Once I knew that the formal requirement for a Ph.D. was met, I could afford to read other related material.

BX: So you were not worried about getting a job?

PKP: At that time, the job pressure was not that great, at least in the Indian system. If you did a Ph.D. from the Delhi School of Economics, then you could be reasonably sure about getting some teaching and research position in an Indian university.

BX: So there was no pressure.

BX: While you were waiting for your Ph.D., you were teaching in the Delhi School of Economics, teaching courses for graduate students?

PKP: I was not teaching many classes formally; I was mainly tutoring and giving a few lectures.

BX: Since you were not teaching formally, you were free to "teach" anything. Did you introduce anything you just learned?

PKP: In the Indian system, the curriculum was rather rigid. One had some freedom, but not to introduce a completely different subject. A well-known professor might be able to do it, but not a Ph.D. student.

BX: How were the students?

PKP: My students in the Delhi School of Economics were brilliant. Some of the very best students of India came to the Delhi School of Economics. You could throw at them just about any challenging idea and they could take it.

BX: After your degree, you were working in the similar areas. Then there was a big change, you moved to strategic or sincere voting. How did you get interested in those issues?

PKP: You know Y. Murakami's book, (*Logic and Social Choice*, Dover Publications, London, 1968). It had a few pages (pages 74–80) on strategic voting. It was published in 1968, to be followed a year later by R. Farquharson's *Theory of Voting* (Yale University Press, New Haven, 1969), where strategic voting was discussed in a very elegant fashion. Prior to Murakami (1968), Arrow's book (*Social Choice and Individual Values,* 1951, 1963; p. 7) had, indeed, mentioned the possibility of strategic misrepresentation of preferences, but Arrow did not pursue the theme. In Murakami (1968), however, there was a more extended discussion of the problem of strategic voting; Murakami called it the problem of stability of outcomes of "sincere" individual decisions. Shortly after I received my Ph.D., I read Murakami's book, and, subsequently, I also read Farquharson's book. I recall that I wrote to Amartya Sen asking him whether he thought that strategic voting might be a good problem to work on. I don't exactly remember his answer but, as far as I recollect, he wrote a very encouraging reply, saying that, if I felt interested, I should go ahead and work on the problem. He was absolutely wonderful. He spent time and effort to read through everything that I wrote at that stage and gave detailed comments. After I received his reply to my letter, I started to work seriously on the problem of strategic voting.

BX: By that time, you were in Harvard, right?

PKP: Yes.

BX: Did you get a chance to talk to anyone on those topics?

PKP: I had a few conversations with Kenneth Arrow. But, as someone who had just completed his Ph.D., I was too diffident to approach Kenneth Arrow and have a conversation. I came from the Indian system, and I was too awed to do it. Later I felt that I could have got a lot more benefit from my time at Harvard if I had more courage. But approaching Arrow and asking him whether he would be able to spare time to talk with me about some problem was too daunting a task for me.

BX: Allan Gibbard was a student at Harvard at that time.

PKP: That is right.

BX: Did you get to meet or know him?

PKP: No. I listened to his first presentation of his famous paper on quasi-transitivity and oligarchy. It was presented in a seminar course. I was there. But I did not have any interaction with him.

BX: So you knew of him, but never met him there.

PKP: No, I did not meet him at that time. I met him a few years later.

BX: After Sen's positive result, non-dictatorship is consistent with quasi-transitivity, he (Gibbard) came back to say that there is a link to oligarchy. Right?

PKP: I don't know the exact sequence. My impression is that he was already thinking of the problem. It was not necessarily because Sen had shown that non-dictatorship was consistent with quasi transitivity.

BX: Was that true Sen was visiting Harvard around the same time? Perhaps Sen talked about the positive result then?

PKP: That is right. But Allan Gibbard probably thought of the main ideas of his oligarchy result independently. He might have read Sen's paper; I do not really know.

BX: For that paper, he wrote for the class jointly taught by Arrow and Sen. It was just published in *Economics and Philosophy* (Social Choice and the Arrow's Conditions, *Economics and Philosophy* 30(3), 269–284, 2014).

PKP: That is the seminar course I mentioned earlier - the joint course taught by Arrow, Sen, and Rawls.

BX: It was cool.

BX: When you started working on sincere voting, later became known as manipulation, were you already thinking in terms of counter threat or just threat?

PKP: I was thinking in terms of Murakami's (1968) notion of stability. Later I found exact the same concept of strategic voting in Farquharson's (1969) book. Farquharson's discussion was in terms of the notion of "equilibrium", but the basic idea was the same as Murakami's.

BX: And Mark Satterthwaite was working in the area.

PKP: Yes. I believe that the contributions of Murakami (1968) and Farquharson (1969) preceded those of Gibbard and Satterthwaite. As you know, the publication of Farquharson's (1969) book was held up for a long time for some reason. I do not know why it was held up. As I mentioned earlier, I started working on strategic voting only after I read the books of Murakami (1968) and Farquharson (1969).

BX: These came as natural reactions to the Arrow type question, or were they looking more on the positive side? Some argue voting is more on the positive side than Arrow's impossibility theorem.

PKP: Let me put it this way. Basically, Arrow's theorem told us that, even if we knew people's true preferences or opinions, we would still have a difficulty in aggregating them to reach a social ranking of the various options for the society. Arrow was not concerned with the difficulties that we might have in getting hold of the true preferences or opinions of people. The literature on strategic voting tells us that asking people to give us their true preferences or opinions may not work sometimes because people may find it beneficial for them to mis-reveal their preferences or opinions. It seems to me that both these aspects are relevant for the problem of reaching social decisions on the basis of the preferences of the individuals in the society.

BX: You came to know Gibbard's and Satterthwaite's papers later.

PKP: Yes. My first paper on strategic voting ("On the stability of Sincere voting situations", Journal *of Economic Theory*, 6, 1973) was published in 1973 (it had been received by the journal in August 1972). There I mentioned that, after the completion

of my paper, I had come to know about a yet-unpublished paper by Gibbard on a similar theme. When writing my paper, I was not aware of Gibbard's paper. Gibbard also was not aware of my paper when he wrote his paper. We were asking the same question but in different frameworks.

BX: Your paper came out in 1973, Gibbard's paper came out in 1973.

PKP: Yes. I presume that he also submitted his paper for publication in 1972 or earlier.

BX: Mark Satterthwaite's paper came out in 1975.

BX: The next major idea you worked on, of course you worked in a big way, was relaxing rationality condition in Sen's Paretian liberal issues. When did you learn of his result? His paper and book both came out in 1970. Presumably he was working on it while in Delhi school. What was your reaction?

PKP: I think I came to know about his result in 1968. At first, I thought that the main point of the paper was that Sen was relaxing Arrow's condition of rationality to acyclicity of the social strict preference relation and was still deriving an impossibility result. Subsequently, I realized that there was another aspect of what Sen was doing which was perhaps far more important: Sen was providing the first formal formulation, in welfare economics, of the notion of rights of individuals. I remember a conversation between Stephen Marglin and Amartya Sen, where I was present. As far as I recall, it was in late 1968. Marglin was arguing that what Sen was doing in his paper on the impossibility of a Paretian liberal ("The impossibility of a Paretian liberal", *Journal of Political Economy*", 78, 1970) was intuitively similar to what he (Marglin), Sen, and others had done in the literature on the social rate of discount. The similarity that Marglin was pointing out was that, in both contexts, the freedoms or rights[1] of individuals were coming into conflict with the requirement of Pareto optimality of the social outcome, given the presence of externalities. In the literature on the social rate of discount, the individual freedom under consideration was the individual's freedom to decide how much she would save while, in Sen's problem of the Paretian liberal, the freedom or right under consideration was the individual's freedom or right with respect to his own private life. Many years later, looking back on that conversation, I realized that Marglin's arguments contained deep insights.

BX: It seems Stephen Marglin was the first person to articulate the rights structure different from Sen.

PKP: It was only when Wulf Gaertner, Kotaro Suzumura, and I worked on the issue of an appropriate formal formulation of individual rights that I remembered the conversation between Marglin and Sen to which I have alluded above and realized that most probably Marglin had in mind a conception of individual rights similar to what Wulf, Kotaro, and I were advocating.

BX: So you had quite different impression of Sen's result initially.

PKP: Initially I agreed with Sen's formal formulation of individual rights without any reservation whatsoever.

[1] I use the terms "freedom" and "right" interchangeably here though there are important differences between them.

BX: So what made you to change your position and to be different from Sen's later? Although Sen was talking about liberalism, he didn't emphasize rights that much in that particular article.

PKP: I believe that that is correct. Initially, Sen didn't use the term "right"; instead he used the terms "liberal" and "liberalism".

BX: But it was Gibbard who coined that word rights more directly.

BX: What do you think about the state of the literature? Could you talk about how your thinking on this problem had evolved?

PKP: Sen's result on the impossibility of a Paretian liberal had several striking features. First, it proved an impossibility result using a collective rationality condition (namely, acyclicity of the social strict preference relation), which was much weaker than the rationality condition postulated by Arrow. Second, for the first time in modern literature on social choice and welfare, it sought to provide a formal formulation of some essential features of J. S. Mill's (On *Liberty*, 1859, reprinted by Liberal Arts Press, New York, 1956) concept of individual rights to liberty in private matters. Finally, it posed in a dramatic fashion the tension between individual rights and the requirement of Pareto optimality for the final social outcome. Much of the later debate about Sen's result concentrated on the last two features I have just mentioned. Some writers raised the issue of whether Sen's condition of minimal liberalism was consistent with our intuition about individual rights, and several writers went further and claimed that, if individual rights were viewed in an "appropriate" fashion, then the conflict between individual rights and Paretian values would disappear. Of course, from a purely formal point of view, one can delink Sen's condition of minimal liberalism from its interpretation in terms of individual rights and consider it as a constraint on the aggregation procedure, which has nothing to do with rights and liberties. But that was not how Sen intended the condition to be viewed, and, in my opinion, that would also rob the condition of much of its interest and significance.

To start with, I did not have any problem with the condition of minimal liberalism, but later on I developed concerns about whether the condition was consistent with our intuition about individual rights (I hasten to add that I do not think that any reasonable reformulation of individual rights will provide us an escape route from the basic tension between individual rights and Paretian values to which Sen has drawn our attention). In an earlier question, you wanted to know why I changed my position regarding Sen's condition of minimal liberalism. Because of an oversight, I did not respond to your question at that stage. Let me respond to it now.

The way I changed my position regarding Sen's condition of minimal liberalism was a little peculiar. Bob Sugden had criticized Sen's formulation of individual rights and liberties in terms of his condition of minimal liberalism (see, for example, R. Sugden, "Liberty, preference, and choice", *Economics and Philosophy*, 1, 1985). As far as I can recall, sometime in the late eighties, Wulf Gaertner, Kotaro Suzumura, and I felt that Bob's criticisms were too strong. Given that Wulf, Kotaro, and I were all sympathetic towards Sen's formulation, we thought of writing a paper to respond to the criticisms of Bob. But, in the course of working on this paper (W. Gaertner, P. K. Pattanaik, and K. Suzumura, "Individual rights revisited", *Economica*, 59, 1992), we basically came round to Bob's point of view. So far as I am concerned, Bob

Sugden's writings did influence me strongly, but my position shifted decisively only after I had the opportunity of interacting with Stig Kanger, who was Professor of Theoretical Philosophy at Uppsala University at that time. Stig Kanger, some of his colleagues at Uppsala university, and a few people, including me, from the United Kingdom met several times in Uppsala University, University of Birmingham (U.K.), and London to discuss various problems relating to social choice and rational choice (as far as I can recall, Bob Sugden participated in some of those meetings). Those meetings profoundly influenced my ideas about rights and liberties. I still recall the excitement with which, following one of those meetings, I read S. Kanger and H. Kanger's paper "Rights and parliamentarism" (*Theoria*, 32, 1966). To me, that paper is a splendid example of how much intuitive insight one can gain through a rigorous analysis of the linguistic structure of words, such as "rights". Reading that paper convinced me that there were important incompatibilities between Sen's formulation of the notion of individual rights and liberties and the way in which we use the term "rights" in our daily language. Wulf Gaertner, Kotaro Suzumura, and I have discussed in detail the nature of these incompatibilities in our *Economica* (1992) paper; elsewhere, we have also separately elaborated the arguments developed in that paper. So there is no need for me to repeat those arguments here. Apart from minor modifications and refinements, my position about the appropriate formal formulation of individual rights continues to be the same as the position taken in the Gaertner-Pattanaik-Suzumura paper (1992).

BX: What do you think of the present state of the literature?

PKP: I am not sure that that much work is being done on individual rights presently in social choice theory.

BX: Let's go back to Sen's result. Suppose we don't call his notion as a notion for rights and stick to his minimal liberalism condition. How do you locate his contribution to the social choice literature?

PKP: Suppose one completely delinks the condition of minimal liberalism from Sen's original interpretation of it in terms of individual rights. Then one cannot criticize it on the ground that it conflicts with some essential features of individual rights which it was seeking to capture. But the examples that critics have used to argue that there are tensions between the condition of minimal liberalism and one's intuition about individual rights can still be used to argue that the condition, without its interpretation in terms of individual rights, would conflict with one's respect for an individual's rights to liberty in private matters. While delinking the condition of minimal liberalism from its original interpretation in terms of rights is a formal possibility, it does not, however, seem to be an attractive idea, given that the condition constitutes a historic attempt to break out of the traditional welfaristic structure of welfare economics. Let me clarify two points here. First, I believe that it is completely beyond dispute that Sen's (1970) paper is a path-breaking contribution, which, for the first time, brought into modern welfare economics and social choice theory "non-welfaristic" considerations, such as individual rights and liberties. As far as I know, no one in social choice theory has ever questioned the tremendous conceptual impact of Sen's contributions on individual rights. Second, I believe that Sen's basic insight about the tension between individual rights and Paretian values remains completely

intact even if one switches from his formulation of individual rights to the "game form formulation" advocated, among others, by Sugden, Gaertner, Suzumura, and me.

BX: It seems this particular right issue that economists speak about gives a bigger context in economic analysis.

PKP: Yes, it does. The broadening of the scope of welfare economics to include the so called "non-welfaristic" considerations has its origin in the contributions of two economists. The first economist was John Hicks. In the preface to his book *Essays on World Economics* (Clarendon Press, Oxford, 1959) he expressed strong reservations about what he called "economic welfarism". That was back in 1959. As far as I know, no one picked up that theme until Sen's (1970) paper introduced individual rights and liberties into welfare economics and opened up the path for the exploration of non-welfaristic values in general.

BX: Another important area that you worked on is choice under complete uncertainty. How did you get into that area?

PKP: My interest in this area came from a paper by Y. Kannai and B. Peleg ("A note on the extension of an order on a set to the power set", *Journal of Economic* Theory, 32, 1984). The interpretation that many people, including me, put on the Kannai–Peleg framework ran in terms of decision-making under uncertainty.

BX: That was to compare different sets.

PKP: Yes, it involved the comparison of different sets of outcomes.

BX: That took you to the area of complete uncertainty.

PKP: Yes. Among the questions that both of you sent me earlier for the interview, there was a question about when I started working on the link between the problem of comparing sets of outcomes to the problem of measuring freedom. I don't want to embarrass you, Yongsheng, but the idea of linking the two problems came to me from you. You visited Birmingham in 1989. If I recall correctly, you mentioned to me that Nick Baigent had suggested to you that, when visiting Britain, you might look me up in Birmingham. In any case, I am deeply grateful that you came to see me in Birmingham. Without our discussions in Birmingham, probably I would never have been seriously interested in the problem of measuring freedom.

YX: That's very kind of you. But there were some crucial axioms needed proper motivation and I was not quite sure at that stage.

TB: You came to give your "job" seminar at UC-Riverside and presented the paper on freedom of choice. My reaction was "Wow, I wouldn't have thought of that way."

BX: Sugden wrote you that he and Jones had a paper dealing with freedom as well. After reading their paper, what was your reaction to their approach?

PKP: When Bob was visiting me here in Riverside, I told him about the paper ("On ranking of opportunity sets in terms of freedom of choice", *Recherches Economiques de Louvain*, 56, 1990) by Yongsheng and me. He then told me that, in a paper ("Revaluating choice", *International Review of Law and Economics*, 2, 1982) by him and P. Jones, there are axioms similar to certain axioms in the paper by Yongsheng and me. After reading their paper, I felt very guilty that I was unaware of their paper published many years before the paper by Yongsheng and me. Subsequently, when Salvador Barbera, Walter Bossert, and I wrote a survey of the literature on the ranking

of sets, I took care to make completely clear the priority of the paper by Jones and Sugden. I admire the paper of Jones and Sugden. They go straight to the intuitive core of the problem and deal with it very elegantly and without much formalism. I admire that quality.

BX: Some people have been saying that this (ranking sets of outcomes) is not the right way of modeling freedom. In particular, freedom is more complex than this simple approach. What is your view on this, especially on interdependence of individual actions?

PKP: As you know, Kaushik Basu ("Achievements, capabilities and the concept of well-being, A review of Commodities and Capabilities by Amartya Sen", *Social Choice and Welfare*, 4, 1987) was the first to draw attention to the problem that arises when, in a world of interdependent individuals, we seek to conceive an individual's freedom as the opportunity to choose an outcome from a set of outcomes available to the individual concerned (it may be recalled that, in the literature on functioning and capability, outcomes are functioning bundles). Subsequently, Yongsheng and I have raised the same problem on different occasions. In the world as we know it, often an individual does not choose an outcome. In many situations, the agent chooses an action and the outcome for her is determined jointly by her action and the actions chosen by other agents. In such situations, the conception of an individual's freedom in terms of a set of available outcomes from which she can pick up whatever outcome she chooses to have turns out to be problematic. It seems to me that this is an important issue that deserves much further attention than it has received so far. It is not that I am denying the importance the notion of opportunity or freedom of choice for the well-being of an individual. All that I am saying is that the notion, currently prevalent in the literature on functioning and capability, of an individual's freedom as the ability to choose any functioning bundle from a set of available functioning bundles may be of limited usefulness in a multitude of situations where the interdependence of individuals and strategic interactions constitute an essential feature.

BX: For people working in the area of functioning and capability, perhaps the major reason that they take the earlier approach is its operational simplicity. Once you view the notion of freedom in a more complex way, it would create lots of problems in measuring or quantifying freedom. There seems to be a tradeoff between the simple way of approaching the problem and the "right" way.

PKP: I agree with that. We know that the problem of measuring freedom is very difficult even in a relatively simple framework where an individual's freedom of choice is taken to be reflected in a set of outcomes from which the individual can freely choose any outcome. If we assume that the individual can choose her action but the outcome for her is determined by her own action together with the actions of several other individuals, then the problem becomes much more complex. Yongsheng, you and I have struggles with this more difficult problem for several years without any conspicuous progress to show for our labor. Here, as in many other areas of economics, one may be compelled to work in a tractable but limited framework because the problem becomes too intractable when we try to go beyond that limited framework. At the same time, however, it may be important to acknowledge and

keep in mind the many limitations of the conceptual framework which, despite its limitations, we continue to use because of its tractability.

BX: One of the arguments for the functioning and capability approach to human well-being is that it brings welfare economics closer to real life. What's your opinion?

PKP: There is a valid point in that argument. After all, attributes such as nourishment, education, health, and housing figure all the time in our economic and political debates, and they also constitute some of the most important functionings or dimensions of well-being that figure in the functioning and capability approach to well-being. Even most people who would identify an individual's well-being with her happiness would probably readily agree that being well-nourished, being healthy, being protected from the elements, etc., are conducive to sustained happiness, and that, if one lacks a significant number of these attributes to a significant extent, then one cannot be happy. Also, even if one admits the logical possibility that a person, who is malnourished, unhealthy, homeless, and so on, can be happy, one can still plausibly argue that empirically such instances are extremely rare and can be ignored. Thus, the central concerns of the functioning and capability approach overlap with the central concerns in many other areas. Viewed from this perspective, the difference between the conception of well-being based on sustained happiness, as distinct from transient pleasures, and the conception of well-being in the functioning and capability approach may not be as great as what it is sometimes thought to be. There is a rapidly expanding body of scholarly research on happiness and the determinants of happiness. I suspect that, despite the differences between their terminologies and analytical tools, those working on happiness and those working on the functioning and capability approach may have much to contribute to each other.

BX: You have been working on multi-dimensional well-being, deprivation. Is the idea of research coming out because of your work in welfare economics or because of your deeper interest in development economics where you've seen poverty, deprivation, hunger?

PKP: I think it came mainly from my interest in welfare economics. I feel deeply concerned about poverty, deprivation, hunger, etc. in India as well as in other parts of the world. I am also very much interested in the different conceptions of well-being and deprivation, including the ones advocated by the functioning and capability approach. But it is not clear to me that the distinctions between these alternative conceptions are all that important for tackling the immediate and urgent task of reducing poverty and deprivation in India and many other countries.

BX: So, when you work on the Odisha[2] project, are you interested just in the question like what it is, what the state is, or in knowing what it is and what you can do about it?

PKP: Both. We need to know much more about the economy of the state to say what can be or should be done. Incidentally, may I please clarify something here? I presume that by the "Odisha project" you are referring to the forthcoming book *The*

[2]Odisha is a state of India, located in the eastern coast, with a population of about 44 million.

Economy of Odisha: A Profile, to be published by Oxford University Press, Delhi.[3] I am afraid that I cannot claim the entire credit for this volume. The volume is edited by Pulin B. Nayak, Santosh C. Panda, and me, and it contains contributions on the economy of Odisha by 26 authors including the editors.

BX: What is your view of the present state of development economics in general and in Odisha in particular?

PKP: I am not really well qualified to comment on the state of development economics. First, though I have strong interest in development economics, my reading of the huge literature on economic development has not been as extensive as it should be. Second, I have done very little research on issues relating to economic development. I do, however, find recent developments in the area quite exciting. In particular, the experimental approach to development economics is fascinating; it has added an entirely new dimension to the subject. Of course, analytical modeling and traditional econometric analysis of observational data continue to be very important for development economics. One cannot claim a priori superiority for any of these approaches over the others. We need all of them. In a rich and complex area such as development economics, we need every bit of help that we can possibly get from all the tools that are available to us.

BX: We need the entire menu.

PKP: Yes, we need the entire menu.

BX: Returning to an earlier point. You think the literature on sustained happiness poses an important challenge to the functioning-capability approach. Is this right? How should they respond to each other, and is there anything that they can learn from each other?

PKP: I am not sure that the research on happiness and its determinants done by psychologists and economists poses a challenge to the functioning and capability approach. But I believe that all of us working in the framework of the functioning and capability approach can learn much from the recent research on happiness. Consider the following scenario. Suppose the psychologists give us a reasonable way of measuring happiness. Further, suppose they find that the functionings that we usually talk about in the functioning and capability approach promote happiness, that a person with fairly low achievements in terms of many these functionings is highly unlikely to be happy, and that happiness also depends on the freedom to choose one's life style. I am not suggesting that research on happiness has already corroborated all these suppositions. But, if indeed these suppositions turn out to be true, then, at least for the purpose of public policy, it may not matter all that much whether our conception of an individual's well-being runs in terms of happiness or in terms of functionings and capability.

BX: What's your view of the role of a theorist in general and a theoretical welfare economist and social choice theorist in particular in the economics profession? What's your view on a theorist taking on applied and empirical work?

[3]The book, which was unpublished at the time of the interview, has been subsequently published in 2016 by Oxford University Press, Delhi.

PKP: The role of theorists in general and theoretical economists and social choice theorists in particular is a rather big issue and I really do not have much to say about it. It seems to me that the choice between working on theory and working on empirical problems is ultimately a matter of one's personal taste. I have mainly done theoretical research and I have done empirical research only occasionally. But that is entirely because of my aptitude for theory and not because of any judgment on my part about the relative value or importance of the two types of research.

BX: You are one of the founders of the Society for Social Choice and Welfare, and have been involved with the journal, Social Choice and Welfare, from its inception. Could you tell us how you feel about the evolution of the Society, the Journal, and the social choice field in the past 30 + years? Do you see any challenge for the Society, the Journal, the field, and the people working in this area in the future? Would you like to offer your advice to our young colleagues?

PKP: I believe that the journal, as well as the Society, is doing very well. A fairly large number of young scholars have chosen to work in the field of welfare economics and social choice theory over the last 30 years or so. That is a good indicator of the robust health of the subject, and I am very optimistic about the future of the subject. I am afraid that I do not have any advice for young colleagues. In fact, it seems to me that young scholars rarely need general advice (as distinct from suggestions about specific research problems) from their senior colleagues!

BX: You "officially" retired a few years ago, but continue to be very active in research. What has kept you busy? Have you got any time to further your other interests since your retirement, say for example, Sanskrit, poems, etc.?

PKP: I have continued my research after retiring in 2007 partly because of a habit formed over several decades. But it is also partly because I quite enjoy doing research, especially when there is no pressure on me to do any research. My university (University of California, Riverside) has helped me much by providing me, even after my retirement, with all the support that I need for my research.

Retirement, however, has given me the opportunity to pursue my other interests. I have been always keenly interested in literature, especially poetry. Now that I do very little teaching, I can read literature much more extensively than I could when I had to devote most of my time to teaching.

BX: For those who are graduating and are looking for academic jobs, they might want to know your experience. How did you land your first job? Was the job market then vastly different from current? How did you manage to be productive after getting the very first job?

PKP: I had my entire education in India, and, leaving aside a very short stint of teaching in a college after my M.A., I seriously searched for an academic position only after I completed my Ph.D. in India in 1968. The circumstances were so very different then that my initial job search experience can hardly be of much interest to young scholars graduating now. I would, however, like to say that I was singularly lucky to have the strong support of Amartya Sen, who was the supervisor of my Ph.D. dissertation, Stephen Marglin, and K. J. Arrow and Frank Hahn, both of whom were examiners of my Ph.D. dissertation. I am deeply grateful to all of them for their help and support at various stages of my academic career.