Barbara Owens: This is an interview with Gordon Davies, retired from the Open University, conducted by Barbara Boucher Owens. This interview is being recorded on the 26th of June, 2007 at Dundee, Scotland. It is part of the Computing Educators Oral History Project.

Did we give and pronounce your name correctly?

Gordon Davies: Well, we always … in England it’s just “Davis”.

B: OK, thank you. All right. We’re going to start way back when, talk about your parents. Did they have college degrees?

G: No, I think it’s probably fair to say my parents had absolutely no influence on my academic career at all.

B: That combined two questions in one. [laughter]
I mean, as much as you have a great deal of love and respect for your parents, they were not influential in any way, explicitly. Obviously, implicitly they were, but explicitly in deciding what I did academically from the age of … about nine or ten, I suspect. I mean, I just plowed my own furrow because I don’t think they really knew what to do with me. And I was the first person in the family that went to grammar school, if you know what that means. You know, past the 11th — in England, if you pass the 11th plus [exam], that separated you into grammar schools and secondary modern. It’s been abolished mainly now. But I took it a year early, so I actually went to grammar school at the age of ten. So I was considered to be a bit different. I don’t think my parents really knew quite what this meant. So I went to grammar school. So I began at university at 17, a year early as well.

B: Did you have siblings?

G: Yes, I had a brother who was seven years older. He is still alive, and I still see him regularly. He left school at 15 and that was the end of his education. He went to work in a factory in the railway works in Crewe, where I came from. He mainly was a factory worker all his life until he retired. So there were limited choices [for him].

B: So nobody was into mathematics, computer science, science, nothing like that?

G: Nothing like that at all. I was a bit of a freak, actually.

B: Well, were there shaping influences, like teachers that said, “Gordon, you are really smart”?

G: Well, eventually, yes.

B: But that transition to grammar school. How did that happen?

G: Well, you take these three tests: arithmetic, English, and intelligence. And if you pass them you go to one set of schools; if you fail them you go to another set of schools. […] So, at the age of ten you go off and then you’re with all like-minded children, supposedly the top 20% intelligence-wise, I suppose. And the first two or three years nothing really spectacular. But then, I suppose, you start to show a few bits of ability. My maths ability was pretty good. Actually, interesting, my maths ability even in primary school, when I was 7 or 8, was different. Like, the teachers knew there was something different about me; that my mathematical — well, it was more arithmetic then, you wouldn’t do algebra, certainly more arithmetic. I was happy with numbers at the age of 7 or 8. I mean I stood out. That’s why they put me into these exams a year early. And then I suppose that you carried on. I was hopeless at anything except maths and physics, I felt. So eventually I concentrated on that. And yes, a couple of teachers did inspire me in maths and physics, certainly.

B: How did they do that?

G: Well, I think because they, apart from being good teachers, they made you feel that you were capable or a bit special and that you could do more. And certainly in maths and physics that
was the case. My maths teacher I still see periodically and he always tells me how he used to
fight (I was a bit of a rebel at school and the headmaster wanted to throw me out, basically)
and he fought to keep me in the school and wanted me. Because I was a year younger than
everybody else in my year, he wanted me to stay on an extra year and try to get in to Oxford
or Cambridge. Because I was stupid youth, I said, “No, I am not going to stay on another
year at school.” And he always complained about me because he reckoned I could have gone
to Oxford and done maths at Oxford. But I was too arrogant to take note of him. So I just
went to the local university. And every time I see him he reminds me of this big mistake I
made. Or he reminds me of how he defended me against this headmaster. I was a bit of a
rogue.

B: Were you playing football while you were at university?

G: No, it wasn’t that. I was just pretty rude. I was just generally a bit of a loud mouth, actually.
And you might say things haven’t changed very much. But — at least then you could get in
trouble for it. [laughter]

I was school football captain, you see. I was in high school, but I wasn’t bad. I was school
football captain. In fact, I played football for another 20-odd years.

B: Huh! I didn’t know that.

I’m a fan, too. So I went to Liverpool, and did physics, and did miserably, did badly. Got a
degree and not a very good degree. And started school teaching, teaching maths and physics.

B: In what kind of school?

G: In a secondary school, in Manchester. In fact it was an independent school, private school in
a sense, fee paying. It’s rather odd, isn’t it, now. One of the reasons is that I couldn’t really
get a job teaching maths or physics. There were no vacancies. It’s incredible. 1963 and I
struggled to get a job. That’s why I went to the independent sector. And I stayed there three
years and I went to a technical college and taught higher level maths.

B: What technical college was that?

G: In Crewe, my hometown. I come from there. Crewe is a relatively small town in Cheshire.
It’s about 30 miles south of Manchester. And it’s very much because of its railways. Six
railway lines converge there, so it’s probably the busiest railway junction — well, probably
in Victorian times — in the world, probably not so much now. It’s a big railway town.

So I went back to Crewe and worked in a technical college, teaching maths at an even higher
level. Then in 1965 they decided computing was quite important. So they said, “Would you
like to do a Master’s degree in computing?” Sorry, I got the dates wrong. 1963 to 1966 I was
in Manchester. 1966 I went back to Crewe; it was the year England won the World Cup,
1966. So 1968 I left Crewe and went to London to do a MSc in computer science. I’d been
on odd courses at English Electric in Kinch Grove, which is nearby. KDF9 was the first real
computer I programmed, KDF9 in about 1965.

And actually something else I just remembered. I went to North Staffordshire College of
Technology in summer holidays to do a course in computing. That would have been in 1966-
1967. And that’s where … the oldest machine I ever saw, which was the English Electric
Deuce, where it had a cathode ray tube rigged to the memory. You could see the dots on the
cathode ray screen, which was in main memory. It was all paper tape. And you could walk
inside the machine. It was a huge monster. ACE was the NPL machine.

B: I’ve heard of it.

G: Deuce came after ACE. Makes sense! Deuce was produced by a commercial company,
English Electric.

B: So while you were taking these courses were you still teaching at the technical school?

G: Yes, except when I did the Master’s degree. The Master’s degree was a year off. They paid
my salary while I lived in London for a year and did a Master’s degree. And then at the end
of that, the university (it was University of London) and they … it is interesting. The guy
who supervised my Master’s dissertation, who left, a guy called Dick Housden he was
probably quite an inspiring figure to me at the time — in fact, he crops up later again — he
was a lecturer at this place. It was called the Institute of Computer Science and at that time it
was the only place you could really do computer science in London. Things hadn’t moved on
yet and all they offered was a Master’s degree. So I did this Master’s degree. Dick Housden
supervised my dissertation. He then left to go to the University of East Anglia. And so a job
came up and another person (I forget his name) suggested I apply, so I applied for the job and
got the job. So I immediately went from almost nothing to a university lecturer in about 12
months. You could do that in those days. [laughter]

[9:21]

So I have a Master’s degree now, and that’s it. That’s all I have. So I started teaching at
University of London at this postgraduate institute. All it did was teach one degree in math, a
master’s degree, and it had about 50 students a year, maybe. That’s it. Not surprising, really.
The colleges in University of London then started taking an interest in computer science and
University College, Imperial College, Queen Mary College, University College, which were
all more or less autonomous, although the degrees they awarded were University of London
degrees, they teach independently. And they then started teaching computer science. And
more or less said, “What’s the point of having this one institution doing computer science?
We could all do computer science. Why waste money doing that.” So the university closed it
down. They closed it down and the staff — there must have been about 25, 30 staff, maybe
like 20 academic staff — were all offered posts. They could decide where they wanted to go.
It was great opportunity. I could have become a lecturer at Imperial College, or University
College, wherever. They just said, “We can’t fire you!” But you had permanent
appointments, almost immediately in those days. And so I chose University College. And the
reason was because it was near a train station, it was about public transport, simple as that.
Imperial College is down in Kensington near the BMA, the museum area, and it’s been
logical to get to by the underground. About three or four people went there. And the biggest group that went to UCL and started the department of computer science. Started teaching the first undergraduate students at UCL in 1971, 1972, 1973, something like that.

What led to this connection with ACM was shortly after I met Tony Ralston. Tony Ralston used to go on sabbatical to this place that I was a student and then a member of staff. I used to play a lot of squash with Tony Ralston. In that year, about 1972, he became president of ACM, so I didn’t see him much that year, he was flying across the Atlantic every other … And I sort of kept in touch with him over the years (I mean, this was 30 and a half years ago). I met him, interestingly, after a long gap, at ITiCSE when it was in Kent in 2001, I think. I hadn’t seen him for about 15 years, so it was quite nice to renew our friendship. Because he was quite a big star at that time, Tony Ralston. It was quite a privilege, I always thought, to have met him.

And then, UCL, I stayed there for a long time and developed the undergraduate program. My main job there, eventually, was to run the Master’s degree in computer science.

B: When you began teaching in the classroom, did you enjoy classroom teaching?

G: Oh, yes, I enjoyed teaching but that was right from when I left university in 1963. And I enjoyed being in the classroom. I had taught from the age of 11 upwards. Funny, I remember — my memory is a bit vague about when it was — I remember going back to my primary school, which was 7 years to 11 years old, and there was a particular teacher there that inspired me and always looked after me, from 1950 when I was under her care. And I used to go back there quite regularly and she used to let me do a little teaching, teaching 7 year olds. I wouldn’t know what to do with them now, but at that time it I supposed it was easier, she was pleased to see me and it was very nice. I don’t know happened to her; I eventually lost touch. And the headmaster at my grammar school was one that was always very helpful. He’s the one that brought me in for the exam a year early. And I used to go back and see him quite regularly. I think I’ve got this strength or weakness, but I do keep in touch with people over the years.

B: And how about the students that you have had over the years? Have you kept in touch with them?

G: Well, the … I can’t remember many of the bachelor’s students from UCL. I remember more of the Master’s students, because I interviewed all Master’s students and selected them. And this one that I kept in touch with — because I eventually interviewed her at the Open University and employed her there — that was Helen Sharpe. I think she is still there; she is probably a full professor at the OU by now. If she isn’t, then she certainly will be. And she was a Master’s student at the UCL. And I think I had some influence, because I interviewed her about three times off and on, as a student and for jobs. And she’s had a very successful career.

[14:28]

B: Then how did you move from UCL to the Open University?
G: Prior to that, I’ve just realized there’s another interesting story. When I was at this Institute of Computer Science that I taught at, from 1969 onwards, there wasn’t much competition at the time for Master’s degrees, maybe three or four of them. And jumping ahead, I do a lot of accreditation now. And about 6 months ago I went to Cardiff and chaired an accreditation panel at Cardiff. And this was quite interesting, because on the accreditation panel was an industrial assessor who I taught at this first place in 1970-1971. The head of department at Cardiff, who we were assessing, I taught in 1970. And the external examiner, who is at Glasgow University, I taught in about 1971-1972 and supervised his Master’s dissertation. So, in this one visit, there were three ex-students that were involved in some way with this department and I was chair of the panel of assessors. And I think that was quite unique. I mean, the chances of that happening were a bit small. But they all knew each other and that was really quite nice. The head of department, of course, I had not seen for 25, 30 years, but we both knew each other. And the guy who was the industrial assessor, I don’t even remember teaching. And he said, “Oh yeah, I was in your lectures in 1975.” So yes, there are students that are around.

B: Were you doing research while you were doing this teaching?

G: No, not a lot. I mean, I started out when I was at UCL doing research with a particular guy. One of my professors was in mathematics of sorting, searching. And we plowed away, eventually not getting anywhere. The supervisor was not the best, I don’t think. But he was a good friend and we remained in touch. He became a professor at University College and he came over to University College with us, a great guy. He retired many years ago and he died about 3 years ago, I think. And I still exchange Christmas cards with his wife. […] He was the first, probably, to die of the people that you were, you know …

B: Did you go on for a Ph.D.?

G: No. As I said, this guy who died was a supervisor and it didn’t work out. I don’t know. I just didn’t have time. I probably didn’t have the motivation to do a doctorate. And I think it probably was a bad mistake. That’s probably one of the mistakes — academic mistakes — I made. I should have done. I might never have completed it. I was too interested in other things. It just didn’t work out. And at that time, in the 1960s and 1970s, it wasn’t so crucial. It just didn’t matter. I think that was the problem. There was no real incentive. But it was a bad mistake

B: So tell me about the transition between UCL and Open University.

G: Well, because of the lack of Ph.D., I think, but also maybe a lack of research direction — UCL was a strong research-oriented university, it’s probably the fourth best in the UK: you’ve got Oxford, Cambridge, Imperial, and UCL. Imperial and UCL compete with each other for number three. UCL is better in medicine, bio-medical. Imperial’s computing department is much stronger. But they compete with each other. So it was and still is at this third or fourth ranking university in the country, research was a prime measure of success. So I wasn’t quite meeting the criteria. And I remember this, there was some bid to get me
promoted. This was about 1982-1983, so it’s been twenty-five years ago. And it failed and I think this is one of the reasons, so I thought Tssk! OK.

And then the job at Open University came up. And why it was interesting is because Dick Housden, the guy I mentioned earlier who supervised my master’s degree, was now at the Open University as head of department. And I knew he had a lot of time for teaching and was interested in teaching. And so I thought, “Well, this would be great to go back to work with him!”, because I liked him. So that’s what I did. I applied for the job in July 1984 and Dick Housden head of department and it was really very nice. So I started there and had a great time for 22 years or so.

B: One of the hallmarks of your career has been your enormous activity in professional societies. You had said the seed was planted early with your relationship with Tony Ralston. Do you want to talk about that?

G: It is interesting. In 1968-1969 the BCS existed, but I don’t remember people took it too seriously. ACM was the really important computing society, even in England, even in 1968, 1969. In 1969 I was reading Communications of the ACM and using it quite regularly. And then I joined in about 1974, I think. Once I — and I can’t remember why — but I think by 1974 I joined ACM as a member; it may be a bit later I joined the BCS. But ACM was always the prime, you know, way up ahead. The BCS had very small publications. And ACM, I think we all valued its publications because at that time textbooks were few and far between.

I remember Don Knuth’s volume Art of Computer Programming coming out — what a goldmine that was! I mean, those books, the Volume I and the Fundamental Data Structures one, Information Structures, and then the Sorting and Searching books, they were like manna from heaven because they had everything you needed to know for lecturing, because there wasn’t much around at that time. You spoke about the guy from New York and his books had only just come out, FORTRAN, Dan McCracken’s book; they were exciting books in that time. Well, in fact, Don Knuth’s books were just off the planet; Sorting and Searching is still a wonderful book, one of the greatest computing books ever written. So that’s when I started getting to know about ACM.

Even at that time, ACM and the United States were like another planet. You grew up in England, with America being a completely different world. In your early years and teens, the idea of that you might get to travel to America was just not possible, you couldn’t possibly do that sort of thing. Shows you how much things have changed. It was like going to the moon as far as I was concerned, to go to the US. So ACM and the US were this golden thing, far away. And so I joined them. Then 1979 was my first real involvement. I submitted a paper to SIGCSE, and I think it was 1979 I went to a SIGCSE conference and gave a paper about one of the computer management courses I had taught. That’s when I first sort of met people and thought, “There is nothing like this in the UK at all.” Few people who were interested in teaching. That is when my real interest started from — I must have been interested in it before then, because I knew about it, but 1979 in Kansas City, I think it was, was my first SIGCSE. And — well, after that it sort of developed. I think the probably more
significant ones there — I went to one or two, then there was a gap. And then I started again early 1980s I think.

It must have been 1982, 1983, 1984 when I met Boots [Cassel]. And I used to harass her about the fact [SIGCSE] was too US-oriented. And it was time they did something in Europe. And so we ended up with ITiCSE. And that is how ITiCSE was created. I mean, I think she had the idea independently. But I like to think it was my going after her which, I think she would say this as well, but she and I probably started it off. It was how the first ITiCSE in Barcelona came about. I was involved with the first three, I think: Barcelona, Uppsala, and Dublin. I think she and I were quite actively involved in organizing those. It took off. It was nice to get those started. What was the question? [laughter]

**B:** How did your involvement in BCS come about?

**G:** I was much more involved in ACM than BCS for a long time. Well, it started with ACM, then SIGCSE because it was teaching, then it was a personal involvement by attending the conference, and then just keeping going and eventually going back to the conference and meeting people and ….

BCS — I’d been a member of BCS for probably about the same amount of time, but I didn’t actually do very much until maybe about ten, twelve years ago, when I started getting involved with accreditation. And it’s largely accreditation, BCS. They’re two very different organizations. So, there is nothing like SIGCSE in BCS. Nothing at all. So my involvement in BCS has been accreditation, because it was originally a one year; I was one of the panel of assessors. Then I joined the … I was nominated to join the committee. I think the procedure in the US is very similar, you see. So you join the committee, so you have a particular role. And then you’re expected to chair visiting panels, so I do quite a few of those.

**B:** So you are actively involved?

**G:** I’ve done 3 in the last six months.

**B:** Oh yeah, yeah. So saying that you retired, you retired from the Open University, but you’re certainly not retired.

**G:** No, not at all.

**B:** Is this a paid position or is this a volunteer position?

**G:** It is all volunteer. Yeah, it’s like ACM in that it is volunteer.

**B:** Were there … you talked about some of the challenges you had, partially because the Ph.D. would have made different choices possible. But were there challenges handling family and the career that were important.
G: I wouldn’t say there were challenges, but I would say there were mistakes made because of that. I remember when I went to the Open University in 1984, that was okay to start with. But in about 1986 I started on a course and I led the course team. And leading a course team is a very serious job. And for two years, that was my life and I neglected loads of things at that time. It isn’t like a traditional university, in that deadlines really do matter, because you’re going into print, you’re making TV, and all sorts of things like that. And therefore, you’re not like you are in a conventional university, where you’re almost on your own in front of the class. At the OU you’re not, you are part of a much bigger team, a bigger organization. You screw up, it has a knock-on effect. If you’re late, others things happen. So I think it’s the first time I ever came across the idea that you’ve got to really work as part of a team and you have responsibilities. Academic life at that time certainly was very much an isolated activity, in the sense that you could of sort of do what you liked, within reason obviously. But you didn’t have to depend on other people and other people didn’t depend on you. Curriculum development was largely unknown in the 1960s and 1970s, and there wasn’t ACM curriculum guidelines yet.

So, going to the OU meant you were part of a group. You worked with people who were not academics. These were editors, BBC television people, quite a different environment. And that’s what made it so exciting. I mean, to go to the OU — and I think I must have made about twenty different television programs all together, all over the world. Quite often in the studios and that type of space. So that was great fun. That really was exciting. And I have recently, in fact, put all of my TV tapes on DVD. They’re all getting a bit old now. And some of them really are quite entertaining. Television programs I made 20 years ago on XXX and on NASA, about the space shuttle, made in 1986-1987. Some historically quite interesting to a certain small group of people, I’d have say. But, you know, they are quite interesting look … snapshot of what people were teaching at the time, as well as being a case of what was current in computing outside the academic world at that time. So I wouldn’t say they’re brilliant entertaining programs, but as a source, they’re interesting source at that time.

B: Do you have any outside interests that would help us understand you a little bit better or that have affected your career? One of them would have to be playing squash.

G: Well, I used to play squash. I used to play a lot of squash. That’s the point I was saying about the compromises. When I went to the OU, I more or less gave up squash. I didn’t have time, I was working too hard on this course. And that course, you see, made my career at OU because it replaced a course which had, let’s see, a thousand students, maybe. This course had three and a half thousand students every year. It was the largest course in the Open University for three or four years, and I produced it. So I had all the glory. It was the first course that required students to have a personal computer. We had never done anything like this before. So you were expecting students who didn’t know what a computer was, and we were expecting them to buy one and use it to run Pascal programs. Internet didn’t exist. So it’s difficult to think what the problems were. Plus now, everything we just take for granted. Then, we used go to great lengths to help students to switch on a machine and put in a floppy disk — tell them all about these sorts of things — because they had never done … didn’t know how to do this. And there was no network. We had to post everything [using regular postal mail]. We had to post floppy disks. Different world.
And, in fact, it’s rather ironic, because up to that point the Open University had one large central computer and it had a network — it was a DEC 20 I think — and it used to have terminals in what we called “study centers” all over the country. We used to have study centers. So students, if they were doing a computer course, had to go to a study center to do their computing and book time on this one, maybe two, terminals in the study center. They might have to travel miles to do this. And then the PC came along and, OK, it meant they could work in their own home, but they lost the communications medium. So we couldn’t communicate with students electronically anymore because they were at home. Then, of course, things started changing and the networks came around, but at that time, this was 1998 — it’s not that long, twenty years ago — students would have a PC and often they wouldn’t know what on earth this thing was that they were buying. And they were buying it because the OU said, “You have to have this to do the course.” And they were buying it. Not a very good reason. We used to go to great lengths — in fact, one of the big achievements at the time by a colleague at a high level was that we received a huge grant, at least it was a huge grant at that time, to buy … I think it was about 3000 Amstrad machines. And we bought these Amstrad machines.

B: I don’t know the word.

G: Amstrad is the company. Amstrad is the company. Three thousand PCs. And we used to rent them to students because students couldn’t afford to buy the machines, so we ran a rental pool. Just because the OU was always very good about disadvantaged students, to make sure students had access. So we bought these machines and then rented them out every year. And this machine would arrive in the post, basically. And at the end they would have to box it up and send it back. That was how it worked in 1988; it just seems incredible now.

So I had to write a course, produce a course, which not only academically had to be okay, it was basically like … CS1, CS2 combined in one course. So it was a very big course. It was essentially equivalent to half a year’s work in one course. We had to do that, but at the same time we had to accommodate this new technology — the fact that students were having PCs. So everything had to change to fit on the PC. We used the UCSD-Pascal system at that time, which was a bad mistake, though for good reasons: we were familiar with it. It is better the devil you know. ’Cause Turbo Pascal came in ’round about a year after we had finished this work, just the wrong time slot. If we had produced the course 18 months later, we would have gone to Turbo. And then, of course, that died. Of course, things just move on. But I found it exciting.

B: But what you got off track here was we were talking about outside interests, because you couldn’t play squash.

G: Because I couldn’t play squash!! Yes, that was it.

B: And now do you have other …
G: My outside interests now are all fairly standard. Theater, music, traveling. I don’t think I have any … railways.

B: You are going back to your roots.

G: Exactly. My father was an engine driver in Crewe and so I’ve always had this interest in railways. It’s diminished over the last 20 years, but it’s coming to the surface again. The great excitement I had in the last ten years is I went on a one-day course to learn how to drive a steam engine. So I actually drove a great, full-sized steam engine and drove it. That was exciting.

B: If you had advice to somebody starting out. Well, I’ll ask you another question first, because part of the emphasis of this series is on women in computing. And have you seen, are there … anything you have seen about your students, difference among colleagues, that you would like to comment on before we close here? More women now, fewer women, … ?

G: My impression, I guess it is probably wrong, but I think the OU is a bit different. Overall in academic life, there are more women across all disciplines than in other universities. I think it is just a feature of the area. It is a very liberated institution in some ways. In computing there, we certainly have a number, but I suspect it is still one of the lowest and perhaps the engineering people are even lower, but it wasn’t that good. And they were all very good. Do you know Jenny Preece?

[35:24]

B: I don’t know her.

G: She is now at Maryland. She used to be at the University of Maryland Baltimore County. She was head of Information Systems there. I think now she’s got the same job at College Park. And she was my live-in partner for several years. She was quite an accomplished woman. She has done incredibly well for herself. She and Helen Sharpe are buddies and think … expect still are. So I think the OU is quite good at producing, helping, women along the way. I think that it is more open-minded than most places.

B: As a closing question then, what advice would you give to young people starting out?

G: Get a doctorate.

B: Get a doctorate.

G: Unfortunately, I think it is essential.

B: So one of the other questions, is that if you have one piece of advice it would be …

G: Get a doctorate, yes.

B: And if there is one thing you regret?
G: [laughs] If you ask me just to remind you about that nice story of the lady I did teach who was very grateful to me. I think this … it is very nice for me that this was a girl I interviewed at the UCL and on to the Master’s course. She got a bachelors degree at Oxford. And I didn’t realize at the time that I had this influence, but I obviously made computing seem more attractive than it perhaps it was. Anyway, she came on a course at UCL and was successful. And I saw her name crop up at various universities. And eventually I went on this accreditation visit at a university west of London and she was now the departmental head, had a professor’s title, and had really got on. And, of course, fortunately she remembered me. We had a long chat at lunchtime. And she told me it was this year at UCL that really shaped her future and she was very grateful I had persuaded her to take the NSC course and she was very grateful. And at the end of the accreditation when you normally shake hands and everybody says farewell, she just leaned over and said, “Thank you!” and kissed me on the cheek. And that doesn’t often happen at an accreditation visit, fortunately. And so she was obviously very grateful and XX that me feel very good. I think she and Helen Sharpe, the girl who is at OU now, are two of the successes, I think. And so that’s it.

B: Wonderful.

G: OK?

B: All right. Thank you very much. Thank you.