FreeSpeechDebate

Thirteen languages. Ten principles. One conversation.

Tim Berners-Lee on 'stretch friends' and open data

Interview by Timothy Garton Ash, director of Free Speech Debate

TGA: Tim Berners-Lee. You will see in our first principle, we say that all human beings must be not just free but also able to seek, receive and impart information and ideas. That is something added to the classic formulation of Article 19. Do you believe that internet access is in that sense a universal human right?

TBL: Well, I think I agree with what Vince Cerf says is that to talk about the internet specifically in the human rights is inappropriate because it's the sort of technology of our time but those…but nowadays, effectively for people in the street, we have…you talk about as internet access being a human right. We have to phrase it like using the word internet. Certainly, the…as the net gets more and more powerful, as more and more things are on the web, the gap between those do have it and those who don't have it becomes larger and so I think then we have a duty to help people bridge that gap as fast as possible and one of the ways we express that duty is by saying this thing as a right.

TGA: Right. But you would agree with the refinement that Vince Cerf made on that which is it's not a first order human right in itself like the right to life or indeed the right to freedom of expression.

TBL: Well…

TGA: It's a vital means to that end.

TBL: Vince Cerf said don't talk about the internet itself because that is just an IP technology, there could be another network technology which comes along afterwards. Whether you're talking about is being a member or a full member of, if you like, of the information society, using whatever technology is current. Using the latest technology. I think when you look at that in fact, in a way, it's not…when you look at…the United Nations Article 19 talks about receiving, being able to receive information and impart information, and in various points in the declaration but, also if you think of when the way you are able to work on the web, is that really summed up by just imparting information and receiving information? I think there are other things. So for example, when you search for something, when you search the web, if you want to know whether somebody has had an idea or thought of a word before, you can just search for the web, immediately being able to get either the fact that nobody has yet thought of that word or you are able to get, yes, they've thought of the word and these…this is what humanity in general thinks about it. The use of a powerful service is more than, I think, than just receiving information.

TGA: It will indeed. I mean of course the formulation that we now have is seek, receive and impart and one thing to have emerged from our research is the vital importance particularly in developing or less free countries of freedom of information, not just of

expression. But could I add a question on this because you are one the great advocates of the open web and of net neutrality. Now of course, much of the growth at the moment is on mobile and it seems, in the developing world, and it seems to me that the norm of net neutrality is nothing like as well established on mobile as it is on the internet classically conceived.

TBL: I…there is, well certainly this is an infamous discussion between a couple of large companies in America. While it has rather shaken net neutrality on mobile but I think also a lot of people realise a couple of things. One is that, really your computer, or your phone, whether you are getting the internet through a wired connection or through a mobile or whether it's a wired connection but actually later on, goes through a mobile connection or mobile connection that actually later on goes through a wired connection, all these combinations of wireless and wired transmission are absolutely immaterial to the way you use it and the rights that you have on it. There were some arguments made that well, mobile is different because there's particularly limited bandwidth on mobile. Well I don't think so, I think mobile may be different in that the incumbent providers of devices are more used to having more control over their users so they may be more reluctant to allow people to access the open internet, but I feel that certainly it is a nonsense to say that the rights of a human being depend on the particular technology they are using to connect today at this moment to the internet as opposed to in five minutes time when the device is switched to a different source of network.

TGA: But de facto at the moment it is the case of you know, you or I sitting on Oxford or Boston accessing Google.com at the tap of a button have a far greater access than people in Africa trying to access stuff through mobile both because of the technology but also because of the mobile operators.

TBL: Well, I suppose, when you bring up Africa that brings up the other part of it. If you…are you really, when lots of people only access on mobile devices. For that very large majority of the population at the moment which is currently mostly disenfranchised completely but later will come on only with mobile when we…a lot of us have got a hope that actually mobile technology, mobile data actually allow countries to leapfrog and get on to the web very much more quickly than the developed world did, then surely, it's very ironic for the rights of those people of the people, of the people who generally are poorer, are disenfranchised already to be reduced. So I think there is a strong irony there, in a way a use for protecting the rights on mobile even more strongly than the rights for the wired connections used by the privileged.

TGA: You have, however, been, if I read you right, like Jonathan Zittrain and others, a critic of the so-called "closed" rather than open at devices, for example, Apple.

TBL: Well, I'm not going to talk about the individual manufacturers here because I'm the director of a vendor neutral consortium so we don't do that sort of thing. Certainly we use the word open. It's used in lots of different ways. So I've been…ever since the start of the web, the web was based on standards. There are very important things, open standards.

TGA: Right.

TBL: So you can judge a company on the extent to which it uses open standards. Will it interoperate with other devices no matter what they are? So there's open in the sense of open standards, then there's opening in the sense of open markets, open in that different systems

can be open. So, yes, some people complain that some devices have a limited market. You can only buy applications from one place or they have to go through a particular market or you can only buy songs from one place, for example. Yes, I'm, in general in favour of the open market and of course I'm also in favour of things being available open source, although I think I believe in a good competition between open source and proprietary software.

TGA: Now, with apologies for a very sweeping question, but you'll see the point of it. In general terms, do you think the trend is, towards a more open web all in all, because many have argued that there is a trend towards a certain closing down, including the emergence of quasi-monopolies as Tim Wu would argue.

TBL: Well, I think both trends are accelerating if you like. I think, yes, the threats from large companies, they will always be there. Because they will always argue that it is in their shareholders interest to achieve an unreasonable leverage to be able to, for example get a hold of a complete vertical market and be able to control everything from the phone, internet connection, the search engine and the way you buy your shoes. So that has always been a goal to be able to try and establish, to complete control over the consumer has been the goal of large companies. But, in general, a mixture I suppose of regulation and just consumer outcry**,** and consumer common sense have fought back**.** But there are a lot of current threats at the moment. There have been some recent threats also in ways from government. But the same time…

TGA: So for example from government?

TBL: But at the same time you asked about whether the trend is in that direction. I think there is more of a human awareness. If you talk to people in the street, they would not have been aware of the issue of their internet being turned off by a government before the Mubarak regime disconnected Egypt from the rest of the world. And then people in Egypt and outside Egypt suddenly asked, "Wait a moment, who's got the connection, who's got a switch?" And so I think that the awareness…and I think things like this debate which you're doing, are really important and getting everybody talking about it, because we need a very large amount of mobilisation and I think, sort of, academics and people in the street in general should be leaning on politicians to get them to say where they stand on this issue. We've seen for example in Holland, because one ISP, I understand, started slowing down voice-over internet packets because they didn't want them to compete with the telephone service. That led to legislation, which I gather has gone through so that neutrality is now the law in Holland.

TGA: I mean of course, that's about states and governments. But what about the restrictions imposed by private powers. Our second principle talks about private powers, the Googles and Facebooks and Twitters, and of course Baidus and others. Are you concerned about some of their practices? I mean not being necessarily specific and in particular, about the problem of privacy.

TBL: Well privacy is part of it. I think that spying is one part of it. Yes, well I mentioned the legislation in Holland which was produced because an ISP had broken the rules. So one part of it…one side is filtering and the other side is spying. In both cases we have problems with large companies as well as governments. It depends a bit on which country you're in which one is most worrying but if you like the most…the most worrying thing overall is that actually you end up with the two working together.

TGA: Indeed.

TBL: So you end up with a telecom monopoly, which is a monopoly allowed by government, which has strong connections with the government so that when the government wants to turn down…disconnect the country from the internet, it actually knows who to go and they know how to do it. Or you get a law which makes it required for ISPs to spy and to track internet traffic, and then you end up with this repository of very, very dangerous, potentially damaging information about individuals stored all over the place and then you have a…then the government either makes a subpoena for the information or the intelligence services rather under the cover just go and acquire it.

TGA: Well like a FISA order in the US of course, which is secret.

TBL: So the combination of government…it tends to end up being a combination of both. And of course you need a combination of both to fight crime. So defining the line here is really important and has to be done quite carefully because we do want and give the government the power just to fight serious crime. We do want them to be able to…just find and defeat terrorists before the terrorists' acts happen. But on the other hand, if this is done by making ISPs regularly record information about all individuals, then I just find this is dynamite, this information. If you imagine it, you've got this machine somewhere in the world which has got all the information about a particular house and the people: the websites that those people have been to, the communications that the people have had, but even just the websites. Just things like the diseases that the people in that house have been worried about and they have looked up. Never mind whether they did for their own behalf or on behalf of somebody else but you've got all this information and information which will clearly demonstrate for example whether the people in that house are heterosexual or homosexual, by the sorts of websites they go to.

Then you've got this potentially about people in the military. You've got this information about people in the government so maybe the government should think first do you…what happens when somebody hacks into that? And then users then, suddenly the whole nation is at the knees of blackmailers. That you've got people in responsible positions who could be approached, "By the way, we've read your profile. Do you want us to talk about it in the public? Or would you like to help us make sure that these particular people get off or that this legislation does not go through." So in a way, to have that information is dynamite. Somebody suggested that the deep packet inspection equipment which is used for, which is quite sophisticated, and is used for actually while looking at traffic to somebody's site and figuring out what's going to somebody's house and figuring out which websites they're going to. That deep packet inspection is made by the people in the most developed countries and so maybe…the question is should it be considered a munition, should it be controlled? It's at least a good thought-experiment. Should it be controlled like a weapon of mass destruction because in fact when it's used by an oppressive regime, it can be used to put thousands of people to immediately expose the web of social, for people who are opposed to the regime and put them all in jail and kill them.

TGA: I think pointing to the nexus of combination of public and private power as being…in a way the most dangerous or both the most powerful and most dangerous point is a very interesting one. That's the dark side and it could be very dark. Let's look at the bright side. The upside. What's the, as it were, best case out of this, out of these developments in terms of open access? You just now have something called, I believe, the Open Data Institute. What's the best case in terms of our having the world's knowledge at our fingertips?

TBL: Best case is that these rights were established and so people can use the internet. They can look up when they have a lump whether it's cancer without thinking that their insurance…there's somebody looking over their shoulder and their insurance rates will go up. So the best case is that no spying and very restrictive control in certain countries and no filtering…so that if people want to control what their children see they do it by running software on their own computer rather than having it banned.

TGA: So you mean no filtering at the ISP level?

TBL: No filtering at the ISP level for the sake of pornography. But just because you can set up filtering if you want to. If people want to prevent children for example accessing pornographic sites as a parent, then you have the right to do that and you can buy all kinds of different software, which you can run on the computer, which will block the child and put you in control of that. So I think that sort of…many years ago I think it was generally established that was the way which (inaudible). So you're going to generally open the internet and so this is…what we'll see of course is, as we've seen this human amount of creativity about people building new websites, new ways of forms of working together on the web. We'll see a lot of, hopefully in an ideal world, a lot of governments will follow the start that the UK has made and the UK will go on putting much more data on the web, so there'll be lots of understanding about what's actually happening in this…what the state of the country really is from people who could…some data journalists and people who are capable of looking at the data...there'll be a lot of more transparency, there'll be an understanding of where spending is going. That increased transparency on the part of governments in putting spending data on the web will then lead to a dramatic reductions hopefully in corruption in some of the countries where it's a serious problem at the moment and when the corruption drops then, the response will be much greater investment in the country as a whole.

TGA: Just tell us very briefly about the Open Data Institute.

TBL: The Open Data Institute…I want to talk to you about democracy as well but let's talk about the…

TGA: We'll come to democracy, yes.

TBL: So the Open Data Institute is just being set up in UK. It's bringing together academics and industry and trying to increase through training the number of people who understand how to do things with data, the latest data technology which makes open data much more powerful but much more powerful because it allows you to connect different data together, that, you know something that they'll promote and make tools for and teach more people how to use. In general, if you like the Open Data Institute in UK, it's a very important backing to the whole open data idea, to provide a course for those who are putting data out there, support for those who are analysing the data and really a catalyst for making the whole open data story work.

TGA: Some critics say that we're being smothered with data that there's just almost too much minute detail coming from government departments. That as it were there are so many trees we can't see the wood.

TBL: Well the problem of seeing the wood for the trees is one out there all the time. And I get people on one side saying, "Help, help, help, I can't see the wood for the trees" or "There's so much junk out there, how do I find out what's good?" and on the other side I see people saying, "Help, help, help, I'm a journalist. You know, what's going to happen to me? Whoever will need a journalist in the future?" And I put these together and say obviously, the whole role of journalists and people who create, who review all the information out there, check its sources and analyse it and look for trends in it, all those things are very, very important. So the role, the profession of journalism if you like is very, very important. It takes a different form, it won't involve felling so many trees, but its existence is in a way part of the answer to that first cry about states.

TGA: So that's a new job for journalism?

TBL: Absolutely. And they should learn to become data journalists

TGA: That's very interesting. Just on the academic side, you know of course the very lively debate about Elsevier and open access journals, where do you stand on that?

TBL: I think that's a really interesting thing. I think that scholarly publication…I tend to the like the model where you pay when you publish and people read for free. I think it might be interesting to see a market where there are both sorts of journal. Yes, I feel that getting open access is a good input instead. I also think that finding ways of paying journalists and reviewers and people who organise or you know the structure is important and I think we are going to have to see that also, we'll have to look in areas, a whole similar but different questions of how do we pay people to create blockbuster movies? How do we pay people to create small independent films? How do we pay people to create beautiful music? And so those things are all up in the air. One of the interesting thing is we may see new payment protocols being devised so that on my browser I've got tools, buttons I can use in order to pay people maybe just a few pennies at a time as I read a blog or something that could be…

TGA: Can I push you on that, because I remember Bill Gates at Davos about three years ago saying he thought micropayments were the future, but it's amazing how resistant people are to pay even just a very small payment.

TBL: Well people were resistant to paying money for music but then one particular market came along, and made it really, really, really easy then people…then I think people are much less resistant. I think it's a very tricky balance. Yes on W3C we talked about standards for micropayment years ago, really when the consortium was in its early days in the 90s. We thought the micropayments would be a really important thing then obviously with you know that would naturally occur as the web spread to be able to pay people for some content. It's question of whether you've got all the financial infrastructure, whether you've got trust for the financial infrastructure and then also when you've got a really good user interface design which gives people the right amount of control and the right amount of disability of what's gong on and…but being as un-intrusive as possible.

TGA: Can I press you because you mentioned democracy? Can I press you because we've got a sort of push-back in the course of our debate with a lot of people including some of our own students from different countries saying, "Hey but look, all these sort of nice western liberal norms, they only end up empowering the powerful, making the platform more powerful, strengthening the established hierarchies." How would you answer that?

TBL: Well I think that was a bit of generalisation so I suppose…so my general answer is onvthe net and off we do need our social structures. If you look at places like Wikipedia, it started off with a utopian social structure and it rapidly had to develop a sort of meritocracy. We see very many web systems designing meritocracies; some of them designing little sort of nests of interlocking cliques. Some people…different websites have completely different ways of deciding who's in and who's out. Or maybe sometimes associating reputation. Some systems, like auction systems, reputation is actually very, very key. Other systems, it's not, it's a question of who you know. So basically people are reinventing different social systems. They are inventing new social systems when it comes to education, which we hope the web will help when it comes to health and when it comes to governments and democracy. So yeah, there are some people on the web who run repressive regimes and where really they are not very much in favour of democracy spreading. But in general out there, the trend is towards slowly, bit by bit, more and more democracy.

TGA: Can I push you on that because of course, if you look at the distribution on the web, it is in general, a power law curve, isn't it? There are the very few reaching the very many and the very many reaching the very few. I think…

TBL: When you look at the Zipf law, then yes you have a few leading things and you have a thick middle and a long tail and the thickness of the middle is very important as well as the length of the tail. So in other words, it's important that there are lots of pieces you can go for information which are not the most popular.

TGA: Can I pick you up on that because it's such a crucial point because it's such an important phrase, the thick middle. Cecause as in politics, as in society, as in so many things, as in literature, that's actually crucial to have the thick middle. So can you…have you thought…can you can a bit more about how you get the thick middle in different fields, in knowledge provision and healthcare, in whatever it may be.

TBL: Well I think what happens in general when web scientists look at whether studies and they model what's happening and they look at k different phenomena, you find that you keep getting this power law, which does have a thick middle, it does have a long tail. It keeps turning out when you have the sort of organic mass of people talking together. You could talk to you know, mathematicians about various hypotheses about models about why you get…why you get these power laws but in general it seems when you have an organic mass, then you tend to get the power law coming out and when you have a mass of competing companies, you tend to get one leading and you tend to get other ones competing fairly closely. Every now and again, you can get a flip into a mode where you don't have the organic mass. Where you do, where somebody manages to establish a hierarchy, somebody manages to lock out the others. On the internet, they can do that in various different, they can do that commercially…

TGA: Search would be a good example wouldn't it?

TBL: Sorry?

TGA: Search would be a good example.

TBL: Search might be an example or…

TGA: One company is so far ahead that you know, not to use Google for a week is like wearing an ill-fitting pair of shoes all week.

TBL: Well of course, again we're talking about one particular company over another but in general, I think everybody just has to be aware that when a company is very successful and achieves a monopoly, there are huge downsides and you know you can look back at how…in countries where there is only one telecom provider and only one person designing telephones…

TGA: Bell AT&T?

TBL: Or the general post office in the UK for the matter. So you…at AOL, when AOL was an online provider, which had a very strong monopoly there that for a while trying to compete with the open web and after a while realising that it just couldn't. It had to be a part of it rather than be you know, the only access to it or of the only content on it. So I think that you got this lack of innovation which comes with a monopoly at any level of the stack but I think that also, it's amazing how you know, people worried about…when the web started, people were more or less scared about the open web because Netscape was completely dominant and they were worried about it. So one moment they were, then one day they weren't, they started worrying about Microsoft and then because Microsoft was suddenly completely dominant and then they were worried about Microsoft and then one moment there were with somebody else who was dominant and this happened very quickly. People were worried that Gopher was dominant and then they woke up and then there was the World Wide Web suddenly started ticking up. So I think that is every now and again we do need antitrust laws, we do need to make sure that, because there are two stable states for society, there's the long tail state and there's the completely dominated by one force and that could be you know either a government or a company and we have to make sure that we stay in the long tail power law.

TGA: If I may, two last questions. One is, we have some interesting material on the site about the problem of language bubbles. That, in a sense, the greatest frontiers on the web are no longer the state frontiers but they're the language frontiers, that the English speakers talk to the English speakers, the Chinese speakers to the Chinese speakers. Now you have built something called the semantic web. Could you tell us a bit about that and whether that also helps to overcome the problem of language bubbles?

TBL: Well it does in some ways, but not completely. It doesn't allow people to suddenly talk with a sort of Douglas Adams' Babel fish in their ear. But no one likes things about data, if you put spending data out there, you create an ontology of terms for what things are being spent on or for just terms like "total" and "amount" and "date" and things like that, those terms are generally international standards and the software in different countries and servicing people speaking different languages can be driven with glossaries. In general of the RDF technology does encourage you when you make an ontology of terms to put labels on the terms in multiple languages. So then automatically when somebody is looking at this data with a client on a different server using a different language then they automatically bridge the language barriers. Yes language is a carrier but in a way, culture is a barrier. So you can have people who speak the same language but for example the Catholics and the Protestants in Northern Ireland. Yes they speak the same language principally but they may not speak to each other at all. Or to some extent unfortunately in the United States, when you look at the Democrats and the Republicans…

TGA: Blue and red.

TBL: They just, you know, they don't link to each other's blogs. They're worlds apart. They have very different ways of using words. They have very different ways of just analysing situations, they have different world views, different world models and there's very little interoperability between them even though they use the same language. So what's interesting are the cultural barriers. So the interesting question is when you go online, are you actually on any given day bridging the culture barrier? One of the things I suggested at the last web conference is the idea of a stretch-friend. That we ask…software tends to suggest to its friends, which are mathematically calculated to be very close. They're friends of friends already. Or they're people who have read the same papers, or have been to the same conferences and so we accept all those friends suggested by the system, we will make our knot of friends more and more knotty until we just…

TGA: K-N-O-T?

TBL: K-N-O-T, yes. When we go to a party, it's great but we don't really actually meet anybody new. It's great because we meet all the same people, whoever's party we go to because we're, all of the friends of the friends which we could've met, we've already decided to formally make into our proper friends. So a stretch-friend is…you know, the system could throw up every now and again and say, "Well Timothy, now you've talked to all these people to make these interviews and that's all very well but now I want you to go and interview somebody who's not online at all, just isn't in your book, isn't in your address book." They are academic like you but they only study poetry and they're of a different religion. Or maybe they are very, very similar to you but they are of a different religion. Or they're very similar to you but they speak Chinese so I would like you to bridge the Chinese barrier. You're going to have to learn some Chinese. Maybe learning another language is a big stretch but just learning…maybe for example an engineer whose used to a situation that has been very dominated by men, should make the point of going to talk to a woman engineer in your field. To somebody…you know, maybe you're used to, go and talk to a Muslim, go and talk to somebody who differs from you by one dimension. So maybe…so I think when we look at the web, the question is, is it helping us individual people dedicated to humanity as a whole. So are they stretching to understand why the people at the other side of the border think that they can move into you know this town and occupy it when in fact I know you've been living there for so long. You know, what will take to go and understand their mentality? What will it take to understand the mentality of the person whose house you're just about to have knocked down to have a house built for you. But you know, it's…those are the divisions which are causing the, stopping us…

TGA: Just quickly on that because I think the stretch-friend is a fantastic idea. But of course there is the quite often heard argument from Cass Sunstein and others that there's also the opposite tendency on the web, the closing in, the information cocoon, talking only to the like-minded.

TBL: Yes, well people worry, they've already worried about that. The information cocoon and the filter bubble from the word go when…I was talking how the French were worried about American culture coming down the internet and swamping them and I gave the talk at a conference and you know, I came back to the hotel and USA Today, and flipped over the front page of USA Today, was a story about a French farmer putting a chain around a new McDonalds that had just been built and towing it away into his field, because you know, McDonalds represented American culture and you know, you imagine that the vapour pressure of American culture on one side and on the Louvre on the other side, you know

fighting for the heart and minds of the French. So there has always been that worry about silos. There's also been a worry about the McDonalds culture would end up the lowest common denominator, would end up permeating everywhere. So you've got this…and those two, they're both worries and they're both in a way, one is the flip side to the other and so you need to put people who are worried about the two sides in touch with each other and the solution I think is that there is a balance. Science suggests to us that maybe the power…when looking at…when you know things are in power law, maybe that's the sweet spot. So maybe we should engineer it to get people into the power law. But in general, right now, when you look at the power law, there is much too much emphasis at the…there's much too much of a peak at the national level and at the language level as you say and there's not enough of a…there's a de-emphasis at the international level. So we need to get people thinking more global, bridging the national and the language barriers and I think we should design websites to do that, we need to design systems to do that. Then we need to put it on your individual agenda as a human being and point out that because the web allows you now to cross these boundaries and to talk to somebody who's got, who's in a very different culture to you, stop jumping up and down and celebrating the fact that it allows you do it but actually spend some some time actually doing it.

TGA: Do you think that for the foreseeable future, this is in a sense as good as it gets in terms of the interactive experience - a good real-time picture of each other, good real-time audio?

TBL: No I don't think so. I'm looking at you on a quite small screen. I know that you, this would work better if you were life-sized. So I suppose that's partly because we…but in general, I think we will move to building our rooms so that we got room for quite a large screen at the end of the table so people can be sitting around the table with much more of a feeling of being same size as everybody else. The placement of voice so that when…so that…more speakers around the room so when looking at the screen, the voice comes in the right place. There's a lot of things…so the other things which we know how to do but we just haven't been commented in cases we'll make it even better. The resolution will continue to go up. Maybe with also the stereo. So now I think that this talking on little…these sort of things we'll do on our phones in the future maybe but when we talk office to office then I hope it will be much more…it'll see much more, will feel as more like you're in my office. If you're looking the future the big question in my mind is will machine translation get there?

TGA: Right.

TBL: Will it get to the point where at least when we have a typed conversation or actually when the Google Translate API was open, someone actually wrote a version of the chat programme we use which would translate so that everybody could talk in their own native language and see others talking in their own native language.

TGA: How'd it work?

TBL: So there's…well, he got it working and then Google took away the ability to be able to call on their translation system as a service so that's a shame…

This is a transcript of the interview, which has not been checked by the speakers. In case of doubt, only the spoken version is authoritative.