CARLOS IS A CANADIAN

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In honour of Professor Carlos Castillo-Chavez on his 60th Birthday

Abstract. We prove that Carlos is a Canadian, and document some important contribution of Carlos to the growth of mathematical epidemiology in Canada.

Carlos is a Canadian.

Here is a proof: Canadian nationality law specifies that *Canadian citizenship is typically obtained by birth in Canada, birth abroad when at least one parent is a Canadian citizen* [1]. Carlos is a mathematical son of a Canadian [2], Professor Fred Brauer, completing the proof.

Carlos is a modern citizen and has contributed substantially to the growth and strength of Canadian research and training in mathematical biology and mathematical epidemiology. He has been a much sought after speaker for many, if not all, mathematical epidemiology meetings, workshops and summer schools organized by Canadians. In my memory, he has never said no to any invitation from his fellow Canadian organizers, despite the huge temperature gradient between Phoenix and a typical Canadian city in the winter (Of course, being a Canadian, Carlos is constitutionally unable to say "no" to any invitation to participate in any Canadian event).

Carlos gave a lecture "Social Structure" at the 2004 MITACS-MSRI-PIMS Special Program on Infectious Diseases [3] held in Banff. This lecture attracted not only 43 students, but a couple of (Canadian!) deer to Max Bell 159, the lecture room of the Banff International Research Station. Carlos was very proud of this. He interrupted his lecture and welcomed the special audience. However, the deer came a bit late, they did not register and hence had to stand outside during the entire lecture.

Carlos was also an instructor for the 2006 Fields-MITACS Summer School on Mathematical Modelling of Infectious Diseases and he delivered his public lecture "Epidemiological Approaches and its Applications to Public Security" at the Fields Institute.

Carlos was a member of the Scientific Advisory Board of the Banff International Research Station during 2008-2011 [4], and he was partially responsible for the outbreaks of disease modelling events held at the Station.

So, Carlos is a Canadian by Mathematical Genealogy, a US citizen by naturalization and a Mexican by natural birth. This puts him in an excellent position to lead the continuing effort towards developing a North American Consortium in biomathematics. In April 2009, in response to the pressing need of mathematical modelling assistance to the real-time management of 2009 pandemic influenza, Carlos initiated and coordinated the rapid response of the Canada-Mexico-USA mathematical modelling community through a successful workshop held at the Arizona State University (Mitigating the Spread of A/H1N1: Lessons Learned from Past Outbreaks, June 25-28, 2009) [5]. This first of a series of events represented a collective and timely response to the outbreak of novel influenza A H1N1 from a group of modellers and their collaborators in public health and medical sciences in North America. This workshop was then followed up by the International Mathematical Modelling Meeting "Mitigating the Spread of Influenza A (H1N1)" , that was held at the BC Centre for Disease Control in September of 2009 with focus on modelling predictions and simulations for a possible second epidemic wave and measures to mitigate its effects. The third workshop of this conference series, "Mathematics in Emerging Infectious Disease Management" , was held in the Centro Internacional de Ciencias, Cuernavaca, Morelos, Mexico in January of 2011[6], that fortunately became an occasion to celebrate the end of the first pandemic influenza of this century. These events contributed to the growing collaborations involving Canada, Mexico and USA, and Carlos has been leading the discussion and efforts to establish this North American Consortium. This idea of North America Consortium went back at least to 1993, when Professor Fred Brauer presented a NAFTA paper at the G. J. Butler Workshop in Mathematical Ecology [7] held at the Fields Institute. This paper was based on the joint work of Carlos, Jorge Velasco-Hernandez and Fred, and it was shortly after the North American Free Trade Agreement [8](Fred represented Jorge as the Mexican representative and himself as the Canadian representative, thus forcing Carlos into the position of being the US representative). Fred described it as being similar to NAFTA in that it promised much more than it delivered?

From time to time, we Canadians take full advantage of Carlos special relationship to Canada. Perhaps I should not mention our specific "unprofessional" requests for his support to get some of our work published in a timely fashion. We made these requests as we know he would handle them professionally, at least we believe Carlos would agree that the Queens English should be an official language of international journals. Carlos has been a believer, collaborator and supporter of the MITACS project "Transmission Dynamics and Spatial Spread of Infectious Diseases: Modeling, Prediction and Control", and he is a member of our Centre for Disease Modelling.

Scientifically, Carlos is really a citizen of the world, being Canadian is a subset. This is sufficient for us: Carlos is a Canadian, and we are very proud that we can prove it!

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