# About BB Notes and Oysters

Christian Horn, Dublin

Dear Alan, "coming in from the cold" on a British Council[1] sponsored visit back in 1987 I was deeply impressed about the openness and the culture of sharing you have created in your group. In our first meeting, you hinted me at Martin-Löf and the work of the group around Bob Constable at Cornell, sharing ideas that have been at that forefront of your mind.

The spark for me came however from one of your older ideas, the "rational reconstruction" of original work in the technology settings of the time. What you didn't know at that point was, that I had just finished my Ph.D. about Reverse Engineering of Software – today a recognised branch of Software Engineering, but at the time more of a shady area.[2] However "rational reconstruction" complemented that technique, bringing it out of the narrow confines of economic or political considerations into the world of science. What you also didn't know either at the time, was that I was leading back in Berlin the attempt of creating a portable Prolog system capable of running on the much smaller and slower computers accessible in the East at that time.[3] Having the chance to work on the fastest Prolog system of its time for doing the ground work, doing a bit of science with the chance to continue it later at home, that was just a chance to big to miss.[4] At the end you got the Oyster system (and build CLAM on top of it), and I got the chance to continue the work back then in Berlin.

While that was all more or less straightforward, there is a tiny bit, I'm really proud about. And that was an idea that first actually came from Donald Knuth as "Literate Programming": Making the source code a readable book. What I tried to achieve was that the software itself contained a converter from Prolog to LaTeX, with the result that the final Report was actually the output generated by that converter (also revealing the converter itself). The documentation of the logical framework and its implementation were actually identical, thereby removing the need for formal verification all together. And more over this technique helped in the debugging process, as minor typos in the implementation have become recognisable in the printout of the rule system itself. It appears this technique could today still be in the forefront of research, as there are ongoing discussions about the relative merits between different logical frameworks, where the arguments refer to experiments with implementations, non of these implementations has however been verified against the definition of the logical framework. So it could well be that some of the discussions are based on flawed observation… But hey, this makes the scientific world go around and could be the base for another Ph.D. attempting to do a "rational reconstruction"…

I've got the chance to return to the DREAMERS three years later, after the Iron Curtain came down. I brought with me an enhanced system. I was proud and I was aiming high, bringing the dream of program synthesis into practice[5]. However there was a little bit of advice at the time that I didn't take serious: academic life is not about changing the world, it's about writing papers. Time passed, we all moved on. But looking back at the greatest time of my life I must say: Fellow DREAMERS of today, the openness Alan has created in the group is a unique opportunity: Only a really great scientist gives away the tricks of the (academic) trade without fears of competition. Take your chance! May be some of you are in the position to recreate this atmosphere and put in the seed in a different area. After all, there are many more problems to solve, and may be some really urgent ones.

Thanks, Alan!

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[1] Thanks only to a remarkable bureaucratic classification error: computing was a no-go-area for visitors from the East, Artificial Intelligence was classified as something else and the Math Reasoning Group was something beyond grasp anyway. The oversight is the more remarkable, as at that time there have been only 7 exchange visitors per year across all scientific areas, which have been most certainly closely monitored by all departments feeling responsible. I'm still indebted to my boss at the time, Herbert Frank, who offered me that chance of a lifetime.

[2] And no one on my examination committee did know about the exact nature of the software I had written about. It have been tough times.

[3] This system became later known as HU-Prolog and got among others a small fan club among Acorn computer users.

[4] Thanks to Alan for his courage of overstepping several lines in allowing his visitors equal access rights to use the facilities in his working group. Resistance or ignorance to political pressure played a great role on both sides to bring down the "Iron Curtain" and brought me back to Edinburgh and into a new life only three years later.

[5] Horn, C.: Oyster-2: Bringing Type Theory into Practice. In: *Proceedings of the IFIP 12th World Computer Congress*. North Holland, 1992 Vol. 1, pp.49-56