Impressions of Japan and ICOT

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Prolog(ue)

Copycat: *'The Japanese may be wonderful copycats, but they're incapable of producing original work'.* This is what Feigenbaum and McCorduck call the myth number 1 of Japan [1, p. 175]. I tried to look beyond it. On the 21st floor of Mita Kokusai Bldg I was happy to be given a desk with a view over Tokyo harbour. From the conference room where, during the first week of my stay, most of the presentations by members of the Fifth Lab on the current status of their research were given, I could see, however, the majestic Tokyo Tower. I don't know whether in America there are steel towers too. As a European I was reminded of the Eiffel Tower in Paris (to know the Eiffel Tower is a matter of elementary education in Europe and a book on Paris usually can be found even in the uniform (a-musing in the sense of muse-less) bookshelf of a computer scientist). My first reaction: a successful strike of the copycats in kimono. Tokyo Tower stands 333 meters tall and is the highest independent steel tower in the world. Construction began in June, 1957 and was completed in December, 1958. The Eiffel Tower, landmark in building-construction history and on the skyline of Paris was built in 1889 in a matter of months. Tokyo Tower is, however, higher than the Eiffel Tower (300.5 m resp. 320.8 with aerial, (for the Americans among you: antenna)) and much lighter: 4,000 tons of steel were used to build it compared to the 7,000 tons needed to build the Eiffel Tower. A clear example of borrowing ideas and technology first developed elsewhere and ... *improving upon it!* In this case, fortunately, not to the point where the originators have almost been driven out of business, like, for instance, cameras, watches, and ... *computers.*

'For a long time, the Japanese have been branded as imitators rather than creators. ... We all learn by imitating, as children, as students, as novices in the world of business. And then we grow up and learn to blend our innate abilities with the rules or principles we have learned. ... imitation is the first step in a child's learning process ... the original meaning of the Japanese word *manabu* (to learn) is *manebu* (to imitate).' [2, p. 160-161].

Intermezzo

Creativity: 'The outcome (of Icot) will probably hinge on what everyone always said it would: the ability, or lack thereof, of Japanese researchers to make creative breakthroughs.' [3, p. 44-12]. 'They have many excellent systems, but not the conceptual advances likely to lead to a breakthrough.' [4, p. 28]. 'My solution to the problem of unleashing creativity is always to set up a target.' [2, p. 164]. It is misleading to believe 'that if you have a big laboratory with all the latest equipment and good funding it will automatically lead to creativity. It doesn't work that way. When I was a student, one of Japan's top electrical companies built a new laboratory in a lovely wooded campus in central Japan. It was beautifully designed and outfitted with the latest equipment, and the scientists had gorgeous workstations that were the envy of their peers. The company thought that if they threw money at these scientists they might get some results. Very little came from the lab, except that many researchers used their time to do research for their advanced academic degrees at company expense. The company made a lot of Ph.D.'s, but no products to speak of. ... Only if we have a clear goal can we concentrate our efforts.' [2, p. 166]. See Icot.

Engineers: 'While the United States has been busy creating lawyers, we have been busier creating engineers. We have twice as many engineering graduates, which means, taking the relative size of our countries into account (the U.S. has about twice the population of Japan), four times the ratio of engineers.' [2, p. 174]. Icot is full of engineers. I mean that as a compliment (I am not yet a completely germanised Italian).

Harmony: Myth number 2: *'Everything in Japanese society points toward an unwavering mediocrity instead of peaks of excellence. Indeed, peaks of excellence are discouraged in the Japanese effort to achieve conformity.'* [1, p. 180]. As a matter of fact, the concept of harmony seems to be natural to the Japanese. For instance, a *pacific*, 'unique feature of Japanese technological development is

its independence from defense technology' while 'much of American and European technology is spun off of defense work funded by government.' [2, p. 163]. Harmony does not mean, however, conformity: "Morita, you and I have different ideas. I don't want to stay in a company like yours where you don't have the same ideas that I have and we are sometimes in conflict.' I said, 'Sir, if you and I had exactly the same ideas on all subjects, it would not be necessary for both of us to be in this company and receive a salary. Either you or I should resign in that case. It is precisely because you and I have different ideas that this company will run a smaller risk of making mistakes." [2, p. 147].

Management: 'A company will get nowhere if all of the thinking is left to management. ... There is no possibility of the world progressing if we do exactly the same things as our superiors have done. I always tell employees that they should not worry too much about what their superiors tell them. I say, 'Go ahead without waiting for instructions.' To the managers I say this is an important element in bringing out the ability and creativity of those below them. Young people have flexible and creative minds, so a manager should not try to cram preconceived ideas into them, because it may smother their originality before it gets a chance to bloom. In Japan, workers who spend a lot of time together develop an atmosphere of self-motivation, and it is the young employees who give the real impetus to this.' [2, p. 149]. See Icot.

Epilog(ue)

'... regardless of whatever arguments one might make about ... *adaptive creativity* that Japanese scientists and technicians used during the catch-up phase in Japan's development and the so-called *independent creativity* practised today, there is no doubt that Japan is now a full-fledged member of the world's technological community.' [2, p. 163].
Unlike the polite Japanese, i.e., taking, without too much beating around the verbal bush, the "frankly speaking" approach so dear to Americans, this is what I suggest to do: COPICOT!

means: copy icot ! (not (mw°))

Acknowledgments

References

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[3] Poe, R./Tate, P.
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[4] Fitzgerald, K./Wallich, P. (Eds)
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in: IEEE Spectrum, June 87, 28-33

Postscriptum

This is the *unscientific* part of my report on my Icot visit, compiled from the references using a *copycut* method. I was invited to stay at the Fifth Research Lab for a period of four weeks in October/November 87 to discuss issues related to knowledge representation aspects for expert systems. Please write to the above address if you are interested in getting a copy of the *scientific* part, which basically is an evaluation of the PROTON expert system tool, which can be viewed as a first, self contained R&D output of the Fifth Lab. The evaluation is done in contrast and with reference to the results and R&D ideas which have been investigated and gained at GMD in the context of the BABYLON project.

Profile of <u>Franco di Primio</u>

<u>Personal Data</u>

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<u>Education</u>

University:	Naples (Italy)	Subject:	Philosophy
	Bielefeld (Germany)	Subjects:	Linguistics
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The work on artificial intelligence grew out of an interest in languages and how people use them.

Degree: Linguistics

Activities

since 1978:   member of different research projects on knowledge representation with particular engagement in the design and implementation of object oriented programming languages.

since 1983:   member of the expert systems research group at GMD, leader and co-worker of the project on software methods for expert systems which led to the design and implementation of the BABYLON system, leader and co-worker of the TEX-I project on data interpretation and technical diagnosing for process control.

since 1986:   working on Ph.D. topic: Structure and function of hybrid reasoning systems

currently: leader of the Hybrid Inference Systems Group