Barry Hartley Slater (1936–2016): A Logical Obituary

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1 Obituaries and Curricula Vitae

Under the title "Vale Hartley Slater", on July 14, 2016, `admin` posted on `http://www.croquetwest.org.au/?p=4664`:

> "Hartley Slater passed away on Friday 8ᵗʰ July after a short illness, he was 79. Hartley took up croquet in 1978 and was AC state coach 1994 to 1997. Hartley also won a number of major AC competitions. He was the Croquet Archivist for a number of years and an A/Professor of Philosophy at UWA. His ebullient character will be missed."

This shows true devotion, although it is a bit cryptic. "AC" stands for Association Croquet, a full international version of a very funny garden game, and "UWA" for "The University of Western Australia" in Perth.

Here is another short obituary and curriculum vitae by Slater's colleague Stewart Candlish:

> "Hartley Slater (B. H. Slater) died from cancer on July 8ᵗʰ 2016 at the age of 79. He was born in Keighley, Yorkshire, England. He was educated in England at the universities of Cambridge, Oxford, and Kent (Canterbury). His first academic job was at Kent. He joined the staff at The University of Western Australia in 1976. He took up croquet in 1978 and became a skilled player and coach. He had a deep and informed interest in the arts, especially music and painting. Though he did not perform in public, he was an accomplished pianist. He published extensively in aesthetics as well as logic."

[Slater, 2014] is a long scientific curriculum vitae, probably written by Hartley Slater himself.

2   Hartley Slater's Awards and Degrees

According to ANABELLE JONES of the student registry of the University of Cambridge (`StudentRegistry@admin.cam.ac.uk`), BARRY (sic!) SLATER attended the university and was awarded the degrees of Bachelor of Arts (1958), Master of Arts (1965), and Doctor of Philosophy by Special Regulations in Divinity (2008). According to [SLATER, 2014], BARRY HARTLEY SLATER was awarded another Master of Arts (1974) and a PhD (1976) by the University of Kent at Canterbury.

3   Hartley Slater's Academic History

According to [SLATER, 2014], he studied at St. John's College Cambridge as a mathematics scholar (1955–60) and at Balliol College Oxford as a postgraduate (1960–61), then he taught mathematics in schools (1961–71) until he went to the University of Kent at Canterbury as a postgraduate student (1971–75) and a lecturer in philosophy (1974–76); finally, from 1976 until his death, he was at the Philosophy Dept. of the Univ. of Western Australia as lecturer, senior lecturer, associated professor, and honorary senior research fellow.

4   Meeting Hartley Slater

I met HARTLEY SLATER during Epsilon 2015, a workshop on "Hilbert's Epsilon and Tau in Logic, Informatics and Linguistics", June 10–12, 2015.

About an hour early for the workshop on its first day, I was standing outside a pretty remote, locked lecture hall at the Campus Triolet of the Université de Montpellier. Nobody else was around. The weather was sunny and the air was very clean after heavy rain of the days before. I had skimmed through some of SLATER's publications (in particular [SLATER, 2009]), which I found most puzzling and fascinating. I was looking forward to meeting him, and HARTLEY was the second person who joined me waiting for the door to open.

He was very open and communicative, warm and friendly, with an incredible sharpness and presence of mind.

His critical and to-the-point questions were some of the crucial ingredients that gave this workshop its precious and intensive atmosphere.

During the following months he was very helpful in answering questions and in sending me out-of-print books and papers.

5   Hartley Slater's Mission in Logic

I was deeply impressed by Hartley's talks and discussions on the workshop, and read his publications afterwards with great care. On a deeper study, they turned out to be very well written and systematic, almost flawless, and sometimes even entertaining.

Hartley wrote to me that he sees himself as an opposition against the main-stream of modern logic. From his viewpoint on modern logic, most of its problems, intricacies, and paradoxes[1] result from a wrong modeling of the general human idea of logic as found in the natural languages. For this wrong modeling he somehow blamed mathematics (cf. e.g. the titles of [Slater, 2007a; 2011b]). To solve the problems of modern logic, he suggested to correct its wrong concept formations toward the logic found in natural languages, and abhorred "mathematical" escapes such as intuitionist, substructural, or paraconsistent logics.

For instance, in [Slater, 2006], he explains most carefully that the logic of natural language does not entitle us to turn a reflexive relation into predicate. So, in a different formulation,

$$R' := \{ \ (x,y) \in R \ | \ x = y \ \}$$

is justified as a definition of a (binary) relation R' from a relation R, and

$$p(x) := \mathsf{true} \text{ if } (x,x) \in R, \qquad p(x) := \mathsf{false} \text{ otherwise}$$

is justified as a definition of a characteristic function p, but

$$P := \{ \ x \ | \ (x,x) \in R \ \}$$

is *not* justified as a definition of a *singulary predicate P*. This renders Russell's Paradox as an example of the general problem of consistency of predicate definition.[2] Indeed, the problem is Russell's

$$\{ \ x \ | \ x \notin x \ \},$$

whereas Slater's

$$\{ \ (x,x) \ | \ x \notin x \ \}$$

does not produce a contradiction.

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[1]Historically correct, Slater uses "antinomy" (Latin for "against the law") as a perfect synonym of his preferred "paradox" (Greek for "against the teachings") (cf. e.g. [Slater, 2007a, p. 125]), contrary to the modern-logic tradition starting with Zermelo, where an antinomy is a disaster for a theory, whereas a paradox is somewhat weaker and just a criterion for the quality of a theory, cf. e.g. [Peckhaus, 1990, p. 104].

[2]For example, to guarantee object-level consistency of recursive specification with positive/negative-conditional equations [Wirth, 2009], the inductive theorem prover QuodLibet [Avenhaus &al., 2003] admits only the definition of characteristic functions such as p, equality is the only (predefined) predicate, and the inductive data type of Boolean values has to satisfy $\mathsf{true} \neq \mathsf{false}$, but *not* $\forall x.(x = \mathsf{true} \lor x = \mathsf{false})$, for a Boolean variable x.

Following this observation, in [SLATER, 2007b] he discusses FREGE's Begriffs-schrift as one of the sources of modern logic[3] and finally explains why GÖDEL's fixed-point theorem, which — though not in [GÖDEL, 1931] — can be seen as a main ingredient of the proof of GÖDEL's first incompleteness theorem and of the main argument in [TARSKI, 1936], does not hold in the logic of natural languages.

In the tradition of the 19th century, HARTLEY also used to advocate probability theory as a criterion for logic. See, for instance, [SLATER, 2011a], where HARTLEY reveals a clearer understanding of the ARISTOTELIAN square of oppositions than found elsewhere.

6 Hartley Slater's Heritage in Logic

Most of SLATER's ideas deserve a broader audience and response than they have gained, for instance in the practical application of logic in linguistics and informatics. Especially his highly adequate modeling of intensional logic as found in natural languages and his most skilled mastering of HILBERT's ε ought to become part of the general teaching of logic.

As SLATER's ideas are off the beaten track of the mainstream of modern logic, in particular the learned reader will use any occasional ambiguity in SLATER's papers to escape the message. Thus, one of the main reasons for a regard lower than deserved is that SLATER — to the best of our knowledge — never had a co-author and never wrote a joint paper, "against the realisms of the age" (the title of the book [SLATER, 1998]). While there is no way to change this now, the actual problem may still be cured: A freshmen logic textbook that removes the over-simplifications in the abstraction of modern logic from the logic of natural language, by a synergetic combination of SLATER's ideas with FREGE and PEIRCE's, would be a crucial step forward in the teaching of logic today.[4]

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[3]One is tempted to check whether the FREGE quotation in [SLATER, 2007b] is as obviously inappropriate in German as it is in the English translation in [FREGE, 1952]. To find out that this is indeed so, see [FREGE, 1892, p. 34f.]. The German "Daraus ist zu entnehmen, daß das Verhältniß des Gedankens zum Wahren doch mit dem des Subjects zum Prädicate nicht verglichen werden darf." is actually worse than the English translation "It follows that the relation of the thought to the True may not be compared with that of subject to predicate." because the German is more a "must not" than a "may not" here.

[4]Of course, this textbook would have to leave GÖDEL's first incompleteness theorem &c. and the paradoxes to more advanced studies, but it would give a much more reasonable, practical, and natural impression of logic to the students, with many further advantages. For instance, informatics teachers would be happy to have a maximal set to construct co-inductive data types from, because SLATER's restrictions on predicates discussed above can be seen as a weak version of those found in QUINE's New Foundations or Mathematical Logic [QUINE, 1981].

If somebody wants to learn about the unique viewpoint of this outstanding scientist, we recommend his short, but strong paper [SLATER, 2007b] discussed above as an appetizer. A deeper study should start with [SLATER, 1988], where his main ideas are fresh and most easy to grasp and evaluate, and then follow his main logic books [SLATER, 1994; 2002; 2007a; 2011b].

7 Conclusion

No doubt, the croquet players truly miss him. I am not competent to judge on his work in aesthetics, architecture, literature, etc., but we know that all logicians miss this wonderful (though sometimes caustic) person, scrutinous scholar, ardent discussion partner, and most creative scientist.

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