

<b>Institution: University of Manchester</b>
<b>Unit of Assessment: 28 (Modern Languages and Linguistics)</b>
<b>Title of case study: Number and recursion: the popular understanding of language</b>
<p><b>1. Summary of the impact</b></p> <p>As a writer of popular (linguistic) science, and as the subject of a documentary film on his life and work, Professor Dan Everett's research on Amazonian languages like Pirahã has widely influenced popular understanding and debate about the relations between language, mind and culture. The spectacular, and sometimes controversial, conclusions of his fieldwork, theoretical and popular writings challenge the claim that all human beings are endowed with an innate language faculty and challenge the ways in which cultural values are constructed.</p>
<p><b>2. Underpinning research</b></p> <p>Professor Everett was a professor at the University of Manchester (1 Sept 2002 to 31 Aug 2006, followed by an honorary appointment 1 Sept 2006 to 31 Oct 2009). During this time he published a series of theoretical conclusions arising from data collected on nearly two decades of fieldtrips to the Amazon ([3.1] and [3.2] focus on the practicalities of fieldwork, [3.3] and [3.4] on the theoretical conclusions). The research was funded by the ESRC, the AHRB, the National Science Foundation and the EU.</p> <p>Its conclusions go radically against assumptions central to some major linguistic theories and are especially challenging to Chomsky's claim that all human beings are endowed with an innate language faculty or Universal Grammar (UG). Reactions from fellow academics as reported in the press give an indication of how radical the theoretical conclusions were within the academic context, with Steven Pinker (Harvard) referring to Everett's work as 'a bomb thrown into the party' [5.2] and Patricia Churchland (University of California, San Diego) declaring herself 'thunderstruck by the research on language and its origins' [5.5]. The academic debate is captured, for example, at [3.5 &amp; 3.6].</p> <p>Recursion or recursive embedding refers to the way in which the syntax of a language permits a phrase to occur as part of a phrase of the same category — for example a clause may occur inside a clause which is in turn inside another clause and so on — hence giving rise to potentially limitless linguistic expressions. Recursion had been described as 'the only uniquely human component of the faculty of language' by Hauser, Chomsky &amp; Fitch (2002:1569)<sup>3</sup>, but Everett argued that this fundamental property is absent in Pirahã.</p> <p>With respect to number, Everett's claim is that the language does not have a system for referring to the sequence of natural numbers in a way that we would recognise. He argued that his results show that language for exact numbers is a cultural invention rather than a linguistic universal, and that number words do not change our underlying representations of number but instead are a cognitive technology for keeping track of the cardinality of large sets across time, space, and changes in modality.</p>
<p><b>3. References to the research (AOR - Available on Request)</b></p> <p>3.1 Everett, Daniel (2004a) 'Documenting languages: the view from the Brazilian Amazon'. In: Peter Austin (ed.), <i>Language documentation and description</i>, Vol. 1. Hans Rausing Endangered Languages Project. London: School of Oriental and African Studies. (AOR)</p> <p>3.2 Everett, Daniel (2004b) 'C'ohherent Fieldwork'. In: Piet van Sterkenberg, ed., <i>Linguistics today</i>, Amsterdam: John Benjamins Publishing, 141-162. (AOR)</p> <p>3.3 Everett, Daniel (2005a) 'Biology and language: a consideration of alternatives'. <i>Journal of Linguistics</i>, 41: 157-175. (AOR)</p>

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- 3.4 Everett, Daniel (2005b) 'Cultural constraints on grammar and cognition in Pirahã: another look at the design features of human language'. *Current Anthropology* 76: 4, 621-646 (with eight solicited commentaries, by Brent Berlin, Paul Kay, Alexandre Surrales, Michael Tomasello, Anna Wierzbicka, Stephen Levinson, Marco Antonio Goncalves, and Andrew Pawley). One of the top ten most cited articles in the history of the journal. (AOR)
- 3.5 Everett, Daniel (2006a) 'Biology and language: response to Anderson & Lightfoot'. *Journal of Linguistics* 42: 385-94 (AOR)
- 3.6 Everett, Daniel (2006b) 'Responding to Valentina Bambini, Claudio Gentili & Pietro Pietrini "Discussion On Cultural Constraints on Pirahã Grammar"'. *Current Anthropology* 47: 143-5. (AOR)

The following grants supported both fieldwork and theoretical work:

- Arts and Humanities Research Board: (B/RG/AN10072/APN18332), Documentation and Description of Suyá (Ge) (£256,161.00), 2004-2006. Everett PI.
- Economic and Social Research Council: (RES-000-23-0686), Documentation and Description of Suyá (Ge) (£248,732.55), 2004-2006. Everett PI
- National Science Foundation: (BCS-0344361), Information Structure in Five Amazonian Languages (\$239,000.00; three years), 2004-2007. PI Robert Van Valin, SUNY, Buffalo.

*Journal of Linguistics* and *Current Anthropology* are both high ranking, peer-reviewed international journals. The Hans Rausing Endangered Languages Project is one of the most prestigious projects on endangered languages and language documentation.

**4. Details of the impact****Context**

Everett's findings about the Pirahã language has two salient claims that were to have impact on a non-academic audience -- that Pirahã syntax lacks the Chinese-boxes structures of 'recursion', and that the language lacks a way of counting or referring to number. This challenged current beliefs about the defining properties of human language and about the relation between human language and cognition. Backed by Everett's explorations and hypotheses, this meant that it touched on what it means to be human and this naturally created curiosity amongst a wide public. Debates around Everett's work continue to change the ways in which language and cultural difference might be thought about.

**Pathways to impact**

Professor Everett has carried out fieldwork on the Pirahã language in the Amazon region since the 1980s and more recently also on other Amazonian languages. The work has progressed through the research outputs and public events (e.g., at University of Manchester 10 May 2006, with the participation of Suyá indigenous leaders from Brazil), on into the popular success of *Don't Sleep, There are Snakes* (Profile Books/Pantheon Books, 2008) through to *Language: The Cultural Tool* (Profile Books, 2012). It has incrementally contributed to public discourse and enhanced the public understanding of a range of cultural and linguistic issues.

**Reach and Significance**

The reach of Everett's research is clear in the sales figures, which also represent a contribution to economic prosperity. *Don't Sleep...* had sold nearly 100,000 copies by autumn 2011 and was nominated for US National Book Award.

A wide range of people whose work in the media involves initiating public debate and challenging existing conceptions were influenced by the academic work. The fact that they decided to pick it up in media aimed at the public is evidence of the scope of the work and the significance of the

impact. The sheer breadth of such activity around this case can be considered indirect evidence of further impact: coverage in the UK newspapers (e.g., The Guardian [5.1] and on the BBC [5.8]) are matched internationally with coverage, for example, on the Finnish Broadcasting company YLE (1 June 2007), in The New Yorker [5.2] (in 2007) and in a full-page article on Everett and his work in Frankfurter Allgemeine [5.3] (in 2010).

The surprising facts relating to numeral expressions and recursion are referred to on individuals' weblogs around the world and in many languages [5.4]. A range of websites aimed at shaping public opinion by making public facts and views have included articles about or interviews with Everett [5.4 - 5.6]. Many of these interviews are picked up on other public debate websites or those of individuals.

A documentary film has been made based around Everett's experiences and discoveries entitled The Grammar of Happiness (Essential Media & Entertainment production with ABC Australia and Arte France. ABC1, 21 January 2013) [5.7]. The film has won three awards, including the 'Jury of Young Europeans Prize' at the FIPA Festival 2012 [5.7, Awards section]. This award, created to raise awareness of our political, economic, or social environments, encourages young citizens to take a personal stance on current affairs.

Don't Sleep... has been widely reviewed and translated into French, German, Japanese and Mandarin. As Book of the week on Radio 4, via an episode posted on YouTube, it generated over 50 pages of comments on language, human nature and religion [5.8]. As one commentator in the keeperofthesnails blogspot encapsulates it, '[this] forces you to take a fresh look at the world around you' [5.4].

Language: The Cultural Tool (as hbk, pbk and e-book) has likewise been widely reviewed in the general press [5.9] and had an impact on awareness and the exchange of scientific and philosophical ideas (for example, the commentary by Churchland, Professor Emerita of Philosophy, University of California, San Diego. [5.5]).

#### **5. Sources to corroborate the impact.** All claims referenced in section 4.

5.1 Patrick Barkham, 'The Power of Speech' [review of 5.1], The Guardian (10 November 2008). On line version at: <http://www.guardian.co.uk/world/2008/nov/10/daniel-everett-amazon>.

5.2 New Yorker, 'The Interpreter. Has a remote Amazonian tribe upended our understanding of language?' [http://www.newyorker.com/reporting/2007/04/16/070416fa\\_fact\\_colapinto](http://www.newyorker.com/reporting/2007/04/16/070416fa_fact_colapinto).

5.3 Lisa Becker, 'Freund der glücklichen Indianer', Frankfurter Allgemeine (18-19 December 2010). Reproduced on line at: [http://www.bentley.edu/files/media\\_relations/everett.pdf](http://www.bentley.edu/files/media_relations/everett.pdf).

5.4 Selection of weblogs talking about Everett:

<http://weblog.relatieklik.nl/index.php/2010/12/13/daniel-everett-over-de-gelukkigste-mensen-op-aarde/>; <http://forkullet.blogspot.com/2009/06/daniel-everett-piraha.html>;  
<http://keeperofthesnails.blogspot.com/2008/11/interview-with-daniel-everett-author-of.html>;

5.5 '15 key insights from 2011 from 15 key thinkers and writers', Forbes 13 Dec 2011 (<http://www.forbes.com/sites/trevorbutterworth/2011/12/13/15-key-insights-from-2011-from-15-key-thinkers-and-writers/2/>).

5.6 Philosophy bites website: <http://philosophybites.com/2010/09/daniel-everett-on-the-nature-of-language.html>

5.7 The Grammar of Happiness synopsis and stills gallery: <http://www.essential-media.com/node/119>.

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5.8 BBC Book of the Week episode posted on Youtube, with comments on language, human nature and religion: <http://www.youtube.com/watch?v=dr3q6Cid1po>.

5.9 Google search results on reviews of *Language: The Cultural Tool*:

[http://www.google.co.uk/search?client=safari&rls=en&q=Language:+The+Cultural+Tool+reviews&ie=UTF-8&oe=UTF-8&gws\\_rd=cr&ei=rEhqUq7vC8iR7AaqxICIBg](http://www.google.co.uk/search?client=safari&rls=en&q=Language:+The+Cultural+Tool+reviews&ie=UTF-8&oe=UTF-8&gws_rd=cr&ei=rEhqUq7vC8iR7AaqxICIBg)