

Sarah as collaborator, researcher, fellow student, inspiration...

What follows are personal reminiscences from contributors to this volume and other colleagues of Sarah's.

Jon Brennan

Working with Sarah blends wonder with rigor and I have learned much about both from many long, stimulating, and fun conversations. A recurring topic has been frustration with the smallness of each little step when seeking answers to big questions. Sarah, of course, grants each step, however small, the full measure of effort that big wondrous questions deserve and I hope to emulate her in this.

Jesse Harris

Sarah has been working on a project for her dissertation in my language processing lab for the last year or more. Her research addresses a truly foundational question regarding the character of the human language parsing system. She has devised a number of experiments to test whether the parser employs a top-down or left-corner strategy in building phrase structure. Her experimental design is extremely clever, making a precise, though intricate, prediction: a left-corner parser should delay integration into the main parse tree just when the left corner element structurally depends on a higher element in the clause for interpretation. If the dependency involves a costly resolution process, then this cost should be delayed until the segment is integrated into the main structure. On the other hand, no comparable delay is predicted under a top-down approach.

Sarah sums the problem up nicely in this passage from notes in a handout for a meeting last year:

To compare the predictions of the time course of interpretation of the two [types of parser], we need a structure that satisfies the following minimal criteria: First, it must have a left corner which contains an element that depends upon another element in a higher clause for interpretation. Second, the nature of the dependency must be structural, i.e., contingent on a particular structural configuration that cannot be determined while the left-corner remains unattached to the main tree (e.g., c-command). And third, the left-corner must be substantial in length and not be completed (and therefore integrated) at the dependent element.

Her central experiment crossed determiner type with the structure of the complement to the matrix predicate. A left-corner parser should delay integrating a complex sentential subject (a left branch), as in (1b), but not a sentential complement (a right branch), as in

(1a). Assuming that PRO would be bound by a c-commanding quantifier, and that this variable binding process is costly during on-line processing, Sarah predicted a potential interaction between structure and determiner type. In particular, a system with a left-corner parser should show an increased processing cost for sentential subjects in which a quantifier-variable relationship is manifested (as with the determiners *every* and *no*), but not when a less costly coreference relationship is manifested (as with the definite determiner). In contrast, a top-down strategy predicts no differential integration delay between these structures, and so no interaction between the type of determiner and the position of the infinitival clause. (The reflexive in (1) is designed to force PRO to take the intended antecedent, rather than getting a generic/arbitrary reading.)

- (1) a. Every/No/The nurse remembered [PRO to involve herself with patient finances] when it would have helped the hospital.
- b. Every/No/The nurse remembered that [PRO to involve herself with patient finances] would have helped the hospital.

Sarah was diagnosed with cancer for the second time just as we were preparing the items and setting up the main experiment of her dissertation. Despite having gone blind in one eye, she continued to work on the project until she could not continue. Her manipulation was retained in the study. Though data has been collected, most of it cleaned by Sarah, her illness has prevented us from analyzing the results thoroughly. The work is extremely promising, and could contribute a great deal to a foundational issue in parsing research.

My contribution to this volume explores the interpretation of *else* in expressions like *someone else* in terms of the effect it has on the implicit domain of the quantifier it modifies. Although this topic is only indirectly related to Sarah's area of research, it was inspired by her general mode of thinking and her incredible persistence. Sarah and I have discussed many ideas since meeting only a few years ago, and what has struck me above all else is her supreme intellectual honesty. She is never content with a surface understanding of much of anything: linguistics, life, politics, religion, you name it. She will continue to dig deeper and deeper into a problem until she has discovered what she needs to know, and more. I began thinking about the element *else* in terms of the potential problems it poses for binding theory. I then realized that I didn't have a good enough understanding of what *else* might contribute to the semantics, and decided to write this paper as a tribute to her, her friendship, and the ineffable impact that she has had on my life.

Matt Husband

Sarah represents the kind of academic who thinks carefully about very deep questions because she has immersed herself in both psycholinguistics and computational linguistics, two core disciplines that are required to get a solid handle on many of the general problems of real-time language processing. This was nowhere more clear to me than in her discussions with Linnaea and myself about the idea of shallow parsing. In an earlier version of the manuscript appearing in this volume, we had tried to more tightly link our finding of a delay in interpretive commitment to current theories of the grammar-parser relationship. Theories of shallow representations were all the rage in psycholinguistics, and we assumed that such

theories, being highly incremental and unguided by grammatical representation, would predict immediate interpretative commitment whereas theories that built grammatically specified representations would predict a delay. With her understanding of how these psycholinguistic theories are implemented in the computational world, Sarah immediately saw through the false dichotomy we were setting up, arguing convincingly that even theories which say they are free of grammatical representations have to come equipped with a grammar of their own, with representations and rules to process those representations, otherwise they would not be able to parse at all! Our discussion that day has stuck with me since, making me more skeptical of theories that seem to skimp on the details while at the same time humbling me as to the real theoretical commitments such approaches have to make. I am very, very grateful for this insight, and it wouldn't have come about without Sarah's keen mind and commitment to understanding both disciplines in a way that I only marvel at.

Carson Schütze

In spring of 2002 I wrote a recommendation letter for Sarah's application to our graduate program, after prodding her to apply. She had been my research assistant intermittently for about a year but had never taken a class with me. What strikes me as I re-read that letter today is what a good job it does of identifying some of Sarah's wonderful qualities, based on a relatively small amount of interaction with her. This is definitely not a testament to my prescience, but rather a reflection of how clearly those qualities shine through in everything she does, and how strikingly special she is. Here is some of what I wrote.

Sarah is easily the best research assistant I've ever had. . . so I'm very excited that she could be joining our graduate program. . . Sarah often asks me about a point of linguistic theory that has come up in a paper she is reading, or that was mentioned in one of her classes, or that she has simply thought up on her own. Her questions are always good ones, and usually sufficiently thorough-going that I am hard pressed to come up with a satisfying answer. . . She is able to see past the confusing haze of theoretical machinery and terminology and get to the heart of genuine issues and explanations. . .

In many respects noted above Sarah is not a typical undergraduate linguistics major. . . Some of this is obviously due to her greater life experience and maturity, but I am convinced there is more to it. She has the genuine intellectual curiosity of a scientist. . . She clearly enjoys thinking about linguistics a great deal for its own sake. She is also a delightful person to work with. . . In my opinion, not only would Sarah make an excellent graduate student herself, she would also inspire her fellow students to an outlook that could lift the department as a whole.

I feel so very privileged for the time I have spent with Sarah over the past 13 years. She has certainly lifted me.

Russ Schuh

My interactions with Sarah started, I believe, in about the first year that she entered the UCLA Linguistics graduate program. Sarah was trying to find her way in the world of linguistics and was looking for a project to pursue. She had a relative working in Sudan at the time and saw this as a place where she might find something interesting that involved linguistics. She came to me, as someone with field work experience in Africa, to consult about this. Nothing came of this project (probably for the better, given the current situation in South Sudan), but it began a relationship that extended over several years.

In 2002-2004, I was directing an NSF-funded research project in Nigeria—in northeastern Yobe State, where a number of non-documented or underdocumented languages of the Chadic family are spoken. During this period, I worked on five languages: Bade (two quite different dialects), Bole, Karekare, Ngamo, and Ngizim. A major focus of this project was lexical documentation, with the ultimate goal of producing six substantial dictionaries. . .

A non-trivial problem concerned the English-LANGUAGE wordlist section. Ideally, this should be a list of English glosses in alphabetical order followed by the LANGUAGE headword or headwords. The English definition field often consisted of a list of synonyms or, for polysemous LANGUAGE headwords (polysemous from the point of view of English), English words corresponding to the various LANGUAGE senses. Somehow these “definitions” had to be converted into lists of discreet English words that could be alphabetized. This is where Sarah came in. I hired her as a research assistant to convert the English definition fields into sets of one or more simple alphabetizable English glosses. With the help of the programming skills of Jeff Heinz, one of Sarah’s graduate contemporaries, we created a field where the glosses could be listed and associated in the output with a head word. Thus, from Bole *kòptu*, with an English field “weigh; measure; test; indicate, show the way, give an example”, Sarah created a list (hyphens indicate separate lines) “weigh - measure - test - indicate - example, give - exemplify”.

Sarah went through databases for six languages, ranging between about 2500 and 4000 LANGUAGE headwords, with amazing speed and efficiency, finishing all six in a matter of a few weeks, doing what must have been crushingly tedious work. I have recently been putting the finishing touches on a Bole dictionary for publication, and though it has been augmented in size by probably more than 1000 entries from the time that Sarah first worked on it, I have found very few of the entries that she created that have needed any emendation at all.

In addition to working on this research project, Sarah was the first TA in my Linguistics 105 Morphology class, which I introduced in 2006. She was always a cheerful and engaged TA who helped make getting this new class off the ground a pleasant experience. I look back on these experiences with Sarah with fond memories, especially sitting around in my office chatting over how best to provide English glosses for Nigerian foods, unfamiliar customs, ideophones, and the like. Her upbeat attitude and enthusiasm is always present for me in these Chadic databases, which I use constantly in my research.

Ed Stabler

Sarah and I often discussed the big questions—how to bring the insights of linguistic theory into computationally sophisticated psychological and neurophysiological models. We read and talked about the basic first steps taken in the 1970s in Fodor, Bever, and Garrett's (1974) *The Psychology of Language*, and how many of the basic questions that were open then are still open. But the progress in linguistics and psychology seems to have set the stage for a new and possibly, hopefully, more fruitful attack on some of the basic issues. Sarah was inspired, and her excitement was contagious.

One year, I think it was Sarah's first year at UCLA, the learnability class, Linguistics 212, was not offered, so she got together with Greg Kobele and Jason Riggle and Katya Pertsova, and they ran a reading class on this topic themselves. I was an invited speaker once or twice. I was impressed with that group of students!

Linnaea Stockall

I first met Sarah sometime around about 2002 (before the advent of gmail and its never-forget-anything archive, so exact dates are a bit fuzzy) when she came to MIT for a few weeks to do a project on long-distance priming in the MEG lab. We spent many fun hours hanging out in the lab, running subjects, tweaking scripts, fiddling with wires and geeking out about morphological processing. This first meeting clearly set the tone, since over the intervening decade+ that has followed, nearly all my interactions with Sarah have involved hanging out in short, intense bursts, in confined spaces (memorably, the world's slowest ever drive from Montreal to Boston—sorry Sarah!), and geeking out joyfully about whatever we were working on at the time. We've never spent more than a few weeks in the same city at the same time, and, sadly, never actually worked on a project together, yet somehow Sarah is one of the top two or three people I always think of or turn to whenever I encounter any problem. Get handed a course to teach on language acquisition and need some ideas? Sarah to the rescue. Discover that your invited commentator has changed their mind about participating in your workshop on argument structure at the last minute? No problem, Sarah can step in.

Putting this volume together with Carson, and seeing the wide range of people and topics that have come together for it, has simply confirmed that my experience of Sarah as one of the best and brightest and most inspiring colleagues we'll ever have the privilege of knowing is widely shared. Thank you, dear one.

Eran Zaidel

As a graduate student, Sarah attended John Hummel's course on connectionist modeling in the Psychology department. (Ever since I've known Sarah, she has never acknowledged that she knows enough about anything.) The course was not easy and Sarah soon befriended the kindred, suffering spirit of classmate Eric Mooshagian. Eric was one of the graduate students in my own lab. Everyone in our lab agreed that Sarah is an exceptionally bright and kind person and therefore, she quickly became a popular adjunct member of our group. Around 2009, Sarah started attending our lab meetings regularly. Everyone, undergrads and

postdocs alike, could always depend on her for constructive comments or kind words. I, for one, found her indispensable whenever I practiced important conference presentations

For the past ten years, I have been working on EEG Biofeedback with a neurophysiologically trained Israeli clinician, Dr. Anat Barnea. EEG Biofeedback is an amazing clinical procedure in which an individual can change his or her own brain state in a relatively short time by receiving feedback for her/his own EEG activity in real time. Sarah made me realize, by analogy with language, that there must be an innate mechanism in action during EEG biofeedback, which would explain the surprising speed and wide range of functions that can be modulated. The space of possible brain states that are rewarded during EEG Biofeedback must be rather small and “conditionable”, but the states themselves most likely involve wide cognitive domains/affective styles. In our contribution, we describe briefly an experiment that illustrates the power of this technique to modulate hemispheric specialization for language in children.