Yesterday’s post [here](http://www.BabelsDawn.com) summarized Noam Chomsky’s victory over behaviorism with his “poverty of the stimulus” paradox, holding that you cannot determine the rules for organizing sentences simply by studying the physical organization of sentences. Today I want to look at possible solutions to the paradox.

Chomsky himself had a solution: between the input and the output lies computation, and the computational system has been preprogrammed to accept certain structures and reject others. This “universal grammar” (often called UG) is inherent in all natural languages. Although there are many conceivable objections to this proposed solution, Chomsky won himself pride of place in the struggle by having overcome the old champion, B.F. Skinner and for many years the dispute was framed between Skinner’s learning theory and Chomsky’s notion of an innate universal grammar.

Terrence Deacon’s *The Symbolic Species* (1997) proposed an alternate variation: universal traits come from two directions, the brain adapting to language and language adapting to the human brain. The brain finds it easier to learn languages that work some ways rather than other ways, so these ways become the norm. At first this theory was merely an also-ran, but by the
time of the Evolang conference of 2008 in Barcelona it had come into prominence. (See: Co-Evolution Idea Won Big in Barcelona)

A year ago this blog reported on a paper, “Language as Shaped by the Brain,” by Morten H. Christiansen and Nick Chater that pushed Deacon’s idea a bit further by removing the co-evolution side of Deacon’s argument (See: The Richness of the Stimulus). Their position is that language has been shaped by the brain, period. They also added some functional pressures that would press speakers to share a commonly intelligible language. (See: Language Adapted to Us)

For the past several years this blog has been reporting evidence that supports the movement away from Chomsky’s explanation, but the Christiansen-Chater model does not really explain why it is correct to say I hit the ball he threw but not *The ball hit me he threw. We can appeal to inherent traits in the brain, but if we do not know what the traits are, we will not be very persuasive.

As a result of working on this blog, however, I believe that we can explain why that incorrect sentence should be corrected to The ball he threw hit me. The argument (developed over many posts on this blog) is:

- The input for a listener is twofold (a) the word or string of words spoken and (b) wherever the listener’s attention was directed.
- Units of language correspond to a word or string of words that focus attention.
- Sentences combine several units of language (focuses of attention) into a perception.
- In the model sentences (I hit the ball; The ball hit me) we have two units which can be formally described in the classic terms of subject and predicate; e.g., subject (I) + predicate (hit the ball) --> sentence. The full sentence can be accepted as a perception.
- In the more complex sentences, one of the pieces (he threw) is not a focus of attention and must be attached to something that is. Thus, as any editor knows, the complete unit must be the phrase the ball he threw, whether it serves as predicate or subject.
- When the speaker says The ball the focus of attention is on the ball. When the speaker says, hit me the focus of attention now shifts to the speaker himself and what happened to him. If the speaker then adds, he threw the listener has no place to focus his attention. His capacity to perceive a whole breaks down and the listener recognizes the pseudo-sentence as unacceptable.

It is this function of directing attention and creating perceptions that governs speech output. The visible structure of a sentence is not rich enough to control the output in a Skinnerian, stimulus-response, world, but when combined with input gained from directing attention it is enough to inspire intelligible sentences. The formal rules of syntax need NOT be engraved into the brain.

Thus, there is a way to accept Chomsky’s complaint about Skinner without accepting Chomsky’s solution. However, one of this blog’s commenters, Raymondw, has proposed (here) that we should not accept Chomsky’s complaint. And I will take a look at that tomorrow. Then the commenter will have the last word.

Links:
Noam Chomsky: http://chomsky.info/
B.F. Skinner: http://webspace.ship.edu/cgboer/skinner.html
Terrence Deacon: http://ls.berkeley.edu/dept/anth/deacon.html
The Symbolic Species:

Co-Evolution Won Big in Barcelona: http://ebbolles.typepad.com/babels_dawn/2008/03/co-evolution-id.html

Morton H. Christiansen: http://www.psych.cornell.edu/people/Faculty/mhc27.html
Nick Chater: http://www.psych.cornell.edu/people/Faculty/mhc27.html


Language Adapted to Us: http://ebbolles.typepad.com/babels_dawn/2008/07/language-adapte.html

RaymodW proposal: http://www.babelsdawn.com/babels_dawn/2009/06/motivation-and-speech.html?cid=6a00d83452ae69e2011570d8579b970c#comment-6a00d83452ae69e2011570d8579b970c