CHOOSE-YOUR-OWN LINGUISTICS ESSAY

1.

Very little of the evidence offered in support of Chomsky's Innateness Hypothesis stands up to scrutiny – discuss

Since Noam Chomsky first reintroduced the notion of innateness into modern linguistics, the subject has developed enormously. The main purpose of the Chomskyan or neo-rationalist linguistic programme is to establish what form the language faculty takes: that is, to establish what information crucial to human language is genetically inherited. Is it possible, however, that this whole enterprise could be founded on a false premise? In this essay I will discuss some of the evidence for and against the hypothesis that there is an innate component to human grammar. I intend to conclude that the evidence for innateness is…

(a) irrefutable – go to section 2
(b) questionable – go to section 3
(c) negligible – go to section 4

2.

…irrefutable, as it is impossible to account for language acquisition without positing detailed constraints. The only remaining question is how these constraints are in fact implemented in the mind.

Go to 5.

3.

…questionable, as it is possible that other explanations might be offered for language acquisition. These alternative approaches may be more persuasive in cognitive terms, but have to address a number of problems which are obviated by the alternative assumption of detailed representational constraints.

Go to 5.

4.

…negligible, as it centres around a flawed intuition about how much information is required for language acquisition to take place. Any

attempt to cling to a non-explanatory notion of representational constraints is hardly more informative than attributing language to the receipt of a divine gift.

Go to 5.

5.

Chomsky's main line of argument in support of innateness has been from 'the poverty of the stimulus'. This addresses the perceived problem of first-language acquisition. Chomsky reasoned that the linguistic input given to a child is so inadequate, so "restricted and degenerate" (Chomsky 1968: 27), that it is not possible for them to internalise a full human grammar based upon that evidence. We note for example that children exposed to 'baby talk', a.k.a. caregiver language, still manage to internalise a grammar with a complete inflectional morphology, apparently on the basis of inadequate evidence. It is thus argued that children require an innate language acquisition device in order to help them construct the right kind of grammar.

Chomsky is easily offended, and won't talk to anyone who crosses him. Do you nevertheless ask for evidence for this assertion?

Yes – go to 6.
No – go to 9.

6.

It has since transpired that, our intuitions notwithstanding, a very small proportion of the sentences encountered by children are in fact degenerate or ungrammatical. Therefore, it seems that there is no evidence for the claim that children receive an inadequate linguistic input.

Chomsky reformulates his claim as follows: children may not receive a degenerate input, but the input is defective, in that it does not supply enough evidence for the child to posit some of the traits which appear to be universal. A popular candidate is structure-dependency, the notion that movement operations respect the syntactic structure of the sentences to which they apply. This is exemplified by the following:

The man who is by the door is tall
Is the man who is by the door tall?
*Is the man who by the door is tall?

In this example, the question is formed by fronting the appropriate auxiliary; and which auxiliary is 'appropriate' is determined with reference to the sentence's syntactic structure. Chomsky's conclusion is that we must have an innate predisposition towards structure-dependency, or there would be no adequate way of acquiring this, given that most of the data supporting structure-dependency are from complex sentences peripheral to the learner's experience.

On the other hand, this case has been attacked by Elman (2002), from a connectionist perspective. Elman implements a simple recurrent network (SRN) and supplies it with a plausible set of data. He claims that this network, although a massive simplification of human mental processes, is able to deduce the principle of structure-dependency.

Chomsky and Elman are clearly in conflict on this point. It is your decision:
If you are going to fight alongside Chomsky against Elman, go to 7.
If you are going to fight alongside Elman against Chomsky, go to 8.

7.

Of course, while Elman's result is a pretty one, it is easy to question its relevance to human language acquisition. If a computer is set up to recognise the concept of structure, there is no reason why it shouldn't be able to acquire structure-dependency. Furthermore, it could be argued that the data Elman supplies his computer with are fundamentally richer and more focused than those experienced by the human learner. This is fundamental to the issue: obviously given enough data, the child could learn structure-dependency as well. So Elman is merely trying to circumvent the issue, arguing against the claim that structure-dependency could not be learned under any circumstances, when no-one is supporting that claim.

Go to 9.

8.

When we consider how much more detailed and intricate the workings of the human brain are than this simple network, it is easy to believe that – contrary to our instincts – such a thing as structure-dependency could be learned by a child on the basis of very limited data. Let us not forget how effective a learning device the human brain actually is, especially in its early years.

In recent work, Chomsky seems to have shied away from the claim that structure-dependency is in itself a cognitive universal. However, he still argues that the key property of recursion must have some kind of hard-wired mental interpretation. Even if this is the only property about which we can make the claim, as he seems to imply in recent work, he is convinced that this must underlie the unique human language faculty.

If you'll grant him that, go to 9.
If you won't, go to 10.

9.

Of course, this still leaves the question open of how the posited restrictions could be hard-wired into the brain. We are talking about principles, in terms of the Principles and Parameters approach. Broadly speaking, there are two main ways of conceiving of these restrictions; either, as Chomsky does, we think of them having a physical interpretation in terms of the interactions between certain neurons, or we can adopt the approach described by Aitchison (1989) and think of the mind as being endowed with a set of particular processes which account for the universals.

If you want to stick with Chomsky, go to 11.
If you're bored with Chomsky and want to go off with Aitchison, go to 12.

10.

This is, of course, the last refuge of an unsound argument. And to claim that recursion, of all things, is a language-specific property, seems to be ridiculous. We should be able to agree that our conception of the natural numbers, {1, 2, 3…} is founded on recursion, rather than the specification of an arbitrarily long list. There is no reason to suppose that this is a language-specific property. It is, on the other hand, plausible to claim that recursion is merely a sign of the degree to which our cognition has advanced as a species. If that is to be our argument, then any attempt to identify a species-specific language faculty must inevitably founder, simply because of the impossibility of dissociating it from more general cognitive considerations. And this is before we even consider the growing consensus that representational constraints of the kind Chomsky's theory necessitates are simply not present in the human brain at birth, as evinced by the plasticity of brain function, demonstrated by numerous experiments.

In conclusion, then, it seems that there is no reliable evidence to support the claim that humans have an innate language faculty. This is, in fact, encouraging for our studies, because it means that an account of language with genuine explanatory power, founded in physiological considerations, is accessible to us.

Go to 13.

11.

The physiological details of this are necessarily sketchy; we are not anatomists. However, the linguistic evidence allows us no doubt as to the fact that these rules and restrictions must be implemented. The details of how this occurs are not known to us at present, although recent studies have moved us closer to understanding where in the brain the relevant cells might be sited. To ask whether this is possible is inane; this is how it must be, hence *a fortiori* it is possible. Further progress in cognitive neuroscience should make it clear to us exactly how all this works.

In conclusion, then, the evidence is irrefutable that the human language faculty has an innate component, as is made clear by the presence of unlearnable universal linguistic phenomena. To progress to a deeper level, we must wait for the cognitive scientists to catch up with us. However, there is no doubt that the accounts currently mooted meet any reasonable definition of having 'explanatory power'.

Go to 13.

12.

For Aitchison, language is not about the implementation of physical, inter-cellular connections, but rather about the functioning of particular processes. These are by implication unique to humans, and provide us a neat explanation of how language can be acquired and must naturally have certain features. The details are necessarily vague, due to our lack of understanding of the nuances of mental processes. However, given the implausibility of more restrictive constraints, to ask whether this is possible is inane; this is how it must be, hence *a fortiori* it is possible. Further progress in cognitive neuroscience should make it clear to us exactly how all this works.

In conclusion, then, we need some kind of mechanism for accounting for universal linguistic phenomena, and there is good reason to suppose that it must be innate. However, the process approach is both more intuitively appealing and more plausible than the traditional Chomskyan approach involving hard-wired constraints.

Go to 13.

13.

The question of how to account for the universal aspects of human grammar has long been an issue, ever since Roger Bacon first suggested a kind of universal grammar as an alternative to the Biblical story of the Tower of Babel, then believed to offer an explanation of the diversity of human language. However, with recent advances in theory and experiment, it seems reasonable to conclude that we are finally approaching an unarguable understanding of precisely what is going on in the minds of language speakers.