

Good and Bad Arguments For and Against Linguistic Nativism

Virginia Valian

Why do we care about linguistic nativism, what kind of nativism are we talking about, and what are the arguments for and against it? We care about nativism because we care about what all humans have in common and we care about what makes us human. We also care about how we differ and what the principles are that determine the limits of variation and diversity.

What are we arguing about? To sharpen the discussion, I start with what we are *not* arguing about. Everyone agrees that humans (among other animals) have genetic predispositions and capacities. Arguments exist about exactly what those predispositions and capacities are, as I detail shortly, but everyone agrees that we have them. A genetic predisposition is a “genetic characteristic that influences the possible phenotypic development of an individual organism within a species or population under the influence of environmental conditions” (Wikipedia 2026). Everyone agrees that we have innate mechanisms that support learning.

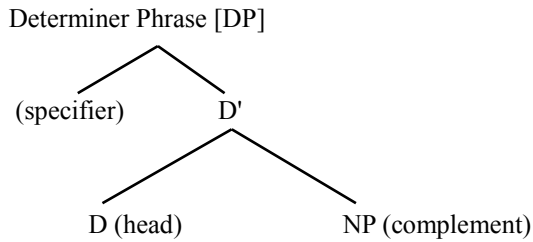
Argument starts (but does not end) in detailing what particular mechanisms animals bring to the acquisition of language. Among domain-general suggestions have been: deduction, induction, hypothesis testing (my personal favorite), generalization, associative learning, conditioning, pattern detection, exemplar learning, analogy formation, and statistical learning. Among domain-specific suggestions have been: imprinting, parameter-setting, triggering, song learning. Keep in mind that different mechanisms presuppose different content. Thus, we argue about just which innate mechanisms support learning, but we do not argue about whether there *are* innate mechanisms.

What we do argue about is whether there is any innate content: is there knowledge that is independent of experience? If so, what are the specifics of that innate content? Although I concentrate here on language development, similar arguments occur in cognitive development (Carey, 2009; Spelke, 2022; Spelke & Kinzler, 2007). Spelke and Carey use empirical data to argue for core knowledge in cognition, such as knowledge of the cause-effect relationship, agency, number, and geometry.

Following early proposals (Chomsky, 1965; Katz & Postal, 1964), I propose formal and substantive universals as innate content. Formal universals refer to the *form* of the grammar, such as binary X-bar syntax. Substantive universals

* Virginia Valian, Hunter College and CUNY Graduate Center, valianresearch@gmail.com. My thanks to Jill de Villiers and the conference organizers. Special thanks to the people with whom I have had vigorous discussions about the issues herein, very many of whom continue to disagree with me.

refer to, *inter alia*, categories and features. What would an innate category look like? Here is a suggestion for Determiners.



Categories have no independent import outside of the grammar of which they are a part. Determiners take Noun Phrases (NPs) as their complement. That statement puts Determiners and Nouns within a system in which all the pieces are interconnected. The template also assumes X-bar notation, so it makes use of a formal universal in expressing the form of a substantive universal. (Although I have shown the order that English uses, order is presumably not specified in the template.) There are other candidates to argue about: recursion, constraints, merge, parameters, the extended projection principle (EPP), abstract case, the case filter, and so on. Some of those candidates presuppose categories (e.g., the case filter presupposes nouns as a category that is cased), and some presuppose formal universals (e.g., merge presupposes binary branching).

What is a strong empirical argument for or against universals? There are two parts. First, obviously, it has to have supporting evidence. Second, the argument has to work two ways: a) if it's true, it works in favor of the claim; it can't be irrelevant; b) if it's false, it works against the claim; it can't be irrelevant.

We can now examine four arguments in favor of nativism, that I will show are suggestive at best: species specificity, the existence of a sensitive or critical period, independence from intelligence, and brain localization.

1. Species specificity. This is likely true, and it is suggestive. But it is only suggestive, because if language weren't species-specific, that need only mean that other species also have the innately postulated item (and do or don't express it for other reasons).
2. The existence of a sensitive period. This is likely true, and it is suggestive. But it is only suggestive, because if there were no sensitive period, that could mean simply that the innate concepts are available throughout life.
3. Independence from intelligence. This is under dispute, but let's say it's close to true. It is suggestive, if true. But it is only suggestive, because if language acquisition correlated with intelligence (as it seems to for adult second language learning), that need only mean that the innate concepts are more easily accessible with normal intelligence.

4. Brain localization. There is at least a marginal case to be made for brain localization, such as Broca's area. But it is not even suggestive, since anything can be localized, whether it is innate or not, and it is irrelevant in a second way, since anything can be distributed, whether it is innate or not.

I turn now to four arguments against nativism. I will show that these arguments sometimes fail on empirical grounds and sometimes are irrelevant: absence of productivity in early child speech, presence of formulae in early child speech, presence of rich input, input frequency effects.

1. Absence of productivity. This is factually false, since productivity is rampant, and thus fails on the empirical side. But, if productivity were absent, it would be an argument against nativism (barring brain injury and the like). Since there is productivity, it's not an argument. For arguments for and against the productivity of Determiners, see, e.g., Meylan, Frank, Roy, & Levy, 2017; Pine, Freudenthal, Krajewski, & Gobet, 2013; Valian, 2013; Valian, Solt, & Stewart, 2009; Yang, 2013.
2. Presence of formulae. This is true, but formulae co-occur with productivity, as is the case, for example, in adults. Children are more rather than less formulaic with development. If there were no productivity, but only formulae, that would be an argument (barring brain injury and the like), but productivity exists.
3. Presence of rich input. The input is rich: there is a lot of it, it is sufficient to support language development (although perhaps not necessary, viz. work on home sign systems and Nicaraguan Sign Language), and it has demonstrable effects. But chimps, unlike children, that are exposed to language, do not acquire it. The value of input depends on the learner's ability to exploit it, so the presence of rich input is irrelevant without specifying what the learner can do with it. I will return to this point later, in a discussion of large language models. Conversely, if the input were not rich, the human learner's ability to acquire language would be even more striking.
4. Frequency effects. We learn frequent things faster than infrequent things. This is true. But frequency effects can co-exist with nativism, so frequency effects are irrelevant. If frequency effects did not occur, that would also be irrelevant.

The empiricist argument from parsimony is different from the previous four, because it does not make an empirical claim. Rather, the claim is that empiricism is a more parsimonious theory because it postulates fewer entities. It does not, for example, postulate the innateness of syntactic categories. One problem with parsimony is that unless comparisons between two theories involve the same explananda, they cannot be compared on simplicity grounds. Theories can only

be compared on simplicity grounds if they are explaining the same thing. Empiricism and nativism do not posit and hence do not explain the same final state. Empiricist theories typically project a final state that is considerably more impoverished than the final state projected by nativist theories. The conception of the final state has repercussions for the conception of the initial state. The second problem is the need to account for development and not just one temporal slice, which requires adding in a mechanism that will get us from point A to point B. That mechanism also requires empirical support.

What data do bear on nativism? I suggest a partial list that includes: home sign (e.g., Coppola, 2025; Coppola & Newport, 2005; Goldin-Meadow, 2005, 2025); Nicaraguan Sign Language (e.g., Senghas, Kita, & Ozyurek); systematic errors children make that are not present in the input (e.g., failure to invert in *wh*-questions (e.g., Stromswold, 1995); early productivity with Determiners (Shi, 2014); understanding of non-local dependencies (Perkins & Lidz, 2021). Arguments can – appropriately – be made for and against each of these. I say “appropriately” because the existence of any of them is sufficient to bear on nativism.

That takes us to a little appreciated fact: nativism makes an existential claim, while empiricism makes a universal claim (Valian, 2014). As a result, nativism is easier to demonstrate in principle. If *only one* aspect of linguistic structure or content is innate, nativism is correct, and the arguments are only about other candidates for innateness. Empiricism, in contrast, has to laboriously demonstrate that *no* aspect of linguistic structure or content is innate.

Earlier I discussed the fact that the input is rich – in that it amply contains all of the regularities of whatever language the child is faced with. This is where the argument from the poverty of the stimulus comes in. That argument is not about the quality of the child’s input – the input is not degenerate and is almost always grammatical (at least at the phrasal level). Rather, the argument is that the child acquires syntactic concepts that are not directly observable from the surface form of the input, thus indicating an innate set of concepts. Recent research with large language models (LLMs) has challenged that argument. (See, for example, Piantadosi, 2024.) It is not just that LLMs produce perfectly grammatical sentences, but that they appear to be able to answer questions about grammaticality as humans do.

Consider a string of words like “Jane wondered whether Bill to go”. That is ungrammatical, even though the string is superficially similar to other strings that are grammatical, such as “Jane wondered whether to go” and “Jane expected/asked Bill to go”. A classic answer is that “Bill” is uncased – is neither a subject nor an object – in the “wonder” sentence. From examples like these the principle that all NPs must be cased, even if there is no overt morphological evidence of case, was developed. But LLMs will never produce an ungrammatical string like “Jane wondered whether Bill to go” and, if asked, will judge such a string as ungrammatical. Thus, despite the apparent poverty of the stimulus, an LLM derives the correct response. That would seem to obviate the need for an innate universal that says all NPs must be cased. (Nor are linguists in

agreement that there is such a principle. I am taking it as an example of how the argument would run.)

Let's now take a step back from the LLMs and imagine a Martian with a stack of paper with all the *whether* sentences in English that ever existed. In fact, the Martian has a stack with all the sentences in English that ever existed and all the subparts of sentences that ever existed. The Martian doesn't speak English – it's Greek to her. But she has the list. When asked (in Martianese) about the grammaticality of “Jane wondered whether Bill to go”, she completes a search of her stack, finds no examples of “wonder whether N to V” among them, and therefore rejects the string. And now we ask the Martian why the string is ungrammatical. She consults another stack of paper and finds everything that has ever been written about strings of that form, and finds a variety of reasons for the ungrammaticality, among which is violation of the principle that all NPs must be cased. She conveys all of that information to us.

Has the Martian demonstrated that the generalization about NPs is not innate? Has she demonstrated that the input is not in fact impoverished? I think not: Martians and humans differ epistemologically. The Martian makes a calculated bet that the missing sentence type won't crop up down the road. The human *knows* it won't, unless it's uttered by mistake. The Martian has a stack of paper and knows that the queried string of words is not on it; the human has knowledge of the language. The poverty of the stimulus argument is an argument about knowledge. It says that the input will not support knowledge, and that innate knowledge is necessary. The Martian's success shows that a non-grammar-based, non-knowledge-based, workaround to supply the right answers is possible. It does not show that knowledge does not require innate concepts.

In conclusion, nativism is a claim about innate knowledge: nativism claims that innate knowledge exists (and requires data to flesh out). Most arguments for and against nativism are irrelevant or incorrect. The poverty of the stimulus argument still has legs.

References

- Carey, Susan E. (2009). *The origin of concepts*. Oxford, UK: Oxford University Press.
- Coppola, Marie. (2025). Homesign research, gesture studies, and sign language linguistics: The bigger picture of homesign and homesigners. *Topics in Cognitive Science*, 17(3), 492-507.
- Coppola, Marie, & Newport, Elissa L. (2005). Grammatical subjects in home sign: Abstract linguistic structure in adult primary gesture systems without linguistic input. *Proceedings of the National Academy of Sciences*, 102(52), 19249-19253.
- Genetic predisposition. (2025, September 30). In *Wikipedia*. https://en.wikipedia.org/wiki/Genetic_predisposition.
- Goldin-Meadow, Susan. (2005). *The resilience of language: What gesture creation in deaf children can tell us about how all children learn language*. Hove, UK: Psychology Press.
- Goldin-Meadow, Susan. (2025). The mind hidden in our hands. *Topics in Cognitive Science*, 17(3), 443-468.

- Meylan, Stephan C., Frank, Michael C., Roy, Brandon. C., & Levy, Roger. (2017). The emergence of an abstract grammatical category in children's early speech. *Psychological Science*, 28(2), 181-192.
- Perkins, Laurel, & Lidz, Jeffrey. (2021). Eighteen-month-old infants represent nonlocal syntactic dependencies. *Proceedings of the National Academy of Sciences*, 118(41), e2026469118.
- Piantadosi, Steven T. (2024). Modern language models refute Chomsky's approach to language. In Edward Gibson & Moshe Poliak (Eds.), *From fieldwork to linguistic theory: A tribute to Dan Everett* (pp 353-414). Berlin, DE: Language Science Press.
- Pine, Julian M., Freudenthal, Daniel, Krajewski, Grzegorz, & Gobet, Fernand. (2013). Do young children have adult-like syntactic categories? Zipf's law and the case of the determiner. *Cognition*, 127(3), 345-360.
- Senghas, Ann, Kita, Sotaro, & Ozyurek, Asli. (2004). Children creating core properties of language: Evidence from an emerging sign language in Nicaragua. *Science*, 305(5691), 1779-1782.
- Shi, Rushen. (2014). Functional morphemes and early language acquisition. *Child Development Perspectives*, 8(1), 6-11.
- Spelke, Elizabeth S. (2022). *What babies know: Core knowledge and composition* (Vol. 1). Oxford, UK: Oxford University Press.
- Spelke, Elizabeth S., & Kinzler, Katherine D. (2007). Core knowledge. *Developmental Science*, 10(1), 189-96.
- Stromswold, Karin. (1995). The acquisition of subject and object *wh*-questions. *Language acquisition*, 4(1-2), 5-48.
- Valian, Virginia, Solt, Stephanie, & Stewart, John. (2009). Abstract categories or limited-scope formulae? The case of children's determiners. *Journal of Child Language*, 36(4), 743-778.
- Valian, Virginia. (2013). Determiners: An empirical argument for innateness. In M. Sanz, I. Laka, & M. Tanenhaus. (Eds.). *Language down the garden path: The cognitive and biological basis for linguistic structure* (Chapter 14, pp 272-279). New York: Oxford University Press.
- Valian, Virginia. (2014). Arguing about innateness. *Journal of Child Language*, 41(S1), 78-92.
- Yang, Charles. (2013). Ontogeny and phylogeny of language. *Proceedings of the National Academy of Sciences*, 110(16), 6324-6327.

Proceedings of the 50th annual Boston University Conference on Language Development

edited by Romi Hill, Xinhan Jiang,
Danutham Worapipat, and Aditya Yedetore

Cascadilla Press Somerville, MA 2026

Copyright information

Proceedings of the 50th annual Boston University Conference on Language Development
© 2026 Cascadilla Press. All rights reserved

Copyright notices are located at the bottom of the first page of each paper.
Reprints for course packs can be authorized by Cascadilla Press.

ISSN 1080-692X
ISBN 978-1-57473-047-0 (2 volume set, paperback)

Ordering information

To order a copy of the proceedings or to place a standing order, contact:

Cascadilla Press, P.O. Box 440355, Somerville, MA 02144, USA
phone: 1-617-776-2370, sales@cascadilla.com, www.cascadilla.com