

Creativity, Generative Grammar, and *Erzeugung*

Elizabeth Coppock, October 11, 2004

1 Creativity

Both Chomsky and Humboldt are interested in making theories of the *creative* aspect of language, in some sense. Chomsky proposes to explicitly formulate a model of this:

Within traditional linguistic theory, furthermore, it was clearly understood that one of the qualities that all languages have in common is their “creative” aspect. Thus an essential property of language is that it provides the means for expressing indefinitely many thoughts and for reacting appropriately in an indefinite range of new situations. . . The grammar of a particular language, then, is to be supplemented by a universal grammar that accommodates the creative aspect of language use and expresses the deep-seated regularities which, being universal, are omitted from the grammar itself. (*Aspects*, p. 6)

He goes on to argue for the necessity of explicitly formulating the nature of this universal grammar. He proposes to do so with a *generative grammar*, which “assigns to each of an infinite range of sentences a structural description indicating how this sentence is understood by the ideal speaker hearer” (*Aspects*, pp. 4-5), and is also “perfectly explicit” (p. 4).

Humboldt is also interested in the creative aspect of language. He says that “the revelation of man’s mental powers is the highest aim of all spiritual endeavor, the ultimate idea which world history must strive to bring forth clearly from itself” (p. 21). This would imply that his goal, as well, is “the revelation of man’s mental powers”. By “man’s mental powers” he means something greater than the creative aspect of language, but something that includes it. This mental power is “truly *creative*” (p. 29), and can be revealed through “the comparative study of languages, the exact establishment of the manifold ways in which the innumerable peoples resolve the same task of language formation that is laid upon them as men” (p. 21).

Chomsky says (in defense of his use of the term “generate” in “generative grammar”) that “‘generate’ seems to be the most appropriate translation for Humboldt’s term *erzeugen*, which he frequently uses, it seems, in essentially the sense here intended” (*Aspects*, p. 9). Indeed, Humboldt’s term *erzeugen*, like Chomsky’s “generate”, represents a concept of creativity in language. His term also appears to denote not any particular production of a single utterance, but an “underlying competence as a system of generative processes”, as Chomsky describes it, in the same way that “a generative grammar is not a model for a speaker or a hearer”, but a “[characterization of the] knowledge of the language that provides the basis for actual use of language by a speaker-hearer” (*Aspects*, p. 9).

Chomsky compared “generate” to *erzeugen* when trying to make exactly this distinction for the meaning of “generate”, so perhaps there were no *relevant* differences between Chomsky’s “generate” and Humboldt’s *erzeugen* when Chomsky made this comparison. However, there are in fact *essential* differences between what Chomsky means by “generate” and what Humboldt means by *erzeugen*, and underlying these are essential differences between their concepts of creativity in language.

2 Dependence on Society

Both Chomsky and Humboldt take this creativity to be located within the individual. Chomsky shows this when he says that “[l]inguistic theory is concerned primarily with an ideal speaker-listener” (*Aspects*, p. 3). Humboldt’s *erzeugen*, as well, is performed by an individual:¹

“So although languages are thus the work of *nations*, in a sense of the term liberated from all misunderstanding, they still remain the self-creations of *individuals*, in that they can be produced [*erzeugen*, p. 169] solely in each individual, but only in such fashion that each presupposes the understanding of all, and all fulfil this expectation.” (p. 44)

However, Chomsky’s notion of a generative grammar does not crucially depend on the existence of a society, whereas Humboldt’s view of language production *erzeugen* crucially involves the society. The same quotation from Humboldt continues:

“Though we may now consider language as a world-view, or as a linkage of thoughts, since both these tendencies are united within it, it still always necessarily rests upon the *collective power of man*; nothing can be excluded from it, since it embraces everything.” (p. 44)

For Humboldt, *erzeugen* “presupposes” and “necessarily rests upon” society, as “the understanding of all” or “the collective power of man”. A generative grammar as conceived by Chomsky, in contrast, can exist perfectly well within an individual without a society.

3 Predictability

Chomsky’s concept of creativity is such that its results can be predicted: a generative grammar makes predictions about how a person will interpret a given sentence. For Humboldt, on the other hand, the products of creativity remain “inexplicable”:

“But not only the primitive formation of the truly original language, but also the secondary formations of later ones, which we know quite well how to resolve into their components, are to us inexplicable, precisely in respect of their actual gestation [*Erzeugung*, p. 168]. All *becoming* in nature, but especially of the organic and living, escapes our observation.” (p. 43)

To Humboldt, we cannot explain *erzeugen*, thus we cannot predict how it will behave. It is, as Chomsky might say, “not serious subject-matter for a discipline”, while Chomsky’s generative grammar supposedly is. This point is reinforced by the following quotation from Humboldt:

If we wish, therefore, to peer here into the products of *creative nature*, we must not foist ideas upon her, but take her as she presents herself. In all her creations she brings forth a certain number of forms expressing what has been brought to reality by each species, and suffices to complete its idea. We cannot ask why there are not more or different forms; there are just no others about – would be the only appropriate answer. (p. 25)

In modern terms, claiming that “we cannot ask why we don’t have more or different forms” is like claiming that we cannot ask why certain forms are ungrammatical. But a generative grammar does exactly that; it crucially rules out certain forms, thus in one sense of explanation, explains why we don’t have more or different forms.

¹Page numbers inside square brackets are from the Schönigh edition in German; page numbers in parentheses are from the Cambridge University Press edition in English.

4 Definability

Both Chomsky and Humboldt hold that creativity entails the production of more than a finite set of utterances. In fact, Chomsky nearly *equates* creativity with the capacity to produce an unlimited number of utterances. Notice, in the quotation from page 6 of *Aspects* given in section 1, that what follows from language having a “creative” aspect is merely the infinitude of forms it can take. Chomsky’s focus on creativity as infinity is further reinforced by the following quotation from him:

Although it was well understood that linguistic processes are in some sense “creative”, the technical devices for expressing a system of recursive processes were simply not available until much more recently. In fact, a real understanding of how a language can (in Humboldt’s words) “make infinite use of finite means” has developed only within the last thirty years, in the course of studies in the foundations of mathematics. Now that these insights are readily available it is possible to return to the problems that were raised, but not solved, in traditional linguistic theory, and to attempt an explicit formulation of the “creative” processes of language. There is, in short, no longer a technical barrier to the full-scale study of generative grammars. (*Aspects*, p. 8)

By saying that there is “no longer a technical barrier” Chomsky implies that recursion is sufficient for expressing the creative processes of language. Chomsky also says in this passage that recursion is necessary for expressing the creative processes of language. By saying that recursion is necessary and sufficient for describing creativity, Chomsky equates creativity with the type of infinity that can be described with recursion. This type of infinity is well-defined; although a system of recursive rules describes an infinite number of sentences, it does not describe an *indefinite* number of sentences.

Humboldt’s concept of *erzeugen* involves the production of a more-than-finite number of utterances, too, as can be seen from the passage that Chomsky alludes to:

But the procedure of language is not simply one whereby a single phenomenon comes about; it must simultaneously open up the possibility of producing an indefinable host of such phenomena, and under all the conditions that thought prescribes. For language is quite peculiarly confronted by an unending and truly boundless domain, the essence of all that can be thought. It must therefore make infinite employment of finite means, and is able to do so through the power which produces [*erzeugenden*, p. 221] identity of language and thought. (p. 91)

Here, we see that Humboldt’s creativity involves infinity: he calls language “an unending and truly boundless domain”. But the use of recursive rules to produce a fixed set of strings will not in fact achieve a depiction of how language makes “infinite use of finite means” according to Humboldt. The possible phenomena are “indefinable”. Moreover, if language is “truly boundless”, then it is not circumscribed by any rules, and is thus not able to be delimited with an explicit grammar.

5 Building on itself

For Chomsky, a model of creativity does not crucially involve a means for the system to build upon itself. A generative grammar (strongly) generates a set of sentences, and (weakly) generates a set of structural descriptions (*Aspects*, p. 60), and both of these sets are taken to be fixed.

On the other hand, a kind of evolution is crucial to Humboldt’s concept. In the following analogy, the term *Erzeugung* appears to represent not a process that generates a fixed set of utterances, but one whose set of generated utterances changes over time, in response to what has been generated before.²

²The crystal analogy bears some resemblance to Wittgenstein’s analogy between language and a city: “Our language can be seen

“Language arises, if the simile be allowable, in much the same way that, in physical nature, one crystal builds up upon another. The formation occurs gradually, but according to a law. This initially more predominant tendency of language, as the living creation [*Erzeugung*, p. 284] of the mind, lies in the nature of the matter. . .” (p. 148)

In this passage Humboldt calls *Erzeugung* “living”, in the sense that it grows, in the way that a crystal grows. The concept that Humboldt is describing here cannot be translated with Chomsky’s “generate”; Humboldt’s *erzeugen* crucially has a growing, hence ever-changing product; Chomsky’s “generate” has a fixed one.

6 Producing itself

A generative grammar as conceived by Chomsky in *Aspects* is not self-modifying; its output does not even change. Humboldt’s creativity is not only a process whose output changes depending on what has already been produced, but is also a process that modifies itself, or gives life to new, different processes.

“It is the outstanding peculiarity of the spirit, enlarging the concept of human intellectuality, and emerging in a manner unexpected, and, in the ultimate depths of its appearance, inexplicable. It is especially marked out by the fact that its products are not mere foundations on which further construction can be effected, but carry within them at the same time the rekindling breath that engenders [*erzeugt*, p. 153] them. They propagate life, because it is from full life that they proceed. For the power that produces them works with the tension of its whole endeavour and in its full unity, yet at the same time truly creatively, regarding its own procreation [*Erzeugen*, p. 153] as something inexplicable even to itself; it has not just seized upon novelty by chance, or merely latched on to the already known.” (p. 29)

Humboldt metaphorically equates human intellectuality with “rekindling breath”, thereby comparing the result of human intellectuality (including language) to fire. Fire is a process that can grow and produce itself; it can bring about more fire. Thus Humboldt’s conception of language is one of a self-producing process. When Humboldt says “they [the products of human intellectuality] propagate life”, he implies the same result: that language grows and produces itself.

7 Encapsulation

A generative grammar is to represent a language module encapsulated from other aspects of cognition. Humboldt uses the term *erzeugen* more broadly, to describe not just the human capacity for language but also for art and science.

... Thus do *science* and *art* arise, and the goal, therefore, of mankind’s developing progress is always the fusion of of what is produced independently from within [*dem Innern selbst-thätig Erzeugten*] with what is given from without, each grasped in its purity and completeness, and bound into the subjection which the current endeavour by its nature demands.

Thus Humboldt’s *erzeugen* is part of a general capacity for artistic and scientific genius, whereas a generative grammar generates only structural descriptions of sentences and strings; Humboldt’s *erzeugen* applies to a much broader range of human activities.

as an ancient city: a maze of little streets and squares, of old and new houses, and of houses with additions from various periods; and this surrounded by a multitude of new boroughs with straight regular streets and uniform houses” (*Philosophical Investigations*, 18).

That Humboldt's conception of language does not involve an encapsulated language module is further supported by the passage given in §6, when he says that "the power that produces them [the products of the spirit] works with the tension of its whole endeavour and in its full unity". This idea is even further supported by following passage:

Since intellectual effort does not just occupy the understanding, but arouses the whole man, this too is chiefly promoted by the sound of the voice... For as living sound it comes forth from the breast like breathing life itself, is the accompaniment, even without language, to pain and joy, aversion and desire, and thus breathes the life it flows from into the mind that receives it, just as language itself always reproduces, along with the object presented, the feeling evoked by it, and within itself couples, in ever-repeated acts, the world and man, or, to put it otherwise, the spontaneously active and receptive sides of his nature. And suited, finally, to vocalization is the upright posture of man, denied to animals; man is thereby summoned, as it were, to his feet. For speech does not aim at hollow extinction in the ground, but demands to pour freely from the lips towards the person addressed, to be accompanied by facial expression and demeanour and by gestures of the hand, and thereby to surround itself at once with everything that proclaims man human.

Here, Humboldt argues that language is created not by an encapsulated language faculty within the mind, but with "the whole man". This includes his emotion – "pain", "joy", "aversion", and "desire" – as well as his intellect. It includes his entire body, as well, involving his feet, his breast, his hands, and his face. Chomsky would not disagree that language production involves the speech organs, but he would not consider the feet and the hands, or human emotion, to be relevant for generative grammar.

8 Usability

Humboldt's concept of creativity renders linguistics as we know it impossible and absurd. Linguistics, as the attempt to model linguistic creativity, cannot be a science, because the nature of the object of study is inherently unpredictable. Linguists cannot define the rules that govern language because they are inherently undefinable. Hence Chomsky's concept of creativity is infinitely more usable, from the standpoint of a linguist.

However, it is not contrary to the validity of linguistics that the creative aspect of language might build upon itself and produce itself in some sense. The work of Gerhard Jäger provides a potential means of expressing formally just what this might entail; his conception of grammar is as an essentially evolving, and in some sense self-modifying process. To echo Chomsky, we have not until recently had any formal tools for expressing the creative aspect of language, if Humboldt's characterization of creativity is accurate. To the extent that formal devices capable of expressing grammar evolution become available, we need not be constrained to think of creativity in language consisting only in its infinity.

References

- [1] Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. MIT Press.
- [2] Humboldt, Wilhelm von. 1836. *Über die Verschiedenheit des menschlichen Sprachbaues*. Verlag Ferdinanc Schöningh, Paderborn.
- [3] Humboldt, Wilhelm von. 1836. *On Language: The Diversity of Human Language-Structure and its Influence on the Mental Development of Mankind*. Translated by Peter Heath. Cambridge University Press.

Appendix: Humboldt's uses of *erzeugen*³

1. Consideration of the connection that links linguistic diversity and the distribution of peoples with the growth [*Erzeugung*, p. 146] of man's mental power, as a process that gradually develops in varying degrees and novel forms, is the topic – so far as these two phenomena can throw mutual light on each other – that will occupy me in these introductory discussions. (p. 22)
2. Language, indeed, arises from a depth of human nature which everywhere forbids us to regard it as a true product and creation of peoples. It possess an autonomy that visibly declares itself to us, though inexplicable in its nature, and seen from this aspect, is no production [*Erzeugniß*, p. 24] of activity, but an involuntary emanation of the spirit, no work of nations, but a gift fallen to them by their inner destiny. (p. 24)
3. It is the outstanding peculiarity of the spirit, enlarging the concept of human intellectuality, and emerging in a manner unexpected, and, in the ultimate depths of its appearance, inexplicable. It is especially marked out by the fact that its products are not mere foundations on which further construction can be effected, but carry within them at the same time the rekindling breath that engenders [*erzeugt*, p. 153] them. They propagate life, because it is from full life that they proceed. For the power that produces them works with the tension of its whole endeavour and in its full unity, yet at the same time truly creatively, regarding its own procreation [*Erzeugen*, p. 153] as something inexplicable even to itself; it has not just seized upon novelty by chance, or merely latched on to the already known. (p. 29)
4. Thus do *science* and *art* arise, and the goal, therefore, of mankind's developing progress is always the fusion of what is produced independently from within [*dem Innern selbst-thätig Erzeugten*, p. 154] with what is given from without, each grasped in its purity and completeness, and bound into the subjection which the current endeavour by its nature demands. (p. 30)
5. But not only the primitive formation of the truly original language, but also the secondary formations of later ones, which we know quite well how to resolve into their components, are to us inexplicable, precisely in respect of their actual gestation [*Erzeugung*, p. 168]. All *becoming* in nature, but especially of the organic and living, escapes our observation. (p. 43)
6. So although languages are thus the work of *nations*, in a sense of the term liberated from all misunderstanding, they still remain the self-creations of *individuals*, in that they can be produced [*erzeugen*, p. 169] solely in each individual, but only in such fashion that each presupposes the understanding of all, and all fulfil this expectation. (p. 44)
7. The entry of such a language, or even one that approaches it, into *world-history*, must therefore establish an important epoch in man's course of development, and this in its highest and most wonderful products [*Erzeugungen* p. 170]. Certain paths of the spirit, and a certain impulse carrying it on to them, are not thinkable until such languages have arisen. (p. 44)
8. But if we compare Sanscrit with Greek on this point, it is striking that in the former the concept of *mood* has not only remained obviously undeveloped, but even in the very production [*Erzeugung*, p. 211] of the language has not been truly felt or clearly distinguished from that of tense. (p. 82)
9. The *combination* of the *sound-form* with the *inner laws of language* constitutes the perfection of languages; and the highest point of this perfection of theirs reposes on the fact that this combination, proceeding always in simultaneous acts of the language-making spirit, becomes a true and pure *permeation*. From the first elements onward, the production of language [*die Erzeugung der Sprache*, p. 218] is a *synthetic* procedure, and that in the truest sense of the word, where synthesis creates something that does not lie, *per se*, in any of the conjoined parts. The goal is therefore reached only when the total structure of the sound-form and inner shaping are fused together with equal firmness and simultaneity. The beneficial consequence that results from this is then the absolute *appropriateness* of the one element to the other, so that neither, as it were, shoots beyond the other. If this goal is attained, then neither will the inner linguistic development pursue a one-sided path, on the which it is abandoned by the phonetic production of forms, nor will the sound, in rampant exuberance, rush out beyond

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the precise requirements of thought. By those very inner stirrings of mind that prepare for language-production [*die Sprache in ihrer Erzeugung*, p. 218], it will be guided on the contrary, towards *euphony* and *rhythm*, will find in both a counterpoise to the mere tinkling of syllables, and discover by means of them a new path, upon which, if the thought do but breathe a soul into the sound, the latter, from its own nature will again return an inspiring principle to thought. (p. 88)

10. But the procedure of language is not simply one whereby a single phenomenon comes about; it must simultaneously open up the possibility of producing an indefinable host of such phenomena, and under all the conditions that thought prescribes. For language is quite peculiarly confronted by an unending and truly boundless domain, the essence of all that can be thought. It must therefore make infinite employment of finite means, and is able to do so through the power which produces identity of language and thought [*die Identität der Gedanken und Sprache erzeugenden Kraft*, p. 221]. But this also necessarily implies that language should exert its effect in two directions at once, in that it first proceeds outwards to the utterance, but then also back again to the powers that engender it [*die sie erzeugenden Kräfte*, p. 221]. (p. 91)
11. From the standpoint here adopted, the *unity* of the *vocabulary* of every language is now displayed at its clearest. It is a whole, because one force has produced [*erzeugt*, p. 224] it, and this production [*Erzeugung*, p. 224] has been carried forward in an unbreakable chain. (p. 94)
12. Language arises, if the simile be allowable, in much the same way that, in physical nature, one crystal builds up upon another. The formation occurs gradually, but according to a law. This initially more predominant tendency of language, as the living creation [*Erzeugung*, p. 284] of the mind, lies in the nature of the matter; but it is also apparent in languages themselves, which possess an ever richer abundance of forms, the more primitive they are. (p. 148)
13. In order to examine more closely the *character* of languages, insofar as we are contrasting it with their organization, we must look to the situation after their structure is completed. The joyous astonishment at language itself, as an ever new creation [*Erzeugniß*, p. 149] of the moment, gradually diminishes. (p. 149)
14. The sense of difference between the *material* that the soul absorbs and engenders [*erzeugt*, p. 296], and the *power* that impels and modulates in this two-fold activity – between the effect and the *being* that occasions it – together with the correct and proportionate estimation of both, and the more vivid presence, as it were, to consciousness, of whichever is the higher in degree, is not found equally strongly in every national character. (pp. 158-9)
15. More generally, in virtually every comparison that can be made between Greek and Latin authors, the former appear less pompous, simpler, and more natural. From this there arises a major difference between the prose of the two nations; and it is scarcely credible that an author like Tacitus should have been truly appreciated by the Greeks of his day. Such a prose would have had to operate all the more differently upon the language too, in that both received the same impulse from the same national individuality. An equally unbounded pliancy, yielding to every thought, pursuing every avenue of mind with equal nimbleness, and finding its true character precisely in this versatility and mobility, to which nothing came amiss, could not have arisen from such prose, and could equally little have engendered [*erzeugen*, p. 318] it. (p. 178)