

# Juan Huarte de San Juan in cartesian and modern psycholinguistics: an encounter with Noam Chomsky

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This article presents Noam Chomsky's standpoint on the relevance of Juan Huarte de San Juan's work *Examen de ingenios para las ciencias* (The Examination of Men's Wits, 1575-1594) for Cartesian linguistics and cognitive science. Huartian conceptions relevant to psycholinguistics and to Chomskian generativism include: (a) the generative quality of human understanding, (b) qualitative differences between human and animal capacity, (c) universality of language structure, (d) the brain as the material site for what we would call cognitive functions, and (e) the innateness of cognitive functions. These issues are discussed in the context of Cartesian linguistics and the history of science. Among the topics discussed: (a) relationship between the Huartian conception, Cartesian linguistics and modern psycholinguistics, (b) dualism and physicism present in Descartes and Huarte, and (c) mind-body relationship in Descartes' and Huarte's works.

*Juan Huarte de San Juan y su influencia en la psicolingüística cartesiana y moderna: un encuentro con Noam Chomsky.* Noam Chomsky comenta la relevancia del *Examen de ingenios para las ciencias* (Huarte, 1575-1594) sobre la lingüística cartesiana y la ciencia cognitiva. Se destacan como precedentes de la psicolingüística y del generativismo chomskiano los siguientes posicionamientos huartianos: (a) carácter generativo del entendimiento y el ingenio; (b) universalidad de la estructura del lenguaje; (c) diferencias cualitativas entre capacidades cognitivas animales y humanas; (d) el cerebro como órgano material para las funciones cognitivas; y (e) el innatismo de las funciones cognitivas. Estos aspectos son discutidos en el contexto de la lingüística cartesiana y la historia de la ciencia; en particular: (a) relación entre Huarte, Descartes y la psicolingüística moderna; (b) dualismo y fisicalismo en las obras de Descartes y Huarte; y (c) relación mente-cuerpo en Descartes y Huarte.

Juan Huarte de San Juan is a neglected figure in the historiography of psychology. Although he was declared patron of Spanish psychology by an agreement of the Spanish's psychology *decanos* (deans) in 1983, scholarship of it has been weak and limited within the field (see exceptions in Gondra, 1994; Iriarte, 1938/1948; Velarde, 1993). Huarte's book *Examen de ingenios para las ciencias* (The Examination of Men's Wits, 1575-1594) has been recognized as a precedent to organizational psychology (Mallart, 1952), psychological assessment (Buela-Casal and Sierra, 1997; McReynolds, 1986), Cartesian linguistics (Chomsky, 1968) and other modern disciplines. Although not previously considered, neuropsychologists would also find a remarkable precursor in some references of the *Examen* (see Iriarte, 1938/1948, p. 230). Nevertheless, its impact goes beyond any of these fields. It is generally accepted that the work of Huarte has a recognizable influence on authors such as Cervantes, Bacon, Charron, Lessing, and Gall (Franzbach, 1978; Iriarte, 1938/1948; Pérouse, 1970; Vleeschauer, 1958). According to Granjel (1988), it was considered the

best known Spanish medical treaty in the sixteenth and seventeenth centuries. Sixty different editions were printed between 1575 and 1800 in Spanish, French, English, Latin, Dutch, and German (see an extensive bibliographic research in Iriarte, 1938/1948, Chap. II).

Huarte's ideas relevant to modern psycholinguistics are: (a) the brain as the material site for what we would call cognitive functions (Huarte, 1575-1594/1989, p. 349; see also Iriarte, 1938/1948, pp.225-226), (b) the innateness of cognitive functions (e.g., Huarte, 1575-1594/1989, pp. 219-233), (c) the generative quality of human understanding (Huarte 1575-1594/1989, pp. 187-188), (d) qualitative differences between human and animal capacity (Huarte 1575-1594/1989, p. 187), (e) universality of language structure (Huarte, 1575-1594/1989, p. 398), (f) creation of words by human convention; not by divine intervention as was frequently believed, and (g) the defense of the vernacular language use in science (Huarte, 1575-1594/1989, p. 399; see also, Iriarte, 1938/1948, p. 267; Miranda, 1988; and Torre, 1977, pp. 88-93).

The first linguist to recognize the relevance of such a precursor was Noam Chomsky in his classical works *Cartesian Linguistics* (1966) and *Language and Mind* (1968). Chomsky refers to Huarte when he examines the antecedents of transformational linguistics mostly during the seventeenth and eighteenth centuries. Chomsky highlighted the following points inspired by Huarte's work (from Chomsky, 1966, p. 78-80; Chomsky, 1968, p. 8-9): (a)

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Huarte's likely influence on the Cartesian idea which declares that mind is a «cognitive power» with a creative character, (b) an essential feature of wit (*ingenio*) and understanding (*entendimiento*) is its generative character, (c) man has two generative powers, one common to the animals, the other common to the spiritual substance and god, (d) human generative capacity is limited to the generation of internal figures or representations, (e) Huarte's classification of wits (i.e., *docilitas*, creative, genius), (f) the mention of the wit of the eunuchs, one of the disabilities of wits proposed by Huarte,<sup>1</sup> (g) language as an index of human intelligence (*ingenio*), and (h) language as a distinctive feature of human intelligence. Chomsky concludes that «Huarte's framework is useful for discussing psychological theory in the ... [seventeenth and eighteenth centuries' linguistics]. Typical of later thought is his reference to use of language as an index of human intelligence, of what distinguishes a man from animals, and specifically, his emphasis on the creative capacity of normal intelligence. These concerns dominates rationalist psychology and linguistics» (1968, p. 9). More recently, Chomsky has also mentioned the relevance of Huartian ideas as a precedent to Cartesian linguistics (Cela-Conde and Marty, 1997, p. 565).

A likely influence of Huartian work on Descartes have been also suggested by J. M. Guardia (1855, p. 276; see also Descartes 1657-1667/1991) and G. A. Pérouse (1970, pp. 145-146). In addition, Iriarte (1938/1948, pp. 336-337), with regard to Descartes' *Regulacione ad directionem ingenii* (*Rules for the guidance of our mental powers*; Descartes, 1701/1952, pp. 3-4), suggests that Descartes seems to answer Huarte back when he states that «hay ingenios determinados para una ciencia, los cuales para otra son disparatados. Y, por tanto, conviene, antes que el muchacho se ponga a estudiar, descubrirle la manera de su ingenio y ver cual de las ciencias viene bien con su habilidad, y hacerle que la aprenda (*It cannot be denied, but that (as I have sayd) there are wits found capable of one science, which are vntoward for another: and therefore it behooves, before the child be let to studie, to discover the manner of his wit, and see what science agreeth with his capacite, and then to provide that he may [learn] the same*)» (Huarte, 1575-1594/1989, p. 224; Huarte-Navarro, 1594/1969, p. 6).

Very little literature has been devoted to the elaboration of this historic landmark of Spanish philosophy on linguistics (some discussions available in Miranda, 1988; and Torre, 1977, Chap. III). In order to reconstitute the relevance of this precedent, Noam Chomsky was interviewed for further elaboration on this reference and a discussion of the importance of Huartian thought within modern linguistics and cognitive science.

What follows is an interview with Noam Chomsky that took place in the Massachusetts Institute of Technology (Cambridge, Massachusetts) on March 23<sup>rd</sup> of 2004 in his office at the Alexander Dreyfoos Building in the Ray and Maria Stata Center. A number of topics directly and indirectly related with Huarte's work were considered during the interview. The early Chomskian references to Huarte are discussed in the context of Cartesian linguistics and the history of science. Among the topics discussed: (a) the relationship between Huartian work, Cartesian linguistics and modern psycholinguistics, (b) dualism and physicalism present in Descartes and Huarte, (c) theoretical evolution in science, and (d) mind-body relationship in Descartes' and Huarte's conception.

The quotations to Huarte throughout this article are taken from a facsimile of the first known English edition (Huarte-Navarro, 1594/1969). R. C. Squire translated that edition from the Italian

version of Camilio Camili (Venice, 1592). That version was translated twice (Spanish-Italian-English) and printed before the «corrections» Huarte (1594) added in response to the Inquisition *ex-purgo* (censorship), so we will use brackets to correct it when necessary. In those cases, the original Spanish text in the G. Serés' edition will be used as a reference (Huarte, 1575-1594/1989). Both the Spanish and English texts are given in each quotation for easier comprehension. In addition, a few of Chomsky's statements are supported by references added by the author in brackets. The manuscript was edited by Noam Chomsky before its submission for publication.

*Javier Virués (JV): Although you have made frequent references to Juan Huarte de San Juan in your work (Cela-Conde and Marty, 1997; Chomsky, 1966, 1968) he is relatively unknown among Spanish psychologists. In what context did you first learn about Huarte de San Juan and what importance should be given to his ideas on what you have called Cartesian Linguistics?*

Noam Chomsky (NCh): I don't really remember when I first came across his work. It was when I was doing research on mostly seventeenth and eighteenth century ideas about language and universal grammar and so on, and the philosophical conceptions of the period. Somewhere in the course of it I saw a reference to Huarte that I didn't manage to trace. It was really hard to find at that time, maybe now it is easier. It took some effort to get the texts and when I got some of them, I found the work remarkably interesting, with a lot of very perceptive ideas. I looked at the secondary literature and I didn't find any references or discussions. I don't know, I have not been able to discover whether Descartes himself was familiar with Huarte's work. Descartes' bibliography didn't say anything about it. But there is certainly a similarity of conception and in some ways, Huarte's insights are more far reaching. Exactly how to interpret them is a complicated question. He obviously didn't mean what we mean; and you can say the same about anything fifty years ago. But, the conceptions are similar. There are interesting analogies to Descartes in ideas that take higher forms of intelligence to be generative [see Chomsky, 1966, p. 78; Gunderson, 1964]. Huarte's recognition of different levels of what we would call cognitive capacity, animal and human, as well as the higher level of true creativity. These are ideas that keep coming up into the nineteenth century, mainly in the romantic period, articulated in another form by Wilhelm von Humboldt [e.g., 1836/1999]. They more or less disappeared for a long period and have been revived in recent years. We can not really find a direct chain of influence by any means, but he is the most striking precursor that I know of to these ideas.

*JV: Huarte uses the word ingenio (wit) as roughly equivalent to the current use of inteligencia (intelligence). For him, ingenio derives from ingenero «que quiere decir engendrar dentro de si una figura entera y verdadera que represente al vivo la naturaleza del sujeto cuya es la ciencia que se aprende (which means to engender a complete and true image within oneself representing vividly the nature of the subject which science is being learned)» (Huarte, 1575-1594/1989, pp. 193-194). As you highlighted in Language and Mind (Chomsky, 1968/1992, p. 28), Huarte seems to characterize wit by its generative capacity and the use of internal representations. To what extent can we regard this as a precedent for Generative Grammar?*

NCh: It is a precedent. It was developed further in the seventeenth century, as far as I know, with no knowledge of Huarte. Mainly by English Neo-Platonists, who were influenced by Des-

cartes. Perhaps they knew Huarte, but I haven't found any indication of that. They developed a fairly rich conception of how perception and understanding are not a reflection of the outside world, but are mental constructs elicited by what we would call stimuli in the outside world. Then the mind creates its own conceptions using its own resources of space, time, causality, gestalt properties, and other quite rich resources, which give us, our internal conceptions of the world. Much the same is true of understanding of language. External events elicit mental operations based on the internal resources of the faculty of language, generating our interpretation of what we hear, and similar – presumably the same – mental operations enter into our use of language for thought and its expression. These are crucial aspects of cognition in general. Then and now language has been one of the most intensively studied cases, along with vision, memory, and some others.

The most striking feature of language is its generative capacity, the capacity to construct and create new expressions arbitrarily, without limits, intelligible to others, not determined by external events or detectable internal states, not caused by external conditions but typically appropriate to them. That is the basis of coherent discourse and interchanges as well as for ordinary thought, which has an inherent creative capacity and in more advanced cases, through artistic and other forms of creativity. That is just normal human life.

Contemporary comparative biology has come to recognize that there is something similar in other animals as well. Their internal nature creates what is called the *Umwelt*, a conception of the world, which is specific to the organism. It is elicited by stimuli that are different for us than for a bee, let's say, or a rabbit, but in all cases the conception of the world is internally constructed on the basis of external experience. The process has a kind of creative character. There is nothing known in other animals like the generative capacity of the language faculty, but there are mentally rich experiences created internally in this manner. That is I think what Huarte is intuitively grasping and exploring.

*JV: You began to work on Generative Grammar before your citations of Huarte. Is there any connection between generativism and the notion of ingenio?*

NCh: There is a similarity of conception. I mean, clearly Huarte and Descartes did not have a conception like that of generative grammar as far as language is concerned, but they have the basic conception. The Cartesians, as well as Sanctius [Sánchez de las Brozas, 1587/1976] and other earlier renaissance grammarians, did develop notions that have a modern flavor. That is particularly true of the Port-Royal *Grammar* and *Logic* [Arnauld and Nicole, 1662; Lancelot and Arnauld, 1660/1967]. That leads on to a tradition that is called rational or philosophical grammar. That goes on through the eighteenth century and is picked up in a way in the romantic period by people like von Humboldt and others, and then largely disappeared. One finds some similar ideas in later grammarians, like Otto Jespersen, but, remarkably, even his work had little influence on the major currents of early 20<sup>th</sup> century linguistic theory and practice. These ideas were revived, in a different context, in the mid-twentieth century without any knowledge of the history [e.g., Chomsky, 1966, 1968]. The major figures were unknown, or misunderstood. You can find a few references in history books; mostly incorrect and without any direct knowledge of the material. So, it had to be revived from the beginning. Scholarship on the earlier period was extremely weak and mostly distorted.

*JV: Huarte considered understanding as an organic power and the brain as the location of such faculty (Huarte, 1575-1594/1989, p.349). This distinguishes Huarte from other authors in the Cartesian tradition such as Cordemoy or Descartes, who subordinates the generative character of language to a dualist notion. Huarte seems to adopt a broader «mechanicist» position. Such position is certainly underdeveloped, as Huarte acknowledges (Huarte, 1575-1594/1989, p. 419), but preempts later developments in psycholinguistics (Chomsky, 2002; Pereiro and Juncos, 2003). Do you consider that the study of the brain will contribute to eliminate Cartesian dualism in psycholinguistic research?*

NCh: To understand Cartesian dualism, we have to recognize that Descartes was primarily a physicist. His main interest was physics and, in fact, if you look at his writings, his *Meditations* for example, maybe his most famed work, is in a way a work of propaganda. He explained it that way to his close friend Merenne [see Descartes, 1657-1667/1991]. He wanted to convince the Jesuits and doctors that his physics was not unacceptable to the church. The fate of Galileo was much in his mind at that time.

His real concern was physics, the natural world. As a physicist, he produced a conception of the way he thought the world works; a mechanistic conception of the world, which he presumed, as did others, was the proper if not necessary way to think about the world and how it works. That conception included a good deal about humans, including human sensations and aspects of perception. But then, he recognized accurately that some crucial aspects of human nature just don't fit into this conception. The main example that he uses is language [see Descartes, 1641/1985, p. 140; and a Descartes' letter to Henry Moore dated 1648 in Cohen, 1936, p. 51]. It was the generative character of language that he stresses as a demonstration that a core element of humans does not fit into the mechanistic theory of nature. Actually he was correct about that. He then took the step that any sensible scientist should: he postulated a new principle. What is called body or the material world works with certain principles, straight mechanistic principles, motion by contact. I can make something move by touching it, but I can't make it move by thinking about it. Motion and interaction are based on contact mechanics. That was the fundamental core principle of the physical world. Since it didn't work for human thought, and particularly human language, he invented a new principle, as any scientist would do. He called it the mind, the second principle. Then comes the question of how these two systems interact.

Well, nobody is dualist anymore, but is not because there is anything wrong with Descartes' theory of mind. It wasn't very well developed, but as far as it was developed, it was reasonably accurate. What collapsed was his theory of body. Newton was a Cartesian, he believed in contact mechanics too. But his work demonstrated that the world, the physical world, just doesn't work by contact mechanics. In fact, I can make the moon move by moving my arm. That is just the way that gravity works. The entire mechanical conception of the universe collapsed. Newton himself regarded that as a complete absurdity. He said that no sensible person would believe a word of this because it is so ridiculous. But, it nevertheless seems to be the truth, and he went on to develop mathematical principles about it, and also spent the rest of his life trying to discover what he called some subtle aether, some physical entity in the world that accounts for the apparent causal relations within the framework of contact mechanics, but without success.

And that continued for centuries. It wasn't really until the twentieth century that these ideas were finally abandoned. It seemed so ridiculous and counterintuitive that a mystical relation, like gravitational attraction or repulsion, could exist in nature. But it was finally given up [about the limits of the mechanical explanation, see, for example Rosenfield, 1941]. Once it is given up, you are back to Huarte's position. By the late eighteenth-century you find scientist and philosophers who were quite distinguished at that time, people of the eminence of Joseph Priestley and others [e.g., Priestley, 1777/1976], who were saying that, whatever thought is, it is some property of organization of matter. Just as matter has mysterious properties of attraction and repulsion, which follow laws, so matter also has the mysterious property of thought, which is just some property of organized matter and we have to figure out what it is. Actually, John Locke made some similar suggestions. As a consequence of studying Newton's later work on gravitation, he says that just as God added to matter properties like gravity, which we can not possibly comprehend, similarly, God may have superadded to matter a property of thought, which we also can not comprehend [see Locke, 1690/2000]. The theological framework may have been mostly to make sure that he didn't get into trouble with the church. It gradually came to be accepted that matter has incomprehensible properties like attraction and repulsion, which are not intelligible to us, but which apparently exist. It may also have properties of thought, which are also unintelligible to us. This is still regarded as a dramatic new thesis, as an astonishing idea and so on. That is just a mistake.

After the collapse of the mechanistic theory of body, the mind-body problem disappears, because there is no body, not because there is no mind. Body in the traditional sense doesn't exist anymore. There is no intelligible theory of body; it is just whatever there is. If it has properties of attraction and repulsion, we try to understand them. If it has quantum theoretic properties, we try to understand them. If it has properties of thought, we try to understand them. But these are just different aspects of organized matter that we try to understand, and try to unify the approaches as best as we can.

Even chemistry and physics were not unified until the 1930s. They weren't unified by reducing chemistry to physics; they were unified by radically changing physics. It went through a radical revolution, a theoretical revolution after which a new physics could be unified with an essentially unchanged chemistry. It is not impossible that the same might happen in the case of the theory of mind. It's possible that it may take new conceptions of the way the physical world works to unify these different ways of understanding the world. What we call the material world by now is based on properties that Newton would have regarded as completely mystical. The mental world is a different aspect of the world, like chemical, optical, and others. In this respect, you can say that Huarte couldn't possibly understand any of what modern scientists are barely understanding. But what he said is surprising and the intuitions are on the right track for reasons that he couldn't possibly have known.

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#### Footnotes

- 1 Interestingly, as Torre (1977) points out, the interpretation of Huarte made by Chomsky is debatable. «Huarte maintains that the distinction between docile wit, which meets the empiricist maxim, and normal intelligence, with its full generative capacity, is the distinction between beast and man» (Chomsky, 1968, p. 8). Torre points out that Huarte stresses that the distinction between *docilitas* and the *talento inventivo* is something completely different, a kind of aptitude to be taught (p. 86).

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