

## ANEXO 2

### FORMULARIO DE LA DESCRIPCIÓN DE LA TESIS O DEL TRABAJO DE GRADO

TÍTULO COMPLETO DE LA TESIS O TRABAJO DE GRADO: UNIVERSAL GRAMMAR AND SECOND LANGUAGE ACQUISITION

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TRABAJO PARA OPTAR AL TÍTULO DE: LICENCIATURA EN LENGUAS MODERNAS

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- Ilustraciones
- Mapas
- Retratos
- Tablas, gráficos y diagramas
- Planos
- Láminas
- Fotografías

**MATERIAL ANEXO** (Vídeo, audio, multimedia o producción electrónica):

Duración del audiovisual: \_\_\_\_\_ minutos.

Número de casetes de vídeo: \_\_\_\_\_ Formato: VHS \_\_\_\_ Beta Max \_\_\_\_ ¾ \_\_\_\_ Beta Cam \_\_\_\_

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Otro. Cual? \_\_\_\_\_

Sistema: Americano NTSC \_\_\_\_\_ Europeo PAL \_\_\_\_\_ SECAM \_\_\_\_\_

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GRAMATICA UNVIERSAL, CHOMSKY, GRAMATICA GENERATIVA, TRANSFERENCIA, ADQUISIÓN

**INGLÉS**

UNIVERSAL GRAMMAR, CHOMSKY, GENERATIVE GRAMMAR, TRANSFER, ACQUISITION

**RESUMEN DEL CONTENIDO EN ESPAÑOL E INGLÉS:** (Máximo 250 palabras - 1530 caracteres):

This monograph has one purpose, namely: research on how second language teaching praxis can be integrated into the linguistic and philosophical Noam Chomsky's theoretical background. However, this work is not an exhaustive research of every single question involved on it; rather, it is a succinct presentation of questions, possible solutions, and data, whose aim is to provide different insights concerning the purpose of this investigation. In this context, this text is a contribution to the debate about how humans acquire language. In this sense, studying SLA will shed lights about how L2 works and how it is interwoven with mind functioning, brain, and teaching.

The main insight I will work with states that human beings have both direct and indirect access to the universal grammar. In this regard, the investigation will focus on the analysis of two cases, namely: concurrence of null and overt subject in English and Spanish learners and Spanish and Portuguese learners.

Confirming this will open the field of investigation of how one can figure out a teaching method that may make teaching a second language an easier task. In this sense, this work will provide contribution in the field of changing second language teaching practices as well as an overall understanding of second language scientific methods. The investigation will be based on generative approach, which in turn will contribute to the understanding of Chomsky's theory on teaching and acquisition of L1 and L2.

Esta monografía tiene un propósito, a saber: la investigación sobre cómo la praxis de la enseñanza de segunda lengua puede ser integrada en la base teórica filosófica-lingüística de Noam Chomsky. Sin embargo, este trabajo no es una investigación exhaustiva de todas las preguntas que participan en ella; más bien, se trata de una presentación sucinta de las preguntas, posibles soluciones y datos, cuyo objetivo es ofrecer diferentes puntos de vista sobre el objeto de esta investigación. En este contexto, el presente texto es una contribución al debate sobre cómo los humanos adquieren el lenguaje. En este sentido, el estudio de SLA arrojará luz sobre cómo funciona L2 y la forma en que se entrelaza con el funcionamiento de la mente, el cerebro y la enseñanza.

La idea principal con la que voy a trabajar plantea que los seres humanos tienen acceso directo e indirecto a la gramática universal. En este sentido, la investigación se centrará en el análisis de dos

casos, a saber: concurrencia de sujeto nulo y expreso en Inglés y estudiantes de español y los alumnos de España y Portugal.

Confirmando esto abrirá el campo de la investigación de cómo se puede diseñar un método de enseñanza que pueden hacer que la enseñanza de una segunda lengua es una tarea fácil. En este sentido, este trabajo proporcionará contribución en el campo de los cambios en las prácticas de enseñanza de idiomas segundo, así como una comprensión global de los métodos científicos de un segundo idioma. La investigación se basa en la aproximación generativa, que a su vez contribuirá a la comprensión de la teoría de Chomsky sobre la enseñanza y adquisición de L1 y L2.

**FORMATO CRITERIOS GENERALES DE EVALUACIÓN TRABAJO DE GRADO**  
**LICENCIATURA EN LENGUAS MODERNAS**

<b>TÍTULO DEL TRABAJO</b>	UNIVERSAL GRAMMAR AND SECOND LANGUAGE ACQUISITION
<b>ESTUDIANTE(S)</b>	HECTOR JAVIER VALENCIA SALAMANCA
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<b>FECHA</b>	23 DE MAYO DE 2016

**INSTRUCCIONES**

A continuación encuentra la guía para evaluar los trabajos de grado de la Licenciatura en Lenguas Modernas. Este documento consta de dos (2) partes. En la primera deberá diligenciar un formato de evaluación de contenido, en el que se tiene en cuenta la calidad académica del documento presentado por el estudiante. Éste servirá como insumo para hacer las correcciones del caso y cualificar el trabajo antes de sustentarlo. En la segunda parte deberá diligenciar la escala de evaluación **cuantitativa** del documento presentado.

Estos dos aspectos deben ser diligenciados tanto por el asesor como por el lector del trabajo.

¡¡Gracias de antemano por participar en este proceso de evaluación!!

1. **Formato de evaluación del contenido**(PARA SER DILIGENCIADO POR EL ASESOR Y EL LECTOR DEL TRABAJO DE GRADO)

Los siguientes constituyen los aspectos básicos de una investigación formativa en el nivel de pregrado. Con base en el documento escrito presentado por el estudiante, verifique la existencia de tales elementos y evalúelos a partir de las preguntas correspondientes. **Por favor, justifique y argumente sus respuestas.**

Teniendo en cuenta que la investigación formativa es “la capacidad de indagación y búsqueda, y la formación de un espíritu investigativo que favorece en el estudiante una aproximación crítica y permanente al estado del arte en el área de conocimiento del programa y a potenciar un pensamiento autónomo que le permita la formulación de problemas y de alternativas de solución”.

¿CONSIDERA QUE ESTE TRABAJO CUMPLE CON LOS REQUISITOS MÍNIMOS DE UNA INVESTIGACIÓN FORMATIVA? ES DECIR:

¿EL INFORME CONTIENE UN PROBLEMA DE INVESTIGACIÓN, UNOS PLANTEAMIENTOS TEÓRICO-CONCEPTUALES QUE NUTREN EL MARCO TEÓRICO Y QUE SE DESPRENDEN COHERENTEMENTE DE LA PROBLEMÁTICA, UNA PROPUESTA DE SOLUCIÓN QUE EXPRESA UN CAMINO METODOLÓGICO COHERENTE Y SUFICIENTE Y UNA RELACIÓN CON EL COMPONENTE PEDAGÓGICO DE UNA LICENCIATURA EN LENGUAS MODERNAS?

Utilice este espacio para argumentar su respuesta, citar los elementos específicos del trabajo que dan cuenta de lo anterior y hacer recomendaciones.

**Sí. El documento refleja un proceso de investigación formativa tipo monografía adecuadamente culminado; alrededor de una serie de preguntas sobre la relación cerebro mente y lenguaje, el estudiante ilustra cómo el proceso de apropiación de una L2 es susceptible de ser comprendido desde el marco teórico y epistemológico propuesto por Noam Chomsky, tal como aparece en su obra 1998 *The minimalist program*. Ilustra sus afirmaciones a través del análisis de dos casos paradigmáticos que permiten demostrar cómo un aprendiz de L2 tiene acceso a la gramática universal de dos formas; directa e indirecta. Concluye indicando lo trascendental de estas afirmaciones para la enseñanza de segundas lenguas y la necesidad de que las prácticas pedagógicas sufran una transformación radical.**

(CONTINUA AL RESPALDO...)

¿CONSIDERA QUE ESTE TRABAJO REFLEJA UNA APROPIACIÓN CONCEPTUAL DE LOS AUTORES Y/O TEORÍAS QUE SE CITAN?

Utilice este espacio para argumentar su respuesta, citar los elementos específicos del trabajo que dan cuenta de lo anterior y hacer recomendaciones.

**Sí. El estudiantes se destaca en la comprensión de los enfoques, teorías, conceptos y categorías que fundamentaron su investigación, lo cual se refleja en: a) la capacidad de explicarlos de manera muy didáctica y en un lenguaje claro asequible a cualquier persona que estudie temas propios de la Lingüística Aplicada, b) la capacidad de usar esas conceptualizaciones para problematizar las prácticas pedagógicas y didácticas que se materializan en la actualidad, c) la capacidad de utilizar esas conceptualizaciones para adelantar ideas sobre cómo mejorar las prácticas de enseñanza de una L2.**

¿CONSIDERA QUE EN ESTE TRABAJO SE HACE UN MANEJO ADECUADO DEL LENGUAJE, LAS FUENTES Y LAS NORMAS PARA LA PRESENTACIÓN DE TRABAJOS ESCRITOS DE ESTA NATURALEZA?

Utilice este espacio para argumentar su respuesta, citar los elementos específicos del trabajo que dan cuenta de lo anterior y hacer recomendaciones.



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# **Universal grammar and second language acquisition**

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## Abstract

This monograph has one purpose, namely: research on how second language teaching praxis can be integrated into the linguistic and philosophical Noam Chomsky's theoretical background. However, this work is not an exhaustive research of every single question involved on it; rather, it is a succinct presentation of questions, possible solutions, and data, whose aim is to provide different insights concerning the purpose of this investigation. In this context, this text is a contribution to the debate about how humans acquire language. In this sense, studying SLA will shed lights about how L2 works and how it is interwoven with mind functioning, brain, and teaching.

The main insight I will work with states that human beings have both direct and indirect access to the universal grammar. In this regard, the investigation will focus on the analysis of two cases, namely: concurrence of null and overt subject in English and Spanish learners and Spanish and Portuguese learners. Therefore, what it is stated throughout this monograph is presented in the following logical structure:

- 1) If one has access to universal grammar in L2, negative or positive transfer from L1 takes place
- 2) When learning a L2 negative or positive transfer takes place.
- 3) Therefore, when learning a L2 access to universal grammar takes place.

Confirming this will open the field of investigation of how one can figure out a teaching method that may make teaching a second language an easier task. In this sense, this work will provide contribution in the field of changing second language teaching practices as well as an overall understanding of second language scientific methods. The investigation will be based on generative approach, which in turn will contribute to the understanding of Chomsky's theory on teaching and acquisition of L1 and L2.

**Key words:** universal grammar, computational rules, lexicon, transfer, mind functioning.

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## Chapter 1: Introduction

This monograph has one purpose, namely: research on how second language teaching praxis can be integrated into the linguistic and philosophical Noam Chomsky's point of view. However, this work is not an exhaustive research of every single question involved on it; rather, it is a succinct presentation of questions, possible solutions, and data, whose aim is to provide different insights concerning the purpose of this investigation. Different questions may be approachable, nevertheless I would like to take into account the following ones:

- 1) How does language work?
- 2) How are mind and language related each other?
- 3) How can this relation improve second language teaching?

These questions will work as a ground from which I will develop my ideas and support the following contributions:

- 1) One of the contribution of this monograph is to provide the reader with a brief approach to several problematics that are interwoven with second language teaching. Investigation on how language, mind and brain are related to each other will provide applied linguistics a deeper understanding of how language can be taught. Furthermore, it contributes to the debate on second language teaching methods as well as teaching practices that are supported within the field. In this sense, during the following monograph the contribution of Noam Chomsky to linguistics will provide a reading scaffolding in order to identify convergence points in both L1 and L2 language teaching and acquisition theories.
- 2) The investigation based on this approach will be considered in order to explain how mind and language can be studied, which in turn will provide data to confirm several hypothesis that are going to be postulated. In this sense, it will be analysed how science can have a place within applied linguistics and second language researches taking into account paradigmatic cases that will support the core of this monograph.

- 3) The last contribution of this monograph is to provide both second language teachers and students an overall understanding of what generative grammar approach is within linguistics as well as to expose the importance of criticizing pedagogy and didactics postulates in order to contribute to the debate on teaching approaches.

In this context, this text is a contribution to the debate about how humans acquire language, which, in turn, implies a scientific approach facing the three questions previously mentioned.

## **1.1 Objectives:**

### **1.1.1 General objective:**

The main insight I will work with states that human beings have both direct access and indirect access to the UG and how this knowledge can be used to change teaching practices as well as instruct teachers and students interested in the field.

### **1.1.2 Specific objectives:**

- Contribute to the understanding of Noam Chomsky theories concerning universal grammar, generative rules, and L1 language acquisition.
- Contribute to the understanding of how generative approach can be integrated within L2 acquisition and teaching theories.
- Study the researches that take into account language samples of Spanish and Portuguese learners in order to identify how a fixed parameter is positively transfer from the L1 to L2, which would indicate an indirect access to UG through L2.
- Study the literature concerning the difference between L1 and L2 use of null and overt subjects of English and Spanish learners in order to identify how having two different parameters a student have direct access to UG without bearing in mind L1 grammar.

## 1.2 Set of question, hypothesis and predictions:

In this part, I will outline the set of questions and predictions I will work with in order to support my insight in the field of second language acquisition.

In this sense, I will postulate one question from which I will deduce one hypothesis that is going to confirm a set of future events, working as predictions in the framework of a broader theory outlined in the field of universal grammar.

**1.2.1 First question:** When learning a L2 do speakers have access to universal grammar?

- a) **Hypothesis:** L2 learners have not only direct access to universal grammar, but also in an indirect way, i.e. through L1 grammar.

## 1.3. Predictions:

a) **Prediction 1:** learners that commit mistakes regarding null and overt subject usage are caused due to L1 interference into L2, which means that by having access to UG students have to refix that parameter

b) **Prediction 2:** Learners, whose L1 and L2 have the same parameters suffer positive transfer from L1 to L2, which in turn means that the fixed parameter in L1 is extrapolated to L2.

## Chapter 2: Universal grammar and L1 acquisition

Within psychology and other branches of scientific research first language acquisition has been studied as a core problem, since it sheds lights on several concepts that are interwoven –mind, language, brain– (Chomsky: 1989, 1976, 1976; Pinker: 1999; Vygotsky 1985; Skinner; 1957; Fodor: 1984; Davidson: 1974).

In this sense, studying first and second language acquisition will shed lights about how L1 works and how it is interwoven with mind functioning. This is due to two facts. The first one is a biological argument and the second one is a physiological argument. The former explains the relation that our genes have to the fact that any single human arrive to develop a language (capability) and the latter has to do with the fact that all human beings can arrive to master any language, no matter how difficult and sophisticated it may be (learnability). These two arguments have been the propeller to encourage scientific research within first language acquisition. Therefore, in this monograph I will intend to bridge these two arguments in the field of SLA, having as a source of research the investigations carried out by linguists, psychologists, and philosophers.

## 2.1 Foundations of language acquisition: Universal grammar

Considering the different positions that the same Chomsky has had throughout his research, this paper is confined to the theory of principles and parameters developed in the book *The minimalist program* (Chomsky: 1998). Therefore, I will briefly explain some concepts that are important to understand the problematic of my monograph. To do such a task, I will articulate the following premises as being part of a major premise meaning that the next set of arguments work as substantive evidence concerning the extent of the monograph. The main insight I will work with states that human beings have both direct access and indirect access to the UG. In this sense, I can deduct one major premise from which I will deploy all my argumentation:

**Hypothesis:** L2 learners have no only direct access to universal grammar, but also in an indirect way, i.e. through L1 grammar.

Having stated this, I will explain a cluster of theses and concepts that are related to my main insight; thereby they will work as a ground from which the whole investigation can be performed. I will then organize these theses in the following way.

<b>Substantive Thesis/Hypothesis</b>	<b>Direct access</b>	<b>Indirect access</b>
1. Language universals	x	
2. Convergence	x	
3. Poverty of stimulus		x
4. No negative evidence		x



5. Species specificity	x	
6. Ease and speed to acquire language	x	
7. Cross-linguistic acquisition		x
8. Dissociation between language and cognition	x	

Figure 1 Language and cognition. Own graph.

In the text *the minimalist program* (1998), it is explained that all human beings are genetically endowed with a device - language acquisition device (LAD) - which allows children to acquire any language regardless of individual variations (UG). In this sense, every single human being is endowed with an organ called language acquisition device which by being in contact with the experience is activated. The activation of this device allows the structuration of the syntax competence of the language the individual has contact with. Therefore, I will outline the main arguments as to the support of universal grammar by providing evidence in a wide range of disciplines.

All human languages share certain biological properties that allow everybody to develop a highly sophisticated system to communicate and survive, i.e., we are endowed with genes that codify all the possible inventory that any language must have depending on the input the agent is exposed to. For instance, the exercise you and I are doing right now, that is, reading and writing follow certain patters that lead correctly the performance of language. I cannot start writing in the following way: “Thinks Chomsky to in language biological is not capacity”. This sentence is an example of a meaningless sentence insofar it does not have order nor adhere to English syntax. As far as syntax is concerned, words order is the filter by means of which we apprehend the reality, “Syntax studies the level of language that lies between words and the meaning of utterances: sentences. It is the level that mediates between sounds that someone produces (organized into words) and what they intend to say.”(Carnie: 2001, 2). If one does not follow this command, communication is not possible at all. All language share this feature, since it allows humans to communicate, process, and produce language in social-based settings. According to Carnie,

Language is a psychological or cognitive property of humans. That is, there is some set of neurons in my head firing madly away that allows me to sit here and produce this set

of letters, and there is some other set of neurons in your head firing away that allows you to translate these squiggles into coherent ideas and thoughts. There are several subsystems at work here. (Carnie: 2001, 4)

Utilizing technical vocabulary, what one has to take into account in this context is the usage of the word “language”. In Chomsky’s vocabulary, Language in capitals means the mental competence all humans have in order to structure input, which is universal and underlies all languages in lower cases. This difference is also known as I-language (internal language) and E-language (external language). In this sense, as far as this thesis is concerned, it will rely upon I-language insofar it is the mirror from which one can study mind mechanism that operates when learning a second language. In other words, we need to identify what we subconsciously know about the syntax of our own language and how that knowledge can be utilized when learning a second language.

In second language acquisition, it is important to point out that since language is part of our human beings endowment, it seems that any human can use such a device whenever one desires it. This is the reason why any human being can learn a L2, L3 or even L4. This is not due to high IQ or extraordinary cognitive capacities of individuals, but to a specificity that as *Homo sapiens sapiens* we all are endowed with. By activating default categories one student of a second language can arrive at mastering a second or third language.

### **2.1.1 Input convergence and language acquisition:**

Children are exposed to different input yet converge on the same grammar. In his book *A review of B. F. Skinner Verbal Behavior* (1959), Chomsky argues that there is no way to explain how children with low explicit teaching as well as low exposure to perfectly structured language can arrive at developing a highly complex grammar that permits to generate well-structured sentences. This is the reason why Chomsky argues that children share a convergence of stimuli by postulating general rule hypothesis that are instantiated in a shared grammar within a community. In other words, if it were true that children acquire language in a habit-based process, children would not have the capacity to create new sentences, i.e., if sentences were learned one by one by conditioning sounds and responses, no new utterance would be possible, since that specific combination has never been heard, therefore, uttered. The main argument

against these positions is creativity of producing brand-new sentences by utilizing internalized rules. We can see this problem from an epistemological point of view, namely: every child has their impressions (sounds: words or sentences) of what he/she hears from the world (in John Locke's thinking: our minds are black slate that are filled in with impressions or mind images). By sharing a grammar, we can all have the same competence despite the stimuli or input every single baby is exposed to. From another point of view, how is it possible that based on input and representation babies arrive at unifying those impressions in just one grammar that is shared by a whole community? The answer that Chomsky suggests is that this is caused by an innate endowment that allows babies to organize input in a systematized structure. Syntacticians and babies proceed in the same way:

Syntacticians start by observing data about the language they are studying, then make generalizations about patterns in the data (e.g. in simple English declarative sentences, the subject precedes the verb). They then generate a hypothesis—preferably one that makes predictions—and test the hypothesis against more syntactic data, and if necessary go back and re-evaluate their hypotheses. The hypotheses are called rules, and the group of hypotheses that describe a language's syntax is called a grammar. (Carnie: 2001, 5)

What it is important here to point out is the capacity to do such hypothesis as well as the ease with which they both babies and syntacticians arrive at formulating them. Think of the following example: when I am studying chemistry, the teacher tells me this is the cell and these are its parts by pointing out to the board. I have to take notes and then memorize the structure because I will have to take an exam about what the teacher taught me the previous class. Conversely, when I was a baby I was not taught how to use the language taking into account a board-based teaching nor my parent's formal instruction. I do not even remember how when I started to use language. Once I asked a Dutch girl: hey your English is very good, where did you learn it? She replied, I do not remember, I just know it! This means English and Dutch for her were acquired not learned. Conscious and unconscious knowledge differ precisely in that regard.

Subconscious knowledge, like how to speak or the ability to visually identify discrete objects, is acquired. In part, this explains why classes in the formal grammar of a foreign language often fail abysmally to train people to speak those languages. By contrast,

being immersed in an environment where you can subconsciously acquire a language is much more effective. (Carnie: 2001, 6)

Having stated this, it is mandatory to know how acquisition can be incorporated in second language teaching along with generative rules as a bridge between two grammars that collide (L1's and L2's). This thesis is important because it contradicts those teaching methods based on the behaviorist paradigm as well as those that think that formal and explicit language teaching is the only way to teach a foreign language. I think otherwise: the formal and explicit teaching (conscious) is important insofar it provides an order to the input being taught; however, unconscious learning is as important as the conscious one, since by being immersed in a natural environment mind can systematized and automatized rules with which language production can be performed with more spontaneity.

### **2.1.2 Poverty of stimuli:**

Children acquire knowledge for which there is no evidence in the input. This argument has to do with the question Chomsky posits: how is it possible that children know something they were never explicitly taught? The assumption implies that language is not a one by one word and sentence learning, but it is possible to activate the inventory that is innate in our mind based on the input one is exposed to. Despite learning English is not an instinct, acquiring any language is. In other words, acquiring a language is an instinct as walking is. Birds do not learn to fly, this ability deploys. In parallel, instead of using our legs to walk, humans utilized the in-build mechanism (language organ) to acquire a language.

Walking is an instinct. Probably the most controversial claim of Noam Chomsky's is that Language is also an instinct. Many parts of Language are built in, or innate. Much of Language is an ability hard-wired into our brains by our genes". (Carnie: 2001, 13).

In this sense, there is no evidence that contradicts children acquire language by hearing, memorizing and producing sentences they hear from their parents, which in turn means that mind not only captures the rule from the input, but also organizes it based on a whole language system.

### **2.1.3 No negative evidence:**

This thesis is one of the most controversial ones, since there is no way to determine if second language learners indeed do not work with negative evidence as a standard of correction. It also depends on the setting the student is immersed because it could be either full immersion without formal instruction, full immersion with formal instruction, no-immersion with formal instruction or no-immersion with no formal immersion.

What most of the authors do is to identify classroom settings as a mean by which teacher or instructor correct badly formed sentences by pointing out the error and correcting it in the spot. Therefore, negative evidence is a way of utilizing language reinforcement in order to automatize an internal rule that has not been instantiated in the mind. This does not mean that the behaviorist method works better, but it means that it is true that by repeating mouth, brain and ear can be trained to work altogether. In this sense, reinforcement is part of physical and psychological training, since that training can be done only by repeating and hearing. This is very different to the mechanism mind works with. For instance, it is different to speak spontaneously trying to articulate words within a sentence (fluency) and speak slower, but with a well-formed syntax structure (accuracy). Thus, in this two concepts one can identify that negative evidence helps to automatize an internal rule by utilizing reinforcement methods, but it does not mean that accuracy will be learned as well as language syntax.

### **2.1.4 Species specify:**

We are the only species that has language. Steven Pinker (1994) defines language as a very specific characteristic of humans, since other animals do not master such a highly sophisticated system in such a narrow window of time. Dolphins, dogs, birds, and ants have communications systems, but not language. Why? If we say language is  $\Sigma = \{\text{rules, lexicon}\}$ , one can say animals only master lexicon and a mean by which that lexicon is communicated, but they do not have

certain rules that generate endless combinations of that lexicon, even though they have never been heard. That is the system human language works with. In Pinker's words:

As you are reading these words, you are taking part in one of the wonders of the natural world. For you and me to a species with a remarkable ability: we can shape events in each other's brain with exquisite precision. I am not referring to telepathy or mind control or the other obsessions of fringe science; even in the depictions of believers these are blunt instruments compared to an ability is language. Simply by making noises with our mouths, we can reliably cause precise new combinations of ideas to arise in each other's minds. The ability comes so naturally that we are apt to forget a miracle it is. (Pinker: 1994, 22)

Following Chomsky, Pinker concludes that human language is as important as legs or hands to survive and live as humans:

Virtually every sentence that a person utters or understands is a brand-new combination of words, appearing for the first time in the history of the universe. Therefore, a language cannot be a repertoire of responses; the brain must contain a recipe or program that can build an unlimited set of sentences out of a finite list of words" (Pinker: 1995, 22).

If we all agree that language is in our genes, we can infer that the capacity to acquire a second language is part of our biological endowment. It is a matter of fact that students who travel to learn a new language in a full immersion setting might do it within a year. It normally takes, on the contrary, up to 5 years to master our first language. In fact, one might arrive at mastering Portuguese in six months if their first language is a romance one. These insights help to understand that the problem is how to take advantage of the shared grounds in terms of mind architecture and biological endowment.

### **2.1.5 Ease and speed of children language acquisition:**

Children learn language quickly and effortlessly, on minimal exposure. This thesis states that children learn faster and easier a language that adults do. However, it is mandatory to analyze this thesis from different perspectives because sometimes what is considered as true at first glance it is only a prejudice. There are two facts to be taken into account. A kid acquires a language during 5 years because this process goes in parallel with cognition and biological

development. Mouth, mind, and brain are constantly put in action at the same time without considering their maturity, which is obtained after 12 years of existence. Despite these processes are guided step by step by genes and input triggering, those genes are still active insofar the language device is overlapped with the system of first language, i.e., the combinatory and lexicon storage components are always present when learning a second language. That is the reason why everybody can do it. Nevertheless, there are certain points to be considered as relevant:

While children are still learning the mechanics of their own first language, adults have a more developed understanding of how language works. Adults already know the more advanced elements of grammar, such as how conjugation works, or what an adverb does. They already know how to build a sentence, and have a good sense of punctuation and spelling. In children, those skills are still developing. (Anne Merrittm, 2013)

In this sense, those already matured mechanics can help to learn a second or third language, since a grammar system is already instantiated in the mind's learner. However, a question raises: why does it seem that children have an easier time picking up foreign languages? This can be answered from two perspectives: one is the capacity of storage that is explained by brain plasticity and another one is the lack of fear when committing mistakes or errors not having affective filter at all. On top of that, if you do not have fear of talking in public in front of a community, you will be able to practice automatization and pronunciation. On the contrary, adults fear of talking in public as well as to articulate sounds.

When acquiring a second language, one has to take into account that this process is going to be faster to the same one that was carried out when being a kid as long as all the core elements are met, for instance, memorization, training, and input contact. Instead of trying to demotivate the plans of learning a language after 15 years old, I think it has to be promoted insofar it is going to be easier thanks to all the information and combinatory system that is already mastered. In fact, that implicit knowledge has to be bridged to the second language in order to speed up the learning process.

### **2.1.6 The Critical Period Hypothesis:**

This thesis states that human beings acquire language during a very specific period of time that cannot be put off, since it may cause learning difficulties or not learning at all. As you have seen during your lives, you have seen that kids all the sudden start using language with a very high level of sophistication having problems only with the exceptions but not the rules. This means that kids can easily hypothesize about language rules unconsciously without taking into account formal instruction. However, this language development is not caused by an extrinsic circumstance, but by an internal one. Human brain has the capacity of storing thousands of words in a very short period of time and can combine all those words based on certain rules. This is a genes-based and species-based condition. In this sense, if you do not acquire your native language during your first years of life you are at risk of having certain social and psychological impairments. In the worst of the cases, you cannot acquire a language and you can be at risk of living in the worst of the possible worlds: the world without language, i.e., the world without communication, understanding, history and creativity.

One of this cases is the case of Genie (Susan Curtiss, 1974). She is a girl that was found under severe neglect, isolation, and abuse conditions because she was never allowed to interact with the world. She knew only 20 words when she was found at the age of 13. On top of that, she was never instructed with human behavior, for example, dressing and cleaning habits. This terrible example has helped to understand several issues related to language acquisition and language functioning. For example, it was confirmed that the right hemisphere was dominant while the left one was virtually invisible since it did not present any kind of activity (Susan Curtiss, 1974). Although Genie managed to memorize new vocabulary, it was very difficult to make her master grammatical rules. In this sense, it seems that storage capacity can last throughout years while combinatory abilities can remain active only during first years of life by activating the part of the brain in charge of such a function. However, if the part of the brain in charge of combinatory rules is not activated, the brain will remain inactive therefore learning a native or second language will be almost impossible. So this study reveals several implications: 1) language and brain are interwoven; 2) language organ is activated by external circumstances; 3) if the activation is not done during certain period of time, brain cannot work under natural circumstances; 4) if the part of the brain in charge of language is activated to learn a native language, that part of the brain will remain available for learning a second or third language.



According to the paper *the linguistic development of Genie* (Susan Curtiss, 1974), it is stated that language acquisition is highly interwoven with two factors: input and genes. If these two factors are activated, one can arrive at mastering a native language. Once the native language is acquired, brain functions or lateralization of such functions allow that a person can learn a third or fourth language. If the first condition is not satisfied, no language can be learned nor acquired. Therefore,

One of the clearest statements about critical period hypothesis in man concerns the emergence of language. Lenneberg suggests that language is innately determined behavior dependent upon certain neurological events, but obviously also dependent upon some unspecified minimal exposure to language at certain stage in the child's development. According to him, language acquisition is precluded when lateralization of cerebral functions is complete, which he believes occurs about the time of puberty. Hence the critical period for language acquisitions is presumed to be during some period prior to onset of puberty; subsequent to this time, primary language by mere exposure is hypothesized to be impossible" (Susan Curtiss, 1974).

In this sense, Genie's case is very suggesting concerning first and second language acquisition as well as how human language is acquired and under which conditions.

After mentioning a wide range of literature, it is mandatory to explain how critical period is related to second language acquisition. Once the area in the brain is activated by the input coming from the world, neuronal connections are established in order to activate the default grammar. Something similar happens when learning a second language, since the second combinatory system is based on the native's as well as on the default grammar. This two aspects allow that any human being in this world be able to learn a second language. In terms of mind and brain capability this is wholly possible. In fact, if you have two legs you can be the best soccer player by practicing a lot.

### **2.1.7 Cross-linguistic acquisition:**

All children acquiring language go through the same stages in the same order, which indicates there is a path to be followed. This path is determined by genes that leads brain neuronal

functions to start working and coordinating with the input kid is exposed to. In this sense, kid exposure to input allows that information be stored, classified and internalized depending first on grammatical categories and then on rules that allow to classify those isolated words. Therefore, kids start learning language by memorizing isolated words, then two-word sentences, and finally well-articulated sentences. The movements comes from knowing “some language” to know “the whole language”. For instance, how do I know I know already a language? You know a language when you have a high amount of words memorized, i.e. your lexicon is wide enough and you master the main rules language works with, i.e. language tenses.

According to James R. Hurford in his paper *the evolution of the critical period for language acquisitions*,

The discussion of language acquisition in the generative framework and much outside that framework, makes the tacit assumption that children proceed from knowing “some” of a language to knowing “all” of it. It is possible to identify (as Chomsky. 1969, did, for instance) parts of the language (i.e. rules) which are known by the child and parts which remain to be discovered. The final set of rules known is finite. (1991, 173).

In this sense, the process is progressive and follows a path according to Stephen Krashen who considers there is a logical order when learning a language.

Stephen Krashen in his influential text *Principles and practice in second language acquisition* in 1982 posits five hypotheses about second language acquisition and learning:

1. Acquisition-Learning hypothesis
2. Natural order hypothesis
3. Monitor hypothesis
4. Input hypothesis
5. Affective filter hypothesis

These definitions have widely influenced second language acquisition theorizing as well as first language acquisition. His first hypothesis states that there is a huge difference between learning and acquiring. According to him,

The first way is language acquisition, a process similar, if not identical, to the way children develop ability in their first language. Language acquisition is a subconscious process; language acquirers are not usually aware of the fact that they are acquiring language, but are only aware of the fact that they are using the language for communication. The result of language acquisition, acquired competence, is also subconscious. We are generally not consciously aware of the rules of the languages we have acquired. Instead, we have a "feel" for correctness. Grammatical sentences "sound" right, or "feel" right, and errors feel wrong, even if we do not consciously know what rule was violated (Krashen: 1982, 10).

In this regard, acquiring a language implies a subconscious process that is carried out by exposure to language. Brain has the capacity to acquire rules instantiated in daily language or in performance. You are not required to buy a book to learn your native language nor to hire a first language teacher. Once again, this obeys to language faculty all human beings have. On the contrary, learning is a quite different process that normally occurs within formal teaching-learning settings.

For instance, English taught in high school or in a language institute follows this pattern. According to Krashen,

The second way to develop competence in a second language is by language learning. We will use the term "learning" henceforth to refer to conscious knowledge of a second language, knowing the rules, being aware of them, and being able to talk about them. In non-technical terms, learning is "knowing about" a language, known to most people as "grammar", or "rules". Some synonyms include formal knowledge of a language, or explicit learning" (Krashen: 1982, 10).

As far as this difference is concerned, the idea is to show two kind of mechanism mind works with. It is not about a method nor approach to second language teaching. It is indeed an analysis that exposes how mind can, on one hand, internalize rules by being exposed to them during a long period of time: childhood or total immersion learning and, on the other hand, by trying to expose mind to rules within a classroom where the attention is focused on didactics and method and not in internalizing rules and new vocabulary.

This difference, though, is very important to this monograph insofar it aims to show that acquisition is possible when being adults and especially within classroom. Following Krashen himself,

The acquisition-learning hypothesis claims, however, that adults also acquire, that the ability to "pick-up" languages does not disappear at puberty”, I state that by having direct and indirect access to universal grammar, genes-based mechanism mind works with are available throughout life, which implies that second language acquisition is possible no matter how difficult and complicated the target language is. In other words: “It does mean that adults can access the same natural "language acquisition device" that children use.” ((Krashen: 1982, 10)

In this sense, it is important to identify the importance of these two concepts learning and acquiring in order to understand the approach of the monograph and its importance within second language teaching and acquisition.

### **2.1.8 Dissociation between language and cognition:**

Some clinical populations have (relatively) normal language and impaired cognition; some have impaired cognition and (relatively) normal language. As you remember in the part *Investigation trigger*, language is composed of two elements, namely: 1) *computational rules* allow organizing, processing, and producing the syntax of any language depending on the input the baby receives; 2) *functional categories* are the ones in charge of organizing the inventory that any language must have and work with. These two elements have their correspondent localization in the brain. Brain is divided in four hemispheres meaning each of them have specific functions. According to the paper *Human Brain Language Areas Identified by Functional Magnetic Resonance Imaging* “In its most general form, classical model of language organization proposes a frontal, “expressive” area for planning and executing speech and writing movements, named after Broca (Broca, 1861), and a posterior, “receptive” area for analysis and identification of linguistic sensory stimuli, named after Wernicke (Wernicke, 1874). This model proposes that these two areas operate simultaneously when producing and processing language, which indicates a highly sophisticated system of data producing and processing analogous to the two categories I have already theorized: functional categories and computational rules. In fact, these two categories are the expression of the two areas in the brain

each of them has as their function generating sentences based on rules and the other one utilizes the lexicon to instantiate abstract categories. In the following scheme, we can see the implication of this affirmation.

These two aspect of the problem are quite important, since they shed lights concerning not only about how language is articulated with brain functioning, but how it is structured in language competence. Aphasias are a common place of working because it provides good examples of how damage in certain areas of the brain affects language processing or production. We can see a set of aphasia-related issues that are worth to analyze.

### **A) Wernicke's Aphasia (receptive):**

People with serious comprehension difficulties have what is called Wernicke's aphasia and:

- Often say many words that don't make sense.
- May fail to realize they are saying the wrong words; for instance, they might call a fork a "gleeble."
- May string together a series of meaningless words that sound like a sentence but don't make sense.
- Have challenges because our dictionary of words is shelved in a similar region of the left hemisphere, near the area used for understanding words. (Angela Hein Ciccia and Jamie Harding, 2003)

I will give some examples of this kind of aphasia and how it is related to the lexicon or second language component (functional categories component). For instance,

A) Examiner. Excuse me, but I wanted to know what kind of work you have been doing.

B) If you had said that, we had said that, poomer, near the fortunate, porpunate, tamppoo, all around the fourth of martz. Oh, I get all confused. (Angela Hein Ciccia and Jamie Harding, 2003)

In this particular aphasia, one can see that functional categories are directly affected due to this kind of brain damage, i.e., lexicon is severely affected but understanding is not. Suppose you

understand when two people are playing chess, but when you try to play you always forget how to move the pawns. In this sense, this kind of argument affirms the existence of a relation between mind functioning and brain functioning, which in turn means genes have an important role when allowing language acquisition. In this sense, it can be confirmed that effectively brain and mind are interwoven which highly indicates that language functions can be located in the in human's body. This is important to know because one can see the relation that exists between acquiring L1 and the biological arguments that supports that.

### **B) Broca's Aphasia (expressive):**

When a stroke injures the frontal regions of the left hemisphere, different kinds of language problems can occur. This part of the brain is important for putting words together to form complete sentences. Injury in the left frontal area can lead to what is called Broca's aphasia. Survivors with Broca's aphasia:

- Can have great difficulty forming complete sentences.
- May get out some basic words to get their message across, but leave out words like “is” or “the.”
- Often say something that doesn't resemble a sentence.
- Can have trouble understanding sentences.
- Can make mistakes in following directions like “left, right, under, and after.”

“Car...bump...boom!” This is not a complete sentence, but it certainly expresses an important idea. Sometimes these individuals will say a word that is close to what they intend, but not the exact word; for example they may say “car” when they mean “truck.”

A speech pathologist friend mentioned to a patient that she was having a bad day. She said, “I was bitten by a dog.” The stroke survivor asked, “Why did you do that?” In this conversation, the patient understood the basic words spoken, but failed to realize that the words of the sentence and the order of the words were critical to interpreting the correct meaning of the sentence, that the dog bit the woman and not vice versa.

This kind of aphasia corresponds with generative rules related to syntax because the patient cannot form grammatical sentences despite the fact of controlling certain words (lexicon). If

you cannot form grammatical sentences, i.e. if you cannot deploy meaning in a shared grammar (convergence), you cannot make yourself understood.

These arguments work as a set of hypothesis that enforces the general scaffolding that support my main insight: all human languages are different only in its manifestation because all of them share a basic structure, which is biologically inherited. This architecture that is cross-linguistic allows to have a frame from which every natural language must adhere no matter how difficult it is in its symbology.

1) Broca area (expressive)	2) Broca's aphasia	3) Generative rules
4) Wernicke area (receptive)	5) Wernicke's aphasia	6) Functional categories

*Figure 3 Brain and aphasias. Own graph.*

In this chart, you can observe how these six elements are all interwoven depending on natural conditions. For instance, if 1) and 4) work normally therefore 3) and 6) work perfectly. This is the condition the majority of human beings have. On the contrary, if 1) does not work properly, 3) is not going to work properly, which affects not only language, but social living because meaning cannot be deployed.

Having said this, I wanted to expose briefly how brain and language are related, because if so it would suggest genes play an important role when learning a first and second language, since neurons only work following codified genes that provide brain functioning.

Firstly, we all human beings are endowed with a very specific organ (Pinker: 1999; Chomsky: 1976) that has as its function the activation of a set of grammatical rules that organize, process and produce language. That is the reason why every single new-born in healthy conditions achieves to develop a language. The organ is in charge of utilizing two main features, namely: 1) *computational rules* that allow organizing, processing, and producing the syntax of any language depending on the input the baby receives; 2) *functional categories* that are the ones in charge of organizing the inventory that any language must have and work with. In this sense, we have two items that are highly interwoven, every of them have a very specific value: the

latter categorizes the elements of the language involved (noun, adjective, preposition, verbs, conjunctions), and the former computes those elements depending on the computational rules of the language that is being learned (generative rules).

## 2.2 Computational rules:

Mind experiments have been long used as a way to grasp theories specially those of philosophy, psychology, and computational science, since it provides a mean by which one can easier understand a set of hypothesis and predictions. In this sense, I am going to show the reader an example of a similar nature. Suppose that a whole language consists of 2 elements: zeros and ones (0-1), formalized in the following way  $\Sigma = \{0, 1\}$ ; computational rules are the rules that allow one to compute those two elements in the set of possible combinations. For instance, suppose the language we are dealing with has two computational rules: 1) you must organize your language in a set of two elements. So the possible combinations of the language are: 0-0, 1-1, 1-0 and 0, 1. however, the combinations must follow another rule: zero cannot be at the beginning of any phrase. In this virtual language, only the following constructions are allowed: 1-1 and 1-0. Therefore, we can construct endless blocks of these operations despite the fact we have never been taught to use each of them. For instance, the set of  $[1-1 + [1+0 + (1-1)]]$  is totally available in this language, which means an overall apprehension of a rule that was never explicitly explained. In fact, this rule usage within an instantiation is a two-based blocks construction of finite elements having in mind computational rules and its deduction rules. These are the rules our mind works with concerning language acquisition and language processing. So extrapolating this example in natural languages, it is inferred that zeros and ones can be replaced by grammatical categories that are organized depending on generative rules. Furthermore, instead of having numbers we can instantiate these items within a phrase that can be transformed and constrained by certain rules.

The theory of phrase structure rules states that there is a limited number of rules that are carefully ordered:

1. there is a limited number of rules which serve to reflect the linguistic competence and knowledge of a native speaker



2. These rules are arranged in an order: rule 1 must precede rule 2, which must precede rule 3, etc.
3. the rules can be illustrated in phrase structure trees
4. These rules can be equated mathematically in phrase structure rules. (Pat kamalani, 2004).

According to this theory, you can take a sentence and mathematically divide it into parts.

In this sense, generative rules are a way to have a deeper knowledge about how language works and how it is altered depending on the rules utilized to transform sentences. For instance, one of the most basic rules of generative rules is the following one:  $S \rightarrow NP + VP$ , which means that any sentence is composed by a nominal phrase and a verbal phrase. This structure can be formalized also in a tree structure:

Following this basic rule, we can break down any statement in a deeper structure that will allow understanding the structure of any natural language. In this sense, we can have more sophisticated rules such as:

**$S \rightarrow NP + VP$**

**$NP \rightarrow N$**

**$NP \rightarrow Det + N$**

**$VP \rightarrow V$**

**$VP \rightarrow V + NP$**

These more sophisticated rules can explain the structure of statements we all work with in every single day. We can also formalize this rule in a tree-based structure as follows:

The dog chased the cat.

| | | | |  
 Det N V Det N

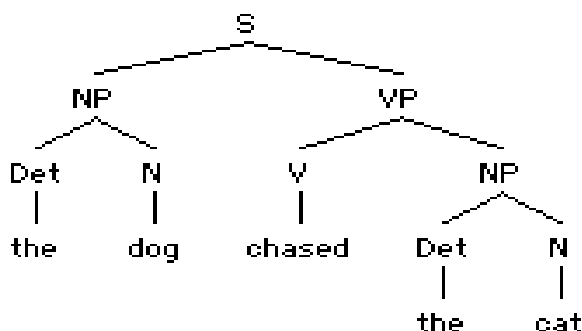


Figure 3: syntax rules

Any single human language can be broken down utilizing the previous structure, since every language has a set of rules that allows constructions and transformation. The generative element is what allows any speaker to create endless series of meaningful statement from a finite set of elements. What is important in this context is to identify how different languages work with similar rules, which in turn will contribute to the debate of how second language is learned. For instance, there are certain rules that are shared by several languages; thereby these generative rules can be easily transferred from one language to another. Despite these rules may be instantiated otherwise, their logical structure remains identical, however.

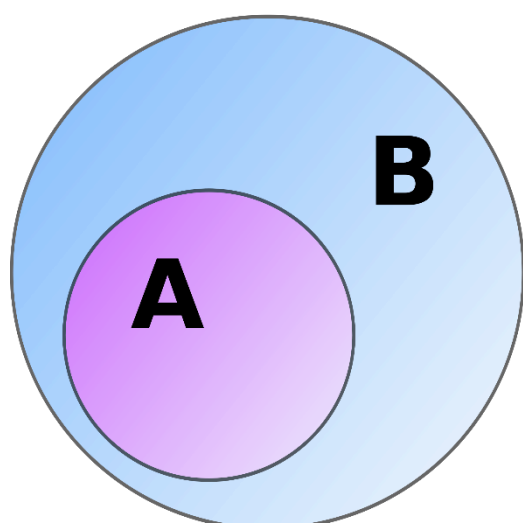
### 2.3 Functional categories:

*Functional categories* are part of the inventory (lexicon) of any language. This inventory is composed of two main categories, namely:

1) functional categories such as auxiliaries, pronouns, prepositions, and inflection that do not have a denotative meaning or substantive content, but a function within the word or phrase where it has its presence; for instance, “I did not work for three years”. The word “did” does not have a meaning itself, but a psychological disposition that refers to the tense and the negation of the sentence (simple past).

2) Lexical categories such as noun, verbs, and adjectives have a denotative meaning and substantive content because it refers to a concept, for instance, “heart”, “sun”, “break”. For instance, “I saw two dogs”. The word “dog” as well as “saw” have substantive content, which is the object or action the word stands for.

From this point of view, the majority of languages have determiners that operate under certain conditions depending on features such as number and gender. Functional categories work as sets within which there are subsets that instantiate the functional psychological disposition. Imagine the set of determiner operating as the psychological notion (B), and the concrete manifestation of that set as subset (A) such as in English *the*, the Spanish *el, la* the German *Die, Das, Der*, and the empty category  $\emptyset$  in Russian or Latin. The following diagram will make it clearer.



Imagine B is the set of determiners and A is the subset of Spanish instantiations of such notion. This A may have two elements as it is the case of Spanish: *el* and *la*. However, this subset may have different manifestations depending on the language.

Figure 4 Functional categories ( Guido, Mendes, 2007, 23)

As a result, learning a language consist of mastering computational rules of a specific language as well as the functional categories that are instantiated in the language in question along with lexical categories. According to Chomsky (1995), there are six functional categories that correspond with lexical categories.

Lexical categories		Functional categories
Nouns		Determiners

Verbs		Auxiliaries
Adjectives		Coordinators
Adverbs		Complementizer
Prepositions		Inflections
Pronouns		Negation

Figure 5 lexical and functional categories. Own graph

In order to have a broader understanding of these two elements (generative rules and functional categories), you can take a look to the following chart in which you can identify the possible combinations that any language may have concerning the order of S-O-V (subject, object, and verb). According to Kim Sauter:

The generative procedure with which the adult native L1er constructs sentences consists of two components: a language-specific lexicon, and a language-invariant computational system of human language. The lexicon, on the one hand, comprises lexical items of a particular language, and encodes phonological, semantic, and grammatical information such as parameterised properties. So, UG defined variation is stored as lexical information. The computational system, on the other hand, is the structure building component. It draws its structural information, the building blocks for syntactic trees, from the lexicon. (Kim Sauter: 2002, 24)

In this example, we can identify the two elements universal grammar works with, confirming how a rule may be positively transfer from one language to another, but negatively transfer from one language to another.

There are six logical possibilities. S = Subject, O = Object, V = Verb

<b>SVO</b>	the dog	Ate	my homework.
<b>SOV</b>	the dog	my homework	ate.
<b>VSO</b>	ate	the dog	my homework.
<b>VOS</b>	ate	my homework	the dog.

<b>OVS</b>	my homework	Ate	the dog.
<b>OSV</b>	my homework	the dog	ate.

Figure 1 Subject, object, verb (Pat kamalani, 2004).

These possibilities may change depending on the language, for instance, the first combination is present in the following languages: English, Chinese, Vietnamese, Hausa (Niger), Thai, Spanish, Russian. This combination composes the 75 % of language structure in the world. On the other hand, second combination may be the structure of a language such as the following ones: Japanese, Korean, German, Dutch, Georgian, or Latin. (Pat kamalani, 2004).

<b>English:</b>	<b>S</b>	<b>V</b>	<b>O</b>
	The dog	ate	my homework.
<b>Japanese</b>	<b>S</b>	<b>O</b>	<b>V</b>
	Inu wa	homwuwaku o	tabemashita.
	<i>Father+TOPIC</i>	<i>homework+OBJECT</i>	<i>eat+PAST</i>
<b>Dutch</b>	De hond	eft miin huiswerk	opgegeten.
	the dog	has my homework	up-eaten.

Figure 2 Languages syntax order (Pat kamalani, 2004).

According to Lydia White (1987), “UG places requirements on the form of grammars, providing an inventory of possible grammatical categories and features in the broadest sense, i.e. syntactic, morphological, phonological and semantic. In addition, it constrains the functioning of grammars, by determining the nature of the computational system, including the kinds of operation that can take place, as well as principles that grammars are subject to” (White: 02). By coordinating functional categories and computational rules one can master a language based on the input received from the environment. For instance, concerning the

functional category of negations, one can develop the following instantiation *don't* in English, *no* in Spanish, *nicht* in German, *não* in Portuguese and *ne...pas* in French.

## 2. 4 Competence and performance:

To further understand Chomsky's ideas concerning language acquisition and functioning, it is important to expose two categories that have caused a wide impact within language theorizing. This difference has its importance insofar it breaks the problem down into two conceptual categories. On one hand, it exists language conceived as a dynamic that is interwoven with social-related factors such as age, gender, region, physiological capacities, among others. Indeed, when speaking, we all commit several mistakes caused by extrinsic factors such as speed, fatigue, and unawareness. In addition, language can be seen as a dominant practice as well as a way by means of which people want to manipulate or convince. All these factors are important when trying to identify how language works within a society. However, there is an approach that states the following thing: think language corresponds with a capacity that has been acquired along life and it is devoid of all its accidents as those previously mentioned. I will quote some statements that shed lights on this issue.

- a) Linguistic theory is mentalistic since it is concerned with discovering the mental reality underlying actual behavior. (Chomsky:1957, 4)

Unlike behaviorists, Chomsky conceives language as a mental activity, which means that actually our mind works based on certain patterns and rules. Behaviorists think language is a habit-based process insofar words and sentences are learned due to the stimuli the experience provides the children with. According to Chomsky, behavior is just the manifestation of an underlying competence (capability) all humans have set up in their minds. In other words, Chomsky analyzes the problem based on the abstraction of all accidents present in the linguistic behavior, which changes the paradigm of analysis. As a conclusion, Chomsky states that linguistic competence must be understood under the following statement:

Linguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech-community, who knows its (the speech community's) language

perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of this language in actual performance. (Chomsky: 1957, 6)

The important aspect in this quote is the perspective from which Chomsky analyzes the agent that produces language: an ideal speaker-listener, in a completely homogeneous speech-community. I will analyze each of the components imply in this quote. Firstly, it is important to point out that the word “ideal” has mentalistic implications insofar it refers to the abstraction method inspired in Descartes, whose aim is to approach to an issue in the same way geometry does. Secondly, the two words “speaker-listener” refers to the fact that what all humans do when using language is to process and produce information (data). Thirdly, the word “homogeneous” refers to the fact that the “linguistic reality” can be abstracted from its accidents. Fourthly, the word “speech-community” refers to the fact that the ideal speaker-listener belongs to a wider community, which in turn can be subject of abstraction. This is a second order abstraction that has to do with the functioning of the language itself within a community.

- b) A grammar is descriptively adequate to the extent that it correctly describes the intrinsic competence of the idealized native speaker. (Chomsky, 1957, 26)

Having said this, one can infer there is an intrinsic competence underlying all linguistic production, i.e., there is an unconscious competence that operates according to the rules and lexicon of each particular language. In this sense, his theory attempts to provide a scaffolding concerning the linguistic competence and not the linguistic performance.

The difference of these two categories refers to the specificity of the study that Chomsky wants to develop in his theory. Thus, competence is the ability that humans have to form and interpret words, sentences and phrases while the performance is the effective realization of how humans use language. The latter is studied by sociolinguistics in which socio- economic, racial and regional variations are considered as essential to language functioning . Conversely, generative

linguistic research the capacities that any individual has to perform a language production. According to Stanford Encyclopaedia of philosophy,

Part of this sharpening is the result of Chomsky's important methodological distinction between *competence* and *performance*. Chomsky argued that a scientific approach to language needed to focus on the specific mental representations that underlie linguistic behavior (*'linguistic competence'*), and *not* on the behavior itself (*'linguistic performance'*)” (Jerry Samet and Deborah Zaitchik, 2014).

After generally explaining main concepts of universal grammar and its relation with first language acquisition, I will articulate this background I showed you with a specific theory Chomsky exposed within universal grammar scaffolding.

## **2.5 Theory of principles and parameters:**

First, Chomsky posits a set of unchanging principles (innate) to which any language is subject, i.e., these principles create a set of constraints upon which any further grammar has to be developed. These are abstract, common and innate, because they come from the genetic endowment of humans. On the other hand, the parameters are variations of each language grammar. These are individual, private and therefore learned. However, these variations projected in the parameters are developed in a range of established principles.

Imagine that Chomsky tries to explain a highly sophisticated system, whose complexity relies on the elements involved. For instance, Spanish language has around 80.000 words according to RAE, while English has 170.000 words according to Oxford English Dictionary. On top of that, there are a set of grammatical rules that hinder the situation because most of them have exceptions along with their phonological manifestation. In Spanish and other languages one can read a text based on an identity between what is written and pronounced. There are, however, some languages whose writing and phonology differs in a wide range. All these facts represent the difficulty a kid faces when learning a language. Nevertheless, a kid in healthy conditions



does not have any problem learning their native language; in fact, a kid can arrive at developing two or three native languages.

In order to explain how it is possible to organize all these in a grammar without explicit teaching is a challenge that Chomsky tries to answer by postulating first his Universal Grammar theory and second his Principles and parameters theory.

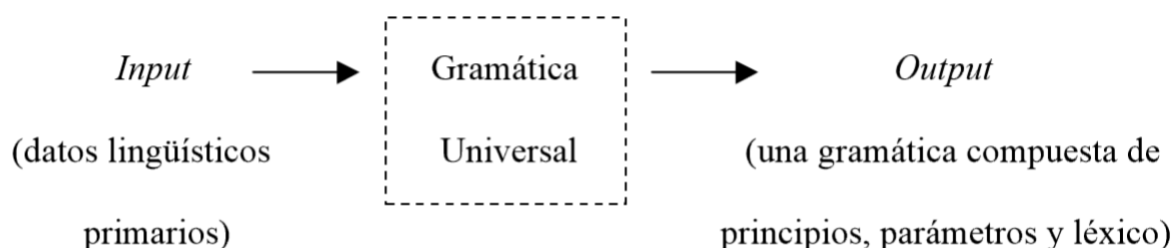


Figure 5 Universal grammar and SLA. Cook, V. j. (2009)

As it is stated in his theory, we all have invariable principles such as the following one: all languages must have a subject (extended projection principle). On the other hand, Chomsky suggests that exists a set of parameters that are variables depending on the contact an individual has contact with. Normally, parameters have a binary structure that depending on the language can be set differently. For instance, concerning verbs positions, there are some languages that place the verb after the subject; nevertheless, there are some languages that switches this parameter and places verbs at the end of a sentence such as Latin or German. Here are some examples that illustrates this point. (B)

A: All languages must have a subject which could be either overt or null.

A1: Je suis un homme sérieux (Yo soy un hombre serio)

A2 : Vou jantar na minha casa (Voy a comer en mi casa)

B: Parameters have a binary structure. In case of verbs place it can be either at the end of the sentence or after the subject.

B1: Claudius Nero Incendium Romae volebat (Claudio Neron incendio de roma quería)

B2: Mi gata sabe lógica

B3: Ich habe deutch gelernt (I have German learned)

In this sense, the reader can see that while principles are universal, parameters are language-specific set, which entails that when learning a second language some principles can be transferred along with some parameters. It is, though, mandatory to know the implications this transfer may cause. However, the important fact here is there is indeed transfer between two languages within second learning process. In fact, by affirming that there are mistakes during the process implies that mind is constantly trying to refix new parameters under new input-related conditions. In other words, it seems that mind is trying to accommodate new rules concerning syntax structure.

## **2.6 Nuclear grammar and peripheral grammar:**

The universal principles form the nuclear grammar and aspects that are characteristic of a particular language make up the peripheral grammar (parameters). The hypothesis of UG argues that the more peripheral (idiosyncratic) a rule is, the more complex linguistic phenomenon will prove their learning. And conversely, when a certain aspect of language belongs to the UG, the difficulty of acquisition will be lower because they are common elements to all languages.

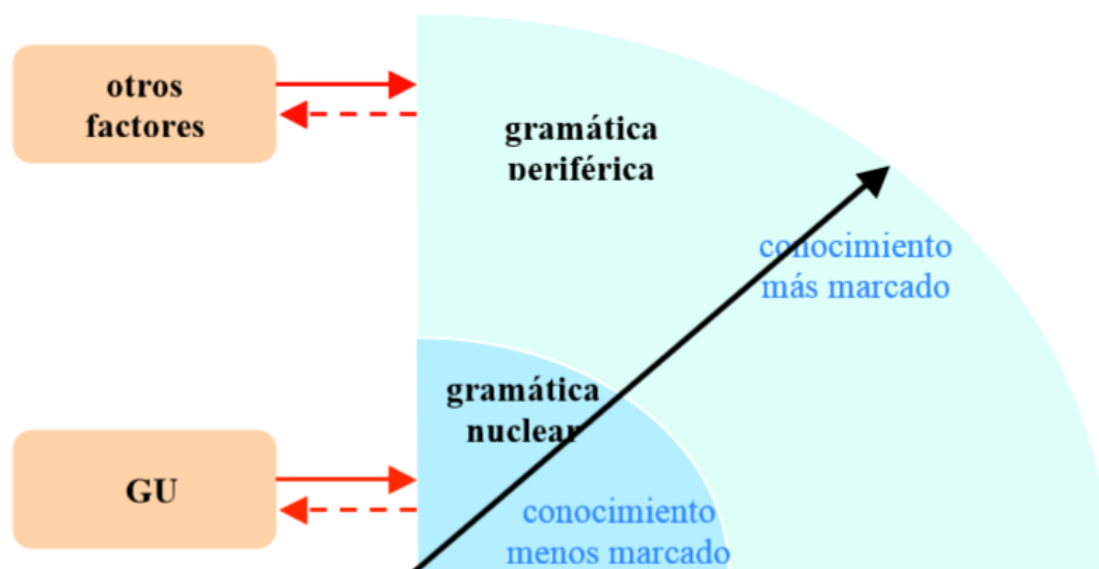


Figure 7 Guido, Mendez (2007, 25)

Having said this, the problem needs to be understood in the following way: all human beings have an inventory of possible instantiations that depending on the input can be activated, i.e., suppose that our genes have all the potential elements a language must have. However, only a cluster of them can be activated following the grammar of the language that we listen. For instance, verbs can be highly inflexed or low inflexed or not inflexed at all.

In English, the following verbs represent a meaning without having a morpheme that represents that notion.

I eat

You eat

He eats

We eat

They eat

In Spanish, on the contrary, each paradigm has its morpheme.

Yo como

Tú comes

Él come

Nosotros comemos

Ellos comen

In Chinese, verbs does not have any change within the verb. Chinese verbs do not have tenses. In other words, the form of verbs never changes, regardless the change of time. They remain the same if they are actions of the past, present or future, if they are active or passive voices.

What I want to point out is the fact that languages need verbs, even though they can have different forms of manifestation and placement. What a Chinese, Spanish, or English kid do when learning a language is trying to understand which options he/she is endowed with. I consider that our mind is not a blank slate, because it would be almost impossible to learn, memorize, compute, and produce elements within the language. Therefore, what the kids do is to activate mind mechanism in order to instantiate the functional and lexical categories that corresponds with the input the kid is exposed to. For instance, alphabets are part of peripheral grammar, since it does not belong to the UG; they are only part of the surface structure. The deep structure establishes the logical connections that exists between elements. If I try to tree the syntax structure of the language previously mentioned language, I would easily identify similar structures that would facilitate the general comprehension of the language to be learned as a whole.

## **2.7 Generative rules:**

To begin with, I will try to give you an example of what generative rules means and implies, which would provide the reader a deeper understanding of this new paradigm within linguistics. I will suggest the next sentence as the one we can work on:

“The dog eats bones in the yard”

This sentence can be broken down into three parts: noun phrase, verbal phrase, and complement. The fact of mastering this formula implies that one can create meaningful sentences following a pattern that it is not indeed conditioned nor learned, but acquired; if you do it otherwise, it is likely that you won't be understood. For instance, if you write "bones in the yard eat the dog" or "eat the in dog the yard bones", it is at first sight a meaningless sentence in terms of syntax structure because unless we can recognize every word is within the sentence, it is not intelligible precisely because of the order of the words. Therefore, by accessing to the internalized competence English speakers have mastered one can formalize the implicit rule in the following way:

P: NP VP

VP: TV NF

NP: (DET) Com

NP: NP

VT: transitive verb

C: Common noun

NP: Noun phrase

Det : determiner

Prep : preposition

As far as this investigation is concerned, these are the kind of rules languages work with, since they set a course of action, which if it is not followed, It will not be possible to deploy any meaning at all. To further understand this, I will suggest an imaginary example that was first thought by philosopher Juan José Acero. According to him,

It seems clear that both the spoken and written language are organized surface in a linear fashion. The various sounds of a phonic chain sequences, one after another. Writing reflects this. The words and sentences (but not the letters) are written in most languages

from left to right, and in a minority of right to left (Arabic) or up and down (e.g. Chinese or Japanese) but always linearly. One might assume that our perceptual process both auditory language and the visually is organized in a corresponding manner, i.e. linearly. Therefore, it seems that would be expected that these surface properties of language organization as presented, and how we perceive it, had its counterpart in a similar structure of language in the same way. But grammar is exactly the one that tells us what that structure and therefore would be expected to give us grammar "linear structure. (Acero, Juan Jose: 1989, 56)<sup>1</sup>

Taking into account the last paragraph, I will explicitly expose that combinatory and generative properties of this this kind of rules within language production and understanding. Suppose you have the following grammar:

1. A:aB
2. B:bC
3. C:cd
4. D:dD
5. D:dE
6. E:e

“A” is a beginning axiom.

“B” and “a”, “b”, “c”, “d” and “e” are the words to be formed.

The letter in capitals are syntactic categories

The letter in lower cases are words of languages.

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<sup>1</sup> Original version: Parece claro que tanto el lenguaje hablado como el escrito están organizados superficialmente en un modo lineal. Los diversos sonidos de una cadena fónica nos llegan en secuencias, unos detrás de otros. La escritura refleja esto. Las palabras y las oraciones (aunque no las letras) se escriben en la mayoría de las lenguas de izquierda a derecha, y en una minoría de derecha a izquierda (en árabe) o de arriba abajo (por ejemplo el chino o el japonés), pero siempre linealmente. Cabría suponer que nuestro proceso perceptivo del lenguaje –tanto el auditivo como el visual- está organizado de un modo correspondiente, es decir, linealmente. Por tanto, parece que sería de esperar que esas propiedades superficiales de la organización del lenguaje tal como se presenta, y del modo en que lo percibimos, tuviera su réplica en una estructura similar del lenguaje en el mismo modo. Pero la gramática es justamente la que nos dice cuál es esa estructura y, por consiguiente, cabría esperar que la gramática nos diera “estructura lineales”.

These letters can be instantiated in words. For instance, “A” can be replaced for “He” and “B” for “any verb” and so on.

Now I will proceed to see how this grammar generates the following phrase: “abcdde”

1. The beginning point is: A
2. Rule one application: aB
3. Rule two application: abC
4. Rule three application: abcD
5. Rule four application: abcdD
6. Rule five application: abcdD
7. Rule six application: abcdde
8. Rule seven application: abcdde

There are several items to be pointed out. The first one is the left-right movement, which indicates the reason why language is written in such a way by a huge amount of language except Arabic and Hindi. The second item is the application of rules to build and create a new sentence just by following a course of action. I can easily change those letters for a new cluster of items. I will generate brand-new sentence based on rules that do not change overtime. That is the reason why humans can generate brand-new sentences every time they want to. Generative rules set course of actions in order to form well-structured sentences. To sum up, this allows humans to articulate the creativity with thoughts and produce knowledge.

After giving an overall view of main concepts this monograph is going to work with, I will proceed analyzing this concepts in two scenarios where it can be seen how the scaffolding of mind, brain, and language is interwoven.

## **Chapter 3: Universal grammar and L2 acquisition**

To begin with, I would like to expose what I want to do throughout this monograph and how I want to accomplish this purpose. I will base my reflexion upon Chomsky (1998) theory known as Universal Grammar, Kim Sauter (2002), Guido Mendez (2007) and Lydia white's (2003) work concerning how Chomsky's theory can be extrapolated in L2 settings.

### **3.1 Introducing second language acquisition:**

In this chapter, several issues will be discussed in order to have a broader understanding of the theoretical background of the present investigation. To do so, philosophy, linguistics, and psychology will be taken into account as to mind, language, and brain can interact and create language.

Different perspectives about universal grammar, biological endowment, and brain and mind functioning will be taken into account in order to give an overall understanding of the scaffolding of the issues involved. To do so, several arguments that support this approach will be considered as well as some paradigmatic cases as those of Genie's case and Broca and Wernick aphasia's. On the other hand, I will try to narrow the investigation extent this thesis will work with.

#### **2.1.1 What domains are embraced in second language acquisition?**

Second language acquisition is a field that has been recently studied in the second half of this century. Its development has been carried out not only by the increasing need of humans to acquire a second language for different reasons (business, hobby, study, travel), but also by the superlative interest among physiologist, linguist, and philosophers to comprehend what the functioning of human language is.

On one hand, twentieth century has turned out in the *language* century, having as paradigm its study, since the reflection upon human languages has been long addressed by several authors



irrespective of the engaged field. For instance, language is an important field of study within anthropologist and sociologist as Levi-Strauss (1958) and Pierre Bourdieu (2001) suggest. In the field of philosophy, the question about how language affects societies and our existence has been analyzed from different perspectives as those of Phenomenology and Hermeneutics (Heidegger: 1996; Gadamer; 1989), Pragmatism (Wittgenstein: 1958, Grice: 2000; Austin: 1962) and Ethics and Politics (Foucault: 1970 ; Deleuze and Guattari: 1987). In fact, this increasing reflection upon language theories has created an endless number of perspectives from which language can be grasped, which entails a challenge to any person who is interested in language-related questions.

Consequently, it is mandatory to narrow down the domain to which I will address, since the field of study is too extensive. In this sense, I will outline the set of questions that will be either direct or indirect addressed along this text.

As I showed in Table 1, essentialists aim at a very specific way of comprehending language-related problems. Therefore, I will explain what part of this general map I will focus my investigation on. The first question that may arise is when studying first language. Chomsky addressed attempting to answer how children acquire their first language and how it works.

To sum up, I will show four question that expose the scale that will allow to have a mind map from a top-down point of view.

- 1) What is human language? This question has been addressed by several authors as those previously mentioned in this part.
- 2) What is first language acquisition? This question has been addressed by authors such as Piaget, Skinner, Chomsky, Vygotsky, among others.
- 3) What is second language? This questions is addressed mainly when exploring second languages within communities where two languages are employed as lingua franca, mean of communication or governing.
- 4) What is second language acquisition? It is the core question I am intending to grasp as to its foundations and main insights. This question, however, is integrated with the previous questions. Despite of its involvement in several issues, the following text will be mainly engaged in trying to answer this question having in mind collateral interests in the first, second, and third question.

Having a unified theory is barely impossible to conduct; nevertheless, the following chart will schematize these ideas having a broader mapping catalogue of these reflections. The following map will give a broader analysis bearing in mind three stands about how language works and how it is conceived depending on the point of view from which it is theorized.

<b>Three Approaches to the Study of Language</b>			
	EXTERNALISTS	EMERGENTISTS	ESSENTIALISTS
<i>Primary phenomena</i>	Actual utterances as produced by language users	Facts of social cognition, interaction, and communication	Intuitions of grammaticality and literal meaning
<i>Primary subject matter</i>	Language use; structural properties of expressions and languages	Linguistic communication, cognition, variation, and change	Abstract universal principles that explain the properties of specific languages
<i>Aim</i>	To describe attested expression structure and interrelations, and predicting properties of unattested expressions	To explain structural properties of languages in terms of general cognitive mechanisms and communicative functions	To articulate universal principles and provide explanations for deep and cross-linguistically constant linguistic properties
<i>Linguistic structure</i>	A system of patterns, inferrable from generally accessible, objective features of language use	A system of constructions that range from fixed idiomatic phrases to highly abstract productive types	A system of abstract conditions that may not be evident from the experience of typical language users
<i>Values</i>	Accurate modeling of linguistic form that accords with empirical	Cognitive, cultural, historical, and evolutionary	Highly abstract, covering-law explanations for

	data and permits prediction concerning unconsidered cases	explanations of phenomena found in linguistic communication systems	properties of language as inferred from linguistic intuitions
<i>Children's language</i>	A nascent form of language, very different from adult linguistic competence	A series of stages in an ontogenetic process of developing adult communicative competence	Very similar to adult linguistic competence though obscured by cognitive, articulatory, and lexical limits
<i>What is acquired</i>	A grasp of the distributional properties of the constituents of expressions of a language	A mainly conventional and culturally transmitted system for linguistic communication	An internalized generative device that characterizes an infinite set of expressions

Figure 3 Approaches to language. (Jerry Samet and Deborah Zaitchik, 2014)

In this table, it is shown three main perspectives from which language study may be theorized having a set of items that display the elements that are involved in every stage depending on the approach. For instance, *primary subject mater* indicates the object of study of each of these stances. In the case of externalists, language is a social and cultural entity that changes in accordance to its use within societies; it looks for grammatical structures that are ruled by communities. On the other hand, we have emergentists that think that language is a developing capacity to communicate within a society and that this social-subject interaction allows children to develop language as a mean to communicate. Finally, there is the essentialists stance that think there are a cross-cultural and, therefore, cross-linguistic principles that are underlying any language. This last stand will be the one that I will support throughout this monograph. Essentialists think language does not vary in its core grammar, since every single human being possesses a default grammar that makes part of its genes. In this sense, the aim of this particular point of view to analyze human language is: “To articulate universal principles and provide explanations for deep and cross-linguistically constant linguistic properties” (Jerry Samet and Deborah Zaitchik, 2014)

Having said this, it is important to mention that Chomsky did not carry out any reflection in which L2 issues were involved within his theory. On the contrary, his research focuses on analysing situations in which one could systematically comprehend L1 acquisition process based on a main hypothesis that he calls as universal grammar. In fact, most of his thesis was deduced from experiments conducted in children during their first years of life. Nevertheless, the theoretical scaffolding provided by Chomsky has been an always-present point of reference not only because of the accuracy of his hypothesis, but also because of the extent of his theory. This is the reason why pedagogues, linguists, and psychologists have done such an important research to identify convergence points amid L1 and L2 language acquisition. As a result, I have decided to start from a chomkian framework to develop my ideas, since his universal grammar can be used as a mean to reach an overall comprehension of L2 acquisition. For this reason I have formulated the following *question* that will be underlying throughout this monograph: to what extent the underlying linguistic competence of L2 learners is constrained by universal grammar principle and parameters? In the light of these theoretical settings the *problematic* core of this monograph is: how Chomsky's theory can be mirrored in L2 learning settings.

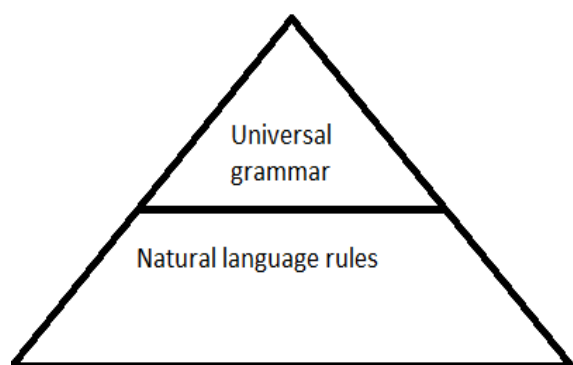
To establish such a bridge between L1 and L2 reflexion on L2 acquisition, professor Lydia White from McGill University has written *Universal grammar and second language acquisition* (2003), which is an attempt to find those theoretical convergence points between Chomsky's theory and SLA. In this case, I will follow her research bearing in mind two main problematic, i.e., *the logic problem of language* and *the initial state problem* as my guidelines.

To further understand the problem I am dealing with, I will outline what the logical problem of language is and what it consists of<sup>2</sup>. According to Chomsky (1957), every single human being is born or endowed with an innate device whose development allows that one may learn a language, which by being activated by the input coming from the world, this person will be able to produce fully grammatical language. In this sense, and after several experiments, ¿How is it possible that certain elements exist within children's grammar that could not have been acquired directly from the data coming from the experience? In other words, ¿How has a kid mastered grammatical structures that, on one hand, were never taught to him and, on the other hand, could not have been imitated nor isolated based on the data coming from either their parents or environment? To answer these questions, Chomsky suggests that human beings have an innate

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<sup>2</sup> This logical problem is also known under the mark as Plato's problem or the poverty of stimulus problem.

capacity to activate the universal grammar that is underlying every single language around the world and whose principle and parameters allow that any particular grammar be structured. This answer, then, points out to solve the mismatch that exists between the input to which children are exposed and the output that is produced by them. The output has, therefore, elements coming from universal grammar, which let language blooms; thereby one will be able to produce structured language. In this sense, the fact of mastering the rules of a specific language means that there are a set of deeper rules that are underlying any language. In other words, universal grammar is as a rule to create rules or a second-degree way of seeing the problem. Any language grammar is composed of a set of rules that allows processing, producing and understanding language, for instance, German, Spanish, Russian, and English grammars. Those are rules concerning a particular language. However, there are a set of meta-rules that control the extent to which any particular grammar must adhere, that is, these meta-rules circumscribe the form that any particular grammar must have. These rules are those of universal grammar present in our default grammar.



*Figure 9 Universal grammar. Own graph*

Having stated this, in the context of L2 acquisition, the logical problem of language acquisition is analogue to that proposed by Chomsky in his theory, though extrapolated into a different field. By learning a L2, an adult or kid already has a grammar coming from L1, that is, this person do not have the default grammar he or she was born with. It is, though, necessary to further explain this as follows.

The first problem I have to deal with is the kind of accessibility that a student has to the universal grammar. It exists a wide literature in this regard, whose objective consists of analysing such access (White: 2003):

- 1) Some authors claim that it exists a direct access (full access)
- 2) others think it exists an indirect access, that is, one can access to the universal grammar through L1 grammar (full transfer)
- 3) some authors think that, on one hand, it exists an indirect access to universal grammar through L1 grammar, but also it exists certain cases in which one might have access to the default grammar (full transfer/full access)
- 4) finally, there are some authors that think that it does not exist access at all (no access/no transfer).

These thesis can be broken down in two main thesis, namely: access to universal grammar is possible or it is not possible at all. Those who claim that in the context of SLA access to universal grammar such an access is not possible at all support their arguments bearing in mind both neurological and psychological hypothesis (Vivian Cook: 2007) . This hypothesis is called the *critical period hypothesis* (1967) that claims that human beings have access to this particular device only over a very specific period of time which encompasses the first years of life. After this critical period humans will struggle when learning a second language, since the device that operated during the first years of life is no longer available. In this sense, despite the fact that the L1 is ruled by UG, the age at which you learn a L2 highly affects L2 learning process.<sup>3</sup>

However, there is a set of counter-arguments that deny the high influence of this hypothesis during L2 learning process. One of these, it is the fact that despite the high incidence of this factor, the majority of students who are truly engaged learning a second language arrive to master the language involved. It is a matter of fact that any human being can master a L2, L3 or even L4, since we all have the same mind structure.<sup>4</sup> In psychological terms, we all have the

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<sup>3</sup> Although critical period hypothesis is critical with first language acquisition theories, it is not with second language acquisition as long as a first language was already learned.

<sup>4</sup> This aspect of the problem I am trying to deal with is very important to understand the overall dimension of language functioning. This is the psychological part of the problem, since our mind is structured in modules, each of them organizes a specific language-specific lexicon. When learning a L2, it seems that a new module is created with a new lexicon, but transferring some rules from the L1 module. As Steven Pinker suggests, studying linguistics is just the window to study mind, i.e, linguistics is just a branch of psychology, which in turns is a branch of biology.

same device that allows to acquire a first language, which, in turn, may be reactivated by the psychological exercise of learning a L2. The underlying structure is always present, but not always activated. In this sense, when learning a L2, it is mandatory to activate that device in order to implement the computational rules our brain is endowed with. Depending on the language, one can have an indirect access to UG through the set of rules that are already present in L1 grammar, however, if certain rules are not presented in L1, but they are in L2, a direct access to UG is required. It is important to mention, though, that these processes are unconscious processes that are performed by the language organ.

I will support, then, the third thesis, it exists an indirect access to universal grammar through L1 grammar, but also it exists certain cases in which one might have access to the default grammar (full transfer/full access), which will be displayed along this text, for which it is necessary to take into account data obtained by several researchers. The evidence will consist, therefore, of determining the kind of access to universal grammar students have. To do so, samples from experiments already conducted will be obtained from different authors in order to confirm what kind of access they have.

As a result, the aim of my proposal is to outline the general structure that supports this thesis by analysing a cluster of paradigmatic cases from which I will be able to corroborate my insights. In fact, doing this will also provide some ideas concerning how our mind employs a computational system to produce fully structured language. In this regard, this thesis will also shed lights about how language and mind may be interwoven.

To narrow down this work, I will then employ two paradigmatic cases from which the accessibility problem can be faced following Guido Mendes, C. (2007) and White (2003). It is known that some language allow the use of both overt and null subjects as is the case of Spanish or Portuguese, but there are some language in which this option is prohibited as it is the case of English or French. Since every language composes an isolated grammar within mind structure, it may exist interference between grammars; however, this interference may be positive as long as the computational rule is the same in both languages. According to Cook,

Current UG-oriented SLA theory assumes a compound relationship: the two grammars are independent creations, two instantiations of Universal Grammar, not a single grammar, even if they have connections and links. One mental grammar has set the pro-drop parameter to +pro-drop, another has set it to non-pro-drop. An L2 user has two

instantiations of the parameter with different settings, not one instantiation of the parameter with a variable setting according to the language being used. (Cook: 2009)

In this context, if we have two languages that share the same parameter, i.e, the computational rule is identical in both language, it can be inferred that it will occur a positive transfer of that rule from L1 to L2, which in turn would mean an indirect access to the universal grammar. On the other hand, if two language differ in the use of a parameter, that is, the computational rule is different in those two language, a negative transfer will happen, so it is required to refix that parameter by having access to UG, which would mean direct access to the UG.

For instance, we have the computational rule in one language: every statement must have a subject that could be either overt (O) or null (null), as we mentioned in the case of Romance languages.

S: SO v SN

However, this rule might change in the following language: every statement must have an overt subject (SO)

S: SO

This simpler rule would make things more difficult to any student who is learning a non-Romance language, since he or she will be constrained to always use one setting out of the two settings he or she had available in the previous language. Therefore, my objective is to show how in both situations humans still have access to the UG no matter the age or the complexity of both languages.



## Chapter 4: scientific method within SLA

In this chapter scientific research will be analyzed having in mind a set of investigations that were already conducted in the field. It is not my purpose to conduct an investigation, since what I want to do in this monograph is comparing several investigations within the same field in order to have a more comprehending approach of what SLA is. In this sense, this monographs aims to bridge several studies as well as to give a broader interpretation of the issues involved.

### 4.1 Methodological scaffolding:

The purpose of any science is to identify through abstraction processes what is essential to the object of study. By essential I refer to all the aspects that resist change, variations and accidents, that is, what is universal and what underlies objects' different manifestations. As we sketched in the theoretical framework, the object of study of this monograph is the set of experiments conducted in order to confirm second language acquisition access to universal grammar in regards of principles and parameters theory that composes the *linguistic competence*. In language investigation, and from an essentialist point of view, what linguistics studies is precisely all those principles that are present in any human language. In this sense, « This generative Essentialism has a preference for finding surprising characteristics of languages that cannot be inferred from the data of usage, and are not predictable from human cognition or the requirements of communication” (Jerry Samet and Deborah Zaitchik, 2014).

In this context, research conducted from a generative essentialist point of view aims to look for generalizations that can be detected in any language

Chomsky's reflections span several domains amid linguistics, politics, philosophy and even psychology. Therefore, it is worthy to understand the core of his concerns particularly those of philosophy and linguistics in terms of his methodology. To begin with, Chomsky considers himself as a natural scientist, which in turn means that his researches are based on empirical

data, whose objective is to develop a theory that explains the overall set of phenomena involved on his research. He follows a long-standing tradition that first started with Descartes. This French philosopher wanted to find a Euclidian point from which he could root his thinking. In his sense, Chomsky develops a theory that posits that all language are based on an underlying structure, i.e., a solid point from which we can deduct all the particularities of all languages. According to James McGilvray, “Chomsky’s science of language is a science in the Cartesian–Galilean tradition. It is a branch of the study of biology. It is a naturalistic science that provides an “abstract” description and explanation of a biological system found only in humans, the system that Chomsky calls “the language organ.” (McGilvray: 2005: 4). Therefore, the object of study of Chomsky’s concerns is the language organ.

As far as this monograph is concerned, what I will conduct in the following pages is an analysis of data collected by several authors, whose purpose is to support the thesis that L2 learners have still access to UG. In fact, this access can improve learning performance of students by having a shared ground from which second language grammar can be acquired. To do so, I will then follow a path that Stephen Krashen sketches in a very interesting way:

As is the case with any scientific theory, a theory consists of a set of hypotheses, or generalizations, that are consistent with experimental data. These hypotheses can be arrived at using any of a variety of means (a brilliant insight, a dream, etc.). They must, however, be able to predict new data. In other words, hypotheses are not summaries or categories for existing data and observations, but must pass the test of accounting for new data. If our current hypotheses are able to predict new events, they survive. If they fail, even once, they must be altered. If these alterations cause fundamental changes in the original generalizations, the hypotheses may have to be totally abandoned. (Stephen Krashen: 1985, 2)

In fact, universal grammar stills operates in any second language acquisition process as I intend to root in the subsequent paradigmatic cases. However, this particular case is part of a wider tree-like structure having on the top the principles, then the parametric settings and finally

accidents of the language. I will focus on the second degree of the problem, namely: the parameters that are shared by several languages.

In order to justify a set of hypothesis within the previous scenario, it is mandatory to define what sort of scientific approach we are dealing with, since this is what will allow to clarify the methodology that will be employed throughout this monograph.

As Ferdinand de Saussure mentioned in the introduction of his book *Cours de linguistique general* (Saussure: 1913, 4), linguistics has to be conceived as a science, the science of language. According to him, linguistics must mainly study three domains: a) language description throughout history; b) the forces that are permanent and universal in any language as well as the law to which they adhere; c) to delimit and define itself (Saussure: 1913)<sup>5</sup>. Following Saussure's tradition, Chomsky continues with the purpose of looking for underlying rules that are present in any language, but he extrapolates the problem in the following way. While Saussure wanted to find universal rules present in natural languages conceived as a *corpus* from which rules can be projected to all its components, Chomsky wants to find universal rules that are present in any language, but not from a structural point of view, but a cognitive one. This is due to a factor that Chomsky has always utilized as an argument, namely: language creativity. Having certain rules, I can form an *endless* set of phrases by applying generative rules. For instance, Saussure stated that there are some structures (e.g, morphological) *within* languages than can be identified as general rules. These rules, present in natural languages, can be formulated as a structure that can be instantiated in different situations. In Romance languages there are certain inflexion rules that can be identified in this sort of languages, though its manifestation in each language is different. In the following table such a difference can be observed concerning verb inflections in present in 6 languages.

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<sup>5</sup> "la tache de la linguistique sera:

- a) De faire la description et l'histoire de toutes les langues qu'elle pourra atteindre [...]
- b) De chercher les forces qui sont en jeu d'une manière permanente et universelle dans toutes les langues et de dégager les lois générales auxquelles on peut ramener tous les phénomènes particuliers de l'histoire.
- c) De se limiter et de se définir elle-même. » (Saussure)

<b>Romance languages regular verb inflections</b>						
<b>p#</b>	<b>French</b>	<b>Italian</b>	<b>Portuguese</b>	<b>Romanian</b>	<b>Spanish</b>	<b>Latin</b>
1S	chante	canto	canto	cânt	canto	cantō
2S	chantes	canti	cantas	cânți	cantas	cantās
3S	chante	canta	canta	cântă	canta	cantat
1P	chantons	cantiamo	cantamos	cântăm	cantamos	cantāmus
2p	chantez	cantate	cantais	cântați	cantáis	cantātis
3P	chantent	cantano	cantam	cântă	cantan	cantant

As you cannot formulate universal rules underlying all languages based on structural rules such as the inflection rules I just stated, it is mandatory to change the approach to the notion of rule; Chomsky suggests that the set of rules present in a given natural language has its grounds in mind processes, that is, those rules have an innate component. In other words, natural languages rules are not within languages themselves, but in computational mechanisms mind works with. This in turn allows to have a context-free analysis of the structure of any language taking into account the mind architecture of all human beings. In fact, based on this abstraction, Chomsky focuses on non-changing rules that can be part of a theory. In this sense, Chomsky's insight is formulating a context-free and movement-free object that can be analyzed scientifically. Mirroring this scenario, having in mind a context-free object, Chomsky can deduce a context-free grammar that will be the core of his whole theory. Therefore, natural languages and all their accidents (accent, concentration, slang, and idioms) are not the object of study, but what is underlying all languages, i.e. linguistic competence or the faculty of computing elements following certain rules. In Chomsky's terminology, the difference that I just mentioned corresponds with that between internal language (IL) and external language (EL). The latter has to do with the linguistic performance within a community and all the consequences that implies. The former is the mind structure any human develop when learning a first language. While EL is always moving and subject to extrinsic variation, IL remains still and is not affected by sociological factors.

There is, however, an aporia that needs to be faced in order to clarify the methodology of this investigation. I have already stated that there are two kind of languages, namely; internal

language and external language. Chomsky suggests that the object of study in linguistics is the internal language, since it is context-free, thereby cross linguistics generalizations can be postulated. In this regard, computational rules can resist the change of experience and remain identical no matter who use them or where are performed. Despite this difference, the only way to confirm that any rule mind works with is right is through the experience, i.d, for the researcher to know that a computational rule is right, he needs to confirm that in the use of such a rule within a community of speakers. In other words, to validate the rules language competence employs, it is mandatory to validate them in the *devenir* of language performance. The components of the process will be explained as fallows, which in turn will clarify the aporia.

Firstly, the researcher has to analyze the experience having in mind some assumptions concerning the functioning of the language is about to study. Therefore, some assumptions allow to better explain how language works, but these ones need to be confirmed in some events in the experience. For instance, when Chomsky is analyzing languages he has a pre-experience hypothesis that will guide him during his investigation. The main thesis he works with is that we all human beings have an innate device that allows to learn any language. Having this assumption Chomsky verifies this theory in the *devenir* of language performance. If he observes that certain patrons confirms his hypothesis, therefore, the hypothesis is likely to be true. This is the step that I will call *hypothezing*.

Secondly, by analyzing natural languages the researcher can re-present the underlying computational system languages work with. In this context, the researcher will validate his assumption with data obtained from the experience. From a second language learner point of view, this means that the computational rules present in their L1 can be positively or negatively transferred, which would suggest that this person may commit some mistakes or not depending on the rule. This possibility means that the researcher has to set a cluster of predictions in order to validate weather this rules are present in learner's mind or not. Therefore, based on data the researcher can postulate a set grammatical rules that are abstracted in a formal language (trees notation). In this sense, the deep structure of any language can be projected and, therefore, analyzed. I will call this second step as *validating assumptions*.

Thirdly, if we have a hypothesis that works as an assumption in order to have a more focused approach to the experience events, we will be able to validate the hypothesis by observing the linguistic behavior of speakers within a community. In this context, if the hypothesis happens to predict a linguistic behavior, it means that the hypothesis is likely to be true. The more predictions are obtained, the higher probability of the theory to be true. I will call this step *confirming the hypothesis*.

The *quid* of this methodology is formulation of predictions. As I mentioned, I will work with a set of predictions which will be required to be validated utilizing case studies and researches conducted by linguists. If it happens to happen that the predictions are validated, my hypothesis, therefore, is true as long as a problematic case that falsifies does not appear. According to Karl Popper (1963), scientific theories are true not for being contrasted and validated in all of the possible worlds, but they are true if there is enough evidence to affirm it and there is not counter-cases that may arrive to falsify the set of hypothesis stated as true.

## **4.2 Justifying Linguistic hypothesis:**

Following Professor Rudolph Botha, “a scientific justification is shown to be made up of three components: a factual, a systematic and a non-objective component” (Botha:1973, 272). In this sense, it is required to analyze these components thereby I will be able to provide a theoretical scaffolding to the subsequent cases that support access to universal grammar.

### **4.2.1 The factual component:**

According to professor Botha, any scientific hypothesis must be testable in order to be part of a theory, that is, any hypothesis must be contrasted with an empirical data. Any insight must be formalized in a hypothesis which in turn means that the knowledge related to the field will increase when justifying the hypothesis with empirical evidence. In this sense, “in order to qualify for testing, an initial measure of justification for hypothesis should already exist” (Botha: 1973, 280). In this case, there are some hypothesis that are already set as part of the ground from which the hypothesis I am working with can be rooted. For instance, the following

hypothesis operates as a working hypothesis, but it makes part of the existing corpus in the scientific community, which in turn means that this hypothesis has obtained a pervasive acceptability within the scientific community. In this sense, it is mandatory to relate scientific theory with linguistics, since by binding these three elements a solid scientific argumentation may be conducted. According to Botha (1973,289),

- A) Scientific hypothesis and theories must be testable and their accuracy must in fact be tasted
- B) Scientific hypothesis and theories must be grounded

This is possible if a set of conjectures are already established within scientific community, since it is not possible to taste all possible cases. Starting from scratch is something that is not possible at all within scientific theorizing. In this sense, hypothesis are always posited based on previous scenarios where scientific justification has already taken place. Despite the fact a scientific corpus of knowledge is already present, the aim of any research is to expand that existing knowledge in order for the investigation to be truth-expanding.

According to Karl Popper's paper *Science: Conjectures and refutations* (1963) a hypothesis or set of hypothesis are true unless a paradigmatic case turns it false: "Once can sum up all this by saying that the criterion of the scientific status of a theory is its falsifiability, or refutability or testability" (11). However, testability has its extend depending on the field or problems involved, since the instruments for testing the prediction and validation may vary. Following Popper: "every genuine test of a theory is an attempt to falsify it, or to refute it. Testability is falsifiability; but there are degrees of testability: some theories are more testable, more exposed to refutation, than others; they take, as it were, greater risks" (Popper: 1963, 12).

For instance, consider the evolutionary thesis of language emergence and how it can be related to scientific research. On one hand, it can be true that this hypothesis is strong enough to support language as a genes-based organ, but there is no way yet to validate it or constant it. On the other hand, this hypothesis is linked with other theory related to mind and brain functioning. In

this sense, one way to justify this hypothesis is by saying that: 1) as long as there is not a stronger hypothesis or a paradigmatic case that denies it, the hypothesis is true; 2) if this hypothesis is interwoven with a wider scientific corpus in the field of biology, psychology and linguistics is more likely to be true. The hypothesis is the following one:

It is uncontroversial that language has evolved, just like any other trait of living organisms. That is, once—not so long ago in evolutionary terms—there was no language at all, and now there is, at least in *Homo sapiens*. There is considerably less agreement as to how language evolved. There are a number of reasons for this lack of agreement. First, “language” is not always clearly defined, and this lack of clarity regarding the language phenotype leads to a corresponding lack of clarity regarding its evolutionary origins. Second, there is often confusion as to the nature of the evolutionary process and what it can tell us about the mechanisms of language. (Chomsky: 1989, 3)

As far as this monograph is concerned, the validation of the main hypothesis is the goal in terms of scientific productions, because by doing the contrast of data collected by different authors I intent to support an intuition based on Chomsky’s theories. In this sense, what I want to do is to support a thesis which aims to increase the knowledge within a scientific community. By increasing the knowledge, I refer to a certain type of demonstrations. In logic there a mainly two types of demonstration: deductive and inductive demonstrations. Deductive form has the following structure:

If P  $\longrightarrow$  Q

P

-----

Q

This form of argument has without any doubt a deductive structure which explains how having an antecedent P (If children are in society) and a consequence Q (they will be able to learn a



language), it is established a logical relation that is intended to have a truth-preserving statement. For instance, this is the instantiation of the previously seen form of argument.

- 1) If children are in society, they will be able to learn a language
- 2) Children are in society
- 3) Therefore, they will be able to learn a language

Deductive arguments, though, are not knowledge-increasing arguments, since the conclusive statement is just a deduction of some knowledge that is already present within the two previous statements. That is the reason why this form of arguments are truth-preserving. Reductive arguments, on the contrary, are truth-expanding, which means the information obtained in the conclusion is not presented in the antecedent clauses. Reductive arguments have the following structure

If P  $\longrightarrow$  Q

Q

-----

P

This kind of argument is the kind of argument that is mainly employed within scientific research, since it expands scientific knowledge. For instance, consider the following argument within the theoretical framework I have been working with in order to figure out how it works.

- 4) If you have access to universal grammar when acquiring L2, negative or positive transfer from L1 takes place
- 5) When learning a L2 negative or positive transfer takes place.
- 6) Therefore, when learning a L2 access to universal grammar takes place.

This syllogism is the summary of my monograph in terms of logical structure and its relation with all the elements that composes it. In fact, this logical structure will be verified when describing all the study cases I will work with. The logical structure follows the next insight: when learning a second language interference is constant since two grammatical modules collide, which causes making mistakes that depending on the situation may be associated to L1

grammar or universal grammar. If that interference is analyzed in terms of access to universal grammar, my hypothesis can be verified.

Continuing with the explanation, scientific knowledge consist of increasing knowledge that was unknown until the present. According to Rudolph Botha (1973),

Data that can be explained on the basis of a hypothesis therefore do not prove or demonstrate the truth of the hypothesis. However, the data explained by a hypothesis may be regarded as evidence for the hypothesis. Data constitute EVIDENCE for a hypothesis if these data indicate inconclusively that the hypothesis could possibly be true.

Two experiments will be taken into account in order to indicate that the conclusion of the syllogism is true. These will work as evidence to support the main insight and give a stronger theoretical scaffolding to the predictions stated. The data explained by a hypothesis may be regarded as evidence for the hypothesis. What I will then do is to employ data that will work as evidence for the whole monograph.

### **3.2.2 The systematic component:**

As I have mentioned, hypothesis must be integrated within a scientific corpus that grounds the basic aspects of the hypothesis, among other things. For instance, linguistics theory is grounded within the paradigm of verification in natural sciences. On top of that, linguistics theory is also based in the paradigm of biological inheritance postulated by Chomksy. In this sense, linguistics is part of biology, thereby its hypothesis has to be fitted with the overall scaffolding of biology theorizing, for instance, evolution theory as well as genetics. According to Rudolph Botha (1973),

- A) The better a hypothesis can be integrated into an existing, well-justified theory, the larger the extend of the systematic justification and the greater the acceptability of the hypothesis

- B) The more fruitful a hypothesis is in a heuristic sense, the larger the extend of the systematic justification and the greater the acceptability of the hypothesis.
- C) The greater the conceptual simplicity of a hypothesis, the larger the extend of the systematic justification and the greater of the acceptability of the hypothesis.

This three elements must be interwoven within second language theorizing since that allows that the investigations be not only truth-expanding, but also coherent with previous theory, which implies a contribution to the scientific community in the field involved. This can be summed up in the following way:

- D) The larger the extend of the factual justification for a hypothesis, the more acceptable the hypothesis.

## **Chapter 5: Paradigmatic cases of L2 access to UG**

As I mentioned in the introduction of this monograph, the intended purpose of this reflection is to support the hypothesis that states that L2 learners have access to the Universal Grammar despite the fact of having already set a L1 grammar. This access can be, on one hand, direct which would mean a fully contact with the born-with grammar and, on the other hand, an indirect access which would mean a partial access to the default grammar through the L1 grammar. To support these two scenarios, researchers have long developed a set of experiments from which the accessibility thesis can be rooted. One of these experiments has to do with the *extended projection principle* proposed by Noam Chomsky and whose function is to show that any phrase must have a subject. According to this principle, every phrase must have a subject that can be either overt or null depending on the language. In some languages, it is mandatory to phonetically realize the subject of the phrase.

This monograph, then, aims to articulate a hypothesis that have been approached throughout this text. In this part of the monograph, I will work on a parameter that has long been studied within second language acquisition approaches from a generative point of view: pro-drop parameter. I will explain briefly what this parameter consist of and what is its important related to the conceptual background I have been trying to expose. On the other hand, samples and

studies will be shown in order to provide the research a solid scientific background. In this sense, two paradigmatic cases will be taken into account: 1) to expose the direct access to universal grammar in second language acquisition, the relation between Spanish-English learner's grammar concerning the pro-drop parameter will be analyzed; 2) to expose the indirect access to universal grammar in second language acquisition, the relation between Portuguese-Spanish learner's grammar concerning the pro-drop parameter will be analyzed as well. Each of these components refer to one premise of the general syllogism I indicated I will work with in order to have the logical structure of the argument. This is important when postulating truth-expanding researches especially within linguistics field. Therefore, I will work with two syllogism which share the same logical structure of that of a reductive argument, since the minor premise will work as a ground to confirm major premise.

## 5.1 Pro-drop parameter

I will explain what the pro-drop parameter is and what is its importance in the investigation. Within the last two decades of linguistics theorizing pro-drop parameter has been a focus of attention, not only because it sheds lights on mind mechanism mind works with when having two parameter setting in two grammars, but also because it provides an interesting way to analyze how learners try to fix and refix parameters that are different in two languages. The question that is underlying this issue is the following one: why some languages permit subjects of tensed clauses to be null, and other languages do not ?

For instance, Romance languages and East Asian languages such as Chinese, Japanese, and Korean, also known as [+null subject] languages, have this principles instantiated in two options that can vary in regards of the situations. The Spanish and Portuguese examples illustrates this points: the subject can be either overt (1C) or null (1D) in Spanish and Portuguese, respectively.

1C: Hugo lee una revista (overt)

1D: estou estudando Espanhol (null)

On the other hand, Anglo-Saxon languages such as English (2C) and German (1E) and French (2D), known as [-null subject] languages, only allow one value to be instantiated, i.e. the subject category must be present in all cases. In fact, the subject must be phonetically realized in both speaking and writing settings. For instance,

2C: He tries to be a great man. (overt)

2D: Nous voulons apprendre Anglais (overt) [nosotros queremos aprender]

1E : Ich spreche Deutsch (overt) [Yo hablo alemán]

Since Chomsky (1980), it has often been thought that sentences such as those in 1D contain a phonetically empty, but structurally present, subject. Chomsky suggested that these tensed sentences contain an empty pronominal element, referred to as ‘pro’. One difference between the languages in 1B and languages that do not permit such utterances amounts to whether or not a language permits the use of this pro element in tensed clauses. Those that do permit its use have been labeled ‘pro-drop’ or ‘null subject’ languages, while those that do not have been labeled ‘non-pro-drop’ or ‘non-null subject’ languages” (LaFond: 2001,11).

Following Chomsky (1980), it is clear that one can classify the differences between pro-drop and non-pro-drop language taking into account the two elements any language consists of: computational rules and functional categories. Pro-drop languages have a high inflectional and agreement component, which expresses functional categories within words themselves. For instance, verbs ending in first person of indicative in Spanish finish with a “o”: corro, como, oigo. This inflectional component allows learners to grasp the meaning of the word that is being pronounced. Since, pro-drop languages can omit subjects, inflectional and agreement components have the function of providing the subject-empty  $\emptyset$  category that is not expressed, but present in those functional categories. There is a sort of shifting between the categories that directly express meaning, for instance, *he* or *she* to those categories that express meaning otherwise, for instance, “o” “e” in “corro” and “corre”. This shifting is a shifting in mental rules, i. e. it is a change within grammars that are being learned and that are already learned. Therefore, knowing those differences in terms of mental representation of language allow to bridge two language systems. “Chomsky argued that, since the recovery of the missing subject

was critical, these ‘richer’ language systems had unique qualities related to agreement (AGR) and inflection (INFL) that permitted this recoverability” ( LaFond: 2001, 11)

Besides agreement and inflectional components in pro-drop languages, there are more characteristics that need to be addressed such as syntactical and morphological components that differ from pro-drop language to non-pro-drop languages. For instance,

F. Ø ho trovato il libro. (Italian)

G. Ø he encontrado el libro. (Spanish)

H.

pro llueve. (ESP)

pro chove. (PE)

It rains. (ING)

Es regent. (AL)

Il pleut. (FR)

There is, then, a broad acceptance that these languages contain empty categories and have phonetically unrealized, but syntactically present, elements.

According to LaFond, “Jaeggli (1980), Chomsky (1981), and Suñer (1982) agreed with Taraldsen (1978) on the importance of a rich inflectional system, too, but they argued that the null element was not an empty NP but rather an empty element (PRO) posited by Government and Binding Theory (GB, Chomsky 1981) for control constructions where a non-finite verb had a null subject” (LaFond: 2001,16).

After generally explaining what pro-drop parameters consists of, it is mandatory to relate this parameter to the overall structure of the thesis. According to Chomsky, children have an innate set of principles that are displayed depending on the input the kid is exposed to; one of those principles is the one that states that any language must have a subject no matter it is phonetically

expressed or not. On top of that, there are a set of parameters that are binary meaning that the pro-drop parameter can be one of those parameter that allow scientific analysis concerning second language acquisition. “If this parameter is set positively, the child’s language will display the distinguishing characteristics of pro-drop languages. If set negatively, the child’s language will not display these characteristics. Either way, the child’s grammar must still adhere to the conditions or constraints set by the universal principles of grammar” (LaFond: 2001,19)

Pro-drop language normally has a morphological uniformity in tenses paradigms, which suggests that null subjects are allowed, since each verbal paradigm contains the psychological information concerning tense and gender. Nevertheless, language that lack a morphological uniformity happen to not allow null subjects. According to morphological uniformity hypothesis, the pro-drop parameter is “reformulated [...] with an argument that null subjects are permitted in all and only languages with morphologically uniform inflectional paradigms” (LaFond: 2001,27)

Having explained this, it is necessary to identify how this shifting within the *extended projection principle* entails an access to the Universal Grammar. To do so, it is required to assess a set of phrases that would suggest that in certain contexts learners have indeed access to UG by proving that students have knowledge of the language grammar without being taught to them. In other words, these experiments clearly sets out how a L2 student has abstract and unconscious knowledge of a rule he or she was not previously taught. According to Lydia White “It will be suggested that these properties could not be acquired solely on the basis of input; rather, a universal linguistic principle is implicated.” (LaFond: 2001,11).

As far as we have seen in these experiments, there will not be any issue concerning the output that is produced by L2 learners, since the overt and null realization of the subject can be equally switch in the case of Spanish and Portuguese as (I) and (J) illustrates.

I: Lee una revista (read a magazine)

J: eu estou estudando espanhol (I am studying Spanish)

However, this is not possible in [-null subject] languages since the pronoun must be always phonetically realize as the K example points out.

K: mange la pomme rouge (eat the apple)

In this examples, it is not possible to identify the subject the verb *manger* refers to, since its conjugation is also shared by other pronouns. In this context, it is mandatory to phonetically realize it in all its conjugations.

According to Lydia White, “There are interesting differences between [ $\pm$ null subject] languages in terms of what can serve as a potential antecedent for the pronoun, in other words, limitations on what the pronoun may refer to.” (White: 2001, 5).

## **5.2 Pro-drop parameter and second language acquisition:**

After generally explaining what the pro-drop parameters is, it is necessary to bridge this parameter into the field of second language acquisition as to the relation that exists between the parameter in question, which has already been fixed in L1 grammar and it is transfered to L2 grammar. In other words, what I intend to do is to analyze how a parameter that has already been instantiated in a L1 grammar (no matter if it is binary-based language or a non-pro-drop language) can be refixed within a second language grammar system. The question in this part is to identify how that refixing process takes place. It can be either indirect access to universal grammar, i.e., a positive transfer can take place if both languages share the same parameter, or it can direct if the target language does not have the same parameter and a direct access to universal grammar will be required. The two cases I will work with correspond precisely with those two scenarios. On one hand, I will analyze studies conducted by researchers concerning the direct positive transfer of pro-drop parameter between Portuguese and Spanish (pro-drop languages). On the other hand, I will analyze studies conducted concerning the indirect transfer of non-pro-drop parameter between English and Spanish (non-pro-drop language and pro-drop language).



In this sense, many studies have been conducted in order to establish how this parameter is interwoven with L1 and L2 grammar. There is, though, no consensus about it, since several authors claim that access is direct and other claim is indirect, and other claim is not possible at all. The idea of this monograph is to answer to these difficulties and overtake the problem that is presented in the next quote: for example, whereas Hyams (1983) argued that pro-drop was the unmarked setting and that, if the target language was not pro-drop, a switch of parameter settings was required, White (1985) argued that the unmarked setting is [-pro-drop] (Sauter: 2002,14).

Unlike Hyams and White, I think both options are possible and depending on the language involved, different mind mechanism may operate and take place. To confirm this, I will analyze several studies concerning these two positions. According to Sauter (2002), on the contrary, “Most of the research discussed shares the assumption that cross-linguistic differences in the possibility of null subjects follow from a UG-sanctioned Null Subject Parameter” (25). I will then follow this line of argumentation. In this sense, in the next chapter I will continue having in mind the hypothesis I have been working with, that is, direct and indirect access takes place when acquiring a second language. This is observed in several studies conducted in order to analyze how second language learners commit mistakes because they have L1 interference, which posits a possible collision between two language systems whose rules and lexicon can provoke wrongly formed sentences. However, it is thought that despite this collision and interference well formed-sentences be can produced, if lexicon and rules are positively transfered. In this very specific monograph, I will take into account a parameter by means of which I will be able to examine how that positive or negative transfer takes place within a scientific framework.

### **5.3 Analysis of the two case studies involved**

As it has been stated throughout this monograph the intention of this text is to explain how it is possible to confirm access no matter if it is direct or indirect to universal grammar in second language acquisition settings. To do so, it has been mentioned that pro-drop parameter is one way to analyze such access in terms of scientific proving, since by applying several instruments

it has been possible to contrast different results in order to prove predictions concerning access to universal grammar. In this sense, what I will do next is to examine two studies in which access to universal grammar can be validated depending on the language this access can be direct or indirect. If I succeed demonstrating this, it would mean that learning a second language consists of mastering in-born mechanism mind works with to memorize and utilize computational rules as well as the ability to utilize lexicon and rules coming out of L1 grammar. In fact, learning a second language consists of mastering a new set of rules and lexicon based on the grammar background that can be found either in L1 grammar or universal grammar.

Having mentioned this, I will formulate the problem from two perspectives, corresponding one study for each perspective. IF it is true that humans beings have access to universal grammar in a direct and indirect way that needs to be validated through experiments. The first one aims to expose how two languages having the same parameter settings can have access to the universal grammar in an indirect way: study conducted by Celia Guido between Spanish and Portuguese pro-drop parameter. The second one aims to expose how two languages having different parameter settings can have access to the universal grammar in a direct way: study conducted by White between English and Spanish pro-drop parameter. This two studies will serve to shed lights in the controversy of access to universal grammar that is postulated in the two following positions.

The first case has the following logical structure:

If it exists a biclausal referential sentence, then overt subject is prohibited

Biclausal referential sentence takes place

Therefore, overt subjects will not be employed

This first syllogism confirms one of the results of one of the cases, in which students do not use overt subjects within biclausal referential sentences, despite the have never been taught to use such a rule in classes nor in explicit teaching.

On the other hand, the next case that will be taken into account affirms that in the case two languages share the same parameter, it will be positively transferred from one language to the other one. This is exposed in the second case by analyzing coincidence answers in a judgment task where they had to decide whether subject omission was allowed or not

If two languages share same parameter, positive transfer takes place

Students answered correctly

Then student have access to universal grammar indirectly, since the transferred was effectuated by L1 transfer.

- 1) Looking verify access to the GU during L2 acquisition and the consequent possibility of the reset parameters, researchers have focused their efforts on cases where the value of setting a parameter is different in the native language and the L2 (Flynn, 1989; Herschensohn, 1998; Isabelli, 2004; Kong, 2001; Liceras, 1989; Lush, 2001; Phinney, 1987; Register, 1990; White, 1985, 1986). (Direct Access to Universal grammar) Guido, Mendez (2007)
- 2) On the other hand, some authors like Phinney (1987) defend the idea that "The Apprentice [L2] starts with the values of L1 and generalizes L2 until data input force him to refix it" 3 (p. 226). For this author, therefore hypothesized that the apprentice L2 can start from scratch, from a neutral position, is impossible: "The vast amount of data available on the reality of the interference of L1 suggests that this approach is unsustainable. (Indirect Access to Universal grammar) Guido, Mendez (2007)
- 3) The last position I would like to raise in this thesis is to say that although the two positions have valid arguments to present their approaches, considering a third option may be indicated. This intermediate position is to state that access to universal grammar can be given in two ways depending on the linguistic proximity between the two languages concerned. For example, learning Russian involves making a large transfer of computational rules but practicing a null transfer of lexicon. On the contrary, learning

Arabic imply a combinatorial learning new rules, but a transfer of a large set of words from the Spanish, i.e., a part of the lexicon would be transferred.

Following this third path, I will start by exposing the first position and the study that supports it in order to provide more data to confirm my hypothesis. Although several experiments have been conducted to study a wide range of pronouns omission, it is necessary to narrow down the object of my investigation in order to have a more concrete object of study. In the following chart it will be shown the wide range of grammatical categories associated with pro-drop parameter (Guido Mendes, C. 2007)

*Figure 9 General properties of pro-drop langauges. (Guido, Mendez 2007)*

Grammatical category	Investigations conducted in the field
Subject pronoun omission in declarative sentences	Ayoun (2000), Brandi & Cordin (1989), Chomsky (1981/1993), Cook (1993), Cook y Newson (1996), Demonte (2002), Eguren & Soriano (2004), Griffin (2003), Herschensohn (2000), Hyams (1987, 1989), Isabelli (2004), Jaeggli (1982), Kenstowicz (1989), Licerias (1989), Lozano (2001), Mateus, Brito, Duarte & Faria (2003), Nishigauchi & Roeper (1987), Phinney (1987), Raposo (1992), Rizzi (1986b), Rosselló (2000), Sauter (2002), Towell & Hawkings (1994), Xavier (1989), White (1985, 1986, 1992/1995)
Expletive pronouns omission	Ayoun (2000), Brandi & Cordin (1989), Cook (1993), Demonte (2002), Eguren & Soriano (2004), Griffin (2003), Herschensohn (2000), Hyams (1987, 1989), Isabelli (2004), Licerias (1989), Lozano (2001), Mateus et al. (2003), Phinney (1987), Raposo (1992), Rizzi (1982, 1986a, 1986b), Rosselló (2000), Sauter (2002), Xavier (1989)
Verbs-subject inversion in declarative sentences	Ayoun (2000), Brandi & Cordin (1989), Chomsky (1981/1993), Cook (1993), Cook y Newson (1996), Demonte (2002), Eguren & Soriano (2004), Griffin (2003), Herschensohn (2000), Isabelli (2004), Jaeggli (1982), Kenstowicz (1989), Licerias (1989), Mateus et al. (2003), Phinney (1987), Raposo (1992), Rizzi (1982, 1986a, 1986b),

	Rosselló (2000), Sauter (2002), Towell & Hawkings (1994), Xavier (1989), White (1985, 1986, 1992/1995)
absence of the filter That-traces	Ayoun (2000), Brandi & Cordin (1989), Chomsky (1981/1993), Cook (1993), Demonte (2002), Eguren & Soriano (2004), Griffin (2003), Isabelli (2004), Jaeggli (1982), Herschensohn (2000), Kenstowicz (1989), Liceras (1989), Phinney (1987), Raposo (1992), Rizzi (1982, 1986a), Towell & Hawkings (1994), White (1985, 1986, 1992/1995)

After viewing this amount of studies referring to pro-drop parameter, it is important to take into account those studies that highly validate the hypothesis of this monograph. What it is important to mention is a summary of important elements that will provide evidence to my monograph.

A) Phonetic presence/omission subject personal pronouns in declarative finite statements.

In this sense, this grammatical categories will be taken into account in order to narrow the investigation and provide a more precise set of studies to validate the hypothesis. I will work mainly with A, since by analyzing its use within speakers it will be possible to identify the degree of access to universal grammar when learning a second language.

### **5.3.1 English-Spanish Pro-drop parameter:**

In this part of the monograph, I will take into account a set of studies recovered by Lydia White, in which access to universal grammar can be analyzed based on several investigations that aim to expose that access to universal grammar takes place in L2 learning. According to her words: “If it turns out that the L2 learner acquires abstract properties that could not have been induced from the input, this is strongly indicative that principles of UG constrain interlanguage grammars, parallel to the situation in L1 acquisition.” (White: 2003, 22) This situation indicates that despite having a L1 grammar, learners are also exposed to universal grammar constrains. In this sense, I will follow White’s insights concerning those constrains and how they were studied in several research using them as support to my monograph.

Before continuing with the exposition, I will mention a condition that needs to be met in order to identify the access to universal grammar:

The phenomenon should work differently in the L1 and the L2. That is, it must be underdetermined by the L1 grammar as well. In this way, transfer of surface properties can be ruled out as an explanation of any knowledge that L2 learners attain. (White: 2003: 23)

Having said this, it is necessary to explain what the experiment is about. In pro-drop language frequency of occurrence when using overt or null pronouns varies drastically depending on the situation, intention, and context, which indicates that a L2 learning will not have the chance of determining all the subtle restrictions of this grammatical category. Therefore, it highly indicates that universal grammar operates in a direct way, since the L1 does not share the same properties the L2 does. Not only there is no coincidence, but neither a correctness criterion that allows student to formulate a hypothesis of usage. “Thus, frequency of occurrence in the input is unlikely to provide any useful clue as to when pronouns may occur and under which interpretations” (White: 2003, 23). In this part, learners whose L1 is English and want to learn a L2 like Spanish tend to have this kind of inconvenience, since they do not know when using the overt or null subject. In fact, not using a subject is highly complex for them, since the empty category is replaced by a highly sophisticated inflexional system.

Following the authors quoted by White, Perez-Leroux and Glass (1999) conducted a research in which students whose L1 was English and want to acquire Spanish as L2. This experiment was conducted to students with different levels of knowledge varying among beginners, advanced, and intermediates. The study aimed to identify how some students know certain grammatical aspects without being taught to them especially when subtle changes take place. This will highly indicates an access to universal grammar, since the native tongue does not share the same parameter settings.

According to White this study: “involved translating biclausal sentences from the L1 English into the L2 Spanish, following written contexts (in the L1) which strongly favored either a quantified antecedent (within the same sentence) or a discourse-based referential antecedent (external to the sentence) for the embedded subject pronoun.” (White: 2003, 25). In the following chart White shows the results of the study:

### Box 2.1 Overt Pronoun Constraint (Perez-Lérroux and Glass 1999)

**Languages:** L1 = English, L2 = Spanish.

**Task:** Translation from English into Spanish. Each sentence preceded by a paragraph (in English) to provide a context.

**Sample stimuli:**

Bound variable context	Referential context
The court charged that some journalists had been in contact with the jurors. Several of them were questioned by the judge.	In the O.J. Simpson trial, it is clear that the press has a negative bias against the defendant in their reporting. Some journalist said that he was a wife-beater.
To translate: No journalist admitted that he had talked to the jurors.	To translate: But no journalist said that he is guilty.

**Results:**

Table 2.1.1 *Production of null and overt pronouns (in %)*

		Bound variable stories (# = 4)		Referential stories (# = 4)	
		Null	Overt	Null	Overt
L2 groups	Elementary (n = 39)	57.7	34	21.2	67.9
	Intermediate (n = 21)	73.8	26.2	35.7	59.5
	Advanced (n = 18)	93.1	0	58.3	31.9
Native speakers (n = 20)		85	13.7	31.3	67.5

n = number of subjects

# = number of stimuli

Figure 11 overt and null subject (White: 2003, 25)

Analyzing the results and the elements involved on the study, I can do the following examination. As you can see, the study was divided into two parts corresponding to referential and quantified antecedent, respectively. The quid of the study was to determine how learners were able to know that in Spanish it is not possible to use an overt pronoun when a quantified antecedent is present in the biclausal sentences; for Spanish speakers the translation of this

problem will be presented in the next page. On the other hand, how was it possible that learners knew that when having a referential antecedent both overt and null are possible? This subtle knowledge was never taught, which indicates a direct access to universal grammar takes place.

Checking out the percentage of the results in the bound variables the usage of null pronouns is considerably higher than overt pronouns. Thinking of this example in Spanish it would mean two possible options.

L) Ningún periodista admitió que él había hablado con el juez\* (Wong overt use)

M) Ningún periodista admitió que había hablado con el juez. (Null)

However, B is the only correct sentence, since A is prohibited in Spanish. How did learners know this subtle difference? By asking this, one will be able to realize the real access to universal grammar.

Checking out the percentage of the results of the referential variables the usage of overt pronouns is considerably higher than null pronouns with one exception: in this case both overt and null subjects are allowed as it is shown:

N) Pero ningún periodista dijo que él sea culpable

O) Pero ningún periodista dijo que sea culpable

This indicates a positive transfer took place, since English allowed overt pronouns in this kind of sentence and the majority of answers were overt pronouns.

Following White (2003): “These results suggest that L2 learners, like native speakers, distinguish between referential and bound variable interpretations of pronouns, largely disallowing overt pronouns in the latter context, compared with their use in other contexts. Thus, the results are supportive of the claim that interlanguage grammars are constrained by the Overt Pronoun Constraint, even at the elementary level”



After examining this study, it may be inferred that certain language work with subtle rules that are now explicitly taught by anybody, but internalized by organizing the input student is exposed to. In this sense, there is no way to determine how these students were able to answer the set of question, but postulating they had an unconscious access to universal grammar.

### **5.3.2 Portuguese-Spanish Pro-drop parameter:**

The following study was conducted (Guido Mendes, C. 2007) in order to analyze pronouns omission in Portuguese and Spanish, taking into account that both languages are pro-drop languages, in which omission of pronouns is facultative. By analysis several judgements, it will be possible to confirm that there is indeed an indirect access to universal grammar. The next study focuses on European Portuguese (EP) and it does not take into account Brazilian Portuguese (BP), since EP is considered as a *pro-drop* languages, but BP has been evolving to a non-pro-drop language (Duarte, 2000, p. 17).

In this sense, the study conducted worked with a sample of hispano-speakers learning European Portuguese utilizing three kind of tasks: 1) task to identify passive knowledge, in which acceptability judgment tests were employed; 2) task to identify productive knowledge, in which two tests were employed: a) filling-gaps test in Portuguese that had to be filled in with either overt or null subjects based on intuitions and b) a written composition in which students had to introduce themselves and self-description. The results were compared with native speakers' answers of the same tests.

The population this study dealt with are from different countries of South America, all of them in the process of learning European Portuguese as a second language. The students with which samples were obtained are part of *Cursos de Lengua y Cultura Portuguesas del Centro Portugués de Caracas (CPC)*, an institution of Portuguese as second language. The curriculum of this institution is based on communicative competence following the *Common European framework of reference* (Consejo de Europa, 2001/2002) and Cuadro de Referencia para la

Enseñanza Portuguesa en el Extranjero (Ministério da Educação, 2005). The total of students examined was 105, out of those students 13 were beginners (A1), 83 intermediates students (B2), and 9 advanced (C1). Those students took the test varying the range of test application, for instance, out of 105 students, 46 took acceptability tests and 54 took filling the gaps tests and all of them did the text production test. The first two blocks of tests were handed in knowing that had as purpose investigation, but the last test was not exposed as an investigation. (Guido Mendes, C. 2007)

This study deals with three kind of instruments in order to have a broader understanding of conscious and unconscious knowledge since the results may vary in accordance with the type of test. So it is better to use different instruments. However, out of those three instruments employed with their correspondent results, I will focus on the first one because of the general purpose of this investigation that consist of proving that unconscious and indirect access to universal in second language acquisition takes place.

The first instrument is acceptability judgements that aims to identify the unconscious and grammatical correctness of several sentences based on grammatical intuitions. The criterion employed base the following scale: A) acceptable and preferable; B) acceptable but not preferable; 3) Unacceptable nor preferable. Here there are some samples. (Appendix 1)

Having briefly mentioned what these instruments consist of, I will start recovering the set of sentences that were employed during the investigation (Guido Mendes, C. 2007). The original task had 80 statements related to pro-drop parameter: 30 grammatical and mandatory, 30 ungrammatical, 10 grammatical, and 10 grammatical and preferable. Concerning the results of these investigations, the following chart will provide a better understanding of the percentage of omission of subjects in the statements involved. (See appendix 1)

	Coincidencias		No Coincidencias		Totales	
PSRN Pref.	101	43.9%	129	56.1%	230	100%
PSRN Pref. Manip.	70	30.4%	160	69.6%	230	100%
PSRE Pref.	58	42.0%	80	58.0%	138	100%
PSRE Pref. Manip.	73	31.7%	157	68.3%	230	100%
PSEN Oblig.	142	61.7%	88	38.3%	230	100%
PSEN Oblig. Manip.	137	59.6%	93	40.4%	230	100%
Inv. S-V Oblig.	116	50.4%	114	49.6%	230	100%
Inv. S-V Oblig. Manip.	42	15.2%	234	84.8%	276	100%
No Inv. S-V Oblig.	145	63.0%	85	37.0%	230	100%
No Inv. S-V Oblig. Manip.	23	12.5%	161	87.5%	184	100%
AEQ-H Oblig.	177	77.0%	53	23.0%	230	100%
AEQ-H Oblig. Manip.	54	23.5%	176	76.5%	230	100%
Inf. Flex. Oblig.	126	45.7%	150	54.3%	276	100%
Inf. Flex. Oblig. Manip.	24	10.4%	206	89.6%	230	100%
Inf. No Flex. Oblig.	129	56.1%	101	43.9%	230	100%
Inf. No Flex. Oblig. Manip.	44	23.9%	140	76.1%	184	100%
Totales Coincidencias	1461	40.7%	2127	59.3%	3588	100%

*Tabla 6:* Coincidencias entre las respuestas de los hablantes no nativos y los hablantes nativos de PE, por propiedades y por contextos (prueba de aceptabilidad). PSRN = pronombre sujeto referencial nulo; PSRE = pronombre sujeto referencial expreso; PSEN = pronombre sujeto expletivo nulo; Inv. S-V = inversión sujeto-verbo; AEQ-H = ausencia de efecto *que-huella*; Inf. Flex. = infinitivo flexionado; Pref. = preferible; Manip. = manipulado; Oblig. = obligatorio.

*Subjects categories (Guido, Mendes2017, 116)*

As far as this monograph is concerned, I have narrowed down the study of this thesis concerning two grammatical categories within pro-drop parameter, namely:

A) Phonetic presence/omission subject personal pronouns in declarative finite statements.

In this sense, taking into account the results of the research, I will analyse solely PSRN and PSRE, which corresponds with the focus of my research. If you look to the chart, you will be

able to see that the percentage of coincidences of correctness judgments in this two categories between native and non-native speakers is very low. Concerning PSRN the coincidence percentage is 43, 9% while the percentage of coincidence of PSRE is 42%. This means two things: non-native speakers do not utilize subject omission in the same way native speakers do, which indicates that the parameter that was set in the L1 is not fully transferred when learning a second language, even though both languages share the same parameter setting, since Portuguese and Spanish are pro-drop languages. In fact, there is a different kind of knowledge that cannot come out of L1 grammar and, therefore, it must come from universal grammar. In this sense, transfer does not take place, but an indirect access to universal grammar happens.

The two case studies highly indicate that there is certain knowledge that did not come explicitly from the input the students are exposed to. On one hand, certain knowledge concerning the use of overt and null subject within biclausal sentences is an example of access to universal grammar, since the students were not able to acquire that knowledge from neither a teacher nor the environment. This knowledge comes directly from computational rules with which the mind works. On the other hand, the study reflects how an indirect access to universal grammar took place, since the two languages share the same parameter and, therefore, a positive transfer took place. This is the reason why the students that helped as linguistic samples were able to correctly use the null and overt pronouns within the tasks they were exposed to.

To sum up, what is at stake in this monograph is all the psychological and biological endowment human beings are born with, which indicates that when teaching and learning a second language that endowment is still available, since the learning process goes beyond class-based knowledge. In fact, immersion settings studies confirm how humans acquire language without even knowing the process is taking place within their mind.

## Conclusions:

After generally looking to several problems that span from abstract theorizing to contrasting data, I will provide a set of conclusions that go beyond concluding about the hypothesis I worked with. What I will like to provide as an opened field of future research is new teaching method based on all the insights I tried to analyze in this monograph. In order for me to do such a task, I will review firstly several elements I worked with.

At the beginning of this monograph, I mentioned three questions from which the whole monograph can be interpreted depending on the approach the reader would like to have. These questions were:

- 1) How does language work?
- 2) How are mind and language related to each other?
- 3) How can this relation improve second language teaching?

The first two questions were approached throughout this monograph, but the last one was barely mentioned. In this sense, I will conclude by giving a set of elements that will help to eventually develop a second language teaching method within generative grammar framework. Such a task was already tried by authors who inspired in Chomsky's ideas to build up a new teaching method. In this sense, I will try to do the same having in mind a practical point of view, i.e. instead of thinking as a theoretician I will think of the problem as a teacher.

Learning a language is like chess, you memorize which movements are allowed and which ones are not only by looking at the game. I do not have to memorize all possible movements, rather you learn how pawns and queens can be moved, and thereby you can utilize such knowledge to start playing yourself. Ultimately, you know how to use certain words based on certain rules.

Before doing this I will like to sketch some ideas that were deepened during this monograph. In order to study an object from a scientific point of view, it is necessary that the object be capable of being analysed in terms of scientific methods as those of physics and chemistry. In this sense, studying competence instead of studying performance is a way of extrapolating linguistics from the "outside world" to the "inner world", that is, language is part of psychological processes. Language is part of mind as veins are part of circulatory system.

In other words, we need to identify what we subconsciously know about the syntax of our own language and how that knowledge can be utilized when learning a second language.

Subconscious knowledge, like how to speak or the ability to visually identify discrete objects, is acquired. In part, this explains why classes in the formal grammar of a foreign language often fail abysmally to train people to speak those languages. By contrast, being immersed in an environment where you can subconsciously acquire a language is much more effective. (Carnie: 2001, 6)

This is the first fact I will like to highlight. If learning a language is not learning a corpus of rules that belong to a language that work in accordance to its own extrinsic rules, it means that learning a language is in fact training your mind to alter fixed computational mechanism. Learning a language is no longer learning extrinsic rules that depends on context and use, but learning a language is ultimately learning about your own mind. This has two reasons. The first one is a biological reason, since learning a language is indeed a human capacity that is built-in in our brains. Provided learning to walk is not something you learn in a school, learning a language is a genes-based capacity that needs to be activated. Therefore, it means that it is true that by repeating mouth, brain and ear can be trained to work altogether. In this sense, reinforcement is part of physical and psychological training, since that training can be done only by repeating and hearing. In parallel, physiological and psychological training must take place when thinking of a second language method.

Once you know you have an organ that helps you learning a language during your life, the next step is training that organ with the accurate exercises. In this case, if we know that any language is composed of two elements computational rules and a lexicon, it is required to design a method in which computational rules be put in action and refixed if needed. In this sense, we have two items that are highly interwoven, every of them have a very specific value: the latter categorizes the elements of the language involved (noun, adjective, preposition, verbs, conjunctions), and the former computes those elements depending on the computational rules of the language that is being learned (generative rules).

Therefore, this monograph reveals several implications: 1) language and brain are interwoven; 2) language organ is activated by external circumstances; 3) if the activation is not done during certain period of time, brain cannot work under natural circumstances; 4) if the part of the brain

in charge of language is activated to learn a native language, that part of the brain will remain available for learning a second or third language.

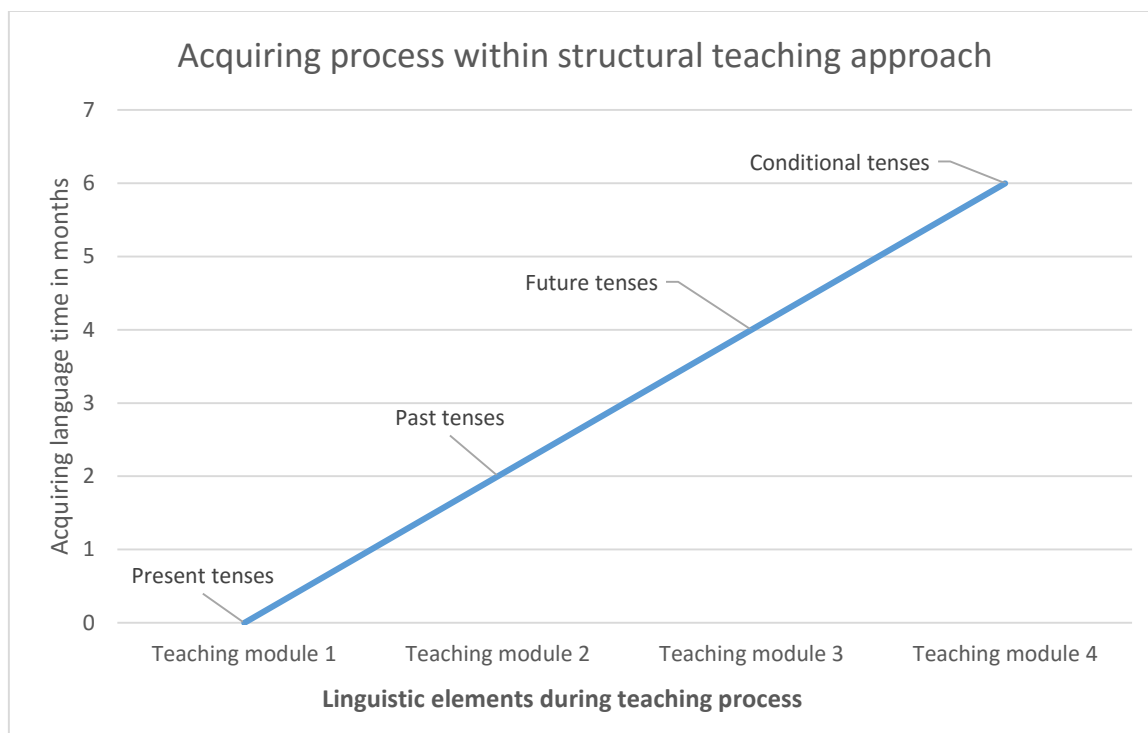
Thinking of a method implies utilizing this knowledge to develop a systematic process that guides students to master those computational rules. What is important in this context is to identify how different languages work with similar rules, which in turn will contribute to the debate of how second language is learned.

For instance, there are certain rules that are shared by several languages; thereby these generative rules can be easily transferred from one language to another. Despite these rules may be instantiated otherwise, their logical structure remains identical, however.

As a result, learning a language consist of mastering computational rules of a specific language as well as the functional categories that are instantiated in the language in question along with lexical categories.

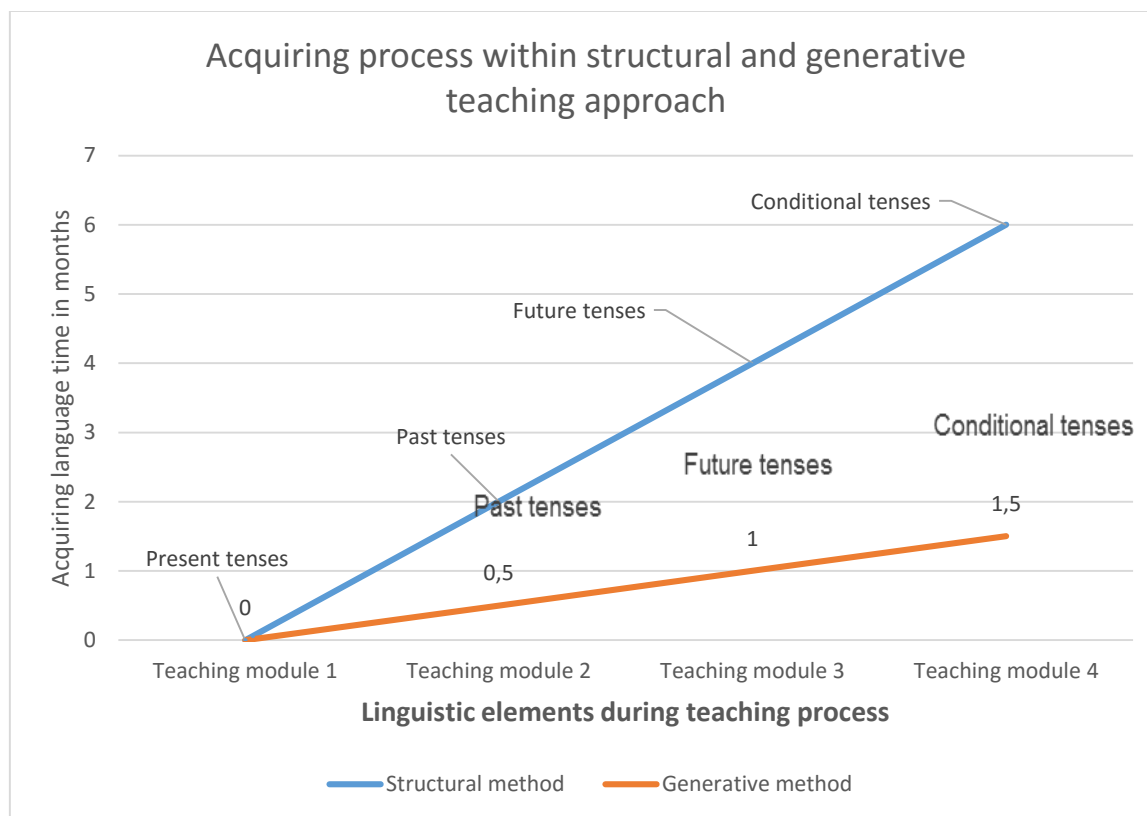
By coordinating functional categories and computational rules one can master a language based on the input received from the environment.

The whole monograph was an attempt to demonstrate that by accessing to universal grammar natural processes may take place, which make learning a second language an easier and more natural development. In the following graphs I will expose the difference of teaching methods and its corresponding variables.



As it is normally taught, language teaching consists of teaching language tenses that are progressively introduced within the class based on either books or teacher class plan that is normally projected over 2 or 3 years. For instance, during first year present and past tenses are exposed and presented gradually. During second year, future and conditional tenses are introduced with a constant revising process of previous tenses. This means that if I want to ask a question in a conditional structure I have to wait two years to know how. On the contrary, in total immersion in which acquiring process take place by having access to universal grammar, all tenses are exposed to the student at the same time. Therefore, the whole language system is presented by a complex and constant triggering of language organ, thereby the activation of the language organ takes place, which in turn refers to the high processing of lexicon and computational rules.





In this sense, if learning English requires students to master auxiliaries as part of functional categories, I will highly suggest designing curriculums where all tenses were taught during the first months. Therefore, the curriculum will study, for instance, the use of *do* during the first month. Then the next three weeks will be based on the use of *did*. Consequently, by the end of the semester, the class will finish with the use of *have* and *dad*. During the second semester *would*, *should*, *must*, *can* and *could* will be part of the class. Teaching functional categories during the first moments of the learning process will provide mind an accurate way to start training with new computational rules. In parallel, this process has to be tied up with a constant lexical instruction starting with verbs, nouns, and preposition. English class, then, has to be split up into two parts depending on the amount of classes. If English class has four days. Two of them have to be dedicated to the study of functional categories and the other two to the study of lexicon.

This monograph leaves opened futures investigations concerning the design of second language teaching methods based on generative approach as well as future scientific research on how mind and brain interact when learning L1 or L2, which will contribute to the debate about how teaching practices are performed within second language classes. In fact, teachers think that learning a language consist of following a strict curriculum that tries to articulate the whole

language system by presenting it by parts, i.e., by dissecting and mutilating all the gear of language functioning. This, for instance, does not happen when learning a language abroad, since the whole language system is presented and being exposed at the same time. I will dare to say that brain works better when the student who is learning a second language is highly exposed to input. The more your brain is exposed to natural input, the more elements brain is going to work with, and the faster the learning process will be.

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## Appendix:

1)

### Instrucciones de la prueba de aceptabilidad:

A continuación, encontrará un conjunto de oraciones / textos en idioma portugués. Indique, para cada uno de ellos, si:

A – Es aceptable y Ud. lo utilizaría.

B – Es aceptable pero Ud. preferiría decirlo de otra forma.

C – No es aceptable y, por lo tanto, Ud. nunca lo utilizaría.

### Ejemplo de A:

–

Fala António Claro – foi o que disseram de lá.

–

Bons días.

–

Talvez esteja a ligar demasiado cedo.

–

Não se preocupe, já estou levantado e a trabalhar. (adaptado de Saramago, 2002, p. 197) (PE)

(= – Habla António Claro – fue lo que dijeron del otro lado. / – Buenos días. / – A lo mejor llamo demasiado temprano. / – No se preocupe, ya estoy parado y trabajando. – TRAD)

### Ejemplo de B:

O catálogo do Instituto falha redondamente. Ele começa por apenas conter filmes que receberam subsídios do Instituto. (adaptado de Ramos, 2005) (PE)

(= El catálogo del Instituto falla completamente. Él comienza por contener únicamente películas que recibieron subsidios del Instituto. – TRAD)

**Ejemplo de C:**

Em todos os países ele há um grande peso de despesas rígidas. (adaptado de *Semanário Económico*, 20 de mayo de 2005) (PE)

(= En todos los países él hay un gran peso de gastos rígidos. – TRAD)

In this context, special statements were given in order to study the presence/omission of pronouns in finite declarative sentences, for instance:

A):

Ele dedicava-se agora à indústria do espectáculo. Ø Ia de terra em terra, Ø fazia um pouco de tudo, mas Ø gostava sobretudo de sons. (Carvalho, 2003/2004, p. 78) (PE)

(= Él se dedicaba ahora a la industria del espectáculo. Ø Iba de tierra en tierra, Ø hacía un poco de todo, pero Ø le gustaban sobretudo los sonidos. – TRAD)

## PRUEBA DE ACEPTABILIDAD

Instrucciones:

A continuación, encontrará un conjunto de oraciones/textos en idioma portugués. Indique, para cada uno de ellos, si:

A – Es aceptable y Ud. lo utilizaría.

B – Es aceptable pero Ud. preferiría decirlo de otra forma.

C – No es aceptable y, por lo tanto, Ud. nunca lo utilizaría.

	A	B	C
1. É este o momento e não haverá outro.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Assola o país uma pulsão coloquial que põe toda a gente em estado frenético de tagarelice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. – Chegaram na melhor altura para se conhecer S. Tomé – dizia ele. – Vão ter três meses ainda para se irem habituando, até que o tempo se torne insuportável.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. É ele, como sabe, que tem tais matérias a seu cargo. Eu vivo aqui na cidade e só me ocupo da Secretaria-Geral, por onde tais assuntos não passam.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Tinha havido bastantes loucos na família.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Quem é que você acha que tem "conflitos de interesses" nessa matéria?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Ministros que já foram, voltam a ser.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. A mim não me enganam vocês.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Numa entrevista por e-mail e telefone, as respostas de Teodora Cardoso aqui ficam.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Manifestou-se hoje contra o fim, decidido pelo Governo, da exigência de pareceres prévios vinculativos das autarquias à nomeação dos directores dos parques naturais.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



	A	B	C
11. De vista precisam as gaiotas para vir comer as minhas migalhas do chá.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Os trabalhadores gozam de uma existência relativamente invejável e, por isso, ao terminar os seus contratos, os indígenas angolenses preferem fixar a sua residência nas ilhas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Vislumbrei alguns vultos a esgueirarem-se, algumas faces a voltarem-se de lado.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. A calçada do Parque Eduardo VII, em Lisboa, e o Pavilhão Rosa Mota, no Porto, voltam a receberem as suas respectivas Feiras do Livro.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. À excepção dos êxitos desportivos, ele não há muitos motivos para festejar na economia e na contabilidade pública.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. A Feira vai mesmo ter com o público na rua.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Conta o filme as aventuras de Adriana à procura de um homem.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Eu, se fosse a ti, fazia aí sociedade com um bruxo e pronto.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Um pacato mocho que dorme numa oliveira deita a cabeça de fora e espreita, furioso, penas eriçadas. Ladram em concerto.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. De há alguns anos para cá, foram-se sucedendo atentados, entre os quais eu destacarei diversos incêndios de origem criminosa.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Quando abriu a porta a mulher do médico, o cheiro tornou-se mais intenso.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Quem é que você acha que devia ganhar as presidenciais no Brasil no próximo domingo?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Em todos os países ele há um grande peso de despesas rígidas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Aninhas e Zulmira guardavam a pose da sua hierarquia e	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26. Quem é que você acha vai chegar aqui?
27. Luís Bernardo parecia ter perdido de vez o controle de si mesmo.
28. António Clara tomava a seu cargo o papel de torcionador e Vanessa era quem o desculpava.
29. Dias, meses, anos passam-se.
30. – Fala António Claro – foi o que disseram de lá.  
– Bons dias.     
– Talvez esteja a ligar demasiado cedo.     
– Não se preocupe, já estou levantado e a trabalhar.
31. Ele dedicava-se agora à indústria do espectáculo. Ia de terra em terra, fazia um pouco de tudo, mas gostava sobretudo de sons.
32. Passado o tempo da euforia despesista, a hora de pagar a factura chegou.
33. Estava Agostinho de novo senhor da situação.
34. Tudo o que era seu estava ali e não adiantava procurar outro mundo, porque ele não existia.
35. Quem é que você pensa que vai aderir primeiro, as empresas ou os utilizadores finais?
36. Saíram uns quatro mil. Todos registados e com guias emitidas em S. Tomé para lá trabalhar.
37. Continuaremos a ver os mesmos «ex's» e actuais governantes, gestores e especialistas a dizerem como se faz ou deve fazer.
38. Quem é que você pensa que engana?
39. Antes de perguntares, repito: sou cristã, sim.
40. Todos quisemos ver, pelo óculo, as feições dos familiares de Luelmo.
41. Entre a sala e a cozinha, havia uma copa de passagem, com as paredes forradas de louceiros até ao tecto.

42. Na pequena divisão da casa que lhe serve de escritório e de sala de estar há um sofá de dois lugares.
43. E lá segue o homem, a pedalar e a falar, por um dos trilhos deste Portugal, muito a sul.
44. Ao lado deles, como se estivessem à espera de que se acendesse num semáforo a luz verde, ele havia três cegos.
45. Concedam-nos o direito de fazermos a nossa campanha eleitoral.
46. Bem recentemente surgiram dois casos de excepção: Alain Guiraudie e Eugene Green.
47. Tertuliano Máximo Afonso arrumou o carro em frente da casa, do outro lado do caminho. Já ali está, junto à entrada, encostado ao muro. Entre um e outro há a diferença de uma geração.
48. Tiros na rua ouviram-se.
49. Em Nazaré havia sobretudo cultivadores.
50. Ele não havia segurança e nós não queremos que se arranhe nem um joelho.
51. Este ano o Porto vai homenagear o ensaísta Óscar Lopes.
52. Quando entraram na camarata e tiveram de apresentar o pouco que traziam para pôr na mesa, houve quem achasse que a culpa era deles, por não ter reclamado e exigido mais.
53. Quem é que o senhor pensa tem problemas com este assunto?
54. Um dia os nossos vizinhos ficaram muito agitados. Ao que diziam, estava a ser atacado por um bando de javalis selvagens e defendia-se.
55. Se houver um sítio onde as pessoas possam acederem de uma forma fácil a este conhecimento, vamos todos beneficiarmos com isso.
56. Não é preciso políticos para construir estradas ou para gerirem um sistema de saúde.

57. Mesmo sobre os filmes que subsidiou, o Instituto parece saber pouco. Ele indica, por exemplo, como concluído, «98 Octanas» de Fernando Lopes, que nem sequer ainda começou a ser filmado. O Instituto informa que «Até Amanhã, Camaradas» é uma longa-metragem, quando se trata de uma série de televisão. Ele não segue critérios objectivos e uniformes.
58. Tu lá saberás o que andas a procurar.
59. Ele havia outra versão menos gloriosa quanto à sua origem.
60. Sou brasileiro, e acho que nós brasileiros devemos termos o maior orgulho do que somos.
61. António Manuel de Oliveira Guterres, 56 anos, nasceu a 30 de Abril de 1949. Aluno brilhante, em 1965 ele entra para o curso de Engenharia Electrotécnica no Instituto Superior Técnico. Profundamente católico, ele envolve-se, nessa altura, nas discussões religiosas e sociais.
62. A sala principal funcionava como espaço de recepção.
63. Quem é que ela pensava enganava?
64. É coordenada a programação paralela do evento pela jornalista Paula Moura Pinheiro.
65. O catálogo do Instituto falha redondamente. Ele começa por apenas conter filmes que receberam subsídios do Instituto.
66. Trifeno foi um magistrado jovial, expendedor, benévolo e amador de jogos. Ele dormia muito. Ele lia pouco. Ele pensava menos. Ele discorria abundantemente.
67. As três lâmpadas, suspensas do tecto alto, fora do alcance, derramavam sobre os catres uma luz suja, amarelada. Dormiam ou tentavam desesperadamente adormecer.
68. 5,5 mil milhões de euros faltam no Orçamento.
69. Quem é que você acha que vai passar por ali?
70. Podes falar à vontade que o homem está surdo que nem uma porta.

## Glossary

- 1) **Actuación:** performance
- 2) **Aprendibilidad:** learnability
- 3) **categoría vacía:** empty category
- 4) **competencia:** competence
- 5) **Concordancia:** Agreement
- 6) **fijación de parámetros:** parameter setting
- 7) **Flexión:** Inflection
- 8) **gramática nuclear:** core grammar
- 9) **gramática periférica:** peripheral grammar
- 10) **Gramática Universal:** Universal Grammar
- 11) **Hipótesis del Periodo Crítico:** Critical Period Hypothesis
- 12) **parámetro pro-drop:** pro-drop parameter
- 13) **pobreza del estímulo:** poverty of the stimulus
- 14) **Principio de la Categoría Vacía:** Empty Category Principle
- 15) **Principio de la Uniformidad Morfológica:** Morphological Uniformity
- 16) **Principio de Proyección Extendido:** Extended Projection Principle
- 17) **Programa Minimalista:** Minimalist Program
- 18) **refijación de parámetros:** parameter resetting
- 19) **Teoría de la Modularidad:** Modularity Theory
- 20) **Teoría de Principios y Parámetros:** Principles and Parameters Theory
- 21) **Tiempo:** Tense