

THE LANGUAGE-THOUGHT RELATIONSHIP ON THE BASIS OF  
PRECEDENCE OF THOUGHT OVER LANGUAGE

A THESIS SUBMITTED TO  
THE GRADUATE SCHOOL OF SOCIAL SCIENCES  
OF  
MIDDLE EAST TECHNICAL UNIVERSITY



BY

Elif ARISOY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR  
THE DEGREE OF MASTER OF ARTS  
IN  
THE DEPARTMENT OF PHILOSOPHY

AUGUST 2021



Approval of the thesis:

**THE LANGUAGE-THOUGHT RELATIONSHIP ON THE BASIS OF  
PRECEDENCE OF THOUGHT OVER LANGUAGE**

submitted by **Elif ARISOY** in partial fulfillment of the requirements for the degree of  
**Master of Arts in Philosophy, the Graduate School of Social Sciences of Middle  
East Technical University** by,

Prof. Dr. Yaşar KONDAKÇI  
Dean  
Graduate School of Social Sciences

\_\_\_\_\_

Prof. Dr. Halil Şeref TURAN  
Head of Department  
Department of Philosophy

\_\_\_\_\_

Prof. Dr. David GRÜNBERG  
Supervisor  
Department of Philosophy

\_\_\_\_\_

**Examining Committee Members:**

Prof. Dr. Murat BAÇ (Head of the Examining Committee)  
Middle East Technical University  
Department of Philosophy

\_\_\_\_\_

Prof. Dr. David GRÜNBERG (Supervisor)  
Middle East Technical University  
Department of Philosophy

\_\_\_\_\_

Prof. Dr. Mehmet Hilmi DEMİR  
Ankara Social Sciences University  
Department of Philosophy

\_\_\_\_\_





**I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.**

**Name, Last Name: Elif ARISOY**

**Signature:**

## ABSTRACT

### THE LANGUAGE-THOUGHT RELATIONSHIP ON THE BASIS OF PRECEDENCE OF THOUGHT OVER LANGUAGE

ARISOY, Elif

M.A., The Department of Philosophy

Supervisor: Prof. Dr. David GRÜNBERG

August 2021, 58 pages

The aim of this thesis is to examine the relationship between language and thought on the basis of the claim that thought precedes language. The claim is meant that the processes of thought might occasionally be possible without the contribution of language, so the shaping of thought by language has limitations. Firstly, I shall examine the studies on the relationship between language and thought by focusing on issues as language shapes thought, language affects thought partially, and the complex structure of thought. Then, based on the definitions of thought and language, I shall show the structure of thought which includes more than verbal media. And finally, I shall present examples of the processes of thought without language. Thus, the thesis will be finalized with the claim that thought precedes language in the relation between language and thought.

**Keywords:** Thought, Language, Memory, Thought in Animals

## ÖZ

### DÜŞÜNCENİN DİLİ ÖNCELEMESİ TEMELİNDE DİL VE DÜŞÜNCE İLİŞKİSİ

ARISOY, Elif

Yüksek Lisans, Felsefe Bölümü

Tez Yöneticisi: Prof. Dr. David GRÜNBERG

Ağustos 2021, 58 sayfa

Bu tezin amacı, düşüncenin dilden önce geldiği iddiasından hareketle dil ve düşünce arasındaki ilişkiyi incelemektir. İddia, düşüncenin dilin sağladığından fazlasını içerdiği, dolayısıyla düşüncenin dil tarafından şekillendirilmesinin sınırlı olduğu anlamına gelmektedir. İlk olarak dilin düşünceyi şekillendirdiği, dilin düşünceyi kısmen etkilediği ve düşüncenin karmaşık yapısı konularına odaklanarak dil ve düşünce ilişkisi üzerine yapılan çalışmaları inceleyeceğim. Ardından düşünce ve dil tanımlarından yola çıkarak düşüncenin sözel verilerden fazlasını içeren yapısını göstereceğim. Ve son olarak, dil olmadan da mümkün olabilen düşünce örnekleri sunacağım. Böylece, dil düşünce ilişkisi içerisinde düşüncenin dili öncelediği iddiasıyla tez sonlandırılacaktır.

**Anahtar Kelimeler:** Düşünce, Dil, Hafıza, Hayvanlarda Düşünce

## ACKNOWLEDGEMENTS

I would like to express my gratitude to my supervisor, Prof. Dr. David Grünberg, for his contribution and support. I would like to give my special regards to professors in my jury, Prof. Dr. Murat Baç and Prof. Dr. Mehmet Hilmi Demir, for their helpful feedback and invaluable contributions.

I wish to express my deepest gratitude to Prof. Dr. Hilmi Uysal. Without his guidance, this thesis would not have been possible. In the process of writing this thesis, he encouraged me to go further. As the undisputed best academician I know, he not only guided me throughout the thesis but also taught me how to be an exemplary academician.

I would like to thank Assoc. Prof. Dr. Aziz Fevzi Zambak for his advice and for broadening my horizons. I would also like to thank Dr. Cumhuri Avcil for teaching me how to manage my thoughts.

I am indebted to my dear friend Başak Kocaoğlu, the most brilliant woman I have ever met, for her precious advice on each step of this thesis. I would like to thank Mehmet Alper Tortop for showing me how to use music as a lens and turn my thought into music. I would also like to thank my dear sister Pınar Eren for the colorful and cross-border perspective she has given me. Without her, this dream would not have come true. I would like to express my sincere thanks to Orhan Efe Özenç, who showed me how to put a thought into words in a perfect way.

I am also grateful to my mother, Belkız Arısoy, and my father, Salih Arısoy their endless support.

## TABLE OF CONTENTS

PLAGIARISM .....	iii
ABSTRACT.....	iv
ÖZ .....	v
ACKNOWLEDGEMENTS .....	vi
TABLE OF CONTENTS .....	vii
CHAPTERS	
1. INTRODUCTION.....	1
2. LANGUAGE SHAPES THOUGHT .....	3
2.1 The Sapir-Whorf Hypothesis .....	3
2.1.1 Linguistic Determinism and Linguistic Relativity .....	5
2.2 Brown’s Research on Color Terms .....	6
2.3 Boroditsky and Gaby’s Research on Spatial Representations of Time.....	7
3. LANGUAGE HAS A PARTIAL EFFECT ON THOUGHT .....	10
3.1 Slobin’s Thinking for Speaking Argument .....	10
3.2 On the Research of Clark on the Effect of Grammatical Categories and Lexical Choices .....	12
4. COMPLEX STRUCTURE OF THOUGHT .....	15
4.1 On Levinson’s Linguistic Categories and Non-Linguistic Thinking.....	15
4.2. On Carruther’s “Thinking: Images or Sentences?”.....	17
4.3. On Keller and Keller’s on Diversity of Mental Activity.....	18
5. AN ARGUMENT ABOUT PRECEDENCE OF THOUGHT OVER LANGUAGE.....	21
5.1 What is thought? .....	21
5.1.1 Memory, Learning, and Visual Images.....	23
5.2 Thinking without Language in Animals .....	26

5.2.1 What is language? .....	26
5.2.2 The Processes of Thought in Animals.....	28
5.2.2.1 Additional Experiments on the Thought Processes of Animals.....	32
6. CONCLUSION .....	38
REFERENCES.....	40
APPENDICES	
A. TURKISH SUMMARY / TÜRKÇE ÖZET.....	43
B. THESIS PERMISSION FORM / TEZ İZİN FORMU .....	58



## CHAPTER 1

### INTRODUCTION

This thesis is about the precedence of thought over language. The starting point is the question of whether the language acquired affects how people perceive the objective world. Many thinkers and linguists think that language is a lens that can shape thought by changing their perspective by the syntax of a language. Although some admit that language shapes thought, they emphasize that this effect is partial. Others, focusing on the more complex nature of thought, argue that thought cannot be entirely shaped by language. This thesis will analyze thought and its more complex and more comprehensive structure. Moreover, I shall submit the possibility of thinking without language by presenting some empirical studies on the thinking capacity of animals. Thus, it will be claimed that thought precedes language.

Before presenting the claim of precedence of thought over language, I shall investigate previous research and claims in the context of language-thought relation.

In Chapter 2, I shall focus on the idea that language shapes thought. Sapir-Whorf hypothesis, R. Brown's research on codability of English color terms, and the study of L. Boroditsky and A. Gaby on spatial representations of time are studies that will be analyzed. In these three studies, the problem of how language affects and shapes thought will be discussed in terms of different categories such as time, space, and color.

In Chapter 3, I shall analyze the approach that claims language has a partial effect on the processes of thought. Two studies are on focus; Thinking for Speaking hypothesis of D. Slobin and "Research on the Effect of Grammatical Categories and Lexical Choices" article of E. V. Clark. Slobin and Clark accept the argument that language affects thought; however, according to them, this effect is limited and only possible when people are thinking for speaking.

In Chapter 4, I shall examine studies that focus on the complex structure of thought. S. C. Levinson, P. Carruthers, and C. M. Keller and J. D. Keller's studies will be analyzed. These studies emphasize that different ways of thinking are possible in order to show that the effect of language on the processes of thought is limited. Thus, according to these studies, mental activity does not only mean thinking through the verbal medium.

Finally, in Chapter 5, I shall present an argument about the precedence of thought over language. While presenting this argument, there will be two topics under the spotlight. In the beginning, I shall define what thought is from several perspectives and briefly examine the process of thought in terms of its neurological aspect. Accordingly, I shall present the complex structure of thought that includes more than what language provides for the processes of thought. Then, I shall define the language and differentiate the communication systems of animals and language. Furthermore, I shall analyze the thinking activity of animals who have communications systems rather than language by way of empirical studies on some kind of animals. With the support of these two focuses, I shall allege that the possibility of the processes of thought may proceed without the contribution of language. That is, our main claim thought precedes language will have been presented.

## CHAPTER 2

### LANGUAGE SHAPES THOUGHT

In this chapter, I shall analyze the relevant researches that accept that language shapes thought. Thinkers of that sort of tendency held that there is a strict interdependence between language and thought. According to them, the syntax and lexicon of each language have the power to affect thought. Studies I shall analyze in this chapter discuss the effects of language on thought in different aspects such as culture, color terms, and spatial representations.

#### **2.1 The Sapir-Whorf Hypothesis**

The Sapir-Whorf hypothesis is an approach that accepts language as a lens. According to this hypothesis, the grammatical structure of language directly affects people's perception of the world. However, the Sapir-Whorf hypothesis is a very famous and perhaps ultimate form of this approach, which is well known. Sapir, an American linguist, expressed his thoughts on the relationship between language and thought in the Linguistic Society of America meeting. Sapir (1929) states the following:

It is quite an illusion to imagine that one adjusts to reality essentially without the use of language, and that language is merely an incidental means of solving problems of communication or reflection. The fact of the matter is that the 'real world' is, to a large extent, unconsciously built up on the language habits of the group. No two languages are ever sufficiently similar to be considered as representing the same social reality. The worlds in which different societies live are distinct worlds, not merely the same worlds with different labels attached. (p. 209)

With these statements, Sapir claims that the structural organization of language determines and limits thought. Moreover, language is able to control the processes of thought, such as classification and perception.

Benjamin Lee Whorf, a student of Edward Sapir, adheres to the idea of Sapir but argues that language shapes thought rather than determining it. Whorf, who studied Native American languages, investigated many languages, including Hopi. He develops this hypothesis, which is to be called the Sapir-Whorf hypothesis, by adhering to ideas of Sapir.

In fact, there are two versions of the hypothesis, strong and weak. The strong version represents the claims of Sapir. So, according to the strong version of the hypothesis, language determines what people think. In fact, its syntax and lexicon are the controllers of the processes of thought. The reason why it is called strong is that the claims are so sharp and extreme.

The weak version of the hypothesis develops when Whorf softens the claim of Sapir, claiming that language shapes thought rather than determining it. Whorf, who studied Native American languages such as Hopi, Nootka, Apache, and Aztec, published an essay in 1940. In this work, he founds how different languages and their structures influence the thought system and perception of the objective reality of human beings. Whorf (1940) points out:

Formulation of ideas is not an independent process, strictly rational in the old sense, but is part of a particular grammar, and differs, from slightly to greatly, between different grammars. We dissect nature along lines laid down by our native languages. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds— and this means largely by the linguistic systems in our minds. (p.234)

The study consists of comparisons between different languages and so cultures. Whorf maintains that there is a close relationship between language, culture, and thought. Each culture sets the world up in its aspect by the lexicon and syntax of language used in that culture. In this way, people who live in a different culture perceive the objective reality in a different way. According to the examples of Whorf (1940) in the article, in the Hopi language, there are two words to talk about water; however, in English, people have just one word. (p. 231).

In this example, Whorf emphasizes that culture setting off a background for language affects perception of objective reality. Because of differences in culture and language, people dissect nature differently.

By the works of Whorf, the approach gains a more cautious form. In other words, the characteristic of the approach evolves from strict to reasonable. This is the weak version of the hypothesis. What is known today as the Sapir-Whorf hypothesis is actually the weak version of the hypothesis.

### **2.1.1 Linguistic Determinism and Linguistic Relativity**

Linguistic determinism takes its name from the argument that language determines thought. On linguistic determinism approach, Pederson (2010) comments that “The ‘strong’ hypothesis (also known as linguistic determinism) is that the variable categories of language essentially control the available categories of general cognition. As thus stated, this “strong” hypothesis is typically dismissed as untenable” (p.2).

Moreover, one of the claims of linguistic determinism is that the structure of language limits how people categorize things and how people perceive reality. In other words, according to this approach, language determines the processes of people’s minds by affecting categorization and perception. These claims make the approach too strict and easily falsifiable. Edward Sapir is one of the best-known people taking part in this view. His standpoint is classified as linguistic determinism. The reason for its being called “the strong version” of the Sapir-Whorf hypothesis is probably its belongingness to sharp and extreme claims of linguistic determinism.

The weak version of the hypothesis is called “linguistic relativism.” It suggests that the syntax and lexicon of a language influence the processes of thoughts rather than determining and limiting them. By syntax of a language, perception of the world is affected. Whorf asserts that “... users of markedly different grammars are pointed by their grammars toward different types of observations and different evaluations of externally similar acts of observation...” (Whorf, 1956, p. 221). Thus, people who speak different languages have a different perception of objective reality because different languages carve up the objective reality in different methods. According to

this perspective, language shapes the objective reality rather than determines it. Thus, to what extent language affects the processes of thought is the fundamental difference between linguistic determinism and linguistic relativity.

## **2.2 Brown's Research on Color Terms**

Following Sapir and Whorf, Brown is an experimentalist researcher subscribing to this approach. According to Brown (1976), Whorf appears to put forward two hypotheses:

1. Structural differences between language systems will, in general, be paralleled by non-linguistic cognitive differences, of an unspecified sort, in the native speakers of the two languages.
2. The structure of anyone's native language strongly influences or fully determines the worldview he will acquire as he learns the language. (p.128)

Studies following Sapir and Whorf are focused on the evaluation of linguistic relativism to show how the structure of a language affects human perception of the world and categorization of it. Moreover, they aim attention at specific areas such as; color and space. Thus, Brown's research is conducted on empirical studies because Brown (1976) additionally claims:

The problem with Whorf's data is simply that they are entirely linguistic; he neither collected nor reported any non-linguistic cognitive data, and yet all of his assertions (which seem to reduce to the two hypotheses stated above) imply the existence of non-linguistic cognitive differences. (pp. 128-129)

Brown steps into the new research on the codability of English color terms. He aims to show that people's perception of color is affected by color terms of their language in their minds.

First of all, 24 colors are selected in the research, and this set of colors is arranged in random order. Later, the set of colors is shown to the students of 24 people, and they are asked to look at the colors in the set for 5 minutes. After looking, the color set is removed, and the colors are shown one by one to the students. Meanwhile, the students are asked to name each of the colors as quickly as possible. While the names given to colors differ according to various variables, it is shown that the best index is the degree of an individual agreement, and the greater the consensus on the color, the higher the

coding for that color. Finally, another group of students is shown the names and color set that the first group gave to colors, and they are expected to recognize the colors. Four different recognition conditions are created at this stage, and in all conditions, coding is found to be positively correlated with recognition accuracy.

The general idea of the study is to correlate color-coding scores from one group of a community using the same language with color recognition scores from another group of the same community. At the very end of the article, Brown (1976) further states his aim as follows:

We had to suppose that some other language communities would produce very different codability scores for the same array of 24 colors and that the recognition scores of these other communities would follow their various codability scores. (pp. 133-134)

The study shows that there is a positive correlation between color coding in English and the ability of people to save on memory and recognize a specific color term from an array.

### **2.3 Boroditsky and Gaby's Research on Spatial Representations of Time**

Time is the basis of human experience, and human beings are not able to perceive it alone. They also use space to represent it. In other words, they make it spatial by using space to represent time. Boroditsky and Gaby conduct research on the spatial representations of time in Pormpuraawan, a remote Australian Aboriginal community, because they represent space used to represent time differently. So, the reason for the research is that this community uses a different medium to represent time. Boroditsky and Gaby (2010) state the following:

Previously, people have been shown to represent time spatially from left to right or right to left, or from front to back or back to front. All of these representations are with respect to the body, Pormpuraawans instead arrange time according to cardinal directions: east to west. (p.1635)

For this reason, they find that this community represents the time in a different coordinate frame than the others and produces a qualitatively different set of time

representations. The following results are observed in another study on this group about expressing space:

Unlike English, the Pormpuraawan languages do not make extensive use of relative spatial terms like *left* and *right*; instead, speakers of these languages rely on absolute direction terms (e.g., “north,” “south,” “east,” “west”), saying things like “move your cup over to the north-northwest a little bit” or “the boy standing to the south of Mary is my brother. (Gaby, 2006; Kilham et al., 1986; Smith & Johnson, 2000; Sommer, 1991, as cited in Boroditsky & Gaby, 2010, p. 1635)

Pormpuraawans have a different way of representing space. Because of the difference in the representation of space, they conducted this research on how Pormpuraawans think about time. The research aims to show that cross-cultural differences and, therefore, language is able to affect human being’s way of thinking.

In the study, Pormpuraawans and Americans are tested with two temporal regulation tasks. These tasks are based on card arrangement and point drawing. There are various sets of cards in the card-issuing task, and each card set represented a temporal progression. Participants are given a series of cards and asked to arrange the cards in the correct order in time. In the point drawing task, the participants are asked to place correctly the temporal terms given to them according to the points corresponding to the temporal periods on the ground. These two missions are held separately for Pormpuraawans and Americans and on entirely equal terms. As a result, “Unlike Americans, who laid out time from left to right regardless of their cardinal facing direction, the Pormpuraawans spontaneously took their facing direction into account when making their arrangements” (Boroditsky & Gaby, 2010, p. 1637).

In conclusion, the study shows that conceptions, even fundamental ones, like time, are able to differ considerably from one culture to another. Thus, Boroditsky and Gaby show us that an intercultural language and hence a language that every society has is able to affect the way that how people think.

To sum up this chapter, firstly, Sapir and Whorf state that language as a part of culture shape classification, categorization, and hence the perception of the objective reality of

human beings. Then, Brown shows that the process of people's perception of colors is shaped by color terms belonging to their language. And lastly, Boroditsky and Gaby, as a result of their work on expressing time and space in Australian indigenous tribal languages, the expressions of space and time change according to each society's language. Thus, the thesis that language shapes thought seems to receive some significant support in this instance.

What is common to these three different studies is not just the idea that language shapes thought. These studies focus on the process of thought conducts only with the verbal medium when people categorize the objective world in their minds and form concepts about it. In other words, it is another common feature of the studies that share the same neglect that they do not give a place the possibility of human thinking with other media. As I mentioned above, according to Brown (1976), the problem of Whorf's hypothesis is that his neglect of non-linguistic cognitive data. Although he criticizes Whorf's data, his study is on color terms based on the lexicon of a language. Moreover, Boroditsky's and Gaby's study is on words of spatial representations of time. In both studies, it might clearly be seen that focus is on just verbal medium, and both of them are constructed on the relation between *words* and the minds of people.

## CHAPTER 3

### LANGUAGE HAS A PARTIAL EFFECT ON THOUGHT

In the previous chapter, I have examined studies focused on arguing that language shapes thought. As already known, a tool is a thing that helps to do or to achieve something. Furthermore, as is also known, the Sapir-Whorf theory does not admit that language is a means of expressing thought as opposed to being a determinant (or a shaping factor on) the latter.

This chapter will again include studies that admit that language shapes thought, however the focus of these studies is to argue that this effect is limited. Thus, the views in this chapter both accept that language shapes thought and also accept language as a tool. In other words, the studies in this section will argue that language partially affects the processes of thought.

Furthermore, according to them, thinking is not a process that only possible with words. It might be possible with altered data such as visual and audial. Human beings use language when they express their thought. In this chapter, I shall analyze the researches of Slobin and Clark on the determinant of what must be expressed. These are researches conduct to determine the extent of effects of language on the processes of thought. Clark and Slobin show us that language may only affect the processes of thought when people are *thinking for speaking*.

#### **3.1 Slobin's Thinking for Speaking Argument**

According to Slobin (2003), researches conducted on linguistic relativity do not consider whether language is being used or not. In other words, cognition is considered as a combination of concepts and procedures without taking into account whether they are using for verbal purposes or not. Thus, studies on linguistic relativity are incomplete without considering cognitive processes. Based on this, Slobin argues that the focus of

the effect of language on thought processes is on the online process that the brain is currently focused on. The focused online process determines how information is used and organized. The online process is *thinking for speaking* for the speaker in the conversation between two people. The *listening to thinking* process is online for the listener of the conversations. Namely, the necessity of linguistically expressing our experiences in the communication process activates the process of thinking for speaking, which is a special way of thinking that might differ from language to language. While these processes are active on the brain, speakers or listeners are inclined to use and activate their language-specific preferences. People in this conversation are not concerned with real-world cognition. They are concerned with the ongoing construction of mental representations. At this stage, active processes of both the listener and the speaker require the use of language. Furthermore, the representations in mind will also be linguistic. However, the author does not deny the existence of a cognition process that does not proceed with verbal purposes.

In Slobin's study, he focuses on the verbal marking of aspect and motion in four languages. His aim is "... to examine ways in which children gaining different grammars begin to talk about the experience" (Slobin, 1987, p.436). By this study, it might be shown that the thought processes of human beings are shaped when people express their thoughts by language to be expressed functionally. At this point, the effects of language on the processes of thought might be seen. However, "Utterances are not verbal film clips of events. An event cannot be fully represented in language: linguistic expression requires schematization of some sort" (Slobin, 2003, p.2).

Slobin has a role between approaches; language as a lens and language as a tool. He accepts the idea that language is able to affect the processes of thought. On the other hand, he also accepts the idea that language is a tool for human beings to express their thoughts. He chose the label *thinking for speaking* to express his ideas about how language affects the processes of thought. Moreover, about this label, he also claims "... but the framework embraces all forms of linguistic production (speaking, writing, singing) and reception (listening, reading, viewing), as well as a range of mental processes (understanding, imaging, remembering, etc.)" (Slobin, 2003, p.3). In other

words, thinking has labels, and it adapts itself to whatever a person is doing, such as thinking for listening, thinking for speaking. The language itself affects the process of thinking only when thinking for speaking. “The expression of experience in linguistic terms constitutes; ‘thinking for speaking’ — a special form of thought that is mobilized for communication” (Slobin, 1987, p. 436).

### **3.2 On the Research of Clark on the Effect of Grammatical Categories and Lexical Choices**

Clark is one of the supporters of the idea that a language is a tool. According to Clark (2003), people use language every day to express their experiences. However, Clark (2003) also points out, “... we always have to take into account the fact that language does not offer us exact maps of the experiences we may wish to recount to someone or interpret from someone else” (p.17). Thus, it might be deduced from these words that human beings use their language to express their experiences; however, it might not be possible to thoroughly and objectively comprehend those experiences by way of verbal expression of the people who give voices to the experiences.

He analyzes what obligatory is in language to determine what must be expressed. In other words, he focuses on which part of the language affects the determination of what is expressed about that experience. According to Whorf, this obligatory part is grammatical categories. Clark does not oppose this idea; however, in his viewpoint, absence from grammatical categories of language does not mean absence from all conceptual representations. Thus, the categorization does not depend on grammar or language.

When we represent the actions we do in putting on shoes versus putting on a coat, our representations are likely to be highly similar regardless of whether we speak Japanese (and must therefore choose which of two distinct verbs to use for these two activities) or speak English (and rely on just one verb for both actions). (Clark, 2003, p.18)

Besides, Clark (2003) states in his article that:

Languages differ not only in their grammatical structure and in the precise repertoire of obligatory distinctions speakers must make in each utterance, but

also in the range of lexical choices available (just how the lexicon maps onto each conceptual domain) and which range of conceptual perspectives speakers can therefore make use of. (pp. 20-21)

Thus, lexical choices and grammatical categories determine what human beings express. However, Clark asserts that grammatical distinctions and lexical choices may only affect the thought processes of human beings when speaking. Even though grammatical categories and lexical choices affect what human beings express by language, "... this does not tell us anything about how being speakers of Hebrew, of Navajo, of Mandarin, or Spanish will affect how people think about the world at large when they are not using the language" (Clark, 2003, p.20). Tracking the details of a conversation is not the same as remembering events or thinking about specific events.

To summarize this chapter, Slobin argues that speakers of different languages think differently in the process of mentally preparing content for speech. So, it seems there are kinds of mental processes. If concepts and procedures are used for a verbal purpose, namely speaking, language shapes processes of thought. However, this shaping is not a feature of all processes.

At the beginning of his work, Clark admits that language is a means of expressing thought, and on the other hand, the transfer of experience to another through language is not able to be fully realized. What he explores in his work is what determines what is expressed in language when expressing our experiences. As a result, Clark finds that grammatical categories and word choices determine what human beings mean. However, he does not rule out the possibility that language might be outside of the processes of thought apart from expressing our experience.

As a result, Slobin and Clark already accept that language affects the processes of thought, and based on this concession, it might be said that their perspective is also linguistic relativism. They merely emphasize the distinct point of the effect of language on thought processes and claim the effect is partial. Moreover, they conduct their respective research to determine the extent of the language's effects on the processes of thought. These two researchers argue that the influence of language on the processes of thought does not go beyond the processes used to express thoughts. However, herein,

it might be claimed that the problem of this assertion is the neglect of the role of language in the formation of thought in other online processes. Slobin mainly analyzes the effect of speaking in the process of thinking. Clark tackles the effect of grammar and lexicon of a language on the thinking for speaking process of human beings. Thus, both of the researchers do not take into consideration the other online processes of thinking.



## CHAPTER 4

### COMPLEX STRUCTURE OF THOUGHT

In the previous two chapters, I have given place studies focusing on that language shapes thought. In this chapter, I shall examine studies that focus on the complex nature of thought. Researches under this topic resulted in examples of thinking with visual, audial, or sensible data. The research of Levinson focusing on the fundamental difference between semantic and conceptual representations, the research of Carruthers in which he analyzes the medium carrying the content of thought, and the study of Keller and Keller focusing on various types of mental activity are the studies I shall analyze in this section.

#### **4.1 On Levinson's Linguistic Categories and Non-Linguistic Thinking**

In the book *From Outer to Inner Space: Linguistic Categories and Non-linguistic Thinking*, Levinson answers whether human beings think the way they speak. In other words, he discusses the relation between linguistic (semantic) representations and non-linguistic (conceptual) representations. Linguistic ones are the representations that have linguistic nature, such as sentential and descriptive representations. Non-linguistic ones are other forms of representations such as mental images or models. The discussion of differentiation is actually based on the meaning. Herein, while the semantic representations are related to linguistic meaning, conceptual representations are beyond the linguistic meaning.

In the beginning, the question is whether human beings think the way they speak. Then Levinson (1997) states his main concerns as “We are concerned simply with boundary conditions, specifically with whether the representation of a thought and a meaning could in principle be the same sort of thing, whatever it is” (p. 15). By way of this statement, his question turns into “Are the form of representations that underlie linguistic meaning (i.e., semantic representations, S. R.s) the same kind of

representations that underlie non-linguistic thinking (i.e., conceptual representations, C. R.s)?" (Levinson, 1997).

The author examines the approaches to this question by dividing them into two groups: A theorists and B theorists. The former defends non-linguistic representations and linguistic representations are identical. According to the latter, there is an absolute distinction between them. After explaining theorists into two groups, it might be asserted that Levinson is one of the B theorists because, according to him, linguistic(semantic) representations and non-linguistic (conceptual) representations are not identical.

He grounds this claim in two steps. Firstly, although there might be a trivial argument to define these representations as identical, still there is no clarification of the issue "whether the representations we do serious thinking in (memorizing, inferring, reasoning, deciding, hypothesizing, etc.) are isomorphic with the representations that encode linguistic meanings" (Levinson, 1997, p.15). Secondly, in the cases of non-linguistic thought, such as a visual image of a room, appreciation of smell, or various kinds of vague thoughts, there cannot be correspondence to linguistic meanings. They are less propositional.

Moreover, against the possible objections claiming that mental imagery is not thinking in the sense of reasoning, Levinson suggests that there is more than one language of thought. After accepting that conceptual and semantic representation are not identical, the author turns his attention to the question, "Is there a way of thinking which mirrors the way we speak?". The answer is still the same for the author; "No." Furthermore, he explains why the answer cannot be "Yes" for several reasons. And at the end of the chapter, the essential difference between a representation for linguistic meaning and representation of thought is explained as follows;

Thoughts are the sort of things that should be constant when successively retrieved from memory, but S.R.s contain indexicals and semantically general predicates and operators which change their extensional and sometimes their intensional values or 'character' on each occasion of use. (Levinson, 1997, pp. 23-24)

From these statements of Levinson, the following may be deduced: thoughts should remain constant by following a specific flow because semantic representations may change in each use, place, time, and context. Besides, the representation of linguistic meaning is not identical to the representations of conceptual thought. As mentioned before, Levinson defends that there is more than one language of thought. Thus, he shows that linguistic meaning and non-linguistic ideas are distinguishable from each other. This assertion is what allows us to argue that language does not have complete control over the process of thought.

#### **4.2. On Carruther's "Thinking: Images or Sentences?"**

In a section titled "Thinking: Images or Sentences?" of the book *Language, Thought, and Consciousness*, Peter Carruthers analyzes the ways thoughts interact and the tool which carries their content. According to Carruthers (1996), human conscious thinking is conducted in the medium of natural language. Actually, his main focus is "whether it is a natural language or rather a mentalese, which is constitutively involved in our thinking" (Carruthers, 1996, p. 72).

Imagist and sententialist accounts are two analyzed approaches, while Carruthers conducts research on the interaction ways of thought and means that carry the content of thought. The former endorses the communicative conception of language, while the latter endorses the cognitive conception of language. Imagists claim that all thoughts are made up of mental images. Furthermore, they interact with each other through an association between those images. In other words, imagists defend that "thought has independence from natural language because the possession of mental images does not involve or presuppose natural language" (Carruthers, 1996). On the other hand, Sententialist defends the idea that the primary medium of thought is language. Although his position is against the communicative approach of language, Carruthers (1996) also emphasizes the following:

I certainly do not want to claim that mental images can never play a part in anything which might properly be called 'thinking.' Sometimes, surely, our thoughts can consist of a mixture of sentences and images. Thus, when reasoning about some practical problem, I might entertain a mixed thought like

the following: “If I put this stool on the table *like* so [insert image], then by climbing on top of it I shall be able to reach up *like* that [insert image].” (p. 36)

Carruthers, who argues that conscious thought is mostly carried out by natural language, does not seem to deny that the conscious thought processes include both sentences and images. Moreover, he admits that occasionally, thoughts can only consist of images. However, it should not be forgotten that these assumptions of Carruthers are always about conscious thought. While he defends the idea that our conscious thinking is conducted in natural language, he also points out that only conscious thought is related to language. There is no claim about sub-conscious or unconscious thought.

#### **4.3. On Keller and Keller’s on Diversity of Mental Activity**

In the article “Imaging in Iron, or Thought is not Inner Speech,” it is claimed that thought is more complicated than one is able to explain by a relativistic position, including linguistic determinism reasonably. According to Keller and Keller (1996), mental activity occurs in several ways. Thought might be constructed in forms of language, imagery, sensorimotor representation, and emotion. The authors present some evidence to show that each cognitive modality is a different system. One of the pieces of evidence is the priority of evolutionary vision and visual imagery to language. “... we suggest that, even after the appearance of language in evolution, alternate forms of conceptual representation remain structurally and functionally independent” (Keller & Keller, 1996, p.116). The other is cases of aphasic patients in which they do not lose their visual, motor, or emotive representations although they lose their linguistic abilities. Another evidence is related to researches in lexical semantics. The authors analyze studies of Lakoff and Johnson and objections of propositional to imaginative models.

Furthermore, the authors point out that [t]hese accounts of meaning reverse the relations of cognitive priority hypothesized by Sapir and Whorf and mandate a dynamic approach to word meaning and thought more generally, involving interactive modular components” (Keller & Keller, 1996, p. 177). In addition to this evidence, the authors conduct comparative research focusing on linguistic and visual representations of spatial relationships that provide additional support for the independence of visual and

linguistic processing systems. It might be presented as an example of the works of authors in an interview with a knife maker. In this interview, the knife maker states that the language is of minimal importance in the knife manufacturing process. This interview provides the evidence "... to clarify the independence of imagery and sensorimotor representations in productive activity and to demonstrate the potential relationship of representations in these modes to language" (Keller & Keller, 1996, p. 119). Thus, it is suggested that the production process itself is primarily visual and sensorimotor by way of this interview.

Contrary to the claims above, the authors also accept that language is essential at the design level. However, the acceptance is in a manner of language as an instrument rather than the Sapir-Whorf hypothesis would have understood it. As a conclusion of the article, "... thinking occurs in diverse modes, each of which may function independently in some contexts and all of which may function interactively to at least some degree" (Keller & Keller, 1996, 127).

If I summarize this chapter, Levinson examines and compares two types of representations of thought, focusing on the fundamental difference between semantic and conceptual representations. As a result of this comparison, he concludes these two forms of representation are not identical and thus, shows that human beings do not carry out the processes of thought only with linguistic representations. Carruthers conducts a study in which the medium that carries the content of thought and the interaction way of thoughts is analyzed. He claims conscious thought is carried out in natural language. However, he does not deny that mental images, a non-linguistic medium, are also involved in the processes of thought. As a result, he accepts that although the processes of thought are generally conducted in a natural language, mental images are able to also carry out this process from time to time. Finally, if the attention will be turned to Keller and Keller, they show in their studies that each cognitive modality is executed in different ways. The conclusion of the study of Keller and Keller implies that thought is able to be carried out in different ways. The authors also reveal the complex structure of thought by focusing on the differences between linguistic processing and visual, auditory, or sensory-motor representation mechanisms. As a

result, through these three different studies, it might be seen that thinking is a complex process and is carried out through different media. On the other hand, language takes place in only a part of this complex process and cannot affect the whole process of thought.



## CHAPTER 5

### AN ARGUMENT ABOUT PRECEDENCE OF THOUGHT OVER LANGUAGE

In this chapter, our major claim that thought precedes language will be presented. Contrary to the argument that language is a lens that might shape what people think, I shall claim that the processes of thought might occasionally be possible without the contribution of language. Furthermore, the effect of language on the processes of thought is solely possible when the processes of thought have a need it. Unfortunately, language has a limited impact on the processes of thought.

The claim that I need to scrutinize is that thought is not able to be thoroughly shaped by language. In order to prove the claim, the focus will be twofold. Firstly, I shall define what thought is in several perspectives and then briefly analyze the processes of thought in terms of neurological aspects. And then, the focus will shift from people to animals. After defining what language is, I shall differentiate the communication systems of animals and language. Moreover, I shall analyze the thinking capacity of animals with the support of empirical studies that will show us animals may think without having a language in a manner that human beings have. Thus, it will be shown that thinking without language is possible. In conclusion, in the light of these focuses, my main claim, which defends precedence of thought over language, will be presented.

#### **5.1 What is thought?**

Definition of the thought may be varied according to the discipline in which it is used. In the basic cases of the discipline of philosophy, it might be said that thought is the product of the act of thinking that develops in response to internal or external stimuli. Moreover, without the requirement of external stimuli, the product called thought might emerge due to the connections that the representations in our minds establish with each other. The word *thinking* is used to put into words different mental activities

and processes. Making a judgment on a subject, reaching new information by making a connection between concepts, remembering something, planning an event, making an explanation are all expressed by the act of thinking.

From the psychological point of view, thought is considered in a similar framework. According to the science of psychology, thinking is the work of reaching some abstractions, creating concepts, and solving problems by using mental functions such as judgment and understanding.

In the process of thought, thoughts are produced through connections between concepts acquired by pluralization and generalizations of impressions obtained from the physical world. Actually, these impressions are representations of the physical world in our brains, and they are able to be stored in the form of different mediums such as words, images, or sounds. While thinking, people use these representations of the physical world in their brains rather than directly using the objects of the physical world itself. For the realization of thinking, certain elements such as images, concepts, and categories are needed. Image is the representation of objects and events perceived through sense organs. Objects and events that gain meaning in the perception process are visualized at any time. Thus, it is no longer necessary to see an apple to think about an apple. The images in mind are initially singular. Then, these images are pluralized and generalized with new experiences. Thus, they become abstract, and ultimately, concepts that are products of the human mind are formed. Images and concepts in mind are classified according to the similarities and differences between them. So, the categories in our minds arise. Objects of the world might be divided into categories. For instance, rose, jasmine and daisy are included in the flower categories because of their similarities.

Now I shall proceed with the biological definition of thought. In terms of physiology, thought might be defined as emerges from the interaction of neuron clusters formed by brain cells called neurons and do not have to result in behavior. During the interaction of clusters of neurons, many connections are formed, each of which forms a thought. At this point, where I need to discuss what neurons carry, mental representation should

be explained because the information stored in neurons is within the definition of mental representation. “The most productive way to think about mental representations is as data structures instantiated in the brain, which collectively create our sense of the real world” (Jackendoff, 2019).

Any information instantiated is stored in neurons. As a result of the interaction of these stored data, neuron connections that construct thoughts are formed. At this point, the mode of encoding and retention in memory should be explained. This explanation is needed because in order to see the complex structure of thought, it should be seen how the data, which are the building blocks of thought, are stored in our minds. This claim does not mean that the medium of data stored and the medium of data used in the processes of thought are identical. Of course, somehow, by the data stored, the brain might recall or use them in a different medium than its stored medium. Actually, what needs to be emphasized is this; the brain neither store knowledge only in the form of words nor think only with verbal media. While processing information into memory, the brain, which uses various media, recalls and processes these data in many ways, primarily visual, to reveal the product we call thought. Thus, it is no longer sufficient to say that this product is shaped only by words and syntax rules.

### **5.1.1 Memory, Learning, and Visual Images**

Schacter and Wagner (2013) explain memory as follows; “Learning refers to a change in behavior that results from acquiring knowledge about the world, and memory is the process by which that knowledge is encoded, stored, and later retrieved” (p. 1441). Also, according to them, memory might be classified as two-dimensional. The first one is the time course of storage, and the second one is the nature of the information stored. It will proceed through the time course of memory divided into short term and long term. “The ability to store information depends on short-term memory, called working memory, which maintains current, albeit, transient representations of goal-relevant knowledge” (Schacter & Wagner, 2013, p. 1442). Words of the authors about short-term memory will help show that the media used in the processes of thought is not only verbal.

In humans, working memory consists of at least two subsystems- one for verbal information and another for visuospatial information.... We use the verbal subsystem when we attempt to keep speech-based (phonological) information in conscious awareness, as when we mentally rehearse a phone number just obtained from an operator.... The visuospatial subsystem of working memory retains mental images of visual objects and of the location of objects in space. (Schacter & Wagner, 2013, p. 1442)

As a result, when looking at how items in the short-term memory are stored, it might be concluded that the verbal subsystem and visuospatial subsystem are included in working memory. In other words, memory is able to store information in various forms. Therefore, it might be noticed at least two of its types here.

Beck's research on automatic thoughts provides an excellent example of this issue. Beck, Emery, and Greenberg (1985) assert that "Many patients experience automatic thoughts not only as unspoken words in their mind but also in the form of mental pictures or images" (as cited in Beck, 2011, p.277). In other words, visual images are also included in the automatic thoughts of the patients. When processing information, it is not only processed in the verbal medium. An image of knowledge is formed in mind, and within that image, various data such as visual and auditory might be found. The information in our minds that is not stored only verbally is not used only verbally.

Moreover, Beck (2011) refers to an example from his experiences as follows:

Sally had the thought, "[My classmate] will think I'm imposing on him if I ask [for a copy of his notes]." Upon questioning, I determined that when Sally experienced this thought, she simultaneously envisioned her classmate with an irritated look on his face. This image was an imaginal automatic thought. (p. 277)

There is a widespread belief that the processes of thought are conducted only through verbal medium since words are the most common tool in expressing thought. In fact, as seen in the Sapir-Whorf theory, it is assumed that language is needed to perceive the objective world and represent it in mind. However, Rudolf Arnheim shows in his book *Visual Thinking* that such an assumption may actually be mistaken. According to Arnheim (1969), the thinking process mostly takes place in the realm of images. Moreover, thinking is generally based on images of the world we live in for there to be

something to think about. According to him, concepts are perceptual images, and the processes of thought are proceeded with these images by a majority. Thus, when a physical object or an abstract concept is mentioned, an impression of that word always comes to mind with the environment.

While Arnheim argues that language is not indispensable for the processes of thought, he does not deny its contribution to the processes of thought.

More in general, language helps to offset a tendency in perception to see things as pure shapes. Having been coined by practical needs, language tends to suggest functional rather than formal categories and thereby to go beyond mere appearance. (Arnheim, 1969, p. 239)

So, language helps the process of naming and bridge images. Moreover, Arnheim (1969) emphasizes that language creates one of the storages and retrieval systems that only make information accessible, but it does not require productive thinking. For example, in the sentence of "Person A is a doctor," information might be obtained from the verbal expression because the sentence contains information about the subject. However, when asked whether person A and person B are able to understand, the verbal expression alone is not sufficient. In this case, to know whether the person understands or not, it is necessary to go beyond the words, go to the experience with both people, and reveal a relationship that has not been established before. At this point, it might be seen that using only verbal media may be insufficient for the process of creative thinking. As a result, Arnheim shows visual images; that is, visual thinking takes place in the background. Moreover, it has a prominent role in the thinking process, although people mostly use language while expressing themselves.

The process of thinking is able to be carried out using images, words, sounds, or different media. The process has a complex structure that includes various neurons placed in different parts of the brain. These might be words, images, sounds, scents. The way in which information is stored in our memory, whatever type of information people use while thinking, that is, when neuron clusters communicate with each other, that medium is activated. So, people do not just think in a verbal medium.

## **5.2 Thinking without Language in Animals**

Studies demonstrating how animals think without language will be presented in this section to demonstrate that language does not precede thought. If it might be demonstrated that animals carry out actions called “thinking without language,” it will cast doubt on the claim that language shapes the processes of thought completely.

### **5.2.1 What is language?**

At the outset, the definition of language should be made first. When viewed from a broad perspective, any communication form of individuals of the same or different types might be called “language.” Seen in this way, it becomes a term that encompasses all forms of symbolic expression. However, narrowly it refers to verbal language that is unique to humans only. According to Picq et al. (2006), language is a limited system that allows creating an unlimited number of statements in accordance with a syntax of sensible units combined between languages (as cited in Altnörs, 2014).

Now, the focus should be on the distinctive features of this human verbal language from various forms of communication between animals. Thus, it will be shown that not every symbolic form of communication is a language.

Barry Allen mentioned this subject under the title *Language* in his book *Artifice and Design*. He emphasizes that the most significant difference between communication systems and language is the syntax that language has.

Allen expresses this difference with the following words;

The cognitive and semiotic singularity of language is syntax, meaning rules by which changes of word form correlate with changes in reference and truth value. It is syntax, a very specific sort of “complexity,” that makes language practically impossible for other species, and it is a syntax for which human neonates are dramatically preadapted. (2008, p. 30)

According to Allen (2008), these differences due to syntax may be listed as follows;

a) While animal call systems are only helpful for communication, language provides its users storing information and thinking anything through abilities thanks to syntax.

Allen emphasizes here that language is not only used to communicate but also has other functions.

b) Screaming vervet performs no speech act. Instead, the calls are isolated signals, fixed sequences without the syntax of a sentence.

Some kind of signals, such as screaming, dancing is a part of the system; however, they are not a kind of speech.

c) Without the syntax, animal communication is locked in the here and now.

The cause of this claim is that syntax provides us referring to time for the future or past.

As a result, it might be said that the communication systems between animals and the human-specific tool we call language are quite different, and the most significant source of this difference is the *syntax* of a language. We accepted that animals communicate not with language in the usual sense but through a unique communication system. Now comes the question of at what point of these communication processes animals think. Animals always notice the movements of each other. They are also adept at reacting to the movements of both their own and other kinds of animals because their survival often depends on it. For this reason, they often act automatically and requiring no thought to react. Dawkins explains this situation as follows;

Simple rules of thumb, assembled by natural selection into activation at the right time (search for flowers as a colony is building up; search for small dark holes when swarming; search first and then dance, etc.), are all that is required to explain these examples of bee behavior. (1998, p. 66)

For example, Australian zoologist Karl von Frisch conducts a study on how bees communicate with each other about the location of food. In his book, *The Dancing Bees*, he explains the research. As a result of the research, it is revealed that a worker bee informs other bees about the position of the food in relation to the hive and even the quality of the food through a kind of dance. Obviously, there is an exchange of information between bees. However, this exchange of information may not mean that bees are thinking because, as Dawkins (1998) states, the complex behavior of bees in

order to convey such detailed information might actually be explained by the application of specific rules planned to act at the right time. As a matter of fact, this is an automatic reaction. According to Dawkins (1998), the phenomenon called thinking has two main characteristics. The first is that the thinking creature has some sort of internal image of the world in its mind. Thus, it not only reacts to stimuli but also carries in his mind the memory/impression of things that were there in the past. Second, a change in the internal image allows the thinking creature to predict what might happen in the new situation.

Natural selection and basic trial and error learning can between them achieve a great deal with simple rules, particularly in constant or predictable environments. But in dealing with unpredictability and the challenge of the new (when 'new' means that neither individual nor its ancestors have met that situation or anything similar before)- that needs something more. That needs "thinking." (Dawkins, 1998, p. 101)

It might obviously be noticed that his ideas about the processes of thinking without any discrimination between the thought processes of animals and the thought processes of human beings.

### **5.2.2 The Processes of Thought in Animals**

In his book, *Through Our Eyes Only- The search for Animal Consciousness*, Dawkins (1998) mentions two requirements of thought while he is defining what thought is. As I have stated in the previous section, these requirements are having internal images of the physical world and making a prediction about the new situation. What is more to this definition, in his book *What Do Animals Think and Feel? An Investigation into Emotion and Behaviour*, K. Brensing investigates the processes of thoughts and puts forwards that the behaviors of animals fit into these processes by empirical studies on some kind of animals. This investigation of Brensing is based on the four-stage model of what thinking actually entails of the French philosopher Joëlle Proust. These stages are processes of thought that go from simple to complex. According to Brensing (2020), describing and testing through experiment every form of thought might be possible by way of using the stage model. Herein, I shall analyze the four-stage model of Proust in detail as it is mentioned in the book of Brensing.

According to Proust (2005), stage A is related to stimulus-response. This stage is about receiving the stimuli and responding to these stimuli by behavior. For example, if a tortoise is nudged, its response will most likely hide in its tortoiseshell. Actually, this is a reflexive act, and the turtle gives this response involuntarily. Foraging for food or protecting itself from harmful environmental influences are some of the processes governed by this stimulus and response mechanism.

Stage B is related to proto-representation. The reason why this stage is called proto-representation is that the representation in the mind still depends on external stimuli, and accordingly, this process in the mind does not have a purely intellectual structure.

It is the stage in which the image of the environment is created in mind for the first time. At this stage, reacting to the stimulus with behavior is left behind. The stimulus triggers a mental process, and the object causing the response is visualized in mind. In principle, proto-representation needs external stimulus for the image to be created in the mind, and this helps to confirm the image to be formed in mind with the data coming from two different sense organs. If the mental images formed by two different sensory representations overlap, the probability of misinterpretation of the image formed in mind will be likely to be reduced. To illustrate, when we hear a rustle in the bushes, looking in that direction to see if it is a bird or a more dangerous creature is a move to overlap the auditorial and visual data, and it is actually a control mechanism. The overlapping of the images created in mind by the data received from two different sense organs has now turned into a mental process because overlapping these two requires a mental process. Accordingly, when an image of the object that causes the stimulus is mentioned, it comes to the issue of object permanence capacity. For example, in the absence of object permanence, a predator will forget the prey it is chasing when its prey is out of sight. However, it might also be seen in documentaries that instead of giving up chasing their prey, animals take action to get it out of their prey from the hiding place.

Stage C is related to category formulation and more troublesome than previous stages. At this stage, categories must be able to be formulated. These categories might be

related to colors, sounds, or images. Furthermore, without any external stimulus, behavior related to those categories is exhibited. For example, the fact that crows collect shiny objects may be associated with having a category for shiny for them, and it does this without any external stimuli. Collecting shiny objects without any external stimuli seems to be a significant achievement in terms of object permanence because it seems unlikely that the crow might exhibit this behavior without the bright objects category having a place in its mind. An example of this stage Brensing gives in his book is about coal tits. According to Brensing (2020), animals such as coal tits are able to distinguish between alarm calls and mating calls in their communication systems, and the ability to distinguish these sounds is related to the categorization of sounds and the object permanence of these calls.

Stage D is related to full mental representation. The mental representations at this stage have no connection with the original external stimulus, and this paves the way for processes that might only be carried out with mental representations without external stimuli. Namely, it is about being able to reflect on thought and reviewing decisions; that is actually metacognition.

In this section, I have tried to reveal these stages that Proust put forward, which analyzes the thinking processes in 4 steps, and how the behavior of animals might be related and compatible with them. The most striking and crucial part is the mental representations of animals and the mental processes that might be carried out with the permanence of the object. At this junction, after the argument that the object might be kept in mind as a permanent mental image, I shall touch on the use of these mental representations to carry out the thinking process, in other words, the connection between these representations. According to Brensing (2020), if the elements that form thought might be brought together in a meaningful way, it will be called “logical thinking.”

Herein, I shall describe a six-phase experiment from the article of Joseph Call, “Inferences About the Location of Food in the Great Apes,” which provides evidence that animals are able to reason. According to Call (2004), The first phase of the

experiment is to assess whether the great apes are able to use auditory and visual data to find food in one of the two cups. The experimenter sits facing the subject behind the transparent platform during the experiment and places two covered cups on the platform behind an opaque screen. Then, after showing the prize in his hand to the subject, he inserts his hand into both cups in turn and closes the mouths of the cups. It removes the opaque screen between and moves the cups to a predetermined position and randomly applies three different sensory modality conditions: visual, auditory, and non-informational control modality.

In the visual modality, the experimenter opens the cup on the left and shows the contents of the cup to the subject, and closes the cup. Then it does the same for the cup on the right. Thus, the subject sees the location of the reward. In the auditory modality, the experimenter lifts the left cup and, after shaking it for a while, puts it back in place and then does the same for the right cup. In this modality, shaking the prize cup made an audible sound. In the last modality, no information is given to the subject. The experimenter stood motionless without opening or shaking the cups. In this modality, what could happen if the experimenter accidentally gave clues were evaluated. After each of these conditions is applied randomly, the experimenter pushes towards the subjects so that they are able to choose one of the cups in the prepared setup. The first cup that the subjects touched is evaluated as to their own choice. During the experiment, all conditions are equally distributed and randomly presented to the subjects.

In the other steps of the experiment, the mechanism in the first step remains the same, but some conditions are changed and reapplied in order to get a more accurate result. In the second phase, the subjects are given partial information, and it is investigated whether they are able to find the food with this partial information. In some cases, information is given about both cups, while in others, only the award-winning or only empty cup is given. In the third phase, the subject is presented with an inverted and silent cup, along with a shaken but empty cup that does not make a sound because it is empty, in order to investigate the possibility of the subjects escaping from the shaken but not making noise in the previous stages. The purpose of this stage is to eliminate

the counter-argument created by claiming that the previous stage might be explained by avoiding the empty cup that is shaking but not making a sound. In the fourth phase, an empty cup does not make a sound when stirred in a circular motion, and a cup that makes a sound when shaken is presented with a reward inside. Then, while the empty cup is shaken, the full cup is stirred in a circular motion, but no sound is produced. For control, the last two cups are mixed in a circular motion. The aim here is to measure whether the subject will choose the cup that does not make a sound when shaken instead of making a sound when shaken. In the fifth phase, the experiment is continued by presenting a clue that consists of tapping the full cup loudly and the empty cup silently to emphasize that there is food inside. Here, unlike the first stage, the sound is produced by hitting the glass. In the sixth and last phase, the sound produced when the glass with the prize is shaken is recorded and played. During this time, no sound is actually produced, but the movements directed at the cup are the same as those applied to the cup with the prize when the sound in the recording was made.

The experiment concludes with the claim that it provides evidence to support the idea that subjects are seeking causal explanations at some level; that is, they are reasoning. The most compelling evidence is whether the relationship between signs and food is a logical necessity. The auditory cue produced by shaking the glass and a logical necessity is used effectively by the subjects to find the food; however, the auditory cue produced by tapping the glass with no logical necessity cannot be used effectively.

### **5.2.2.1 Additional Experiments on the Thought Processes of Animals**

After discussing the argument that analyzes the thinking process that might also apply to animals, I will now give you a few different experiments overlapping the argument. Herbert Terrace conducted research on pigeons on this very subject and published an article, “Animal Cognition: Thinking without Language.” Terrace (1985) shows that the concept of order might be taught to animals in his research. During the study, pigeons are taught to eat the baits on the colors reflected on the ground in each stage, from simple to complicated. This set sequence and its follow-up are made more complicated at each stage. The cause of gradually becoming more demanding of the

experiment is eliminating the possibilities showing the pigeons are not able to proceed in the processes of thought.

At the last stage of the experiment, Terrace set up a system to rule out the possibility that a simple or complex memory might explain the behavior of pigeons. First, the pigeons are taught to peck the colored lights in the desired order, regardless of the order in which they are displayed. Thus, pigeons learn that they are able to get food when they peck 3 colors of light in the correct order. Then, they are confronted with a new situation and expected to peck one colored light and two new shapes in the correct order. Neither of these new shapes are seen before by birds. The pigeons are divided into two groups, and while the colored light in the order expected from the first group is in the same position as they have learned before, this colored light is in a different position in the second group. However, the physical positions of all three stimuli are constantly changing in order to eliminate the possibility of finding the correct order by learning the positions. The result of this experiment is the following; if birds are learned to think about the order of colored lights in primary training, they should be able to apply it to the new situation. The evidence showing that the birds are thinking would be that the first group solved the problem more easily than the second group. As a result of the experiment, Terrace shows that there is a big difference between the two groups. In the end, the first group accomplishes the task much faster than the second group. So, it might be seen that in the first part of the experiment, the birds react not to certain stimuli at a given time but according to an abstract concept, in what order they should peck. "Learning refers to a change in behavior that results from acquiring knowledge about the world" (Schacter and Wagner, 2013). According to this definition, birds have learned the concept. At the final stage of the experiment, Terrace shows that the pigeons are able to apply the knowledge learned from the previous rankings to the second situation before them. Furthermore, when the pigeons apply this sequence to the following situation, they act according to the definition of thought.

Thereupon, it should be clarified that the behavior of the pigeons in this experiment is not the result of classical conditioning. On the contrary, according to the experiment of Terrace, the pigeons have learned the concept of *order*, and they use this learned

concept to make a prediction about the new situation. As it is known, classical conditioning is to show the response it shows against natural stimulants against artificial stimulants as a result of repetitions. However, birds are constantly exposed to new conditions and are expected to use previously learned knowledge in a new situation. On the other hand, operant conditioning is the acquisition of new behaviors by looking at the results of the behavior. In other words, it is the desired behavior to reach a reward or escape punishment. At this point, although the birds have to peck the correct order to reach a reward, it is beyond this definition to expect the learned information to be used in the new situation in the continuation of the experiment.

As it might be seen in this experiment, animals are able to think productively. “By means of their perceptual concepts, animals solve problems that look elementary if judged by human standards but have the striking characteristics of genuine productive thinking” (Arnheim, 1969, p. 228).

If I take a closer look at the thought in animals, first, the definitions of thought and concept should be examined. I have defined thought as the product of the representations in our mind as a result of the connections they establish with each other and the concept as the mental products obtained as a result of the pluralization and generalization of the impressions obtained from the physical world. Human beings generate ideas using concepts. If there is an external stimulus that activates this production process, it is called online thinking, and if there is a process that activates without external stimulus, it is called offline thinking. The best examples of the concepts that animals have and how they use these concepts in the processes of thought might be found in experiments on their social life. Primates have always been one of the kinds of animals living socially. They are found in herds and groups. They have cognitive skills such as using tools, producing, performing cultural rituals, and problem-solving.

In addition to these, the example of reasoning that animals are able to use various methods and tools to access the food they need might be given. Throwing walnut by a magpie to crack it, using a tree branch to gain access to the anthill, or even wetting it

to cling some ants on it by a chimpanzee might be presented as additional examples. Reaching the food might be their instinctual motivation; however, the reasoning is neither an explanation of conditional learning nor instinct. When looked at the difference between the thought of animals without language and the thought of human beings who are able to use language, what clearly be noticed is that the thought of animals is limited to that moment.

A chimpanzee uses his powers of abstract thought ingeniously for the practical purpose of escaping from an enclosure or fashioning a tool. But there is no evidence he can think about how one could make a short stick longer if the problem does not face him then and there (Arnheim, 1969, p. 228)

In fact, as I have discussed earlier in the view of Allen on language, this is an advantage that the syntax of the language that human beings have and animals do not have. Furthermore, they do not have a language as commonly known sense. To give an example of the concept primates have, Brosnan and de Waal (2003) mention this topic in their “Monkeys Reject Unequal Pay” article based on the experiment on monkeys. In the experiment, two monkeys are placed in two separate cages so that they are able to see each other clearly. In addition, both monkeys are able to clearly observe what is given to the monkey in the opposite cage during the experiment. Firstly, both monkeys are given the grape they immensely like in return for the stone in their cage. There is no problem during this process, which is repeated 25 times. Later, grapes are given to the monkey in one of the cages in return for giving the stone, while the other monkey is given cucumbers which they like less than grape in return for the stone. The monkey given a cucumber is aware of all the events, overreacts each time, and throws the cucumber back to the person giving it. The reaction of the monkey, who wants the grape he incredibly loves, seems to be against inequality. From this experiment, it might be inferred that the ape has the concept of justice. Indeed, the concept of equality and justice in animals might be observed. If they had no concept of equality, there would be no reaction to this situation. As a result, it might be assumed that animals have concepts and are able to think through their concepts.

Regarding the section on thinking process in animals, I have reviewed different experiments focused on different topics by many different scientists who tests animals

for different processes of thinking. The point where they all overlap in one way or another is the mental images that animals have and how they are able to think, reason, and behave using them somehow. Of course, this overlap does not bring a definite conclusion to the fact that animals are able to think using concepts; however, I think it would not be wrong to say that it at least provides an improvement in this way.

To sum up, in this chapter, I have aimed to assert the argument that thought precedes language. For this purpose, it has been analyzed that the processes of thought in both humans and animals. Firstly, the definition of thought has been made, and how the thought process progresses in the human brain has been examined. It is seen that the thought processes of human beings do not only proceed with verbal media, so occasionally, there is a possibility of thinking with verbal or auditory media. Therefore, the following deduction might be made; if the processes of thought proceed with more medium than verbal, language might shape the processes of thought in a limited way. Then, a language has been defined to examine the subject of thinking activity without language, and it has been shown that animals have a communication system rather than natural language in the known sense and are able to think without language. Thus, I shall make a prediction from the facts that human beings do not carry out the processes of thought through the improvements of language, and animals might think without having a language, each thought process of human beings is not should be continued with verbal media. “What makes language so valuable for thinking, then, cannot be thinking in words. It must be the help that words lend to thinking while it operates in a more appropriate medium, such as visual imagery” (Arnheim, 1969, p. 231-232).

Consequently, in line with the central claim, it is undeniable that the most common and dominant tool used in the formation and expression of our thinking is the natural language of humans. For this reason, it is not difficult to assume that the processes of thought are possible only with language. Indeed, it is assumed that language can shape thought by some thinkers. However, it should not be forgotten that language can merely affect the processes of thought's related part of the language. So, thought might not be wholly dominated by language because humans do not always use language medium to think or to express their thoughts. The thought patterns that emerge through music

and smell are the best examples of this claim. A scent might take us into memory, without words, as a scene. These examples show us the transition between thoughts created by the scent and visual medium. Besides, Carruthers has an excellent example of this very subject. Carruthers (1996);

Moreover, sometimes our conscious thoughts can consist entirely of images of objects. The thoughts of composers may sometimes consist entirely of auditory images, as they manipulate images of melodies and chord patterns, trying out different possibilities until hitting upon something satisfies them. (p. 36)

In addition, it might not be denied that thought is undoubtedly represented by art apart from language. It is a known fact that thoughts and feelings are expressed through music, photography, or painting.

## CHAPTER 6

### CONCLUSION

In this thesis, I have argued that processes of thought contain more media than verbal ones, and therefore being shaped of thought by language is only possible within some specific frameworks.

In the first stage, assessments arguing that language shapes thought have included. According to this view, language is a lens. Thoughts of human beings and even their perceptions of the world are shaped within the framework of words and syntax rules of the language. However, the researchers in this section, especially Sapir and Whorf, reduces cognitive processes to language. Moreover, they remain incomplete because these claims are made without taking into account the structure of cognitive processes. Although thought is generally considered possible with and get a form with natural language, it includes comprehensive and complex processes which may not proceed with a language. In the second stage, the views arguing that language has a partial effect on thought have been discussed. From their aspects, language is merely able to shape thought when speaking. The insufficiency of these views may be based on the neglect of the undeniable role of language when the formation of thought. In the third stage, studies emphasizing the complex structure of thought and showing that language has a limited effect on the processes of thought have been analyzed.

In the last and leading stage, I have argued that the major claim of the thesis, the thought precedes language. The claim is suggested by two focuses the diversity of the media of thought in human beings and the existence of various thinking processes that might be possible without language in animals. In my initial focus, I have examined the thinking process in humans from a neurological perspective and revealed that the information to be used in the thinking process is not only stored verbally but also with images, sounds, and smells, and these various mediums are used in the thinking process. Then,

I included examples from the studies carried out on the thinking processes of human beings on this subject, in which people describe what goes through their minds during their thought process. Based on these, I have argued that the thinking process is not only under the control of verbal media.

In my second focus, I have first revealed that the communication systems of animals are not the same as language; that is, animals do not have a language. Then I have studied the thought processes of animals and explained the experiments conducted by different scientists at different times. I have shown what they all have in common: they provide various data on the fact that animals might have mental representations, concepts, and reasons using these impressions. Thus, I concluded my second focus by claiming that thought processes are possible in animals without language.

In conclusion, I have come to two conclusions from the empirical studies I have presented on both of my focuses. The first is that the thought process is not entirely under the control of language due to the use of media such as images, sounds, and smells in addition to the verbal in the process of thought. The second is that animals, which have a communication system among themselves instead of language, might also carry out a thought process by using the concepts they have. Herein, of course, the contribution of language to the thought process might not be denied. One notable example manifests itself in the way language improves our perception of time. However, in the processes of thought, data expressed by many different mediums, as well as verbal, also play a role. Studies claiming that language entirely gives a shape to thought most probably overlook the scope of content and structure of thought. The central claim is that the thought overreaches the potential of the language. What prevents language from dominating thought is the fact that it is not the only source and criterion of thought.

## REFERENCES

- Allen, B. (2008). *Artifice and design: Art and technology in human experience*. Cornell University Press.
- Altınörs, A. (2014). *50 soruda dil felsefesi*. Bilim ve Gelecek Kitabevi.
- Arnheim, R. (1969). *Visual thinking*. University of California Press.
- Beck, A. T., Emery, G., & Greenberg, R. L. (1985). *Anxiety, disorders and phobias: A cognitive perspective*. Basic Books.
- Beck, J. S. (2011). *Cognitive behaviour therapy: Basics and beyond*. (2nd ed.). The Guilford Press.
- Boroditsky, L., & Gaby, A. (2010). Remembrances of Times East: Absolute Spatial Representations of Time in an Australian Aboriginal Community. *Psychological Science*, 21(11), 1635-1639. Retrieved July 11, 2021, from <http://www.jstor.org/stable/41062425>
- Brensing, K. (2020). *What do animals think and feel? : An investigation into Emotion and Behavior*. Pegasus Books.
- Brosnan, S. F., & de Waal, F. B. M. (2003). Monkeys reject unequal pay. *Nature*, 425(6955), 297–299. <https://doi.org/10.1038/nature01963>
- Brown, R. (1976). Reference in memorial tribute to Eric Lenneberg. *Cognition*, 4(2), 125–153. [https://doi.org/10.1016/0010-0277\(76\)90001-9](https://doi.org/10.1016/0010-0277(76)90001-9)
- Call J. (2004). Inferences about the location of food in the great apes (Pan paniscus, Pan troglodytes, Gorilla gorilla, and Pongo pygmaeus). *Journal of comparative psychology* (Washington, D.C.: 1983), 118(2), 232–241. <https://doi.org/10.1037/0735-7036.118.2.232>
- Carruthers, P. (1996). *Language, thought, and consciousness: An essay in philosophical psychology*. Cambridge University Press.
- Cevizci, A. (2010). *Felsefe sözlüğü*. Paradigma Yayınları.
- Clark, E. V. (2003). Languages and representations. In D. Gentner & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the study of language and thought* (pp. 17–24). MIT Press.

- Dawkins, M. S. (1998). *Through our eyes only? : The search for animal consciousness*. Oxford University Press.
- Gaby, A. R. (2006). *A grammar of Kuuk Thaayorre*. [PhD Thesis, University of Melbourne]. Minerva access. <http://hdl.handle.net/11343/39145>
- Jackendoff, R. (2019). Mental representations for language. In P. Hagoort (Ed.), *Human language: From genes and brains to behaviour* (pp. 7–17). MIT Press.
- Keller, C. M., & Keller, J. D. (1996). Imaging in iron, or thought is not inner speech. In J. J. Gumperz & S. C. Levinson (Eds.), *Rethinking linguistic relativity* (pp. 115–129). Cambridge University Press.
- Kilham, C., Pamulkan, M., Pootchemunka, J., Wolmby, T. (1986). *Dictionary and sourcebook of the Wik-Mungkan language*. Summer Institute of Linguistics.
- Levinson, S. C. (1997). From outer to inner space: linguistic categories and non-linguistic thinking. In E. Pederson & J. Nuyts (Eds.), *Language and Conceptualization* (pp.13–45). Cambridge University Press.  
<https://doi.org/10.1017/CBO9781139086677.002>
- Pederson, E. (2010). Cognitive Linguistics and Linguistic Relativity. In D. Geeraerts, H. Cuyckens (Eds.), *Oxford Handbooks Online* (pp. 1012-1045). Oxford University Press. DOI: 10.1093/oxfordhb/9780199738632.013.0038
- Picq, P., Victorri, B., & Dessalles, J. L. (2006). *Les origines du langage*. Le Pommier.
- Proust, J. (2005). Das intentionale Tier. In D. Perler, M. Wild. (Eds), *Der Geist der Tiere* (pp. 223–244). Shurkamp Verlag.
- Sapir, E. (1929). The status of linguistics as a science. *Language*, 5(4), 207–214.  
<https://doi.org/10.2307/409588>
- Schacter, D. L., & Wagner, A. D. (2013). Learning and memory. In *Principles of neural science* (5th ed., pp. 1441–1459). McGraw- Hill.
- Slobin, D. I. (2003). Language and thought online: Cognitive consequences of linguistic relativity. In D. Gentner & S. Goldin- Meadow (Eds.), *Language in mind: Advances in the study of language and thought* (pp. 157–191). MIT Press.
- Slobin, D. I. (1987). Thinking for speaking. *Proceedings of the Thirteenth Annual Meeting of the Berkeley Linguistics*, 435–445.  
<https://doi.org/10.3765/bls.v13i0.1826>

- Smith, I., & Jonhson, S. (2000). Kugu Nganhcara. In R. M. W. Dixon & B. J. Blake (Eds.), *Handbook of Australian languages* (Vol. 5, pp. 357–489). Oxford University Press.
- Sommer, B. A. (1991). The deixis of space in Oykanga. In B. Merry (Ed.), *Essays in honour of Keith Val Sinclair: An Australian collection of modern language studies* (pp. 273–282). Department of Modern Languages, James Cook University of North Queensland.
- Terrace, H. (1985). Animal Cognition: Thinking without Language. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 308(1135), 113-128. Retrieved July 11, 2021, from <http://www.jstor.org/stable/2396288>
- Whorf, B. L. (1940). Science and linguistics. *The Technology Review*, 42(6), 229–231.
- Whorf, B. L. (1956). *Language, thought and reality: Selected writings of Benjamin Lee Whorf* (4th ed.). MIT Press.

## APPENDICES

### A. TURKISH SUMMARY / TÜRKCÖ ÖZET

#### DÜŞÜNCENİN DİLİ ÖNCELEMESİ TEMELİNDE DİL VE DÜŞÜNCE İLİŞKİSİ

Bu tez, düşüncenin dili öncelemesi ile ilgilidir. Başlangıç noktası, edinilen dilin insanların nesnel dünyayı nasıl algıladıklarını etkileyip etkilemediği sorusudur. Birçok düşünür ve dilbilimci, dilin söz dizimi aracılığıyla bakış açısını değiştirerek düşüncüyü şekillendirebilen bir mercekle olduğunu düşünür. Bazıları dilin düşüncüyü şekillendirdiğini kabul etse de bu etkinin kısmi olduğunu vurgular. Düşüncenin dilden daha karmaşık doğasına odaklanan diğerleri ise düşüncenin dil tarafından tamamen şekillendirilemeyeceğini savunurlar. Bu tez düşüncüyü, onun karmaşık ve kapsamlı yapısını analiz edecektir. Ayrıca dil olmadan düşünmenin imkanını da sunacaktır. Böylece düşüncenin dilden önce geldiği iddia edilebilir.

Düşüncenin dili öncelediği iddiasını sunmadan önce, dil-düşünce ilişkisi bağlamında daha önce yapılmış araştırmaları ve iddiaları inceleyeceğim.

İkinci bölümde, dilin düşüncüyü şekillendirdiği fikrine odaklanırken, Sapir-Whorf hipotezi, Brown'ın İngilizce renk terimlerinin kodlanabilirliği üzerine yaptığı araştırma ile Boroditsky ve Gaby'nin zamanın mekânsal temsilleri üzerine yaptığı araştırmaları inceleyeceğim. Bu üç çalışmada dilin düşüncüyü nasıl etkilediği ve şekillendirdiği konusu zaman, mekân ve renk gibi farklı odaklar açısından ele alınacaktır.

Üçüncü bölümde, dilin düşünce üzerinde kısmi bir etkisi olduğunu iddia eden yaklaşımları ele alacağım. Odakta yer alacak iki çalışma var; Slobin'in *Konuşma için*

*Düşünmesi ve Clark'ın Dilbilgisel Kategorilerin ve Sözcüksel Seçimlerin Etkisi Üzerine Araştırması.* Slobin ve Clark, dilin düşünceyi etkilediği argümanını kabul etseler de bu etkinin insanların konuşma için düşünceleriyle sınırlı olduğunu savunmaktadırlar.

Dördüncü bölümde, düşünmenin daha karmaşık bir yapıya sahip olduğunu öne süren çalışmalarını inceleyeceğim. Levinson, Carruthers ve Keller ve Keller'ın araştırmaları odak noktası olacaktır. Bu çalışmalar, dilin düşünce üzerindeki etkisinin sınırlı olduğunu göstermek için farklı düşünme biçimlerinin mümkün olduğunu vurgulamıştır. Bu yüzden onlar için zihinsel aktivite sadece sözlü ortam aracılığıyla düşünmekle ilgili değildir.

Son olarak, beşinci bölümde, düşüncenin dili incelemesi hakkında bir argüman sunacağım. Başlangıçta düşüncenin ne olduğunu tanımlayıp düşünce sürecini inceleyerek karmaşık ve kapsamlı bir yapıya sahip olduğunu gösterip ardından dilin tanımını yapacağım ve dil değil iletişim sistemine sahip olan canlıların da düşünebildiklerini gösteren araştırmalara yer vereceğim. Böylece dil olmadan düşüncenin mümkün olabildiğini göstermiş olacağım. Bu iki odak sayesinde ise düşüncenin imkânının sadece dilde olmadığını yani düşüncenin dilden önce geldiğini söyleyen ana iddiamı ortaya koyacağım.

### **I. Dil Düşünceyi Şekillendirir**

Bu yaklaşımın düşünürleri, dil ve düşünce arasında sıkı bir karşılıklı bağımlılık olduğunu kabul eder. Onlara göre her dilin söz dizimi ve sözlüğündeki kelimeler düşünceyi etkileme gücüne sahiptir. Bu bölümde göreceğimiz araştırmalar, dilin düşünce üzerindeki etkilerini kültür, renk terimleri ve mekânsal temsiller gibi farklı açılardan tartışmaktadır.

Sapir-Whorf hipotezi, dili bir mercek olarak kabul eden yaklaşımdır. Bu hipoteze göre, dilin gramer yapısı insanların dünyayı algılayışlarını doğrudan etkiler. Ancak Sapir-Whorf hipotezi bu yaklaşımın iyi bilinen son şeklidir. Hipotezin oluşma sürecine bakacak olursak Edward Sapir ile başlamak gerekir. Edward Sapir'in öğrencisi

Benjamin Lee Whorf, Sapir'in fikrine katılır, ancak dilin düşünceyi belirlemekten çok şekillendirdiğini savunur. Yerli Amerikan dillerini inceleyen Whorf, Hopi dahil birçok dili araştırmıştır. Sapir-Whorf hipotezi olarak adlandırılacak bu hipotezi Sapir'in fikirlerine bağlı kalarak geliştirmiştir.

Aslında, hipotezin güçlü ve zayıf olmak üzere iki versiyonu vardır. Güçlü versiyon, Sapir'in iddialarını temsil eder. Dolayısıyla, hipotezin güçlü versiyonuna göre, dil insanların ne düşündüğünü belirler. Aslında söz dizimi ve sözlüğündeki kelimeler, düşüncenin denetleyicileridir. Güçlü denilmesinin sebebi ise iddiaların bu kadar keskin ve aşırı olmasıdır. Hipotezin zayıf versiyonu, Whorf'un Sapir'in iddiasını yumuşatması ve dilin düşünceyi belirlemekten çok şekillendirdiğini iddia etmesiyle gelişir. Hopi, Nootka, Apache ve Aztek gibi Yerli Amerikan dillerini inceleyen Whorf, 1940'ta bir makale yayınlamıştır ve bu çalışma ile farklı dillerin ve yapılarının bir insanın düşünce sistemini ve nesnel gerçeklik algısını nasıl etkilediğini ortaya koymuştur. Araştırma, farklı diller ve dolayısıyla kültürler arasındaki karşılaştırmalardan oluşmaktadır. Whorf, dil, kültür ve düşünce arasında yakın bir ilişki olduğunu savunur. Ona göre, her kültür, o kültürde kullanılan dilin sözlüğündeki kelimeler ve söz dizimi kuralları ile dünyayı kendi bakış açısında kurar. Böylece farklı bir kültürde yaşayan insanlar nesnel gerçekliği farklı bir şekilde algırlar. Whorf'un çalışmalarıyla yaklaşım daha temkinli bir biçim kazanır. Başka bir deyişle, yaklaşımın özelliği katıdan makule doğru evrilir. Bu, hipotezin zayıf versiyonudur. Bugün Sapir-Whorf hipotezi olarak bilinen şey, aslında hipotezin zayıf versiyonudur.

Bir dilin yapısının insanın dünyayı algılayışını ve onun kategorizasyonunu nasıl etkilediğini göstermek için Sapir ve Whorf'tan sonraki çalışmalar dilsel göreceliğin değerlendirilmesine odaklanmış ve dikkatlerini renk ve boşluk gibi belirli alanlara yöneltmişlerdir.

Brown, İngilizce renk terimlerinin kodlanabilirliği üzerine yeni bir araştırma yürütmüş ve insanların renk algılarının dillerindeki renk terimlerinden zihinlerinde etkilendiğini göstermeyi amaçlamıştır. Çalışma, İngilizce'de renk kodlaması ile insanların bir

hafızaya kaydetme ve bir diziden belirli bir renk terimini tanıma yeteneği arasında pozitif bir ilişki olduğunu göstermektedir.

Boroditsky ve Gaby, uzak bir Avustralya Aborjin topluluğu olan Pormpuraawan'da zamanın mekansal temsilleri üzerine araştırma yapmıştır çünkü bu topluluk zamanı farklı bir şekilde temsil etmek için kullanılan mekânın temsilinden faydalanmaktadır. Dolayısıyla araştırmanın nedeni, bu topluluğun zamanı temsil etmek için farklı bir yöntem kullanmasıdır. Pormpuraawan'ların mekânı temsil etmek için farklı bir yolu vardır. Mekânı temsil etme biçimindeki farklılıktan dolayı Pormpuraawanların zaman hakkında nasıl düşündükleri üzerine bu araştırmayı yürüttüler. Araştırmanın amacı, kültürler arası farklılıkların ve dolayısıyla dilin insanların düşünme biçimlerini etkileyebileceğini göstermektir. Çalışma, kavramların, hatta zaman gibi temel kavramların bile bir kültürden diğerine önemli ölçüde farklılık gösterebileceği gerçeğini sunmaktadır. Böylece Boroditsky ve Gaby bize kültürlerarası bir dilin ve dolayısıyla her toplumun sahip olduğu bir dilin insanların düşünme şeklini etkileyebileceğini göstermiştir.

Bu üç farklı çalışmanın ortak noktası sadece “dil düşünceyi şekillendirdiği” fikri değildir. Bu çalışmalar ayrıca, insanların nesnel dünyayı zihinlerinde kategorize ettikleri ve onunla ilgili kavramlar oluşturdukları zaman bu sürecin yalnızca sözsözsel verilerle çalıştığını varsaymaktadır. Başka bir deyişle, bu düşünceyi paylaşan çalışmaların diğer bir ortak özelliği de düşüncenin dil ve kelimeler haricinde, imge, ses ve koku gibi veriler aracılığıyla yürütülebileceği ihtimaline yer vermemeleridir.

## **II. Dilin Düşünce Üzerinde Kısmi Etkisi Vardır**

Bu bölümde yine dilin düşünceyi şekillendirdiğini kabul eden çalışmalara yer vereceğim, ancak bu çalışmaların odak noktası bu etkinin sınırlı olduğunu iddia etmektedir. Bu bölümdeki görüşler hem dilin düşünceyi şekillendirdiğini kabul etmekte hem de dili bir araç olarak kabul etmektedir. Başka bir deyişle, bu bölümdeki çalışmalar dilin düşünceyi kısmen etkilediğini tartışacaktır.

Slobin bir mercek olarak dil ve bir araç olarak dil yaklaşımları arasında bir role sahiptir. Dilin düşüncemizi etkileyebileceği fikrini kabul eder. Öte yandan dilin düşüncelerimizi ifade etmek için bir araç olduğu fikrini de kabul eder. *Konuşmak için düşünmek* etiketini seçer. Slobin'e göre bu etiket tüm dilsel üretim biçimlerini (konuşma, yazma, şarkı söyleme) ve veri alımının (dinleme, okuma, izleme) yanı sıra bir dizi zihinsel süreci (anlama, imgeleme, hatırlama, vb.) de kapsamaktadır. Başka bir deyişle, düşünmenin çeşitli etiketleri vardır ve kişinin yaptığı her şeye kendini adapte eder, örneğin dinlemek için düşünmek, konuşmak için düşünmek gibi. Dilin kendisi düşünme sürecini sadece konuşmak için düşünürken etkiler.

Clark, dilin bir araç olduğu fikrinin destekçilerinden biridir. Neyin ifade edilmesi gerektiğini belirlemek için dilde neyin zorunlu olduğunu analiz etmiştir. Başka bir deyişle, o deneyimle ilgili ifade edilenlerin belirlenmesinde dilin hangi bölümünün etkili olduğu üzerinde durmuştur. Whorf'a göre bu zorunlu kısım gramer kategorileridir. Clark bu fikre karşı çıkmaz ama bununla birlikte, onun bakış açısına göre, dilin gramer kategorilerinin yokluğu, tüm kavramsal temsillerin yokluğu anlamına gelmez. Bu nedenle, sınıflandırma dilbilgisine veya dile bağlı değildir. Çalışmasının başında, dilin düşünceyi ifade etmenin bir aracı olduğunu, diğer yandan deneyimin bir başkasına dil yoluyla aktarılmasının tam olarak gerçekleştirilemeyeceğini kabul eden Clark, çalışmalarında, deneyimlerimizi ifade ederken dilde ifade edileni neyin belirlediğini araştırmıştır ve sonuç olarak, gramer kategorilerinin ve kelime seçimlerinin ne demek istediğimizi belirlediğini bulmuştur. Ancak dilin deneyimlerimizi ifade etmenin dışında düşünce süreçlerinin dışında olabileceği ihtimalini de dışlamamıştır.

### **III. Düşüncenin Karmaşık Yapısı**

Bu bölümde, düşüncenin karmaşık doğasına odaklanan çalışmaları inceleyeceğim. Bu konudaki araştırmalarda görsel, işitsel veya duyuşsal verilerle düşünme örneklerine yer verilmiştir.

Levinson, dilsel (anlamsal) temsiller ile dilsel olmayan (kavramsal) temsiller arasındaki ilişkiyi tartışmıştır. Ona göre anlamsal temsiller ile kavramsal temsiller

özdeş değildir. Anlamsal temsiller her kullanım, yer, zaman ve bağlamda değişebileceğinden, düşünceler belirli bir akışı izleyerek sabit kalmalıdır. Ayrıca, dilsel anlamın temsili, kavramsal düşüncenin temsilleriyle aynı değildir. Daha önce de belirtildiği gibi Levinson, birden fazla düşünce dili olduğunu savunur. Böylece dilsel anlamın ve dilsel olmayan fikirlerin birbirinden ayırt edilebilir olduğunu göstermiştir. Bu iddia, dilin düşünce üzerinde tam kontrole sahip olmadığını iddia etmemizi sağlayan şeydir.

Carruthers'a göre, insan bilinçli düşüncesi doğal dil ortamında yürütülür. Aslında, onun odak noktası, bunun doğal bir dil mi yoksa daha doğrusu, düşüncemize kurucu olarak dahil olan bir zihin dili mi olduğudur. Bu konudaki araştırmasını yaparken iki yaklaşımı inceler; İmgeciler ve Tümceselciler. İlki, iletişimsel dil anlayışını onaylar. İkincisi, dilin bilişsel kavrayışını onaylar. İmgeciler, tüm düşüncelerin zihinsel imgelerden oluştuğunu iddia ederler. Tümceselciler ise düşüncenin birincil aracının dil olduğu fikrini savunurlar. Bilinçli düşüncenin çoğunlukla doğal dil tarafından gerçekleştirildiğini savunan Carruthers, bilinçli düşünce sürecinin hem cümleleri hem de görüntüleri içerdiğini inkâr etmiyor gibi görünmekte hatta düşüncelerin yalnızca imgelerden oluşabileceğini kabul etmektedir. Ancak Carruthers'in bu varsayımlarının her zaman bilinçli düşünceyle ilgili olduğu unutulmamalıdır. Bilinçli düşüncemizin doğal dilde yürütüldüğü fikrini savunurken, yalnızca bilinçli düşüncenin dil ile ilgili olduğuna da dikkat çekmiştir. Bilinçaltı veya bilinçsiz düşünce ile ilgili herhangi bir iddia yoktur.

Keller ve Keller'ın yazdığı makalede ise düşüncenin, dilsel determinizmi içeren göreci bir konumla makul bir şekilde açıklanabileceğinden daha karmaşık olduğu iddia edilmiştir. Yazarlara göre, zihinsel aktivite çeşitli şekillerde gerçekleşir. Düşünce, dil, imgeleme, duyuşal-motor temsil ve duygu biçimlerinde yapılandırılabilir. Yazarlar, her bilişsel modalitenin farklı sistemler olduğunu göstermek için bazı kanıtlar sunmuşlardır. Kanıtlardan biri, evrimsel vizyonun ve görsel imgelemenin dile göre önceliğidir. Diğerleri ise afazili hastaların dil becerilerini kaybetmelerine rağmen görsel, motor ve duygusal temsillerini kaybetmedikleri durumlardır. Başka bir kanıt, sözlüksel

anlambilim arařtırmalarıyla ilgilidir. Bu kanıtlara ek olarak, yazarlar, görsel ve dilsel işleme sistemlerinin bağımsızlığına ek destek sağlayan uzamsal ilişkilerin dilsel ve görsel temsillerine odaklanan karşılařtırmalı bir arařtırma yürütmüşlerdir. Yazarların bir bıçak ustası ile yaptığı söyleşide yaptıkları çalışmalardan bir örnek olarak sunulabilir. Bu röportajda, bıçak üreticisi, bıçak üretim sürecinde dilin minimum öneme sahip olduğunu belirtmiştir. Yazarlar ayrıca tasarım düzeyinde dilin önemli olduğunu kabul etmektedirler. Ancak bu kabul, Sapir-Whorf hipotezinin aksine bir araç olarak dil tarzındadır.

#### **IV. Dilin Düşüncüyü Öncelemesine İlişkin Bir Argüman**

Bu bölümde asıl iddiamız olan düşüncenin dilden önce geldiği ortaya konulacaktır. Dilin insanların düşündüklerini şekillendirebilen bir mercekle olduğu iddiasının aksine, dil insanların düşüncelerini ifade etmek için değerli bir araçtır. Ayrıca dilin düşünce üzerindeki etkisi ancak düşünce sürecinin bir gerekliliği olduğunda mümkündür. Dilin düşünceye erişimi ve etkisi sınırlıdır. İddia, düşüncenin tamamen dil tarafından şekillendirilemeyeceğidir. İddianın ispatlanabilmesi için düşüncenin dilden bağımsız kısmına odaklanılacaktır. İlk olarak, düşüncüyü çeşitli açılardan tanımlayarak, düşüncenin dilden daha karmaşık ve kapsamlı bir yapıya ve sürece sahip olduğu gösterilecektir. Daha sonra ise odak insanlardan hayvanlara kayacaktır. Hayvanların düşünme yetenekleri üzerine yapılan arařtırmaların bize onların bilinen anlamda bir dile sahip olmadan da düşünebildiklerini göstermiştir. Böylece dilsiz düşünmenin mümkün olduğu gösterilecektir.

Öncelikle düşüncenin tanımına bakılacak olursa, bu tanım kullanıldığı disipline göre değişebilir. Felsefi bir bakış açısının temel durumlarında düşüncenin, içsel veya dışsal uyaranlara tepki olarak gelişen düşünme eyleminin ürünü olduğu söylenebilir. Ayrıca, dış uyaranlara ihtiyaç duymadan, zihnimizdeki temsillerin birbirleriyle kurdukları bağlantılar sonucunda düşünce denilen ürün ortaya çıkabilir. “Düşünmek” kelimesi, farklı zihinsel faaliyetleri ve süreçleri kelimelere dökmek için kullanılır. Bir konu hakkında yargıda bulunmak, kavramlar arasında bağlantı kurarak yeni bilgilere ulaşmak, bir şeyi hatırlamak, bir olayı planlamak, açıklama yapmak düşünme eylemiyle ifade edilir.

Psikolojik açıdan düşünce de benzer bir çerçevede ele alınır. Psikoloji bilimine göre düşünme, yargılama ve anlama gibi zihinsel işlevleri kullanarak bazı soyutlamalara ulaşma, kavram oluşturma ve problem çözme işidir.

Düşünürken nesnelere ve olayların kendileri değil, akılda kalan izlenimler kullanılır. Düşünmenin gerçekleşmesi için imgeler, kavramlar, kategoriler gibi belirli unsurlara ihtiyaç vardır. İmge, duyu organları aracılığıyla algılanan nesne ve olayların yansıyan görüntüsüdür. Algılama sürecinde anlam kazanan nesne ve olaylar her an görselleştirilir. Bu nedenle, bir elma hakkında düşünmek için bir elmayı görmek artık gerekli değildir. Akıldaki görüntüler başlangıçta tekildir. Bu görüntüler çoğullaştırılır ve yeni deneyimlerle genelleştirilir. Böylece soyut hale gelirler ve nihayetinde insan zihninin ürünü olan kavramlar oluşur. Akılda kalan imgeler ve kavramlar aralarındaki benzerlik ve farklılıklara göre sınıflandırılır. Böylece kategoriler şekilleniyor. Nesnelere kategorilere ayrılabilir. Örneğin menekşe, gül, papatya benzerliklerinden dolayı çiçek kategorisine girmektedir.

Şimdi düşüncenin biyolojik tanımına geçeceğiz. Düşüncenin fizyolojik bir tanımını yapmak gerekirse, düşüncenin, nöron adı verilen beyin hücrelerinin oluşturduğu nöron kümelerinin etkileşiminden ortaya çıkan ve davranışla sonuçlanması gerekmeyen bir ürün olduğu söylenebilir. Nöron kümelerinin etkileşimi sırasında, her biri bir düşünce oluşturan birçok bağlantı oluşur. Nöronların neler taşıdığını tartışmamız gereken bu noktada, zihinsel temsilin açıklanması gerekir çünkü nöronlarda depolanan bilgiler zihinsel temsil tanımı içindedir. Örneklenen herhangi bir bilgi nöronlarda saklanır. Depolanan bu bilgilerin etkileşimi sonucunda düşünceyi oluşturan nöron bağlantıları oluşur. Bu noktada hafıza konusu açıklanmalıdır. Çünkü düşüncenin karmaşık yapısını görmek için düşüncenin yapı taşları olan verilerin zihnimize nasıl saklandığını görmek gerekir. Bu iddia, düşünce sürecinde saklanan veri ortamı ile bu verinin kullanıldığı veri ortamının aynı olduğu anlamına gelmez. Tabii ki, bir şekilde, depolanan verilerle beyin, bunları depoladığı ortamlardan farklı ortamlarda arayabilir veya kullanabilir. Aslında tam olarak vurgulanmak istenen şudur; beyin ne bilgiyi sadece kelimelerle depolar ne de sadece kelimelerle düşünür. Bilgiyi belleğe işlerken,

çeşitli ortamları kullanan beyin, bu verileri başta görsel olmak üzere birçok yolla geri çağırır ve işleyerek düşünce dediğimiz ürünü ortaya çıkarır. Dolayısıyla bu ürünün sadece kelimeler ve söz dizimi kuralları ile şekillendiğini söylemek artık yeterli değildir.

Schacter ve Wagner (2013) belleği şu şekilde açıklamaktadır;” Öğrenme, dünya hakkında bilgi edinmekten kaynaklanan davranış değişikliği anlamına gelir ve bellek, bu bilginin kodlandığı, depolandığı ve daha sonra geri alındığı süreçtir” (s. 1441). Ayrıca onlara göre bellek iki boyutlu olarak sınıflandırılabilir. Birincisi, depolamanın zaman süreci, ikincisi ise saklanan bilginin doğasıdır. Kısa süreli ve uzun süreli olarak bölünmüş hafızanın zaman süreci boyunca ilerleyecektir. “Bilgi depolama yeteneği, hedefle ilgili bilginin güncel, ancak geçici temsillerini koruyan, işleyen bellek adı verilen kısa süreli belleğe bağlıdır” (Schacter & Wagner, 2013, s. 1442). Sonuç olarak kısa süreli belleğin nasıl depolandığına bakıldığında; sözel alt sistem ve görsel uzamsal alt sistemin her ikisi de çalışan belleğe dahildir. Başka bir deyişle, bellek bilgiyi çeşitli biçimlerde saklayabilir. En az iki tipi burada görülmüştür.

Beck’in otomatik düşünceler üzerine araştırması bu konuya mükemmel bir örnek teşkil etmektedir. Beck, Emery ve Greenberg (1985),”Pek çok hasta otomatik düşünceleri yalnızca akıllarında söylenmemiş kelimeler olarak değil, aynı zamanda zihinsel resimler veya imgeler şeklinde de deneyimlemektedir” (akt. Beck, 2011, s.277). Yani hastaların otomatik düşünceleri arasında görsel imgeler de yer almaktadır. Bilgi işlenirken sadece sözel ortamda işlenmez. Akılda bir bilgi görüntüsü oluşur ve bu görüntünün içinde görsel, işitsel gibi çeşitli veriler bulunabilir. Zihnimize sadece sözel olarak depolanmayan bilgiler sadece sözel olarak kullanılmaz.

Düşünceyi ifade etmek için kullandığımız en yaygın araç sözcükler olduğundan, düşüncenin yalnızca sözcükler aracılığıyla gerçekleştiğine dair yaygın bir inanç vardır. Aslında Sapir-Whorf teorisinde görüldüğü gibi, nesnel dünyayı algılamak ve zihnimize yerleştirmek için dilin gerekli olduğu varsayılmaktadır. Ancak Rudolf Arnhem, Görsel Düşünme adlı kitabında böyle bir varsayımın aslında yanlış olabileceğini

göstermektedir. Arnheim'a göre düşünme süreci daha çok imgeler alanında gerçekleşir. Üstelik düşünecek bir şeyin olması için düşünmenin, içinde yaşadığımız dünyanın imgelerine dayanması gerekir. Ona göre kavramlar algısal imgelerdir ve düşünce süreci bu imgeleri ele almaktır. Fiziksel bir nesneden veya soyut bir kavramdan bahsedildiğinde, o kelimenin bir izlenimi her zaman çevre ile birlikte akla gelir. Düşünmenin tek bir yolu yoktur. Başka bir deyişle, insanlar çeşitli ortamlarla çeşitli şekillerde düşünebilirler. Bunlar kelimeler, görüntüler, sesler, kokular olabilir. Bilginin hafızamızda nasıl saklandığı, insanlar düşünürken hangi tür bilgiyi kullanırsa kullansın, yani nöron kümeleri birbirleriyle iletişim kurduğunda o ortam aktif hale gelir. Dolayısıyla insanlar sadece sözlü bir ortamda düşünmezler.

Diğer bir odak noktamız olan dil olmadan düşünce konusuna gelirsek, dilin düşünceden önce gelmediğini ve sadece konuşma süreçlerinde onu etkileyebileceğini göstermek için hayvanların dil olmadan nasıl düşündüklerini gösteren çalışmalar sunmak uygun olacaktır. Hayvanların dil olmadan *düşünme* diyebileceğimiz eylemleri gerçekleştirdiği ispatlanabilirse, dilin tüm düşünceyi şekillendirdiği iddiası şüphe uyandıracaktır.

Bu noktada öncelikle dilin tanımı yapılmalıdır. Geniş bir perspektiften bakıldığında, aynı veya farklı türdeki bireylerin herhangi bir iletişim biçimine dil denilebilir. Bu şekilde bakıldığında, tüm sembolik ifade biçimlerini kapsayan bir terim haline gelir. Bununla birlikte, dar anlamda sadece insanlara özgü sözlü dili ifade eder. Şimdi, bu insan sözlü dilinin hayvanlar arasındaki çeşitli iletişim biçimlerinden ayırt edici özelliklerine odaklanılmalıdır. Böylece her simgesel iletişim biçiminin bir dil olmadığı gösterilmiş olacaktır. Barry Allen, iletişim sistemleri ile dil arasındaki en önemli farkın dilin sahip olduğu söz dizimi olduğunu vurgular.

Allen'a (2008) göre söz diziminden kaynaklanan bu farklılıklar şu şekilde sıralanabilir; a) Hayvan çağrı sistemleri sadece iletişim için kullanılırken dil, söz dizimi sayesinde kullanıcılarına bilgi depolama ve her şeyi yetenekler aracılığıyla düşünme olanağı sağlar.

Allen burada dilin sadece iletişim kurmak için kullanılmadığını aynı zamanda başka işlevleri de olduğunu vurgular.

b) ıęlık atan Vervet maymunu sz edimi yapmaz. aęrılar yalıtılmıř sinyallerdir, bir cmlenin szdizimi olmayan sabit dizilerdir.

ıęlık atmak, dans etmek gibi birtakım sinyaller sistemin bir parçasıdır; ancak, bunlar bir tr konuřma deęildir.

c) Szdizimi olmadan, hayvan iletiřimi burada ve řimdi kilitlenir.

nk szdizimi, gelecek veya gemiř iin zamana atıfta bulunmamızı saęlar.

Sonuç olarak, hayvanlar ile dil dedięimiz insana zg ara arasındaki iletiřim sistemlerinin olduka farklı olduęu ve bu farklılıęın en nemli kaynaęının sz dizimi olduęu sylenebilir. Hayvanların alıřılmıř anlamda dil ile deęil, benzersiz bir iletiřim sistemi aracılıęıyla iletiřim kurduklarını kabul ettik. řimdi ise hayvanların bu iletiřim srelerinde hangi noktada *dřndę* sorusu geliyor. Hayvanlar her zaman birbirlerinin hareketlerini fark ederler. Ayrıca hem kendi hem de dięer hayvan trlerinin hareketlerine tepki vermede ustadırlar. nk hayatta kalmaları genellikle buna baęlıdır. Bu nedenle, genellikle otomatik olarak hareket ederler ve tepki vermek iin hibir dřnceye ihtiya duymazlar.

rneęin, Avustralyalı zoolog Karl von Fish, arıların yiyeceklerin konumu hakkında birbirleriyle nasıl iletiřim kurduklarına dair bir arařtırma yaptı. Arařtırma sonucunda, bir iři arının dięer arılara yiyeceęin kovana gre konumu ve hatta yiyeceęin kalitesi hakkında bir tr dans aracılıęıyla bilgi verdięi ortaya ıktı. Aıkası, arılar arasında bir bilgi alıřveriři var. Ancak bu bilgi alıřveriři, arıların dřndę anlamına gelmeyebilir. nk, Dawkins'in (1998) belirttięi gibi, arıların bu kadar detaylı bilgiyi iletmek iin gsterdikleri karmařık davranıř, aslında doęru zamanda hareket etmesi planlanan belirli kuralların uygulanmasıyla aıklanabilir. Yani aslında, bu otomatik bir tepkidir. Dawkins'e (1998) gre dřnme olarak adlandırılan olgunun iki temel zellięi vardır. Birincisi, dřnen yaratıęın zihninde dnyanın bir tr isel imgesine sahip olmasıdır. Bylece sadece uyaranlara tepki vermekle kalmaz, aynı zamanda gemiřte orada olan řeylerin hafızasını/izlenimini de zihninde tařır. İkincisi, isel imajdaki bir deęiřiklik, dřnen yaratıęın yeni durumda ne olabileceęini tahmin etmesine izin verir.

Daha önce düşünmeyi, kavramları zihinde birbirine bağlamak ve olguları analiz edebilmek olarak tanımlamıştık. Dawkins'in konuyla ilgili sözlerinden hareketle denilebilir ki; kavramların analizi ve bağlantı kurulması sonucunda bir sonraki bilinmeyi tahmin etmek düşüncenin bir göstergesidir. Bir sonraki bilinmeyi tahmin etmek, yeni, öngörülemeyen bir durumla başa çıkmanıza izin verecektir.

Ayrıca Fransız filozof J. Proust, düşünme sürecini dört aşamalı olarak inceleyen bir argüman ortaya koymuştur. Bu argümana göre düşüncenin aşamaları şöyledir; Uyarı-Tepki, Ön temsil, Kategori fomülasyonu ve tam zihinsel temsil. Davranış Bilimci olan ve hayvanlarla ilgili birçok çalışması bulunan, K. Brensing, Proust'un bu düşünce aşamalarından yola çıkarak kitabında, hayvanların da bu düşünce aşamalarına sahip olabileceğini gösteren örneklere yer vermiştir. Tezin bu aşamasında, bu argüman örnekleriyle birlikte sundum. Ayrıca hayvanların akıl yürütebildiklerine dair J. Call tarafından yürütülen ve buna dair kanıtlar sunan bir deney detaylıca açıkladım. Buna ek olarak, hayvanların sahip oldukları kategorileri kullanarak bir düşünce süreçleri yürütebildiklerine dair iki önemli deney vardır.

Herbert Terrace tam da bu konuda güvercinler üzerine araştırma yapmış ve bir makale yayınlamıştır. Terrace (1985) yaptığı çalışmada hayvanlara düzen kavramının öğretilebileceğini göstermektedir. Araştırma sırasında güvercinlere yemleri basitten karmaşığa doğru her aşamada yere yansıyan renkler üzerinde yemeleri öğretilmiştir. Terrace aslında güvercinlerin düşünmediğini gösteren olasılıkları ortadan kaldırarak her aşamada ileriye doğru hareket ettiğinden, bu set dizisi ve takibi her aşamada daha karmaşık hale getirilmiştir. Üstelik etaplar bu nedenle daha da zorlaşıyor.

İlk olarak, güvercinlere, görüntülenme sırasına bakılmaksızın, renkli ışıkları istenen sırayla gagalamaları öğretilmiş böylece güvercinler 3 renk ışığı doğru sırayla gagaladıklarında yiyecek alabileceklerini öğrenmişlerdir. Daha sonra yeni bir durumla karşı karşıya kalmışlardır ve bir renkli ışık ve iki yeni şekli doğru sırayla gagalamaları istenmiştir. Bu yeni şekillerin hiçbiri daha önce kuşlar tarafından görülmemiştir. Güvercinler iki gruba ayrılmış ve birinci gruptan istenen sıradaki renkli ışık daha önce

öğrendikleri ile aynı konumda iken, ikinci grupta bu renkli ışık farklı bir konumda olmuştur. Ancak pozisyonları öğrenerek doğru sırayı bulma olasılığını ortadan kaldırmak için her 3 uyarının da fiziksel pozisyonları sürekli değişmiştir. Bu deneyin sonucu şu olmuştur; kuşlar ilk eğitimde renkli ışıkların sırası hakkında düşünmeyi öğrenmiş olsaydı, bunu yeni duruma uygulayabilmelidir. Kuşların düşündüklerini gösteren şey, birinci grubun problemi ikinci gruba göre daha kolay çözdüğü olacaktır. Deney sonucunda Terrace, iki grup arasında büyük bir fark olduğunu göstermiştir. Böylece, birinci grup, görevi ikinci gruba göre çok daha hızlı tamamlamıştır böylece, deneyin ilk bölümünde, kuşların belirli bir anda belirli uyarılara değil, hangi sırayla gagalamaları gerektiği konusunda soyut bir kavrama göre tepki verdikleri görülmüştür. “Öğrenme, dünya hakkında bilgi edinmekten kaynaklanan davranış değişikliğini ifade eder” (Schacter ve Wagner, 2013). Bu tanıma göre kuşlar kavramı öğrenmiştir. Deneyin son aşamasında Terrace, güvercinlerin önceki sıralamalardan öğrendiklerini önlerindeki ikinci duruma uygulayabildiklerini gösterdi. Ayrıca güvercinler bu sıralamayı bir sonraki duruma uyguladıklarında düşüncenin tanımına göre hareket etmişlerdir.

Bu deneyde kuşların davranışlarını klasik koşullanmadan ayıran şey, güvercinlerin yalnızca öğretilen koşullara ve uyarılara göre davranmasını beklememeleridir. Bilindiği gibi klasik koşullanma, doğal uyarıcılara karşı gösterdiği tepkiyi yapay uyarıcılara karşı tekrarlar sonucunda göstermektedir. Bununla birlikte, kuşlar sürekli olarak yeni koşullara maruz kalmışlardır ve daha önce öğrendikleri bilgileri yeni bir durumda kullanmaları beklenmiştir. Edimsel koşullanma, davranışın sonuçlarına bakılarak yeni davranışların kazanılmasıdır. Başka bir deyişle, bir ödüle ulaşmak veya cezadan kurtulmak için istenen davranıştır. Bu noktada kuşların ödüle ulaşmak için doğru sırayı gagalamak zorunda olmalarına rağmen, deneyin devamında öğrenilen bilgilerin yeni durumda kullanılmasını istemek bu tanımın ötesindedir.

Hayvanlarda düşünceye daha yakından bakacak olursak, öncelikle düşünce ve kavram tanımlarının hatırlatılması gerekir. Düşüncüyü, birbirleriyle kurdukları bağlantılar sonucunda zihnimizdeki temsillerin ürünü, kavramı ise fiziksel dünyadan elde edilen

izlenimlerin çoğullaşması ve geliştirilmesi sonucu elde edilen zihinsel ürünler olarak tanımlanmıştı. Kavramları kullanarak fikirler üretiyoruz. Bu üretim sürecini harekete geçiren dışsal bir uyarana varsa buna çevrim içi düşünme, dış uyarana olmadan harekete geçen bir süreç varsa çevrim dışı düşünme denir. Hayvanların sahip oldukları kavramların ve bu kavramları düşünce süreçlerinde nasıl kullandıklarının en güzel örnekleri, sosyal hayatları üzerine yapılan deneylerde bulunabilir. Primatlar her zaman sosyal olarak yaşayan hayvan türlerinden biri olmuştur. Sürüler ve gruplar halinde bulunurlar. Araç kullanma, üretme, kültürel ritüelleri gerçekleştirme ve problem çözme gibi bilişsel becerilere sahiptirler.

Ayrıca, yaygın olarak bilinen anlamda bir dili yoktur. Primatların sahip olduğu kavramlara bir örnek vermek gerekirse, Brosnan ve de Waal (2003) Monkeys Reject Unequal Pay makale deneyinden bahseder. Deneyde iki maymun birbirini net bir şekilde görebilmeleri için iki ayrı kafese yerleştirilmiştir. Ayrıca deney sırasında karşı kafesteki maymuna ne verildiğini her iki maymun da net bir şekilde gözlemleyebilmektedir. İlk olarak, her iki maymuna da kafeslerindeki taş karşılığında çok sevdiği üzüm verilmiştir. 25 kez tekrarlanan bu işlem sırasında herhangi bir sorun yaşanmamıştır. Daha sonra kafeslerden birinde maymuna taş karşılığında üzüm, diğer maymuna ise üzümün daha az sevdiği salatalık taş karşılığında verilmiştir. Salatalık verilen maymun yaşananlardan haberdar olmuş, her seferinde aşırı tepki vermiş ve salatalığı veren kişiye geri fırlatmıştır. İnanılmaz derecede sevdiği üzümü isteyen maymunun tepkisi eşitsizliğe karşı gibi görünür. Bu deneyden, maymunun adalet kavramına sahip olduğu sonucu çıkarılabilir. Nitekim hayvanlarda eşitlik ve adalet kavramları gözlemlenebilir. Eşitlik kavramları olmasaydı bu duruma tepki vermezlerdi. Sonuç olarak, hayvanların kavramları olduğu ve kavramları aracılığıyla düşünebildikleri varsayılabilir.

Bunlara ek olarak hayvanların ihtiyaç duydukları yiyeceğe ulaşmak için çeşitli yöntem ve araçları kullanabileceğine dair akıl yürütme örneği verilebilir. Cevizin bir saksakağ tarafından fırlatılıp çatlatılması, karınca yuvasına ulaşmak için bir ağaç dalı kullanılması, hatta bir şempanze tarafından üzerine karıncaların yapışması için

ıslatılması ek örnekler olarak gösterilebilir. Yiyeceklere ulaşmak onların içgüdüsel motivasyonu olabilir; ancak akıl yürütme ne koşullu öğrenmenin ne de içgüdü'nün bir açıklamasıdır. Ancak hayvanların dilsiz düşünceleri ile dili kullanabilen insanların düşünceleri arasındaki farka bakıldığında, hayvanın düşüncesinin o an ile sınırlı olduğu açıkça görülmektedir.

Tezin bu bölümünde *düşünce dilden önce gelir* argümanını öne sürmeyi amaçladık. Bu amaçla hem insanlarda hem de hayvanlarda düşünce analizi yaptım. İlk olarak düşüncenin tanımı yapılmış ve insan beyninde düşünce sürecinin nasıl ilerlediği inceledim. İnsanların sadece kelimelerle düşünmediği, dolayısıyla düşüncenin dilden bağımsız olduğu alanlar olduğunu göstermeyi amaçladım. Dolayısıyla şu çıkarım yapılabilir, eğer düşünce süreci sözel ortam haricinde görsel, işitsel vb. gibi başka ortamlarda da yürütülebiliyorsa, dil düşünceyi sınırlı bir şekilde şekillendirebilir. Daha sonra dilsiz düşünme konusunu incelemek için dili tanımladım ve hayvanların bilinen anlamda bir dile sahip olmadıkları ve dilsiz düşünebildikleri göstermeyi amaçladım. Dolayısıyla insanın sadece kelimelerle düşünmediğini, hayvanların da dilsiz düşünebildiği gerçeğinden hareketle söyleyebiliriz ki her düşüncemiz sözel değildir. Sonuç olarak, büyük iddia doğrultusunda, düşüncelerimizin oluşmasında ve ifade edilmesinde kullanılan en yaygın ve baskın aracın insanın doğal dili olduğu yadsınamaz bir gerçektir. Bu nedenle düşüncelerin ancak dil ile mümkün olduğunu ve dolayısıyla dilin bazı düşünürler tarafından düşünceyi şekillendirebileceğini varsaymak zor değildir. Ancak dilin, dile ilişkin süreçlerde ve düşünce alanlarında düşünceyi etkileyebileceği unutulmamalıdır. Dolayısıyla, düşünce tamamen dil tarafından yönetilemez, çünkü insanlar her zaman dil ortamını düşünmek veya düşüncelerini ifade etmek için kullanmazlar. Müzik ve koku yoluyla ortaya çıkan düşünce kalıpları bu iddianın en güzel örnekleridir. Bir koku, bizi sahne olarak kelimelerin olmadığı bir anıya götürebilir. Bu örnekler bize kokunun yarattığı düşünceler ile görsel ortam arasındaki geçişi göstermektedir. Ayrıca düşüncenin dilden ayrı olarak sanatla temsil edildiği de yadsınamaz. Düşünce ve duyguların müzik, fotoğraf veya resim yoluyla ifade edildiği bilinen bir gerçektir.

## B. THESIS PERMISSION FORM / TEZ İZİN FORMU

### ENSTİTÜ / INSTITUTE

Fen Bilimleri Enstitüsü / Graduate School of Natural and Applied Sciences

Sosyal Bilimler Enstitüsü / Graduate School of Social Sciences

Uygulamalı Matematik Enstitüsü / Graduate School of Applied Mathematics

Enformatik Enstitüsü / Graduate School of Informatics

Deniz Bilimleri Enstitüsü / Graduate School of Marine Sciences

### YAZARIN / AUTHOR

Soyadı / Surname : Arısoy

Adı / Name : Elif

Bölümü / Department : Felsefe / Philosophy

**TEZİN ADI / TITLE OF THE THESIS (İngilizce / English):** The Language Thought Relationship on the Basis of Precedence of Thought over Language

**TEZİN TÜRÜ / DEGREE:** Yüksek Lisans / Master  Doktora / PhD

1. **Tezin tamamı dünya çapında erişime açılacaktır.** / Release the entire work immediately for access worldwide.
2. **Tez iki yıl süreyle erişime kapalı olacaktır.** / Secure the entire work for patent and/or proprietary purposes for a period of **two years.** \*
3. **Tez altı ay süreyle erişime kapalı olacaktır.** / Secure the entire work for period of **six months.** \*

\* Enstitü Yönetim Kurulu kararının basılı kopyası tezle birlikte kütüphaneye teslim edilecektir. / A copy of the decision of the Institute Administrative Committee will be delivered to the library together with the printed thesis.

Yazarın imzası / Signature .....

Tarih / Date .....

(Kütüphaneye teslim ettiğiniz tarih. Elle doldurulacaktır.)  
(Library submission date. Please fill out by hand.)

Tezin son sayfasıdır. / This is the last page of the thesis/dissertation.