THE UNDERSTANDING OF NORMATIVITY AND FREE WILL IN GAMES: A DEVELOPMENTAL STUDY ON 2- AND 3-YEAR-OLD TURKISH CHILDREN

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ABSTRACT

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This study investigated the understanding of normativity and free will from a developmental perspective. Being a new field of investigation, there is not much research conducted which points to different aspects of normativity. Current study, therefore, aimed to assess Turkish children's normative development on a sample of 2 and 3 years old in the context of games. It was expected, first, that children would

show more protest when there is a norm violation. Moreover, older children would show more normative protest than younger ones. The results confirmed these hypotheses. In a second study, it was investigated whether the actor's being free to act as s/he wills versus constrained so that cannot act otherwise had an effect on children's protest in response to norm violations. It was hypothesized that a decrease in normative reactions and an increase in help responses would be observed. No age effect for help responses was expected. The results of this study did not reveal any decrease in normative reactions, but there was an increase in help responses regardless of the age.

Keywords: Normativity, Free will, Development, Protest, Help

ÖZ

OYUNLARDA NORM ALGISI VE ÖZGÜR İRADE: 2 VE 3 YAŞLARINDAKİ TÜRK ÇOCUKLARDA GELİŞİMSEL BİR ÇALIŞMA

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Bu çalışma, norm ve özgür irade anlayışlarını gelişimsel bir bakış açısıyla incelemiştir. Yeni bir araştırma alanı olması sebebiyle, norm ediniminin farklı açıları hakkında pek fazla çalışma bulunmamaktadır. Bu nedenle, bu çalışma 2 ve 3 yaşlarındaki Türk çocuklardaki norm ediniminin nasıl geliştiğini araştırmayı amaçlamıştır. İlk olarak, çocukların bir norm ihlali söz konusu olduğunda daha çok itiraz etmeleri beklenmiştir. Ayrıca, yaşları daha büyük olan çocukların küçüklere göre daha çok normsal tepki vermeleri beklenmiştir. Sonuçlar, bu hipotezleri

desteklemiştir. İkinci bir çalışmayla, kişinin ihlal etme davranışını özgür iradesiyle yapması ile kısıtlanmış, dolayısıyla başka türlü hareket edemiyor oluşunun çocukların itirazlarına olan etkisi ölçülmüştür. Kişinin kısıtlandığı durumlarda, normsal tepki vermeleri beklenmiştir. Sonuçlar, bu hipotezleri desteklemiştir. İkinci bir çalışmayla, kişinin ihlal etme davranışını özgür iradesiyle yapması ile kısıtlanmış, dolayısıyla başka türlü hareket edemiyor oluşunun çocukların itirazlarına olan etkisi ölçülmüştür. Kişinin kısıtlandığı durumlarda, normsal tepkilerde bir düşüş ve yardım davranışlarında bir artış gözlenmesi hipotez edilmiştir. Yardım davranışları için herhangi bir yaş etkisi beklenmemiştir. Çalışmanın sonuçları, normsal tepkilerde herhangi bir düşüş olmadığını, ancak yaştan bağımsız olarak yardım davranışlarında bir artış olduğunu ortaya koymuştur.

Anahtar Kelimeler: Normsallık, Özgür İrade, Gelişim, İtiraz, Yardım

To My Parents and To My Dearest...

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LIST OF ABBREVIATIONS

SCA	Shared Cooperative Activity
RP	Readiness Potential
EEG	Electroencephalography
SMA	Supplementary Motor Area
fMRI	Functional Magnetic Resonance Imaging
E1	First Experimenter
E2	Second Experimenter
A1	Action 1 – “correct action”
A2	Action 2 – “incorrect action”
y/o	Years old

CHAPTER 1

INTRODUCTION

No scientist interested in cognition can close her eyes to the big question of what it is that distinguishes humans from other animals. It is inevitable to come to this evolutionary question no matter whether one starts off with a computational, linguistic, psychological, philosophical, or biological point of view. Being such a broad one, of course, this question subsumes many debates within different fields. For instance, it is virtually impossible to study the syntax in languages, without having in mind why and how no other species can construct such complex syntactic structures. Similarly, it seems unpromising to try to model the learning capabilities of humans, if one disregards in which ways it differs from that of other species'. Thus, any attempt, whether it be theoretical or empirical, to answer one bit of this broad question will, in the end, be in line with the aim to understand the mechanisms of the mind.

It is possible to narrow the focus and approach the issue from a cognitive developmentalist point of view. In our everyday lives we, humans, regularly think of the contents of others' minds, change attitudes in response to others' emotional states, plan ahead and act accordingly, make promises and strive to keep them, and form complex societies and maintain them over generations. From an evolutionary perspective, all these ordinary actions are indeed quite amazing, since no other

animal than humans have the required social and cognitive basis to perform them. Yet, human infants from very early on develop these skills and get accustomed to the intricate human-specific social structures.

Although these questions might seem somewhat loosely connected to one another at first sight, the theoretical paradigm endorsed by Tomasello and colleagues (Tomasello, Carpenter, Call, Behne & Moll, 2005) view them all to be stemming from one ability which is unique to humans: the ability to share intentions with others. It is argued within this framework that only humans are capable of forming collective goals and act jointly to reach them. As people share goals and act together to achieve them, they start to have certain responsibilities toward each other, which in turn bring about the necessity for regulations and norms. Hence, at the very baseline of institutional realities lies the ability of humans to share intentions with others (Rakoczy, 2007). The important point after that, then, is to define how the development of shared intentionality takes place on different levels and relates to the formation of social institutions.

In human societies, there are numerous social realities surrounding us: marriages, the use of money, administrative offices, and maybe the most salient among all, language. They are maintained over generations so smoothly that every human being is born into a world full of such institutional realities at the first place, and starts having an idea about their existential reasons only later. Unarguably, despite the fact that every child is born into such a world, no child spends his time being engaged with these overly adult-focused concepts. Instead, children –especially in modern societies- spend considerable amount of their days with playing with their peers. Hence, it would not be possible to investigate the earliest roots of how these complex institutions are constructed and conceived, by only looking at how much children occupy themselves with them. Rakoczy (2007) argues the rule-governed games, specifically the pretense plays to be the most closely-linked representation of these institutional realities in children's worlds. This idea is based on the similarity of underlying structures between the two concepts.

Adopting the definition from Searle (1969), the building blocks of social institutions in human societies are constitutive rules and status function ascriptions. Constitutive rules enable bringing a totally new activity into existence by means of their being applied on them. To exemplify, a piece of paper is conceived of as money in the context of a given country. Without this rule, that piece of paper would always remain as an ordinary piece, and nothing as money in that country would ever exist, at least in that very form. Similarly in children's pretense games, a banana may count as a telephone. It would thus be valid if two children put the banana on their ears and pretend talking to each other via their banana-phones, so long as both agree it to count as a telephone within the context of that specific game.

The second important factor here is that there is indeed no particular reason for that piece of paper, and not another one, to count as money. In other words, no property of that piece naturally causes it to be counted as money. It is only due to the collective agreement of those citizens that it is deemed to be money. Searle calls such ascriptions status function ascriptions. Hence, constitutive rules, which may in turn give rise to status functions, are the building blocks of human societal systems (Rakoczy, 2007). It is not hard to see that a similar logic lies behind counting a banana, and not say a carrot, as a telephone in children's games. In both social institutions and children's pretense plays are constitutive rules and status function ascriptions in place.

What is further important for the purposes of current study is that, such constitutive rules set the stage for normativity. In other words, the people in that country not only use that piece of paper as money, but they also demand a foreigner to use it as such if s/he is to enter into their territory. Likewise in the children's games, if a third child enters into the game and takes a banana and attempts to eat it, the other two children would warn him that it is not something edible, rather it is a telephone. As can be inferred from these examples, the use of status-function-ascribed objects lead to conventionalization, and this brings about one of the crucial prerequisites for normativity: to demand third parties to act according to the norms. Hence, children's

conventionally rule-governed games can be used to assess their growing understanding of normativity.

When conformity to norms is under concern, many individual and group dynamics interact and influence the eventual outcome whether to conform to the norm or not. One of the leading names in developmental psychology, Jean Piaget (1932), claimed that young children did not perceive of the difference between conventional, moral, and natural laws. Hence, he argues, children conceived of rules as irreversible and given until they enter the concrete-operational period. Contrary to what he claimed, recent research shows that children at 5 years of age can make the distinction between social and physical rules in terms of their givenness and alterability (Kalish, 1998).

Furthermore, Kushnir, Wellman and Chernyak (2009) show that 4-year-old children can well evaluate others' freedom of choice in conforming to the norms. More specifically, those children could distinguish the physically impossible actions from physically possible, but externally constrained ones. In response to questions regarding whether the actor could have done otherwise, children reported more negative answers when it was a physically impossible action, than when it was an externally constrained one. This implies that from at least 4 years onward, children not only categorize the reasons of actions as physical or social, but they also have different judgments about the intentions of the norm-violating actor, depending on the specific circumstances in which the norm violation took place. Children could discern it, when the actor 'willed' to do something, but could not be successful due to an external constraint.

Similar to most of the research on norms and moral conventions, aforementioned researchers adopted the interview method, where they first made participants watch a norm-violating event take place, and then answer why –due to physical or external constraints- that event took place. It is clear that this method highly relies on children's use of language. Hence, it is harder to conduct this research with even younger children, who are not capable of speaking or fully communicating their

thoughts. For this reason, current research stemmed from an attempt to integrate the research on children's understanding of freedom of choice with the previously-mentioned method of analyzing their games. It was thought that the actor's freedom to act would be an important factor when reacting against norm violations.

In an attempt to investigate the development of normativity, the same method as applied by Rakoczy, Warneken, and Tomasello (2008) was applied. Here, children were presented with games which either had correct and incorrect ways of being played with, or did not have any specific rules. A third party, in the form of a puppet[1], then, violated the norms of the game by employing the incorrect action in the experimental condition. Children's reactions to the third party were assessed. Since this was a replication study, the hypotheses were the same as those in Rakoczy et al. (2008). Overall, it was expected that children would show more normative protest in response to norm violations. Moreover, it was expected to find out that 3-year-old children would protest more than 2-year-old children. No gender effect was expected. All of these hypotheses were supported.

In a second study, the actor's free will to act was manipulated by putting a physical constraint on him in the experimental condition. Hence, in this condition, the puppet had no other chance but to violate the norm due to his constraint. It was hypothesized that children would well understand that this is an accidental case; thus, that there would be a decrease in the normative protests, and an increase in helping reactions. No age effect and no gender effect were expected. The results revealed an increase in helping reactions, but not a decrease in normative protests. Possible explanations of this are discussed in detail below. As expected, no age or gender effects were found out.

[1]The third party in these games are always a puppet played by a novel adult experimenter. This is done on purpose, because children find it more difficult to protest against an adult, since they view her as an authority figure (Jaswal & Neely, 2006; Rakoczy, Hamann, Warneken & Tomasello, 2010). By use of puppets, it is intended to dissociate the adult from her own identity and focus the children's attention to the puppet's identity.

Outline of the thesis

The introduction chapter will be followed by a comprehensive literature review, where the concepts of normativity and free will are explained in full detail in separate parts. Each part will provide a philosophical, a psychological, and an evolutionary outlook to the issues. Hence, the literature on how these concepts are held within the fields of philosophy will be nourished by how they have been investigated within the fields of comparative, cognitive, developmental, and social psychology.

From Chapter 3 to Chapter 5, detailed explanations about participants, materials, and procedures, the specific hypotheses, as well as the results of Study 1 will be reported. The attained results will be discussed with respect to how much they a) meet the expectations, and b) fit to the results attained by Rakoczy et al. (2008). In a similar manner, Chapters 6, 7 and 8 will respectively explicate the methods, hypotheses, and results and discussion of Study 2.

The results of both studies will be evaluated exhaustively in Chapter 9, the general discussion part. How well the results support up-to-date findings, and whether they are in line with the current literature will be argued. Furthermore, the points that diverge from the literature will be attempted to be accounted for. The thesis will close with a summarizing conclusion in Chapter 10, which will also include some ideas for future research.

CHAPTER 2

LITERATURE REVIEW

2.1. Normativity

2.1.1. Why Study Normativity?

Normativity in the broadest sense is about how things ought to be done. For social psychologists, developmentalists, and philosophers it has been a topic of great interest for decades, even centuries. How is it possible that human beings come together and construct a wide array of social regulations? Even more amazing, how is it possible that their infants adapt to this complex world pretty easily? Perhaps even more fundamentally, why do humans have norms at all? This question is almost equal to asking why humans live in societies. Ridley (1996/2011) claims that as opposed to the social lives of non-human animals, living in a society provides human beings with the advantage of division of labor, and the otherwise impossible productions it enables in return.

Normativity is an interesting topic to study also for sociologists and anthropologists, because it has many implications for the willingness of humans to live in societies, and for how societies are constructed in the first place. Its significance for philosophers can be inferred from Mead (1934)'s work, where he discusses the effect of internalizing the "Generalized Other" on the construction of a person's self. According to his theorizing, the Generalized Other defines "the organized or social

group which gives to the individual his unity of self" (p.154). Its internalization allows one to guess the attitude of the community, the expectations -the norms- and thereby influences the behaviors of individuals and "exercises control over the conduct of its individual members" (p.155). In line with Mead, Rakoczy (2009) thinks that there is a dialectic relationship between one's self construction and the culture and conventional practices one gets engaged in. This makes the issue attractive for psychologists; yet, there are even further reasons. Kalish and Shiverick (2004) assert that the two main motivations underlying human behaviors are (1) the influences of personal traits, and (2) the influences of social norms. What is more, they state that the influences of norms are more likely to surpass the influences of personal traits in children. When children's conceptions and application of norms are under concern, their developing social and cognitive abilities become the main points of concern. Taking all this together, the study of normativity becomes a tempting research topic for cognitive scientists.

2.1.2. Norms in Philosophy

2.1.2.1. Background

Despite the wide variety of different approaches toward the study of normativity, it is important for the sake of scientific argumentation to state the defining features of norms[1]. They mostly intersect with conventions and rules; but there is more to norms than that. A norm is a rule stated in normative terms such as "ought", "should", "good" etc., which is arbitrarily constituted by the people in a given community. A norm is not only conformed in a specific situation S, but also expected to be conformed to by others. This is a mutual cycle where every individual knows that the others expect him/her to conform, and that they know that s/he also expects them to conform (Lewis, 2002).

[1] For a detailed discussion on the similarities and differences between the terms conventions, social contracts, rules, norms, and conformative behaviors refer to Lewis, D. (2002). Convention contrasted in *Convention.*

In his groundbreaking work, Wittgenstein (1953) illuminatingly talks about rules. He puts forth the famous paradox of how we understand the rules, even very simple ones such as addition or multiplication. The paradoxical point here is that, a rule can never be made completely explicit; because in order to understand a rule, one has to understand the concepts and symbols used in it which are also based on some other rules (Mackenzie, 1997). Continuing this line of thought, one is faced with an infinite regress. How is it, then, possible that any person understands rules? For instance, how do people know that uttering the word "table" is appropriate in one context, but not in another? According to Kripke's (1982) interpretation of Wittgenstein, there is no property inherent in the object, nor in the person uttering the word which governs the correct application of the word to that object. Instead, the key word is "agreement" or "form of life". It is as a result of the agreement among people that the proper usage of a word or the proper application of a rule is determined (Mackenzie, 1997).

In philosophy, there is a huge literature on social rules being based on mutual agreement, namely the social contract debate. On the one hand there are those philosophers who conceive of human beings as evil-natured, and of social rules as making it possible for them to live together. Probably the earliest work making this connection is "The Prince" by Machiavelli (1532), where he argues for the wicked and deceitful nature of human beings and suggests strict applications of governmental policies to maintain unity. Similarly, in his groundbreaking work "Leviathan", Hobbes (1651) views the state of nature as a "war of every man against every man" (p.79), and argues that the creation of a commonwealth, or a state, or in yet other words, of the Leviathan is a natural consequence, a commitment which enables living in peace and harmony. On the other hand there are those philosophers who view human beings as good-natured. The most renowned of those is, arguably, Rousseau. Rousseau (1762) claims the state of nature to be peaceful; yet, as we move toward modern societies, problems on property, possessions and conflicts

among people emerge. He continues, however, that by social contract man gets the right to civil liberty and proprietorship of his possessions.

Adopting Hobbes' definition of the state of nature, Kant (1793) claims that it is not only the juridicial state, but also the ethical state of nature that is a war of all against all. In accordance with his general approach in philosophy, Kant takes the issue to be a subject of metaphysics. Accordingly, he asserts that a good and ethical community is one in which every individual conforms to the moral laws which are based on a priori truths. In his famous "categorical imperative" he demands that an individual always behave such that his/her behavior could become a universal law of conduct of all others as well.

Still another approach comes from the utilitarianism school in philosophy, which maintains that rules and regulations should be decided on the basis of the benefit of the majority (Mill, 1864). Mill claims that due to humans' "desire to be in unity with [their] fellow creatures" (p.47-48), being concerned with the benefit of others comes so natural.

Despite the variety of starting points and despite the fact that they conceive of the human nature differently from one another, all philosophers but Kant, agree that the constitution of rules is due to collective agreement of people to have some rules and to be governed by them. This does not mean that people living in a society all approve of the existing norms. Nor does it mean that every individual actually can determine the content of norms. Whether or not this is the case, the crucial point here is the willingness of humans to live under the guidance of some rules providing social order, as opposed to disorder. Due to this need people come together, in one way or the other, and make up some rules to conform to under specific circumstances.

Quite naturally, such a rule system necessitates actions taken to preserve and maintain the norms in the society. This can be observed in the form of punishment, reward, or any technique used to facilitate learning by new generations. Elaborating

on utilitarianism, a contemporary philosopher, Rawls (1999), emphasizes the importance of liberty and justice while applying the norms in a society. Rawls (1955) also acknowledges the teaching function of punishment, and asserts that punishment can be justified so long as its current application helps preserve the social order in the future. So, one of the main features of social norms appear as their being culturally "inherited" or transmitted across generations.

In this sense, social norms are evolving. Of course the transmission is imperfect. As in the case of the inheritance of biological traits, the transmission of norms leads to changes. Yet, differently from the biological heritage, the changes in social norms during transmission are not caused by spontaneous mutations; rather norms are re-shaped according to changing societal conditions. In a similar manner, social norms are emergent. Yet, the emergence of a norm is not arbitrary, but is the result of adaptations to the new conditions of the society, necessitating new norms.

In short, social norms have such common properties as arising from the mutual agreement of people, evolving through cultural transmission, and changing as the conditions are altered.

2.1.2.2. Searle on norms

In his book "The Construction of Social Reality" Searle (1995) attempts answering "how institutional facts are created and maintained" (Smith & Searle, 2003, p.305). By institutions marriages, governments, language and the like are meant. But what is common in all of these facts that enable us to consider them all under the same heading of institutional facts? According to Searle's theory, institutional facts involve deontic powers[2] and are created as a consequence of status functions. Hence, some concepts such as status functions, constitutive rules and deontic powers should be clarified at this point.

[2] "Deontic: (Gr. *to deon* fit, fitting, becoming, proper) *adj*. pertaining to the concepts of permissibility and obligatoriness." (Mautner, 2005, p. 147)

Being advanced tool users, humans use many objects that they encounter in the physical world for something; that is, most objects function as something. For instance, we use knives to chop up food or we use a particular sort of paper as money for trading purposes. There is a conceptually distinctive feature between a knife and money, however. The reason for this difference is this: In the former case, the object's being sharp is a reason and actually the reason for using it for cutting and hence, calling it "a knife", whereas in the example of money, no property inherent in that piece of paper qualifies as a reason for using it for trading purposes, and hence, calling it "money". When one thinks about their initial emergence in the evolutionary process, inventing a knife requires coming up with a sharp object which can cut the food. Once having invented this sharp object and using it for chopping, the path to today's laser knives becomes only a matter of advancements in technology. In order to invent money, however, more than encountering that particular piece of paper is required. It is known after all that money was initially not in the form of paper, but valuable stones; so there must be something more than its physical properties that make it money. In order for a piece of paper to count as money it is needed that a group of people come together and agree to attribute a status to that piece. For a knife, however, some properties inherent in it cause its having the function it has. Thus, knife has a causal-usage function, while money has a status function.

Status function ascription is an arbitrary process. Of course there may be reasons why a piece of paper, and not, say, a piece of wood is deemed to be money. However, there is still no particular property in virtue of which that piece of paper would be used for exchanges in trades. Another feature of status functions is that they emerge as a consequence of collective agreement. As Smith (Smith & Searle, 2003) says, there might be controversies among groups of people as they ascribe different status functions to the same object. In other words, the collective agreement may be distorted. This is similar to the cases where countries have conflicts about the borders of their territories. Yet this is not a problem for Searle's theory of

institutional realities, since it means that one object may have more than one status functions in differing contexts; nothing more than that. Moreover, objects with status functions can be formulated as such: "X counts as a Y in context C". Searle asserts that in this formulation, X neither has to be a solid object, nor does it have to exist at all. Taking the example from Searle (2006), for instance, with their officers, mailing addresses, and stock holders, there are tremendous amounts of corporations in the world. Yet, when someone is asked to point to the corporation, it is virtually impossible; because it is not the houses, nor the contract, but the process as a whole that creates the corporation. Due to this last feature, Searle also talks about constitutive rules on the way to institutional facts.

Like every rule, constitutive rules define how things ought to be done in a given context C. Yet, as the name "constitutive rule" implies, such a rule is actually brought into existence with the statement of that rule. For instance, imagining a hypothetical world where there used to be no exchange of goods beforehand, the rule that one must do exchange by using money creates the very action of buying. Without this rule, there would be no act or even concept of buying things. Contrary to the constitutive rules are regulative rules. Regulative rules relate to already-existing activities and can be usually stated in the form of imperatives, such as "Do X" or "If Y do X" (Searle, 2008, p. 34). For instance, if there were a rule such that knives are to be held with the right hand while cutting food, this would not bring into existence the action of holding the knives or anything of the sort. It only regulates an already-existing event for the specific conditions it takes place in. At first sight, it might seem as if status functions are tied to constitutive rules, and causal-usage functions are tied to regulative rules. Although it may commonly be the case, there is no necessary relation like that. To provide one with a clue as to how to distinguish between the two types of rules, Searle (1969) points to the almost tautological character of constitutive rules in the sense that the rules define the very acts they are ruling. Searle maintains that regulative rules are seen in rules of conduct and moral rules, whereas constitutive rules are essential for institutional realities. From assigning

status functions and making up constitutive rules, the deontic powers follow. For instance, assigning the status of being a citizen of a particular country to some person brings with it a number of rights, duties, obligations, permissions and so on and so forth. Searle (1969) elaborates on the use of constitutive rules and creation of deontic powers in the context of language as well. To exemplify, a sentence such as "I will be there at five o'clock tomorrow" may be a promise when uttered in an appropriate context, which, in turn, creates an obligation to perform a certain act; that is, to be there at five o'clock the next day. Such acts Searle calls speech acts, or illocutionary acts (as Austin (1962) does). Although the linguistic examples are beyond our current concerns, the theory's expansion to that area reflects how widely it is encountered in human societies.

Defining the creation and maintenance of institutional facts as such has several further implications. First and foremost, since their emergence depends on collective agreement of people its ontology is necessarily subjective. In other words, "[y]ou have to be able to think yourself into the institution to understand it" (Searle, 2005, p. 22). This is something that behaviorist or external functionalist accounts cannot do, since there is no fact out there without people. Another point is related to its formulation as "X counts as a Y in context C". This implies that differently from other parts of nature such as biological and planetary systems, institutions have a logical structure. Lastly, arguably the most important implication for our current purposes is that this theory illuminates the difference between human and non-human animals. That the creation of institutions in the first place relies on collective agreement necessitates the ability of the species to collectively share the same intention towards a goal. According to the theory of shared intentionality which will be explained in detail below, collective or shared intentionality is what non-human animals lack. Further analysis of these theories, then, will help find the answer to the question of why humans and only they have such complex cultures with various institutions in them.

2.1.3. Norms in Nature

2.1.3.1. Norms in non-human primates

Unarguably, there are rules that assign what ought to be done and what not, not only in human societies, but also in other animal societies. For instance, if one considers the hierarchical relationship in a bee society it can be seen that with its queen, drones, and workers, a bee hive is fascinating in terms of role distribution among individuals. Worker honeybees have many jobs such as cleaning the hive, feeding the brood, grooming their nest mates, packing pollen, receiving and concentrating nectar, and foraging whereas the queen builds the nest and continues the life cycle by reproducing (Hölldobler & Wilson, 1990). However, there is a strict age-related rule determining which of these tasks are to-be-done by which individual (Seeley, 1982). Every individual must acknowledge the status of the other as it changes with age, and act accordingly. Is it, then, possible to call these structures social norms in the sense of human social norms?

To make it even harder to answer this question, let us move one step further and briefly examine the societies of our closest living relatives, those of chimpanzees and bonobos. There is still an open debate as to whether chimpanzees and bonobos have culture in the sense that humans have. Some primatologists emphasize the similarities, while others point to the fundamental differences between them and we (see Tomasello, 2010 and von Rohr, Burkart & van Schaik, 2011 for reviews). The mostly cited similarities are that those animals are living in social groups with enhanced strategic relationships (de Waal, 1982), displaying decreased aggression and increased tolerance, which holds true especially for bonobos (Hare, Melis, Woods, Hastings, Wrangham, 2007; Wobber, Wrangham & Hare, 2010), sharing food (Hare & Kwetuanda, 2010; Wobber et al., 2010), taking the other's perspective into account (Melis, Hare & Tomasello, 2006), hunting cooperatively (Boesch & Boesch, 1989; Boesch, 2002), and most important among all, teaching, which opens a path to cultural transmission (Boesch, 1991). These findings reveal that there are a

number of clear similarities between humans and non-human great apes, which are indicative of the evolutionary linkage of social behaviors. However, an interpretation must be made cautiously, as some other socio-cognitive skills seem to have emerged later, and may be unique to humans.

For instance, it was found out that despite living in groups, chimpanzees do not engage in role-reversal (Tomasello & Carpenter, 2007), do not altruistically share food (Jensen, Hare, Call & Tomasello, 2006; Vonk, Brosnan, Silk, Henrich, Richardson, Lambeth, Schapiro & Povinelli, 2008), and do not collaborate in hunts unless cooperation maximizes their profit (Bullinger, Melis & Tomasello, 2011), although they coordinate their actions with respect to others (Watts & Mitani, 2002). Lastly, since no other observation of teaching than Boesch's (1991) exist, which is prone to be interpreted in different ways as well, there does not seem to be convincing evidence of teaching as a means for cultural transmission in non-human apes. Thus, it is argued that humans are distinguished by other primates by social learning and enhanced cooperative skills, both of which lead to the evolution of cumulative culture (Tennie, Call & Tomasello, 2009; Herrmann, Call, Hernández-Lloreda, Hare & Tomasello, 2010; Hare & Tan, 2012; Hopper, Marshall-Pescini & Whiten, 2012).

Just to mention very briefly some other examples that would seemingly resemble human culture, behaviors such as nut-cracking, ant dipping, potato washing, or nettle feeding have been reported in wild populations of primates (Kawai, 1965; Boesch & Boesch, 1990; Boesch, Marchesi, Marchesi, Fruth & Joulian, 1994). However, more detailed analyses and studies on captive animals reveal that the same behaviors are observed in non-wild settings as well, indicating that they mostly emerge as a consequence of ecological demands or individual discoveries (Tennie, Hedwig, Call & Tomasello, 2008; Tennie & Hedwig, 2009). Even though it is true that these behaviors spread within a given population, the means of dispersal spreading are highly focused on individual learning, and not on imitation, social learning, or cooperation (Tennie et al., 2009). This marks the essential difference from the human way of transmitting cultural norms and values. In addition to this,

group hunts of wild chimpanzees are considered as the most complex 'cooperative activities' they engage in (Boesch & Boesch, 1989). Tomasello and Call (1997) re-interpret these observations and come to the conclusion that these hunts are not actually cooperative, since every individual only assesses what is best to do for himself at every moment. At best, this can be considered as an example of enhanced social coordination.

As a general approach toward culture and social norms, the latter view is embraced in this paper. This theoretical commitment stems from the convincing conclusions drawn as a result of careful analyses of studies conducted with non-human primates. It exceeds the scope of this paper, though, to clarify each such analysis in further detail (for a discussion, see Tomasello, 2011). Yet, to put it briefly, the argument is that in humans, there is the picture "of the ontogeny from individual intentionality to collective intentionality to institutional reality" (Rakoczy & Tomasello, 2007), whereas non-humans cannot make the crucial shift from individual intentionality to collective intentionality. Since evidence of imitation, social learning and cooperation are scarce it also casts doubt on whether the seemingly cooperative and cultural behaviors are indeed so.

2.1.3.2. The anthropology of norms

One problem about such evolutionary arguments as "the norms in human societies are noticeably different than those in societies of non-human animals" is that the comparisons being made are usually based on exemplars from contemporary societies. The lack of paleontological findings thereof and the difficulty of making interpretations no doubt play an important role in this. Still, to facilitate general understanding and ease in drawing connections, the current section will try to get a glimpse of some anthropological findings on human cultures, if not directly on social norms.

It is known that there is a remarkable shift between humans who lived in Middle (~250.000-40.000 years ago) and Upper (~40.000-10.000 years ago) Paleolithic periods in terms of their cultures (Lewin, 1999). Dating back to the Middle Paleolithic period, remains of bracelets and beads were found, which are thought to have been used for body painting purposes, and are representative of social status and identity (White, 1982). As one moves toward the Upper Paleolithic period, cave paintings appear to abound, whose functions have been interpreted differently. Among many others, archaeologist Salomon Reinach viewed them as serving the function of promoting preys in the hunt (Kelly & Thomas, 2010), whereas Leroi-Gourhan (1981) interpreted the figures as representative of masculinity and femininity. In either way, the figures in cave paintings stand for something else than just what they look like on the surface; they represent a message their painters intended to convey. This alone indicates humans' capability for symbolizing and imagery.

Further evidence of these capabilities comes from findings on the evolution of language. Even though researchers still debate the date of the first signs of language (for different views see: Holloway, 1983; White, 1982), most agree that it developed continuously during the evolution of the homo species (Falk, 1980; Deacon, 1989), and a significant difference was noticed in the transition from Middle to Upper Paleolithic periods (White, 1982). This parallelism between a distinctive shift in language use and in symbolic representation ability seems plausible. Along the times these shifts took place, social bonds and relationships seem to have been enhanced, since many gathering places were discovered that belong to people of the Upper Paleolithic period (Conkey, 1980). Conkey argues that people did not aggregate only for ecological or economical reasons, but also to form groups and interact with each other.

To sum up what has been said so far in the archeology section, early humans seem to have a societal structure in which they felt the urge to mark their social status. They also expressed their wishes, beliefs, or ideas in pictorial and linguistic ways. All this evidence supports the conclusion that, as compared to other animals,

humans have a distinctive ability to symbolize, which, in turn, may lead to the formation of complex social structures.

2.1.4. Norms in Psychology

2.1.4.1. The social psychology of norms

Following the end of World War II, there has been major interest among social psychologists to study humans' tendency to live in groups, form social norms within these groups and conform to them. Two of the most widely known of these, not only due to their scientific impact, but also because of the ethical discussions they gave rise to, are Milgram's obedience to authority, and Zimbardo's prison experiments. In a series of studies, Milgram assessed to what extent people could be destructive for the sake of being obedient to what they are instructed, in this case, the experimenter. In the experiment, which was set up as a learning experiment for pairs of subjects, one of them was asked to apply electric shock4-year-old children can well evaluate others' freedom of choice in conforming to the norms of varying levels to "punish" the other (a confederate in reality) if s/he did not know the right answer. Participants did not have any prior contact with each other before the experiment. The results were devastating: 65% of the participants applied the highest, life-threatening, level of shock to the other person, even though disobeying the so-called authority figure had no material costs to them. This experiment showed how strictly humans obey, even if they do not approve of what is being done as reported in post-experimental interviews.

A decade after that, Haney, Banks and Zimbardo (1973) simulated a prison environment and allocated the participants into either the "guardian" or the "prisoner" groups. This experiment resulted in unpredicted levels of violence on the side of the guardians, and resignation on the side of the prisoners - so much, indeed, that the experiment could continue only for 6 days, despite being planned as a 2-week-

process. Then the experiment had to be cancelled. Since then, this experiment has been indicative of the readiness of humans to adopt and act according to the (potentially detrimental) norms of their groups.

Another striking finding was that of Tajfel (1970)'s. In his experiments, which led to the development of the "Minimal Group Paradigm", Tajfel and colleagues (Tajfel, 1970; Tajfel, Billig, Bundy & Flament, 1971; Tajfel & Billic, 1974) assigned participants to two groups, both of which were marked with only subtle and arbitrary cues. When asked to allocate rewards among the members of the two groups, people showed a preference to allocate greater rewards to the in-group than to the out-group members. This has been mostly interpreted as demonstrating how minimal conditions are sufficient to cause discrimination toward out-group members (Tajfel, 1970). Yet, it has also been viewed as suggestive of humans' need for belongingness; that is, humans' desire to be attached to others and live in groups (Baumeister & Leary, 1995)[3].

When all these results are taken into consideration as a whole, they reveal a tendency in humans not only to form groups but also to act in accordance with the norms of these groups and/or in accordance with what someone else tells them to do.

2.1.4.2. The development of norms

2.1.4.2.1. Background

One of the pioneering works in the development of norms is that of Piaget (1932). Before moving on further, however, it is important to underline one difference between moral laws and social conventions: whereas social conventions are

[3] That the desire to live in groups is also promoted by the hormone oxytocin has been recently shown by de Dreu, Greer, van Kleef Shalvi, and Handgraaf (2011). Oxytocin is a hormone which was previously found to be related to cooperation with in-group members. As a result of a set of experiments, Dreu et al. concluded that oxytocin relates to in-group favoritism, and out-group derogation, though the latter is a less salient effect.

more arbitrary and context-specific (e.g. one action may be appropriate at a cocktail party, but not at a classical music concert), moral laws are considered as non-context-dependent (Nucci & Turiel, 1978). In addition, moral laws have been thought to stem from people's concepts of justice rather than being socially regulated (Kohlberg, 1969). As opposed to Kohlberg, however, the author of this paper holds that concepts of justice are also socially-influenced matters; even though we might have an intrinsic inclination to be just, what is accepted as just and unjust changes highly depending on the social environment. Hence, research on moral development is considered as relevant to our topic, and will be discussed in some detail.

According to Piaget's (1932) theory, moral development takes place in two broad stages: the "heteronomous morality" and "autonomous morality" stages. As can be inferred even from the names of the stages, the first one describes the perception of rules as if they are authorized by some authorities. Hence, children at this stage who may be aged between 5-10 years, view rules as fixed and permanent. From this fixed point of view, children at this age evaluate the wrongness of an action with respect to the outcomes it causes, not the intention of the wrongdoer. In the second stage, the transition to which is made around 10 years of age, the view of rules shifts to a more flexible one, and they are perceived as socially constructed rather than given. It is also seen in this stage that judgments about moral violations are made on the basis not only of outcomes but also of intentions. This requires the cognitive skill to take the perspective of another person, which is, according to Piaget's cognitive developmental theory, developed by the time children reach this stage of moral development.

Inspired from Piaget's work, another influential name in this area, Lawrence Kohlberg, later developed his theory of moral development. According to Kohlberg's theory (Kohlberg & Hersh, 1977), moral development consists of three main levels, with two sub-stages in each. On the first level, the "pre-conventional", there is an understanding of cultural rules and of what is good or bad; yet, they are

evaluated only with respect to their consequences such as punishment or reward. Later, on the "conventional level", appreciation of cultural values on their own regards starts. This level is marked with a move from pure conformity towards loyalty for social order and norms. On the last level, which is called the "post-conventional", "autonomous", or "principled level", individuals define moral values and social principles in terms of their utility for the society as a whole, and acknowledge their universality and abstractness of them. People reach the first level during adolescence, and the second level is prolonged until early adulthood. The post-conventional level is reached in adulthood, though the latest stage of it occurs very rarely (Berk, 2004). Before concluding Kohlberg's view, it is important to note three properties of stages as he puts them. According to Kohlberg (1977), the stages he proposes are 1) "structured wholes" (p.54), 2) the individuals display a consistent development as they move through the stages, and 3) they are sequential such that each stage hierarchically includes the lower ones.

Although these are the two most widely known theories on the topic, there are, of course, more recent ones. Among others, the most striking difference in these theories is that they are highly built upon empirical findings, a criticism frequently raised against Piaget and Kohlberg. To exemplify one of them, "Triune Ethics Theory" as proposed by Narvaez (2008) suggests that "three types of affectively-rooted moral orientations emerged from human evolution" (p. 95). These are the "ethic of security", which is about self-preservation through personal or group-level dominance; the "ethic of engagement", which focuses on interpersonal affiliations, especially in the form of caring relationships; and the "ethic of imagination", which coordinates the intuitions of the other two ethics and restructures elements regarding moral principles. All of these ethics have cognitive-neurobiological bases reflected in the human brain. Moreover, they follow the evolutionary line such that the "ethic of security" is related to rather lower animals; the "ethic of engagement" is seen in mammals and especially in primates; while the "ethic of imagination" makes use of higher social reasoning capacities of humans. Lastly, Triune Ethics Theory asserts

that the normative claims each ethic makes and how they are seen is influenced by individual differences such as disorders or anomalies experienced during development and contextual priming.

2.1.4.2.1. Shared intentionality and norms

Moving towards more recent developmental theories, one of the most influential of them is formed around the "shared intentionality" concept, as proposed by Tomasello and colleagues. It "refers to collaborative interactions in which participants have a shared goal (shared commitment) and coordinated action roles for pursuing that shared goal" (Tomasello, Carpenter, Call, Behne & Moll, 2005, p. 680). It is worth detailing this definition a little more to gain a full understanding of what is being proposed. The idea of shared intentionality finds its roots in Bratman's (1992) definition of what he calls the "shared cooperative activity" (SCA). Bratman (1992) points to three features of SCA, the first of which is mutual responsiveness. It refers to each party's being responsive to the other's intentions and actions, with the knowledge that the other one does this for her as well. Second, each party has a commitment to the joint activity. And lastly, the third feature is the commitment to mutual support, whereby each participant supports the others as they play their roles in the pursuit of the joint activity. Taken together, the crucial issue is not having parallel intentions and displaying the seemingly same actions with someone else, but sharing intentions with the other as a means to engage in joint activities with him/her (Carpenter, 2009). It is argued that as this skill develops and takes more sophisticated forms, it enables the formation of social institutions.

There are, of course, a number of necessary socio-cognitive skills in order to achieve this. The first is, undoubtedly, the ability to understand the intentions of others, which can be further decomposed into yet other skills. Briefly, it is known from several experimental studies that children have the basic principles required for causal reasoning by 3 months (Spelke, Phillips & Woodward, 1995), can discern

action-goals and differentiate between animate and inanimate agents by 6 months (Woodward, 1998), and understand the goal-directedness of others' actions through distinguishing their intentions by 9-12 months of age (Csibra, Gergely, Biró, Koós & Brockbank, 1999; Behne, Carpenter, Call & Tomasello, 2005). Yet, none of these skills are sufficient for shared intentionality, since acquiring them by no means guarantees an ability to act jointly with others.

What especially is distinctive at this point is infants' sharing of emotions, goals, and eventually, engaging in collaborative activities with others (Tomasello et al., 2005). Studies reveal that within a few months after birth, infants share emotions with their mothers through proto-conversations where mother and infant take turns to engage in social interactions (Striano & Reid, 2006) and affectively respond to their mothers by following the prosodic patterns of their speech (Fernald, 1992). From 9 to 12 months onwards, infants start to share goals and perceptions with others, as displayed by the beginning of pretend plays, and pointing and naming games, where infants not only take turns with the adult to reach the goal, but also coordinate their eye-gaze (Hay, 1979). It is, however, only after 12-14 months of age that infants begin to engage in fully collaborative activities (Ross & Lollis, 1987; Liszkowski, Carpenter, Henning, Striano, & Tomasello, 2004), which is in parallel with the development of joint attention (Tomasello et al., 2005). The understanding of obligations and full commitment to joint actions comes still later, around 3 years of age, as evidenced by normativity studies (Rakoczy, et al., 2008; Hamann, Warneken & Tomasello, 2012).

The normativity studies conducted within this framework were initially based on pretense play games. These games are marked by pretending to use some objects as something else (e.g. use banana as telephone, take a stuffed rabbit and pretend to feed it with carrot etc.). As can be inferred, these games possess the previously-elaborated "X counts as Y in context C" structure in that they can easily be stated in terms like "A banana counts as a telephone in the context of this game" (Rakoczy, 2007). There are quite a lot of studies using pretense games, all of which

reveal that children by the age of 2 are able to comprehend status function ascriptions (Haight & Miller, 1992; Harris, Kavanaugh, Wellman & Hicling, 1993; Rakoczy, Tomasello, Striano, 2005). To see how children would react in a pretense game setting, Rakoczy (2008) tested 2- and 3-year-olds, where they agreed with an adult on how to use certain objects (e.g. differently colored blocks counted as soaps *versus* sandwiches depending on the game context). When a third party appeared and used the soap-block instead of the sandwich-block, children of both ages, though 3-year-olds more pronounced, reacted negatively against her. Further studies explored children's understanding of context-specificity (Rakoczy, Brosche, Warneken & Tomasello, 2009; Rakoczy & Tomasello, 2009; Wyman, Rakoczy & Tomasello, 2009). In these studies, the puppet expressed its willingness or unwillingness to be involved in the game context in a very clear and explicit manner. 3-year-olds, but not 2-year-olds were found to systematically appreciate the context-relativity of games: They protested less when the puppet performed the norm-violating action after announcing that it wanted to play a new game.

Another more recent method employed to test normative understanding in children makes use of rule games. Its difference from pretense games is the increased emphasis on the rules of the games. The rules in a pretense game are highly fictional, and in a sense 'not so serious'; whereas in a rule game such as baseball, throwing the ball into the net is really a goal: there is no pretending (Rakoczy, 2007). Hence, Rakoczy et al. (2008) constructed such rule games that preserved the status function ascriptions, as in pretense games, yet had more rigid rules. In the experimental condition, each game had a name which was a novel word, and the rules of the game were being told to the child before she was allowed to play the game. Similar to Rakoczy (2008), then, a puppet appeared and announced that it wanted to play the game, by putting special emphasis on the name of the game (e.g. by saying "I want to dax now."). Despite this announcement, however, the puppet played the game incorrectly in the experimental condition. 2- and 3-year-old children's reactions toward the norm-violating-puppet were, then, observed. To make

the distinction as vivid as possible, the same games did not have any particular names, nor did they have rules in the control condition. Thus, although the puppet still performed the same action which was deemed to be incorrect in the experimental condition, it was not a violation of norms here. It was expected that children would protest in the normative context (experimental condition), whereas they would not protest in the neutral condition (control condition). It was found that children showed more normative protest, indeed, when the puppet violated the norms, and that this tendency to react increased with age.

Following this work, Engemann (2010) tested 3 and 5-year-old children in age-matched pairs instead of using a puppet as the third party. He assessed how children would behave when they initially learn the rules of a particular game differently from each other, and then, are left alone to play the game together. Obviously, as the two norms clashed, normative contradictions occurred and children had to resolve this conflict on their own, without an adult to rely on as an authority figure. Consequently, Engemann found more facilitated normative responses as compared to the puppet studies. This may be due to the interaction of peers rather than puppets and adults; however, he also notes (importantly) that his 3-year-old group was approximately six months older than Rakoczy et al. (2008)'s 3-year-old group, which might be a long and critical period in developmental terms.

Overall, the developmental research on normativity and social conventions is broad, and has investigated the issue from various different aspects. The theoretical approaches have been and will continue to be refined as data accumulate. It is known today, that children's social capacities have been grossly underestimated in previous accounts. Research on normativity suggests that children possess much of the basic social capacities of cooperation and shared intentionality already in their first year of life or so. Furthermore, they understand and apply status functions to objects by 2 years of age, and protest appropriately in normative contexts by 3 years of age. The most promising approach for exploring the construction of institutional realities thus seems to be the one proposed by Rakoczy et al. (2008).

2.2. Free Will

2.2.1 Why Study Free Will?

What is freedom, and what is it "to will something"? Is a flowing river free as opposed to one whose stream is constrained by a construction? Does a sunflower turn its head towards the sun because it wills to do so? Do humans have the chance to act on the basis of what they freely will, or is all that is going on necessitated by physical and/or social forces over which no one has power? How do humans learn, in the course of their lives, to distinguish between what is within and what is out of their control? What should be the consequences of a mistake when it is done on purpose rather than when it is accidental? For millennia, philosophers have been tackling these and many other questions about the freedom of will. It has become a concern for social sciences, however, only more recently, due to scientists' concern about how to solidify and handle the concepts objectively (Baumeister, 2008).

Although it is hard to find a definition of the term free will on which most philosophers would agree, the argument is basically formed around ascribing to the human will at least one of the following criteria: a) the freedom of indeterminacy; that is, the independence from antecedent causes, b) the freedom of choosing among alternatives, and c) the freedom of self-determination in the sense that the will is determined as a result of not external but wholly internal motives (Runes, 2001). The difficulty of defining free will stems from the many implications the concepts of freedom and will have for other domains. For instance, Strawson (1998) puts the central questions of the free will debate as 1) what it is to act freely, and 2) what it is to be morally responsible for the actions one performs. He even goes further and doubts whether freedom of will would be of such great interest for centuries, if it did not have implications on morality. Though provocative at first sight, he is right in his doubts since many philosophers, such as Kant (1793) and Strawson (1962),

treated freedom of will from the viewpoint of whether humans could be responsible for their moral actions if they are/are not free in deciding to act as they will.

The topic has being investigated within the field of psychology for the past few decades. Following Hume (1739), who defined will as "nothing but the *internal impression we feel and are conscious of, when we knowingly give rise to any new motion of our body, or new perception of our mind*" (p.257), most of the researchers appreciated the close relation between causality and free will. Accordingly, developmental, cognitive, and social psychological studies, as well as a few neuropsychological ones, some of which will be explained in detail below, have been conducted. Basically, these studies aimed to account for people's perceptions of causality and agency, the effects of external factors on action choices, and whether it would be possible to find out brain regions corresponding to acts of free will.

2.2.2. Free Will in Philosophy

Mostly, the philosophical debate on free will focuses not on whether human beings have the capacity to will to do *any*thing in *any* given situation; rather on how free or unconstrained, if at all, we are in willing to do something (Timothy, 2011). This brings about the problems of being free of constraints, which may be physical, theological, or social. Hence, the question of whether humans have free will has mostly been answered by contrasting it with determinism. Determinism is the idea that everything that will happen is a necessary consequence of whatever previously happened, so much so that nothing can ever happen otherwise so long as the events that took place prior to its existence do not change (Pinchin, 2005). Obviously, if determinism is true, then, there is a problem as to whether things happen because we freely will them to happen as such or because they were already pre-determined and are going to follow a certain route no matter the way we will them to happen.

From a dualist point of view, Descartes (1649) argues that our passions are controlled by our souls and spirits, and goes so far as to assert that "the will is by its nature so free that it can never be constrained" (p. 343), since no external factor, not even one's own character can have causal influence on what one wills. Nonetheless, he admits that some physical events such as a loud thunder or a burst of anger may be so dominant that one cannot avoid hearing the noise or slow down one's heart beat by one's will. Despite this, one can inhibit the movements it stimulates (e.g. stop oneself from striking a blow during a burst of anger). Sartre also views human will to be absolutely free, although his ideas do not stem from dualism, but from existentialism. Sartre (1943) claims that humans cannot escape being free, as he writes in his 1956 (dated) book "Being and Nothingness":

> Freedom is precisely the nothingness which is *made-to-be* at the heart of man and which forces human-reality to *make* itself instead of *to be*. (…) [F]or human reality, to be is to *choose oneself*; nothing comes to it either from the outside or from within which it can *receive or accept.* (…) [I]t is entirely abandoned to the intolerable necessity of making itself be - down to the slightest details. Thus freedom (…) is *the being* of man - i.e., his nothingness of being. (p. 568–9)

There are yet other philosophers who accept the existence of both determinism and freedom of will at the same time. This view is known as the "compatibilist view", according to which free will has a more restricted definition, as being free of certain types of constraints such as physical restraints, mental impairments, coercion and the like (Kane, 2002). From this it follows that in such occasions where one is mentally healthy, is not imprisoned or is not being tortured, one can be considered free. As Hobbes (1651) puts it:

> Liberty and necessity are consistent: as in the water that hath not only liberty, but a necessity of descending by the channel; so, likewise in the actions which men voluntarily do, which, because they proceed their will, proceed from liberty, and yet because every act of man's will and every desire and inclination proceedeth from some cause, and that from another cause, in a continual chain (whose first link is in the hand of God, the first of all causes), proceed from necessity. (p.137)

Approaching the issue from a different perspective, Locke (1690) finds the formulation 'the freedom of will' misleading, since he states liberty, and will to be two distinct powers or abilities. Hence, freedom or liberty cannot be attributed to will, but to the agent. When the liberty of an agent is under concern, Locke (1690) claims "that so far as any one can, by the direction or choice of his mind, preferring the existence of any action to the nonexistence of that action, and vice versa, make it to exist, or not exist; so far he is free" (p.156).

Another prominent view is that of "incompatibilists", who hold that if determinism is true, then one cannot talk about having freedom in one's action choices. The incompatibilists can be divided further into two groups: pessimists and libertarians (Strawson, 1998). The pessimists argue that it is not possible for human beings to be sufficiently free to be responsible for their actions. The logic behind it is the following: Every person makes a decision dependent on the condition s/he currently is in. The condition one is in is a result of many events, genetic, social, historical, accidental etc., at least some of which are beyond the control of that person; hence, the freedom of will is restricted. Yet, even if one accepts that the current condition is created fully intentionally, there has to be a prior intentional state that created this one; obviously, as one continues this reasoning backwards, it leads to an infinite regress. Therefore, pessimists conclude, one can never be fully responsible for one's moral actions, and freedom of will in this sense is impossible.

Libertarians can be thought of as the exact opposite of pessimists. While both agree that determinism is not compatible with the idea of free will, libertarians hold that since we are free determinism is false (Strawson, 1998). Agent-causal theories, which are the ones favored by most by scientists in the study of free will[4], are also sometimes considered as libertarian. Although a number of differences exist among different agent-causal theories, all converge on the following points:

1. An agent is a causal factor in the production of an action.

2. For a given action of an agent, the agent could have not caused it. Roughly, the agent could have done otherwise.[5] (Nichols, 2004, p. 475).

These theories are against the compatibilist accounts, since they reject the co-existence of determinism and free will. Yet, they are also against pessimists, because they take the existence of free will for granted, and come to the conclusion that determinism is therefore false. Indeed, their taking free will for granted has similar rational grounds to that of Hume's, who conceived free will as nothing but the feeling of causing things to happen. Accordingly, the agent-causal theories assert that if an agent possesses free will, then, there must be at least two different ways of performing the action, between which that agent can choose. Thus, the result attained in the end of that action "could have been otherwise", if the agent had chosen the other alternative. Nichols (2004) elaborated on this issue and also conducted some experiments to test the development in children, all of which will be explained in the following sections.

[4] According to Dennett (1996), this formulation does not have relevance to the debate on free will, with which philosophers have been concerned for centuries. He strongly argues that knowing whether someone could have done otherwise than s/he did on a particular occasion does not tell us anything; nothing about the character of the agent, nothing about how s/he will behave in the future, etc.

[5] This approach is widely known under this simple formulation of "could have done otherwise". Sometimes it is also called the "alternative possibilities" or "avoidability" condition (Kane, 2002).

2.2.3. Free Will in Non-human Primates

There is no doubt that the concept of free will comes to mind with all its abstract and high-level mentalistic interpretations, which may well exceed the scope of non-human animals, adding the fact that it is impossible to directly ask an animal on its ideas on free will. Despite this, it is possible to solidify it by i) defining it in terms of its opposition to physical necessity or random occurrences, and ii) decomposing it into smaller socio-cognitive units, and investigating those abilities. To start with, in order to be able to distinguish among physically necessitated events, accidental events, and intentional ones, one should be able to distinguish between animate and inanimate beings (for a similar suggestion for human infants, see Mandler, 1992). Moreover, an understanding that agents can have intentions and goals, and that they can realize them *via* their causal power is necessary.

When non-human primate species are investigated, it is obvious that they make use of the differences between animate and inanimate beings, and perceive their conspecifics as agents who have goals and causal power (Menzel, 1973; Hare, Call, Agnetta & Tomasello, 2000; Kaminski, Call & Tomasello; 2008). Furthermore, based on this knowledge, they make inferences about the upcoming events and position themselves accordingly (Visalberghi & Tomasello, 1998). While evaluating the studies cited in this section, however, it is important to keep in mind that all of them have been conducted with great apes and the majority with chimpanzees in particular; hence, one should be cautious about generalizing the results to other species.

In a series of studies where apes were confronted with tasks of various sorts, researchers (Seed, Call, Emery & Clayton, 2009; Call, 2001; Hanus & Call, 2011) demonstrated that chimpanzees, but not orangutans or gorillas, displayed evidence of abstraction in their physical reasoning, which is a component thought to be essential to causal understanding (Gopnik, Glymour, Sobel, Schulz, Kushnir & Danks, 2004). Yet, what is especially distinctive for the purpose of free will understanding

is whether abstraction in social reasoning takes place. Although no direct evidence either for or against it exists, some studies investigating animals' understanding of goal-directedness are suggestive in the positive direction (Menzel, 1973; Premack & Woodruff, 1978; Call & Tomasello, 1998; Call, Hare, Carpenter & Tomasello, 2004; O'Connell & Dunbar, 2005). It is, however, quite debatable whether they go beyond simple associative learning and make abstractions and transfer this knowledge to use in novel situations (Visalberghiet al., 1998; Povinelli & Vonk, 2003; O'Connell et al., 2005).

Further studies concentrating on higher-level cognitive processes such as theory of mind understanding and appreciation of intentionality have been conducted with chimpanzees and orangutans. In their 1978 article, Premack and Woodruff asked the famous question: "Does the chimpanzee have a theory of mind?" Their conclusion by that time was that the chimpanzee they tested was capable of understanding the intentions of a person facing a problem, which was evident by the chimpanzee's choosing the correct solution to the problem. Faced with criticisms that the chimp could basically be operating on an associative learning principle rather than causal learning (Savage-Rumbaugh, Rumbaugh & Boysen, 1978), a follow-up study was conducted, the result of which, however, was not promising for the argument that the chimpanzee actually had theory of mind (Premack, 1986).

More recent studies attempted to assess whether animals could distinguish between those events where the agent was doing the action either intentionally, or accidentally. The results, however, are somewhat contradictory. Povinelli, Perilloux, Reaux and Bierschwale (1997) found out that chimpanzees did not significantly distinguish between conditions where a human was willing, unwilling, or unable (due to an external constraint) to give food to them. Call and Tomasello (1998), on the contrary, reported that not only chimpanzees but also orangutans were able to make the distinction between a human doing some action on purpose as opposed to accidentally (e.g. through dropping). In a similar procedure to Povinelli et al., Call et al., (2004) found that chimpanzees immediately recognized when the human was

unwilling to give them food, and reacted either by begging for food and knocking, or by leaving. In accordance with their results, one side argues that it is unique to humans to have such higher-level processes as mental state understanding (Povinelli et al., 2003); whereas the other side claims that "chimpanzees understand others in terms of a perception–goal psychology, [if not] a full-fledged, human-like belief–desire psychology" (Call & Tomasello, 2008, p.187).

It is far beyond the scope of this thesis to conclude which level of skepticism is more reflective of reality. However, the author also believes, in accordance with Tomasello and colleagues, that there is at least some evidence demonstrating non-human primates' high-level cognitive skills. With respect to non-human primates' free will understanding, it seems that the bottleneck will be their inabilities to infer the mental states of others, especially as they get more and more complex in social settings. In line with the idea of shared intentionality introduced above, it is argued that the essential difference between humans and non-human animals lies in humans' extensive social abilities (for a comprehensive analysis of this, see Herrmann et al., 2010), which are made most explicit by their sharing intentions and engaging in collaborative activities with others (Herrmann et al., 2010; Tomasello & Moll, 2010).

2.2.4. Free Will in Psychology

2.2.4.1. The social and cognitive psychology of free will

As mentioned before, the concept of free will is concerned with social and moral obligations, as well as with other cognitive skills such as understanding the agent causality of events. Arguably the most striking conclusion drawn from socio-cognitive studies is the fact that we might be, indeed, more externally-determined than we think we are.

One very interesting line of research which resulted in the discovery of the so-called "bystander effect" can be telling in terms of people's perceptions of free will possession. In a series of experiments (Darley and Latané, 1968; Latané & Darley, 1969; Latané & Rodin, 1969; Latané, 1981) it was shown that people were less likely to take action in emergency situations, when other people were around. The mere existence of another person was enough to induce this effect, not to negate the effects of other factors (for a review on how other factors influence the bystander effect, see Latané & Darley, 1969). Yet, what was more interesting in terms of its relation to free will was that, when asked after the event was over, most of the participants did not agree that the existence of the bystander had *any* impact on their decision to intervene and reported other reasons for their actions instead. Indeed, we are quite often misled in attributing the causes of events or actions, especially mental and cognitive ones, in our everyday lives. In a similar manner, Nisbett and Wilson (1977) revealed that asked on their choices, which were highly influenced by the left-to-right position effect, implicit memory effect, anchoring effect, halo effect and many others, participants almost never made the relevant attributions about the reasons for their choices. Instead, they stated some other reasons, and virtually all denied a possible influence of the mentioned effects, respectively. Altogether, the studies reviewed so far show that humans are reluctant to admit that their actions may have external causes beyond their perceptual limits. These misattributions may be resulting from people's need to perceive themselves as having control over what they do; that is, of acting by their free will.

Another set of experiments supporting this claim is based on priming effects. In cognitive psychology, priming is a commonly used method, where participants are first presented with a particular stimulus, and then are given seemingly irrelevant tasks. In reality, the first stimulus serves as a context for the latter tasks; hence, participants' performance in the latter task is influenced by what they received as stimulus; in other words, they are primed to act in a certain way (Eysenck, 1994). Using the priming methodology, a number of researchers have manipulated and distorted

people's perceptions of free will. Participants who were made read texts emphasizing either determinism or freedom of will were later asked to engage in tasks of various sorts. As a result, it was found out that participants who were primed with deterministic texts were less likely to strive to accomplish their goals (Mueller & Dweck, 1998), help others in need (Baumeister, Masicampo & DeWall, 2009, Experiment 1), and were more likely to cheat (Vohs & Schooler, 2008). Furthermore, reduced belief in free will was related with perceiving others as less morally responsible; which was accompanied by an increase in forgiving others (Brewer, 2011). In addition, an experiment conducted with people who actually have chronical disbelief in freedom of will similarly revealed that it was associated with reduced helping behavior (Baumeister et al., 2009, Experiment 2).

Indeed, these findings provide support for theories claiming a) that humans are in need of perceiving themselves as acting on their free will, and b) that the will is not free but caused, either by external or internal factors. Following this line of thought and taking it one step further, it is argued that unconscious processes operate as well as (Achim, 2009), or maybe even more than (Bargh & Morsella, 2010), conscious ones as humans perform actions. Although he concludes that our will is not free in the sense that it is not caused by *any* sort of factor, including internal causes, every one still has a unique will, which is "a confluence of genetic heritage, early absorption of local cultural norms and values, and particular individual life experiences" (Bargh & Earp, 2009). Agreeing that unconscious factors are acting together with conscious ones to form human behaviors, Baumeister, Masicampo and Vohs (2011) review much of the studies conducted within this field. Regarding the influences of conscious thought, they put forth three main conclusions: 1) it enables temporal integration, as it is guiding present or future behaviors by the help of past ones, 2) it enables incorporating the social and cultural factors (e.g. understanding others, norms) to the behaviors, and 3) it helps one to choose among alternatives in a given situation.

Employing a totally different technique, Wegner and Wheatley (1999) also found that people's perception about their possessions of free will could be highly distorted. Following the idea that priority, consistency, and exclusivity of thought are influential in producing the perception of conscious free will, researchers manipulated the priority element. As participants were at the moment of deciding to do something, which was primed *via* auditory cues, an external agent was actually performing what the participant was just about to do –what the auditory cue pointed to. Changing the timing of the external agent's performance, it could be shown that participants were more likely to deem the action as caused by them when the action followed the auditory cues with a few seconds. Hence, the study provides evidence that priority of thought is an important factor in making up the perception of free will.

Apart from these behavioral studies, neuropsychological ones have been conducted. Libet and his colleagues (Libet, Gleason, Wright & Pearl, 1983; Libet, 1985; Libet, 1999) investigated the timing between the occurrence of a readiness potential (RP) and participants' conscious decision making. The results revealed that a RP precedes the occurrence of a free voluntary act by 550 ms, and participants report their intention to act 35-400 ms after the RP. Overall, these studies propose a different view of free will, as the initiation of volitional processes seem to be unconscious. Yet, this does not cancel out the possibility of free will; what remains for free will is to veto or control the performance of the act. With the advancement of neuroscientific techniques, the results of Libet started being criticized (Haggard & Eimer, 1999; Soon, Brass, Heinze & Haynes, 2008). Using EEG, Libet was able to find evidence for the activation of the supplementary motor area (SMA) of the brain, which is where RPs originate from, and is involved in the late stages of planning motor actions. This raised concerns about "whether the SMA is indeed the cortical site where the decision for a movement originates or whether high-level planning stages might be involved in unconsciously preparing the decision" (Soon et al., 2008, p.543).

Using fMRI, Soon et al. revealed that the time delay between conscious awareness of willing to do something and brain activation was 10 s, a value much larger than previously found. Furthermore, it was reported that SMA and primary motor cortex were regions that were activated during the execution phase, whereas prefrontal and parietal cortex encoded the decisions of the participants ahead of time. In line with what Soon et al. suggested, Rigoni, Kühn, Sartori & Brass (2011) found that inducing disbelief in freedom of will *via* priming led to a decrease in the early-RP amplitude. Since no correlation in decreased early-RP amplitudes and descending levels of belief in free will was found, it was proposed that beliefs about free will are related to motor preparation, and not execution processes. Investigating this issue more deeply from the perspective of the "embodied agent" concept Tsakiris and Haggard (2005) highlight the importance of distinguishing between "acting" and "sensory" selves, through determining whether they are the results of efferent or afferent information. After reviewing the literature on somatosensory perception, time-awareness, and self-recognition, they conclude that voluntary movements constitute the "agentic self", and that it is mostly efferent-driven, which, in turn modulates the afferent events. Overall, these neural findings led to the conclusion that the neural processes that take place in the parietal and frontal lobes are responsible for people's perceptions of intentionality and freedom of choice; yet further studies are needed to track the neural processes preceding voluntary action (Haggard, 2005; 2011).

All these studies on social, cognitive and neuropsychology are telling in at least two ways. First, they inform us about the implicit factors that actually influence our behaviors. Hence, we are probably acting less on our free will demands than we think we do. This might be considered as an opposition to the idea of free will. However, it need not be so. These findings have yet another important impact: They help re(de)fine the concept under concern by unveiling its mechanisms. Achim (2009) nicely reviews some neuroscientific findings and philosophical ideas corresponding to them. He concludes that at the moment, it is important to further

investigate how the features of free will, defined on the personal (psychological) level, are linked to those on the sub-personal (neuronal) level. As Searle (1998) suggests as well, by showing their restrictions, such studies enable defining the seemingly vague and abstract concepts, such as free will better, thereby making them a topic more feasible of scientific analysis.

2.2.4.2. The developmental psychology of free will

In 1995, Meltzoff revealed that 18-month-old children attribute intentionality only to animate objects, and that they can infer the intentions of adults as they watch them attempting to reach their goals. Also, there is evidence that infants aged 12 months old (Gergely, Nádasdy, Csibra & Biró, 1995), or even earlier, 9 months old (Csibra et al., 1999), attribute goal-directedness to inanimate objects as well. In line with Meltzoff's findings, however, other researchers demonstrate that 12-month-old children show reactions of surprise when an actor starts but does not complete her actions, an evidence interpreted as the understanding of goal-directedness (Baldwin, Baird, Saylor & Clark, 2001). It might be beneficial to keep in mind the fact that in all of the previously cited studies, participant children or infants were passively observing an adult performing some act, without having any direct involvement with the adult's wills and intentions. Quite different results may be obtained when the adult's and the child's wills contradict, however. Indeed, this is what results gathered from some theory of mind tasks suggest: children aged 5 years old appreciated that others may have other desires than theirs, whereas younger children were not able to make this reasoning (Moore, Jarold, Russell, Lumb, Sapp & MacCallum, 1995).

Yet, even if someone is acting towards a goal, it is not clear whether s/he is doing it because this is what his/her free will demands, or because it is performed accidentally, in line with some other reason, completely independent of that person's will (e.g. laws of physics). The most conclusive way of assessing this is taking as a

means of measurement children's active, behavioral reactions in response to differential conditions. Asking children their ideas on the reasons for the observed behaviors, Schultz, Wells and Sarda (1980) showed that children aged 3 and 5 could distinguish intentionally-produced actions from mistakes, reflexes, and passive movements. However, the necessary skills seem to have been built much earlier, indeed. Carpenter, Akhtar and Tomasello (1998) assessed whether, when shown both types of actions, 14- to 18-month-olds would perform the accidentally or purposefully performed action more often when it was their turn. It was found that infants preferred to perform the purposeful actions they saw twice as often as the accidental actions, which is indicative of their understanding of the goals. In another study (Behne, Carpenter, Call & Tomasello, 2005) which is similar to the one done with chimpanzees (Call et al., 2004), infants' emotional and behavioral reactions against an adult who was either unwilling or unable (due to dropping accidentally or not being able to reach) to give a toy to the child were observed. The results revealed that infants aged 9, 12, and 18 months, but not 6-month-olds showed significant increases in banging, reaching to get the toy, and looking away behaviors when the adult was unwilling than when the adult was trying to give the toy, but was unsuccessful. Interestingly, in addition to this distinction only 12- and 18-month-olds could further distinguish between the conditions when the adult was unwilling *versus* when s/he was willing at first, but did not give the toy to the child in the end due to being distracted for some reason (e.g. someone starting to talk to the adult and diverge her attention). These two studies are telling in terms of children's understanding about a third person's intentional states.

Approaching the issue rather directly and assessing the "could have done otherwise" formulation alluded to above in the philosophy section, Nichols (2004) conducted some experiments. Participants ranging between 3; 5 to 6; 7 years were shown some events taking place, half of which were performed by an agent, and the rest by a physical object. In addition, in some cases there were some external, physical, constraints of which the agents were not aware. Children's reasoning about

whether the agents and things in these different stories could have acted otherwise was assessed. The results first revealed that children acknowledge that not objects, but agents could have done otherwise. Moreover, in line with the premises of action-causal theories, children thought the actors could have done otherwise only when there were no physical constraints. In a follow-up experiment, Nichols tested whether children ~5 years old can distinguish between events that are caused by spontaneous choice of the agent, moral choice of the agent, or a physical event. Children viewed physical events as pre-determined, whereas they thought moral choices could have been made otherwise.

Following this paradigm, Kushnir et al. (2009) provided further evidence that children aged 4 and 5 years could distinguish physically necessitated events from those done purely as a result of the agent's desire to do so. Moreover, the researchers showed that children could also reason appropriately about their own actions, when the outcome was based on their free will, or physical conditions (caused by an external constraint). Extending this study, Chernyak, Kushnir and Wellman (2010) assessed whether children of the same ages could understand the differences between epistemic, moral, preference, permissive, and conformist constraints; and whether they truly attributed them as the reasons of an agent's actions. Although others may be more straightforward, preference, permissive, and conformist constraints, respectively, referred to conditions when the agent preferred not to do something, was not allowed to do something, and was told that everyone else did it in a specific way. After performing their actions, children were asked 1) whether they could have done it otherwise, and 2) why they did it the way they did. A large majority of children reported that they could not have done otherwise, when the constraint was moral or conformist. As response to why they had performed that way, children provided consistent answers only for moral constraints (e.g. children stated a moral reason such as "it would make him cry"), and preference constraints (e.g. "I did not like the other one that much"). Overall, these results are very important in terms of showing how advanced children's perceptions of such complex concepts

are. Besides, they are illuminating for the current study since they suggest that children draw the link between free will and normative behavior. More specifically, children understand that they do not have the chance to do an action otherwise, when it is caused by a physical constraint rather than their free will, and they appreciate that performing normative actions is influenced by the actor's freedom of will.

Lastly, research on the development of helping behaviors provided interesting results, which were taken into consideration while constructing this study. The common logic behind is that, in order for someone to help another, acknowledgement of the other's goal and the "attempting, but failing to reach" sort of situation are central. Put the other way around, helping reactions emerge in response to other people's inability to act on the basis of their free will. In an early study by Rheingold (1982), 18-, 24-, and 30-month-old children immediately attempted to help their parents as they encountered some obstacles while doing housework in an experimental setting. Using various sorts of tasks, each differing in terms of their goals, problem types encountered to reach the goals, and effort demands to overcome the problems, Warneken and Tomasello (2006) replicated Rheingold's results with 18-month-olds. Following up on these results, Warneken and Tomasello (2007) designed a new study, where 14-month-old infants' instrumental helping reactions to someone in need of help were compared to their helping reactions in tasks requiring cooperation towards a joint goal. These infants significantly underperformed when the task demanded sharing intentions and goals; nevertheless, the findings on instrumental helping became more robust, with 14-month-old infants displaying helping reactions when they saw someone in need.

The studies reviewed in the developmental section reveal i) that free will is a phenomenon which has socio-cognitive subcomponents to be explored, ii) many of the prosocial skills that children develop by 18 months of age might be related to their understanding of free will, iii) preschool children well take into account the possible influences of freedom of will while evaluating transgressions from moral,

physical, and social rules, iv) perceiving an agent as not possessing freedom to act leads to different responses, such as forgiving or helping.

2.3. The Current Study

Inspired by all these studies and ideas, the current study attempts to assess how Turkish children evaluated free will as a factor modulating normativity. Since it was aimed to explore young children's conceptions of norms and free will, methods relying on interview questions would not be appropriate. The theoretical background of this study was based on Searle's argumentation on institutional realities, and Rakoczy and Tomasello's ideas on how these institutional realities are reflected in children's behavior in rule-governed games. Hence, the current study used the same methodology as Rakoczy et al. (2008). Since no such study was previously conducted with Turkish children, study 1 of Rakoczy et al. was replicated in order to have a baseline dataset for future comparisons. The replication was done on a sample of 53 children aged 2 and 3 years. The tasks, procedure, and coding criteria were all adopted from that study. Similar to the German sample, it was expected that children would show more normative protest in the face of norm violations than in the neutral condition. Moreover, it was expected that older children would overall protest more than younger ones. Regarding the interaction effects, it was hypothesized in line with Rakoczy et al. (2008) that 3-year-old, but not 2-year-old children would protest more in the experimental than in the control condition.

Based on the results of the first study, a second study was designed to examine particularly the effect of free will on normativity. On the free will part, the formulation of "could have done otherwise" as proposed by Nichols (2004) was adopted. The most important reason for this choice was that it is the most solidly and objectively plausible explanation of free will for scientific analyses. Accordingly, the actor would be constrained in such a way that it could not do otherwise, but to violate the norms and act incorrectly. Thus, as opposed to an actor who did not have

any observable constrictions, the actor who was explicitly constrained would be less likely to actualize his free will. In line with the findings in the literature, it was thought that a physical constraint would work best, since it was the easiest to discern for the children. Experiment 2 of the Kushnir et al. (2009) study has been insightful in further specifying how to manipulate the freedom of will of a third agent, which was a puppet in our case. Accordingly, in the experimental condition, the puppet's hands were bound with a rope such that it could not move them to hold the toys and thus, had to disobey the norms of that game. In the control condition, however, the puppet did not have any constraints; yet, still performed the incorrect action, indicating its unwillingness to conform to the norms. For the second study, children were expected to show less normative protests to the puppet when it disobeyed the norms due to its physical constraint as opposed to when it was due to its unwillingness. Moreover, as the literature suggests the link between unsuccessful attempts and helping behavior, it was hypothesized to find increased helping reactions in the experimental condition. Older children were expected to show more normative protest in the control condition than younger ones; however, no age effect was hypothesized for the helping reactions in the experimental condition.

A few points are worth highlighting, since they had crucial significance in both forming the theoretical background and designing the two studies presented in this thesis. Despite the load of valuable ideas and theories within the fields of normativity and free will, some of which have been explained above, this study followed specific routes and paradigms. These choices were made after careful and extensive investigations, and are not based on *a priori* assumptions, which always have the potential to implicitly or explicitly bias researchers in the social sciences. Thus, whichever philosopher's and/or scientist's ideas were adopted, it was done so because of their scientific merit and adaptability to objective testing criteria. With respect to scientific value on the side of normativity, Rakoczy and Tomasello's proposition to study the rule-based games of children was most promising, due to its structural similarities with institutional realities. Hence, using this methodology

would be most telling with respect to finding answers for broader questions also. Luckily, no obstacles in terms of adaptability for testing arose here. The choice on the side of free will was more complicated. Even now, it is hard to say that Nichols' formulation was the most illuminating idea on free will. It may even be argued to be a rather simplistic definition. Despite all these possible criticisms, however, no other account provided us with a chance to put the issue in a developmental experimentation setting. They were either too abstract (e.g. metaphysical accounts) or too complicated (e.g. morality implications) to be investigated without relying on interview techniques. Moreover, even if this methodology and this conception of free will does not let us explore the existence of free will proper, it certainly helps investigating the effect of one factor obviously inhibiting the realization of what one's free will demands. The methodological problems were overcome, thanks to the previous studies on the development of free will. Hence, it seemed most reasonable to start off with that sort of an arguably restricted definition of free will and expand the research as more results accumulate to help solidify the concept even further. Our hope is that discovering the developmental steps will also improve our understanding of the concept of free will.

CHAPTER 3

STUDY I: METHOD

3.1. Hypotheses

a) There will be more normative protest in the experimental than in the control condition.

b) 3-year-olds will show more normative protest than 2-year-olds.

c) 3-year-old children will show more normative protest in the experimental than in the control condition.

d) No gender effect is expected.

3.2. Participants

Twenty-six 2-year-olds (20-27 months, mean age= 2;1, SD= 0,18, 12 boys, 14 girls), and twenty-seven 3-year-olds (32-40 months, mean age= 3;1, SD= 0,20,16 boys, 11 girls) took part in the study. Four additional children were tested, but excluded from analysis either because they were uncooperative, or because they were too inattentive to complete the tasks. All of the participants were native Turkish speakers and were recruited from kindergartens in different regions of Ankara. Thus,

they were coming from mixed socioeconomic backgrounds. The allocation of children to experimental versus control conditions was done randomly.

3.3. Materials

The whole experimental procedure consisted of two parts: warm-up and target, both of which involved 4 games (see Table 1 for the detailed descriptions of all games). In all but one of these games, there were two ways of playing it: one correct, and one incorrect. In the warm-up tasks, the incorrect ways of playing the games were due to some instrumental error such as forgetting to use a part of the toy; whereas in the target tasks it was due to violating the norm of the game. In the warm-up tasks, the incorrect way of playing was not told to the child prior to his/her own performance. In the target tasks, however, both the correct and the incorrect ways of playing were told to the child at first sight.

Within the scope of the warm-up tasks, the following games were played: drawing, house building, goal game, and bull game (see Appendix A for detailed pictures). None of these game names were told to the children. They are only indicated here for convenience.

Drawing: There was a blank paper, a broken pen, and a properly working pen, with which the child was expected to draw. The incorrect way of playing this game was drawing with the broken pen.

House Building: There were 5 same-shaped, same-colored building blocks. The first experimenter (E1) showed the child how to build a house out of these blocks. The child was expected to build the same house when it was his/her turn. The incorrect way of playing the game was building a house using only 4 of the 5 blocks.

Goal Game: The game consisted of using a bottle cap as a ball and a human-shaped toy as kicker. The task was kicking the ball into the goal formed by the

child's/experimenter's hands, respectively. There was no incorrect way of playing this game.

Bull Game: A bull-shaped toy was made walking by operating its clockwork mechanism. The incorrect way of playing this game was making the bull walk not via its clockwork mechanism but manually.

The target tasks were composed of the following games: Daxing (daklama), duping (duplama), baffing (baflama), and miecking (mikleme)[1] (see Appendix B for detailed pictures). None of these names have a meaning in Turkish. These target games were introduced to the children together with their names in the experimental conditions, but not in the control conditions.

Daxing: A Styrofoam board with a gutter at one end, a little cube, a wooden stick and a square were used. The task was to form a bat out of the wooden stick and the square, then to use this bat for pushing the cube along the board into the gutter at the end. The incorrect way of playing this game was letting the cube fall into the gutter not by pushing it with the bat, but by lifting the board while the cube lays on it so that the cube slides into the gutter.

Duping: A paper box with a hole in the middle, and two differently colored tubes attached on the top of this box were used together with colored marbles. The correct way of playing the game was by throwing the marbles through the two tubes according to color. The incorrect way was to throw all the marbles through the hole in the middle of the box.

Baffing: A long wooden block, two smaller cube-shaped blocks, a doorstopper, and a ball made of play-dough were used. The task was to build a bridge out of the three blocks, and roll the ball through it using the doorstopper as the kicker. The incorrect action was to omit the last block of the bridge, and roll the doorstopper between the two cube-shaped blocks.

[1] In parentheses the game names used in Turkish are given.

Miecking: A paper box with two tubes colored black and white, and a catapult attached to the box were used, together with two balls also colored black and white. The task was to throw the black and white balls through the black and white colored tubes, respectively. The incorrect way of playing was to throw the balls by putting them on the catapult.

Table 1: *Games used in the experiment*

Task	**Materials**	**Procedure**	
		A1 (Correct Action)	**A2 (Incorrect Action)**
Warm-up Tasks			
Drawing	Blank paper, a red pen and a broken pen	Draw on the paper with the red pen	Draw on the paper with the broken pen
House Building	5 little, colorless building blocks	Build a house with a roof using 5 blocks	Build a house without a roof using 4 of the blocks
Goal Game	A person-shaped toy, a little ball	Throw the ball into the goal made by a second person.	-
Bull Game	A clockwork bull-shaped toy	Make the bull walk by using its clockwork mechanism	Take the bull and make it walk manually
Target Tasks			
Daxing	A red, Styrofoam board with a yellow gutter in one end, a yellow cube, a wooden stick and a wooden square with a hole in it	Put the yellow cube on the board. Place the stick in the square's hole, push the cube with it and drop into the gutter	Put the yellow cube on the board. Hold the board from two sides and lift until the cube drops into the gutter

Table 1 (cont.)			
Duping	A paper box with a hole in the middle, and one yellow and one black tube attached to the two sides of the box, yellow and black marbles	Throw the marbles from the tubes according to their colors	Throw marbles of both colors from the hole in the middle of the box
Baffing	A long wooden block and two wooden cubes, a horse nail-shaped doorstopper, a play dough-made ball	Build a bridge using the wooden materials, and throw the ball through it using the doorstopper	Omit the long block and the ball; instead slide the doorstopper from between the two blocks
Miecking	A paper box with black- and white-colored two tubes attached to it, with a yellow catapult-like tray attached on the front side	Throw the balls through the tubes with respective colors	Put the balls on the tray one by one and catapult them away

3.4. Procedure

All children were tested individually in a silent room within their kindergartens. For each child, informed consent was taken from the parent and/or the kindergarten (see Appendix C for the Turkish, and Appendix D for the English versions). Also at the time of the experiment, any child who did not want to participate was omitted. Whole experimental procedure took place on a table, around which the child and two experimenters were sitting. The camera was placed facing the child, so that the child's facial, vocal, and hand expressions all could be observed explicitly. It was important, however, that the child did not recognize being recorded in order to avoid unnatural reactions on the side of the child. Hence, the camera, although it was placed right across the child, was covered by other toys and made insignificant. Throughout the experiment, children were seated such that they would have no difficulty reaching the toys on the table and the two experimenters.

One session per child consisted of two phases: the warm-up phase and the target phase. Hence, every child was presented with all eight of the games during her session. All over the session, E1 was the main person to communicate with the child and introduce the games to the child [the child will be taken as female from now on]; while E2 was the person to play the puppet. As the child entered in the room, E1 talked with her to make her feel comfortable, as she was being introduced to E2 as follows: "Look [the child's name]! This is Ali. I brought some games with me to show you. Now, the three of us are going to play them together." After this introduction, the session began with the warm-up tasks.

The warm-up tasks were always presented in a fixed order to all children, except for the cases where the child refused to play one of the games, in which case it was obligatory to change the sequence of the games to keep the child's attention focused. The tasks of the target phase followed those of warm-up phase smoothly; right after all warm-up tasks were played. In a within-subjects design, each child received both experimental and control conditions in alternating order, being presented with two tasks for each condition. The target tasks were presented after being counterbalanced across children.

As the warm-up phase started, E1 took out the toys, put them on the table, and showed the child how to play with them. After that, the child was told that it was her turn, and let play. After the child played with the toy for two times, Ali, the puppet, asked "May I play now?". In case the child did not respond positively, E1 interfered and told her that now, it was Ali's turn and they should let him play. In three of the warm-up tasks, namely in drawing, house building, and bull game, Ali performed the incorrect action by doing an instrumental mistake, either due to forgetfulness or misunderstanding. If the child did not intervene immediately, Ali asked the child if he had played correctly, and asked for help if the child confirmed that he did not. If the child still did not respond to Ali's utterances, then, E1 asked the child to help Ali. The logic behind applying the warm-up tasks was first, to make the child understand that the puppet is an actor who can commit mistakes from time

to time, and that she can intervene in such situations. Moreover, children's responses to these instrumental mistakes were later assessed to see whether their overall level of reactiveness had to do with their normative protests in the target phase.

In the target phase, the children were presented with two tasks for experimental and two for the control condition. In the experimental condition, E1 introduced the game to the child saying: "Now I want to show you a game. This is called [Daxing]". Next, E1 showed the child the correct way of playing (A1), how to dax in this case, while continuously saying "Now, I am daxing" and "I daxed" to firmly mark the progress of the action. Immediately after this, E1 told the child that there was one more rule of the game and that she will show it as well. Then, E1 displayed the incorrect way of playing with the toy (A2), and uttered "Ups! This is not how [daxing] goes". Both A1 and A2 were shown once more, and each child was shown the correct way of playing for the last time, before it was her turn to play. When it was the child's turn, E1 put the toys in front of her in an easily reachable proximity, and asked the child to [dax] now. As the child was playing with the toy, E1 did not make much comment regardless of whether or not she actually played it correctly. When the child was finished with playing with the toy for two times, Ali asked if he could [dax], and started off. Ali played with the toy for two times, continuously saying such sentences as "I am daxing now" and finished each performance by saying "I daxed!", in a similar manner done by E1. Of crucial importance to note at this point is that as Ali played, E1 turned her back to the play setting such that she could not see what was going on. In order to prevent it from being unnatural, E1 pretended to be occupied with something else. This was done in order to avoid child's referring back to E1 to get support for further protest. E1 turned back to the play setting when the child's reactions ended.

In the control condition, E1 introduced the game to the child saying "Oh look what I have here! Let's play with it". This is followed by E1 showing both A1 and A2 in a neutral manner, marking both of the actions with such expressions as "We can play this toy in this way, or we can also play it in that way". Later, the child was

allowed to play with E1 saying “Now it’s your turn. You may play as you wish”. Similarly as before, Ali took turn after the child was finished, this time asking to play without mentioning the name of the game. He then performed A2 for two times, which was still an allowed action in this condition. In order to avoid a difference between the experimental and control conditions in terms of the amount of speech, which could be attributed to a difference in the level of enthusiasm, in the control condition Ali continuously said “I am playing with this toy now” and “I played!” as he played with the toys. At the end of the session, the child was thanked for attending and brought back to her classroom.

3.5. Design

There were two independent variables in this study, the first a between-subjects and the other a within-subjects variable, respectively. First one was age, with two levels being 2- and 3-year-old children. The second one was condition with two levels, experimental and control. In the experimental condition, the games were presented as having particular rules; hence, children were expected to protest more in case of violation. In the control condition, the games did not have particular rules; hence, were allowed to be played as wished. The dependent variable was how children reacted to the norm violations. A 2 (age) X 2 (condition) mixed ANOVA is conducted to assess whether children show more normative protest in the experimental condition than in the control condition. Another 2 (age) X 2 (condition) ANOVA is conducted for children’s own performances to see whether children preferred to play the games differently with respect to their being presented as having a correct and incorrect way of being played. Besides, the normative protests displayed by every child in the warm-up phase are analyzed and correlated with their protest in the target phase.

3.6. Coding

The coding procedure was performed exactly as done by Rakoczy et al. (2008). The details of the coding scheme can be seen in Appendix E. The coding for the dependent variable was done as follows: Each game trial was initially divided into six sub-phases. Children's reactions were, then, assessed within each sub-phase, as to which of the four categories they belong: 'clear normative protest', 'imperative protest', 'hints of protest', or 'no protest'. Clear normative protest consists of attempts to teach Ali how to do it correctly, or statements such as "It doesn't work like that" or "You must play it like this". Imperative protest is taken as a less normative form of protesting against norm violations, and is marked with the use of imperatives such as "(Do not) do this" or "No!". All other cues indicating the beginning of a protest reaction such as reaching to the correct objects, offering them to Ali, or seeking help from E1 are counted as 'hints of protest'. Inter-rater reliability analysis revealed good agreement between the two raters (*Kappa* = .77)

Within each sub-phase, if the child displayed two actions, one falling into the category of 'normative protest' and the other into 'imperative protest', the child received the code for 'normative protest', since there is an increasing hierarchical relationship among the categories of 'hints of protest', 'imperative protest', and 'normative protest'. After all of the sub-phases received a code, the one which is highest in the hierarchy is taken to be the code for the whole trial. In other words, if there was at least one sub-phase which had the code 'normative protest', the child was considered to have displayed normative protest in that trial.

Children's own performances in the target phase were also analyzed. In order to do that, it was determined whether children perform the correct action (A1), the incorrect action (A2), both of them one after the other (A1 and A2), or something totally new (nothing relevant). It was also the case that some children performed the incorrect action, but also uttered such sentences that were indicative of their understanding that it was the incorrect action (e.g. "It's not correct if I do it like that"). In

such cases, children received a code for A2 with knowing comment. High inter-rater reliability was reached for these coding categories (*Kappa*= .80).

Apart from these, the warm-up phases were analyzed to see how reactive children were towards instrumental mistakes. Reactions with imperatives such as "Do this!" or "Don't play like that", and normative expressions such as "It doesn't work like that" were merged under the category of explicit protest. On the other hand, simple actions of giving the correct object or demonstrating the correct action were counted as implicit protest.

CHAPTER 4

STUDY I: RESULTS & DISCUSSION

4.1. Results

Overall, the amount of protest displayed by children of both ages was very low (see Figure 1; a table displaying the means and standard deviations is provided in Appendix F). 2(age) X 2(condition) ANOVA on the mean sum scores of normative protest revealed a main effect of age ($F(1,51)= 8.75$, $p<.01$, $\eta^2_p= .15$), a main effect of condition ($F(1,51)= 28.36$, $p<.001$, $\eta^2_p= .36$), and an interaction effect ($F(1,51)= 6.18$, $p<.05$, $\eta^2_p= .11$). Planned comparisons revealed further that 3-year-olds ($F(1,51)= 3.10$, $p<.001$), but not 2-year-olds ($F(1,51)= 3.96$, $p>.05$), differed in experimental and control conditions. A similar analysis conducted for imperative protest revealed no main effects or interactions. A 2(age) x 2(condition) ANOVA on the mean sum scores of hints of protest revealed a main effect only for condition ($F(1,51)= 7.61$, $p<.05$, $\eta^2_p= .13$). No gender effect was observed in either types of protest.

A more liberal measure which took mean sum scores of tasks per condition where children produced either normative or imperative protest revealed a main effect of condition ($F(1,51)= 19.74$, $p<.001$, $\eta^2p= .28$), and a main effect of age ($F(1,51)= 9.19$, $p<.05$, $\eta^2p= .15$). Further, a less conservative analysis on hints of protest category was conducted to eliminate the possibility that the hints of protest

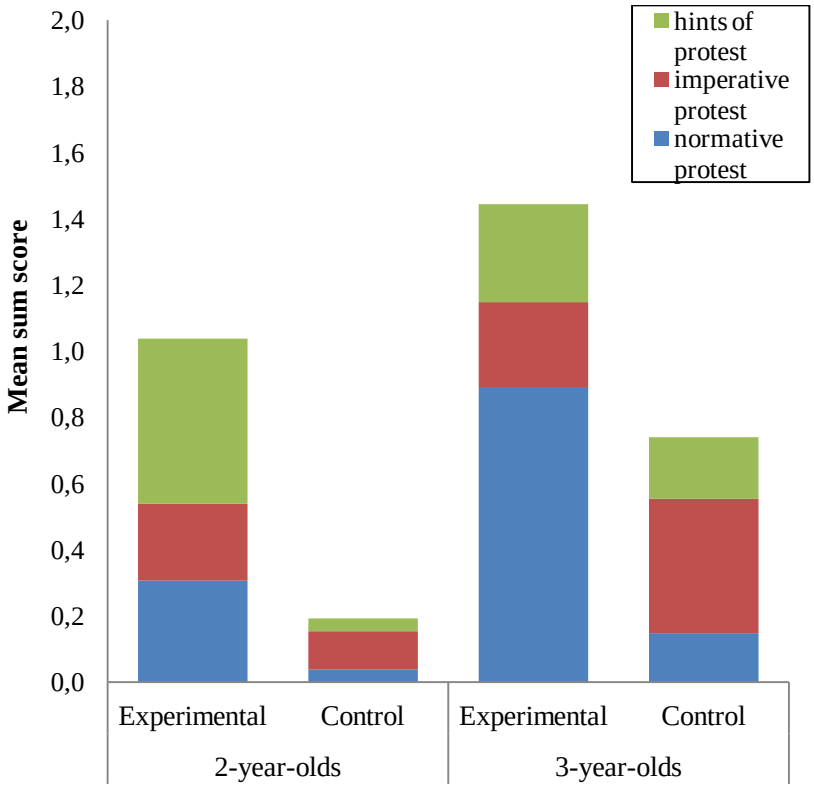

Figure 1. Mean sum scores (0-2) of all forms of protests in the target tasks of Study I

displayed by those children who also showed normative or imperative protest could have been undermined due to the hierarchy-based coding. When the hints are analyzed in this way, the main effect for condition is maintained ($F(1,51)= 37.36$, $p<.001$, $\eta^2_p= .42$), and the means increased dramatically in the experimental condition, especially for 3-year-old children (see Table 3).

Complementary analysis is conducted to assess the correlation between children's explicit or implicit protest in the warm-up trials, and their normative or imperative protest in the experimental trials ($r_s = .52$, $p < .01$).

Table 3: *Comparison of means for two different ways of analyzing the hints of protest category*

	Condition	Age	Mean	N
Hints of protest (first analysis)	Experimental condition	2 y/o	,50 (,65)	26
		3 y/o	,30 (,61)	27
Hints of protest (more liberal analysis)	Experimental condition	2 y/o	,81 (,63)	26
		3 y/o	,96 (,81)	27

Looking at how children preferred to play the games themselves, mean sum scores of children's performances of the correct action (A1), the incorrect action (A2) with or without knowing comment, and both actions without any comment in experimental and control conditions were analyzed separately in a 2(age) x 2(condition) ANOVA. The means and standard deviations for all types of performances of the children are provided in Table 4. Neither main effects of condition or age nor an interaction effect were observed for any of these performance types.

Table 4: *Mean scores of children's own performances in Study I (0-2)*

		A1 Only	A2 Only	A1 & A2	A2 with knowing comment	N
Experimental condition	2 y/o	1,81 (,40)	,23 (,43)	,31 (,55)	,04 (,20)	26
	3 y/o	1,78 (,42)	,11 (,32)	,33 (,48)	,04 (,19)	27
Control condition	2 y/o	1,58 (,58)	,23 (,43)	,12 (,33)	,00 (,00)	26
	3 y/o	1,67 (,53)	,26 (,45)	,37 (,57)	,04 (,19)	27

In addition, each game was analyzed separately for normative protest and children's own performances. For the daxing game (t(51)= -2.33, *p*= 0.24), the baffing game (t(51)= -2.49, *p*= 0.16), and the miecking game (t(51)= -2.39, *p*= 0.20) children who received them in the experimental condition protested more than those who received them in the control condition. For the duping game, however, there was no difference between experimental and control conditions in terms of normative protests displayed (t(51)= -1.67, *p*= 0.10). When children's preferences to play the games as A1 or A2 are analyzed, it is found out that children prefer to perform A1 more in the experimental than in the control condition in the daxing game (t(51)= -2.36, *p*= 0.22), and baffing game (t(51)= -2.34, *p*= 0.24); but not in the duping game (t(51)= -.75, *p*= 0.46), and the miecking game (cannot be computed because the SDs of both groups are 0).

Inter-rater reliability

Approximately 20% of the participants from each age group were coded by a second observer. Overall agreement between the two raters was very good (*Kappa* = .82). It was also coded how spontaneous children were in terms of their initial responses. Inter-rater reliability for warm-up trials (*Kappa*= .86) and for spontaneity coding (*Kappa*= .90) were very good.

4.2. Discussion

The results of this study confirmed the first hypothesis that 2- and 3-year-old children would show more normative protest in the experimental than in the control condition. Also as expected, older children showed more protest than younger children overall. Considering the interaction effect, namely that there was a difference between experimental and control conditions not for 2- but for 3-year-olds, it can be concluded that 2-year-old children were less able to appreciate the normative

dimension. This is, indeed, in line with what Carpenter (2009) argues. As she puts it, the necessary background socio-cognitive abilities for sharing intentions with others are already present by 2 years of age. However, only after 3 years children start to show full commitment to joint goals, which is a skill that "sets the stage for some of the ''bigger'' uniquely human joint activities like social institutions" (Carpenter, 2009, p. 390). Hence, it is reasonable that 2-year-old children are less likely to show any different behavior in the experimental and control conditions.

Furthermore, the correlation between warm-up trials and experimental phase can be interpreted as follows: At least some of the variance in children's increased normative protest in response to incorrect actions can be explained by their general reactivity towards mistakes, be they normative or instrumental.

These results are, in general, in line with what Rakoczy et al. (2008) had found. The results of the Turkish sample concerning the normative protests in the experimental phase fit perfectly with the German sample. Similar to the present study, they had also found a main effect for condition, a main effect for age, and the same interaction effect. In addition to the main effect of condition on the liberal measure, however, the results of the current study also revealed a significant effect of age. This is indicative of the fact that the results reached from the non-liberal analysis are caused mainly by normative and not imperative reactions. Moreover, the correlation between warm-up and experimental phase was similar to that found by Rakoczy et al.

In contrast to what Rakoczy et al. found, no condition effect was observed in children's own action choices. When the means are taken into consideration, the action patterns are in the predicted direction, yet not significant. Furthermore, the correct action (A1) is overall preferred more than the incorrect action (A2). This is somewhat contrary to our expectations, since it may imply a bias towards A1, regardless of its being the correct action or one of the neutral actions, depending on the condition it is presented in. In order to control for this possibility, game-by-game

analysis is conducted. The results revealed that indeed, in the daxing and baffing games no tendency to perform A1 over A2 exists. The analyses of the other two games revealed more problematic results, however. For the duping game, children found both A1 and A2 attractive; hence, even when A2 was deemed as the incorrect way of duping, children in the experimental condition performed A2 or both A1 and A2 one after another indifferently from the control condition. When means of the categories "A2 Only" and "A1 & A2" are compared across the four target tasks, a dramatic increase is recognized for the duping game. Children's performance choices for the miecking game followed yet a more different pattern. Indistinguishably, all children performed A1 at least once in both experimental and control conditions. Although they performed A2 slightly more often in the control than in the experimental condition, the effect was insignificant ($t(51)= 1.415$, $p= 0.16$). This clearly indicates that children had a strong bias towards A1 in the miecking game. This can probably account for why unexpected results were reached regarding children's own performances.

CHAPTER 5

STUDY II: METHOD

5.1. Hypotheses

a) There will be less normative protest in the control than in the experimental condition.

b) There will be more help responses in the experimental than in the control condition.

c) 3-year-olds will show more normative protest than 2-year-olds in the experimental condition.

d) No age effect is expected for help responses in the control condition.

e) Overall, no gender effect is expected.

5.2. Participants

Twenty-seven 2-year-olds (20-28 months, mean age= 2;2, SD= 0,17, 13 boys, 14 girls), and twenty-seven 3-year-olds (32-40 months, mean age= 3;0, SD= 0,16, 14 boys, 13 girls) took part in the study. Two additional children were tested, but excluded from analysis one because of experimenter error, and the other due to

inattentiveness. All participants were native Turkish speakers, recruited from kindergartens in regions of Ankara different socioeconomic backgrounds. Children were allocated to experimental versus control conditions randomly.

5.3. Materials

This study consisted of warm-up and target phases. The games played in the warm-up phase, together with the materials and rules, were exactly the same as in Study 1. In all but two of the games in the target phase, the incorrect ways of playing with the games, A2, were altered so that they become adaptable to the new procedure. The altered games and new rules were as follows:

Baffing: The incorrect way of playing was to omit the last block of the bridge, and slide the doorstopper between the two cube-shaped blocks without holding it.

Miecking: The incorrect way of playing the game was to let the balls stay in the tray and push them towards the end side of the tubes.

5.4. Procedure

Children's recruitment to the study, the experimental setting, and the procedure of the warm-up phase were identical to those of Study 1.

In the experimental condition of the target phase, E1 started off by introducing the game to the child saying "Now I want to show you a game. This is called [Duping]". In the same manner as in Study 1, E1 showed A1 and A2 emphasizing all through that A1 is the correct and A2 is the incorrect way of playing the [duping] game. After the child's turn has also passed, Ali asked to [dup] as well. This time, however, Ali's hands were bound with a rope such that it was not possible for him to move his hands separately from each other; thus preventing him from holding

anything with his hands. E2 had taken out the rope she had in her pocket and bounded the hands of the puppet, while E1 was showing the rules of the game without the child seeing her do so. Ali, then, attempted to perform A1, taking the marbles in the case of duping, but failed to do so due to his bound hands. Whilst he attempted to do the correct action for two times, he repeatedly uttered such sentences as "Oh! I can't do that. I cannot hold the marbles". After two unsuccessful attempts, Ali gave up trying and performed A2, again saying "I [duped]". Similar to Study 1, to avoid providing the child with any kind of support as Ali was playing, E1 turned her back and started to be engaged in some other work irrelevant to the game.

The procedure followed in the control condition of the target phase of this study was exactly the same as the experimental condition of Study 1. This was done to highlight the fact that the puppet's will to act is *the* distinguishing factor between the two conditions. Since it was shown in the previous study that children do discriminate between situations with and without normative rules, it was not found necessary to repeat the control condition of Study 1. When the session ended, the participant child was thanked and brought back to her classroom.

5.5. Design

The first independent variable of this study was age, with two levels being 2 and 3 years of age. This was a between-subjects variable. The second one was a within-subjects variable, being the condition with two levels, experimental and control. The experimental condition was marked by the puppet being constrained with a rope around his hands, whereas in the control condition the puppet was free to act as he wished. In both of the conditions, however, the puppet eventually violated the norms of the games. The dependent variable was how children reacted to the norm violations. Thus, it was expected that children would show less normative and more helpful reactions in the experimental than in the control condition. Two separate 2

(age) X 2 (condition) mixed ANOVA are conducted to assess whether children show less normative protest and more helpful reactions in the experimental condition as compared to the control condition. Children's own performances and how their reactions in the warm-up phase correlate with those in the target phase are analyzed in the same manner as done in Study 1.

5.6. Coding

In addition to the categories for normative protests as described in Study 1, a category on help reactions was added. This new category was composed of any actions which involved concern towards the person in need of help, actual attempts to help, or suggestions as to how the situation could be resolved (inter-rater reliability *Kappa*= .84). To see what kinds of actions fell into this category, see Appendix G. All the other categories and coding protocol were the same as in Study 1. Inter-rater reliability for the normative protest categories was good (*Kappa*= .74).

CHAPTER 6

STUDY II: RESULTS & DISCUSSION

6.1. Results

A 2(age) x 2(condition) ANOVA on the mean sum scores of normative protest revealed a main effect for age ($F(1,51)= 5.52$ $p<.05$, $\eta^2_p= .10$), but not for condition. A similar analysis for imperative and hints of protest categories did not reveal any significant effects. Figure 2 illustrates all of the protest types as shown by both age groups (see Table 5 in Appendix H for the means and standard deviations). No gender effect was found for any of the protest categories.

When the more liberal measure, where children showing either normative or imperative protest was entered into a 2(age) x 2(condition) ANOVA, only a significant main effect of age ($F(1,51)= 7.37$, $p<.01$, $\eta^2_p= .13$) was found. Furthermore, the same liberal analysis as in Study 1 was conducted for the hints of protest category. In this analysis, a main effect of condition ($F(1,51)= 6.80$, $p<.05$, $\eta^2_p= .12$) was found.

In order to assess whether children displayed more helping reactions in the experimental than in the control condition, a 2(age) x 2(condition) ANOVA on the mean sum scores of the help category was conducted. The results show that there

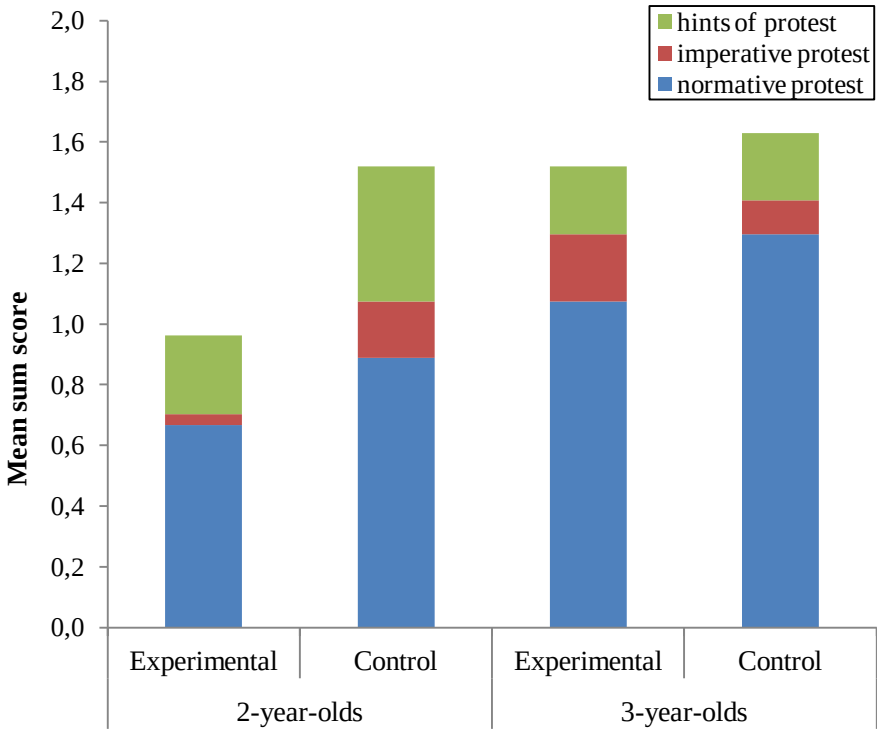

Figure 2. Mean sum scores (0-2) of all forms of protests in the target tasks of Study II

was a significant main effect of condition ($F(1,51)= 64.69$, $p<.001$, $\eta^2p= .56$), but no main effect of age and no interactions (see Table 6 for means and standard deviations). No gender effect was found out.

Table 6: *Mean scores of children's helping reactions in the target phase of Study II (0-2)*

	Condition	Age	Mean	N
Helping reactions	Experimental condition	2 years old	,92 (,85)	26
		3 years old	1,00 (,78)	27
Helping reactions	Control condition	2 years old	,00 (,00)	26
		3 years old	,07 (,27)	27

To see if 3-year-olds showed more normative protest than 2-year-olds in the control condition, an independent samples t-test was conducted. Contrary to what was hypothesized, 3-year-olds (M= 1.30, SD= .83) did not protest significantly more than 2-year-olds (M= .88, SD= .71) in the control condition (t(51)= -1.94, *p*= 0.06).

Children's explicit or implicit protests in the warm-up tasks were not found to be correlated with their normative or imperative protests in the target tasks of the control condition, a result identical to the experimental condition of the first study (r_s = .15, *p*>.05). Children's own performances in the target phase were analyzed using a 2(age) x 2(condition) ANOVA for all four types of performances observed throughout the trials, namely, A1 only, A2 only, A1 and A2 together without any comment, and A1 and A2 together with knowing comment (e.g. Child says "This is not how [baffing] goes" as she performs A2). None of the analyses revealed a significant effect of age or condition. The means and SDs of each category are shown in Table 7.

Table 7: *Mean scores of children's own performances in Study II (0-2)*

		A1 Only	A2 Only	A1 & A2	A1 & A2 with knowing comment	N
Experimental condition	2 y/o	1,69 (,47)	,31 (,47)	,08 (,27)	,00 (,00)	26
	3 y/o	1,74 (,45)	,15 (,36)	,26 (,53)	,04 (,19)	27
Control condition	2 y/o	1,85 (,37)	,15 (,37)	,00 (,00)	,04 (,20)	26
	3 y/o	1,89 (,32)	,07 (,28)	,15 (,36)	,00 (,00)	27

Inter-rater reliability

Approximately 20% of all participants from both age groups were coded by a second observer. Initially, good inter-rater reliability over all dimensions was reached (*Kappa*= .61). In order to improve the agreement between the two raters, the problematic cases were extracted one by one. It was seen that the problematic cases mostly stemmed from the ambiguity between teaching attempts which count as normative protest, and reaching attempts, which count as hints of protest. After the second coder re-coded 20% of the videos, very good inter-rater reliability was reached (*Kappa*= .84). Inter-rater reliability for the warm-up phase analysis was good for protests within this phase (*Kappa*= .79), and very good and for spontaneity dimension (*Kappa*= .81).

6.2. Discussion

It was hypothesized in this study that children would show less normative and more helpful reactions when they saw that the puppet was physically constrained to do the correct action. The results supported the latter, but not the former part of this hypothesis. Contrary to our expectations, no difference in normative or imperative protest could be observed.

One possible explanation for this concerns the definitions of the helping and normative protest categories used in this study. Specifically, teaching and showing the correct action were behaviors that were coded under the category of normative protest. However, research on pointing behavior demonstrates that infants provide others with the information they need as a form of helping (Liszkowski, Carpenter, Striano & Tomasello, 2006). Hence, it could well be that at least some attempts of showing the correct action were indeed done for helping purposes. The fact that teaching and showing were considered as a subtype of normative protest category

might have led to an overestimation of the normative protest. Yet, even if this is the case, it still begs an explanation why children thought of the puppet as in need of further information. In the experimental setting of the current study, the puppet was also there as E1 was telling the rules of the game. So, there were indeed no clues whatsoever to give the impression that the puppet was ignorant of the rules, hence in need of help in this regard. To partly check if categorizing teaching and showing attempts as normative protest was responsible for the lack of decrease in protests, further analysis is done. For that reason, a 2(age) X 2(condition) ANOVA was conducted for children's teaching and showing attempts. It was hypothesized that if there were a significant increase in teaching and showing attempts in the experimental than in the control condition, then, there would be room to argue that at least some of these attempts were part of helping reactions. However, the results revealed that there was no such difference between the two conditions ($F(1,52)= .70$, $p>.05$, $\eta^2_p= .01$).

As expected, a significantly higher score of helping reactions was observed in the experimental than in the control trials. In the literature, it is reported that infants from 9 months onwards react differently to others' behaviors by taking into consideration whether the action is done on purpose or accidentally (Behne, Carpenter, Call, & Tomasello, 2005). By 14 months of age, infants help others reach their goals when in need (Warneken & Tomasello, 2007). Also in accordance with this literature, no age effect was found in this study; that is, both 2- and 3-year-old children displayed similar amounts of helping reactions when they saw the puppet constrained.

Since the control condition of this study was identical to the experimental condition of the first study, it was hypothesized to find a similar normative protest pattern here as well. More specifically, it was expected that 3-year-old children would protest more than 2-year-olds in the control condition of this study. Although the means were in the expected direction, t-test analysis did not reveal this effect to be significant ($t(51)= -1.94$, $p= 0.06$). This may also be due to overall increased

reactivity in the second study, an issue which will be discussed below in some detail. Moreover, when the means for normative protests of 2-year-olds in the experimental condition of Study 1 are compared with the same age group's means in the control condition of Study 2, it is seen that they almost tripled; whereas 3-year-old group's mean not even doubled. It might be that 2-year-old children had more difficulty rationally controlling for their emotions and became more reactive than 3-year-old children in the second study. This is, indeed, in line with what Hohenberger (2011) mentions as she points to young children's difficulty in integrating information from different domains such as emotional and cognitive domains one at a time.

The correlation analysis of protests in the warm-up and target tasks was not found to be significant. This indicates that the normative protests as displayed in the target tasks were purely the result of children's normative awareness, and not their overall reactions to mistakes of any type. Similar to Study 1, no effect was found for any types of children's own performances. Yet, this does not pose any problem within the scope of this study, since A1 and A2 were presented respectively as the correct and incorrect ways of playing the game in both experimental and control conditions. Hence, children were always expected to play the game in the correct way in both conditions. The means are supportive of this expected direction (see Table 5 in Appendix H).

The control condition of this study was exactly the same as the experimental condition of the prior study. A comparison of the results attained from both studies show that the normativity effect is maintained overall. Yet, by carefully inspecting the means of normative protest displayed in the experimental trials of the first study (M= 1.06, SD= .79) and control trials of the second study (M= .60, SD= .74), it can be seen that there was a dramatic increase of protest in the second one ($t(105)= -3.05$, $p= 0.003$). This might have to do with the fact that the puppet was always performing the incorrect action in the second study, either because of his physical constraint in the experimental condition, or because of deliberate intention to do so in the control condition. Thus, on the whole, children might have become more

reactive in the second study. Perhaps this can also partly account for the finding that no decrease in the amount of normative protest was observed. In order to unveil this possibility, a further analysis could be performed on children's reactions in the two control trials they encountered. Namely, if it were the case that children protest less in the first trial than in the second one, this would indicate that children in this study protested more overall because they "learned" that the puppet does not conform to the norm in either condition.

CHAPTER 7

GENERAL DISCUSSION

The development of normativity and the influence of free will on normative understanding were examined in two separate studies. In both of the studies, norm violations were presented in the form of disobeying the norm of a game by a third party. Children's reactions toward the norm-violating actor were assessed.

In the first study, it was shown that overall children reacted less normatively with less normative protest when the puppet's action was not deemed as a norm violation than when it was. Moreover, 3-year-old children protested more than 2-year-old children. When the interaction effect was further analyzed, it became clear that not 2-year-old children, but only 3-year-old children could actually appreciate the normative component in rule-governed games. 2-year-olds did not protest differently in experimental and control conditions. Also, there was no difference in terms of male and female participants' protests. All these results were in accordance with the expectations.

Since the first study was a replication of Rakoczy et al. (2008), it was also important to see whether the current results are in line with theirs. There was almost a perfect fit with respect to protest analyses. Not only the effects observed were all in the same direction, but also the means for normative and imperative protests were very close to each other. With respect to children's own performances, the

comparisons of means reveal that Turkish children preferred to play the games in the correct way more than German children in both experimental and control conditions in both ages. Due to this general preference, no condition effect for children's own performances could be found; that is, children performed the 'correct' action most, regardless of its being the normative action versus one of the neutral actions. Indeed, this may somewhat cast doubt on the results, since it may imply that children liked that action more than the 'incorrect' action and hence, not only preferred to perform it themselves, but also wanted the others to perform it as well. In order to eliminate this possibility and clearly distinguish which of the games was most problematic, further analyses were conducted for each game separately. It was found that there was a significant preference for the correct action in the "miecking" game, regardless of its being presented as the correct action in the experimental condition or a neutral one in the control condition. All of the children performed A1 (the "correct" action) at least once. For the "duping" game, it was the case that children performed A2 almost equally with A1 in the experimental condition. For the "daxing" and "baffing" games, however, no deviance from expectations is observed. The fact that only one out of the four games had a bias towards being performed in the "correct" way is important since it reassures that overall the set of tasks was neutral between the alternative ways of being played, A1 and A2. Therefore, the conclusions about the greater normative protest of the 3-year olds in the norm-violating condition, seems valid.

Whether A1 and A2 are equal in several dimensions is a very important point, since it may influence the results about normative protests. For future research, "miecking" and "duping" games should be examined more deeply in order to figure out which specific aspects of A1 and A2 are different. For some reason, children found A1 more attractive than A2 in the "miecking" game. It does not seem likely that A2 was cognitively more demanding than A1 and that therefore it is performed less. A more plausible explanation is about the spatial location of the catapult in the "miecking" game. As can be seen in Appendix B, the yellow catapult

is placed on the front side of the toy. Hence, when the toy is put in front of the child to let her play, she first encounters the tubes and due to the height and salience of the tubes, the catapult might have been neglected. With respect to the "duping" game, both A1 and A2 were found attractive by the children, no matter the normative dimension; thus, children performed A2 equally often in the experimental and control conditions. Again, this might have to do with the configuration of the toy. Since A2 of the "duping" game required that the child inserts the marbles from within a hole, it might have been perceived as more mysterious and interesting as compared to simply throwing them through the tubes. Indeed, children's facial and vocal expressions as they performed A2 provide clues for this interpretation. Children looked more excited and willing to explore what was inside the hole, and what happened to the marbles when they inserted them through it.

Still another interesting finding was about the "baffing" game. In this game, A1 was to build a bridge with the blocks and make a goal by throwing the ball through the bridge with the horse-nail-shaped toy. A2 was to roll the horse-nail-shaped toy from between the two blocks, without forming a bridge or using the ball. Overall, 34% of children's own performances for the "baffing" game were coded as incomplete, which means that children attempted to and started to perform A1, but could not actually finalize it (e.g. they either could not finish building the bridge, or built it but did not use the horse-nail-shaped toy to throw the ball through the bridge). This was the case for 54% of the 2-year-olds and 14% of the 3-year-olds. It seemed like A1 had higher cognitive demands, especially for children of younger age group. It is also a possibility that these children could not make full sense of the sequence of the toys used for A1, since it involved too many distinct parts and this might have caused further confusion. Thus, it should be kept in mind for future research to go over A1 and A2 of the mentioned games, and refine them to make sure children do not have any bias to perform either type over the other.

Similar to Rakoczy et al. (2008), a moderate correlation between children's protests against instrumental mistakes in the warm-up tasks and normative protests

in the experimental tasks was found. This can be interpreted in two possible ways. Children who refrained from protesting in the experimental tasks might have done so due to a general reluctance to intervene. Likewise, children's protests in the experimental condition can be partly explained by their overall willingness to interfere with wrongdoings. Still, this cannot be the reason for the observed effects of normative protests since the difference between experimental and control conditions was quite robust.

This study has been noteworthy in several respects. First of all, for the first time, a study investigating children's normative understanding as it can be observed in their games has been conducted with Turkish children. Norms are, by definition, highly culture-specific (Searle, 1995). Not only their contents, but also the weight given to them might change from culture to culture. Accordingly, it may be that children in a given society acquire the understanding of normativity earlier than children in other societies. Since it is a very complex issue, however, any specific hypotheses would rather be an uneducated guess. For instance, it is not possible to hypothesize that "German children will acquire normativity earlier, because modern Western cultures attribute more importance to norms", or the reverse. Nonetheless, any pattern observed to be different between the two samples would be informative. Current results revealed that the Turkish sample behaved quite parallel to the German one. This is informative in yet another respect, though, indicating that certain aspects of normativity, as the ones tested in the present study, might be universal.

The structures of the two studies, Rakoczy et al. (2008) and the present study can be analyzed more deeply to explore what these commonalities might be. First, in both studies, the games were explicitly rule-governed and involved status function ascriptions, two baseline features for institutional realities (Searle, 1995). It appears that children in both cultures start comprehending these structures fully by the age of 3. Another important aspect was about the coding criteria. As the coding schema used by Rakoczy et al. was adopted here also, all of the behaviors and wordings

used for indicating differential protest types were the same among the two studies. To exemplify one of them, normative protest was evident by such expressions as "Da mußt Du das nehmen" in German, "Bunu almalısın" in Turkish, and "You must take that one" in English. The linguistic expressions used by 25% of the participants from each age group in Study 1 are displayed in Appendix I. It seems like regardless of other constraints such as the possible differences in acquiring the very linguistic structures (e.g. modals, imperatives) between the two languages, children appreciated their pragmatic function and used them in appropriate contexts to protest against others when they violated the norms. The same holds true for non-linguistic behaviors as well. Children in both cultures offered the correct object, or looked at the authority adult to ask for support as non-verbal forms of (beginnings of) protest. So, it looks like not only the normative structure, but also certain ways of expressing the understanding of it may be shared across cultures.

The fact that no difference with respect to normative development was found between German and Turkish cultures can be interpreted in yet another way. As discussed above, one line of similarities were related to the basic structure of norms, that is, status function ascriptions and collective agreement. Even though they are thought to be universal features of norms, there is more than that in human cultures which in turn make each culture unique. Thus, at some point of development, children should acquire the values and behavior patterns most favored by their culture and apply them in relevant contexts. It may be argued that from 3 years onwards, the fundamental features of norms which are common to all cultures are acquired; however, other sorts of culture-specific aspects are acquired in later ages. If this holds true, then, it might also partly account for why no difference between the two cultures was found.

Apart from its cross-cultural significance, this study has been important as providing a baseline to further investigate normativity in young Turkish children. There are various other dimensions of normativity waiting to be discovered. The emotions that accompany it, its language, conditions of emergence and maintenance,

conflict resolution techniques in cases of violations, or its generalization to real-world normative settings such as moral obligations, to name just a few of them. As alluded to in the literature review section, research on the distinction between moral and physical laws on the one hand, and social conventions on the other hand, provided us with information on their nature and development. There is a substantive amount of interview data indicating that around 5 years of age, children conceptually distinguish between moral and social conventions (Nucci & Turiel, 1978; Smetana, 1981; Helwig, Tisak & Turiel, 1990; Levy, Taylor & Gelman, 1995; Kalish, 1998). On the one hand, interview techniques enable accumulating qualitative data, since children are allowed to speak out their thoughts. On the other hand, however, due to the same reason, the methodology becomes inapplicable to younger children who are not yet able to speak, not to mention pre-linguistic ones. Hence, having data gathered on the basis of behavioral reactions is valuable in this respect as well.

In the second study it was examined whether children think of freedom of will as a factor influencing conformity to norms. Based on several findings in the literature, it was argued that children would evaluate social norm transgressions with respect to their causes (Smetana, 1981; Levy et al., 1995), and react less negatively (i.e. display less normative protest) if they saw that the action of the norm transgressor was caused by his inability to do otherwise (Nichols, 2004; Kushnir et al., 2009; Chernyak et al., 2010). In addition, a qualitative change in children's response types was expected, in the sense that children's reaction against the norm-violating puppet would change from aggression and protest to helping. With respect to helping reactions, no differences between ages and gender were expected.

Children were not found to display decreased protest, which contrasted with the expectations. Some possible reasons for this could be that children did not actually perceive the puppet's physical constraint, or they perceived it, but did not find it explanatory for norm transgression. If these were true, however, we should not have observed a main effect of helping, such that children significantly helped

more in the constrained condition than in the hands-free condition. Indeed, 62% of all children in the experimental condition displayed helping attempts at least once, while it was only 3.7% in the control condition. Another possible explanation for the non-decrease of normative reactions might be that our definition of helping category somehow led us to count some helping reactions mistakenly as normative protests. It was suspected that at least some of the "teaching" and "showing" attempts, all of which were counted as positive normative protests in this study, might actually be attempts of helping the puppet via giving him information. If this is the case, however, there is still need for explanation why the children thought the puppet as lacking the necessary information. During the whole experimental procedure, the puppet was there together with the child, listening to the instructions of the experimenter. Hence, he should know how to play the game, yet not be able to do it due to his physical constraint. Accordingly, the most straightforward expectations were such helping attempts as trying to remove the rope, telling the puppet to take it off, or trying to help the puppet hold the toys somehow, in spite of the limitation.

Nevertheless, to see if counting "teaching" and "showing" behaviors within the scope of the normative protest category rather than the helping category could at all be the reason for not finding a decrease in normative protests, some further analysis was conducted. It was thought that if children displayed more "teaching" and "showing" reactions in the experimental than in the control condition, then, this would be telling in the sense that these reactions may be a part of helping responses. However, the results showed that there was no difference in teaching and showing reactions between the experimental and control conditions. Hence, it does not seem very plausible to claim that the teaching attempts observed in the experimental condition were, indeed, reflections of helping responses.

Of course, it may well be that our initial hypothesis that there would be a decrease in the normative protests when the puppet was unable to perform the correct action was false. It may not indeed be unlikely to observe people in real life, who help while at the same time protest against someone who is physically unable to

perform a specific action in the correct way. Alternatively, it is possible that this hypothesis was constructed from an adult-centered point of view. That is, children of 2 and 3 years old may not be capable of reacting in the same way as adults do in a situation like this where they have to assess the contradictory factors and arrange their emotional stance accordingly. It is known from research on the relationship between language and emotion that young children encounter difficulties in integrating two different domains: the emotional and the cognitive (Hohenberger, 2011). More specifically, at the very beginning, the affect-dominated system is in place in language development. This is followed by a period in which the cognitive, linguistic system governs the behaviors. Finally, as children mature, these two distinct domains are integrated. Thus, it is reasonable to assume that children who did not yet reach the third level might have encountered such a difficulty within the scope of this second study as well. Helping responses are more related with the emotional-empathic domain, whereas normative protests rely more on the operation of the cognitive domain in the sense that they require understanding the deontic relationships and making high-level causal inferences. Hence, children in this study, especially the younger ones, might have found it hard to integrate the seemingly controversial stimuli coming from these two different domains. Consequently, the emotional-emphatic domain might have dominated the cognitive one which resulted in increased helping responses, but not decreased normative protests. From an adult point of view, there did not seem to be any difficulty in comprehending the controversy that someone is violating the norms – which deserves protest- but that this person is doing it because of a physical constraint –which deserves helping. It is an easy decision in such a case to neglect the norm violation and help the norm-violating person without protesting. However, this does not seem to be the case for young children. They rather give two separate responses: a helping response, supported by the emotional-empathic system, and a normative protest response, supported by the cognitive system.

Still, it is observed and confirmed through further analysis that children in the second study protested more than children in the first study in general. When the identical conditions of the two studies were put into direct comparison, the increase in normative protests for the second study was found to be significant. This could partly explain why no decrease in normative protest was observed in the second study, when the puppet was physically constrained to perform the correct action. Several alternative reasons for this increased reactivity were considered. Similar to the argument about domain differences stated above, this can be due to the different contexts in which these identical conditions were presented to the children. In other words, in the first study children compared the norm-violating puppet with the non-violating one; whereas in the second study, the same condition was compared with the norm-violating puppet out of physical constraints. Therefore, children in the first study did not have any controversial input coming from different domains. In the second study, however, children had to distribute their processing resources between the emotional and cognitive domains, which they might have found hard to do. Moreover, the increased normative protests in the second study could be related to children's seeing the puppet not applying the norms at all in study 2, either due to the physical constraint, or due to unwillingness. Consequently, after a while, children might have started to think that no matter what they do, whether they help or protest, the puppet will play the game in the incorrect way. This would, in turn, increase their likelihood of protesting even more than they normally would.

In order to check whether the overall increase in reactivity was due to the puppet's performing the incorrect action in all conditions, an additional independent samples t-test was conducted. Here, the fact that half of the children received the games in CECE (control-experimental-control-experimental) order, while the other half received in ECEC (experimental-control-experimental- control) order was taken advantage of. The logic behind this was the following: If children first saw the puppet violating the norms due to unwillingness (as is the case in the CECE receiving group), then they might protest more in the following experimental

condition. However, if the children initially saw the puppet constrained, (as is the case in the ECEC receiving group), they might be less reactive against it in the following experimental condition. Thus, normative protests shown in the first experimental tasks of each child were compared. It was expected that in those tasks, children receiving the games in the CECE order would protest less than the children receiving the games in the ECEC order. The results, however, did not reveal any significant difference ($t(52)= -.54$, $p= 0.59$).

Yet another alternative explanation for the overall increase in protests could be that some of the target tasks were, for some reason, leading to increased normative protests and this in turn caused the increase. A game-by-game analysis, where normative protests displayed in each game were analyzed separately revealed that in all the games, namely in the "daxing" game ($t(52)= .84$, $p= 0.40$), the "duping" game ($t(52)= .18$, $p= 0.85$), the "baffing" game ($t(52)= .36$, $p= 0.72$), and the "miecking" game ($t(52)= 1.35$, $p= .18$), children indistinguishably protested in the experimental and control conditions. This result implies that not a game-specific factor, but a more general one accounts for the increase in reactivity. It is, thus, concluded that some other factor not yet discovered actually accounted for the increase in overall reactivity.

One possible way to overcome this could be to include one more condition, where the puppet does not have any physical constraints, and conforms to the norms. This was, however, deliberately avoided, because including one more condition would increase the testing time an additional 5 minutes. Although it may seem like a little time period from an adult point of view, when children's attention spans are taken into consideration, it might lead to decreased concentration, especially in 2-year-olds. Still another alternative solution to this problem could be to contrast the unable and willing conditions instead of unable and unwilling conditions. This would definitely decrease the tension, and timing constraints; however, it could not be done within the scope of this study, since we first needed a direct comparison of

the unwilling versus unable cases. For future research in this direction, this alternative method can be noted.

Compatible with the hypothesis, helping responses dramatically increased when the puppet was physically constrained. In fact, the means of the helping cateory in the experimental condition were comparable to, and even higher in some cases, than those of the normative categories in the control condition of this study, and the experimental condition of the first study. The comparison of means shows that the observed main effect of helping was not caused by a few exceptional cases where the children helped. As reported above, this is also evident by the percentages, showing that the majority of the children helped.

The second study provided preliminary evidence of 2- and 3-year-old Turkish children's conceptions of free will as a mediating factor in normative behaviors. Contrary to the expectations, children this young did not seem to fully comprehend that conformity to norms was a matter of willingness. If they had a full-grown understanding of this sort, then, they should have shown less normative protest when the norm-violating actor was physically constrained, which was not found to be the case. Still, the fact that they responded differentially, with more helping reactions, suggests that they have at least some basic level understanding that free will is a factor influencing conformity to norms. This is in line with what the previous research on morality suggested. These studies held that as opposed to moral laws, children viewed social conventions and rules as less fixed and dependent on the actor's intentions to act in a certain way (Smetana, 1981; Levy et al., 1995; Chernyak et al., 2010). Even though no such comparison was made in this study, it was clearly seen that children perceived the physical constraints on the realization of free will differently from mere unwillingness to perform the correct actions; that is, they could distinguish between 'unwilling' and 'unable' actors. The previous literature on the relationship between free will understanding and normativity suggested that 4-year-old children comprehend others' freedom of choice as they conform to the norms (Kushnir, Wellman & Chernyak, 2009).

Adding to this literature, the current study revealed that initial signs of this comprehension emerge even earlier, at 2 years of age. This observation in younger children was possible by employing a behavioral rather than an interview technique. This basic level understanding is reflected by children's helping a physically constrained norm violating actor. Thus, in addition to the existing literature, the results found here demonstrated that children help not only as response to people's instrumental needs but also in normative contexts.

The literature on instrumental helping shows that helping may take various forms, e.g., taking an accidentally dropped object and giving/offering it to the person who dropped it, reaching for the attempted objects (Warneken & Tomasello, 2006; 2007), pointing to inform others of something they are unaware of (Liszkowski, Carpenter, Henning, Striano & Tomasello, 2004; Liszkowski, Carpenter, Striano & Tomasello, 2006; Liszkowski, Carpenter & Tomasello, 2008; Warneken & Tomasello, 2009), or looking concerned in yet younger children (Zahn-Waxler, Radke-Yarrow & Wagner, 1991; Commons & Wolfsont, 2002). Accordingly, the helping category utilized in the present study involved such behaviors as verbally expressing the desire to help, reaching for or pointing to the correct objects, finding solutions to get rid of the constraint, and looking concerned. From the results it seems that the helping category was well-constructed and similar behaviors to instrumental helping were observed while helping in normative contexts. Another finding in accordance with the previous findings on helping (Warneken et al., 2006; 2007) was that there was no difference between the two age groups tested in this study, in terms of their helping amounts. This means that helping is a behavioral tendency that emerges earlier than normative protest. One may speculate that helping draws on other than merely cognitive resources, e.g., emotional and empathic abilities that may develop independently and possibly earlier in young children.

To sum up: In two studies, the development of understanding of normativity was investigated in 2- and 3-year-old Turkish children. It was hypothesized that

children would protest to norm violations, but that this reaction would decrease and take the form of helping when the norm-violating actor was externally constrained, and thus, had no other chance but to violate the norm. Overall, these two studies supported the existing literature on normativity by providing additional evidence that, starting from 2 years of age; children well comprehend the status function ascriptions in rule-governed games. It takes, however, one more year for them to also appreciate the conventional impacts it has in normative contexts. As a result of this study it can be concluded that also in Turkey, children's rule-governed games ivolving status function ascriptions can be reliably used to assess their developing perception and conception of normativity.

Moreover, conceiving of the actor's freedom to act as an influential factor in his/her normative behavior has been investigated for the first time with children that young. To the best of our knowledge, all studies of free will up-to-date made use of interviewing children and asking their ideas on whether a person was free to act, and what should follow from his particular condition of being free or constrained (e.g. punishment). This method, however, is inevitably confined to studying children capable of expressing themselves verbally. In contrast, the current study presented an alternative to this method. Again, it can be concluded that both 2- and 3-year-old children acknowledged the dependence of norms on free will, in the context of rule-governed games. Accordingly, the children responded to such norm violations which were out of the control of the actor (because he was physically constrained) with more helping reactions.

CHAPTER 8

CONCLUSIONS & DIRECTIONS FOR FUTURE RESEARCH

The first study, which aimed to replicate previous findings of normative understanding in German children, found that, as expected, starting from 3 years of age, Turkish children also clearly distinguish the normative contexts, and protest in response to norm violations but not if no norm is violated. The second study, which explored the concept of "free will" in children's responses to norm violations, added to this knowledge, by revealing that children of both ages showed more helping attempts when the actor wanted to perform the correct action indeed, but could not do so due to his physical constraint. In both studies, all but one of the main hypotheses about normative reactions and the age effects were supported. The only unexpected result was the lack of decrease in normative responses in the second study. This might have occurred either because of a deficiency in the design, or because it was the natural reaction against norm violations regardless of their causes anyway. The former possibility can be controlled for and overcome in future studies by constructing a design where the participants see the puppet obeying the norm at least in some cases. The rest of the findings were in line with what the previous literature suggests.

Overall, when compared to the study of Rakoczy et al. (2008), current results revealed that there were some features common to children of both German and Turkish cultures. Status function ascriptions and the rule-governed nature of games

were well acknowledged as the formational features of normativity and responded accordingly in the form of normative protests by children aged 3. Furthermore, the way children express their reactions against norm violations, verbally and non-verbally, were quite similar in the two cultures. Still another important finding of these studies was how children of both ages comprehended the actor's freedom to act as a factor influencing his/her compliance to norms. Although they did not refrain from protesting, children helped the actor more when s/he disobeyed the norm due to a physical constraint, despite his/her will to obey it.

For future research, there are many other aspects of normative development to be investigated. For instance, it was evident that there was a specific 'language' that came with normative understanding. Particular expressions such as 'Öyle olmaz' and 'Değil' (can be roughly translated to English as 'It doesn't work like that' and 'Not like that') and particular syntactic features such as modals and imperatives were recognized from children's speeches. The acquisition of such phrases and morpho-syntactic features can be explored as to whether they develop in parallel with the development of normative understanding. Another interesting topic could be to investigate the emotions that accompany normative situations. It was observed that children became angry, excited, and sometimes even scornful as the norm violation took place. These emotions then were displaced by disinterest or even increased levels of aggression as the norm violator did not take advice and continued with his incorrect behavior. Lastly, it would also be tempting to investigate how normative understanding develops as cooperation demands with peers increase (Brownell, Ramani & Zerwas, 2006). In other words, more enhanced experimental settings, where the normative context resembles more the real-life situations that involve institutional realities can be designed. This can be done by using a peer-based approach as Engemann (2010) did, by increasing the number and roles of people involved in the game (e.g. one authority, one subordinate etc.), or by carrying out longitudinal analyses to observe the change of norms.

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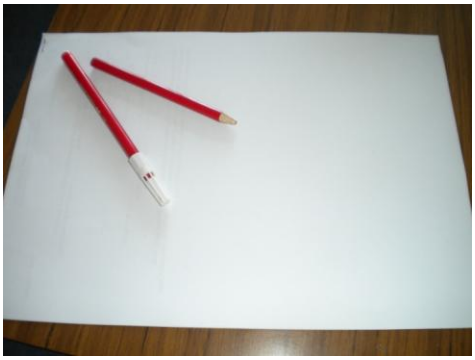
APPENDICES

APPENDIX A: PICTURES OF WARM-UP TASKS

Drawing



House Building

Goal Game

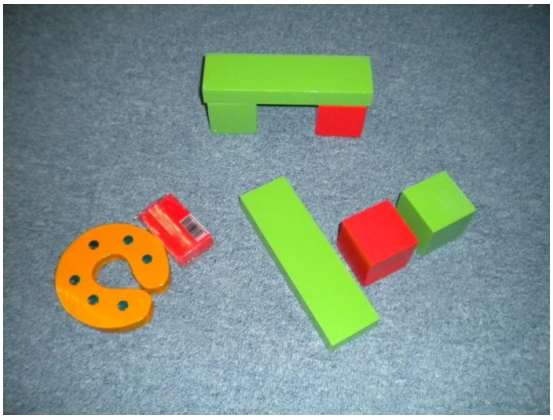
Bull Game

APPENDIX B: PICTURES OF TARGET TASKS

Daxing

Duping

Baffing



Miecking

APPENDIX C: INFORMED CONSENT (TURKISH VERSION)

Sayın Veliler, Sevgili Anne-Babalar,

Çocuklar, yaşamlarının ilk yıllarından itibaren neyi, nerede, nasıl yapmaları/yapmamaları gerektiğini anlatan pek çok kural öğrenmeye başlarlar. Bu kuralları uygulama biçimleri, içinde yaşadıkları toplumsal ilişkileri nasıl algıladıkları ile ilişkilidir. Toplumsal normların edinimi, yaşla geliştiği gibi kültürler arası da farklılık gösteren bir olgudur. Bu çalışma, hem gelişimsel hem de kültürel açıdan norm algısının nasıl değişim gösterdiğini araştırmaktadır. Almanya ile ortak olup Türkiye ayağı yürütülen bu çalışma, Orta Doğu Teknik Üniversitesi Bilişsel Bilimler yüksek lisans öğrencisi Bahar Tunçgenç tarafından yüksek lisans tezi kapsamında yapılmaktadır. Tezin danışmanlığını, aynı bölümde öğretim görevlisi olan Yard. Doç. Dr. Annette Hohenberger yapmaktadır. Çalışmanın amacı, 2 ve 3 yaşlarındaki Türk çocukların normları nasıl algıladılarını araştırmaktır.

Katılmasına izin verdiğiniz takdirde çocuğunuzla kendi enstitüsündeki (yuva, kreş vb.) bir odada 4-5 oyun oynayacağız. Eğer çocuğunuz henüz hiçbir okula gitmiyorsa, sizi çocuğunuzla birlikte, ODTÜ Bebek Laboratuvarı'nda ağırlamaktan memnuniyet duyarız. Çalışma boyunca, çocuklar, tanımadıları iki yetişkin ile birlikte bir oyun oynayacaktır. Yaklaşık olarak 20 dakika sürecek olan bu oyun bir odada, masa üzerinde oynanacak olup çocuğunuzun yaş grubuna uygun olarak hazırlanmıştır. Bu anlamda, onun bilişsel ve/veya fiziksel kapasitesini zorlayıcı, ona fiziksel ve/veya psikolojik rahatsızlık verecek herhangi bir unsur bulunmamaktadır.

Çocukların oyunları kurallar dahilinde nasıl oynadıkları ve bir başkasının oynayışıyla ilgili tepkileri incelenecektir. Bu amaçla, bütün deneyler video ile kayıt altına alınacaktır. Çocukların kendilerini mümkün olduğunca rahat hissetmesi ve doğal tepkilerini yansıtabilmesi için davranışlarının kaydediliyor olduğunu bilmemeleri gerekmektedir. Görüntü ve/veya ses kayıtları tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir. Kayda alınan görüntü ve/veya ses kayıtlarının hiçbir bölümü çocuğunuzun kimliğiyle eşleştirilmeyecek, çalışmayla bilimsel amaçlar dışında ilgilenen kişilere sunulmayacaktır. Elde edilecek bütün bilgiler, yalnızca bilimsel yayımlarda kullanılacaktır.

Çalışmaya katılım tamamıyla gönüllülük temelinde olmalıdır. Katılım öncesinde ya da esnasında herhangi bir nedenden ötürü çocuk kendisini rahatsız hissederse deneyi yarıda bırakıp gitme hakkına sahiptir. Bu hakka sahip olduğu, çocuklara deney salonuna alındığı anda da söylenecektir. Böyle bir durumda deneyi uygulayan kişiye, devam etmek istemediğini söylemesi yeterli olacaktır.

Çocuğunuzun bu çalışmaya katılmasına izin vererek bize sağlayacağınız bilgiler bizlere büyük katkı sağlayacaktır. Çalışma hakkında daha fazla bilgi almak için ODTÜ Bilişsel Bilimler yüksek lisans öğrencisi Bahar Tunçgenç (Tel: (5xx) xxx xxxx, E-posta: bxxxxxxxxxxxx@gmail.com) ODTÜ Bilişsel Bilimler öğretim üyesi Annette Hohenberger (Tel: (312) 210 3789, E-posta: hohenberger@ii.metu.edu.tr) ile iletişim kurabilirsiniz.

Şimdiden teşekkür ederiz.

Bahar Tunçgenç

Yukarıda açıklamalarını okuduğum araştırmaya tamamen gönüllü olarak çocuğum

.....'nın katılmasına izin veriyorum.

Veli Adı-Soyadı

.....

İmza

.....

Lütfen imzaladığınız formu çocuğunuz aracılığıyla Yuva Müdürlüğü'ne VEYA e-posta yoluyla bxxxxxxxxxxxx@gmail.com'a teslim ediniz.

Eğer çocuğunuzun katılımıyla ve/veya haklarının korunmasıyla ilgili bir sorunuz varsa, ya da çocuğunuzun bir risk veya stres altına gireceğini düşünüyorsanız, Orta Doğu Teknik Üniversitesi İnsan Araştırmaları Etik Kurulu'na şu telefondan ulaşabilirsiniz (312) 210-3729.

APPENDIX D: INFORMED CONSENT (ENGLISH VERSION)

Dear Parents,

From early on, children start to learn a number of rules that tell what, where, and how they should/should not do. The way they apply these rules is related with how they conceive of the societal relations. Norm acquisition is developed with age, and it differs across cultures. This study investigates both the developmental and cultural aspects of norm acquisition. This is a cross-cultural study whose Turkey counterpart is conducted by METU, Cognitive Science master student Bahar Tunçgenç, within the scope of her master's thesis. The thesis is supervised by Assist. Prof. Dr. Annette Hohenberger, a faculty member of the same department. The aim of this study is to investigate 2 and 3-year-old Turkish children's understanding of normativity.

In case you permit your child to attend the experiment, we will play 4-5 games with your child in a room in his/her own institute (kinder garden etc.). In case your child is currently not attending to any kinder garden, we would be glad to welcome you at METU Baby Lab. Throughout the study; children will play a game with two unfamiliar adults to him/her. The game, which will approximately last for 20 minutes will be played around a table, and is prepared as appropriate to your child's age group. Hence, there are no factors that may be cognitively and/or physically demanding; or that may cause any physical/psychological discomfort in your child.

How children play the games with respect to its rules, and how they respond to another person's play will be investigated. For this reason, all the experiments will be video recorded. In order for the children to feel as comfortable as possible and display their natural reactions, it is important that they are unaware of being recorded. The visual and/or auditory recordings will be kept totally private and evaluated only by researchers. Parts and/or whole of the visual and/or auditory records will not be matched with the identity of your child, and will not be disclosed to any person with non-scientific interests. Whole data will be used only for scientific purposes. Participation to the study must be totally voluntarily. In case the child feels him/herself uncomfortable due to any reason, s/he has the right to withdraw at any point of participation. Children will be informed about this right

before the experiment starts. In such a case, it will be sufficient for the child to say to the experimenter that s/he does not want to continue.

The information that you will provide us by allowing your child to participate in this study will be of great value to us. If you want to get more information about the study or have any questions, you may contact METU, Cognitive Science master student Bahar Tunçgenç (Phone: (5xx) xxx xxxx, e-mail: bxxxxxxxxxxxx@gmail.com), or METU, Cognitive Science faculty member Annette Hohenberger (Phone: (312) 210 3789, e-mail: hohenberger@ii.metu.edu.tr).

Thank you in advance.
Bahar Tunçgenç

I give my consent for my child
……..'s participation in the study about which I have read the explanations above.

Parent Name-Surname

.....
Signature

.....

Please hand in the signed form to the kindergarten management or send it via e-mail to bxxxxxxxxxxx@gmail.com.

If you have questions about your child's participation and/or preservation of his/her rights or believe that he/she might be subjected to any risks or stress, contact the Middle East Technical University Human Subjects Ethics Committee at the phone number (312) 210-3729.

APPENDIX E: CODING SCHEME

BASIC RULES:

0. DISTANCE CHILD – OBJECTS

- Reachable while seated OR
  Reachable by kneeling OR
  Not reachable at all
  (Background: important for TEACHING: how easily could the child herself take the objects and perform the proper action?)

WARM-UP

Code	**Operationalization**	**Additional code POINT IN TIME**		**Final Code**
EXPLICIT	Explicit cue/direction - „this one doesn't work“ - „with this one!“ - „do with stick“	0	Without	EXPLICIT_0
		1	After 1.	EXPLICIT_1
		2	After 2. request	….
IMPLICIT	Implicit intervention - giving - demonstrating concurrently: - without words OR - only irrelevant speech	0	Without	…
		1	After 1.	..
		2	After 2. request	..
--	Nothing relevant			..

I. DEMO

- Describe only if there are special occurrencies (e.g., child says: „I see, daxing goes this way“ or child says while obverving the error: „No, not like that, with this one...“)

II. ACTIONS (Demo Phase)

- If necessary, describe multiple actions separately.
- For DAXING & BAFFING: 2 x
- For DUPING & MIEKING: 2x = 4 balls
- Descriptive:
    - which actions does the child perform?
    - Does she verbalize anything concurrently? (esp.: „Also daxing“ or the like)
- Codes are assigned per trial (1 trial per task)

Code	**Operationalization**	**Daxing**	**Duping**	**Mieking**	**Baffing**
Target	Child only performs target action	Takes stick and pushes wooden block down-ward some-where	Balls in tubes	Balls in tubes	Shoots play-dough ball at/in/ through door/brid gewith door stopper, or the like
Target + Distractor	Child performs target action but also distractor action				
Distractor	Child only performs distractor action				
--	Child does neither nor (instead, does nothing or something very different)				

Additional Code VERBAL:

Code	**Operationalization**
Novel-verb +	Child performs target and uses novel verb in addition (or announces it before)
Novel verb --	Child uses novel verb but in an inappropriate way (e.g., while performing accident or while performing sth. else)

III. REACTIONS:

PHASES per game:

			INTERVAL-boundaries	
			Beginning	**End**
1	Pre-Prephase		E1 „Max' turn“	Max: „I am going to dax“/“My turn“
2	Trial 1	Before	Max: „I am going to dax“/“My turn“	Error evident (e.g.: DUPING Ball lies on middle hole)
3		During	Error evident	End of Max’ action
4		After	End of Max’ action	Max: „I am going to dax“/“My turn“ (already from trial 2)
5	Trial 2	Before	Max: „I am going to dax“/“My turn“	Error evident (e.g.: DUPING Ball lies on middle hole)
6		During	Error evident	End of Max’ action
7		After	End of Max’ action	E1 removes objects

(1) Codes are assigned separately per TRIAL (→ 2 trials per task)

(2) Within one trial: 3 sub-phases (s.o.)
→ Per sub-phase: if necessary, describe different reactions sequentially

(3) PROCEDURE:
- (i) descriptive: describe per sub-phase: What does the child do when
  → if necessary (for different reactions) bring into order
- (ii) per reaction: assign at least 1 code i.e., one reaction may obtain VARIOUS CODES simultaneously
  → IMPORTANT: P+_neg / P+_pos / P+_teach can be assigned to one and the same reaction
  → Exception: if a reaction has been assigned a „P+“ code, it cannot acquire a „P?“-Code any longer (since P+ is hierarchically higher.)
- (iii) Order: Firrst assign CLEAR Codes, mark unclear ones with „?“
  → categorize unclear cases step-by-step

(4) Code per phase:
- (i) always assign highest code: (1) P+ -(2) P_imp – (3) P? – (4)--
- (ii) separately in brackets: if P_m occurs

Main categories	**Theoretical Definition**	**Sub-categories / Operational Def.**	**Code**
P+	***Clear normative protest***: rebuke, criticism, correction, showing	▪ rebuke/criticism etc. **NEGATIVE**: - „This does not go there...“ - „It doesn't work like that“	P+_ neg
		▪ Correction etc. **POSITIVE**: - „There you must take that one“ - „It must go in there“	P+_ pos
		▪ **Showing / Teaching**: Def. CHILD SHOWS - „I am gonna show this to you“	P+_ teach
		▪ **Possible additional codes:** - Child TELLS E1 that Max „always does it wrong“, or the like.	P+_ E1

P_imp	**Pure imperative** (or **question)** (without any normative elements, e.g., „it works like that"/„must" etc.)	▪ **Positive imperative** - „In here!" - „Take stick!"	P_ imp+
		▪ **Negative imperative** - „No, not there!" (Coding of a „no" in the beginning depends on the following context)	P_ imp-
		▪ **Question:** Child asks (Max) about action or object - „And the ball?"…	P_ quest
P_?	Beginning of protest, however, **not distinctive enough** for the two categories above	▪ **GESTURES:** pointing to correct object (including labeling, if ONLY labeling	P?_ gest
		▪ **GIVING/OFFERING:** Child offers Max the correct object	P?_ give
		▪ Child tries to **REACH** the correct object herself, assembles it, or the like	P?_ reach
		▪ Child tries to **PREVENT** the action (e.g:: holds hand in front of the door stopper or the like)	P?_ prevent
		▪ **LOOKING** towards **E1**, seeking for help or looking critically	P?_ look
–	Doubtlessly **NO** normative protest reaction		–

P_m	Protest, however ***ONLY*** with the same words as E1 had reacted to his own incorrect action („But it doesn't work that way ...“)	▪ „It doesn't work like that ...“ ▪ and: **NOTHING ELSE** (that would satisfy code for „protest(+)“)	Protest_ mimicry

T	Macht target act herself	**T**
M	Mistake = Distractor-action	**M**

APPENDIX F: TABLE FOR MEAN SUM SCORES (0-2) OF CHILDREN'S PROTESTS IN THE TARGET PHASE OF STUDY I

Table 2: *Mean scores of protests in the target phase of Study I (0-2)*

	Age	Normative protest	Imperative protest	Hints of protest	N
Experimental	2 years old	,31 (,55)	,23 (,43)	,50 (,65)	26
condition	3 years old	,89 (,80)	,26 (,48)	,30 (,61)	27
Control	2 years old	,04 (,20)	,12 (,33)	,04 (,20)	26
condition	3 years old	,15 (,46)	,41 (,64)	,19 (,40)	27

APPENDIX G: DEFINITION OF HELPING CATEGORY

Main categories	Theoretical Definition	Operational Definition	Code
Help	concern, attempt to help without intending to protest or criticize, suggestions	**GESTURES:** Looking concerned and attentive **ATTEMPTS TO HELP:** to do the correct action and/or to overcome the constraint - "Let me help you" - "Wait, I'll do it [for you]" **SUGGESTIONS:** realization of the constraint, reasoning about the causes of violation, suggestions to overcome the constraint - "Oh! You can't do it" "Can't you really do it?" - “You cannot do it because of X” - "If you do X, then you can perform the action"	H

APPENDIX H: TABLE FOR MEAN SUM SCORES (0-2) OF CHILDREN'S PROTESTS IN THE TARGET PHASE OF STUDY II

Table 5: *Mean scores of protests in the target phase of Study II (0-2)*

	Age	Normative protest	Imperative protest	Hints of protest	N
Experimental	2 years old	,65 (,85)	,04 (,20)	,27 (,53)	26
condition	3 years old	1,07 (,78)	,22 (,42)	,22 (,51)	27
Control	2 years old	,88 (,71)	,15 (,37)	,46 (,71)	26
condition	3 years old	1,30 (,82)	,11 (,32)	,22 (,51)	27

APPENDIX I: LINGUISTIC EXPRESSIONS USED FOR DIFFERENT TYPES OF PROTESTS IN STUDY I

		Turkish version	English version
2-year-olds	**Normative protest**	Öyle oynayamazsın Olmadı ki Öyle olmaz!	You cannot play it like that It was not right It doesn't work like that!
	Imperative protest	Bunu al! Şuradan! Ama bununla, bununla! Öyle (böyle) değil!	Take this! From there! But with this one, this one! Not like that!
3-year-olds	**Normative protest**	Öyle olmaz ki! Böyle olur Bunu almalısın Hayır! Buradan atacaksın ("dak"layacaksın) Şimdi bu, bu, buradan geçecek (followed by teaching/showing attempt) Öyle olmuyor!	It doesn't work like that! It works like this You must take this one No! You're going to throw it ("dax") from here Now this ,and this will pass from here (followed by teaching/showing attempt) It isn't working like that!
	Imperative protest	Şuna! Şundan (yap)! Buradan/Oradan (yap)! Öyle değil! Al! Hayır! Şunu, şunu! Öyle yap! Onu buradan at!	To that one! (Do it) through that one! (Do it) From here/there! Not like that! Take it! No! This one, this one! Do it like that! Throw it from here!