

# **Attribution of Leadership Cues: A Quantitative Study**

## **About How Adults Attribute Leadership**

**Bachelor Thesis in Psychology**



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## Preface

This thesis represents the completion of my undergraduate studies in psychology. Throughout this three-year academic journey, I have learned about the complex workings of the human mind and how biological, psychological, and social factors play a role into shaping our behaviors and emotions. My research project focuses on the attribution of leadership cues and the study I conducted aimed to explain which cues individuals use to attribute legitimate leadership.

In the course of my research, I have learned that no task can be completed without discussion and interaction with others, therefore I would like to express my gratitude to my thesis supervisor, Francesco Margoni, whose research, expertise, and guidance shaped and inspired my project. I would also like to thank the participants of this survey who set aside their valuable time and shared their opinions with me, without whom this thesis would not have been possible. Lastly, I would like to thank my family, my fiancé and my friends for the tireless love, support, and encouragement throughout my academic journey, it has been a constant source of motivation.

I hope that this research will contribute to the psychological field and inspire further investigations into the attribution of leadership cues. I also hope that you will enjoy reading as much as I enjoyed researching and writing this thesis.

All the best,

Sara

## Abstract

This study aims to investigate what cues people use to attribute legitimate leadership. Participants ( $N = 30$ ,  $M_{age} = 26.07$  years) were presented with videos portraying different social interactions between three protagonists and a main agent. We tested whether bowing, conferring a benefit, imposing a cost, receiving a tribute, and size were used as cues to attribute legitimate leadership to the agent. Our results showed that the way we attribute leadership to agents is not random and is based on the characteristics of the leader's and the followers' behavior. The cue that had the strongest impact on the attribution of leadership was bowing (the fact that the protagonists bowed down for the agent), whereas imposing a cost cues were simply associated to bullying and not to respect-based social power or leadership. This research contributes to improving our understanding of how legitimate leadership is attributed and what cues are used in this process. These findings could be applied in a range of different fields, such as in leader-training programs to make organizations better equipped to select and train effective leaders.

*Keywords: leadership, social relations, bowing, imposing a cost, authority, respect-based power, fear-based power.*

## Abstrakt

Denne studien tar sikte på å undersøke hvilke signaler mennesker bruker for å attribuere legitimt lederskap. Deltakerne ( $N=30$ ,  $M_{alder}=26.07$  år) ble presentert med videoer som viser forskjellige sosiale interaksjoner mellom tre røde protagonister og en gul agent. Vi testet om det å bukke, gi en fordel, pålegge en kostnad, motta en hyllest og størrelse ble brukt som signaler for å attribuere legitimt lederskap til en agent. Resultatene våre viste at måten vi attribuerer lederskap til agenter ikke er tilfeldig og er basert på karakteristikken til lederens og tilhengernes atferd. Signalet som hadde størst innvirkning var å bukke (det faktum at protagonistene bøyde seg ned foran en agent), mens det å pålegge en kostnad ble assosiert med mobbing og ikke til respekt-basert sosial makt eller lederskap. Denne forskningen bidrar til bedre forståelse av hvordan legitim ledelse tilskrives og hvilke signaler som brukes i denne prosessen. Disse funnene kan brukes på en rekke forskjellige felt, for eksempel i opplæring av ledere for å gjøre organisasjoner bedre rustet til å velge og trene effektive ledere.

*Nøkkelord: lederskap, sosiale relasjoner, bøyning, pålegge en kostnad, autoritet, respekt-basert makt, frykt-basert makt.*

## Introduction

Leadership is a fundamental aspect of human social life and behavior because it plays an important role in shaping group dynamics, promoting cooperation and facilitating collective action (Durkee et al., 2020; van Vugt & von Rueden, 2020). Throughout history effective leadership has been essential for survival, guidance, and protection, therefore it is also important for achieving shared goals and promoting social change, thus leadership is one of the most important aspects of success of organizations and societies (Hogg, 2001).

Since our preconceptions of leaders and how leaders should behave comes from cognitive schemas of types of leaders, when someone is perceived as a leader according to their behavior, the relevant leadership-schema becomes important to elaborate on new assumptions about behavior. In addition, this the ability to follow effective leaders is crucial for individuals to be able to achieve their goals and to navigate complicated social environments (Goleman, 1998).

## Previous Research

Despite its importance, the process by which individuals attribute leadership to agents and which cues individuals use to attribute leadership is not well understood. Previous research by Francesco Margoni and colleagues (2018) suggests that even infants as young as 21-months are able to distinguish between leaders and bullies, and whether they prefer to follow leaders or bullies (Margoni et al., 2018). In this study, researchers found that infants expect a group of agents to comply with an order even in the absence of the agent issuing the order when the agent was characterized as a leader, but not when it was characterized as a bully, who displayed fear-based power rather than respect-based power. These findings suggest that even infants are sensitive to the difference between leadership and aggression and are able to recognize and prefer leaders who display prosocial behaviors.

Following up this work, Margoni and Thomsen (2022) tested what cues Norwegian infants in their second year of life use to attribute respect-based power or legitimate leadership. That is, they asked what cues activated in infants the expectation that the group of protagonists will obey the agent issuing the order even in its absence, so when they are not controlled by it. They tested 5 different cues, which are the cues I have also tested here in a sample of adult participants: bowing (the fact that the protagonist initially bowed down for the lone agent); conferring a benefit (the fact that the protagonist conferred a benefit to the group); receiving a tribute (the fact that the group conferred a benefit to the protagonist); imposing a cost (the fact that the agent took a resource away from the group or used violence); size (the fact that the agent was bigger in size compared to the protagonist). None of these cues were used by infants to generate the expectation of obedience, that is, the representation of leadership, except bowing.

Moreover, research has shown that infants can mentally represent social dominance. Preverbal infants could mentally represent social dominance and distinguish between individuals based on their physical size and strength. A study showed that infants expect larger and more physically dominant individuals to prevail over smaller and weaker ones, which suggest that they were mentally able to represent social dominance and use physical cues to make these judgements (Thomsen et al., 2011). Based on this, one can think that adults might also possibly use physical cues to distinguish between different types of power.

### Psychological Processes Behind Attribution of Cues

In order to understand the way that leadership cues are attributed to agents it is important to be aware of the various psychological processes that underlie this ability. An important factor here is the psychological concept of social dominance orientation, which is defined as “*the extent to which one desires that one’s in-group dominate and be superior to out-groups*” (Pratto et al., 1994). Social dominance orientation is known as one of the individual-level factors that

contributes to both creation, but also maintenance, of group hierarchies (Pratto et al., 2006; Sidanius et al., 2016). As identified in previous research, this orientation can shape how we perceive and interact with other and thus it can influence our tendency to identify and follow leaders (Pratto et al., 2006; Sidanius et al., 2016).

Additionally, the social dominance theory (hereafter SDT; Sidanius et al., 2016) looks into how individuals perceive power, hierarchy and dominance. SDT provides a framework to understand how hierarchical social structures, which are universal among humans, are formed, and how they influence intergroup relationships (Pratto et al., 2006). SDT proposes that our societies are organized around these group-based social hierarchies, in which dominant groups maintain their power by discriminating and suppressing subordinate groups through behaviors and ideologies that strengthen and give account for inequality (Pratto et al., 2006; Sidanius et al., 2016).

Moreover, Alan Fiske provides a framework to gain a better understanding of how individuals interact with each other in different social contexts (Fiske, 1992). He proposes a set of relational models that provide a framework to analyze the social relationships in our social life and to understand how social relationships are made and maintained. He suggests that social relationships are universal and can be categorized into four types which are communal sharing, authority ranking, equality matching and market pricing. In the authority ranking context, which involves a hierarchical system that is based on power and dominance and individuals, leadership might be attributed to agents who show dominance and authority over others. On the other hand, in the equality matching context, which involves a one-for-one based distribution of resources, leadership could be attributed to individuals who demonstrate a fair and equal distribution of resources.



## Types of Leadership Cues

When it comes to the forms that leadership cues may take, there are three main forms of leadership cues (Day et al., 2013). First of all, there are behavioral cues which are directly observable in the leader's behavior, body language and facial expressions. The followers use these cues to make judgements about the competence and trustworthiness of the leader. The second form includes the situational cues which are identified as cues that are present in the environment, such as the context in which they are portrayed as a leader. The third group are the identity cues which are related to the leader's identity, such as race, gender, and size. These cues are quite powerful and have a great impact on how the leader is perceived. However, these three cues are interconnected and they rarely appear alone. The body language of a leader may be influenced by the characteristics of the followers which again might be viewed differently depending on the follower's perception of the leader's size.

When it comes to attributing cues, Thomas and colleagues (2018) can provide insight into how adults use different cues to attribute leadership, mainly in the context of social dominance and group behavior. In their study they found out that toddlers as young as 21-months preferred those who won in a competition only when they won on legitimate means, in place of cheating or by using force. This suggests that the way an agent attains its position is an important consideration when deciding which leadership cues should be attributed to them, in this way individuals may be more likely to identify and follow leaders who win through competence and skill and leaders who show qualities such as honesty and legitimacy, rather than those who show aggression and force. These findings imply that toddlers may be sensitive to dominance cues and aggression in social interactions and relations, which could also be applicable to adults.

However, research also suggests that individuals tend to attribute leadership not only to those that are skilled, but also those that exhibit prosocial or social dominance cues, especially

if these qualities are necessary to achieve a common goal or if it confers a benefit for one's group (Cheng et al., 2010; de Vries, 2012; van Vugt & von Rueden, 2020)

## Types of Power

Following French et al., (1959) an important aspect to consider as well is the different types of power. They distinguish between five different types of power, one of them being coercive power which bases itself on the ability to punish and harm, while the four others are reward power, legitimate power, referent power and expert power (French & Raven, 1959). The four latter types of power signal respect-based power while the first one refers to a fear-based power. Fear-based power is defined as “*control or influence over others that is achieved via coercion, intimidation, aggression, or rejection*”. The second type of power relation is the respect-based power that could be both legitimate and merited power. The first being “*the power of an authority over a group*” (Margoni et al., 2018), while the latter refers to “*the influence that prestigious figures (e.g. highly skilled, knowledgeable or successful in valued domains) may exert [...] over those who identify with them [...]*” (Margoni et al., 2018).

Furthermore, human social relationships can be structured according to different forms of authority ranking, which is a type of social structure that is based on the status and power of individuals or groups (Rai & Fiske, 2011). The types of authority ranking are; dominance-based authority which is characterized by those with more power and status dominating, the second being prestige-based authority, which is based on respect and admiration; and paternalistic authority, where those higher up in the hierarchy take care of those lower in the hierarchy (Rai & Fiske, 2011).

In similar matter, Cheng, and colleagues (2013) look into the different routes to social rank by dominance and prestige. According to them even though both routes lead to social rank and status, they do so by using different ways. Dominance is associated with “*the use of force*

*and intimidation to induce fear*”, while prestige is associated with “*the sharing of expertise or know-how to gain respect*” (Cheng et al., 2013).

Another aspect of the importance of social hierarchies comes from Durkee and colleagues (2020). The article discusses a number of psychological mechanisms that are involved in the allocation of status within human societies (Durkee et al., 2020). The first model is the competence-based model which proposes that status is allocated based on skill or competence in a particular area, therefore it argues that individuals who are perceived to be knowledgeable or skilled in a specific are awarded higher status. The competence-based model could be used to argue that people that are perceived to be competent, skilled or knowledgeable in a particular domain are attained higher status which implies that those who are able to demonstrate the ability to confer a benefit, such as providing resources for the group, solving problems and offering support of some kind, might be perceived as competent individuals and therefore they might be more likely to be perceived as leaders in a group.

The second model is the conflict-based model, which implies that status is allocated through conflict and competition, and therefore it emphasizes using force and threat to establish and maintain power. The conflict-based model, which highlights the importance of dominance and use of threat, suggests that those who are able to claim goods for themselves and dominate are more likely to achieve a higher status within a social group. Therefore, one could imagine that in conditions where agents are able to show dominance and threaten others, such as in conditions that impose a cost, this might be a strong cue to attribute leadership.

The third model is the dual-pathway model which suggests that both the competence-based and the conflict-based pathways might be used to achieve status within a group. Since the last model suggests that there are two main pathways to achieving high status within a group

depending on the social context, this model might also suggest that conferring a benefit might be important as a cue for leadership in some contexts, but not in all (Durkee et al., 2020).

When it comes to this study, our research question was “What cues will adults use to attribute leadership?”. This question was formulated based on the gaps identified in the previous research and the need to further investigate attribution of leadership. The aim of this study was to investigate how individuals attributed leadership in social contexts, based on different cues we provided to them and how differences in political attitudes might be related to this process based on measures on four additional scales. Based on previous research, we hypothesized that the way we attribute leadership is not random and that it would be based on the characteristics of the leader’s and the followers’ behavior. We tested whether or not bowing, conferring a benefit, imposing a cost, receiving a tribute, and size were used as cues to attribute legitimate leadership to an agent.

## Methods

### Participants

Participants were 30 adults, of which 13 were males and 17 were females, with a mean age of 26.07 years ( $SD= 8.04$ ,  $range = 18-49$ ). The participants mainly consisted of Norwegians ( $N=18$ ), Bosnians ( $N=7$ ) while the rest consisted of one Croat, Montenegrin, German, Polish and Icelandic national respectively. They rated their English language proficiency with “advanced” ( $N=10$ ), “proficient” ( $N=8$ ), “intermediate” ( $N=5$ ), “basic” ( $N=4$ ) and “native speaker” ( $N=3$ ). The average education level was a high school degree ( $M_{years\ of\ education}=14,9$ ). The inclusion criteria for this study was that participants were 18 years or older and that they spoke English. Participants were recruited using a convenience sampling method where participants were contacted via social media and asked to participate.

## Ethics statement

This study is a collaboration between the University of Stavanger and the University of Oslo and it was conducted in the Stavanger-area. All participants were informed that their participation was voluntary and anonymous, and thus by responding to the questionnaire they gave informed consent to participate in accordance with the Code of Ethics of the World Medical Association (the Declaration of Helsinki). During the questionnaire they had the opportunity to withdraw their participation by not submitting the questionnaire. There were no personal data collected other than gender, age, highest degree, nationality, and English proficiency level. All data were stored and analyzed anonymously.

## Stimuli and procedure

The study was conducted by using paper-based scales. First, participants were shortly informed about the study. Second, they were presented with the scales and questions. When participants agreed on participating, they were given the questionnaires in paper format. The first page of the questionnaire consisted of information about the study and instructions for participating. After answering the questions presented in the scales they were shown a set of seven videos on a laptop screen (30 cm X 21 cm). Each participant received the videos in a randomized order, and each video lasted approximately between 25 and 30 seconds and was shown two times. After each video the participants were presented with five questions regarding the video. Each participant sat on a chair in a room as quiet as possible so that they would not be disturbed while answering the questionnaires and watching the videos.

## The videos

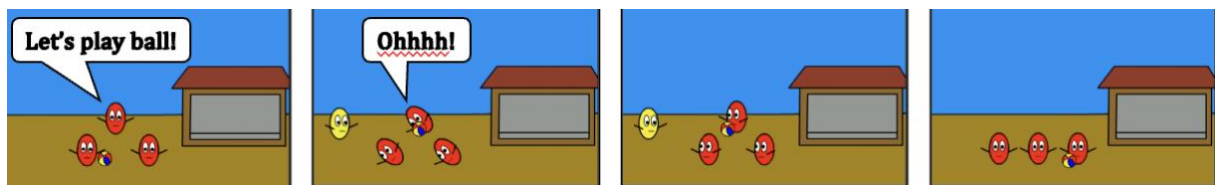
Each video consisted of an interaction between a yellow figure, that depending on the condition we hypothesized participants could perceive as a leader figure, and three red figures who were the protagonists. All of the figures were ovals with stick arms and female voices.

## Conditions

### Bowing

In this condition we wanted to show the participants an act of bowing, which could match a respect display. The protagonists stood in a field on the left side of the house and said “Let’s play ball!” (“La oss kaste ball!” in Norwegian), while passing the ball to each other until the agent appeared in the picture from the left side. The protagonists bowed to the agent while saying “Ohhhh” in a reverential tone a couple of times until the agent left. In the end the three protagonists stood in a straight line.

#### Condition 1: “Bowing”

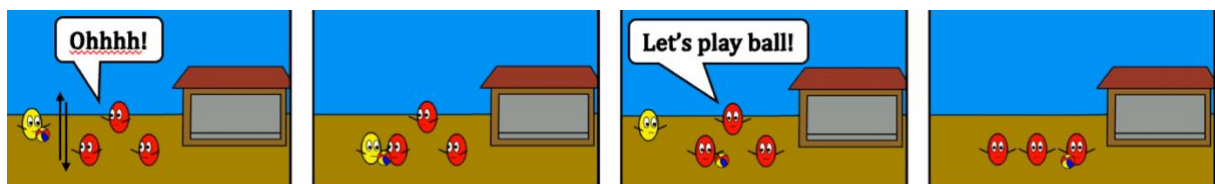


*The protagonists bow 2 times, and the character stands still.*

### Conferring a Benefit

In the second condition we wanted to show them an act of conferring a benefit. This time instead of bowing, the protagonists moved back-and-forth sideways, while they said “Ohhhh” a couple of times. After which they received a ball from the yellow agent. After this the video continued as in the Bowing condition.

#### Condition 2: Conferring a Benefit

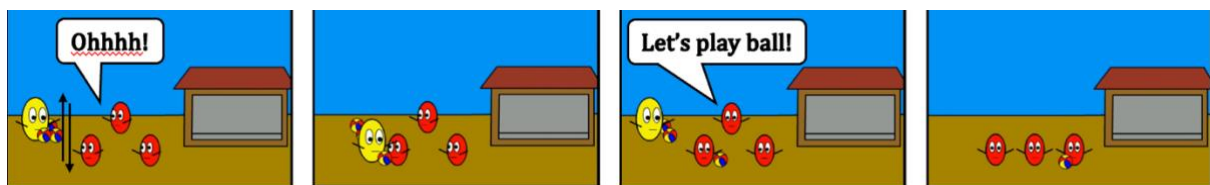


*The protagonists move back-and-forth sideways, and the character gives them the ball.*

### Conferring a Benefit & Size

In the third condition, we wanted to show the participants an agent that was bigger than the protagonists and an agent that has several resources. The participants saw the same movie they saw in the “Conferring a Benefit” condition, except that this time the leader was bigger than the protagonists and had more resources in forms of three balls.

#### *Condition 3: Conferring a Benefit & Size*

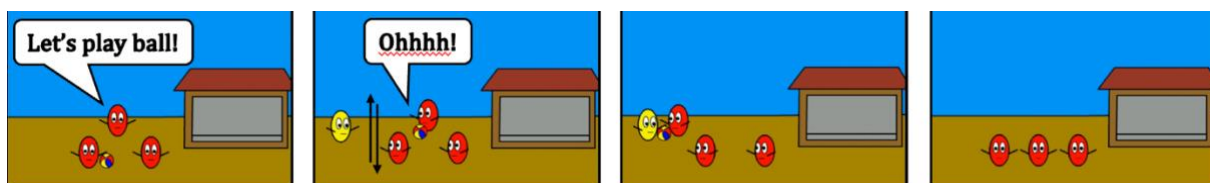


*The character, now bigger in size, gives the protagonists one ball.*

### Receiving a Tribute

In the fourth condition we wanted to show the participants an act of receiving, where the participants saw the same movie they saw in the “Conferring a Benefit” condition. However, this time the protagonists handed the ball over to the yellow agent and it left with the ball.

#### *Condition 4: Receiving a Tribute*

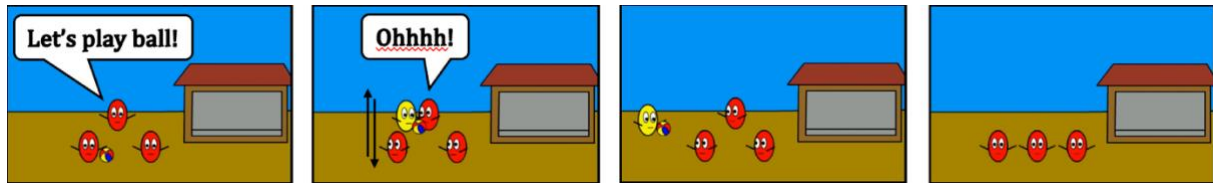


*The protagonists give the character their ball.*

### Imposing a Cost

In the fifth condition we wanted to present the participants with an act of imposing a cost where the participants saw the same movie they saw in the “Conferring a Benefit” condition except that the yellow agent took the ball away from them and left.

*Condition 5: Imposing Cost*

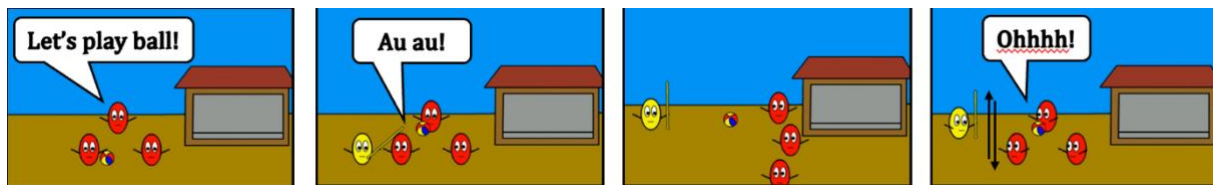


*The character takes the protagonists' ball.*

Hitting

In the sixth condition we wanted to show the participants an act that could be interpreted as bullying. The participants saw the same movie they saw in the “Conferring a Benefit” condition, except that this time the yellow agent did not give them a ball but had a stick in which he used to hit the protagonists while they exclaimed “Au! Au!”.

*Condition 6: Hitting.*

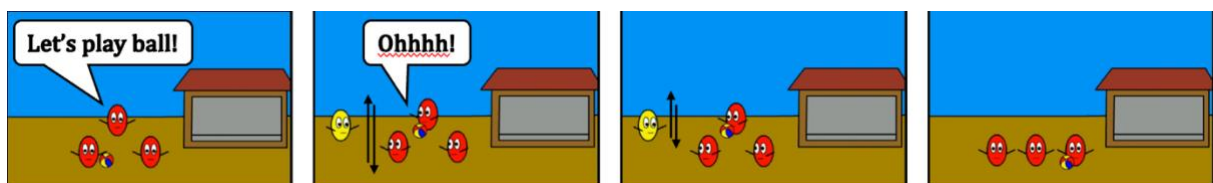


*The character hits the protagonists with a stick.*

Control Bowing

In the seventh condition, which was a control condition for the bowing condition. The participants saw the same movie they saw in the “Bowing” condition, except that this time instead of bowing, the protagonists moved back-and-forth sideways, while they said “Ohhhh” a couple of times. After this the video continued as in the Bowing condition.

*Condition 7: Control bowing.*





*The protagonists move back-and-forth sideways.*

### *Assessment after videos*

After the participants watched each video two times, they were presented with five questions. Three of these questions were about the red agents. The first two focused on the how the participants viewed the red agents' feelings toward the yellow character:

*“Fill in the blank: The red characters feel ..... toward the yellow character”.*

In the second question we asked them to rate their degree of agreement to whether some adjectives well that the red protagonists' feelings towards the yellow agent using a 7-point Likert-type scale from 1 = Not at all to 7 = Very much. The adjectives were *respectful, afraid, friendly, bullied, admiring, sociable, neutral, in awe, threatened* and *generous*.

*“How well do you think the following adjectives describe what the red characters feel toward the yellow character?”*

The third questions asked the participants;

*“How much would you be willing to say that the yellow agent was a leader/in charge?”*,

Also, in this question participants had to use a 7-point Likert-type scale. The remaining two questions assessed the yellow agent. The fourth question asked them;

*“Which of the following words would you select to refer to the yellow character? Please circle all that apply”.*

The items they could circle were: *leader, bully, authority, mean, prestigious, friend, aggressor, nice, acquaintance* and *subordinate*.

In the last question we asked the participants;

## Attribution of Leadership Cues

*“If you were to guess, how much do you think that the red agents would comply with orders issued by the yellow agent even in its absence (when the yellow agent is not controlling them)?”.*

They were also asked to rate their degree of agreement on a 7-point Likert-type scale ranging from 1 = Not at all to 7 = Very much.

## Additional measures

To measure different constructs related to social and political attitudes, a variety of scales were used. One participant was excluded from these measures because he or she failed to answer one of the questions. The participants were presented with different statements through the scales and they were asked to rate their degree of agreement on a 7-point Likert-type scale ranging from 1 = Strongly Disagree to 7 = Strongly Agree.

## *Social Dominance Orientation*

The Social Dominance Orientation 7 Scale (SDO<sub>7</sub>) developed by Ho, A.K and colleagues (Ho et al., 2015) measured the individual preferences for intergroup inequality and the desire for a groups desires to be dominant over other groups. The SDO construct predicts a range of different attitudes related to intergroup relations, such as prejudice, discrimination, and support for social hierarchy. The SDO is a construct that addresses both a general orientation towards intergroup relations and specific attitudes towards different types of groups.

The SDO<sub>7</sub> scale includes seven subscales that measure different aspects of SDO. In this study a total of 16 items were used from the SDO scale. Here is a short overview of two of the subscales that were the main focus, which are opposition to equality and dominance subscales with example items that were used:

1. *Opposition to equality*, which is the belief that efforts to reduce group inequalities are unjustified. Example item: “Some groups of people are just more worthy than others.”

2. *Dominance*, which is the belief that some groups should dominate. Example item:  
“Sometimes other groups must be kept in their place.”

### *Right-Wing Authoritarianism*

The Right-Wing Authoritarianism (RWA) scale measures individual's level of authoritarianism (Altemeyer, 1998). We used 13 items from the scale that assess three dimensions of authoritarianism. The RWA scale has been used in variety of research to investigate the relationships between authoritarianism and for instance social behavior. The first of them is the authoritarian submission which reflects the individual's willingness to submit to authority figures. Example item for this dimension includes “*Our country will be great if we show respect for authority and obey our leaders.*”. The second dimension includes conventionalism which reflects upon the individual's adherence to traditional values and norms. An example item for the second dimension includes “*Obedience and respect for authority are the most important virtues children should learn*”.

The third and last dimension of the RWA is the authoritarian aggression which reflects the willingness of individuals to use aggression and violence in order to maintain social order. One example item here includes “*The way things are going in this country, it's going to take a lot of “strong medicine” to straighten out the troublemakers, criminals, and perverts*”. A high score on the RWA indicates a strong agreement to authoritarian attitudes and beliefs.

### *Left-Wing Authoritarianism*

While the right-wing authoritarianism has been widely studied and is well-understood, there has been less focus on the possibility of authoritarianism on the political left. Therefore, Costello and colleagues clarify the structure and nature of the left-wing authoritarianism (LWA) (Costello et al., 2022). The authors argue that there is a coherent tendency to obey authorities even at the expense of personal freedom and autonomy, which is something that is regarded in both the RWA and the LWA, however they also argue that there are differences for instance in

what types of authority figures that are valued and what types of behaviors are punished to mention some.

The LWA scale consists of 13 items that assess attitude towards social hierarchy, group conformity and punitive justice, which all are regarded as key elements of the LWA and provide a better understanding of the relationship between political ideology and authoritarianism. Some examples of items from the LWA scale used in this study are: *“The ‘old-fashioned ways’ and ‘old-fashioned values’ still show the best ways to live”*, *“Getting rid of inequality is more important than protecting the so-called ‘right’ to free speech”* and *“Our society does NOT need tougher government and stricter laws”*.

### *Machiavellianism*

The Dark Triad is a term used to describe personality traits related to antisocial behavior and manipulation. Machiavellianism is one of the dark triads of personality, defined as a manipulative and exploitative approach to social interaction. Individuals high in this trait are ready to use deceit and manipulation to achieve their own goals, even at the expense of others. The dark triads are measured using the Dark Triad Dirty Dozen (DTDD) Scale (Paulhus & Williams, 2002). Examples of machiavellianism items from DTDD Scale are: *“I tend to manipulate others to get my way”*, *“I have used deceit or lied to get my way”*, *“I have used flattery to get my way”* and lastly *“I tend to exploit others towards my own end”*.

## Results

### Attribution of Legitimate Leadership

For this part, the questions *“How much would you be willing to say that the yellow agent was a leader/in charge?”* and *“If you were to guess, how much do you think that the red agents would comply with orders issued by the yellow agent even in its absence (when the yellow agent is not controlling them)?”* were combined into one measure called “attribution of legitimate

leadership”. This was done because both questions are in a similar manner asking for the participants view of the yellow agents’ abilities as a leader, thus the idea behind these scores is to express the extent to which the participants perceive the yellow agent as a leader. Mean scores are presented in Table 1.

**Table 1.** Mean Attributions of Leadership in Each Condition.

	Bowing	Conferring a Benefit	Conferring a Benefit & Size	Receiving a Tribute	Imposing a Cost	Hitting	Control Bowing
Mean	6.02	3.73	5.13	4.68	3.73	4.70	3.65
SD	1.30	2.02	1.54	2.06	1.82	1.98	2.08
CI	2.79-6.50	2.98-4.49	4.56-5.71	3.92-5.45	3.05-4.41	3.96-5.44	2.88-4.42

*Note.* Measures of mean attributions of leadership in each condition after combining two questions.

To test whether the condition had an effect on attribution of legitimate leadership, we conducted a repeated-measures ANOVA using JASP version 0.17.1 with the conditions (“bowing”, “conferring a benefit”, “conferring a benefit & size”, “receiving a tribute”, “imposing a cost”, “hitting” and “control bowing”) as the within subject factor. Following this analysis, we found a significant effect of conditions,  $F(6,174) = 8.79, p < .001$ .

Since the effect of condition was significant, we followed up this analysis by running post hoc comparisons, comparing the mean score of the “bowing” condition with all the other conditions, and, in addition, the mean score of the “conferring a benefit” condition with “imposing a cost” and “hitting” condition. The results are presented in Table 2.

**Table 2.** Post hoc comparisons of relevant conditions.

		Mean	SE	Cohen's d	p <sub>holm</sub>
		difference			
Bowing	Conferring a Benefit	2.28	0.41	1.24	<.001
	Conferring a Benefit & Size	0.88	0.28	0.48	0.52
	Receiving a Tribute	1.33	0.43	0.72	0.60
	Imposing a Cost	2.28	0.39	1.24	<.001
	Hitting	1.32	0.42	0.71	0.60
	Control Bowing	2.37	0.41	1.28	<.001
Conferring a Benefit	Imposing a Cost	0.00	NaN	-0.16	1.00
	Hitting	-0.97	0.49	-0.52	0.41

*Note.* Post hoc comparisons comparing “bowing” and all other conditions, and “conferring a benefit” with “hitting” and “imposing a cost”.

Bowing cued for leadership significantly more than all the other conditions ( $ps \leq .060$ ). On the other hand, conferring a benefit did not cue for leadership more or less than imposing a cost or hitting.

### Labels for the Yellow Agent

After each video participants first selected which of the ten labels describe the yellow agent (“leader”, “bully”, “authority”, “mean”, “prestigious”, “friend”, “aggressor”, “nice”, “acquaintance”, “subordinate”). The labels that were selected by at least 23/30 (above 75%) were considered as the preferred labels, thus not all conditions have preferred labels. Table 3 reports the preferred labels for conditions that have them.

**Table 3.** Preferred labels for conditions.

	Bowing	Conferring a Benefit	Hitting
Leader	0.87	*	*
Authority	0.77	*	*
Prestigious	0.77	*	*
Nice	*	0.77	*
Bully	*	*	0.97
Mean	*	*	0.87
Aggressor	*	*	0.93

*Note. Preferred labels based on what at least 23/30 participants selected.*

Confirming the ANOVA results, we can see that in the “bowing” condition participants were selecting “leader”, “authority” and “prestigious” labels, and this was not true for the other conditions. Next, participants distinguished between “conferring a benefit” and “hitting” (which is a way of imposing a cost) by using a positive label (“nice”) for the “conferring a benefit” scenario and negative labels (“bully”, “mean”, “aggressor”) for the “hitting” condition.

### Adjectives for Red Protagonists

After each video participants rated on a scale from 1 (not at all) to 7 (very much) how well ten adjectives described the red protagonists’ feelings towards the yellow agent (“respectful”, “afraid”, “friendly”, “bullied”, “admiring”, “sociable”, “neutral”, “in awe”, “threatened” and “generous”). Preferred adjectives were considered those that received at least a mean score of 5.25 or more (above 75%), therefore not all conditions are included because there were no adjectives with a mean score of at least 5.25. Table 4 reports the preferred adjectives for describing the red protagonists’ feelings towards the yellow agent.

**Table 4.** Adjectives for describing the red protagonists’ feelings towards the yellow agent.

	Bowing	Conferring a Benefit & Size	Hitting
Respectful	5.47	5.63	*
Afraid	*	*	6.27
Bullied	*	*	6.07
Admiring	5.43	*	*
Threatened	*	*	6.30

*Note. Preferred adjectives are those that got at least a mean score of 5.25.*

Supporting the ANOVA results, we can see that in the “bowing” condition participants were selecting “respectful” and “admiring” adjectives. This was not true for the other conditions, except “conferring a benefit & size” condition. When it comes to the “hitting” condition, the findings suggest that the agent’s bullying and threatening behavior can be perceived as aggressive and violent.

## Correlation

Using IBM SPSS version 28 bivariate correlations were calculated between the attribution of leadership scores in each condition and the four additional measures of social dominance orientation (SDO), right-wing authoritarianism (RWA), left-wing authoritarianism (LWA) and machiavellianism. After running the correlation between these measures and the attribution of leadership scores in each condition, we only found one significant and positive correlation between machiavellianism and “imposing a cost” ( $r = .47, p = 0.10$ ). According to Cohen’s criteria in Field (2018) for interpreting effect sizes, this can be considered a moderate effect size. This implies that the higher individuals scored on the machiavellianism measure, the more they viewed imposing a cost as a cue for leadership. See Table 5 for the correlations between the attribution of leadership scores in each condition and the four additional measures.



**Table 5.** Correlations between the attribution of leadership scores in each condition and the four additional measures.

Conditions	Bowing	Conferring a Benefit	Conferring a Benefit & Size	Receiving a Tribute	Imposing a Cost	Hitting	Control Bowing
Additional measures							
SDO	.17	.37	.21	-.04	.08	-.30	-.12
Machiavellianism	.09	.28	.18	.10	<b>.47**</b>	.13	.27
RWA	-.36	-.18	.09	-.29	-.26	-.12	-.28
LWA	.20	.09	.16	.36	.09	.13	.24

\*\*=Correlation is significant at the 0.01 level (2-tailed).

## General Discussion

The aim of this study was to investigate based on what cues individuals attribute leadership and look into how differences in political attitudes might be related to this process. We found that bowing cued for leadership more than the other cues we tested (conferring a benefit, imposing a cost, or receiving a tribute). Both when labeling the agent and when rating the red protagonists’ feelings, the “bowing” condition triggered more respect-based labels and adjectives contrary to the “hitting” condition where fear-based labels and adjectives were chosen.

Our results showed a clear relationship between bowing as a sign of respect and leadership and that despite models predicting that imposing a cost and conferring a benefit are related to leadership, we did not find such a relationship. Individuals’ recognition of rank and social hierarchies is best reflected in the fact that we clearly distinguish between different types of leaders, and their way of acquiring this leadership by their behavior towards the red

protagonists. Our results portray this in the fact that the type of cue presented had a significant effect on the attribution of leadership to an agent.

Pratto and colleagues (1994, 2006) identify social dominance as a key factor when explaining how our social hierarchies are created. In addition, our results have shown that humans, as social individuals, are sensitive to the difference between those that exhibit respect-based leadership and those that exhibit fear-based leadership, and that we rank our leaders according to hierarchical systems based on fear or respect (Fiske, 1992; Pratto et al., 1994).

Findings provided by Margoni and colleagues (2018) show that even infants are sensitive to the distinction of leadership portrayed by agents that exhibited respect-based power and agents that exhibited fear-based power, and whether they preferred to follow leaders or bullies (Margoni et al., 2018). This shows that nonverbal cues, such respect-based cues, prosocial cues, and social dominance cues play a crucial role in expressing leadership and influencing our perceptions of leaders even in the earliest part of our life and that we are able to recognize and prefer leaders who display prosocial cues.

Our post hoc analysis confirmed these ideas and indeed demonstrated that the cue that had the largest impact on the attribution of leadership was bowing, which cued for leadership significantly more than every other cue. These findings suggest that the way individuals attribute leadership cues to agents is not random and is based on the characteristics of the agent's behavior. This is also shown in research by Day and colleagues (2013) who argued that individuals use different cues, such as behavioral cues, to attribute leadership. These behavioral cues are the cues we observe from an agent's body language and behavior (Day et al., 2013).

In accordance with this, the selection of adjectives and labels participants chose showed that they favored agents that exhibit prosocial behaviors and viewed them as "leader", "authority" and "prestigious" while they clearly demonstrated that the agent in the hitting

condition was a bully that perceived it as “bully”, “mean” and “aggressor”. This is based on the fact that they attributed respect-related labels for the bowing condition, and therefore it is more likely that the yellow agent is perceived as a respect-based leader in those conditions. Additionally, high scores for the “hitting” condition when choosing fear-related labels indicated that the participants clearly distinguished between the aggressive and dominating behavior from the prosocial behavior.

When it comes to choosing adjectives to describe the feelings the red protagonists had towards the yellow agent, in similar matter the participant circled on average more respect-related adjectives for the “bowing” and “conferring a benefit & size” condition contra the “hitting” condition where fear-related adjectives were circled. This again shows the use of respect-related adjectives to attribute higher status and authority, thus viewing the yellow agent as a leader figure in these conditions which in accordance with the ANOVA and post hoc results.

Findings in the study by Margoni and colleagues (2018) also confirmed these results by asking adults to select preferred labels and adjectives, and in the same matter as in this study respect-related labels, such as “leader”, “authority” and “prestigious” were selected as preferred labels for the yellow agent in a condition intended to showcase a respect-based leader and fear-labels such as “mean”, “bully” and “aggressor” were chosen in a condition intended to showcase a fear-based leader. This is also consistent with the findings in previous research that individuals distinguish between different types of power relations, such as fear-based and respect-based power relations (Cheng et al., 2013; Margoni et al., 2018), as well as different types of pathways to rank authorities based on the different types of attitudes the agents present such as authority-based ranking which in our study could be seen as the “hitting” or imposing a cost conditions, while the prestige-based ranking which in this study could be the “bowing” condition (Durkee et al., 2020; Rai & Fiske, 2011; van Vugt & von Rueden, 2020).

Furthermore, research shown that even though individuals distinguish between size and strength (Thomsen et al., 2011), it does not necessarily mean that stronger, more aggressive and threatening individuals are perceived as better or preferred leaders (Thomas et al., 2018). This means that the “hitting” condition clearly portrayed a bully, and not a leader and even though the agent in the “hitting” condition was stronger and more dominant, this dominance was based on fear.

Our post hoc comparisons show that conferring a benefit does not increase the perception of legitimate leadership compared to imposing a cost. In previous literature and in our research this could be seen in the notion that people tend to use positive cues when attributing leadership to agent that shows the ability and willingness to generate benefit for the group, unlike to agents that impose a cost in various ways.

In a study by van Vugt and von Rueden (2020) they also argue that individuals use positive physical, behavioral, and social traits to identify leaders and they characterize these traits as positive because they are associated with the fact that the agent has an ability to generate benefits for the group, such as by providing resources (van Vugt & von Rueden, 2020). Similar findings were also present in the study by Durkee and colleagues (2020) where they discussed the three models involved in the allocation of status within human societies. These three models were based on competence, conflict or the dual pathway consisting of both competence and conflict.

In sum, both articles present the ways in which people attribute leadership and in which situations to what types of leaders they attribute leadership to and in which they do not (Durkee et al., 2020; van Vugt & von Rueden, 2020). Even though the “conferring a benefit condition” has a strong position in previous literature, in our results it alone did not reach the same level of significance which implies that “conferring a benefit” on its own does not suffice to attribute

leadership. However, an interesting point for future research would even though conferring a benefit alone does not suffice to attribute leadership, it would be interesting to look into whether people expect leaders to generate a benefit from the group.

When it comes to the impact political attitudes might have on attribution of leadership, we only found one significant correlation between machiavellianism and using the imposing a cost cue to attribute leadership. People that tend to manipulate others might think that “imposing a cost” is cueing for leadership. Manipulation itself involves using deceitful or unfair tactics to influence others (Paulhus & Williams, 2002) and as presented in the previous literature in this study, this is not viewed as a favorable way to gain legitimate leadership. As mentioned previously, leadership involves guiding your group towards a common goal, by building trust and respect, and imposing a cost, in whichever way it is done, could only be a short-term solution that is unlikely to foster long-term trust and leadership.

Throughout earlier research it has been acknowledged that personality and social structures play a role in attributing leadership, thus a correlation between the “imposing a cost” condition, and the machiavellianism measure might be relevant to understanding the role of dominance and prestige in social rank and influence in a way that proposes that the increase of machiavellianism trait reflects the tendency to view imposing a cost as an effective leadership cue. This proposes that people high in this personality trait might think that imposing a cost on the behalf of others, and taking things away from others to uplift oneself or one owns group might be a justified way of behaving (Fiske, 1992; Thomas et al., 2018; van Vugt & von Rueden, 2020) According to previous literature, this reflects a tendency towards a dominance-oriented behavior that implies aggression and force coming from an authority ranking leadership style (Cheng et al., 2010, 2013; Durkee et al., 2020; Thomsen et al., 2011)

## Implications

The implications of this study include the fact that the study contributes to improved understanding of how people attribute legitimate leadership. It does so by providing insight into the cues that people consider when attributing leadership to an agent. Secondly, the findings could also be applied in leadership training programs to teach leaders which factors contribute to legitimacy and leadership and raise awareness of these cues, which might make organizations better equipped to select and train effective leaders.

## Limitations

Some of the limitations in this study first and foremost include the fact that the sample was quite small, and with a bigger sample the results might be more generalizable to the whole population. In addition to this, the study only focused on one specific aspect of leadership which is the attribution of legitimate leadership, thus it does not provide the most comprehensive understanding of leadership in various contexts. Lastly, the conditions presented were artificial and might not reflect real-life situations in which people might find themselves in and maybe this could limit the ecological validity of the study.

## Future research

Future research could expand on these findings in many different ways. One way might be looking into how social context and people's background contribute to attribution of leadership. Previous literature suggests that the social context has an effect on what cues we use to attribute leadership (Cheng et al., 2010, 2013). In addition, social dominance theory also explains how social norms and power structures influence attitudes towards social hierarchy and oppression (Pratto et al., 1994; Sidanius et al., 2016). Furthermore, Paulhus and Williams (2002) suggest that individual differences influence how we attribute leadership. It would be

interesting to test whether imposing a cost is cueing for leadership only when the agent also confers a benefit to the group. A last possible direction could be to look at how many actions are needed to attribute leadership or dominance, for example how many aggressive or mean actions are needed to attribute fear-based power.

## Conclusion

To conclude, our study contributes to the vast amount of evidence that we are sensitive to the distinction between respect-based and fear-based leadership. Furthermore, the study supports previous literature on the fact that the way we attribute leadership to agents is not random and is based on the characteristics of the agent's behavior and based on the agent's behavior towards the protagonists. The cue that had the strongest impact on the attribution of leadership was bowing. Additionally, despite previous research predicting that imposing a cost and conferring a benefit are strongly related to leadership, we did not find such an association. All in all, our results suggest bowing as the strongest cue for leadership.

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## Appendix

### Survey

Participant n. \_\_\_\_\_

Condition: Insert random order of videos (e.g., 2416357): \_\_\_\_\_

Dear Participant: Thank you for your participation in our University of Stavanger and University of Oslo study. The principal investigator is Francesco Margoni, and if you have any questions regarding this study you can contact him at (before or after your participation).

In this study we are interested in how people intuitively understand simple scenarios that were originally created to test young children's social reasoning. We will present you with a set of brief movies displaying simple interactions between a yellow character and three red characters. We are interested in how adult participants intuitively evaluate these interactions.

Please carefully read the instructions below.

Instructions: we ask you to pay attention to 7 brief videos and to respond carefully to the questions you will be provided with after each video.

Participation in the study is voluntary and anonymous. If you respond, you have consented to participate. Simply don't respond if you don't want to participate. If you change your mind during the questioning, do not submit the questionnaire to Sara and cancel what you have written. After the questioning is delivered, responses cannot be withdrawn because they are delivered anonymously and cannot be traced back to you. That is, we will not collect information that can be linked to your person.

Please start by filling out this part:

- *Gender:*      Male            Female            Others/Non-binary            Prefer not to answer
- *Age in years (do \*NOT\* insert your date of birth):* \_\_\_\_\_
- *Highest degree or level of education you have completed:* \_\_\_\_\_
- *Nationality:* \_\_\_\_\_
- *English language proficiency:* basic    intermediate    advanced    proficient    native speaker

Below are a series of statements with which you may either **agree** or **disagree**. For each statement, indicate the degree of your agreement/disagreement by circling the appropriate number from '1' to '7'. Remember that your first responses are usually the most accurate.

	Strongly Disagree			Neutral			Strongly Agree		
Some groups of people are just more worthy than others	1	2	3	4	5	6	7		



## Attribution of Leadership Cues

Students at high schools and at university must be encouraged to challenge, criticize, and confront established authorities	1	2	3	4	5	6	7
Obedience and respect for authority are the most important virtues children should learn	1	2	3	4	5	6	7
Our country will be great if we show respect for authority and obey our leaders	1	2	3	4	5	6	7
People should be ready to protest against, and challenge, laws they don't agree with	1	2	3	4	5	6	7
Nobody should stick to the "straight and narrow." Instead, people should break loose and try out lots of different ideas and experiences	1	2	3	4	5	6	7
The "old-fashioned ways" and "old-fashioned values" still show the best way to live	1	2	3	4	5	6	7
This country will flourish if young people stop experimenting with drugs, alcohol, and sex, and pay more attention to family values	1	2	3	4	5	6	7
Strong, tough government will harm not help our country	1	2	3	4	5	6	7
Being kind to loafers or criminals will only encourage them to take advantage of your weakness, so it's best to use a firm, tough hand when dealing with them	1	2	3	4	5	6	7
Our society does NOT need tougher government and stricter laws	1	2	3	4	5	6	7
The way things are going in this country, it's going to take a lot of "strong medicine" to straighten out the troublemakers, criminals, and perverts	1	2	3	4	5	6	7

Please rate your **agreement or disagreement** with each statement.

	Strongly				Strongly		
	Disagree		Neutral		Agree		
We need to replace the established order by any means necessary	1	2	3	4	5	6	7
Classroom discussions should be safe places that protect students from disturbing ideas	1	2	3	4	5	6	7

Attribution of Leadership Cues

Norway would be much better off if all of the rich people were at the bottom of the social ladder	1	2	3	4	5	6	7
To succeed, a workplace must ensure that its employees feel safe from criticism	1	2	3	4	5	6	7
All political conservatives are fools	1	2	3	4	5	6	7
The "old-fashioned ways" and "old-fashioned values" need to be abolished	1	2	3	4	5	6	7
The rich should be stripped of their belongings and status	1	2	3	4	5	6	7
Getting rid of inequality is more important than protecting the so-called "right" to free speech	1	2	3	4	5	6	7
University authorities are right to ban hateful speech from campus	1	2	3	4	5	6	7
This is an attention check, please reply with a 5	1	2	3	4	5	6	7
Anyone who opposes gay marriage must be homophobic	1	2	3	4	5	6	7
People who are truly worried about terrorism should shift their focus to the nutjobs on the far-right	1	2	3	4	5	6	7
I am in favor of allowing the government to shut down right-wing internet sites and blogs that promote nutty, hateful positions	1	2	3	4	5	6	7
When the tables are turned on the oppressors at the top of society, I will enjoy watching	1	2	3	4	5	6	7

\*There were 7 such pages in the survey, one for each video.

Video ID \_\_\_\_\_ (ask the experimenter to provide this ID number and the video)

1. Fill in the blank: The red characters feel \_\_\_\_\_ toward the yellow character.

Attribution of Leadership Cues

2. How well do you think the following adjectives describe what the red characters feel toward the yellow character?

	Not at all		Somewhat			Very much	
	1	2	3	4	5	6	7
<u>Respectful</u> :	1	2	3	4	5	6	7
<u>Afraid</u> :	1	2	3	4	5	6	7
<u>Friendly</u> :	1	2	3	4	5	6	7
<u>Bullied</u> :	1	2	3	4	5	6	7
<u>Admiring</u> :	1	2	3	4	5	6	7
<u>Sociable</u> :	1	2	3	4	5	6	7
<u>Neutral</u> :	1	2	3	4	5	6	7
<u>In awe</u> :	1	2	3	4	5	6	7
<u>Threatened</u> :	1	2	3	4	5	6	7
<u>Generous</u> :	1	2	3	4	5	6	7

3. How much would you be willing to say that the yellow agent was a leader / in charge?

	Not at all		Somewhat			Very much	
	1	2	3	4	5	6	7

4. Which of the following words would you select to refer to the yellow character? Please circle all that apply.

Leader, Bully, Authority, Mean, Prestigious, Friend, Aggressor, Nice, Acquaintance, Subordinate

5. If you were to guess, how much do you think that the red agents would comply with an order issued by the yellow agent even in its absence (when the yellow agent is not controlling them)?

	Not at all		Somewhat			Very much	
	1	2	3	4	5	6	7