Pursing power in Arabic on-line discussion forums

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Abstract

We present a novel corpus identifying individuals within a group setting that are attempting to gain power within the group. The corpus is entirely in Arabic and is derived from the on-line WikiTalk discussion forums. Entries on the forums were annotated at multiple levels, top-level annotations identified whether an individual was pursuing power on the forum, and low level annotations identified linguistic indicators that signaled an individuals social intentions. An analysis of our annotations reflects a high-degree of overlap between current theories on power and conflict within a group and the behavior of individuals within the transcripts. The described datasource provides an appropriate means for modeling an individuals pursuit of power within an on-line discussion group and also allows for enumeration and validation of current theories on the ways in which individuals strive for power.

Keywords: Social Relations, Dialogue Acts, Arabic

1. Introduction

There are many paths to power, acquisition of resources (money, physical resources, or knowledge), gaining position within a formal hierarchy, or gaining the respect of your peers. This makes the task of identifying individuals that are attempting to expand their power base a difficult endeavor. However, being able to solve this mystery can lead to numerous important insights with regard to human psychology as well as commercial success. In this paper we sidestep identification of the particular path an individual takes to acquire power, and instead focus on the linguistic indicators of interpersonal conflict and member status to find those individual that are pursuing power within a group. These semantic, syntactic, and discourse level cues provide insight into an individual's intentions without relying on explicit indicators of the individual's goals.

In this work we developed annotations at two levels. The first level utilizes trained annotators to identify the social intentions of an individual, whether or not an individual within a dialogue is pursuing power. The second level explores a novel annotation framework which represents a discourse as a series of social acts between an individual and the other dialogue members. The social acts are pragmatic dialogue acts which capture language used by individuals to signal their intentions with regards to their perceived social role, their current social relationship to other individuals in the conversation, and their desired social position. The social acts are derived from relevant work in psychology detailing how individuals pursue power and communicate about their desires and intentions.

2. Power and its Pursuit

The clearest distinction of power lays between formal power and informal power (French and Raven, 1959). Formal power is institutional, it is given to an individual by an organization and is expressed in ones ability to instruct others in what to do and to reward or punish those individuals in response to their actions. In contrast, informal power is given between individuals. Informal power comes in the form of expert power, where an individual is afforded power by the group because of their expertise on a given topic, or referent power, where an individual is given power because of others' respect or individual consideration for that individual. In this paper we focus on individual's pursuing informal power, seeking to establish their expertise and garner respect from other individuals.

Individual pursuit of power often results in conflict as individuals within a group vie for a limited resource (Keller, 2009). These conflicts can occur between individuals of the same status (colleagues) or individuals of different status (manager and subordinate). Additionally these conflicts can be latent, having subconscious effects on the individual's and group's actions, or it can be manifested within a dialogue and perceived by one or more individuals within the group. We utilize a distinction between task-based conflict and relationship-based conflict. Task conflicts exist when different individuals hold different beliefs about how the task should be performed and relationship-based conflicts occur when individuals exhibit interpersonal incompatibility through differences in values, attitudes, or opinions. Because of the importance of conflict in predicting individual behavior, we created annotations identifying two different types of conflict.

Additionally, we base our understanding of an individual's pursuit of power on an interactive model proposed by Keltner et al. (2008) . In this model power is a reciprocal relationship between the individual pursuing power and the group that affords that individual power. Keltner et al. suggest that the first stage in acquiring power is identification of shared interests between the person wanting power and the group members ceding power. The second stage involves the assertion of power by the individual and the recognition of the individuals power by the group. The last stage of their model allows for modulation of the individual's power through gossip by the group members about the individual.

Keltner's model encompasses the entire process of an individual's rise to power, from group introduction to later

maintenance of power. For our annotations however, we focused on identifying when individuals were attempting to move up in power, even when they are not necessarily gaining traction. Accordingly we also looked for indicators of group conflict and explicit attempts by the individual to gain more informal power through statements of power by the individual.

Acts by Group

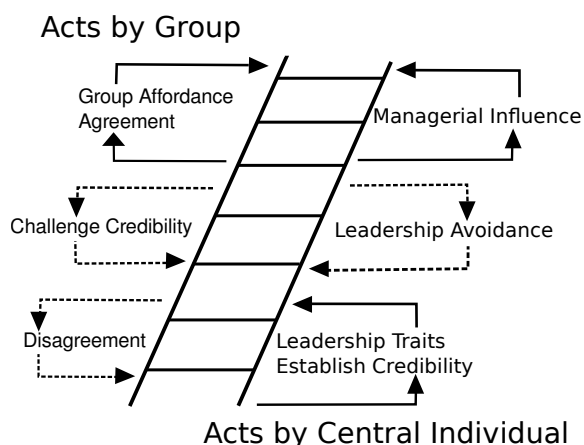## Acts by Central Individual

Figure 1: Ladder model of the path to power. Social acts on the left are directed towards the individual, while those on the right are made by the individual towards other group members

From the above theories on power and its pursuit we have derived ten psychologically motivated social acts (SAs) that can be used to create informative models of an individual's quest for power and the group's responses to those actions. These social acts are based off of Keltners interactive model of power and theories of group conflict and can be used to determine whether an individual is or is not pursuing power within a group. These social acts are intended to be universal across languages, however the distribution of the social acts and their implications for identifying pursuit of power across cultures should vary considerably (even within the same language). Figure 1 provides an illustration of the expected impact of some of the social acts on an individuals perceived power.

3. Related Work

Strzalkowski et al. (2010), using an approach analogous to ours, breaks down social phenomena into mid-level social social acts. They focus on the use of discourse features (e.g. topic control) to identify social acts that are indicative of task control, as a static form of leadership. In contrast, the current work looks at identifying an individual desire to change their social status.

Similarly Aran et al. (2010) constructed a multi-modal corpus addressing issues of individual dominance within a group. Here individuals were rated according to their level of dominance within the group and their characteristics, such as aggressiveness and talkativeness. These annotations were made on video records of meetings from the Augmented Multi-party Interaction corpus (Carletta et al., 2006). In contrast, the annotations in the current work

focus only on written communications or transcriptions of speech.

In contrast to the manual annotation generation process utilized in the above two works, Bramsen et al. (2011) used an automatically supervised method for annotation generation. The researchers looked for the presence of *upspeak* (speech directed towards individuals of higher status) and *downspeak* (speech directed towards individuals of lower status) within the Enron email corpus. By using information about the social hierarchy they automatically tagged sentences as either upspeak (from a VP to a CEO) or downspeak.

Prior work has also documented some of the added complexities of annotating Arabic text. One of the main concerns is the dialectical differences that occur within on-line discussion groups (Diab et al., 2010). In this work we focused on data sources that were written only in modern-standard-Arabic (MSA).

4. Data Sources and Annotators

The data sources annotated were on-line discussion forums (wikitalk) and comments on news sites (Al Arabiya). We selected wikitalk pages that contained between 3-8 speakers and were around 14 turns in length. The commentary for the news forums were filtered more heavily because of the lack of interaction between individuals on the sites. We used a multi-step process to identify commentary that contained interaction between several individuals. First, for each page we found those individuals that spoke at least three times. We then reduced the set of pages to only contain comment chains where between 2 and 5 speakers spoke more than three times. Finally, we reduced the set of comments to contain those where the the total turns for all of the identified speakers was between 12 and 19 turns. This process allowed us to find similar data in terms of interactivity between the two data sources.

We utilized five annotators. All annotators currently resided in the United States, but were born and raised in an Arabic speaking country (predominantly Iraq). They all continued to use Arabic on a daily basis both for pleasure (e.g. reading the news and conversing with friends and family) and for business.

5. Marking Pursuit of Power in Arabic

We created annotations of the text at two different levels. The first annotations consisted of high-level annotations identifying individuals within the discourse that were/not pursuing power. The second set of annotations identified sentences within an individuals communication that indicated the presence of a particular language use for an individual. The social acts identify the social meaning of the words used in an utterance.

For the social construct level annotations, the annotators were instructed to read the entire discussion before making judgments about each individual in the discourse. The English and Arabic definitions for pursuit of power are provided in Figure 2. For each annotation the annotators provided a scaler annotation between -3 and 3 indicating whether or not an individual was pursuing power (+1 →

+3), was not pursuing power (-3 → -1), or if they were uncertain (0). The use of scaler annotations allowed us to correct for differences in an individual annotator's threshold for identifying an individual as pursuing power. A majority of the discourse units were annotated by two independent annotators. Agreement was considered only for the positive or negative value of the annotation. The number of annotations and agreement are presented in Table 1.

The annotations at the language use level were broken down into identification of attributes that were considered positive indicators of a particular language use. In all we annotated for 36 different attributes. The mapping between social acts and attributes, and the rationale for each language use is provided in the next section. In order to allow for language specific differences in the attributes formal definitions were not provided for the attributes.

For the attribute level annotations, the annotators provided a label for each sentence as they read through the dialogue. The attributes are listed in the next section. Each annotator was provided a list of social acts and their associated attributes along with English examples of dialogue that exhibited that attribute. Two methods were used to validate the annotations provided. In the first, annotations were periodically validated by a second annotator, discrepancies were resolved between the annotators. For the second method, annotations were periodically translated into English and discussions were held between the annotators and researchers on the translated annotations. This process was utilized to assess the annotators' drift away from the attribute ideals.

5.1. social acts

Social acts are pragmatic dialogue acts that signal the dialogue participants' social intentions. A set of ten psychologically motivated social acts have been defined based on our ladder model of power derived from Keltner et al. (2008). Because of the variety of ways in which each social act can be expressed, they are further subdivided into attributes. Each attribute is considered a positive indicator for the social act.

5.1.1. Establish Credibility

Establishing credibility reflects an attempt by an individual to demonstrate their credibility and fitness for leadership. Evidence for establishment of credibility manifests itself in many different ways. The most common in our data set is an explicit mention of the individuals credentials. Alternatively a person can demonstrate their credibility by providing the group with cited information, such as "Article 10.5 paragraph 3 says...". Finally an individual can justify their opinion through the use of logic or citation of personally relevant anecdotes.

An easily recognizable form of establishing credibility is when an individual cites a source of information.

راجع ايضا[http://xyz.com/]

We annotated the following five attributes that were indicative of establishing credibility.

1. Explicit statements of authority: Asserting a degree or title

2. Motivation: Providing motivation to the group for an idea or action

3. Providing answers: Answers questions poised by group members.

4. Providing cited information: Statement made by an individual citing source information.

5. Justifying opinion: Provide justification of a stated opinion.

5.1.2. Challenge Credibility

Challenging credibility is in opposition to establishment of credibility. One way individuals seek power is to lower the status of other group members. These challenges can be in demands to prove credibility, such as "prove your lies" and aggressive accusing questions, such as "what does that have to do with what we are talking about¿". This social act is also important for identifying when group members are challenging the credibility of the individual, suggesting that the individual have not yet established themselves in a leadership role. Challenging credibility through gossip, such as "X doesn't know what he is talking about", can also be used by group members to moderate the power of a leader who has overstepped their boundaries.

A representative example from the Arabic data sources is

هل لديك مصدر يشير إلى معطيات أخرى؟

We annotated the following four attributes that were indicative of challenging credibility.

1. aggressive/accusing questions: question target's credential directly.

2. gossiping: question target's credential behind his back, with no directly evidence.

3. demands to prove credibility:ask for hard facts/proof.

4. bait and switch: first agree then point out flaws or ways to improve.

5.1.3. Establish Solidarity

Language indicative of a desire for group solidarity demonstrates that an individual identifies with the group, an important characteristic of leaders (Keltner et al., 2008). This social act can also be used to signal to collegiality to higher-status individuals. Shared group membership can be expressed at either the relational level (e.g. Father, co-worker, etc.) or the collective level (e.g. single mothers) (Brewer and Gardner, 1996). This desire to establish solidarity can be expressed explicitly (e.g. "We're all in this together"), covertly (e.g. through the use of inclusive first-person pronouns), or through unconscious actions and linguistic cues, such as the use of in-group jargon, certain syntactic constructions, and mimicry (Yabar et al., 2006; Ireland and Pennebaker, 2010).

PURSUIT OF POWER

السعي وراء السلطة

1. Individual makes repeated efforts to gain power within the group.
2. The individual attempts to control the actions or goals of the group.
3. Individual's behavior causes tension within the group.

المشارك يبذل جهد متكرر لكسب السلطة ضمن المجموعة
يحاول المشارك السيطرة على تصرفات او اهداف المجموعة
تصرفات المشارك تخلق التوتر ضمن المجموعة

<u>Comments</u>:

- This behavior may or may not pose a direct challenge to others with power in the group.
- The more of the above requirements an individual fulfills, the more strongly he/she is pursuing power.

تعليقات
هذا السلوك قد يحدث ام لا تهديدا مباشرا على سلطة المشاركين الاخرين داخل المجموعة

Figure 2: English and Arabic definitions for pursuit of power

A common example from the Arabic data is تحية. Where one speaker is using a polite greeting.

We annotated the following ten attributes that were indicative of establishing solidarity.

1. <u>Introduction to group</u>: Speaker identifies him/herself during first time in a group.

2. <u>Establish bona fides</u>: Speaker establishes good faith with group by stating good intentions or offering help.

3. <u>In group jargon</u>: Speaker uses group-specific words or phrases that have special meanings.

4. <u>Disclose personal data</u>: Speaker gives personal information about him/herself to the rest of the group.

5. <u>Disclose beliefs</u>: Speaker shares his/her belief about something in order to establish solidarity with the rest of the group

6. <u>Ask for a favor</u>: Speaker asks other members of the group to help him/her out.

7. <u>Address fallout/conflict</u>: Speaker addresses a past, present, or potential future conflict within the group and states his/her intention to move beyond it (making peace).

8. <u>Identify allies</u>: Speaker identifies an ally common to group members; ally may be inside (must be marginalized) or outside the group.

9. <u>Identify opponents</u>: Speaker identifies an opponent common to group members; opponent may be inside or outside the group.

5.1.4. Managerial Influence

Social roles are realized through their mutual perception by the individuals involved in the dialogue, thus for an individual to be a group leader they must provide evidence that they fulfill that role and others must act like followers. Therefore, another way to pursue power is to act like the leader exert control over the group. For example an individual could propose to move a page or another individual could provide factual reasons why "Military of East Timor" is an incorrect name for a given page.

Often, individuals will begin a managerial act by reestablishing their power. An example is

بصفتي مسؤول قسم المقالات الجيدة

Where the individual is asserting their position as article manager.

We annotated the following ten attributes that were indicative of managerial influence.

1. <u>goal</u>: goal to be accomplished by the person acquiring power.

2. <u>reasoning with facts</u>: using facts to sway an argument.

3. <u>flattery and good will</u>: using flattery to sway an argument.

4. <u>coalition</u>: mobilization of other people.

5. <u>bargaining</u>: negotiation through exchange of benefits.

6. <u>assertiveness</u>: direct and forceful commands.

7. <u>higher authority</u>: support from higher authority in the organization.

8. <u>rewards</u>: offering rewards to individuals.

9. <u>punishment</u>: threatening to punish another individual.

5.1.5. Group Affordance

Similar to managerial influence, the affordance of power by group members to the individual is a sign of that individual's power. Targeted affordance of power is also important for the individual seeking to acquire power, because the individual must show respect to people of higher status (Owens and Sutton, 2001). Group affordance is detected through a series of linguistic markers for respectful sentiment, such as "It is an honor to be here today." and yielding to another individual's power, such as "I have one more, but I don't know if you want to do another round".

Group affordance was easily recognized in Arabic through the use of titles and deferential speech, such as معالي.

We annotated the following four attributes that were indicative of group affordance.

1. <u>honorable titles</u>: Speaker uses an honorable title to refer to an individual.

2. <u>respectful sentiments</u>: Speaker uses language containing respectful words.

3. yielding to another person out of respect: Speakers yields to another individual.

4. Order Confirmation: Speaker agrees to do something for target.

5.1.6. Agreement
5.1.7. Disagreement

Agreement can act as an affordance to an individual or as a means to establish solidarity between individuals. Likewise disagreement can act as a way of undermining or challenging credibility. However, because of the special status of agreement and disagreement we consider them as two separate social acts. Agreement and Disagreement are detected through a lexico-semantic analysis of an individuals reply to an original comment.

As in English, agreement is often signaled with short direct statements, such as

<div dir="rtl">أوافقك</div>

Likewise with disagreement

<div dir="rtl">لا أتفق معك</div>

We annotated the following two attributes that were indicative of agreement or disagreement.

1. Agreement: Speaker uses language explicitly agreeing with another individual.

2. Disagreement: Speaker uses language explicitly disagreeing with another individual.

5.1.8. Task Conflict
5.1.9. Relationships Conflict

Conflict is central to many power struggles. Conflict can be divided into three main types (Jehn and Mannix, 2001): 1) Process conflict, conflict over the way in which a task should be performed; 2) Task conflict, conflict about the nature of a task; and 3) Relationship conflict, personal conflict between individuals that is not related to a task. Individuals that are seeking to increase their sway within a group often conflict with the current leader of the group or with other individuals that are pursuing power within the group. Additionally, task conflict can signal a lack of support for an individual. The annotators only identified task- and relationship-conflict due to a general difficulty in reliably separating task and process conflict.

An example of task conflict is

<div dir="rtl">الاستعمار الفرنسي لم يرتكب جرائم وحشية كالتي ارتكبها نظام بشار الاسد</div>

French colonialism did not commit the crimes and atrocities like those committed by the regime of Bashar al-Assad.

An example of relationships conflict is

<div dir="rtl">سوزان نجم الدين لها مواقف مشينة من الثورة السورية</div>

Susan Necmettin's position on the Syrian Revolution is outrageous.

1. Task Conflict: Speaker uses language indicating conflict with another individual over task details.

2. Relationship Conflict: Speaker uses language indicating conflict with another individual over personal details.

5.1.10. Leadership avoidance

Individuals may make attempts to avoid leadership (power) that others wish to bestow upon them, for example turning down a promotion. The act of avoidance by an individual is considered a negative sign that the individual is pursing power. We identify explicit comments by an individual to avoid making decisions, such as "I think I will have to decline". However, avoidance can also signal defiance and can also be a positive indicator of pursuit of power. An example lexical pattern for recognizing this social act is: We annotated the following attribute that was indicative of leadership avoidance.

1. Order negation: explicitly avoid making a decision.

6. Analysis of Pursuit of Power in Arabic

Overall 33.33 percent of individuals in the discourses were identified as pursuing power. Agreement numbers for the annotations are in Table 1. In addition we examined the utility of the confidence values. We examined agreement between the two most prolific annotators. Table 2 shows the probability that one annotator rated an individual as positively pursuing power when the other annotator provided a positive annotation at the given confidence level. Binomial tests showed that all differences were significant at the $\alpha = .05$ level.

In addition to looking at standard agreement measures for our annotations, we created a simple model of the dialogue that tracked the language used within a discourse and its impact on the annotators perception of whether or not a speaker was pursuing power. Figure 3 shows the resultant graphs for Arabic, as well as a graph generated on data that had been previously collected for English. The English graph was generated through analysis of 70 wikitalk discussions. The dialogue begins with the start node and finishes with the end node. Only significant links within the dataset are shown (where the collocation is significant at the .05 level based on a chi-square test of independence). To reduce clutter only the two strongest outgoing edges (the edge that is most associated with pursuing power and the edge that is least associated with pursuing power) are shown for each node. Lighter (blue) edges and nodes indicate positions that are not associated with pursuing power, while darker (red) nodes and edges indicate social acts that are. For example, in the graph for Arabic, it can be seen that being the target of group affordances increases the perception that the individual is pursuing power, especially if they previously challenged someone elses credibility. This direct challenge of credibility is not as common in English data.

7. Conclusion

We created a novel corpus identifying individuals pursuing power within on-line forums. The corpus diverges from previous work by annotating linguistic markers that indicate an individual's desire for upward movement within the social hierarchy instead of annotating language indicative of static position within a group. This corpus provides a foundation for future modeling work focused on discovering those individuals that are pursuing power. Additionally, this data will provide a valuable contribution to work
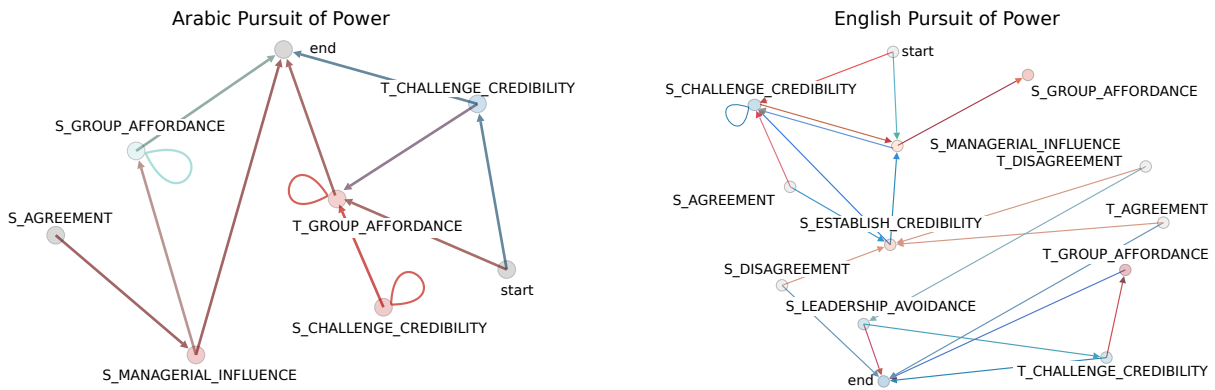
Figure 3: Graph showing language use interaction as predictor of speaker pursuit of power

Annotation Type	# Total Annotations	Double Annotations	Percent Agreement	Data Units
Pursuit of power	3196	2424	82.17%	59
Attributes	770	141	95%	NA

Table 1: Number of annotations and agreement for pursuit of power and social act attributes.

Pursuit of Power Confidence	P(Positive|Conf)
Annotator Confidence >= +1	.18%
Annotator Confidence >= +2	.65%
Annotator Confidence = +3	.77%

Table 2: Probability of one annotator classifying an individual as pursuing power when a second annotator rated the individual as pursuing power with the given confidence rating.

in cross-cultural psychology identifying differences in how people pursue power within on-line forums across cultures.

8. Acknowledgement

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