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On the Grammar of Politics—or Why Conservatives Prefer Nouns

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Abstract

Previous research indicates that political conservatism is associated with epistemic needs for structure and certainty (Jost et al., 2003) and that nouns elicit clearer and more definite perceptions of reality than other parts of speech (Carnaghi et al., 2008). We therefore hypothesized that conservatives would exhibit preferences for nouns (vs. verbs and adjectives), insofar as nouns are better suited to satisfy epistemic needs. In Study 1 we observed that social conservatism was associated with noun preferences in Polish and that personal need for structure accounted for the association between ideology and grammatical preferences. In Study 2, conducted in Arabic, social conservatism was associated with a preference for the use of nominal sentences (composed of nouns only) over verbal sentences (which included verbs and adjectives). In Study 3, we found that more conservative U.S. presidents used greater proportions of nouns in major speeches, and this effect was related to integrative complexity. We discuss the possibility that conservative ideology is linked to grammatical preferences that foster feelings of stability and predictability.

Keywords: ideology, language, need for structure, political communication

On the Grammar of Politics—or Why Conservatives Prefer Nouns

"You may not want to call a spade a spade. You may prefer to call it a spatulous device for abrading the surface of the soil. Better, however, to stick to the old familiar, simple name that your grandfather called it. It has stood the test of time, and old friends are always good friends."

(Devlin, 1910/2004; Chapter I)

In his (1910) book Joseph Devlin, an Irish journalist and politician, gave this advice to those who would wish to "speak and write correctly." Referring to things exclusively in terms of their proper names can indeed be considered a matter of grammatical style. Given extensive research on the psychological correlates and functions of language (e.g., Brown, 1957, 1958; Semin & Fiedler, 1988, 1991), it is conceivable that preferences for using certain forms of language are also linked to personality and individual differences. In this article we investigate whether preferences for nouns (such as "spades") over other parts of speech (such as the adjective "spatulous") are associated with differences in political orientation and, if so, whether such associations can be understood in terms of underlying psychological motives and tendencies.

Psychological Underpinnings of Political Orientation

In this research we draw on the model of political ideology as motivated social cognition (e.g., Jost, Glaser, Kruglanski, & Sulloway, 2003; Jost, Nosek, & Gosling, 2008). The model proposes that left vs. right or, in the U.S. and elsewhere, liberal vs. conservative ideological inclinations are driven by somewhat distinct psychological needs and motives. Much research provides support for this model by demonstrating that liberals and conservatives differ in terms of cognitive, affective, and motivational functioning, personality characteristics, and modes of self-regulation (Amodio, Jost, Master, & Yee, 2007; Carney et al., 2008; Jost et al., 2003; Jost &

Amodio, 2012). People with heightened needs to manage uncertainty and threat tend to gravitate toward conservatism (Jost et al., 2003; Wilson, 1973)—an ideology that is focused on providing security and stability and characterized by resistance to change and opposition to equality (Jost et al., 2003). Furthermore, research on personality characteristics documents a link between conservative political orientation (especially when it comes to social and cultural issues) and lower openness to new experiences and higher conscientiousness (e.g., Carney et al., 2008). In line with these findings, conservatism is also associated with epistemic needs to maintain certainty, structure, and closure, along with a generally rigid or persistent cognitive style (Eidelman, Crandall, Goodman, & Blanchar, 2012; Jost et al., 2003, 2008, 2009; Jost & Krochik, 2014; Thorisdottir & Jost, 2011; Tetlock, 1983).

These differences seem to be reflected in everyday life. Carney and colleagues (2008) demonstrated that characteristics of living and working spaces of conservatives reflected greater order and conscientiousness, whereas those of liberals reflected greater curiosity and openness to experience. Similarly, Jost et al. (2008) observed that liberals favored hobbies and activities that reflect novelty and diversity (such as foreign films and travel), whereas conservatives favored more conventional and orderly lifestyles (such as watching TV). Differences such as these may be especially pronounced when it comes to social (vs. economic) ideological domains (e.g., Malka, Soto, Inzlicht, & Lelkes, 2014). If psychological motives associated with political orientation affect people's interests and lifestyles (DellaPosta, Shi, & Macy, 2015), they are also likely to affect other aspects of their lives, such as language and communication.

Political Language

It is probably not too controversial to suggest that liberals and conservatives would exhibit differences in thinking and communication styles. Links between language and politics

have frequently been approached from the standpoint of pragmatic communication (Wilson, 1990) and discourse analysis (Lakoff, 1996; Wodak, 2009). Prior studies of the linguistic styles of politicians suggest that liberal and conservative elites may differ in terms of the use of emotional language as well as multisyllabic words (e.g., Slatcher, Chung, Pennebaker, & Stone, 2007; Wojcik, Hovasapian, Graham, Motyl, & Ditto, 2015). Moreover, several archival studies reveal that right-wing politicians (Tetlock, 1983, 1984) and bloggers (Brundidge, Reid, Choi, & Muddiman, 2014) tend to use less integratively complex styles of argumentation, in comparison with their left-wing counterparts. Lower scores on integrative complexity suggest that rightists may be less likely than leftists to consider multiple, potentially contradictory viewpoints, consistent with the notion that there are ideological differences in orientations toward uncertainty and ambiguity (Amodio et al., 2007; Jost et al., 2003; Wilson, 1973).

Past research suggests that there are some differences in the thinking and communication styles of leftists and rightists. Is it possible that these differences extend to even more basic features of language, such as parts of speech? Research on the psychological functions of grammar would seem to suggest that such differences are indeed plausible.

The Noun as a Vehicle of Conservative Ideology

Grammatical forms are known to shape social-cognitive processes, such as the drawing of attributions, inferences, and person perception (Douglas & Sutton, 2003; Karasawa & Maass, 2008; Semin & Fiedler, 1988, 1991). The use of more abstract grammatical categories (e.g. nouns rather than adjectives, adjectives rather than verbs, state verbs rather than action verbs) is a natural process in human communication, especially when it comes to describing persons—a phenomenon known as "reification" (Fiedler, Semin & Bolten, 1989). Using more abstract language to describe a specific interpersonal action is associated with more discrete categorical

processing as well as the drawing of inferences about stability and internal causality (Semin & Fiedler, 1991). A study of political communication in Italy suggested that leftists used more abstract language than rightists, and the ideological difference was more pronounced when communicators were speaking to audience members who shared their ideology (Menegatti & Rubini, 2013). However, to our knowledge, no prior study has investigated ideological differences in one linguistic category that has received a great deal of interest in social psychological research: nouns (Carnaghi, et al., 2008; Graf, Bilewicz, Finell, & Geschke, 2013; Walton & Banaji, 2004).

The choice to use a noun (e.g., "Jew") rather than an adjective (e.g., "Jewish") not only communicates greater abstraction; it also facilitates stereotypical and essentialist inferences about the traits and behaviors of another person or group (Carnaghi, et al., 2008). Developmental studies suggest that children as young as five years infer greater stability from noun descriptions ("She is a carrot-eater") than verbal predicates ("She eats carrots whenever she can"; Gelman & Heyman, 1999). During the course of social and cognitive development, the impact of such descriptions in shaping judgments tends to increase (Deng & Sloutsky, 2012). In adults, the effect of nouns is especially pronounced: preferences expressed using noun forms are assumed to be stronger, more resilient, and stable across time (Walton & Banaji, 2004). A similar phenomenon occurs with respect to intergroup perception: describing social identities in terms of noun forms (e.g., "Carlo is a homosexual" as opposed to "Carlo is homosexual") facilitates stereotypical inferences, implies greater essentialism of a given social category (Carnaghi et al., 2008), and leads to more pronounced intergroup bias (Graf et al., 2013).

Parallel effects have been observed in the domain of self-perception. When people describe their own preferences using noun phrases, they come to regard these preferences as

stronger and more enduring than when they describe the same preferences using verb phrases (Walton & Banaji, 2004, Study 3). In the context of political behavior, Bryan, Walton, Rogers, and Dweck (2011) observed that referring to one's anticipated electoral participation with the use of a noun ("a voter") rather than a verb ("to vote") increased the eventual likelihood of casting a ballot. Thus, nouns seem more likely than other parts of speech to satisfy psychological needs for order, stability, and predictability. To the extent that these epistemic goals are more pronounced for political conservatives than liberals (Jost et al., 2003), it follows that the endorsement of conservative (vs. liberal) ideology should be associated with a grammatical preference for the use of nouns, in comparison with other parts of speech.

Overview of the Current Research

In this research program we sought to investigate the possibility that political orientation would be reflected in the use of grammar. We hypothesized that conservatives would favor grammatical forms that satisfy their epistemic motives. Due to their high inductive potential, nouns are especially well-suited to fulfill these functions, in comparison with other parts of speech, such as verbs and adjectives (Carnaghi, et al., 2008; Graf et al., 2013). Nouns convey greater permanence, stability of subjects and objects, as well as categorical perceptions of social actors and the world at large. As such, they are likely to address conservatives' greater needs for order, certainty, and predictability. Therefore, we hypothesized that political conservatism would be associated with increased reliance on noun forms in language. In Studies 1 and 2 we investigated this hypothesis in the context of ordinary communication and grammatical preferences in general, whereas in Study 3 we examined political speeches delivered by elite officials. To maximize generalizability, we collected data in three different languages and socio-political contexts: in Polish (in Poland, Study 1), Arabic (in Lebanon, Study 2), and English (in

the U.S., Study 3). We also investigated the possibility that the connection between political ideology and grammatical preferences would be linked to differences in cognitive style and epistemic motivation between liberals and conservatives (Studies 1 and 3).

Study 1

The aim of Study 1 was to investigate our guiding hypothesis that ideological proclivities are reflected in preferences for specific grammatical forms. We also sought to investigate psychological processes underlying the relationship between ideology and language use. Insofar as conservatism is associated with heightened epistemic motives to reduce uncertainty and ambiguity (Jost et al., 2003; Jost & Krochik, 2014), we predicted that conservatives would exhibit a preference for nouns over other parts of speech. Because of their inductive potential (Carnaghi, et al., 2008; Graf et al., 2013), we expected that nouns would be favored by individuals with a more rigid or persistent cognitive style reflecting elevated needs for order and predictability.

One construct that captures epistemic motivation is the need for cognitive closure (Webster & Kruglanski, 1994), which corresponds to the "desire for a firm answer to a question and an aversion toward ambiguity" (Kruglanski & Webster, 1996, p. 264). Such a desire leads people to form judgments quickly ("seizing") and to holding on to them firmly ("freezing"). The need for cognitive closure is measured with the Need for Closure Scale (Webster & Kruglanski, 1994), which encompasses five facets: preferences for (1) predictability and (2) order, (3) discomfort with ambiguity, (4) closed-mindedness, and (5) decisiveness. According to Neuberg, Judice, and West (1997) the first three facets may be understood as comprising the Personal Need for Structure (see also Mannetti, Pierro, Kruglanski, Taris, & Bezinovic, 2002). This, in turn, captures the freezing process or the desire for specific closure—"a clear structure or a fit of

new information with previously created structures" (p. 1405). Decisiveness reflects the seizing process and a preference for non-specific closure, i.e., any structure that helps avoid confusion or uncertainty (Neuberg et al., 1997; Roets & van Hiel, 2008).

Some prior evidence links the need for cognitive closure with grammatical preferences. Webster, Kruglanski, and Pattison (1997) demonstrated that need for closure was associated with greater linguistic intergroup bias (Maass, 1999), that is, the increased use of linguistic abstraction when describing positive behaviors of in-group members and negative behaviors of out-group members. In the present research program, we predicted that the need for cognitive closure, and especially the desire for simple structure, would be associated with a general preference for using abstract grammatical forms offering stability and clarity, such as nouns.

Need for cognitive closure is reliably correlated with conservative or right-wing political orientation (e.g., Chirumbolo, 2002; Kemmelmeier, 1997; for a review, see Jost et al., 2003). Studies involving Polish and Flemish participants suggest that this association is more pronounced for the personal need for structure than for decisiveness (Kossowska & van Hiel, 2003). Moreover, in the Polish context the need for structure seems to be positively associated with conservatism in terms of social and cultural issues, but a different relationship is sometimes observed when it comes to economic issues (Golec, 2001, 2002; Jost et al., 2003). Based on the foregoing, then, we might expect that ideological differences in grammatical preferences would be stronger with respect to social (vs. economic) attitudes and attributable to psychological differences in need for structure (rather than decisiveness). To investigate whether the personal need for structure is an underlying factor that helps to explain the relationship between social conservatism and grammatical preferences, we examined the indirect effects of social conservatism on preference for nouns through the need for structure and decisiveness (as parallel

pathways). Identifying explanatory variables such as these is statistically identical to mediation

analysis. However, in conducting these analyses we make no assumptions about the causal

relationships among variables (McKinnon, Krull, & Lockwood, 2000).

Method

Participants and procedure. Participants were 200 non-psychology undergraduate

students of social sciences and humanities from the University of Warsaw in Poland. Sample size

was determined prior to data collection. Eight participants reported their nationality as something

other than Polish, and two others failed to provide information about their nationality. To ensure

that our sample included only native Polish speakers, these participants were excluded from the

analyses. One additional person was excluded because of a highly suspicious response pattern.[1]

The final sample of 189 participants included 115 women and 53 men (21 participants provided

no information about their gender). Participants' ages ranged from 19 to 35 (M=21.64, SD=1.74).

Participants first completed either the grammatical preference task or the questionnaire about

policy preferences; these two questionnaires were counterbalanced, but no order effects were

observed. Next, participants filled out a need for cognitive closure scale. To avoid creating

wariness or suspicion, political orientation was measured at the end of the study, along with

general demographic questions.

Measures.

Grammatical preferences. To measure participants' relative preferences for nouns we

presented them with incomplete sentences describing different people, which they were asked to

complete with either a noun or an adjective (in six cases) and either a noun or a verb/adverb pair

(in four cases). For example, participants read that "Magda had no doubts about the success of

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[1] The pattern of results was similar when her data were included in the analyses.

her business. Magda . . .” and were asked to choose either a noun (“is an optimist”) or an

adjective (“is optimistic”) phrase to end the sentence. Participants were asked to complete ten

target sentences (see Supporting Information). The index of grammatical preferences was the

sum of all noun choices, which could range from 0 to 10 (M=4.30, SD=1.95).

     Policy preferences. To measure the endorsement of specific public policies, we used a

scale developed by Jakubowska (2005) to fit the Polish context. The scale includes subscales

corresponding to social (8 items, e.g., “Abortion is always murder” vs. “A woman should have

the full right to get an abortion”; α=.79, M=2.83, SD=1.18) and economic dimensions of

ideology (8 items, e.g., “Government actions aiming at decreasing inequalities between the rich

and the poor is a waste of public funds” vs. “A fair state should not be divided into the rich and

the poor”; α=.65, M=3.90, SD=0.94). Participants were asked to indicate the extent to which they

would prefer one policy option over another using a response scale ranging from 1 to 7, with

higher scores indicating more conservative preferences.

     Epistemic motivation. We administered Kossowska’s (2005) Polish adaptation of Webster

and Kruglanski’s (1994) Need for Closure Scale. Participants were asked to indicate the extent to

which they agreed with each of 32 items on a scale from 1 = *strongly disagree* to 6 = *strongly

agree*. The scale is composed of five facets. Three facets—preference for predictability (α=.74,

M=3.61, SD=0.88), preference for order (α=.83, M=3.89, SD=1.07), and discomfort with

ambiguity (α=.60, M=4.14, SD=0.84)—correspond to the freezing process described by

Kruglanski and Webster (1996) and are referred to (collectively) as the “personal need for

structure” (Neuberg et al., 1997). We created an index of the need for structure by averaging

scores from these three facets (α=.88, M=3.85, SD=0.79). The scale also includes a decisiveness

facet (α=.67, M=3.56, SD=1.03), which corresponds to the seizing process described by Webster

and Kruglanski (1994).[2]

Political orientation was measured with three items tapping into general (1 = *definitely left* to 9 = *definitely right*), economic (1 = *definitely socialist* to 9 = *definitely free market*), and social (1 = *definitely liberal* to 9 = *definitely conservative*) dimensions of ideology (Cichocka & Jost, 2014). Because the social and economic dimensions tend to be fairly distinct in the Polish context (Golec, 2001; Kossowska & van Hiel, 2003), we created two separate indices of political orientation. One corresponded to the social dimension (composed of the general and social items, $r[182]=.70$, $p<.001$; $M=4.30$, $SD=1.97$), and the other corresponded to the economic dimension (single item, $M=5.77$, $SD=1.94$).

Results

First, we computed zero-order correlations among study variables (see Table 1). Consistent with prior research conducted in Poland, the personal need for structure was positively associated with social but not economic conservatism. In support of our hypotheses, a preference for nouns was positively associated with the personal need for structure, $r(184)=.16$, $p=.03$, as well as general/social conservatism, $r(184)=.16$, $p=.03$,[3] and support for conservative social policies, $r(182)=.15$, $p=.04$.[4] Economic conservatism was correlated with decisiveness, but both were unrelated to grammatical preferences. Support for conservative economic policies was

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[2] We also measured the facet of closed-mindedness. However, because of very low reliability in this sample ($\alpha = .27$) scores for this subscale were not included in the analyses.

[3] When the three items measuring political orientation were averaged as a combined index of political conservatism, the correlation with preference for nouns was significant, $r(182)=.17$, $p=.02$.

[4] In addition, we conducted separate analyses to investigate preference for nouns over (a) adjectives and (b) verbs/adverbs. Preference for nouns over adjectives, $r(183)=.21$, $p=.003$, was positively and significantly correlated with general/social conservatism, but preference for nouns over verbs/adverbs was not, $r(185)=.02$, $p=.84$. Preferences for nouns over adjectives, $r(181)=.13$, $p=.08$, and nouns over verbs/adverbs, $r(183)=.12$, $p=.11$, were both positively associated with support for conservative social policies, but these effects did not reach statistical significance. Personal need for structure was unrelated to preference for nouns over adjectives, $r(183)=.08$, $p=.26$, but it was significantly and positively correlated with preference for nouns over verbs/adverbs, $r(185)=.18$, $p=.01$.

unrelated to a preference for nouns.

Table 1

To integrate the analyses for the two indices of ideology we specified a structural equation model using M*plus* 7.[5] We used the two items tapping into general and social conservatism, as well as support for conservative social policies as indicators of a latent general/social conservatism variable. We used economic conservatism and support for free-market economic policies as manifest indicators of latent economic conservatism. We used three facets of need for closure (preference for predictability, preference for order, and intolerance for ambiguity) as indicators of latent personal need for structure. Preference for nouns and decisiveness were treated as manifest variables.

We first regressed preference for nouns onto latent general/social conservatism, $B=0.21$, $SE=0.11$, $p=.04$. The model had excellent fit, $\chi^2(2)=1.24$, $p=.54$, $CFI=1.00$, $RMSEA=.00$, $AIC=2727.43$, $BIC=2766.34$. We then estimated a model that included economic conservatism as an additional exogenous latent variable. This model failed to converge because the residual variance for economic policies was negative. Therefore, in the next model we fixed it to zero. The model converged, with latent general/social conservatism remaining the only significant predictor of preference for nouns, $B=0.21$, $SE=0.11$, $p=.047$. Latent economic conservatism was not a significant predictor of preference for nouns, $B=-0.002$, $SE=0.12$, $p=.99$, and the overall model fit was poor, $\chi^2(8)=42.92$, $p< .001$, $CFI= .91$, $RMSEA=.15$, $AIC=3939.06$, $BIC=4000.65$. Therefore, latent economic conservatism was dropped from further analyses.

We estimated a model in which latent need for structure was regressed onto latent general/social conservatism, and the preference for nouns was regressed onto latent need for

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[5] Neither age nor gender was significantly associated with grammatical preferences, so we omitted these variables from the models reported here.

structure. The model exhibited acceptable fit, $\chi^2(12)=22.62$, $p=.03$, *CFI*=.98, *RMSEA*=.07, *AIC*=4066.47, *BIC*=4141.03. Latent General/social conservatism was significantly associated with latent need for structure, *B*=0.16, *SE*=0.06, *p*=.01, which was positively, albeit marginally, associated with a preference for nouns, *B*=0.29, *SE*=0.17, *p*=.09.

When need for structure was included in the model, latent general/social conservatism was no longer a significant predictor of noun preferences, *B*=0.17, *SE*=0.11, *p*=.12, so this path was fixed to zero. The fit of the resulting model, $\chi^2(13)=25.04$, *p*=.02, *CFI*=.97, *RMSEA*=.07, *AIC*=4066.89, *BIC*=4138.21, did not differ from the one that included the path from latent general/social conservatism to noun preferences, $\Delta\chi^2(1)=2.42$, *p*=.12. Therefore, the new model emerged as a more parsimonious one. In the new model, latent general/social conservatism was again a significant predictor of latent need for structure, *B*=0.16, *SE*=0.06, *p*=.01, which, in turn, positively predicted a preference for nouns, *B*=0.37, *SE*=0.17, *p*=.03. We then tested for indirect effects of need for structure with 50,0000 bootstrap resamples. In line with our predictions, we found a significant indirect effect of 0.06, with 95% bootstrapped bias corrected confidence intervals (BCIs): 0.01, 0.16.

We also tested a model that included the indirect effect of decisiveness. In this model, latent general/social conservatism was significantly associated with latent need for structure, *B*=0.17, *SE*=0.06, *p*=.004, which was a predictor of noun preferences, *B*=0.38, *SE*=0.17, *p*=.02. Decisiveness was marginally associated with latent general/social conservatism, *B*=0.10, *SE*=0.05, *p*=.06, but it was unrelated to the preference for nouns, *B*=-0.08, *SE*=0.14, *p*=.57. Overall, the model that included parallel indirect effects of latent need for structure and decisiveness had worse fit, $\chi^2(18)=39.05$, *p*=.003, *CFI*=.96, *RMSEA*=.08, *AIC*=4615.91, *BIC*=4700.20, in comparison with the model that had only one indirect effect. Moreover, we

found that only the indirect effect of need for structure was significant, estimate=0.06, 95%BCIs: 0.01, 0.17. The indirect effect for decisiveness was not significant, estimate=-0.01, 95%BCIs: -0.05, 0.02.

Discussion

Study 1 demonstrated that political ideology was associated with a linguistic preference for nouns. In a survey involving Polish university students we found that conservatism—measured in terms of ideological self-placement and support for social policies—was a significant predictor of the preference for nouns over other parts of speech in non-political forms of communication. This relationship was evident with respect to attitudes toward social but not economic issues.

Additional analyses revealed that the link between political ideology and language usage is, at least partially, explained by underlying psychological motives. Need for structure, a facet of the need for cognitive closure (Kruglanski et al., 1997; Neuberg et al., 1997), was found to account for the relationship between social conservatism and preference for nouns. Decisiveness, by contrast, did not play a significant role (cf. Kossowska & van Hiel, 2003).

Study 2

In Study 2 we sought to increase the external validity of our research by testing our hypothesis in a very different kind of language and culture. To this end, we conducted a survey in Arabic, an Afro-Asiatic language belonging specifically to the Semitic subdivision. Similar to other Semitic languages, Arabic uses two types of sentences: verbal and nominal sentences. Verbal sentences, as in Indo-European languages, contain a verb. Nominal sentences are comprised of nouns only or a noun and an adjective (Hodge, 1975). Because we were especially interested in the use of nouns, a language that features sentences that are comprised solely of this

part of speech seemed ideal for testing our predictions.

Nominal sentences are commonly used and often cause confusion and misunderstanding for non-native users (Al-Batal, 1995). To illustrate the difference between Indo-European sentences and an Arabic nominal sentence let us translate the sentence "Ali is a scientist" into Arabic and then perform a literal translation of this sentence back into English. The Arabic translation of this sentence would be: علي عالم ('Alī 'ālim). Its literal back translation would be: "Ali scientist." The verb "is" here is treated as implied. Study 1 demonstrated that social conservatives in Poland exhibited a preference for ending sentences with nouns over other grammatical forms. We expected to observe a similar preference for nominal sentences composed of all nouns over verbal sentences (which include at least one verb and an adjective), among conservative speakers of the Arabic language.

To investigate this hypothesis we conducted a survey study in a Lebanese sample. In Lebanon the economic dimension of political orientation can be relatively independent of the social dimension. For instance, the Al-Kataeb party, one of the leading parties in the country, is supportive of free-market economy, but it is liberal in terms of social issues (Deeb, 2007; Suleiman, 1967). Thus, as in Study 1, we considered the social and economic dimensions separately.

Method

Participants and procedure. Data were collected as part of a larger survey conducted in Arabic involving 100 young adults in Beirut, Lebanon. Sample size was determined prior to data collection. Seventy-nine participants were undergraduate students at the University of Lebanon, 14 were recruited online, and 7 more were approached in cafés.[6] University participants

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[6] Adjusting for the data source/place of recruitment did not affect our results. Participant age was not recorded.

completed the survey as part of a research methods course. Online and café respondents were

invited to take part in a prize lottery. The overall sample included 45 women and 55 men.

Participants first completed a measure of political orientation, followed by a measure of

grammatical preference. Need for closure was measured at the end of the study. After completing

the questionnaires, participants were debriefed and thanked.

Measures.

Political orientation was measured with three items tapping into general, economic, and

social conservatism. Participants responded on a scale from 1 = *extremely liberal* to 11 =

extremely conservative. We created two indices of political orientation corresponding to social

(composed of the general and social items, r [81]=.60, p<.001, M=5.71, SD=2.66) and economic

dimensions (one item, M=5.95, SD=2.67).

Grammatical preferences. To gauge preferences for nominal sentences, participants were

asked to choose one of two options that would best complete three sentences describing different

people. Response options featured either nominal (all-noun) or verbal sentences. For example, a

sentence "Hanan likes to paint. Hanan . . ." could be completed with "(is) an artist" (nominal

sentence) or "has artistic skills" (verbal sentence).[7] The index of grammatical preferences was

the sum of all nominal sentence choices, ranging from 0 to 3 (M=1.10, SD=1.04).

Epistemic motivation. We used five items to measure need for closure—with one item

corresponding to each of Webster and Kruglanski's (1994) five subscales (see Supporting

Information). The three items corresponding to the need for simple structure facet failed to form

a reliable measure, α = .47, so this variable was excluded from the analysis.

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[7] We initially administered four sentences. However, one sentence mistakenly included two nominal sentence
options (there was no verbal sentence option), so this item was discarded (see Supporting Information).

Results

First, we computed zero-order correlations between political orientation and grammatical preferences. Economic and general/social conservatism were significantly positively correlated, $r(86)=.40$, $p<.001$. Preference for nominal sentences was positively and significantly correlated with general/social conservatism, $r(66)=.29$, $p=.02$, but not with economic conservatism, $r(66)=.05$, $p=.70$.[8]

Next, we conducted linear regression analyses that included both dimensions of conservatism as predictors and grammatical preference as the dependent variable. The regression model was significant, $F(2, 65)=3.76$, $p=.03$, $R^2=.10$. General/social conservatism was a significant predictor of preference for nominal sentences, $B=0.16$, $SE=0.06$, $p=.01$, whereas economic conservatism was not, $B=-0.07$, $SE=0.06$, $p=.21$.[9]

Discussion

Study 2 corroborated findings from Study 1 in Arabic, a language that is very different from Indo-European languages in terms of syntax and morphology. More specifically, we found that social conservatism in Lebanon was associated with an increased preference for Arabic nominal sentences (which were composed of nouns only), relative to verbal sentences (which included verbs and, in some instances, adjectives). These results provide further support for the hypothesis that conservative political orientation is associated with grammatical preferences that reinforce impressions of stability and predictability.

Study 3

Studies 1 and 2 demonstrated that political orientation was related to grammatical

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[8] When all three items were averaged as an index of political conservatism, the correlation with preference for nouns was marginal, $r(66)=.22$, $p=.07$.
[9] In this study gender was significantly associated with grammatical preferences (see Supporting Information).

preferences in everyday communication. In Study 3 we sought to further increase the external

validity of our research by testing our hypothesis in political speeches delivered in English. We

also sought to determine whether ideological differences in language use would be linked to

individual differences in integrative complexity (e.g., Brundidge et al., 2014; Jost et al., 2003;

Tetlock, 1983, 1984). We hypothesized that lower integrative complexity (or higher simplicity)

would be associated with greater use of nouns and that this would help to explain the link

between political orientation and grammatical preferences.

To this end, we compared U.S. presidential speeches delivered by representatives of the

two major political parties—the more conservative Republican Party and the more liberal

Democratic Party. Although presidential speeches are prepared by speechwriters, these writers

tend to be part of the presidential team and, therefore, share the presidents' ideological

orientation to a considerable degree. In this study, we coded presidential speeches with respect to

grammar use, comparing frequencies in the use of nouns, adjective, and verbs to determine

whether speeches delivered by more conservative (or Republican) presidents were more likely to

include nouns than those delivered by more liberal (or Democratic) presidents.

For each speech, we also calculated the index of integrative complexity (Abe, 2011; see

also Brundidge et al., 2014). To determine whether integrative complexity could be considered

an underlying factor that helps to explain the relationship between conservatism and grammatical

preferences, we examined the indirect effects of the President's political party/ideology on

preference for nouns through integrative complexity.

Method

Materials and procedure. In Study 1 we used archived transcripts of speeches delivered

by U.S. presidents hosted by the website of the American Presidency Project

(http://www.presidency.ucsb.edu/index.php) as of January 16, 2015. We coded transcripts of

inaugural addresses (*n*=21) as well as state of the union addresses (or the corresponding

replacement speeches that were listed, total *n*=80).[10] These two types of speeches are comparable

to the extent that they are regularly scheduled and addressed to very broad audiences. We began

with the First Inaugural Address of Franklin D. Roosevelt and finished with the January 2014

State of the Union address delivered by Barack Obama, producing a database of 101 speeches

delivered by 13 presidents in total.

Measures.

Political orientation. For each speech we coded the partisan affiliation of the president.

The sample included 45 speeches delivered by Republicans and 56 speeches delivered by

Democrats.

Grammatical preferences. We used Common Language Resources and Technology

Infrastructure (Clarin-PL) for automated text analysis in order to code presidential speeches with

respect to grammar use. We recorded the total number of words and the numbers of nouns,

adjectives (including ordinal numbers), and verbs. We then calculated proportions of each of

these parts of speech by dividing its frequency by the total number of words. Thus, we created

indices of the use of nouns (*M*=.25, *SD*=.02; range .21 to .29), adjectives (*M*=.07, *SD*=.01; range

.05 to .11), and verbs (*M*=.14, *SD*=.01; range .11 to .17).

Integrative complexity. Following a procedure by Abe (2011; see also Brundidge et al.,

2014), we used words involved in differentiation (exclusive words, tentative words, negations) as

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[10] For the sake of consistency, we only analyzed transcripts of speeches that were orally delivered; messages that were delivered to Congress in written form were excluded. For speeches that were delivered both to Congress in writing and to the American people via radio (in summary form) we analyzed only the latter. In 1973 Nixon delivered five State of the Union addresses on the radio. Only the first of these was included in the dataset to avoid weighting Nixon's speeched more heavily than those of other presidents. Although these data could conceivably be analyzed with the use of a multilevel model by clustering data within each president, our dataset was too small (13 presidents) to provide adequate statistical power to conduct such an analysis (Maas & Hox, 2005).

well as integration of different perspectives (conjunctions) as composite linguistic markers of

integrative complexity. We used Linguistic Inquiry and Word Count (LIWC; Pennebaker et al.,

2007) to calculate indices of exclusive language, negations, tentative language, and conjunctions.

All of these indices were z-scored and their mean was calculated as an overall integrative

complexity score (α=.79, *M*=.00, *SD*=.79).

Results

We first computed zero-order correlations between the variables. As hypothesized,

integrative complexity was negatively and significantly correlated with the use of nouns, *r*(99)= -

0.38, *p*< .001. Integrative complexity was also negatively correlated with the use of adjectives,

r(99)= -.49, *p*< .001, but it was not significantly correlated with the use of verbs, *r*(99)=.09,

p=.40.

To investigate partisan/ideological differences in language use we conducted a series of *t*-

tests, with proportions of various parts of speech and integrative complexity as dependent

variables. Results revealed that Republican presidents employed a higher proportion of nouns in

speeches (*M*=0.26, *SD*=0.02), in comparison with Democrats (*M*=0.25, *SD*=0.01), *t*(77.61)=2.46,

p=.02 (equal variances not assumed), Cohen's *d* = 0.50. There were no differences in the use of

adjectives, *t*(99)= -0.45, *p*=.65, Cohen's *d*= 0.09, or verbs, *t*(99)= -0.15, *p*=.88, Cohen's *d*= 0.03.

In addition, we observed that Republican presidents used marginally less integratively complex

language (*M*=-0.16, *SD*=0.72) than did Democratic presidents (*M*=0.13, *SD*=0.82), *t*(98.10)= -

1.89 (equal variances not assumed), *p*=.06, Cohen's *d*=0.37.

We further conducted a series of regression analyses (see Table 2) in which we examined

the effects of partisan affiliation, adjusting for effects of year (z-scored) and speech type (0=state

of union vs. 1=inaugural address). In this analysis, the effect of party on integrative complexity

was statistically significant, p=.01, and the effect of party remained significant when it came to noun preferences,[11] p=.02. Effects remained non-significant with respect to the use of adjectives, p=.18, and verbs, p=.11.

Table 2

To investigate whether integrative complexity would help to explain the relationship between political orientation and use of nouns we computed indirect effects using Model 4 of PROCESS (Hayes, 2013), requesting 50,000 bootstrap resamples and including political partisanship as the independent variable, integrative complexity as the M variable, and preference for nouns as the dependent variable, with year and speech type as covariates. When integrative complexity was included in the model, the effect of partisanship on the use of nouns was no longer significant, B=0.01, SE=.003, p=.10. We obtained a significant indirect effect through integrative complexity=.002, 95% BCIs from .001 to .005. This effect remained significant when covariates were omitted from the model.[12]

Discussion

Analyses of political speeches confirmed that Republican presidents used a higher proportion of nouns than Democratic presidents. Our analysis yielded a moderate effect size of partisanship on preferences for nouns. At the same time, there were no reliable differences in the use of verbs or adjectives. In line with our predictions, integrative complexity was negatively

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[11] We also sought to determine whether the effects differed for common versus proper nouns but the effect of party on grammatical preference was not moderated by the type of noun; mixed effects ANOVA yielded $F(1, 97)<1$.

[12] We also incorporated expert ratings of presidential liberalism-conservatism reported by Thoemmes and Conway (2007). This index of conservatism was positively and significantly correlated with the use of nouns, $r(91)$=.31, p=.002, and verbs, $r(91)$=.23, p=.02, and it was negatively correlated with the use of adjectives, $r(91)$=-.29, p=.01. It was unrelated to integrative complexity, $r(91)$= -.05, p=.62. We conducted regression analyses in which we adjusted for year and speech type. In this model, the effect of conservatism on noun usage remained significant, B=0.01, SE=.002, p=.004, and the relationship between conservatism and integrative complexity remained non-significant, B=-0.13, SE=.10, p=.20. There were no effects of conservatism on verb, B=-0.001, SE=.001, p=.40, or adjective usage, B=0.002, SE=.001, p=.18 (see Supporting Information for more details).

associated with the use of nouns. As in previous research, speeches of Republican presidents showed lower integrative complexity than those of Democratic presidents, and this difference helped to explain the links between partisanship and preference for nouns. Thus, Study 3 provided further support for our hypothesis that, in comparison with liberals, conservative politicians would be more inclined to use parts of speech that stress clarity and predictability (such as nouns) and that individual differences in cognitive-motivational style might explain this association.

General Discussion

The aim of this research program was to examine whether ideological proclivities are reflected in basic features of verbal communication. In two studies we obtained consistent support for the hypothesis that conservative political orientation is associated with a linguistic preference for nouns—parts of speech that are well suited to address epistemic needs for order and structure. This effect was observed when we examined ordinary speech patterns concerning various social topics (Studies 1 and 2) as well as political speeches in particular (Study 3). The effect was observed in two Indo-European languages (English, belonging to the Germanic subdivision, as well as Polish, belonging to the Slavic subdivision) and an Afro-Asiatic language (Arabic, belonging to the Semitic subdivision). These effects were fairly modest in terms of magnitude, but they were consistent despite the very different social, cultural, linguistic, and political contexts of the three countries in which these studies were conducted.

Moreover, in Studies 1 and 3 we demonstrated that these relationships can be at least partially explained by differences in cognitive styles and epistemic motives of liberals and conservatives. Conservatism is associated with lower integrative complexity and epistemic needs for structure, order and certainty (Jost et al., 2003; Jost & Krochik, 2014; Wilson, 1973). Insofar

as nouns have greater inductive potential (Carnaghi et al., 2008; Graf et al., 2013; Walton & Banaji, 2004), they are more compatible with cognitive parsimony and epistemic needs to reduce uncertainty and ambiguity, in comparison with other parts of speech (such as verbs or adjectives). Indeed, we observed that ideological differences in noun preferences were accounted for by individual differences in the personal need for structure (Study 1) and integrative complexity (Study 3).

The current research enhances our understanding of the psychological functions of language. Previous studies have linked the use of nouns to stereotypical and essentialist thinking (Carnaghi et al., 2008; Howell & Woolgar, 2013). We observed that a preference for nouns was associated with the motivation to create and maintain simple structure (Neuberg et al., 1997) as well as decreased integrative complexity (Brundidge et al., 2014). Decisiveness was unrelated to grammatical preferences (Study 1). This overall pattern of results suggests that a preference for nouns might address needs for specific, rather than non-specific, forms of closure. It would seem that nouns support and maintain pre-existing cognitive structures by categorizing (social) objects so that they are in line with prior beliefs. Overall, our results are compatible with previous work suggesting that language reflects, among other things, the individual's goals and motives (Douglas & Sutton, 2003), including his or her political goals (Menegatti & Rubini, 2013).

Our findings are also consistent with previous research indicating that political conservatives tend to score lower in integrative complexity than liberals (e.g., Brundidge et al., 2014; Jost et al., 2003; Tetlock, 1983, 1984; Thoemmes & Conway, 2007). Like Kossowska and van Hiel (2003), we observed that the personal need for structure (but not decisiveness) was a significant predictor of social conservatism. Insofar as social conservatism focuses on the safeguarding of familiar and predictable social structures, it may be that it is also better suited to

address needs for specific (vs. non-specific) closure. A different pattern of results emerged for economic attitudes. Decisiveness—the facet of the need for closure scale that corresponds to the need for non-specific closure (Neuberg et al., 1997)—was associated with support for free market capitalism (cf. Malka et al., 2014). It is conceivable that the need for non-specific closure would be especially important when political systems are in transition, as in post-Communist Poland. Even after 20 years, public opinion carries considerable ambivalence about the previous and current social systems in Poland (Cichocka & Jost, 2014). Study 1 was conducted with university students, who are less likely to have experienced Communism themselves. For them, the free market system is highly salient and accessible and therefore presumably well-suited to satisfy the need for non-specific closure (cf. Kossowska & van Hiel, 2003).

Limitations and Future Directions

It is important to note that all of our studies were correlational in nature and, consequently, they do not allow us to establish causal relationships among variables. There are some reasons to assume that cognitive style and epistemic motivation reflect more basic psychological constructs in comparison with political orientation and forms of linguistic expression (see also Cunningham, Nezlek, & Banaji, 2004); therefore, we have treated them as underlying constructs. However, it is also possible that language, political orientation, and cognitive style mutually reinforce one another in the context of a dynamic system. Future research would do well to examine each causal pathway independently. Once again, we acknowledge that the current studies yielded small to medium effect sizes. Although weak effects are typical for studies of psychological aspects of linguistic expression (e.g., Graf et al., 2013), future research would do well to identify boundary conditions for the effects we have observed here.

Furthermore, it would be especially worthwhile to analyze the ideological consequences of using or being exposed to various grammatical forms in social and political contexts. Previous research demonstrates that differences in language abstraction can affect inferences about a communicator's goals and beliefs (Douglas & Sutton, 2006). In the context of political communication, it has been found that leaders and activists modulate their degree of language abstraction depending upon the audience they are addressing (Menegatti & Rubini, 2013). It is possible that the increased use of nouns (relative to other parts of speech) would foster perceptions of the source as more conservative (or less liberal).

Another interesting prospect is that political inclinations are affected by subtle linguistic cues, so that exposure to more abstract language could shift the receiver's political orientation in a conservative direction, at least under some circumstances. To the extent that conservative politicians use more nouns than liberal politicians in political speeches, this may serve a strategic function. Noun forms might also turn out to be more persuasive to conservatives than liberals, although Bryan and colleagues (2011) reported no significant moderation by political orientation in their demonstration that the use of nouns could help to increase voter turnout in general. It is conceivable that any ideological asymmetry that might have been observed was swamped by the importance placed on voting by liberals and conservatives alike.

One could also apply this line of work to the context of intergroup relations. There is some evidence connecting epistemic needs, ideology, and out-group attitudes. Authoritarian ideology is at least partially responsible for the association between cognitive rigidity and prejudice (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950; Cunningham et al., 2004; Van Hiel, Onraet, & De Pauw, 2010). Epistemic motivation helps to explain the link between political conservatism and psychological essentialism (Keller, 2005). Essentialist and prejudiced

beliefs about out-groups seem to be better expressed by noun forms than other parts of speech (Carnaghi et al., 2008). Putting all of this together, one might well hypothesize that in an intergroup context conservatives (especially authoritarian conservatives) might well evince a stronger preference than liberals for using nouns (e.g., "a Mexican, a lawyer") over adjectives (e.g., "a Mexican lawyer") to describe members of other groups (see Graf et al., 2013). This strikes us as deserving of future research consideration.

Concluding Remarks

In this article, we have sought to shed new light on linguistic processes associated with political ideology. We have demonstrated that political ideas and opinions seem to be reflected in subtle cues, such as grammatical preferences and linguistic biases. Bringing in the perspective of ideology as motivated social cognition allowed us to demonstrate that the relationship between politics and language can be explained, at least in part, by psychological processes such as cognitive style and epistemic motivation. Findings from these studies encourage us to revisit Devlin's (1910/2004) advice on speaking and writing style in a more discerning light: referring to things by their names, rather than describing them in terms of their features, preserves familiarity, stability, and tradition—all of which seem to be more highly valued by conservatives than liberals.

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Table 1

Zero-order correlation between indices of political ideology, epistemic motivation and preference for nouns

	1	2	3	4	5	6
1. Preference for nouns	-					
2. General/social conservatism	.16*	-				
3. Economic conservatism	.12	.17*	-			
4. Conservative social policies support	.15*	.71***	.08	-		
5. Conservative economic policies support	-.02	-.04	.62***	$-.14^{+}$	-	
6. Personal need for structure	.16*	.17*	-.05	.18*	-.06	-
7. Decisiveness	-.01	.11	.19**	$.13^{+}$	.01	.15*

Note. $^{+}p<.10.$ *$p<.05.$ **$p<.01.$ ***$p<.001.$

Table 2

Regression analyses of integrative complexity and grammatical preferences on partisan affiliation

Predictor variables	Integrative Complexity		Nouns		Adjectives		Verbs	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
Party (0=DEM, 1=REP)	-.37*	.14	.01*	.003	.002	.002	-.003	.002
Year (z-scored)	.19**	.07	.001	.002	-.01***	.001	.01***	.001
Speech type (0=SOU, 1=IN)	.80***	.17	-.01**	.004	-.01***	.002	-.002	.002
Model *F*	$F(3,97)=11.34^{***}$		$F(3,97)=6.57^{***}$		$F(3,97)=33.14^{***}$		$F(3,97)=11.46^{***}$	
R^2	.26		.17		.51		.26	

Note. *p<.05. **p<.01. ***p<.001.

DEM=Address delivered by a Democratic president; REP=Address delivered by a Republican president; SOU=State of the Union address; IN=Inaugural address.