Language as a Window into Culture

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Abstract

Culture is assumed to play a pivotal role in business success and failure. In contrast to prevailing top-down perspectives, we propose an approach to studying culture that accounts for myriad organizational subcultures, how individuals fit into those subcultures, and the causes and consequences of shifts in culture and cultural fit. We propose that the language through which people communicate with colleagues offers a powerful lens for studying cultural dynamics and its relationship to individual, group, and organizational success. We describe a burgeoning stream of research that uses language as a window into culture and discuss its implications for managerial practice.

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Introduction

Corporate culture is widely assumed to play a pivotal role in business success and failure. Management gurus attribute much of the prosperity of such companies as Google, online retailer Zappos, and Southwest Airlines to ways of doing business that build a sense of purpose, treat customers with respect, and encourage employees to be creative and have fun. Other companies are said to have cultures that put them at a competitive disadvantage. For example, the ride service company Uber reportedly lost thousands of customers after media stories appeared describing a culture that allegedly tolerated sexual harassment and employee abuse.[1]

Prevailing views of organizational culture tend to take a top-down perspective—one that sees culture as unified, enduring, and resistant to change. Research starting from this vantage point investigates the qualities that make for effective cultures that enable high levels of performance and dysfunctional cultures that demoralize employees and alienate customers. This article looks at culture through a different lens—one that starts from the bottom up and takes into account the myriad local subcultures that exist in organizations, how individuals fit into those subcultures, and the causes and consequences of subtle shifts in cultural fit over time. It is part of a broader research tradition that explores the intersection between individuals and the social groups and organizations to which they belong. Research that starts from this viewpoint offers a way to understand how culture operates across the group, organizational, and even inter-organizational levels. It also yields practical insights for managerial decision making. For example, should firms hire for anticipated cultural fit—that is, the level of fit at time of hire—or expected enculturability—that is, the anticipated rate of cultural adaptation? Should firms seek to build cultural alignment or consensus among employees or instead embrace cultural breadth and diversity? Under what conditions is either more beneficial?

Investigating how employees fit into a workplace culture from a bottom-up perspective poses significant methodological challenges. Most research relies on self-reported surveys, which are blunt instruments that study cultural fit at a single point in time. But cultural fit is a dynamic process, not a static end-state. Standard methodologies are largely unable to detect the evolution of an employee's thinking and behavior, including the process of cultural assimilation, or *enculturation*. Nor are they able to detect gradual alienation from the organization among employees who become disenchanted.

The language through which people communicate with colleagues on the job offers a powerful alternative for studying the dynamics of how people fit into an organization's culture. This article describes a novel approach to measuring culture based on the application of the tools of computational linguistics to archives of internal communication among employees. Much of the research presented here is based on a comprehensive analysis of more than 10 million electronic messages exchanged over five years among employees at a mid-sized U.S. technology company. The word choice in these messages provides a window into the company's culture that is largely free of observational and reporting biases and offers a view of each employee's relationship to that culture as it unfolds over time. Moreover, language use predicts an individual's success on the job and reveals distinct linguistic patterns for employees who stay, exit voluntarily, or are asked to leave.[2]

Studying cultural fit based on employee language use yields important insights about effective workforce management. The dynamic view of enculturation made possible by linguistic analysis suggests that, when making hiring decisions, organizations should not just evaluate candidates on perceived cultural fit, but also anticipated *enculturability*, that is, how quickly and thoroughly an employee is likely to adjust to a new culture. In addition, while hiring for cultural

compatibility is generally beneficial, organizations should consider the merits of sometimes choosing job applicants who are, to some extent, cultural misfits. Finally, managers should be aware that cultural fit waxes and wanes, which makes it important to pay attention to each employee's cultural trajectory. These ways of looking at cultural fit deepen a manager's understanding of the contribution staff members are making and what role they are likely to play in the future.

Organizational Culture

Culture is a foundational concept in the social sciences, referring to the attitudes, beliefs, and behavioral norms that distinguish a group of people. It is the intangible glue that holds a group together, whether that group is a nation, a community, an ethnicity, an organization, or a family. (In this article, group is also used to refer to functional work units, such as departments.) Culture is among the most deeply rooted parts of human experience, resting on explicit and implicit understandings about what to believe and how to behave. It is both cognitive, consisting of shared beliefs and values, and behavioral in that it establishes norms about appropriate conduct. It defines each person's expectations about what others in a group will say and do—the common ways of thinking that make working or living with other group members seem natural.[3] Like the sea to fish, culture surrounds people in a way that is perceived as normal and taken for granted.

Individuals vary considerably in the extent to which they fit in or stand apart from an organization's culture. Every workplace has its conformists and nonconformists—for example, the accounting assistant who buys her clothes at a vintage thrift shop when everyone else shops at J Crew. The term *cultural embeddedness* refers to the degree an individual internalizes the

common culture and accepts group norms.[4] It describes the extent to which that person shares values and assumptions with those around her and how much the common culture shapes her interactions with others. Cultural embeddedness is an evolving condition. Each person's relationship with an organization's culture changes over time, creating a unique *enculturation trajectory*.[5]

Business managers must decide how much to take cultural fit into account in hiring and promotion decisions. For individual employees, the relationship they establish with their organization's culture is a key determinant of their success on the job. There are obvious benefits to fitting in. Organizational research has demonstrated that employees who are good fits are more satisfied, more strongly attached, better motivated, and better performers than their peers who aren't in synch culturally. Fitting in has been correlated with quicker promotion, higher performance ratings, and a lower likelihood of getting fired.[6] Nonetheless, research suggests that under some circumstances, there may be advantages to keeping some cultural distance at work, a point to be developed later.

How Language Can Illuminate Culture

Extensive scholarship has investigated the relationship between individuals and organizational culture. Most studies have relied on participant observation or various culture surveys to capture an employee's cultural stance. In participant observation, a researcher intensively studies a small number of groups, often sacrificing breadth for depth. This method can yield rich data on small groups, but it is rare for researchers to be able to observe all individuals and groups in an organization over an extended time period. Self-reports provide breadth but suffer from other limitations. They are generally completed at a single point in time

or, at best, episodically and consequently are not able to trace the evolution of an employee's attitudes, beliefs, and compliance with behavioral norms. In addition, questionnaires and surveys compress the subtle and complex realities of culture into a limited number of questions that may be influenced by the researcher's own biases and presuppositions.

The language employees use to communicate with their colleagues offers another way to study organizational culture. Both its form and content are critical channels for transmitting culture. Language is a core medium for cultivating relationships and sending explicit and implicit signals about one's values and behavior to other organizational members. Each organization has its own linguistic conventions, which can be as simple as using or omitting the word "Hi" as an email greeting or salting messages with profanity. It follows that one aspect of enculturation is the conscious or unconscious adoption of the written and verbal modes of expression characteristic of the organization. The extent to which individuals stick to an organization's unspoken language protocol is evidence of their degree of cultural assimilation. For example, someone who uses formal, polite language is not a good cultural fit in an organization where most employees are blunt and profane. Shared linguistic patterns reinforce group solidarity, while deviating from convention creates symbolic barriers. Thus, the way organization members use language sheds light on how well they will fit into their cultural environment.

To understand the power, as well as the limitations of, linguistic analysis, it is helpful to distinguish between the cognitive and behavioral dimensions of cultural fit, that is, the difference between what people think and what they do.[7] Cognition consists of the mental representations—ideas, beliefs, and knowledge—individuals use to make sense of the world around them and build their sense of themselves. By its nature, it is internal and cannot be observed directly. Behavior describes how they act, which is greatly influenced by the norms and social pressures

brought to bear on them. Behavior is easy to observe, and, in fact, people are constantly taking note of the behavior of others.

What people say and write is a form of behavior that offers strong evidence of how well they are conforming with cultural expectations. But language does not always reliably reflect what is going on inside a person's mind. Individuals may adopt the linguistic codes of their organization while privately holding views that conflict with the culture. At work, they may conceal their true beliefs as they try to sound the same as their colleagues.

Research Findings Based on Language-Based Measures of Cultural Fit

Cultural Embeddedness

To measure cultural fit, together with V. Govind Manian, and Christopher Potts, both of Stanford, we analyzed emails exchanged among 601 full-time employees at a mid-sized technology company. The company had a distinctive culture, based on innovation, teamwork, and a high-energy work environment. Cultural values were inculcated through training of new hires, ongoing staff communications, and employee recognition programs.

More than 10.2 million messages sent between 2009 and 2014 were examined, excluding emails sent outside the company. To protect privacy, identifying information was eliminated and data was stored on secure servers. An established program was used to sift out culturally meaningful language from functional and task-related content. For example, the frequency with which the words "I" and "we" were used relative to each other, how often language associated with negation was expressed, how commonly words like "would" and "should" appeared, and how much cursing took place were all treated as expressions of cultural style. We developed an algorithm to determine how closely a person's language conformed to the linguistic cultural style

of her colleagues. This was our linguistic measure of cultural embeddedness. We derived this measure on a monthly basis to capture changes in individual levels of enculturation. Finally, after removing identifying information, we obtained the human resource records of the email senders, including age, gender, and tenure. For employees who left the company, we determined whether the departure was voluntary or involuntary. This allowed an estimation of how the degree of a linguistic cultural fit was associated with different employee career paths.

Our linguistic measure of cultural embeddedness strongly predicted both positive and negative employee career outcomes, bearing out the hypothesis that cultural assimilation is associated with on-the-job success. For example, non-managerial employees with high cultural fit were 1.5 and 2.7 times more likely to be promoted to management than their peers with median and low fit, respectively. At the same time, employees with low fit were four times more likely to leave involuntarily after three years than their median-fit co-workers.[8]

We also found that new employees were, on average, highly adaptable, quickly assimilating to the company's linguistic culture. By the end of the first year on the job, the average employee reached the mean level of cultural fit, with the growth rate of fit tapering off after the first year. But the assimilation path varied greatly from one person to another. Some employees never fit in well according to our linguistic measures; others were well embedded, but then fell back.

For purposes of analysis, employees were separated into three categories: (1) those who stayed at the company; (2) those who left the firm involuntarily; (3) those who left voluntarily. The first group showed secular increases in cultural fit. These individuals appeared to win the acceptance of their peers and become strongly attached to the company. The second group showed slow or no increases in fit early in their employment. They failed to enculturate from the

beginning and, in some cases, drifted further away from their colleagues. The third group was initially indistinguishable from co-workers who joined the company at the same time and stayed. Both sets of employees assimilated at first, but, at some point, those who exited did a U-turn, and our models could predict who would quit voluntarily on the basis of this shift in later-career linguistic conformity. Supplemental analyses indicated that enculturability—the rate of change in cultural fit in the first six months after joining the organization—was more important for subsequent career success than was the initial level of cultural fit. Those employees who rapidly adapted to the company's culture, as opposed to those who exhibited high fit immediately upon entry, were least likely to be fired.

Structural Embeddedness

Another variable correlated with an employee's career path was *structural embeddedness*.[9] This concept refers to how people fit into an organization's social network. In particular, are they members of a tightly knit group or do they instead float, and serve as go-betweens, among a number of groups. Researchers have found that people who serve as the bridge between otherwise disconnected groups tend to do better in the workplace than those who are tightly attached to a single circle. The email data offered a fascinating qualification to this observation: an employee's career path strongly reflected a *combination* of cultural and structural embeddedness. Specifically, employees who were embedded either structurally or culturally—but not both—fared better than their counterparts who were doubly embedded or not embedded at all.

Consider four employee archetypes:

- The *doubly embedded actor* who is culturally integrated and a member of a close-knit group.

- The *disembedded actor* who is a cultural outsider and lacks strong group ties.

- The *assimilated broker* who has absorbed the culture and isn't bound to a single group.

- The *integrated nonconformist* who is a bit of a cultural misfit, but is part of a close-knit circle.

Assimilated brokers and integrated nonconformists generally did better than disembedded actors and doubly embedded actors. Disembedded actors, who lacked both cultural fit and network membership, were an order of magnitude more likely to be fired than assimilated brokers, who also lacked strong network membership, but fit in culturally. At the same time, doubly embedded actors, who showed strong cultural fit plus network membership, were more than three times more likely to be fired than integrated nonconformists, who were structurally integrated but poor cultural fits.

One might expect that disembedded actors—who lack the anchors of culture and structure to help them fit in to the organization—would not fare well. But why would doubly embedded actors—those who have both anchors available to them—not do as well as their nonconforming but structurally integrated peers? The answer seems to be that culturally assimilated employees who belong to a tightly knit group simply lack any basis on which to stand out from the crowd. The structural positions they occupy—being deeply ensconced within a social circle—make it harder for them to be exposed to novel ideas. Their cultural conformity, on the other hand, makes them unlikely to contribute novel or creative ideas.

In contrast, the assimilated broker brings to the table a networking advantage well known in the social science literature. Because she serves as a pivotal link among individuals and groups that are otherwise disconnected, she has access to non-overlapping information and ideas, which

enable her to develop valuable innovations for the organization. And because she exhibits high cultural fit, she can serve as a liaison and connector among these disparate individuals and groups without suffering the penalties of mistrust and incoherent identities that brokers often face. The integrated nonconformist, on the other hand, is likely to introduce new ideas to the group. By virtue of her networked integration, however, these ideas are more likely to be perceived as novel contributions than as threatening signals of being a group outsider.

Internalization of Culture versus Acting Out on the Surface

As noted earlier, linguistic analysis investigates behavior, not cognition. While it is true that such analysis cannot read people's minds, patterns of language use can distinguish between employees who have deeply absorbed workplace culture and those who are merely playacting to get along. This is the difference between *internalization*, that is, coming to see oneself as a group member and embracing group standards of conduct, and *self-regulation*, which involves cracking the group's normative code and learning to behave accordingly, despite unexpressed cultural difference. Research offers evidence that employees who stay with their employer are more likely to have internalized the organization's culture, while those who leave have a greater tendency to put up a front.

To separate the two types of employees, we, together with Gabriel Doyle and Michael C. Frank of the Department of Psychology at Stanford, examined nearly 408,000 pairs of emails exchanged between pairs of employees at our research site. Of 485 employees studied in this analysis, 329 stayed, 66 quit, and 90 were fired.[10] We traced enculturation during the first six months on the job by comparing changes in the use of the pronouns "I," "you," and "we" in email exchanges employees initiated and in their responses to exchanges begun by others. Employees who absorbed the company culture tended to use "we" more frequently both in the

email exchanges they initiated and in their responses to others. By contrast, those who did not internalize the culture stepped up their use of "we" in their email replies but became less likely to introduce the word in the exchanges they originated. Moreover, these patterns predicted whether employees were likely to stay or leave. Those employees who used "we" more often in exchanges they initiated were more likely remain with the company. Their co-workers who did not increase the use of "we" when initiating email exchanges had greater odds of getting fired. These data suggest that employees who did not assimilate overcompensated in their word choice when responding to colleagues.

Cultural Preferences versus Accurate Understanding of Organizational Norms

Linguistic analysis of organizational culture may be further refined by exploring the differences between two variables associated with cognitive cultural fit: (1) how closely an individual's values and beliefs match those prevailing in the organization; (2) how well an individual's characterization of the organization's culture matches the descriptions of other group members. The first variable can be labeled *values congruence*; the second *perceptual accuracy*.[11] Organizational scholars have typically assumed that beliefs and value preferences represent the most critical elements of cultural fit. In a joint project with Jennifer A. Chatman and Richard Lu, both at Berkeley, we used a combination of survey data and email analysis at the technology company that served as our study site. Using machine learning techniques, we identify the "linguistic signature" of values congruence and perceptual accuracy. In other words, we train an algorithm to predict a person's survey responses based on email content and then impute values congruence and perceptual accuracy scores for all employees—including those who did not take the survey—for all points in time that email data are available. Our results help to unpack the relationship between these two indicators of cognitive cultural fit and our

language-based measure of behavioral cultural fit. The ability to impute aspects of cognitive cultural fit based on language use points to a number of promising applications. For example, it may be possible to assess the effectiveness of onboarding programs or mentorship programs by gauging the extent to which they improve participants' perceptual accuracy of the culture and their subsequent ability to conform behaviorally to the organization's normative code.

Linguistic Analysis, Cultural Heterogeneity, and Company Performance

So far, this article has looked at cultural fit from the vantage point of the individual. However, language can also provide revealing insights into the role of culture in organizational-level performance. With Matthew Corritore of Stanford, we studied how measures of cultural heterogeneity relate to company profitability, patenting success, and market valuation.[12] Cultural heterogeneity can be thought of as diversity of ideas and beliefs. Scholars are divided over whether such diversity contributes to organizational success. Some contend that cultural differences hinder cooperation among group members, while others argue that a wide range of beliefs helps organizations adapt to a rapidly changing environment. Our research sought to reconcile these points of view by distinguishing between *compositional heterogeneity* and *content heterogeneity*. The first refers to the extent to which members disagree in how they describe an organization's culture. With compositional heterogeneity, there is little consensus about what the culture is like. Content heterogeneity instead describes the breadth of the cultural inventory members draw from in describing the culture.

To assess these two forms of heterogeneity, we examined reviews on the website Glassdoor (www.glassdoor.com), where individuals post anonymous descriptions of their employers. The sample included more than 500,000 reviews of nearly 500 publicly traded

companies from 2008 to mid-2015. We used linguistic analysis to capture the cultural content of reviews—for example, how performance is recognized and whether employees are encouraged to have fun at work. A company's compositional heterogeneity was measured by the extent to which employees cited dissimilar topics to describe company culture. Content heterogeneity was measured based on the breadth of cultural topics used to describe the company.

Statistical analysis showed that companies with high compositional heterogeneity were less profitable in the next quarter as measured by return on assets compared to observationally equivalent companies with low compositional heterogeneity. At the same time, companies with high content heterogeneity exhibited, in the next quarter, higher levels of Tobin's Q, a measure of market expectations of future growth, and patenting success. These results suggest that both sides of the argument about the effects of cultural diversity have merit. Cultural disagreements may hamper effective coordination and execution, thereby reducing profitability. Meanwhile, a broad cultural toolkit appears to promote innovation, fueling market expectations of future growth. If this framework is valid, then the most successful organizations would be those with a culture that is widely shared internally and that is constituted from elements spanning a wide variety of sources.

Applications at the Group, Organizational, and Inter-Organizational Levels

The use of language to measure different aspects of culture and cultural fit potentially has a wide range of applications in both the intra- and inter-organizational contexts. Linguistic analysis can place cultural similarities and differences into sharp relief and can be readily integrated into policies and practices related to hiring, workforce management, organizational restructuring, alliances, mergers, and acquisitions.

Online hiring

The hiring process is increasingly shifting to the Internet as employers take applications, sift through resumes, and conduct job interviews online. This is especially true in the gig economy, in which employers and contractors may never meet face-to-face. Hiring platforms such as Upwork and Contently match jobs and workers in such fields as web development and copywriting. These platforms collect extensive data on candidates, including education and job history, but they generally do not take cultural fit into account. It may be valuable to embed in them elements that predict cultural compatibility. For example, short essay questions designed to elicit information on a candidate's beliefs and values could be added to online applications. We anticipate that hiring platforms will increasingly incorporate measures of cultural fit based on patterns of pre-hire language use.

Reorganization and Restructuring

Culture varies widely within organizations. For example, at an investment bank, securities traders may be profane and aggressive, while their colleagues in research are more subdued and cerebral. Most studies of business culture take their cues from the organization chart, assuming that internal distinctions in values and norms largely coincide with the structure of departments and work units. This is, however, often not the case. Organizational subcultures frequently transcend departmental boundaries. The company softball team and its women's mentoring group may be drawn from a wide range of functional units. An individual employee's cultural reference group may not consist of other work unit members, but rather informal communities of like-minded people from other parts of the organization. For any particular person, identifying the relevant reference group is not straightforward.

Understanding how individuals fit into different social groups and subgroups has special significance when an organization is redrawing its organization chart. In a reorganization, for example, managers might use language-based measures of cultural compatibility to determine the consequences of structural changes for the cultural cohesion across newly formed or separated subunits. Language-based measures of culture may eventually be used not only after a restructuring but also beforehand to inform organizational design choices. For example, language-based measures of department- or group-level level cultural cohesion might be used to inform choices about which organizational units to create, combine, or dismantle.

Business Combinations

One of the most common reasons mergers fail is because the partners' cultures are at odds with each other. Effective decision makers take cultural compatibility into account when pursuing mergers, acquisitions, joint ventures, and alliances. But culture is generally considered impressionistically, not according to precise quantitative metrics. Linguistic research may soon allow measurement of the cultural similarities and differences between M&A and alliance partners to be incorporated into the business case analysis. It might also be used as a guide in designing effective programs of post-merger integration.

Management Insights from Linguistic Analysis of Organizational Culture

Organizational culture—shaping it, communicating it, and using it to assemble a workforce aligned with company values—has been a subject of intense interest in management literature for decades. It is well understood that a strong workplace culture is essential. Many companies make cultural compatibility a top priority when hiring, and a wide array of tools are available to assess it. Studying how language is used in organizations offers new ways to think

about culture. Determining how closely an individual's linguistic style matches those of others in the workplace can provide information on how well an applicant or employee fits in. Linguistic analysis may one day be part of the standard toolkit for assessing cultural alignment within groups and organizations.

Nonetheless, in making personnel decisions, language and culture must be considered in context. Our research suggests that businesses should balance screening for cultural fit with other factors, including individual skills, network connections, the need to promote workplace diversity, and the legality and propriety of discrimination based on cultural traits. Moreover, in hiring, evidence of cultural adaptability may be more important than initial fit. These qualifications mean discretion and good judgment must be used when weighing cultural compatibility.

The most attractive job applicants may be those who show signs they will quickly acclimatize to a new culture. Individuals who are willing and able to integrate themselves may make better employees than some candidates who seem to fit an organization's cultural mold from the beginning. Hiring should focus on enculturability, not on fit at a single point in time.[13] Eventually, linguistic analysis may help identify those with the capacity to absorb organizational culture. Currently, organizations can screen for such qualities as flexibility, enthusiasm, and intelligence, which may be markers of adaptability. Organizations should look for evidence that a candidate is comfortable in varied cultural environments.

When it comes to selecting employees for promotion or special assignment, their positions in the organization's network structure may outweigh cultural fit. Some employees who stand out culturally will have strong network connections that make them well suited for a particular job.[14] The fact they have been accepted into a close-knit workplace group despite their

status as cultural outliers suggests they bring something valuable to the table. They may have

badly needed knowledge or skills, or they may have superior judgment or intelligence. They

have earned the respect of their coworkers, even if they are not good cultural matches.

Sizing up cultural fit doesn't end with hiring: Fit is a dynamic process, not a static end-

state. Each employee follows a unique path. Some will steadily become more closely attached to

the workplace, absorbing organizational values and behaving according to group norms. Others

may become alienated and their attachment will weaken. Still others may wax and wane,

showing different degrees of alignment at different times. Managers should pay attention to

cultural signals indicating levels of attachment. Linguistic analysis may soon be part of the

toolkit that will allow organizations to monitor changes in cultural fit over time.

Ethical Considerations

The use of linguistic analysis as a way to evaluate workplace cultural fit raises a number

of ethical questions. Sophisticated language analysis tools are becoming readily accessible by

both researchers and practitioners. It is important they not be misused. How should linguistic

measures of cultural compatibility be used in the hiring process? Should an employee's pattern

of language use be taken into consideration when making promotion and compensation

decisions? Are company emails fair game for analysis? Should employees who stand out

culturally be singled out for coaching? This is an emerging area of workforce management and

the rules have not been set yet. In general, we strongly counsel against using identifying data on

individual employees even when companies have the legal right to do so; we are especially

averse to integrating linguistic markers in individual personal decisions. Instead, we believe that

much of the value from such analyses can be extracted using coded data that protects each

person's privacy. We believe that cultural fit indicators inferred from language are best used as diagnostic tools for the cultural health of teams, departments, and the organization as a whole.

Conclusion

Linguistic research is opening new avenues of investigation of organizational culture and yielding valuable insights into the ways individuals adapt to it. An individual's cultural fit—a valued quality in the workplace—can now be measured through linguistic analysis. Different language use patterns can signal different degrees of assimilation and even predict probable career paths. Right now, this is primarily a subject of scholarly interest. The results achieved so far are preliminary and suggestive. However, many practical applications are already emerging. In the not-distant future, human resources managers will have at their fingertips a variety of tools for assessing cultural fit through language.

On the plus side, these new tools promise to add precision and objectivity to what has typically been judged impressionistically and subjectively. But many questions remain about how to use workplace linguistic analysis appropriately and ethically. Like many new technologies, linguistic analysis of culture can develop in ways that empower people and help them find the right job niche, or it can become an Orwellian instrument of social control and enforced conformity. The legal system will set rules and help define how these methods can be used. But it will largely be organizational culture itself that will determine the place of linguistic analysis in the workplace of the future.

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