VOCABULARIES AND VOCABULARY STRUCTURE:
A NEW APPROACH LINKING CATEGORIES, PRACTICES, AND INSTITUTIONS

Jeffrey Loewenstein
College of Business, University of Illinois, Urbana-Champaign[1]

William Ocasio
Kellogg School of Management, Northwestern University

Candace Jones
Carroll School of Management, Boston College

Abstract

Organizational scholars have long used vocabularies, and with the rise of research on language this work has grown. Yet the research drawing on vocabularies is wide-ranging and not integrated. We review work on vocabularies from literatures on rhetoric, culture, cognition, and coordination. We integrate and extend this work on vocabularies, introducing the new concept of vocabulary structure to capture different aspects of vocabulary use that collectively explain how vocabularies yield meaningful categories. We also generate a cross-level model to link work on vocabularies at the level of social collectives with work on vocabulary use in situations. We illustrate the usefulness of vocabularies by showing how they help advance work on institutional logics. Vocabularies offer substantial opportunities for theoretical integration and novel extensions for organizational research and practice.

DRAFT JANUARY 2012
IN PRESS AT ACADEMY OF MANAGEMENT ANNALS

---

[1] Corresponding author Jeffrey Loewenstein. Email: jloew@illinois.edu

1

INTRODUCTION

The linguistic turn in organizational research has led to a strong and continuing interest in the role of language and meaning (Alvesson & Karreman, 2000; Green & Li, 2011). A large part of this work has been done by scholars employing discourse analysis to study culture and institutions, as reviewed in the accompanying chapter by Phillips and Oswick (2012). Here we discuss another resurging approach to language and meaning, one that focuses on vocabularies, which we label the vocabulary perspective. The literature we review shows that vocabularies—the system of words and their meanings commonly used by social collectives—are consequential for discussions of rhetoric, coordination, culture, and cognition. The integrative, cross-level framework we offer makes vocabularies instrumental in the social construction of meaning, and as a result makes vocabularies central to categories, organizing practices, and institutions.

An interest in vocabularies is longstanding in organization theory (i.e., Barnard, 1938; March & Simon, 1958; Meyer & Rowan, 1977; Weick, 1995). Empirical research was for a long period, however, less developed. With the recent linguistic turn, organizational research has renewed focus on vocabularies, particularly in the area of institutional logics (e.g., Jones & Livne-Tarandach, 2008; Nigam & Ocasio, 2010; Suddaby & Greenwood, 2005). Organizational research on vocabularies is, however, much broader. Contemporary research includes work on rhetoric (Hirsch & Desoucey, 2006), institutionalization (Colyvas & Powell, 2006), and coordination (Collins & Smith, 2006), among others. The work draws upon a variety of literatures, with differing approaches to explain the origin and consequences of vocabularies, and their effects on communications, categories, organizing practices, and institutions. We bring this work together, making it easier for scholars to learn relevant work drawn from multiple literatures at multiple levels of analysis.

Drawing on this diverse array of work, we provide a distinctive approach to vocabularies and extend current understanding of how and why vocabularies are consequential. Central to our approach is the new concept of vocabulary structure—the structure of conventional word use captured by the combination of word frequencies, word-to-word-relationships, and word-to-example relationships—that together demarcate a system of cultural categories. Vocabulary structure is both a theoretical contribution and a guide for research practice.

Vocabulary structure matters. Recall Jimmy Carter in December 2006 titling his book *Palestine Peace not Apartheid.* Carter's use of the word *apartheid* suggested a host of associated categories that routinely co-occur with the word *apartheid,* such as *racism, colonialism,* and *crimes against humanity.* Carter's word use also suggested an equivalence between Israelis and the central example of the category of instigators of apartheid, white South Africans. Apartheid is part of the vocabulary of the field of international relations and this vocabulary's structure both links the word apartheid to other words and links these words to examples of other nations, including those committing international crimes. Thus, Carter's word use triggered bitter debate about his categorizing Israeli practices in the occupied areas of Palestine as similar to racist and colonialist actions of white South Africans under apartheid and, thereby, undermining Israeli legitimacy. Consequently, Carter was vilified as an anti-Semite and 14 members of the Carter Center community board resigned in protest.

A focus on vocabulary structure builds on and elaborates recent research on vocabularies (Jones, Maoret, Massa & Svejenova, 2011; Nigam & Ocasio, 2010). Scholars studying vocabularies have usually focused on just word frequencies (e.g., Abrahamson & Hambrick, 1997), or just word-to-word relations (e.g., Carley, 1994) or just word-to-example relations (e.g., Rosa et al., 1999). We integrate these, as all are important carriers and generators of meaning. We also move beyond pairwise relationships to instead emphasize networks of relationships (Carley & Kaufer, 1993). The

result is that our approach to vocabularies is more coherent and systematic, providing new reasons

to emphasize and analyze vocabularies as central to categories, practices, and institutions.

This approach to vocabularies is distinctive from more interpretive and qualitative

approaches to language within organizational research, such as discourse analysis (Phillips & Hardy

2002), which emphasizes the delivery of ideas within discourse—a body of texts (see; Phillips,

Lawrence & Hardy 2004; Phillips & Oswick, 2012). Discourse scholars examine rhetorical strategies,

such as whether actors emphasize logic (logos), emotion (pathos) or ethics (ethos) in their appeals

(Erkama & Vaara, 2009; Vaara & Tienari, 2008). Discourse scholars also analyze the use and

persuasive effect of tropes, such as metonymy, synecdoche, metaphors, and analogies (Green, 2004;

Green & Li, 2011). In short, scholars who use discourse analysis focus on the delivery of ideas as a

form of strategic action and only rarely do they examine actors' vocabularies, the relations among

words and the relations of words to examples. Our approach to vocabularies differs in these ways

and three further ways. First, although we share the assumption with discourse and communication

scholars that a vocabulary does not just reflect or transmit meaning but is constitutive of meaning

and tied to material practice (Ashcraft, Kuhn & Cooren, 2011), we focus on vocabularies rather than

discourse or communicative acts because it facilitates crossing levels of analysis to consider both

situational word use as well as a social collective's broader system of words and meanings. Second,

we highlight the role of quantitative analyses to examine vocabulary structure rather than interpretive

studies of meaning and critical studies of power. Third, we also emphasize that vocabularies are

based on categories and develop a cognitive approach to categories as the base of an account of

meaning as opposed to leaving aside the cognition involved in meaning making.

We review foundational and contemporary work on vocabularies. This work has produced

rich insights, but at the cost of not developing a coherent understanding of how vocabularies work

and what their effects are on organizations and organizing. As a preview, the reviewed research finds that vocabularies are cultural and institutional resources that social actors use to spark or thwart change (Suddaby & Greenwood, 2005). Vocabularies are rhetorical tools of groups engaged in jurisdictional competition (Dunn & Jones, 2010). Vocabularies also establish common ground—shared knowledge among social actors—within and across organizations that are critical for coordinated action even down at the level of workgroups (Bechky, 2003; Cramton, 2001).

Even this preview is enough to show, however, that scholars relying on vocabularies to work on institutional logics and taken-for-grantedness at the macro level are not connecting with the literature on vocabularies and common ground used by scholars at the level of situated action. Indeed, there is sufficient fragmentation within the macro and within the micro literatures themselves that, for example, scholars of technology writing on vocabularies and common ground (e.g., Bechky, 2003) have not integrated their findings with scholars of virtual teams writing on vocabularies and common ground (e.g., Cramton, 2001). Further, despite scholars making strong connections between vocabularies and other topics, those connections often go unused, such as the link between vocabularies and categories (e.g., Weick, 1995) that the current macro literature on categories tends to forgo (e.g., Negro, Koçak & Hsu, 2010). Connections across levels are even harder to find, despite being perhaps even more valuable, as suggested, for example, in the recent focus on the microfoundations of institutions (Powell & Colyvas, 2008).

Following the review, we bring together and extend the insights from the disparate literatures to generate a coherent and systematic approach—a perspective—to research on vocabularies. We present an account of cultural categories and propose they are a critical linchpin for understanding how vocabularies shape institutions and organizing. We develop a cross-level model to provide an integrative understanding of how vocabularies emerge and how they are used,

as well as to link vocabularies with communications, practices, meanings, categorization and vocabulary structure. The third section illustrates the value of our approach to vocabularies by showing how vocabulary structure deepens current understandings of institutional logics. We conclude with implications for research and future directions.

LITERATURES ON VOCABULARIES

Work on vocabularies by Kenneth Burke and C. Wright Mills has influenced, directly and indirectly, almost all the literature on vocabularies in management and organizations, so we begin by reviewing their contributions. Then we review more current research on vocabularies, organized into four areas based on each paper's primary emphasis: rhetoric, culture and institutions, cognition, and coordination through communication. There are both common and complementary themes across these literatures, providing reason and value for later integrating them.

The many scholars writing about vocabularies do not themselves share a common vocabulary, so to avoid confusion and promote integration across papers we present a small set of terms and our use of them. *Vocabularies* are systems of words, and the meaning of these words, used by *collectives* at different levels of analysis—groups, organizations, communities of practice, institutional fields—in communication, thought, and action. *Words* are conventional linguistic expressions—the written, oral, or signed symbols of language (Murphy, 2003)—and can be single terms (*conglomerate* or *manager*) or compound terms or idioms (*strategic alliance* or *Chief Executive Officer*). Finally, because meaning is grounded in experience, we discuss *examples,* which are the specific organizing practices (objects, relationships, events, activities, ideas and other items, cf. Biernacki, 2000) that are collectively experienced and conventionally referred to by members of social collectives when applying words.

Foundations of Vocabularies: Kenneth Burke and C. Wright Mills

Burke and Mills are foundational scholars of vocabularies. They remain important because they each provide an integrated and developed theory of vocabularies. Both Burke and Mills focus on how the words used by a social collective mark out meaning, appeal to and persuade an audience, situate one's actions within a social milieu and create identification with other actors and groups. Within the social sciences, Kenneth Burke's ideas on rhetoric and vocabularies have directly influenced scholars across diverse fields such as sociology (i.e., Goffman, 1959, 1974; Gusfield, 1976; Mills, 1939, 1940; Scott & Lyman 1968), anthropology (Geertz, 1980, 1988), economics (McCloskey, 1985) and management (Green, 2004; Green & Li, 2011; Jones & Livne-Tarandach, 2008; Sillince, 2005). Yet despite Burke's emphasis on vocabularies, Burke is cited more often by organization and management scholars for persuasion through literary techniques and rhetorical devices (Golden-Biddle & Locke, 1993; Green, 2004; Sillince 2005, Van Maanen, 1995) than for his insights on vocabularies. Partly this may be because his writing on vocabularies is particularly dense and his arguments cover a wide range of topics beyond vocabularies.

Burke's ideas on vocabularies were first and most fully formulated within two books—*Permanence and Change* (1935), and *Attitudes Toward History* (1937a, 1937b). In *Attitudes Toward History,* Burke (1937a pp. 2-4) succinctly explains the central role of vocabularies. They persuade and motivate action by creating frames, or cues for relations among actors:

> Action requires programs—programs require vocabulary. To act wisely, in concert, we must use many words. If we use the wrong words, words that divide up the field inadequately, we obey false cues. We must name the friendly or unfriendly functions and relations in such a way that we are able to do something about them. In naming them, we form our characters, since the names embody attitudes; and implicit in the attitudes there are the cues of behavior….Call a man a villain, and you have the choice of either attacking or cringing. Call him mistaken, and you invite yourself to attempt setting him right…The

choice must be weighed with reference to the results we would obtain, and the resistances to those results.

Burke called a vocabulary of motives "short hand terms for situations" (1935 p. 44). Vocabularies are derived from and embedded in culture, "being not words alone, but the social textures, the local psychoses, the institutional structures, the purposes and practices which lie behind these words" (1935 p. 232). As such, vocabularies are labels for motives grouped according to typical or recurrent situations. Burke notes that, although cultural and socially constructed, a vocabulary can be altered and innovated. "We invent new terms, or apply our old vocabulary in new ways, attempting to socialize our position by so manipulating the linguistic equipment of our group…we invent new accounts of motive" (Burke 1935 pp. 52-53), "reorganizing linguistic categories" in the process (1937b p. 49).

One of Burke's most important but least used contributions was his approach to study and reveal vocabularies. Burke (1937a, 1937b, 1989) advocated a systematic approach to vocabularies through (1) focusing on key words that direct attention and tracing their situations of use; (2) examining how words cluster together to form an implicit frame; and (3) examining how speakers attach words to specific actions, actors, instruments, purposes and situations (the dramatic pentad) and so reveal the implicit positions and motives of social actors. Burke views words as cultural materials that actors deploy as rhetorical resources to shape action and achieve desired ends (Jones & Livne-Tarandach, 2008: Jones et al., 2011; Suddaby & Greenwood 2005).

Burke's writings on vocabularies were highly influential for C. Wright Mills. Mills (1939, 1940) extracted and amplified Burke's key theoretical insights on vocabularies, although not his methodological insights. While Mills's (1940) classic paper on *vocabularies of motive* (a word he borrowed from Burke) is perhaps the most influential citation to organizational theory accounts of

vocabularies (e.g., Alvesson, 2000; Ferraro, Pfeffer & Sutton, 2005; Meyer & Rowan, 1977), Mills's (1939) less recognized work on "Language, Logic, and Culture" provides a more distinct and developed cultural approach to guide our understanding of how vocabularies shape organizations and institutional fields (e.g., Loewenstein & Ocasio, 2003; Ocasio & Joseph, 2005). Mills argues that vocabularies provide an explicit link between culture, categories, and collective meaning:

> …Language, socially built and maintained, embodies explicit exhortations and social evaluations. By acquiring the categories of a language, we acquire the structured "ways" of a group, and along with the language, the value-implicates of those "ways." …. A vocabulary is not merely a string of words; immanent within it are societal textures—institutional and political coordinates. Back of a vocabulary lie sets of collective action. (Mills, 1939: pp. 677).

For Mills, vocabularies are systems of categories and practices, and the connection between words and practices shape vocabulary meanings. Eschewing the notion of a collective mind, Mills argues instead that the culture of a collective, generated through institutions and political structures, provides actors with the categories of language that "socially pivot" thought. By learning the vocabularies of social collectives, individuals learn the values, beliefs, and practices of the collective, shaping how they think and communicate. Thus Mills, in integrating vocabularies and the sociology of knowledge, notes that external sources—social position, authority structures and media—drive knowledge in the form of vocabularies, which in turn drives action (see also Swidler & Arditi 1994).

Both Burke and Mills are often viewed as taking primarily a rhetorical approach to vocabularies (e.g., Green & Li, 2011; Suddaby & Greenwood, 2005). Still, they did emphasize other issues. Mills (1939) focused on cognitive aspects of vocabularies. Burke and Mills were also clearly concerned with cultural aspects of vocabularies, emphasizing the historical and social variations by which vocabularies are deemed appropriate. These early scholars of vocabularies generated far ranging accounts of vocabularies that imply vocabularies are central to communication, thought, and

9

practices. Their accounts remain useful for developing a more integrative vocabulary perspective on language and meaning.

Vocabularies and Rhetoric

Rhetorical perspectives on vocabularies are motivated by the observation that part of using language to persuade is selecting words to use in communications (Foss, Foss & Trap 1985). As Burke (1935, pp.32-33) noted, word choice persuades in part through invoking "the vocabulary of motives current among one's group… One is simply interpreting with the only vocabulary he knows." Thus, selecting a vocabulary, and selecting particular words within that vocabulary, persuades through generating meaning and identification.

Rhetorical scholars often attempt to identify particularly powerful words in communications. For instance, Richards and Ogden (1923) identify key words by eliminating redundant words. Kaufer and Carley (1993 p. 201) use a network approach and examine the degree of connectedness and density among networks of words to explain why some words are particularly influential. An intermediate approach is to identify symbols, accounts, frames, or ideas (Babb, 1996; Benford, 1993), which serve as a means for identifying central words.

The earliest and most prolific approaches to vocabularies and rhetoric analyzed a few key words. These scholars highlighted how words focus our attention to some aspects of social phenomena rather than others, implicitly persuading us by directing the meaning of acts and actors. Gusfield (1976 p. 18) shows how the author of a prominent study on drinking and driving research shifts the image to the less positive *drunken driver* (i.e., a problem-drinker). By doing so, the author directs the readers' attention away from the context of drinking to the drinker, and so directs attention away from sociological and towards psychological solutions to the problem. By focusing

on shifts in words, Gusfield reveals the researcher's implicit persuasive techniques, which shapes the policy interventions proposed.

Hirsch (1986) offers a particularly compelling example of identifying key words in his analysis of the "linguistic framing" of hostile takeovers. Hirsch traces how "language and argot" provide a means for enabling a "deviant innovation" to become normalized and legitimated, and to mitigate status loss for acquired employees. Hirsch focuses on and analyzes words that formed image clusters associated with distinct genres. For instance, the genre of warfare was associated with words such as *cyanide pill*, *siege*, and *wounded list* whereas courtship was associated with words like *confetti*, *matchmakers*, *pursuit* and *dancing*. Over time, changes in linguistic framing corresponded to the increased status of bidding parties and increased prevalence of hostile takeovers. The language became more balanced between target and perpetrator, the number and complexity of genres increased and hostile takeovers became seen as normal rather than deviant events. Linguistic frames served as resources for describing and ordering the innovation. They also facilitated legitimacy and reduced stigma. As frames became increasingly positive, they facilitated disseminating and routinizing the new organizing practices.

Benford and Snow (2000) review work by social movement scholars showing that vocabularies, vocabularies of motive, and rhetorics are central constructs. For example, Benford (1993) identifies four distinct vocabularies of motive—severity (danger), urgency, efficacy of actor's role, and propriety (awareness needed) —that provided nuclear disarmament movement actors with rationales to take action on behalf of the movement. Babb (1996) identifies and traces key words such as *capitalist*, *banker*, *worker*, *employers*, and *enemy* during a period of financial instability and the rise of "greenbackism—a social movement of debtors against creditor" (p. 1037). Babb finds that in the early period of the crisis, workers and employers allied against banks with the shared word *hard work*

whereas later in the crisis, *hard work* no longer unified them, as employers gained financially but workers did not. Both studies are rich in qualitative data that identify and trace signifying words.

McLean (1998) identifies powerful words in vocabularies of Renaissance patronage letters, and provides a method for studying vocabularies and frames. Supplicants use vocabularies of motive to create and invoke frames of meaning so as to persuade patrons of their sincerity and identity and thereby attain sponsorship and resources. McLean identifies strategies such as flattery, information, and recommendation through identifying particular words and formulaic combinations of words used to frame relationships, competence, introductions, and more. For example, the words *honor* and *magnificence* occur more than twice as often in letters of flattery and of personal loyalty than in letters requesting an office or release from prison. Through quantitative and qualitative analysis of Florentine letters, including multidimensional scaling analyses to look for how key words cluster, Mclean reveals specific words and clusters of words associated with supplicants' persuasion strategies and how these persuasion strategies are attempts to build careers and move toward aspired social positions.

Fiss and Hirsch (2005) also examined word-to-word relations in the framing of globalization. They showed that certain words reliably clustered together with the word *globalization*. They found one cluster indicating negative views on globalization due to threats of economic crises and poor outcomes for workers, one cluster indicating neutral views on globalization due to it being simply the next development in international trade, and one cluster indicating positive views on globalization due to its potential for generating new opportunities. Their argument was that each frame was indicative of a different vocabulary in which globalization was discussed, and so what globalization meant was a function of which vocabulary was in use, and specifically which clusters of closely associated words were invoked.

In addition to identifying clusters of words, studies on rhetorics and vocabularies also link words to specific practices. For example, Suddaby and Greenwood (2005) examined arguments for and against the legitimacy of a proposed new practice: the multi-disciplinary firm. Both opponents and advocates developed vocabularies associated with normative and moral legitimacy. Opponents appealed to normative legitimacy of a "higher calling," signaled by key words such as *core values*, *ethics*, and *organizational structure* to argue for the public's interest in demarcating a boundary between profession and market. In contrast, advocates for multi-disciplinary practices emphasized pragmatic legitimacy of a market logic and professionals as experts who provide products to customers; they used a vocabulary of *one stop shopping*, *clients*, *consumer benefits*, *management,* and *products*. These vocabularies were central weapons in the battle over the boundaries of professions and were wielded at various audiences—regulators, fellow professionals, and clients.

Hirsch and DeSoucey (2006) examine the history of the word *organizational restructurings*, identifying how new "linguistic terms such as downsizing, rightsizing and warehousing" became accepted as appropriate reductions in job security and increased modes of virtual organizing. These rhetorical tools are linked historically to structural changes in the economy as well as to changes in employment practice, such as the shrinking of firm size with restructuring entering the "lexicon of strategic reorientation" in the 1970s (p. 177). Hirsch and DeSoucey advance understanding of vocabularies and how they persuade by linking changes in language specifically to changes in practice—both structural changes in the economy and in employment relations.

Jones and Livne-Tarandach (2008) analyze architects' vocabularies using multidimensional scaling techniques to identify variations of identity and competency within the logic of the profession. Architects' vocabulary and the meaning of architecture co-varied systematically with their primary role and identity: architects who were State bureaucrats overseeing building projects

13

used words such as *project*, *firm*, and *qualification*, whereas architects who were professional exemplars

designing and building projects used key words such as *structure*, *build*, *form*, *people,* and *great*.

Architects also used words with multiple meanings, reflecting distinct logics, such as *space*, which for

the State logic referred to square footage and for the professional logic referred to psychological

experience. In a follow up study, Jones, Livne-Tarandach and Balachandra (2010) examined how

architects' vocabularies influenced winning project competitions. They found that vocabularies

based on the professional logic (including key words such as *firms* and *practice* modified by key words

dedication, quality, and *lasting*) enhanced the likelihood of winning projects. In contrast, those

emphasizing the business logic (e.g., *client*, *user*, and *works* modified by key words *needs* and *building*)

undermined the likelihood of winning and those highlighting the state logic (e.g., *qualifications*,

submittals) had no influence on winning. Thus, architects' vocabularies can persuade clients of their

competency and gain opportunities, and effective architects deploy vocabularies strategically.

Taken together, these studies show that vocabularies are a central tool of persuasion and a

means for talking about frames. Scholars studying vocabularies and rhetoric have moved from a

focus primarily on tracing a few key words to identifying much more of the vocabularies under

study. They have identified word-to-word relationships and studied how and why the words

function together. They have also identified word-to-example relationships and traced shifts in

word-to-example relationships over time, all in an effort to see how vocabularies influence audiences

and shape their action. Yet most of these studies do not heed Burke's methodological insights that

to capture a vocabulary of motive, scholars should attend not only to words but also to how words

cluster together and how they are applied to specific examples. By using all three, such as by using

vocabulary structure as we later propose, scholars can reveal the actors' words comprising a

vocabulary of motive, the boundary of a frame, and what creates the resonance that instigates action.

Vocabularies and Culture

Cultural perspectives on vocabularies emerged from the sociology of knowledge (Mills, 1939; Berger & Luckmann, 1966) and institutional theory (Meyer & Rowan, 1977). These perspectives emphasize the social and historical origins of vocabularies as collective systems that bring meaning to social and institutional practices. In some versions, vocabularies are viewed as constitutive of collective practices and institutions (Meyer & Rowan, 1977; Thornton, Ocasio, & Lounsbury, 2012). In other versions, vocabularies are toolkits for framing, action, and normative control (Berger & Luckmann, 1966; Kunda, 1992).

Berger and Luckmann (1966) link vocabularies to legitimation and social construction. For Berger and Luckmann, language is a tool that enables typification. They further propose that vocabularies allow for the first level of legitimation. By having a word for something, collectives must grant its claim to exist. But Berger and Luckmann view vocabularies as more surface than their other three levels of legitimation: (2) myth, stories, and narratives; (3) explicit theories and (4) symbolic universes. They also do not explore the links between levels of legitimation, and how the meaning of words in vocabularies may both shape and be shaped by narratives, theories, and symbolic universes.

Vocabularies play a more critical role in Meyer and Rowan's (1977) seminal work in institutional theory. Building on Mills (1940), they propose that vocabularies of structure provide organizations with rationalized accounts of appropriate goals, procedures, policies, and formal structures. Vocabularies of structure generate isomorphic pressures for conforming to the formal means and ends proscribed by prevailing vocabularies in the institutional environment.

During the 1990s, cultural research on vocabularies focused on the organizational level of analysis. Kunda's (1992 [2006]) ethnographic analysis of an "engineering culture" showed that

managerial attempts to develop a strong culture of normative control relied not on specific rules but on providing organizational members with a vocabulary of motives. This vocabulary included words such as *high, strong identification, the whole person, zeal, enthusiasm, self control, and self discipline* that shaped the normative culture. As explained in the following quote, these words provided normative understandings for ideal organizational practices: "a specification of the emotional dimensions of membership that supposedly explains behavior: … a 'high' from achievement, 'rigidly adhered to' fetishes… The member role is based on 'strong identification'… It involves 'the whole person' … expressed in 'zeal' or at least 'enthusiasm'… The ideal state is one of 'self control' and 'self discipline.' When that is achieved, the organizational interest and self-interest are one" (Kunda 1992 [2006]: 91-92). For Kunda, managerial vocabularies are ideologies that contribute to conventional wisdom and practical realities of everyday life. The meanings of the words are subject to interpretation and, in his analysis, brought to life through symbolic action.

Fine's (1995, 1996) ethnographic analyses examined the vocabularies and shared meaning of cooks in restaurants in the Twin Cities in Minnesota. Fine found that cooks develop a vocabulary of practices that permits them to complete their work effectively. This vocabulary relies on external markers through talk, gesture, and action, which is grounded in the practice of cooking. The vocabulary allows cooks to see themselves as belonging to a community (i.e., to develop an identity). This vocabulary relies on a range of metaphors, spread within a kitchen community, and because of occupational mobility, extends beyond individual establishments.

In Vaughan's (1996) analysis of the "normalization of deviance" that led to the Challenger disaster, she examines the role of technical vocabularies that routinize departures from established technical standards. "Words like 'anomaly,' 'hazard,' 'discrepancy,' 'acceptable risk,' and 'rationale for retention' were part of the common vocabulary, routine in meaning because they reflected the

routine aspects of daily engineering work… Even the word 'catastrophe,' which after the tragedy seemed to be a signal of danger… did not convey urgency because [it was] routinely used" (Vaughan, 1996: 252). Vocabularies were critical underpinnings of the cultural determinants of the Challenger disaster. At NASA, frequently used words in the organization's vocabulary described what might otherwise be considered deviant practices and facilitated organizational members' desensitization to these practices. This made them more likely to undertake such practices, and in the case of the Challenger, make decisions that resulted in organizational disaster.

The consequences of vocabularies for practices have also been examined by Ferraro, Pfeffer, and Sutton (2005), in their essay on economics vocabulary use. Following Mills's (1940) view of vocabularies of motives, they posit that the vocabulary of economic theory provides motives for human behavior that reinforces the postulates of economics theory. The vocabulary evokes associations, motives, and norms. Individuals act in ways consistent with these motives and norms provided by the vocabulary. The vocabulary of economics consequently produces and reinforces the social reality that it seeks to describe. Ultimately, the vocabulary of economics becomes self-fulfilling.

In the last decade, cultural research on vocabularies has increasingly focused on longitudinal analysis of cultural and institutional change. Ocasio and Joseph (2005) examine historical variations in vocabularies of corporate governance in the U.S. Using an analysis of what words co-occurred with *corporate governance*, they identify periodic shifts in the meaning of *corporate governance* and in the corresponding vocabularies. The first period emerged in the 1970s with corporate scandals such as Lockheed with a focus on accountability. In the mid 1980s, a shift in meaning was associated with the rise of institutional investors and shareholder perspectives. After Enron in 2001, *corporate governance* is increasingly linked to SEC regulations and accounting standards. For Ocasio and Joseph

(2005), critical events provide opportunities for new frames to emerge that provide new meanings and frames that are culturally resonant and likely to be selected. Shifts in meaning are both reflective of changing environments and contributors to institutional change.

Colyvas and Powell (2006) examine the role of changing vocabularies in explaining institutional change in the boundaries between public and private science. Using archival analysis of life science discoveries submitted to Stanford University from 1970-2000, they analyze the changing practices and categories used. For example, in the early stages, the categories of invention and inventor were arbitrary and vague. Over time they found the meaning of the words became more settled and widely shared: "...there is no longer any elaboration of the term invention, the details have disappeared. Rather, the word now invokes a set of practices and routines associated with technology transfer, including the generation of a marketing abstract and contracting companies." As the processes of university transfer become institutionalized, the words become reified, abstract, and taken-for-granted. Shared meanings for vocabularies of practice emerge.

Keller and Loewenstein (2011) examined a portion of Chinese and US vocabularies around cooperation by assessing what words co-occurred with cooperation in popular and academic texts (both in the US and in China). They then asked people if specific examples of the situations identified as co-occurring and relevant to cooperation could be called cooperation. They used a cultural consensus model analysis, a quantitative inductive method from cultural anthropology, to assess whether there was social consensus about the word-to-example conventions regarding cooperation. Keller and Loewenstein (2011) found that there were distinct cultural categories in the US and in China, showing that what it means to cooperate is not the same in China and the US. For example, about seven out of ten Chinese stated they believe that competing within one's workgroup is cooperative and failing to compete within one's workgroup is non-cooperative, whereas a

comparable number of Americans stated the opposite. Vocabularies can become so institutionalized that their categories come to define how social actors perceive and act on the world, but this does not mean that those categories will be perfectly shared either within or across social collectives.

Dunn and Jones (2010) also follow a longitudinal approach to vocabularies in their study of institutional logics in the field of medical education. Using content analysis, they examine how logics of care and science reflect different vocabularies, supported by distinct groups and interests. The former is characterized by co-occurring words such as *clinical care*, *clerkships*, *family*, *community*, and *physicians*; the latter by co-occurring words such as *sciences*, *basic*, *research*, *hospital*, and *laboratory*. Care and science logics are pluralistic logics that co-exist over time. Their relative importance shifts, however, with care logics rising in the 1990s and declining thereafter, shaped by changes in the demographic composition of medical schools, the rise of public health programs as a rival logic, and heightened public discourse on managed care.

Jones, Maoret, Massa and Svejenova (2011) used network analysis of actors' vocabulary to identify their institutional logics and how these logics shaped the creation of a new category called modern architecture. They examine which key words were most central, shifts in the centrality of key words, and how these words were related to specific material practices from 1870 through 1975. For instance, modern organic architects used a professional logic with nature as an analogy, deployed key words such as *nature*, *modern*, and *organic* to define modern architecture, and constructed buildings with both natural, traditional materials (i.e., brick, stone) and new industrial materials (i.e., steel, glass, reinforced concrete). In contrast, modern functional architects used a commercial logic with an analogy of industry, deployed key words such as *modern*, *technology,* and *economy* to define modern architecture, and constructed buildings with new industrial materials only. Modern organic and modern functional architects battled over the definition and boundaries of modern architecture,

eventually persuading peers, critics, and the next generation of architects to accept both definitions and practices.

The link between vocabularies and institutional logics has been further developed theoretically by Thornton, Ocasio, and Lounsbury (2012). They propose that vocabularies of practice are key building blocks in linking symbolic expressions and practices in the emergence of field-level logics. As theories, frames, and narratives are developed to make and give sense to practice in institutional fields, new words and categories emerge, and existing words and categories change their meaning. The emergence of new categories and changes in word meanings can lead to new vocabularies of practice that reflect new institutional logics in the field. This perspective links words and categories to practices (through word-to-example relationships) in the formation of vocabularies.

Overall, this work on vocabularies shows how culture shapes organizing practices at multiple levels of analysis: occupational groups (Fine, 1995), organizations (Kunda 1992[2006]), institutional fields (Dunn & Jones, 2010), and society (Keller & Loewenstein, 2011; Ocasio & Joseph, 2005). A constant across these studies is that vocabularies are shaped by their social and historical contexts. Some approaches to vocabularies focus on the words used by a social group (Berger & Luckmann, 1966; Kunda, 1992 [2006]). Others examine the context and meaning of word use (Ocasio & Joseph, 2005; Colyvas & Powell, 2006) and explicitly consider that the changing meaning of words is both a reflection and a determinant of cultural and institutional change.

Historical analysis of vocabularies further illuminates the relationships between vocabularies, culture, and action. Vocabularies are products of social groups collectively communicating their understanding of organizing practices. Vocabulary meanings are both grounded in existing practices and constitutive of culture and action. Over time, categories in vocabularies become reified, leading

to institutionalization. But institutionalization is not always present. Both cultural heterogeneity (as in the case of vocabularies of care and science, Dunn & Jones, 2010) and vocabulary change allow for cultural and institutional change (Ocasio & Joseph, 2005). Thus, in our account of vocabularies that is provided in the next section, we show how vocabularies cross levels of analysis and this process model accounts for both stability through reification and institutionalization as well as change through heterogeneity.

Vocabularies and Cognition

Many scholars link vocabularies to cognition, and connect words to representations of knowledge, such as categories, schemas, or mental models (e.g., Weick, 1995). This use of categories as cognitive representations of knowledge (Porac & Thomas, 1990, 1994) is distinct from the more common use in management and organization of categories as sets of people, products, or organizations, and is closer to the use of the term *concept,* although it need not be limited to being a mental representation of knowledge. The critical theoretical issue is to clarify the relationship between vocabularies and representations of knowledge, and here the literature shows a tendency to swing between two poles that Mills (1939: 676) captured as well as anyone: "…language as an 'expression of antecedent ideas'" versus "a functional conception of language as a mediator of human behaviors." When vocabularies are treated theoretically as expressions that label previously generated cognitive categories (e.g., Hannan, Polos & Carroll, 2007; March & Simon, 1958), then they appear useful mainly as a methodological convenience. When vocabularies are treated theoretically as full mediators of human behavior (e.g., Whorf, 1956), then they appear to determine all cognition. Substantial empirical work on language and thought now strongly suggests that language has a causal but not a determinative role in shaping cognition (see, e.g., the papers collected

in Gentner & Goldin-Meadow, 2003). Thus, we look to the literature for specific claims about vocabularies and the generation of meanings.

Weick's (1995) book contains one of the most expansive treatments on vocabularies and cognition in the organizational literature. Weick argues that sensemaking is shaped by vocabularies at multiple levels: ideologies or vocabularies of societies; third-order controls or vocabularies of organizations; paradigms or vocabularies of work; theories of action or vocabularies of coping; traditions or vocabularies of predecessors; and stories or vocabularies of sequence and experience. A rich study of sensemaking, therefore, can investigate the confluence of vocabularies available to actors, such as Geppert's (2003) examination of vocabularies at each of these levels for members of three multinational manufacturing companies. It is clear from Weick's (1995) discussion that vocabularies are deeply involved in generating meaning, but there is less specificity on the causal route by which they do so. Weick (1995: 111) provides the broad outlines of an account: "the content of sensemaking is to be found in the frames and categories that summarize past experience, in the cues and labels that snare specifics of present experience, and in the ways these two settings of experience are connected."

In a string of papers, Carley provides a more developed account of vocabularies as systems of meanings (Carley, 1986, 1993, 1994, 1997; Carley & Kaufer, 1993; Carley & Palmquist, 1992). Carley's (1988) argument is that when people talk, they are expressing parts of their mental models. Gathering talk from multiple individuals, over time, shows that through interacting, people's talk shows increases in elaboration and convergence (Carley, 1986). Thus, vocabularies are a key bridge between individual cognition and collective cognition, and the primary means for generating collective-level knowledge.

For Carley, meaning is wholly a matter of word co-occurrences: "Concepts are nothing more than symbols which have meanings dependent on their use, i.e., their relationship to other symbols" (Carley & Palmquist, 1992: 607). This is a map or network account in which words are nodes and word co-occurrences are edges (or ties). Network maps are then a way of representing the pattern of relationships among words, and a word's location in the network is its meaning. There are coding choices that influence these maps (Carley, 1997), such as how texts are filtered (what words are deleted from texts and what words stay), what words are considered synonymous (e.g., whether "home," "residence," and "apartment" are considered the same node or different nodes), and subtler issue of stemming (e.g., whether "organization," and "organizational" are considered the same node or different nodes). There are also complexities to how to combine maps. Still, across many data sets it is clear that there are strong consistencies in the word co-occurrence patterns across speakers. This means that vocabularies are not just lists of independent words, but structured systems of words that generate systems of meanings.

There are several challenges to an account of meaning based purely on word-to-word relations, such as the symbol grounding problem and the meaning holism problem (Fodor, 1975; Harnad, 1990; Searle, 1980), which we suggest make it necessary to add to our understanding of vocabularies and cognition. Meanings take into consideration information about examples that are not readily found in relations among words—most obviously, visual and physical information. For example, the meanings of the words *desktop computer* and *laptop computer* depend on examples of these two products. Just as examples are ambiguous and need interpreting, so too does language. For these reasons, organizational scholars have begun tracking both examples and words to generate an account of vocabularies as generators of meaning.

One scholar taking this approach is Mohr (Mohr & Duquenne, 1997; Mohr & Guerra-Pearson, 2010). Mohr calls the approach the practice perspective, arguing that the material domain (i.e., examples, events, and practices) and the cultural domain (i.e., vocabularies and other symbol systems) are mutually constitutive. For example, Mohr and Duquenne (1997) examine which categories of poor people in New York City in the late 19th and early 20th Century co-occurred with which kinds of charitable practices. Their claim is that an important aspect of what the cultural categories meant in that vocabulary can be deduced from the practices with which they co-occur, and vice versa for deriving the meaning of practices from the social categories to which they apply. Mohr and Guerra-Pearson (2010) examined the patterning of organizational forms and organizational niches with the same intent of showing how the structure of each fit the other. The key implication for our discussion is that words in vocabularies generate meanings in part through their systematic relationships with particular examples.

Kennedy (2008) also examines words and examples in studying the early years of the computer workstation market category in the 1980s. Kennedy traced whether firms were mentioned alone or alongside other firms in their own press releases and in news stories, on the premise that "news stories that consistently co-mention entrants help audiences 'connect the dots' by developing a coherent picture of how members are related and, thus, what the category means" (page 273). Being mentioned frequently and in combination with other firms indicates a firm is a central example of the category. Consistent with this account, Kennedy finds that some, but not too many, co-mentions predict firm media coverage and firm survival rates.

Nigam and Ocasio (2010) also stress the role of both words and examples to yield an account of how vocabularies generate meanings. They examined the change in logics within the health care field during the failed 1993 Clinton health care reform initiative. They documented

changes in key word frequencies, such as *managed care*. Critically, they also documented changes in which examples, such as the Atlanta health care market, were labeled by the key words and discussed as central category members. In addition, they examined word-to-word relationships, linking *managed care* to *reform*, *environment*, and *market driven*. Nigam and Ocasio (2010) identify instances of both a top-down process of theorization to change logics and a bottoms-up process of generalizing away the key features of newly central examples to change logics. Word-to-example relationships are an important basis for generating meanings.

To be clear, the move taken in these papers linking vocabularies to examples is not to embrace all of experience and call it part of a vocabulary. Rather, the argument, developed more fully later through our concept of vocabulary structure, is that aspects of experience are marked by words, and that therefore, part of what words mean is a function of the properties of the examples of categories to which the words have been applied. Just as word-to-word relationships can convey meaning for categories, so too can word-to-example relationships convey meaning for categories. Implicit, but not always explicit, in cognitive approaches is that vocabularies enhance our ability to identify categories, the meaning attached to categories, and the boundaries comprising categories.

The result of word-to-word relationships and word-to-example relationships is that vocabularies generate meaningful categories. Thus when people use vocabularies to describe examples, they are assigning category memberships to examples and, thereby, framing them. Word-to-word and word-to-example relationships are bidirectional, so not only are examples informative about the meaning of words, but words are also informative about the meaning of examples. For example, Zhong, Loewenstein and Murnighan (2007) found that labeling a prisoner's dilemma payoff matrix with the conventional researcher vocabulary for the prisoner's dilemma led to higher levels of cooperation than did an unlabeled matrix. Labels like *cooperate* and *defect* impose meaning on

numeric alternatives, suggesting appropriate and inappropriate choices. Likewise, Glynn (1994) found that labeling a task *work* led participants to focus on the quantity of their output and just meeting task requirements, whereas labeling a task *play* led participants to focus on the quality of their output and elicited more elaborate output. Numerous additional papers show that words impose meaningful categories and thereby guide action (Ashforth & Humphrey, 1997). What we emphasize is that such papers are more often seen as effects of language and individual labels than they are seen as vocabularies and effects of systems of labels. There is added meaning and influence to words from being used together in systems (Loewenstein & Gentner, 2005), and the earlier section on culture and vocabularies emphasized that vocabularies are properties of collectives rather than inherent in natural languages.

As an illustration of the power vocabularies have by providing meaningful categories, we consider an example from consumer behavior on how consumers develop stable systems of preferences with which to value products within a product category. West, Brown and Hoch (1996) studied consumer preferences for quilts, a type of product that was largely unfamiliar to many people and so of interest for examining the formation of preferences. They engaged consumers by showing them sample quilts and using the samples either to teach them some of the vocabulary for quilt attributes (i.e., words for the arrangement of blocks and block patterns) or to teach them some quilting history. People who learned part of the vocabulary for quilt attributes developed preferences for quilts more rapidly and with greater stability than those who learned quilt history. The implication is that vocabularies provide systems of meaningful categories with which to understand examples, and these systems of meanings, in turn, guide the formation and stabilization of valuations.

Vocabularies and Coordination

Research on coordination and vocabularies is grounded in work from psycholinguistics (Clark, 1996a; Krauss & Fussell, 1996), although organizational scholars also call on an array of additional resources, including information theory (Shannon, 1948) and sociolinguistics (e.g., Gumperz, 1964; Halliday, 1978). At root, the concern is that using vocabularies to coordinate behavior requires relying on conventions (Millikan 2005), yet not every speaker of a language knows every convention—every word, every name, and how to use it. Coordinating effectively requires either generating new conventions (Clark & Wilks-Gibbs, 1986) or, more typically, relying on the conventions of a community by using its vocabulary (Clark, 1998; Fussell & Kraus, 1992). Thus, vocabularies are conventions that people use as a common ground of knowledge and experiences to allow for meaningful communication and effective coordination. Coordination relies on common understandings (Feldman & Pentland, 2003) and vocabularies play an important role in generating and distributing those common understandings and in enabling their efficient use in situated action (see Okhuysen & Bechky, 2009 for a review).

Herbert Clark (1996a, 1996b, 1998) presents the most complete account of vocabularies (or "communal lexicons") in the psycholinguistics literature. He articulates the likely content of vocabularies—the kinds of proper names and technical words that are likely to be generated by any collective as part of its vocabulary. Vocabularies will likely include proper names for major public and historical figures, locations and spaces, media, brands, and institutions. Vocabularies will also likely include words for examples of organizing practices—i.e., procedures, activities, traditions, technical concepts, goods and services, evaluations, social groupings and roles. Some of these are novel words not used by other collectives (e.g., *soffit* for the architecture field), some are existing words given novel meanings (e.g., *spam*, in the context of email), and some are existing words whose meanings are adapted to the domain of organizing practices (e.g., *raise*, in the context of salaries). To

understand what someone means by a word, such as, for example, *murder*, one would need to know the collective in which it was used, as word use differs systematically across collectives—in this case, across the legal field, military organizations, anti-abortion groups, the vegan community, and so forth. Clark argues that vocabularies also encode some of the collective's history. For example, with the development of laptop computers, what were called personal computers became known as desktop computers, due to the need to be able to coordinate and make the distinction. Vocabularies are often institutionalized in dictionaries, such as dictionaries of organizational jargon (e.g., upon starting a project with Citicorp, one author was given an electronic file of Citicorp jargon and definitions) and dictionaries of professional jargon (e.g., dictionaries of law, medicine, engineering, and so forth). Clark also discusses vocabularies as consisting of both insider knowledge—known to members of the collective—and outsider knowledge—known to those who know about but are not members of the collective. Perhaps the core claim is that, contrary to many approaches to language meaning that try to define word meanings at the level of natural languages (English, Spanish, Mandarin, etc.), one cannot know what a word means without specifying the collective, because conventions about word meanings are specific to collectives.

There is a substantial body of research in psycholinguistics on referential communication and the establishment of common ground among people needing to coordinate to complete tasks (going back at least to Christie, Luce & Macy, 1952). People generate words to describe examples (Clark & Wilks-Gibbs, 1986) and systems of words to describe systems of examples (Markman & Makin, 1998). The words generated by some members of a group while working on a task can spread to others for use on the task, such that with only local communication, the group as a whole comes to adopt a set of standardized words and a standardized conceptualization of the task

(Garrod & Daugherty, 1994). This work provides empirical and theoretical micro foundations for multiple disconnected strands of organizational research.

Work on coordination and common ground provides a strong empirical basis for the various organizational claims made about special languages (Barnard, 1938), technical vocabularies (March & Simon, 1958), codes (Arrow, 1974), and planning vocabularies (Nelson & Winter, 1982) that organizational actors use to coordinate their activity. Although they use different terminology, these streams of organizational research generate the common claim that vocabularies are important for enabling organizational members to communicate effectively and efficiently, promoting interdependent work (see also Cremer, Garicano & Prat, 2007; Nahapiet & Ghoshal, 1998; Nickerson & Zenger, 2004; Tushman, 1978). For example, in a theoretical piece, Kogut and Zander (1996: 511) stress that firms lower coordination, communication and learning costs, and mark out a central role for "discourse based on rich codes and classifications." Monteverde (1995) makes a similar argument, claiming that vocabularies are critical for interdependent work, and so the more that interdependent work matters, the more likely it should be that firms should include within their boundaries those people that need to speak the same vocabulary to get work done. Monteverde (1995) provides a test of the claim, finding support in a study of whether semiconductor firms vertically integrated fabrication based on whether they were making digital logic products, which require a shared vocabulary between design and fabrication.

Looking into the specifics, Bechky (2003) examines shop floor interactions and vocabulary differences across three occupational communities within a semiconductor manufacturing firm: engineers, assemblers, and technicians. Technicians were go-betweens whose role was to translate between the vocabularies of the engineers who designed products and the assemblers who had to build the products. Coordination without a common vocabulary was poor—and even using the

same words was no guarantee of success because the different communities meant different things by them. For example, *slide* meant an electrode slide to engineers but a piece that slides into place to assemblers. To clarify reference and foster common ground, actors talked about specific, concrete instances—such as pointing to product parts or technical drawings. Implicit in Bechky's analysis is that the meaning of words requires common ground.

Also looking into the specifics, Cramton (2001) uses the context of dispersed teams to examine challenges to generating a common ground of experiences and information needed to form and use a shared vocabulary and coordinate work. Dispersed teams may not be able to point to a concrete object to clarify reference, for example, as Bechky (2003) discussed, making shared vocabularies, rather than pointing, particularly salient. Cramton documents a list of challenges that disrupt communication attempts and prevent speakers and audiences from generating shared understandings and common ground, including differences in timing, attention, and information availability. In making communication challenging, dispersal also makes rectifying miscommunication, building collective common ground, and generating vocabularies challenging, leading to poor coordination.

Using a laboratory paradigm from psycholinguistics (the referential communication task; Clark & Wilkes-Gibbs, 1986), Weber and Camerer (2002) explore the role of shared vocabularies on coordination effectiveness in the context of considering the merger and acquisition process. If a common vocabulary promotes coordination and task performance, then a lack of a common vocabulary should be a problem. After having teams generate their own vocabularies to complete a sorting task, teams acquired a member of another team. Performance dropped substantially, and competence ratings for the new member were lower than for existing members. This is because teams generated markedly different vocabularies, which relied on different aspects of the examples

they needed to sort. Weber and Camerer (2003) argue that these low-level confusions and failures at coordinating work due to vocabulary differences are the same kinds of difficulties that make post-merger integrations challenging.

Collins and Smith (2006) also generate evidence for the value of vocabularies for effective coordination and performance. They interviewed knowledge workers at high-tech firms about whether their firms had engendered shared vocabularies (discussed as shared language and codes) within their firms. Having shared vocabularies predicted their firms' performance in the form of new product and service revenue as well as one year sales growth. Vocabularies were measured distinctly from firm climate for trust and climate for cooperation, lending credence to the notion that there is a specific role for vocabularies in providing common ground for effective communication and task coordination. The effect of vocabularies on performance was partially mediated by a measure of knowledge exchange and combination, suggesting that vocabularies are useful for performance in part because they advance the possibility for people to integrate their knowledge as a means to advance task performance.

Across these papers, there is a clear proposal that groups, divisions, and organizations need a shared vocabulary to communicate effectively to coordinate their behavior and accomplish complex organizing practices. A shared vocabulary serves as a common ground on which members can draw to be understood. Failures to establish a shared vocabulary, largely identified as failures to share an understanding of how words apply to examples, harmed coordination, task performance and interpersonal relationships. Our model, developed in the next section, provides a theoretical explanation for how vocabularies come to be shared across situated action to establish common ground, and diffused across situations to become conventions.

INTEGRATING AND ADVANCING THE VOCABULARY PERSPECTIVE

Our literature review shows that vocabularies have been and continue to be a central concern for scholars from diverse disciplinary fields working at multiple levels of analysis. The research demonstrates that vocabularies are a central tool of organizing—they are used to persuade others, to coordinate action, to reflect as well as to determine institutional and cultural change, and to anchor and create meaning. A central theme across these diverse literatures is the importance not only of words, but also the importance of how words relate to other words as well as to examples, and thereby create meaning for actions within a collective. Yet no coherent theoretical framework exists for integrating the relations among constructs that influence vocabularies and those influenced by vocabularies. We seek to provide such an integrative approach as the beginnings of a theory of vocabularies. We do so by explaining how vocabularies provide members of social collectives with socially-agreed upon (i.e., cultural) categories and then show how key constructs of cultural vocabularies, communication, organizing practices, situated learning, common ground, and vocabulary structure are knit together by processes of communication, shared attention, situated learning, cultural categorization, diffusion, and adaptation, and cultural inference.

Cultural Categories and Vocabulary Structure

From the original theorizing by Burke (1937b) and Mills (1939), to classics in organization theory, such as March and Simon (1958), Meyer and Rowan (1977), and Weick (1995), to more contemporary work, such as Mohr and Guerra-Pearson (2010) and Jones and colleagues (2011), our review indicates that a critical idea has been that vocabularies provide members of social collectives with labeled cultural categories for thought and action. Still, the link between vocabularies and categories remains not well understood. We propose that cultural categories are central to vocabularies because every cultural category is labeled by a word (be it a single term, like *cooperation*, or a compound term, like *corporate governance*) and because the meaning of words is shaped by both

their category members (word-to-example relations) and related categories (word-to-word

relationships). A cultural category is a structure around a word. The system of categories comprising

a vocabulary is a vocabulary structure. Members of social collectives use vocabulary structure to

infer meanings, allowing structural categories to become meaningful categories.

There is consensus across the papers we reviewed that people in groups, organizations, and

institutional fields use vocabularies to convey the meanings of social practices (e.g., objects,

relationships, events, functions, etc.). Most scholars adopted the stronger view that vocabularies not

only convey but also generate meanings constitutive of practice. We integrate and extend the claims

in the work on vocabularies we reviewed to generate an account of vocabularies as structured

systems of cultural categories that generate meaning and enable and constrain social practices. We

also draw on cognitive science research on categories and vocabularies for evidence regarding the

micro-level processes implied by our account.

We emphasize four empirically supported claims to show that vocabularies can lead to the

generation of meanings. First, applying a word to an example of social practices makes sense of it in

terms of other examples that have received that label (Gephart, 1997; Weick, 1995). For example,

naming what was previously referred to as a hospital administrator a CEO generates a new

understanding of the role, responsibility, and authority of the hospital's top manager. Linking

examples through common words or expressions leads people to draw comparisons, which in turn

yields generalizations that actors can then use to understand and act upon further examples

(Gentner, 2010; Nigam & Ocasio, 2010).

Second, cognitive science research demonstrates that the use of new words or a new use for

existing words is an invitation for individuals to learn a collective's categories for objects, properties,

and relationships, categories that would probably not otherwise be readily perceived (Brown, 1958;

see also Waxman & Markow, 1995). New product categories often arise from new combinations of words that had not been associated before such as *Modern Indian art* (Khaire & Wadwhani, 2010) or *mini-van* (Rosa Porac, Runser-Spanjol & Saxon, 1999), indicating new categories. Computer simulations show that complex systems of categories can emerge entirely bottoms up from initial, arbitrary word use (e.g., Ke & Holland, 2006). Adding in top-down and systematic word use can allow some actors to influence the process of forming categories (Putnam, 1975). Venture capitalists, for example, took the lead in determining what categories of practices constituted appropriate *business models*. This division of linguistic labor, where experts determine categorization and word meaning, does not invalidate the claim that word use can lead to, rather than follow, the generation of categories. For instance, the word *modern architecture* precipitated contention among prominent architects, pointing to multiple examples and generating co-occurrences of words to define the word and as a result created a new category (Jones et al 2011).

Third, aspects of the words used and of the labeled examples provide a basis for inferring what the category means (e.g., Colunga & Smith, 2005; Malt et al, 2003). That words have an effect means that they are more than just labels applied to already formed categories. Starbuck (2007) finds that the category *organization* did not exist prior to the 1920s. Prior to that word, people viewed companies, voluntary organizations, government agencies, and churches as different things and did not have a word to label their union. Rosa and colleagues (1999) demonstrate that the words *car* and *truck* and central examples of those two categories enabled consumers and producers to understand the meaning of *mini-van* by drawing on and comparing established and legitimate features of *car* and *truck*. Words and labeled examples also regulate meaning by penalizing examples that do not conform to well-established labeled categories (Lounsbury & Rao, 2004; cf., Zuckerman, 1999).

Fourth, word (and category) meanings (e.g., *computer, corporate governance, strategy*) are subject to change based on how the word is applied to examples and used with other words (Clark, 1996b, 1998). Different word-to-word and word-to-example relationships imply different meanings. Thus, the same process for forming categories also maintains and changes categories. We do not need a separate account of category change, nor do we need to posit that categories are static (Hannan et al, 2007). As there is a history of debate about the relationship between language and thought (Gentner & Goldin-Meadow, 2003; Whorf, 1956), we need to be clear about what we are claiming. We are claiming that our account of vocabulary structure—word frequencies, word-to-word relationships, and word-to-example relationships, where words include single or compound words or expressions—is also an account of the structure of systems of cultural categories. We are also claiming that vocabulary structure guides what people infer cultural categories, and thereby words, mean. There are other influences apart from language that guide category meanings, including direct observations of material aspects of cultural practices (e.g., Malt et al, 2003) and the nature of our brains, bodies, and movements (e.g., Barsalou, 1999). Nonetheless, our conclusion is that a collective's history of using words—specifically, its vocabulary structure—is critical to producing a system of meaningful cultural categories.

The basic building blocks of our account of cultural categories are collectives, common ground, words, word-to-example relationships, and word-to-word relationships. Each word within a collective's vocabulary marks out a cultural category—*globalization*, *corporate governance*, *cooperation,* and so forth. Conventional applications of words to examples assign those examples to cultural categories—**First Union** is a *bank*, the **Guggenheim Museum** is an example of *modern architecture*. Conventional word-to-example relationships generate category boundaries (Lounsbury & Rao, 2004). Common ground, once diffused and conventionalized, indicates which examples frequently

instantiate words. This provides the means for indicating which examples are central category

members that best instantiate the category's properties or ideals (Barsalou, 1985; Kennedy, 2008;

Rosa et al. 1999). Conventions about word-to-word relationships, found in word co-occurrence

patterns, provide a means for forming networks of cultural categories (Carley, 1988). Together, a

collective's conventions about word-to-example relationships and word-to-word relationships yield a

system of cultural categories (vocabulary structure), on the basis of which people infer category

meanings.

Both word-to-word and word-to-example relationships are important to category meaning.

Word-to-word relationships are important because a word's location within the larger network of

the vocabulary indicates what is relevant to and contrasting with the cultural category, bounding its

meaning (Carley, 1994; Krippendorf, 2004; Ruef, 1999). For example, to a surprising degree, one can

predict what categories people think are similar to a given category based on co-occurrence patterns

in the collective's discourse (Landauer & Dumais, 1997). Word-to-example relationships are

important because a word's meaning is also shaped by the properties of its central examples (Nigam

& Ocasio, 2010; Rosch & Mervis, 1975). For example, people assume that properties of central

examples (e.g. Citibank, Bank of America, JPMorgan Chase) hold for other examples of the category

(e.g., other national commercial banks) in the absence of specific information to the contrary

(Murphy, 2002; Rehder & Hastie, 2004). This focus on central examples differs from a focus on

category boundaries, which is more the emphasis in sociological perspectives on categories (cf.,

Lamont & Molnar, 2002). As psychologists have shown, people's evaluations of central examples are

also extended to other examples of the category (Loken, Joiner & Peck, 2002). Due to the effects of

word-to-word relationships and word-to-example relationships, individuals come to believe that

examples are more similar to other examples within the same category and more distinct from other

examples not in the category (acquired equivalence and acquired distinctiveness; Goldstone, 1994).

Labeling an example is therefore powerful, imposing meaning and hampering an individual's ability

to re-interpret the example in a new way (Brandimonte & Gerbino, 1993; Moreau, Markman &

Lehmann, 2001). These individual psychological properties are regularized by the cultural emergence

and labeling of categories and examples. More generally, as a collective develops stable conventions

about word-to-word and word-to-example relationships, they are therefore providing stable

indications of what best exemplifies cultural categories and how categories fit together in a system of

meaning.

This approach to vocabularies and categories unsurprisingly makes language central to

categories, in contrast to most organizational discussions of categories. We do so because the strong

view of vocabularies fits both macro and micro data and because it provides a mechanism for

generating and changing categories that is either missing or vague in most work on categories. It also

allows conventions to be about words and examples, rather than necessitating high levels of

consensus on meaning from the start, when cultural category development can clearly occur in the

absence of such agreement (Jones et al, 2011). Also, a vocabularies account of cultural categories

naturally explains why categories have labels, an awkward problem for theories that do not integrate

language from the start.

Our approach to vocabularies and vocabulary structure implies that social and political

influence on cultural categories should play out through regulating category boundaries (what words

can be applied to what examples), category centrality (what examples best instantiate the word), and

category relationships (what words are linked to what other words). Emphasizing all three avenues

(category boundaries, centrality, and relationships) means that accounts that hinge on just one might

usefully expand by considering the other two. For example, Zuckerman's (1999) work on the

penalties of crossing category boundaries might be capturing effects of firms' fit to category centrality (is the firm a central example of the word for the industry) and firms' distinct patterns of category relationships (is the word for the firm associated with other words in a similar way as other firms in the industry), rather than just effects of crossing category boundaries (i.e., whether the word for the industry can apply to the firm as an example). If so, then one implication could be that shifts in which firms are central will shift what other firms are similar and dissimilar, and so receive the attendant benefits and costs, even without changes to firm membership in the industry category.

A Cross-Level Model of Vocabularies and Organizing

Our literature review indicates that vocabularies are cultural meaning systems (Carley, 1994) and the "substance of sensemaking" (Weick, 1995). We further develop this claim by presenting an integrative cross-level model that builds on and extends the varied literatures on vocabularies reviewed earlier. The model, shown in Figure 1, is an account of the strong view that vocabularies shape collective action and organizing practices. The two levels of the model reflect the collective level and the situation level, where action and interaction takes place, because our literature review showed both levels are important but provided little insight into the relationships across levels. Collectives at different levels of analysis have their own vocabularies, as we found in our literature review, including those of groups and teams (Fine, 1995), organizations (Kunda 1992[2006]), and institutional fields (Nigam & Ocasio, 2010; Thornton, Ocasio, & Lounsbury, 2012). Still, the vocabularies are related; for example, the vocabulary of a work group is shaped by, but distinct from, the organization and institutional field of which it is part (Fine, 1995). Hence the model of vocabularies is both cross-level, as it links the situation and the collective level, and multi-level, as it can be applied to different levels of analysis.

On the left-hand side of Figure 1, we show rhetoric and coordination as communication processes that link cultural vocabularies to organizing practices. As we saw in the literature review, the literatures on rhetoric and coordination are mostly distinct approaches to the study of vocabularies, the former focusing on persuasion, the latter on generating common knowledge through language. Both rhetoric and coordination are considered here as distinct, yet overlapping, functions of communications. As individuals communicate using the vocabulary of the collective, they both persuade and coordinate practices. The relative importance of persuasion and coordination may differ in each act of communication, but the possibilities for both are always present. Note that in discussing coordination, we are using the term broadly, following Weick's (1995) point that vocabularies are third-order or premise controls. For example, Rindova, Becerra, and Contardo (2004) discussed the use of language games, and implicitly vocabularies, in coordinating competitive wars, increasing stakeholder involvement, and at times improving firm performance. Consequently coordination through the use of vocabularies affects not only cooperation, but also competition, negotiation, and conflict among different actors (Keller & Loewenstein, 2011).

As our model indicates, the two facets of communication explored in the literatures reviewed above, rhetoric and coordination, rely on the collective's vocabulary for the words to use and their meanings. Vocabularies are part of the collective's culture, providing the basis for cultural toolkits (Swidler, 1986; Weber, 2005) and institutional logics (Friedland & Alford, 1991; Thornton, Ocasio, & Lounsbury, 2012) and guiding the enactment and meaning of specific communications (for rhetoric and coordination). Cultural perspectives on communications are thereby linked to rhetoric and coordination perspectives in this part of the model. The left-hand side of the model, by itself, however, only shows the weak version of the role of vocabularies in shaping organizing

practices. Only by explaining how vocabularies not only provide labels for meanings, but also affect categories, as emphasized by cognitive perspectives, can vocabularies be seen as having autonomous impact on the emergence, development, maintenance, and transformation of practices.

As the figure indicates, organizing practices are the outputs of communications processes (i.e., rhetoric and coordination), which are guided by the collective's vocabulary, and the inputs into the formation of common ground, around which social and cultural processes (i.e., diffusion, adaptation, and categorization) result in cultural categories and vocabulary structure, providing the building blocks of the collective's vocabulary. Organizing practices occur within a particular social and physical environment (Ashcraft, Kuhn & Cooren, 2011), which leads to situated learning (Lave & Wenger, 1991). For situated learning to extend beyond the individual requires the emergence of common ground, the set of knowledge, suppositions, and beliefs shared by the participants in the situation (Bechky, 2003; Clark, 1996a). Common ground, at the level of the situation, results in both a shared language and shared meanings, based on common understandings of organizational practices. From a vocabulary perspective, what is significant is that common ground includes shared knowledge of words, examples, and how words refer to particular examples or to particular relationships between examples. This shared knowledge is generated both through situated interactions and diffused and adapted through shared membership in, and a shared vocabulary of, a social collective (i.e., workplace, church/temple, professional group, industry, society). The situated learning of common ground guides the shared attention of participants towards select properties of organizing practices (Ocasio, 1997; Tomasello, 2001). Common ground within situations is where, initially, words are linked to other words and also linked to examples. Conventionalizing that common ground into vocabulary structure allows vocabulary structure to indicate words' usual meaning and to convey information about the ordinary links among organizing practices, their

relevance for the collective, and their subsequent effect on organizing. Accordingly, common ground generates the local, situated basis for developing widely shared guides to what it is about objects (including boundary objects) that matters, how the objects relate to other roles, rituals, and routines available in the situation, and how the roles, rituals, and routines relate to each other. For boundary objects and organizing practices more generally to become common ground they must be attended to. In the absence of physical co-presence, common ground regarding words and their meanings guide what situationally relevant aspects to pay attention to, and for whom, in organizing practices.

Common ground has traditionally been discussed in the context of coordination (Clark, 1996a; Okhuysen & Bechky, 2009). For communications to achieve effective coordination requires common ground about the meaning of words and what the words refer to. We further suggest that not only coordination but effective rhetoric also requires common ground. For rhetorical acts to be persuasive requires that the audience have a shared understanding of the meaning of the words used (cf., Mills & Weatherbee, 2006). For example, for cultural framing and rhetoric in corporate governance to be effective (Hirsch, 1986), it requires that participants understand the meaning of words such as poison pills, white knights, and golden parachutes and their organizational referents. A common ground must emerge regarding the appropriate words, the examples they cover, and their meaning in specific situations, and then these local agreements need to be generalized to the collective level and so applicable to a broad array of rhetorical situations.

Our discussion of common ground focuses on the level of the situation or social interaction. Yet organizing practices are not typically unique, but reflect diffusion and adaptation processes across social collectives (Ansari, Fiss & Zajac, 2010; DiMaggio & Powell, 1983; Strang & Soule, 1998). These processes of diffusion and adaptation are further subject to economic and political

41

contestation (Greenwood & Hinings, 1996; Lounsbury, 2007). From a vocabularies perspective, the process of diffusion, adaptation, and contestation of common ground from the situation to the social collective is guided by cultural categorization—the generation of shared cultural categories and category relationships among the collective.

Cultural categorization is both a cognitive process, as individuals have a tendency to generate categories to classify similar objects (Murphy, 2002) and a sociological process, as collectives develop agreements on category conventions (Douglas, 1986; Kennedy, 2008). At the cognitive level, the labeling of cultural categories allows members of social collectives to focus shared attention on particular organizing practices beyond the original situations in which they were first learned or encountered (Clark, 1996b, 1998), facilitating the diffusion and adaptation process for the social collective. The presence of common ground on labeled categories and their examples moves from situated action to collective knowledge through emergent processes of diffusion and adaption such as occupational mobility (Fine, 1995), theorization (Ferrarro, Pfeffer & Sutton, 2005), regularized patterns of organizational documentation (Colyvas & Powell, 2006), and media usage (Ocasio & Joseph, 2005).

Cultural categorization is also political, as different groups compete for which labels to use, which categories are prominent, which examples are central to the category, and how categories are used in relationship to other categories (Jones et al, 2011; Lounsbury & Rao, 2004). Cultural categorization emerges as a collective generates norms regarding the development and use of categories in its language, guided by experts and powerful actors. Note, however, that while the overall sociological and political process may lead to general norms regarding cultural categories (e.g., shared cultural categories for the architectural profession), distinct categories and category

relationships also emerge for differentiated subgroups (e.g., for modern organic architects versus modern functional architects).

Cultural categorization, diffusion and adaptation processes lead to the formation of cultural categories by forming vocabulary structure: word frequencies, word-to-word relationships, and word-to-example relationships. In discussing vocabulary structure, we are referring to the structure of cultural categories used across all the communications of the collective, across all situations. And as noted in the introduction, words, and the cultural categories they represent include both single word terms and compound words or expressions.

Our focus on vocabulary structure builds on yet extends most management research on vocabularies. Many studies emphasize word frequencies in their study of vocabularies (e.g., Fiss & Hirsch, 2005), others emphasize word-to-word relationships (Carley, 1993; Jones & Livne-Tarandach, 2008; Ocasio & Joseph, 2005), a few study word-to-example relationships (Kennedy, 2008), but very few account for all three (Jones et al, 2011; Nigam & Ocasio, 2010). We propose that a full understanding of the meaning of words and categories requires all three aspects of vocabulary structure used in communications, and embodied in common ground.

Vocabulary structure is a property of the aggregate communications of the collective, both written and oral, reflecting conventional patterns of cultural categorization. As the size of the social collective grows beyond that of small groups, neither the vocabulary structure nor the common ground it embodies is shared by all members. Vocabulary structure is thereby a distributed property of collectives, rather than a shared one. Consequently, the cultural meaning of words contained in vocabulary structure is similarly distributed not shared. Just as the members of a social network are not aware of all network connections (Krackhardt, 1990), members of collectives are not fully aware of the vocabulary structure.

Given that individuals do not fully know the vocabulary structure, how does vocabulary structure shape the meaning of words people use in their communications? To explain this process we combine work on vocabularies and cultural categories with research by cognitive scientists on learning and knowledge acquisition. At the level of individuals, we propose that the cognitive process of induction, or drawing logical inferences to learn about uncertain items or relationships (Holland, Holyoak, Nisbett & Thagard, 1986; Kirby, Dowman & Griffiths, 2007), is central to inferring the meaning of words through understanding the cultural categories they represent. Because there are countless categories that people might induce (Quine, 1960), members of social collectives are unlikely to know or use the categories used within a particular collective absent their being inferred—from vocabulary structure—as distinct cultural categories within the collective's vocabulary.

Individuals induce the meaning of cultural categories from language use, as they interact and communicate within social groups (Gumperz, 1964; Tomasello, 2001). The meanings of more frequently used words are more likely to be induced than the meanings of less frequently used words, as word frequency generally signals the importance of a word and category to a social collective. We suggest that induction occurs not at the level of situated action, but at the level of collectives, as individuals observe vocabulary conventions across situations, and induce the meanings of cultural categories from cross-situational use, as reflected in vocabulary structure. This induction across situations reflects not only the individual's own participation or observations, but also learning from collective stories and narratives. Thus, we are proposing that inducing and learning vocabularies is a process of cultural inference.

Words are not merely attached to categories that people already know. Rather, people encounter others who use particular words to indicate examples in new ways, which prompts them

to induce the cultural categories as significant units of meaning for the collective (Brown, 1958; Choi, McDonough, Bowerman & Mandler, 1999; Milroy, 1980). We further suggest that members of social collectives also induce patterns of word-to-word relations among categories. This claim is supported by research by cognitive psychologists on how aspects of word meaning can be inferred from patterns of co-occurrences in large corpora (Burgess, Livesay & Lund, 1998; Landauer & Dumais, 1997). Further, we emphasize that observing patterns of co-occurrences in the complex and ambiguous world of cultural practices is subject to substantial variability, yet people show considerably greater accuracy in inducing co-occurrences among labeled than unlabeled elements (Kunda & Nisbett, 1986). Thus vocabularies, because words label cultural categories, ease the induction of cultural categories and also the pattern of relationships among categories.

The process of cultural inference of vocabularies from conventional patterns of word use is further enhanced by two distinct sub-processes: socialization and the division of linguistic labor. Socialization provides direct instruction and acculturation by members of the collective on established social norms, including vocabulary usage and meanings (Berger & Luckmann, 1967; Kunda (1996) [2002]). Socialization, a key mechanism in the sociology of knowledge, need not imply consensus or shared knowledge, and it also reflects roles, network relations, and social position. The division of linguistic labor (Putnam, 1995) implies differentiation in both patterns of distribution of vocabulary learning and inference, and regulation by members with jurisdictional claims to expertise (e.g., professionals with advanced degrees) as to the appropriate usage and meaning of words.

Taken together, our theoretical model indicates that patterns of vocabulary use within a social collective become conventionalized, generating the system of cultural categories that comprise vocabulary structure. Members use cognitive processes of induction to learn and derive vocabulary

meanings from that structure. Members use vocabularies for rhetoric and for coordination, and these communicative practices are constitutive of organizing practices.

AN APPLICATION OF VOCABULARY STRUCTURE:

THE CASE OF INSTITUTIONAL LOGICS

As an illustration of the value of vocabularies and vocabulary structure, we discuss the role of vocabulary structure in extending and deepening our understanding of institutional logics: cultural frameworks for reasoning, criteria for legitimacy, and guides for organizing time and space (Friedland & Alford 1991; Thornton & Ocasio 2008). As discussed earlier in our review, institutional logics have been explicitly linked to language and vocabularies (Jones & Livne-Tarandach, 2008; Suddaby & Greenwood, 2005). In this section we explain how vocabulary structure, and our approach to vocabularies more generally, enables organization and management scholars to gain additional theoretical and empirical insights into logics. We discuss the role of vocabulary structure in identifying implicit categories underpinning logics, in predicting when logics remain distinct or blend, and in understanding how fragments of knowledge structures such as stories and narratives are integrated or aggregated into logics.

We propose that vocabulary structure is useful for identifying underlying dimensions and implicit categories that comprise institutional logics. For example, Thornton and Ocasio (1999) analyzed two institutional logics used in the US educational publishing industry. First was an editorial logic used from the late 1950s to the mid-1970s, organized around the implicit categories of reputation, taste, and professional standing. Second was a market logic used from the mid-1970s to 1990, organized around competitive position and profitability. While Thornton and Ocasio (1999) relied on interviews to induce the logics and the implicit categories, a more direct measure could be obtained through a direct examination of the vocabulary structure.

To illustrate this proposal about how vocabulary structure extends work on institutional logics, we draw on Ruef (1999). While not explicitly highlighting vocabularies, Ruef analyzed word-to-word relationships to examine what he called ontologies (equivalent to institutional logics) within the organizations and practices of the health care industry. He found that MEDLINE discussions about the health care field indicated consistent structures of word-to-word relationships around organizational forms and their practices. Using multidimensional scaling techniques he identified three dimensions, or implicit categories, within the vocabulary structure that indicated differentiated logics governing alternative organizational forms: (1) a functional dimension based on the degree of financial risk (risk bearing by the organizational forms, non-risk bearing); (2) a clinical dimension based on the duration of care by the organization forms (extended, acute/ primary care); and (3) an access dimension based on the degree of patient risk handled by the organizational forms (high risk, general populace). For example, in the clinical dimension, Ruef found consistencies in the use of "nursing home," "home care (HHAs)" and "HCFA (Medicare / Medicaid)," suggesting an implicit category of providing care over a extended long duration, and these were in contrast to discussions of "community health centers," "academic medical centers" and "private practice," suggesting an implicit category of providing temporary care.

These implicit categories in the vocabulary structure indicate differentiated logics governing alternative organizational forms, and they are nested within, and ordered by, the field-level logic that provides the dimensions on which those categories are defined. The institutional logic of the overall health care field reflects a hybrid of societal logics: the first implicit category, functional, incorporates a market logic, the second implicit category, clinical, incorporates a professional logic, and the third implicit category, access, incorporates a community logic. This overall logic for the field was characterized by Ruef (1999) as an ontology or logic of uncertainty, where concern with

uncertainty over health brings together the functional, clinical, and access dimensions. Thus, vocabulary structure reveals implicit categories that reflect key dimensions of integration at the field level and differentiation at the level of organizational forms in institutional logics.

Vocabulary structure also yields insights on the evolution and pluralism of institutional logics (Greenwood et al., 2011; Kraatz & Block, 2008). By knowing vocabulary structure, including the centrality of examples, we can better understand and predict what categories defining a logic will most likely change, be blended, or be replaced in the face of environmental pressures and opportunities. For instance, Dunn and Jones (2010) reveal that the tight coupling (i.e., high word-to-word co-occurrence over time) of *science* with *basic research*, *laboratory,* and *hospitals* supported the move by established medical schools to enact and institutionalize new practices, such as the MSTP program that trained physician-scientists, and the tight coupling of practices, such as research grants, scientific review, and leadership in the NIH that allowed medical schools to fund research despite increasing competition from community oriented medical schools and rival public health programs. Without this tight coupling of word-to-word relations such as *research*, *science*, and *hospitals* and word-to-example relations with practices of the NIH, then the science logic may well have been replaced by or incorporated aspects of the care logic in the face of significant changes in the environment.

Further, assessing word-to-example relationships provides a means for assessing the degree of institutionalization in practices that support a logic. For example, it is useful to track which hospitals are held up as central examples of *hospital*, and whether they are research-oriented organizations such as Massachusetts General Hospital. The degree of coupling of word-to-word relationships and word-to-example relationships provide a basis for making predictions about changes to logics. Tight coupling should predict that actors will resist replacing a logic and loose coupling should predict that actors will blend logics. Loose coupling should also indicate which

categories of a logic are most likely to change and take on new patterns of word-to-word or word-to-example relationships. Thus, vocabulary structure points to new ways for assessing how logics are constructed and evolve.

Another role of vocabulary structure is to aggregate or integrate fragments of locally coherent knowledge such as a story, narrative, frame, analogy or metaphor into institutional logics (e.g., Hargadon & Douglas, 2001; Leblebici, Salancik, Copay & King, 1991, Thornton, Ocasio, & Lounsbury 2012). But as DiMaggio (1997) pointed out, this requires a heretofore missing mechanism for aggregating and systematizing smaller units of cultural knowledge into larger structures. We suggest that vocabulary structure fills this explanatory gap. Specifically, because word-to-word relationships and word-to-example relationships are not just isolated pairs but networks, they provide a means for integrating word-to-word and word-to-example relationships within stories and narratives with the broader vocabulary structure. This allows them to become widely adopted and conventionally used beyond the context of the original narratives themselves.

We exemplify this process using Rao, Monin, and Durand's (2003) finding that theorization by culinary journalists contributed to the abandonment of classical cuisine for nouvelle cuisine in elite French gastronomy. Empirically, Rao and colleagues (2003) examined theorization by testing the influence of a key early statement supporting nouvelle cuisine by the French critics Gault and Millau as to whether subsequent articles and reviews wrote positively about nouvelle cuisine. From a vocabulary structure perspective, each of these reviews provides a narrative that reproduces, in part, the word-to-word relationships and word-to-example relationships in Gault and Millau's more formal theorization of nouvelle cuisine. We can therefore take Rao and colleagues' (2003) study as a demonstration that consistent vocabulary use across narratives—in their case, in media accounts favorable to nouvelle cuisine—generates vocabulary structure and consistency for the underlying

institutional logic. The narratives articulated an alternative to the prevailing institutional logic and also, in being reproduced and conventionally adopted through a process of cultural inference, helped cohere and institutionalize a new logic.

These discussions of vocabulary structure and institutional logics illustrate the potential for vocabulary structure to advance institutional and organizational research. Vocabulary structure provides a means for theoretical integration, as it provides specificity on issues already under discussion, such as vocabularies, categories, logics, practices, and narratives, and how these issues are linked to rhetoric and coordination. Vocabulary structure also indicates new pathways for researching logics, including important current topics, such as logic blending and nested logics.

CONCLUSION

Research on vocabularies has a rich history and active lines of research, but has been weakened by being disconnected, both theoretically and empirically. In reviewing and linking research, and outlining a new theoretical approach, we provide reasons for still more widespread use of vocabularies. Vocabularies offer substantial opportunities for theoretical integration and novel extensions for organizational research and practice.

Our approach to vocabularies offers a strong view of vocabularies as generators of meanings within social collectives. This is the reason vocabularies are so central a construct, with ties to discussions of rhetorics, culture, cognition, coordination, categories, logics, and more. Organizational research should not avoid meanings by focusing on practices and action, as no matter how compelling an account of organizing they provide (cf., Barley & Tolbert, 1997; Salancik & Leblebici, 1988), collective action involves communication, and fundamentally relies on socially established meanings (cf., Feldman & Pentland, 2003). Neither can organizational research focus solely on language and discourse, as no matter how compelling an account of organizing they

provide (cf., Phillips, Lawrence & Hardy, 2004), they require a detailed account of the meaning of words and their application to practices to determine how discourse affects practice. We provided the beginnings of a new account.

The core of our approach to vocabularies is that meaning is derived from vocabulary structure: members of collectives induce meaning from word-to-word relationships, word-to-example relationships, and word frequency patterns. We discussed the generation and application of vocabulary structure across levels of analysis, and the formation of cultural categories as the basic building block of meaning. We showed the potential for vocabulary structure to advance research on institutional logics. More generally we expect vocabularies and vocabulary structure to provide new insights into research on culture, cognition, institutions, communications, rhetoric, and coordination, as we have indicated, as well as further topics, such as resonance and identity, among other areas.

Implications for research practice. One of the primary implications of the vocabulary perspective on language and meaning is to further encourage the growing body of research studying language produced by organizational actors. We briefly review the four main recurring challenges in taking vocabulary use to indicate collective meanings that vocabulary researchers should consider. First, that word use indicates people's knowledge does not necessarily mean that a lack of a word indicates a lack of knowledge or even a lack of attention. Not using words could also mean that this information is assumed, so does not need to be stated (e.g., Colyvas & Powell, 2006), or that the group uses other words to capture that kind of information. Second, the same word need not mean the same thing at two periods in time (Ocasio & Joseph, 2005), in different collectives (Fiss & Hirsch, 2005; Keller & Loewenstein, 2011), or even with the same collective by those occupying distinct roles or in different situations (Bechky, 2003; Jones & Livne-Tarandach, 2008). This is an issue for the validity of research using standardized word lists (or "dictionaries") in computer

automated text analysis (e.g., LIWC, Pennebaker & Francis, 1999), as there is a risk in drawing faulty conclusions when using the same dictionary across groups. Third, different words can refer to similar meanings (the challenge of handling synonyms; e.g., Landuer & Dumais, 1997). One of the oldest academic complaints is the charge of "old wine in new bottles," and one of the banes of information search is failing to use the right keywords and so missing relevant work. Fourth, the vocabularies actors use in their own practice need not be the same as the vocabularies they use to present themselves to other audiences (Abrahamson & Hambrick, 1997: 519-520). Speakers generally try to influence their audiences to hold good opinions of them and of what they say. So, scholars need to attend to context and evaluate whether what people say is indicating more about what they want their audience to believe than the knowledge they themselves are using for their practices. Provided scholars clear these hurdles, investigating vocabularies offers great potential for studying organizing.

Along with the great variety of research on vocabularies comes variety in terms of what exactly is under study and the philosophical approach that is adopted. To be clear, the approach to vocabularies that we have taken is a critical realist approach to language and organizing (e.g., Bhaskar, 1989; Fairclough, 2005; Niiniluoto, 1999), distinct from prevailing interpretivist and strong social constructionist approaches to language and discourse in organizations, which explicitly reject realism (e.g., Lok & Willmott, 2006; Phillips & Hardy, 2002; Phillips et al, 2004, 2006). This strong constructivist viewpoint contends that the world cannot be known independently of the discourse of social actors, and there is no objective reality in organizations separate from the contested, reflexive, and fluid, albeit structured, production of language and texts (Phillips & Hardy, 2002: 5-6). In contrast, our critical realist approach implies a weak social construction perspective, which acknowledges the importance of socially constructed language and knowledge in how social actors

attend to, interpret, and act upon the world. Yet it also posits that social construction itself is subject to social and cognitive mechanisms that are both knowable and real, such as categorization, legitimation, and attention. Accordingly, we see great opportunities for linking organizational discussions of vocabularies to cognitive science discussions of vocabularies, and, by extension, linking micro level work on cognition with macro level work on cognition, which can inform a host of macro topics within institutional theory (Powell & Colyvas, 2008). This focus on cognition is also not shared by prior approaches to language and discourse in organizations.

New Directions. Vocabularies provide two new broad directives for research. First, a longstanding wish in organizational research is to increase theoretical integration without suppressing alternative approaches critical to a young and applied field. Language has long held out promise for playing this role (e.g., Pondy & Mitroff, 1979), as language use pervades organizational life, but its promise has remained elusive. A vocabularies approach to language has the potential to reinvigorate the possibility because it provides a concrete and measurable way to link collectives, situations, meanings, and action. One particular avenue, for example, would be to examine vocabulary structure as a basis for generating cultural structure (Sahlins, 1985; Sewell, 2005). Because vocabularies are so pervasive, they could play a useful role in linking and providing a basis for integrating currently disconnected topics. If a vocabularies approach also provides a common ground for currently disconnected sets of researchers to integrate their work, so much the better.

Second, a focus on vocabularies emphasizes new avenues for intervening and acting in organizational settings. We have already mentioned links between vocabularies and rhetoric and vocabularies and coordination. We have reviewed papers on the role of vocabularies in instituting change (e.g., Jones et al, 2011; Nigam & Ocasio, 2010; Suddaby & Greenwood, 2005). Still, a comprehensive understanding of how agents can wield and change vocabularies to act and shape the

actions of others awaits. Vocabularies matter, both for theory and for practice.

REFERENCES

Abrahamson, E., Hambrick, D. C. 1997. Attentional homogeneity in industries: The effect of discretion. *Journal of Organizational Behavior, 18*, 513-532.

Alvesson, M. 2000. Social identity and the problem of loyalty in knowledge-intensive companies. *Journal of Management Studies, 37*, 1101-1123.

Alvesson, M., Karreman, D. 2000. Varieties of discourse. On the study of organizations through discourse analysis. *Human Relations*, 53, 1125-1149.

Ansari, S., Fiss, P.C., Zajac, E.J. 2010. Made to Fit: How Practices Vary As They Diffuse. *Academy of Management Review*, 35: 67-92.

Arrow, K.1974. *The limits of organization*. New York: Norton.

Ashcraft, K.L., Kuhn, T.R. & Cooren, F. 2009. Constitutional amendments: "Materializing" organizational communication. The Academy of Management Annals, 3(1): 1-64.

Ashforth, B. E., Humphrey, R. H. 1997. The ubiquity and potency of labeling in organizations. Organization Science, 81, 43-58.

Babb, S. 1996. A true American system of finance: Frame resonance in the U.S. Labor Movement, 1866-1886. *American Sociological Review, 61*, 1033-1052.

Barley, S. R., Tolbert, P. S. 1997. Institutionalization and structuration: Studying the links between action and institution. *Organization Studies, 18*(1), 93-117.

Barnard, C. I. 1938. *The functions of the executive*. Cambridge, MA: Harvard University Press.

Barsalou, L. W. 1985. Ideals, central tendency, and frequency of instantiation as determinants of graded structure in categories. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 11*(4), 629-654.

Barsalou, L. W. 1999. Perceptual symbol systems. *Behavioral and Brain Sciences, 22*, 577-660.

Bechky, B. A. 2003. Sharing meaning across occupational communities: The transformation of understanding on a production floor. *Organization Science, 14*(3), 312-330.

Benford, R.D. 1993. "You could be the hundredth monkey: Collective action frames and vocabularies of motive within the nuclear disarmament movement. The Sociological Quarterly, 34(2): 195-216.

Benford, R. D., & Snow, D. A. 2000. Framing processes and social movements: An overview and assessment. *Annual Review of Sociology, 26*, 611-639.

Berger, P. L., Luckmann, T. 1967. *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. Anchor.

Bhaskar, R.A. 1989. *Reclaiming Reality: A Critical Introduction to Contemporary Philosophy*. London: Verso.

Biernacki, R. 2000. Language and the shift from signs to practices in cultural inquiry. *History and Theory, 39*(3), 289-310.

Brandimonte, M. A., Gerbino, W. 1993. Mental image reversal and verbal recoding: When ducks become rabbits. *Memory and Cognition, 21*(1), 23-33.

Brown, R. 1958. *Words and things: An introduction to language*. New York: Free Press.

Burgess, C., Livesay, K., Lund, K. 1998. Explorations in context space: Words, sentences, discourse. *Discourse Processes, 25*, 211-25.

Burke, K. 1935. *Permanence and Change: Anatomy of Purpose*. New York: New Republic Inc.

Burke, K. 1937a. *Attitudes Toward History. Volume 1*. New York: The New Republic.

Burke, K. 1937b. *Attitudes Toward History. Volume 2*. New York: The New Republic.

Burke, K. 1989. *On Symbols and Society*. Chicago: University of Chicago Press.

Carley, K. 1986. An approach for relating social structure to cognitive structure. *Journal of Mathematical Sociology, 12*(2), 137-189.

Carley, K. 1988. Formalizing the social expert's knowledge. *Sociological Methods & Research*, 17(2), 165-232.

Carley, K. 1993. Coding Choices for Textual Analysis: A Comparison of Content Analysis and Map Analysis. *Sociological Methodology*, 23, 75-126.

Carley, K. 1994. Extracting culture through textual analysis. *Poetics, 22*, 291-312.

Carley, K. M. 1997. Extracting team mental models through textual analysis. *Journal of Organizational Behavior, 18*, 533-558.

Carley, K. M., Kaufer, D. S. 1993. Semantic connectivity: An approach for analyzing symbols in semantic networks. *Communication Theory, 3*(3), 183-213.

Carley, K., Palmquist, M. 1992. Extracting, representing and analyzing mental models. *Social Forces*, 70, 601-636.

Choi, S., McDonough, L., Bowerman, M., Mandler, J. M. 1999. Early sensitivity to language-specific spatial categories in English and Korean. *Cognitive Development, 14*, 241-268.

Christie, L. S., Luce, R. D., Macy, J. 1952. Communication and learning in task-oriented groups. MIT Technical Report No. 231.

Clark, H. H. 1996a. *Using language*. Cambridge: Cambridge University Press.

Clark, H. H. 1996b. *Communities, commonalities, and communication*. In J. J. Gumperz & S. C. Levinson (Eds), Rethinking linguistic relativity. Cambridge: Cambridge University Press.

Clark, H. H. 1998. Communal lexicons. In K. Malmkjaer and J. Williams Eds., *Context in language learning and language understanding* pp. 63-87. Cambridge University Press.

Clark, H. H., Wilks-Gibbs, D. 1986. Referring as a collaborative process. *Cognition, 22*, 1-39.

Collins, C. J., Smith, K. G. 2006. Knowledge exchange and combination: The role of human resource practices in the performance of high-technology firms. *Academy of Management Journal, 49*(3), 544-560.

Colunga, E., Smith, L. B. 2005. From the lexicon to expectations about kinds: A role for associative learning. *Psychological Review*, 112(2), 347-382.

Colyvas, J. A., Powell, W. W. 2006. Roads to institutionalization: The remaking of boundaries between public and private science. *Research in Organizational Behavior, 27*, 205-353.

Cramton, C. D. 2001. The mutual knowledge problem and its consequences for dispersed collaboration. *Organization Science, 12*(3), 346-371.

Cremer, J., Garicano, L., Prat, A. 2007. Language and the theory of the firm. *Quarterly Journal of Economics, 122*(1), 373-407.

DiMaggio, P. J. 1997. Culture and cognition. *Annual Review of Sociology*, 23, 263-287.

DiMaggio, P. J., Powell, W. W. 1991. Introduction. In P. J. DiMaggio, W. W. Powell (Eds.), *The new institutionalism in organizational analysis*. Chicago, IL: University of Chicago Press.

Douglas, M. 1986. *How institutions think*. Syracuse, NY: Syracuse University Press.

Dunn, M. B., Jones, C. 2010. Institutional logics and institutional pluralism: The contestation of care and science logics in medical education, 1967-2005. *Administrative Science Quarterly, 55*, 114-149.

Erkama, N. & Vaara, E. 2010. Struggles over legitimacy in global organizational restructuring: A rhetorical perspective on legitimation strategies and dynamics in a shutdown case. Organization Studies, 31, 813-839.

Fairclough, N. 2005. Discourse analysis in organization studies: The case for critical realism. *Organization Studies*, 26(6), 915–939.

Feldman, M. S., Pentland, B. T. 2003. Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly, 48*, 94-118.

Ferraro, F., Pfeffer, J., Sutton, R. I. 2005. Economics language and assumptions: How theories can become self-fulfilling. *Academy of Management Review, 30*(1), 8-24.

Fine, G. A. 1995. Wittgenstein's kitchen: Sharing meaning in restaurant work. *Theory and Society, 24*(2), 245-269.

Fine, G.A. 1996. Justifying work: Occupational rhetorics as resources in restaurant kitchens. Administrative Science Quarterly, 41: 90-115.

Fiss, P. C. Hirsch, P. M. 2005. The discourse of globalization: Framing and sensemaking of an emerging concept. *American Sociological Review, 70*(1), 29-53.

Fodor, J. A. 1975. The language of thought. New York: Thomas Crowell.

Foss, S.A. Foss, K.A. & Trapp, R. 1985. Contemporary Perspectives on Rhetoric. Waveland Press: Prospect Heights, IL.

Friedland, R. 2001. Religious nationalism and the problem of collective representation. *Annual Review of Sociology, 27*, 125-152.

Friedland, R., Alford, R. R. 1991. Bringing society back in: Symbols, practices, and institutional contradictions. In W. W. Powell P. J. DiMaggio Eds., *The New Institutionalism in Organizational Analysis* pp. 232-263. Chicago: University of Chicago Press.

Fussell, S. R., Kraus, R. M. 1992. Coordination of knowledge in communication: Effects of speakers' assumptions about what others know. *Journal of Personality and Social Psychology, 62*(3), 378-391.

Garrod, S., Daugherty, G. 1994. Conversation, co-ordination and convention: An empirical investigation of how groups establish linguistic conventions. *Cognition, 53*, 181-215.

Geertz, C. 1980. Negara: The theatre-state in nineteenth century Bali. Princeton: Princeton University Press.

Geertz, C. 1988. Works and lives: The anthropologist as author. Stanford: Stanford University Press

Gentner, D. 2010. Bootstrapping children's learning: Analogical processes and symbol systems. *Cognitive Science, 34*(5), 752-775.

Gentner D., Goldin-Meadow, S. 2003. *Language in mind: Advances in the study of language and thought.* Cambridge, MA: MIT Press.

Gephardt, R. 1997. Hazardous measures: An interpretive textual analysis of quantitative sensemaking during crises. *Journal of Organizational Behavior, 18*, 583-622.

Geppert, M. 2003. Sensemaking and politics in MNCs: A comparative analysis of vocabularies within the global manufacturing discourse in one industrial sector. *Journal of Management Inquiry, 12*(4), 312-329.

Glynn, M. A. 1994. Effects of work task cues and play task cues on information processing, judgment, and motivation. Journal of Applied Psychology, 79(1), 34-45.

Goffman, E. 1959. *The Presentation of Self in Everyday Life.* New York: Anchor Books.

Goffman, E. 1974. *Frame Analysis.* New York: Harper and Row.

Golden-Biddle, K. & Locke, K. 1993. Appealing work: An investigation of how ethnographic texts convince. *Organization Science*, 4: 595-616.

Goldstone, R. L. 1994. Influences of categorization on perceptual discrimination. *Journal of Experimental Psychology: General, 123*, 178-200.

Green, S.E., Jr. 2004. A rhetorical theory of diffusion. Academy of Management Review, 29:653-669.

Green, S.E., Jr., Li, Y. 2011. Rhetorical institutionalism: Language, agency and structure in institutional theory since Alvesson 1993. Journal of Management Studies, (articles in advance: doi: 10.1111/j.1467-6484.2011.01022x, downloaded August 2011).

Greenwood, R., Hinings, C.R. 1996. Understanding radical organizational change: Bringing together the old and the new institutionalism. *Academy of Management Review*, 21, 1022-1054.

Greenwood, R., Raynard, M., Kodeih, F. Micelotta, E.R., & Lounsbury, M. 2011. Institutional complexity and organizational responses. *The Academy of Management Annals, 5*(1), 317-371.

Gumperz, J. J. 1964. Linguistic and social interaction in two communities. *American Anthropologist, 66*(6), 137-153.

Gusfield, J. 1976. The literary rhetoric of science: Comedy and pathos in drinking driver research. *American Sociological Review*, 41: 16-34

Halliday, M. A. K. 1978. *Language as social semiotic: The social interpretation of language and meaning.* Baltimore: University Park Press.

Hannan, M. T., Polos, L., Carroll, G. 2007. *Logics of organization theory: Audiences, codes, and ecologies.* Princeton, NJ: Princeton University Press.

Hargadon, A. B., Douglas, Y. 2001. When innovations meet institutions: Edison and the design of the electric light. *Administrative Science Quarterly, 46*(3), 476-501.

Harnad, S. 1990. The symbol grounding problem. *Physica D, 42*, 335-346.

Hirsch, P.M. 1986. From ambushes to golden parachutes: Corporate takeovers as an instance of cultural framing and institutional integration. American Journal of Sociology, 91: 800-837.

Hirsch, P.M. & DeSoucey, M. 2006. Organizational restructuring and its consequences: Rhetorical and structural. Annual Review of Sociology, 32: 171-189.

Holland, J. H., Holyoak, K. J., Nisbett, R. E., Thagard, P. R. 1986. *Induction.* Cambridge, MA: MIT Press.

Jones, C., Livne-Tarandach. R. 2008. Designing a frame: Rhetorical strategies of architects. *Journal of Organizational Behavior, 29*, 1075-1099.

Jones, C., Livne-Tarandach, R., Balachandra, L. 2010. Rhetoric that wins clients: Entrepreneurial firms use of institutional logics when competing for resources. Institutions and Entrepreneurship. *Research in the Sociology of Work, 21*, 183–218

Jones, C. Maoret, M., Massa, F.G., Svejenova, S 2011. Rebels with a Cause: The formation, contestation and expansion of the de novo category "Modern Architecture", 1870-1975. *Organization Science*, articles in advance: http://dx/doi.org/10.1287/orsc.1110.0701.

Kaufer, D.S. & Carley, K.M. 1993. Condensation symbols: Their variety and rhetorical functions in political discourse. *Philosophy and Rhetoric*, 26: 201-226.

Ke, J., Holland, J. H. 2006. Language origin from an emergentist perspective. *Applied Linguistics, 27*(4), 691-716.

Keller, J., Loewenstein, J. 2011. The cultural category of cooperation: A Cultural Consensus Model analysis for China and the US. *Organization Science, 22*(2), 299-319.

Kennedy, M. T. 2008. Getting counted: Markets, media, and reality. *American Sociological Review*, 73(2), 270-295.

Khaire, M., Wadhwani, R. D. 2010. Changing landscapes: The construction of meaning and value in a new market category—modern Indian art. *Academy of Management Journal, 53*(6), 1281-1304.

Kirby, S., Dowman, M., & Griffiths, T. L. 2007. Innateness and culture in the evolution of language. *Proceedings of the National Academy of Sciences*, 104(12), 5241-5245.

Kogut, B., Zander, U. 1996. What firms do? Coordination, identity, and learning. *Organization Science*, 7(5), 502-518.

Kraatz, M., Block, E. 2008. Organizational Implications of Institutional Plurism. In R. Greenwood, C. Oliver, R. Suddaby & K. Sahlin-Andersson (Eds.), *Handbook of Organizational Institutionalism*, 243-275. London: Sage Publications.

Krackhardt, D. 1990. Assessing the political landscape: Structure, cognition and power in organizations. *Administrative Science Quarterly*, 35, 342-369.

Krauss, R. M., Fussell, S. R. 1996. Social psychological models of interpersonal communication. In E. T. Higgins, A. Kruglanski (Eds.), *Social Psychology: Handbook of Basic Principles*. New York: Guilford.

Krippendorf, K. 2004. *Content analysis*. London: Sage.

Kunda, G. 1992. *Engineering culture: Control and commitment in a high-tech corporation*. Philadelphia: Temple University Press.

Kunda, Z., Nisbett, R. E. 1986. The psychometrics of everyday life. *Cognitive Psychology, 18*, 195-224.

Lamont, M., Molnar, V. 2002. The study of boundaries in the social sciences. *Annual Review of Sociology*, 28, 167-195.

Landauer, T. K., Dumais, S. T. 1997. A solution to Plato's problem: The Latent Semantic Analysis theory of the acquisition, induction, and representation of knowledge. *Psychological Review, 104*, 211-240.

Lave, J., Wenger, E. 1991. *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.

Leblebici, H., Salancik, G. R., Copay, A., King, T. 1991. Institutional change and the transformation of interorganizational fields: An organizational history of the U.S. Radio broadcasting industry. *Administrative Science Quarterly, 36*, 333-363.

Loewenstein, J., Gentner, D. 2005. Relational language and the development of relational mapping. Cognitive Psychology, 50, 315-363.

Loewenstein, J., Ocasio,W. 2003. Vocabularies of organizing: How language links culture, cognition, and action in organizations. Social Science Research Network Working Paper, http://ssrn.com/abstract=813344.

Lok, J., Willmott, H. 2006. Institutional theory, language, and discourse analysis: A comment on Phillips, Lawrence, and Hardy. *Academy of Management Review*, 31(2), 477-479.

Loken, B., Joiner, C., Peck, J. 2002. Category attitude measures: Exemplars as inputs. *Journal of Consumer Psychology, 12*(2), 149-161.

Lounsbury, M. 2007. A tale of two cities: Competing logics and practice variation in the professionalizing of mutual funds. *Academy of Management Journal*, 50(2), 289-307.

Lounsbury, M., Rao, H. 2004. Sources of durability and change in market classifications: A study of the reconstitution of product categories in the American mutual fund industry, 1944-1985. *Social Forces, 82*(3), 969-999.

Malt, B. C., Sloman, S. A., Gennari, S. 2003. Universality and language specificity in object naming. *Journal of Memory and Language, 49*, 20-42.

March, J. G., Simon, H. A. 1958. *Organizations*. New York: Wiley.

Markman, A.B., Makin, V.S. 1998. Referential communication and category acquisition. *Journal of Experimental Psychology: General*, 127, 331-354.

McCloskey, D. N. 1985. *The rhetoric of economics*. Madison, WI: University of Wisconsin Press.

McLean, P.D. 1998. A frame analysis of favor seeking in the Renaissance: Agency, networks and political culture. American Journal of Sociology, 104: 51-91.

Meyer, J.W., Rowan. B. 1977. Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83, 340-364.

Millikan, R. G. 2005. *Language: A biological model.* New York: Oxford University Press.

Mills, C.W. 1939. Language. Logic and culture. *American Sociological Review*, 5: 670-680.

Mills, C.W. 1940. Situated actions and vocabularies of motive. *American Sociological Review*, 5: 904-913.

Mills, J. H., Weatherbee, T. G. 2006. Hurricanes hardly happen: Sensemaking as a framework for understanding organizational disasters. *Culture and Organization*, 12(3), 265-279.

Milroy, L. 1980. *Language and social networks.* Oxford: Blackwell.

Mohr, J. W., Duquenne, V. 1997. The duality of culture and practice: Poverty relief in New York City, 1888-1917. *Theory and Society, 26*(2/3), 305-356.

Mohr, J. W., Guerra-Pearson, F. 2010. The duality of niche and form: The differentiation of institutional space in New York City, 1888-1917. In G. Hsu, O. Kocak, G. Negro (Eds.), Categories in markets: Origins and Evolution (Research in the Sociology of Organizations). Emerald Press.

Monteverde, K. 1995. Technical dialog as an incentive for vertical integration in the semiconductor industry. *Management Science, 41*(10), 1624-1638.

Moreau, C. P., Markman, A. B., and Lehmann, D. R. 2001. "What is it?" Categorization flexibility and consumers' responses to really new products. *Journal of Consumer Research, 27*, 489-498.

Murphy, G. L. 2002. *The big book of concepts.* Cambridge, MA, US: MIT Press.

Murphy, M. L. 2003 *Semantic relations and the lexicon: Antonymy, synonymy and other paradigms.* New York: Cambridge University Press.

Nahapiet, J., Ghoshal, S. 1998. Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review 23*(2), 242-266.

Negro, G., Ö. Koçak, G. Hsu. 2010. Research on categories in the sociology of organizations. In Categories in Markets: Origins and Evolution. *Res. in the Sociology of Organizations* **31** 3-35.

Nelson, R. R., Winter, S. G. 1982. *An evolutionary theory of economic change.* Boston: Belknap Press of Harvard University Press.

Nickerson, J. A., Zenger, T. R. 2004. A knowledge-based theory of the firm—The problem-solving perspective. *Organization Science, 15*(6), 617-632.

Nigam, A., Ocasio, W. 2009. Event attention, environmental sensemaking, and change in institutional logics: An inductive analysis of the effects of public attention to Clinton's Health Care Reform Initiative. *Organization Science*, 21(4), 823-841.

Niiniluoto, I. 1999. *Critical Scientific Realism.* Oxford: Clarendon Press.

Ocasio W. 1997. Towards an Attention-Based View of the Firm. *Strategic Management Journal, 18*, 187-206.

Ocasio, W., Joseph, J. 2005 Cultural adaptation and institutional change: The evolution of vocabularies of corporate governance. *Poetics*, *33*, 163-178.

Okhuysen, G. A., Bechky, B. A. 2009. Coordination in organizations: An integrative perspective. *Academy of Management Annals, 3*(1), 463-502.

Pennebaker, J. W., & Francis, M. E. (1999). *Linguistic Inquiry and Word Count (LIWC): A text analysis program.* Mahwah, NJ: LEA.

Phillips, N., Hardy, C., 2002. *Discourse analysis: investigating processes of social construction.* London, Sage.

Phillips, N., Lawrence, T. B., Hardy, C. 2004. Discourse and institutions. *Academy of Management Review, 29*, 635-652.

Phillips, N., Lawrence, T. B., & Hardy, C. (2006). Dialogue. *Academy of Management Review, 31*(2), 480-483.

Pondy, L. R., Mitroff, I. I. 1979. Beyond open system models of organization. *Research in Organizational Behavior, 1*, 3-39.

Porac, J. F., Thomas, H. 1990. Taxonomic mental models in competitor definition. *Academy of Management Review*, 15(2), 224-240.

Porac, J. F., Thomas, H. 1994. Cognitive categorization and subjective rivalry among retailers in a small city. *Journal of Applied Psychology, 79*(1), 54-66.

Powell, W.W., J.A. Colyvas. 2008. Microfoundations of institutional theory. In R. Greenwood, C. Oliver, R. Suddaby & K. Sahlin-Andersson (editors), *Handbook of Institutional Theory*: pp. 276-298. Sage Publications, London, UK.

Putnam, H. 1975. The meaning of "meaning" In K. Gunderson (Ed.), *Language, Mind and Knowledge*. Minneapolis, MN: University of Minnesota Press.

Quine, W. V. O. 1960. *Word and object*. Cambridge, MA: MIT Press

Rao, H., Monin, P., Durand, R. 2003. Institutional change in Toque Ville: Nouvelle cuisine as an identity movement in French gastronomy. *American Journal of Sociology*, 108(4), 795-843.

Rehder, B., Hastie, R. 2004. Category coherence and category-based property induction. *Cognition, 91*, 113-153.

Richards, I.A., Ogden, C.K. 1923. *The meaning of meaning: A study of the influence of language upon thought and of the science of symbolism*. London: Kegan Paul, Trench, Trubner

Rindova, V.P., Bacerra, M., Contardo, I. 2004. Enacting competitive wars: Competitive activity, language games, and market consequences. *Academy of Management Review, 29*, 670-686.

Rosa, J. A., Porac, J. F., Runser-Spanjol, J., Saxon, M. S. 1999. Sociocognitive dynamics in a product market. *Journal of Marketing*, 63, 64-77.

Rosch, E., Mervis, C. B. 1975. Family resemblances: Studies in the internal structure of categories. *Cognitive Psychology, 7*, 573-605.

Ruef, M. 1999. Social ontology and the dynamics of organizational forms: Creating market actors in the healthcare field, 1966-1994. *Social Forces, 77*(4), 1403-1432.

Sahlins, M. 1985. *Islands of history*. Chicago, IL: University of Chicago Press.

Salancik, G., Leblebici, H. 1988. Variety and form in organizing transactions: A generative grammar of organizations. In N. DiTomaso, S. B. Bacharach (Eds.), *Research in the Sociology of Organizations*. Greenwich, CT: JAI Press.

Scott, M.B., Lyman, S.M. 1968. Accounts. *American Sociological Review*, 33: 46-62.

Searle, J. R. 1980. Minds, brains and programs. *Behavioral and Brain Sciences 3*, 417-457.

Sewell, W. H. 2005. Logics of history: Social theory and social transformation. Chicago, IL: University of Chicago Press.

Shannon, C. E. 1948. A mathematical theory of communication. *Bell System Technical Journal, 27*, 379-423.

Sillince, J.A.A. 2005. A contingency theory of rhetorical congruence. *Academy of Management Review*, 30: 608-621.

Starbuck, W. H. 2007. Living in mythical spaces. *Organizational Studies*, 28(1), 21-25.

Strang, D., Soule, S. A. Diffusion in organizations and social movements: From hybrid corn to poison pills. *Annual Review of Sociology, 24*, 265-90.

Suddaby, R., Greenwood, R. 2005. Rhetorical strategies of legitimacy. *Administrative Science Quarterly, 50*, 35-67.

Swidler, A. 1986. Culture in action: Symbols and strategies. *American Sociological Review, 51*(2), 273-286.

Swidler, A. & Arditi, J. 1994. The new sociology of knowledge. *Annual Review of Sociology*, 20: 305-329.

Thornton, P. H., Ocasio, W. 1999. Institutional logics and the historical contingency of power in organizations: Executive succession in the higher education publishing industry, 1958-1990. *American Journal of Sociology, 105*(3), 801-843.

Thornton, P. H., Ocasio, W. 2008. Institutional logics. In R. Greenwood, et al, eds. *Handbook of Institutional Theory*. Thousand Oaks, CA: Sage.

Thornton, P. H., Ocasio, W., Lounsbury, M. 2012. *The institutional logics perspective: A new approach to culture, structure and process*. Oxford University Press.

Tomasello, M. 2001. *The cultural origins of human cognition*. Cambridge, MA: Harvard University Press.

Tushman, M. L. 1978. Technical communication in R&D laboratories: The impact of project work characteristics. *Academy of Management Journal, 21*(4), 624-645.

Vaara, E. & Tienari, J. 2008. A discursive perspective on legitimation strategies in multinational corporations. Academy of Management Review, 33: 985-993.

Van Maanen, J. 1995. Style as theory. *Academy of Management Review*, Organization Science, 6: 133-143.

Vaughan, D. 1996. *The Challenger launch decision*. Chicago: IL: University of Chicago Press.

Waxman, S. R., Markow, D. B. 1995. Words as invitations to form categories: Evidence from 12-month-old infants. *Cognitive Psychology, 29*, 257-302.

Weber, K. 2005. A toolkit for analyzing corporate cultural toolkits. *Poetics, 33,* 227-252.

Weber, R. A., Camerer, C. F. 2003. Cultural conflict and merger failure: An experimental approach. *Management Science, 49*(4), 400-415.

Weick, K. E. 1995. *Sensemaking in organizations*. Thousand Oaks, CA: Sage.

Wenger, E. 2000. Communities of practice and learning systems. *Organization*, *7*(2), 225-246.

West, P. M., Brown, C. L., Hoch, S. J. 1996. Consumption vocabulary and preference formation. *Journal of Consumer Research, 23*(2), 120-135.

Whorf, B. 1956. *Language, thought, and reality: selected writings of Benjamin Lee Whorf*. Cambridge, MA: MIT Press.

Zhong, C.-B., Loewenstein, J., Murnighan, J. K. 2007. Speaking the same language: The cooperative effects of labeling in the prisoners' dilemma. Journal of Conflict Resolution, 51(3), 431-456.

Zuckerman, E. W. 1999. The categorical imperative: Securities analysts and the illegitimacy discount. *American Journal of Sociology, 104*(5), 1398-1438.

Figure 1: **A Cross-Level Model of Vocabularies and Organizing**

Situation Level	**Organizing Practices** — *Situated learning* → ← *Shared Attention* — **Common Ground**	
	Communication (Rhetoric/Coordination)	*Cultural Diffusion, Adaptation and Categorization*
Collective Level	**Vocabulary Words and Meanings** ← *Cultural inference* — **Cultural Categories and Vocabulary Structure**	