

### 7.2.3 Institutional Categories

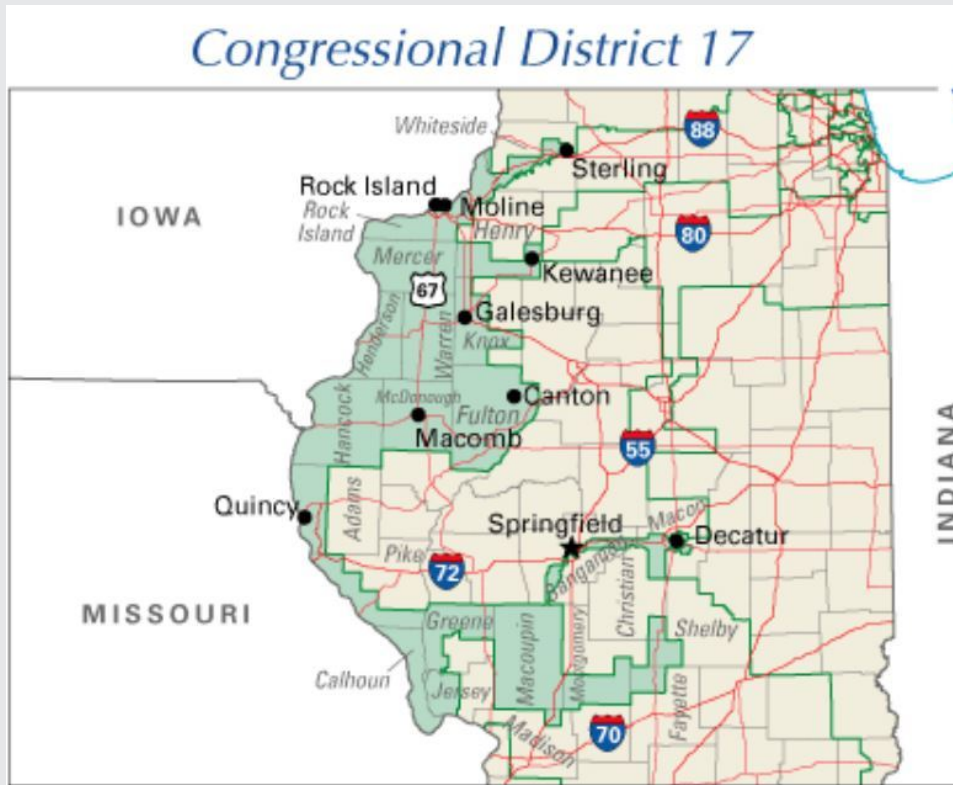
In contrast to cultural categories that are created and used implicitly, and to individual categories that are used by people acting alone, *institutional categories* are created and used explicitly, and most often by many people in coordination with each other. Institutional categories are most often created in abstract and information-intensive domains where unambiguous and precise categories are needed to regulate and systematize activity, to enable information sharing and reuse, and to reduce transaction costs. Furthermore, instead of describing the world as it is, institutional categories are usually defined to change or control the world by imposing semantic models that are more formal and arbitrary than those in cultural categories. Laws, regulations, and standards often specify institutional categories, along with decision rules for assigning resources to new categories, and behavior rules that prescribe how people must interact with them. The rigorous definition of institutional categories enables *classification*: the systematic assignment of resources to categories in an organizing system.<sup>402[Law]</sup>

Creating institutional categories by more systematic processes than cultural or individual categories does not ensure that they will be used in systematic and rational ways, because the reasoning and rationale behind institutional categories might be unknown to, or ignored by, the people who use them. Likewise, this way of creating categories does not prevent them from being biased. Indeed, the goal of institutional categories is often to impose or incentivize biases in interpretation or behavior. There is no better example of this than the practice of gerrymandering, designing the boundaries of election districts to give one political party or ethnic group an advantage.<sup>403[Ling]</sup> (See the sidebar, **Gerrymandering the Illinois 17th Congressional District** (page 358).)

Institutional categorization stands apart from individual categorization primarily because it invariably requires significant efforts to reconcile mismatches between existing individual categories, where those categories embody useful working or *contextual knowledge* that is lost in the move to a formal institutional system.<sup>404[Bus]</sup>

Institutional categorization efforts must also overcome the vagueness and inconsistency of cultural categories because the former must often conform to stricter logical standards to support inference and meet legal requirements. Furthermore, institutional categorization is usually a process that must be accounted for in a budget and staffing plans. While some kinds of institutional categories can be devised or discovered by computational processes, most of them are created through the collaboration of many individuals, typically from various parts of an organization or from different firms. For example, with the gerrymandering case we just discussed, it is important to emphasize that the inputs

### Gerrymandering the Illinois 17th Congressional District



*The 17th Congressional District in Illinois was dubbed “the rabbit on a skateboard” from 2003 through 2013 because of its highly contorted shape. The bizarre boundary was negotiated to create favorable voting constituencies for two incumbent legislators from opposing parties.*

*(Picture from [nationatlas.gov](http://nationatlas.gov). Not protectable by copyright (17 USC Sec. 105).)*

to these programs and the decisions about districting are controlled by people, which is why the districts are institutional categories; the programs are simply tools that make the process more efficient. <sup>405</sup>[Bus]

The different business or technical perspectives of the participants are often the essential ingredients in developing robust categories that can meet carefully identified requirements. And as requirements change over time, institutional categories must often change as well, implying version control, compliance testing, and other formal maintenance and governance processes.

Some institutional categories that initially had narrow or focused applicability have found their way into more popular use and are now considered cultural categories. A good example is the periodic table in chemistry, which Mendeleev developed in 1869 as a new system of categories for the chemical elements. The periodic table proved essential to scientists in understanding their properties and in predicting undiscovered ones. Today the periodic table is taught in elementary schools, and many things other than elements are commonly arranged using a graphical structure that resembles the periodic table of elements in chemistry, including sci-fi films and movies, desserts, and superheroes.<sup>406</sup>[CogSci]

### Stop and Think: Color

Think of the very broad category of “color.” What are a few examples of a “cultural” category of color? How about an “individual” one? And an “institutional” one?

#### 7.2.4 A “Categorization Continuum”

As we have seen, the concepts of cultural, individual, and institutional categorization usefully distinguish the primary processes and purposes when people create categories. However, these three kinds of categories can fuse, clash, and recombine with each other. Rather than viewing them as having precise boundaries, we might view them as regions on a continuum of categorization activities and methods.

Consider a few different perspectives on categorizing animals as an example. Scientific institutions categorize animals according to explicit, principled classification systems, such as the Linnaean taxonomy that assigns animals to a phylum, class, order, family, genus and species. Cultural categorization practices cannot be adequately described in terms of a master taxonomy, and are more fluid, converging with principled taxonomies sometimes, and diverging at other times. While human beings are classified within the animal kingdom in biological classification systems, people are usually not considered animals in most cultural contexts. Sometimes a scientific designation for human beings, *homo sapiens* is even applied to human beings in cultural contexts, since the genus-species taxonomic designation has influenced cultural conceptions of people and (other) animals over the years.

Animals are also often culturally categorized as pets or non-pets. The category “pets” commonly includes dogs, cats, and fish. A pet cat might be categorized at multiple levels that incorporate individual, cultural, and institutional perspectives on categorization—as an “animal” (cultural/institutional), as a “mammal” (institutional), as a “domestic short-hair” (institutional) as a “cat” (cultural), and as a “troublemaker” or a “favorite” (individual), among other possibilities, in addition to being identified individually by one or more pet names. Furthermore, not everyone experiences pets as just dogs, cats and fish. Some people have rel-

atively unusual pets, like pigs. For individuals who have pet pigs or who know people with pet pigs, “pigs” may be included in the “pets” category. If enough people have pet pigs, eventually “pigs” could be included in mainstream culture’s pet category.

Categorization skewed toward cultural perspectives incorporate relatively traditional categories, such as those learned implicitly from social interactions, like mainstream understandings of what kinds of animals are “pets,” while categorization skewed toward institutional perspectives emphasizes explicit, formal categories, like the categories employed in biological classification systems.

[402][Law] Consider how the cultural category of “killing a person” is refined by the legal system to distinguish manslaughter and different degrees of murder based on the amount of intentionality and planning involved (e.g., first and second de-gree murder) and the roles of people involved with the killing (accessory). In general, the purpose of laws is to replace coarse judgments of categorization based on overall similarity of facts with rule-based categorization based on specific dimensions or properties.

[403][Ling] The word was invented in 1812 in a newspaper article critical of Massachusetts governor Elbridge Gerry, who oversaw the creation of biased electoral districts. One such district was so contorted in shape, it was said to look like a salamander, and thus was called a Gerrymander. The practice remains widespread, but nowadays sophisticated computer programs can select voters on any number of characteristics and create boundaries that either “pack” them into a single district to concentrate their voting power or “crack” them into multiple districts to dilute it.

[404][Bus] The particularities or idiosyncrasies of individual categorization systems sometimes capture user expertise and knowledge that is not represented in the institutional categories that replace them. Many of the readers of this book are information professionals whose technological competence is central to their work and which helps them to be creative. But for a great many other people, information technology has enabled the routinization of work in offices, assembly lines, and in other jobs where new institutionalized job categories have “downskilled” or “deskilled” the nature of work, destroying competence and engendering a great deal of resistance from the affected workers.

[405][Bus] Similar technical concerns arise in within-company and multi-company standardization efforts, but the competitive and potentially anti-competitive character of the latter imposes greater complexity by introducing considerations of business strategy and politics. Credible standards-making in multi-company contexts depends on an explicit and transparent process for gathering and prioritizing requirements, negotiating specifications that satisfy them, and ensuring conformant implementations—without at any point giving any participating firm an advantage. See the OASIS Technical Committee Process for an example (<https://www.oasis-open.org/policies-guidelines/tc-process>) and (Rosenthal et al. 2004) for an analysis of best practices.

[406][CogSci] Unfortunately, in this transition from science to popular culture, many of these so-called periodic tables are just *ad hoc* collections that ignore the essential idea that the rows and columns capture explanatory principles about resource properties that vary in a periodic manner. A notable exception is Andrew Plotkin's Periodic Table of Dessert. See (Suehle 2012) and Plotkin's table at (Periodic Table of Dessert).