A Critique of Categorical Thinking

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Categorical thinking is in vogue these days. Perhaps it always has been, but today's rhetorical and political battles seem to have made categorical thinking prevalent. This irritates me—hence this critique.

Concern about concepts and categories is hardly new in philosophy, although the twentieth century was preoccupied with propositions. Philosophy has at times even been *defined* as thinking critically about the concepts and categories in common use.[1] Some of the greatest philosophers, such as Aristotle, Kant, and Peirce, even sought to categorize categories by identifying lists of categories that could be used to categorize all others.[2] The issue of categories—and categorical thinking—goes surprisingly deeply into philosophy.

This does not mean that all ways of using categories are good. In particular, what is often termed "categorical thinking" tends to create a variety of difficulties—epistemic, ethical, and political. In what follows, I consider "categorical thinking" and its difficulties in more detail, relating it to social processes important to education. I play on the analogy between ways of categorizing things verbally and ways of organizing social life. As is sometimes said: "Words are small institutions and social institutions big words." I consider three aspects of categorical thinking—stereotyping, binary thinking, and conceptual rigidity—seeing them as related to not necessarily problematic social processes of attribution, allocation, and institutionalization.[3] This may sound strange, but I think it will become clear.

WHAT IS CATEGORICAL THINKING?

What is categorical thinking? ChatGPT scraped the web to offer the following:

> Categorical thinking refers to a cognitive process in which individuals tend to classify…objects, ideas, or people into discrete and distinct categories based on shared characteristics

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> or features. It involves simplifying complex information by grouping things into predefined categories or labels, which can help make sense of the world but may also lead to over-simplification and stereotyping.[4]

More informally, "categorical thinking" is the tendency to conceive of things as belonging in homogeneous, non-overlapping and fixed conceptual "boxes." The question that concerns me is the downside of this way of thinking, and whether there is any other.

TWO CAVEATS AND A DEFINITION

It is important to note that one cannot coherently oppose categorization *per se*. A colleague once came to me claiming to oppose "all categorization" because it involves unjust power relations. Thinking for a moment, I replied: "I presume your house is a mess and you plan to stop talking." To my surprise my colleague did not get it. I hope *we* can agree that one cannot (seriously or coherently) oppose all categorization because "category" is itself a category.

Opposition to categorization *in general* also makes no practical sense. Categories are necessary for all verbal generalization. They are useful, even vital, for organizing objects and acting with them. In my workshop I store "wrenches" in one drawer, "screwdrivers" in a second and "chisels" in a third. This makes it easy to find a tool when needed, or tell someone else how to do so. If I lost this ability I would be like a dog. No disrespect, but pointing with nose and tail are not the same as indicating classes using conventional signs.

Although one cannot coherently oppose categorization in general one can be critical of certain *ways* of using categories. In what follows, I will be narrowly concerned with a problematic *manner* of using concepts and categories, and not about *which* concepts or categories to use. Conceptual choice is important, but not my focus.

But what do I mean by "concepts" and "categories?" By a "concept" I mean a word or conventional sign that functions to denote a class of objects, existential or abstract. A sign is a "concept" when it functions in this way. A "category" is what a concept denotes in contrast to related concepts in a scheme.

In my case, "wrench" is a concept in the categorical scheme of "tools."

ATTRIBUTION AND STEREOTYPING

The first process of concern is attribution, the process of attributing qualities (characteristics, traits, properties) to objects (things, people, actions, signs) on the basis of signs of their categorical type or identity (class, set, group).[5]

Attribution theory in psychology and status characteristic theory in sociology are examples of empirical research in this vein.[6] What turns attribution into "stereotyping" is the unwarranted *presupposition* of homogeneity among objects in a denoted class. Categorical thinking involves *unwarranted homogenization* of expectations with regard to the traits of "individuals" in a class.[7] As examples, let me consider two types of stereotyping related to education.

PSYCHOLOGICAL STEREOTYPING

Psychological stereotyping involves unwarranted generalization about the mental traits of individuals based on their categorical "type." Everyday terms of abuse, such as, "You're an idiot," furnish an example, where characterizing a person in general leads to forming specific expectations of their conduct.

Academic psychology has, of course, contributed to mental stereotyping. After my daughter was given an intelligence quotient (IQ) test at school, I looked it up to see what it was like. In addition to telling an administrator how to score the test, it offered this helpful categorization:

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IQ CLASSIFICATION CHART

IQ	CLASSIFICATION	SCHOOL ACCOMPLISHMENT AND PLACEMENT
140 and up	Very Superior.....	Gifted classes, college, graduate work
120 - 139	Superior	Gifted classes, college, graduate work
110 - 119	Bright	High school and college
90 - 109	Average	High school, college is dubious
80 - 89	Dull	Slow learner classes
70 - 79	Borderline.....	Slow learner and retarded classes
(Below 70 -	Feebleminded)	
50 - 69	Moron	Retarded classes (Educable)
20 - 49	Imbecile	Retarded classes (Trainable)
0 - 19	Idiot	Not in school (Not trainable)

figure 1: *The IQ Classification Chart used in the Slosson Intelligence Test for Children and Adult.*[8]

What I found interesting was that those with higher scores were described in relative terms ("Very superior," "Superior," "Average") while those with lower scores were described categorically ("Moron," "Imbecile," "Idiot"). Adjectives turned to nouns. For those who did relatively badly, differences in degree became differences in type, suggesting that it was more acceptable to pigeon-hole lower performing children.

There has been a lot of controversy about IQ, leading to some revisions, but related controversies continue. The American Psychiatric Association's (APA) *Diagnostic and Statistical Manual of Mental Disorders* divides mental disorders into categorical types, such as "schizophrenic/psychotic disorder," "anxiety disorder," and "obsessive-compulsive disorder."[9] One danger, as with lower IQ, is that these terms for forms of mental conduct are turned into categorical identities, as in "That person *is* a "schizophrenic." This is not to say that mental health professionals necessarily do so, but it is easy to slip from adjective to noun, trait to identity.

Other more detailed questions concern whether a trait can be presumed to be uniform, homogeneous and stable. For example, the APA is now adopting a "dimensional" approach to some traits, viewing them as falling along a continuum rather than categorically, as in the "autism spectrum." Interestingly,

this is the way "intelligence" was conventionally treated, as we have seen, at least at times for those with lower scores. It seems that negative traits, like mental "disorders" are more likely to be viewed in categorical terms, while positive traits, like "intelligence," tend to be treated as matters of degree.

There are also questions about whether mental disorders should be considered homogeneous, as in "multiple intelligences" rather than a single form. There is now a similar tendency to see mental disorders as inhomogeneous, as in forms of bi-polar disorder that involve mixes of mania and depression. There are also questions about stability as well as homogeneity. To what degree is a trait stable? Or, is "it" always in flux?

These changes indicate questions about the use of uniform, homogeneous, and stable categories to denote forms of mental function or dysfunction. Putting issues of non-uniformity and inhomogeneity together, for example, an individual's "intelligence" becomes a profile, relatively high on one dimension of "intelligence," relatively low on another, and so forth. Whether this makes sense depends on one's purpose, but these issues show that simple presuppositions about categorical psychological traits are being questioned in the fields that developed them.

Such questions clearly do not mean that one can never categorize things. But real (existential) individuals will always differ in degree, quality, and functional stability, if one inspects closely. My "wrenches" come in different sizes, designed for different functions, and sometimes rust and become inoperable. Any categorization will also neglect the configurations of characteristics possessed by unique individuals. As Dewey put it: "There being no recognition that each individual constitutes his own class, there could be no recognition of the infinite diversity of active tendencies and combinations…of which an individual is capable."[10]

SOCIAL STEREOTYPING

Social stereotyping involves similar unwarranted inferences from evidence of a person's general social status (for example, race, gender, and education) to attributions about their individual characteristics, such as presupposing that

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higher status individuals are more "intelligent" or "competent" than lower status people. Such stereotyping also occurs when attributing traits homogeneously to those belonging to unranked social groups, such as different religious groups. I will not elaborate, since these examples are well known, except to note that the same questions about uniformity, homogeneity and stability repeat in sociology, as in psychology.

WHAT IS WRONG WITH STEREOTYPING?

Stereotyping, or hasty generalization, relies on unwarranted assumptions about the homogeneity of the individuals "in" a category. It may also involve overgeneralization from conduct on some occasions to presumptively stable identities. Admittedly, there are cases where a presumption of homogeneity can be warranted. If you have already sorted marbles into different jars on the basis of their color you have good reason to expect the color of the next one drawn from a jar to be as you sorted them. Similarly, you might take a random sample of the members of a group to form a rational estimate of the probability that a new *sample* will have certain traits, on average. Or, you might update your initial probability estimates on the basis of new observations using Bayes' rule. Sometimes traits may also be rationally expected because they are part of the very *definition* of a category, as in Aristotelian essentialism. In an essentialist approach, if you recognize that Fido is a "dog" you can be *certain* that he has canine teeth, because that's how "dog" was defined in the first place. However, essentialist presuppositions appear to be false with regard to real (existential) groups (as opposed to formal definitions, like all "circles" in Mathematics).

At the very least, it can be helpful to think about categorization more flexibly than in terms of essences. Wittgenstein's "family resemblances" constitutes one less restrictive approach, suggesting that the members of a category, like members of a family, may share overlapping sets of traits with no common essence. This is the equivalent to the biological notion that members of a species get their traits by drawing from a common gene pool. In fact, Darwin's *On the Origin of Species* can be seen as a wonderful contribution to philosophy, showing how one can retain the concept of species (types) while rejecting essentialism. Interestingly, biologists continue to disagree on the meaning of "species," dis-

covering surprising diversity within species they thought unitary, and surprising commonalities among some thought to be distinct.[11] Real types are not as neat as essentialized categories.

None of this suggests that one cannot categorize and form expectations on that basis, but what makes individuals "the same" depends on your purposes. As William James noted:

> The only meaning of essence is teleological…classification and conception are purely teleological weapons of the mind. The essence of a thing is that one of its properties which is so important for my interests that in comparison … I may neglect the rest.[12]

My "wrenches" are *essentially* the same if they serve to tighten the bolts I am concerned with. In other cases, they will be "different." This suggests that treating others stereotypically, involves narrowness of purpose, as well as unwarranted inference.

ALLOCATION AND EITHER/OR THINKING

A second process, allocation, concerns the way individuals are sorted into categories in the first place. In my workshop, I sort tools so that each drawer is relatively homogeneous with regard to the characteristics I care about. In verbal-logical terms, allocation relates to connotation or intension, to what being sorted into *that* box implies, when contrasted with other possibilities.

Categorical thinking involves a way of sorting based on the presupposition that the objects at a given level of generality fall into binary, either/or groups. For this to be true the categories must be discrete, non-overlapping, and exhaustive.

The most familiar educational example of binary allocation is when schools are viewed as "sorting machines," allocating students to either/or statuses, like manual versus intellectual streams, or "success" versus "failure."[13] Other examples easily come by:

1. Racial identity as either "Black" or "White"

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2. Gender identity as either "Male" or "Female"
3. Religious identity as either "Believer" or "Unbeliever"
4. Political identity as either "Right" or "Left"
5. Communal identity as either "Insider" or "Outsider"[14]
6. Class identity as either "Capitalist" or "Worker"
7. Political identity as either "Oppressor" or "Oppressed" ("Master" or "Slave")

WHAT IS WRONG WITH BINARY THINKING?

If stereotyping is a tendency for unwarranted *homogenization*, binary thinking is a tendency for unwarranted *polarization*. To see what can be wrong with this, consider the assumptions on which binary categorization is based.

Binary categorization presupposes non-overlap, which is sometimes false. Since I have both American and Canadian citizenship, thinking of me as *either* one *or* the other is false, and would deny me legitimate rights. Although some categories are mutually exclusive, many commonly thought to be are not. One reviewer suggested that religion is like this. Pagans were fine if you believed in other gods, as long as you did not disrespect theirs. The major monotheistic religions all draw on the Old Testament and were, at times, more tolerant of one another than of Pagans because they acknowledged common beliefs and origins. Today's Bahai allow you to belong to any other religion, as well. Religion, like citizenship, is only mutually exclusive when made to be.

A second difficulty occurs when the categories are not exhaustive, since individuals may belong to *neither* alternative. Atheists, those of non-binary gender, and stateless people are examples. In these cases, binary *presuppositions* do not apply, although any categorization can be forced.

As with psychological traits, it is possible to consider social relationships in more complex ways than "above" versus "below," or "in" versus "out," although hierarchy and grouping are the warp and woof of social structure.[15] Max Weber argued that Marx's conception of social hierarchy was too simple

to adequately describe social power, noting that social power is often differentiated along multiple dimensions, such as economic class, social/ethic status, and political position.[16] With multiple dimensions in play, a person can be "above" another on one dimension and "below" on a second or third. Low caste Dalits in India have, at times, been wealthier than high caste Brahmins, who had to come to them for loans. As a result, status and class were inconsistent, allowing each to lean on the other in different ways.[17] One may also have multiple group identities, or be an outsider from all of the groups considered.

These points echo earlier concerns about psychological traits, with emphasis on allocation rather than attribution. Rather than a single hierarchical dimension, or membership in either one or the other polarized group, one can have multiple dimensions and overlapping and/or non-exhaustive groupings. In fact, this is what one should hope for in a stable, less polarized social life.[18] These also have implications for political reporting which often focuses on differences in group means while neglecting intragroup variation and intergroup overlap. If both between group differences in means and within group variances were reported—*and* given equal emphasis—one would be able to see both difference *and* overlap. But that does not sell newspapers.

INSTITUTIONALIZATION AND RIGIDITY

A third issue has to do with *how* concepts and categories are held. As noted earlier, I am not concerned with the particular categories adopted, since I am focusing only on a style or manner of thinking. Here my concern is with the fixity or flexibility of categorization.

The three processes I consider clearly form a logical hierarchy, since selection of concepts or categories is presupposed in *allocating* individuals to categories, just as allocation is presupposed before *attributing* characteristics to those "in" a given category. For individuals the system of concepts and categories in use constitutes their worldview. For societies they are institutional categories, like "families, "schools," or "nation-states," that constitute a given social "world." The system of concepts and categories that constitutes our mental and social worlds also represent certain values. They are the things that

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individuals, communities, or states care about enough to distinguish, talk about, and use in coordinating action.

My concern at this point is with how firmly entrenched such categories become. For example, I am concerned not with the properties of the tools in a given drawer, or with which drawers I sort my tools into, but whether my organization is rigid or changeable. At the societal level, this relates to the degree of *institutionalization* of social categories.[19] Concepts like "school," "grade-level," and "mathematics" are highly institutionalized, for example. My question here is whether present versions of such concepts are viewed as the only way things are, or as open to revision.

Once again, one also cannot coherently oppose habituation or institutionalization *in general*. Any act depends on habits that cannot possibly enter conscious thought because it is itself a habitual process. Similarly, every social act depends on institutionalized patterns of relationship that are not up for grabs at the moment. If one had to negotiate which side of the road to drive on whenever meeting an on-coming car, traffic would quickly halt. One can, however, oppose the notion that such categories are inherently unquestionable or unchangeable.

Philosophically, adoption of fixed systems of categories is equivalent to adopting a fixed metaphysics, since metaphysical claims are composed of such categories. Consider some examples of rigid categorization/metaphysics:

1. Conventionalism: Conventional thinkers adopt existing conventional distinctions, any change being viewed as heretical. Their principle of categorization seems to be conventional acceptance.

2. Essentialism: Aristotelian essentialism suggested that there are categories into which things naturally and eternally fit ("natural kinds"). As noted earlier, Darwin's *On the Origin of Species* provided a different way of thinking about natural types (species) that did not require that they have common

essences—or remain fixed.

3. Perennialism: Christian thinkers have often argued that certain categories, like God or the Trinity, are sacred, fixed and eternal. Whether the "Godhead" is a unity (Unitarianism), a duality (Manicheism), a trinity (Catholicism), or some other, has been contested for millennia.

4. Transcendentalism: Transcendentalists—meaning Kantians, not nineteenth century Romantics— tried to identify categories like space, time, causality, and substance implicit in all thinking about empirical objects. However, thanks to Einstein, we now regard space and time as changeable aspects of nature, rather than fixed characteristics of mind.[20] Later philosophers saw substance as entirely dispensable.

5. Fixed Categories of Knowledge and Intelligence: Contemporary thinkers positing seven basic forms of intelligence, or seven subjects of knowledge seem to me equally (and hilariously) arbitrary. Apparently drawing on the Roman Trivium and Quadrivium, or perhaps the Babylonian sacred number seven, they settle on this magic number. While the ancients could only see seven nearby astronomical objects, we know of many more.

I consider all of these to be instances of conceptual rigidity. This is different from propositional dogmatism, since the issue is not whether a given *proposition* is eternally true, but whether the categories of which it is formed should be treated as given and not subject to revision. As Nelson Goodman argued "truth" and "rightness" are not the same, although intimately related.[21] While metaphysical beliefs—beliefs about the most basic and universal kinds of existential objects—are often regarded as untestable, they are in fact commonly assessed in science and everyday life. Otherwise, philosophy would be pointless.

WHAT IS WRONG WITH CONCEPTUAL RIGIDITY?

Would it not be wonderful if we got the basic categories of the cosmos right and stuck with them? The principal problem is that this does not

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allow for adaptation as knowledge, conditions and needs change. Conceptual or institutional categories that are functional at one time may not be at another. Continued intellectual and social life, like biological life, requires persistence and flexibility, habit and reflection, institutions and reforms—or it dies.

Conceptual rigidity is also contrary to education insofar as it is thought to involve thinking about and questioning prevailing conceptual systems and institutions. Insisting on fixed and unquestionable categories is like insisting on scientific theories or social structures whose basic terms can never change, something that never was and never will be—although some forms may persist in isolated backwaters.

At the same time, recognizing that flexibility is needed is no reason to reject all attempts at finding more general and enduring conceptual or institutional schemes. However, it is one thing to reject any fixed metaphysics, any unquestionable "meta-narrative," and another to reject every attempt to find schemes of more general application and fruitfulness for conditions at hand.

CONCLUSION: CATEGORIES, CONVENTIONS, AND CONTROL

Given William James' point that "classification and conception are purely teleological weapons of the mind," what purposes are served by "categorical thinking"?[22] What is this manner of thinking good for, if anything?

I think there are (at least) two answers. The first is that categorical rigidity, like any entrenched habit, economizes effort. If I stick to my current way of organizing tools, life is simple, as it is for those who adopt conventional categories. The second is that categorical thinking is motivated by a desire for unilateral control. Desire for control is often stimulated by anxiety, caused by the feeling that things are threateningly out of control. Anxiety stimulates a desire for control, just as perceived lack of control stimulates anxiety.

Dewey's discussion of the "quest for certainty" is apropos here.[23] Dewey saw the root of any number of philosophical, conceptual and practical pathologies in the desire to achieve absolute certainty, which is impossible in the real, existential world. What is dysfunctional is not the desire to *reduce* uncertainty, but the disproportionate and unilateral character of the effort. In

making certainty a goal superseding all others, one becomes insensitive to the side-effects of the effort—contributing to the chaos one is fighting.

If categorical thinking involves an effort to achieve unilateral control it should clearly be questioned by all lovers of genuine dialectic, open-ended dialogue, and participatory democracy.[24] This is not an argument in favor of letting chaos reign, since arguing against control *in general* is another incoherent position (though adopted by some Post-Moderns), since it requires control to even make a coherent argument against it. Nevertheless, one can strive to achieve whatever control is realistically possible in a situation by working *with* others and *with* one's environment. Even then, it is good to remember that unilateral control precludes emotional sensitivity, and vice-versa.

All of this may seem simple—as it is. The basic point is that one should not confuse one's categories with empirical realities. A closely related point is that a category judgment (placing an object, like a new tool, in a certain "drawer") is a hypothesis about its other characteristics not used in allocating it to that drawer, that may or may not turn out as expected. But these points are easily forgotten in the heat of the moment, when acting anxiously or seeking comfort in convention. I hope it is also *very* clear that my argument is not against using categories. Not in the slightest. As noted, this would be both incoherent and impractical. But as with a hammer, one can use it well for what it was designed for, or simply to smash things.

Finally, have I fallen into my own trap and engaged in categorical thinking while criticizing it? I have used categories in describing three social processes and three kinds of conceptual error, and even tried to be a bit neat about it. I also listed approaches or schools of thought that I claimed adopt fixed metaphysical beliefs. I do not presume that any *particular* "other" fits any box without residue, however, every philosopher or approach being unique. At the same time, every object is endlessly categorizable, depending on your purpose. *My* purpose has been to point out the unnecessarily limiting character of "categorical thinking," recognizing that this is an ideal type (of rigid thought) that may never be adopted wholly by any concrete individual or tradition.

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22 Zimmer, "What Is a Species Anyway?"

23 John Dewey, *The Quest for Certainty* (New York: G. P. Putnam's Sons, 1929).

24 By "genuine" dialectic, I mean dialectical argument, like many offered by Plato, that does not presuppose (or necessarily achieve) a fixed conclusion.