

The Categories of Causation*

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1. Introduction

This paper is an essay in what J. L. Austin called “linguistic phenomenology”—a philosophical investigation of ordinary language in which we are meant to be “looking not *merely* at words ... but also at the realities we use the words to talk about” (Austin 1956-7, p. 8). Its focus is the nature of causation, and in particular the *variety* of forms of causation that there can (be said to) be. Here is how I will proceed.

Section 2 motivates my inquiry. I begin by giving two reasons for thinking that a study of ordinary causal language shouldn’t focus on how we use the English word ‘cause’. The first reason is that people don’t use ‘cause’ very often in ordinary speech, and the second is that when people *do* use this word it’s usually in special situations, such as where an undesired outcome is brought about accidentally through a complex chain of events. But causation is a fundamental concept that should figure prominently in what we say, and situations like these are not paradigms of causal connectedness in general. To bring out how we speak about causation, we need to move our focus away from ‘cause’-talk, and reflect instead on how we use specific lexical causatives like ‘scrape’, ‘push’, ‘wet’, ‘carry’, and so on.

Having made this argument, in Section 3 I outline my analytic method. Appealing to an Aristotelian schema that distinguishes causation into four categories—creation, destruction, and the causation of change in place or property—I suggest that we can find marks of these categorical distinctions, and of

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further distinctions contained within them, by examining the full variety of English causative constructions. My guide to this investigation is Beth Levin's (1993) *English Verb Classes and Alternations*, which provides a systematic overview of English verb classes according to their shared syntactic properties.

Section 4 presents my analysis. It is divided into four parts: subsection (A) considers the different ways of causing change in place, (B) the different ways of causing change in state, (C) the different forms of creation and destruction, and (D) some forms of causation that don't fit easily into the preceding categories. A full list of these categories and their sub-categories, with reference to the corresponding Levin classes, is presented in a concluding Appendix.

Finally, in Section 5 I discuss a few ways that recent work in metaphysics and experimental philosophy has been held back by an excessive focus on 'cause'-talk, and could benefit from attending to the variety of causal locutions that are laid out in this paper.

2. Cause and 'Cause'

What are the different ways of causing things to happen, or to be as they consequently are? A common way to approach this question is by inquiring into the ways that 'cause' is said. But that approach is wrongheaded. I will discuss two reasons why.

The first reason is that ordinary speakers actually use the word 'cause'—either in a verbal form as in 'caused the (explosion, recession, recovery)' or 'caused to (break, die, improve)', or in a nominal one as in '(the, a) cause of (inequality, poverty, the divorce, a wildfire)'—pretty rarely, and much less often than we'd expect if this were our main way of giving voice to this fundamental notion.¹ To see this, consider the lists of word frequencies that are shown in Table 1, which is drawn from the Corpus of Contemporary American English (COCA). Judging from this list, if we speak about causation only as often as we say the word 'cause', then we don't speak about causation much at all: for we talk explicitly about *causing* only about as often as we discuss specialized activities like *returning*, *choosing*, *joining*, and *teaching*, in contrast with ones like *saying*, *going*, *knowing*, and *thinking*; and we mention *causes* much less than *times*, *years*, *men*, and *women*, but rather as often as *parks*, *workers*, *letters*, and *guns*. If the concept of causation is central to our way of making sense of the world, then this concept should find expression in a lot of what we say. Taking that much for granted, the conclusion to draw from these lists is that we must speak about causation in other ways than by saying 'cause'.

¹ It doesn't matter to our purposes whether the verbal and nominal 'cause's should be counted as one word or as two (the latter being the standard position among linguists).

<u>Verbs</u>	<u>Nouns</u>
4. say (4,125.20)	1. time (2,032.91)
5. go (3,571.65)	2. people (1,182.85)
6. get (3,371.14)	3. year (1,742.14)
8. know (2,781.03)	4. way (1,268.86)
11. make (2,306.93)	5. thing (1,210.45)
12. think (2,092.36)	6. man (1,099.05)
13. see (1,972.46)	7. day (1,076.41)
14. come (1,814.82)	8. life (858.25)
15. take (1,780.53)	9. woman (765.17)
16. want (1,683.27)	10. world (737.66)
...	...
123. wear (179.04)	270. park (136.39)
124. return (178.03)	271. worker (136.19)
125. choose (171.92)	272. earth (135.14)
126. cause (171.83)	273. cause (134.94)
127. join (171.50)	274. race (134.12)
128. teach (170.87)	275. letter (133.76)
129. develop (170.08)	276. gun (133.50)

Table 1: The frequency with which ‘cause’ and other English words are used, according to the Corpus of Contemporary American English (source: <http://www.wordfrequency.info>, accessed 13. June, 2023). Ordinal numbers show the lemma’s rank frequency among all the items in the relevant part of the sample (verbs or nouns), and numbers in parentheses are its frequency of occurrence per 1 million words. Excluded from the list of verbs shown here are the common auxiliaries ‘be’, ‘have’, ‘do’, ‘can’, ‘will’, and ‘would’.

Second, evidence suggests that when people *do* say ‘cause’ it is usually in relation to a special kind of causal process or result, while many paradigmatically causal processes are not spoken of in this way. Here we may consider first a corpus study by Sytsma, Bluhm, and Reuter (2019), which examines the nouns appearing after the phrase ‘caused the ...’ in a sample of sentences drawn from COCA. All of the ten nouns that appear most frequently after this construction, and 30 of the top 50, were classified by independent raters as negative—suggesting that this construction is used most often in connection with negative or undesired outcomes.² The authors interpret these findings as support for the thesis that “the concept of causation at play in ordinary causal attributions is itself normative”, as such attributions serve “to express a normative evaluation that can be roughly captured by saying that the agent is responsible for that outcome or that the agent is accountable for that outcome, whether good or ill” (Sytsma, Bluhm, and Reuter

² Things are no different with the nominal ‘cause’, as COCA returns ‘problem’, ‘crash’, ‘fire’, ‘accident’, ‘disease’, ‘explosion’, ‘war’, ‘crisis’, ‘problems’, and ‘death’ as the ten most common nouns following the phrase ‘cause of the ...’. For a similar result, see Stubbs 1995.

2019, p. 213). Yet a different possibility is that English speakers use ‘cause’ to describe only *some* causal processes, while the phenomenon of “causal attribution” encompasses much more. And there is, in fact, good reason to think this.

For example, an experimental study by Wolff (2003) supports the long-held view that the periphrastic construction ‘cause to V’ is preferred to a corresponding lexical causative only when the outcome in question is brought about by accident. In this study, participants were shown different scenarios like those depicted in Figure 1, in which a person’s action leads to a certain outcome either intentionally or by accident. They then had to say whether they agreed more with the statement that the agent *caused the X to V* (candle to go out, TV to turn on, etc.), or with the statement that she *V-ed the X* (blew out the candle, turned on the TV, etc.). And Wolff’s participants agreed much more with in the accidental condition than the intentional condition, and vice versa.³ As long as we assume that, e.g., “turning on” a TV by deliberately pushing a button with your thumb is no less of a causal process than “causing it to turn on” by accidentally sitting on the remote, this is clear evidence that ‘cause’ is not used by English speakers as the primary way of making causal attributions.

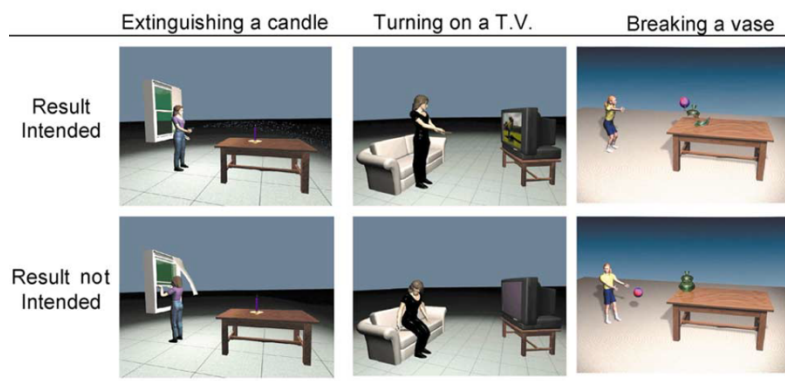


Figure 1: Sample stimuli from Wolff 2003, Experiment 3.

Likewise, a study by Schwenkler and Sievers (2022) finds that the strength of the “norm effect” on causal attributions (e.g., Knobe and Fraser 2008; Hitchcock and Knobe 2009), in which causal judgments are influenced by whether an agent is perceived to have violated a norm, depends on the normative valence of the

³ As Siobhan Chapman pointed out to me, this phenomenon can be explained in Gricean terms: since saying only that something has been “caused” (to do such-and-such) provides very little information as to the nature of the connection at issue, the Cooperative Principle requires that, where possible, we describe causal processes using specific verbs that supply more informative descriptions of what has happened. But there is also a more radical explanation, namely that the relevant ‘caused’-sentences are false or nonsensical in circumstances where corresponding lexical constructions are easily available. I myself favor the latter position, but can’t possibly defend that view here—though for a sense of how it would go, see my discussion of the use of ‘voluntarily’ in Schwenkler (forthcoming, pp. 19-21).

causative constructions at work. For example, in one of their experiments participants viewed an animation in which two agents perform identical actions with the result that something bounces into the air and then shatters. Schwenkler and Sievers found that participants' judgments of which agent *broke the thing* or *caused it to break* were affected by whether one of the agents was perceived to have violated a norm, but that judgments of which agent *bounced the thing into the air* were not. A plausible explanation of this is that only the former statements were interpreted as ways of assigning responsibility for the negative outcome, and that participants used the latter statement simply to describe what happened—that is, to say what each agent did. If this is right, then it suggests that while there is a *special* use of 'cause', and of certain lexical causatives like 'break', that is closely connected to the expression of normative evaluations, ordinary causal discourse has a wider scope than this. If our goal is to get a comprehensive view of the nature of ordinary causal attributions, then our focus should not be solely *or even primarily* on the way that people use the word 'cause'.

3. System and Method

How, though, can we achieve this wider focus, and what should we do once we have got it? To see the difficulty, consider what a motley we find in the very small list of "special causal verbs" laid out by Anscombe in her (1981a, p. 137):

scrape, push, wet, carry, eat, burn, knock over, keep off, squash, make (e.g. noises, paper boats), *hurt*⁴

Except for the debatable case of 'make noises', all these words feature in paradigms of ordinary causal talk: thus *John scraped his knee*, *The horse pushed the gate open*, *The rain wet the driveway*, and *Jen carried in the groceries* all describe events in which someone or something "makes something happen", or acts in such a way that things are thereby different than they would have been. But that's only a very rough and untutored thought. Further, Anscombe's list is both heterogeneous and incomplete. *Pushing, carrying, and knocking over* are all different ways of affecting how things are positioned in space, but then so are *pulling, dragging, and standing up*. Likewise, *scraping, wetting, burning, and squashing* are acts that affect the physical condition of an object, but *painting, drying, freezing, and (un)folding* are as well. And so on. While linguists have no consensus view of the grammatical criteria for lexical causativity (for discussion see Wolff 2003, Appendix A), such a thing seems impossible to achieve anyway except in the context of a *philosophical*

⁴ For another such list, see van Inwagen (2012, p. 163): "'push,' 'pull,' 'strike,' ... 'turn,' 'annoy,' 'comfort,' and 'kill.'" In a footnote (*ibid.*, n. 9) he adds 'eat' and 'write' as two more examples of causal verbs. Cartwright (2002, pp. 814-817) calls these words for "thick causal concepts", echoing Williams's (1985) talk of "thick" ethical notions.

account of what causation involves. As each thing depends on the other, the only way forward is to try to do both at once: to set off into the seas of language, and try to bring order to what we find.

Here is how I will approach this task. First, in order to achieve as wide a view as possible of our ordinary causal language, the raw material for my inquiry will be the comprehensive overview of English verb classes laid out by Beth Levin in her (1993). As I will discuss below, Levin's classification is driven by the hypothesis that many grammatical restrictions governing the use of English verbs reflect aspects of these verbs' semantics. Because of this, rather than focusing on the properties of individual verbs, in Levin's work the unit of analysis is that of the English verb *class*, which is a group of verbs whose shared syntactic behavior appears to be tied to their shared meaning. By attending carefully to the semantics of these Levin classes, we can bring into view a schematic or *formal* dimension of lexical meaning that's shared by superficially heterogeneous groups of words, at a level that abstracts from the "material" differences between them.⁵

Second, in order to proceed systematically I will draw on an Aristotelian schema that is developed in a classic work by Anthony Kenny (1963). Aristotle's categories are those of *substance* (or "thing"), *quality* ("state"), *quantity*, and *location* ("place"), and Kenny suggests that we can distinguish four kinds of causal acts, corresponding to these fundamental ontological distinctions:

- Some acts *bring things into existence*, as "building a house is bringing it about that a house exists";
- Some acts *end the existence* of things, as "burning the gasworks is bringing it about that the gasworks does not exist";
- Some acts *alter the qualities* of things, "as painting Lord Beaconsfield's statue scarlet is bringing it about that it is scarlet, when hitherto it was subfusc"; and
- Some acts *alter things' locations*, as "putting the baby to bed brings it about that the baby is in bed" (see Kenny 1963, p, 125).

A nice feature of Kenny's schema is the way it can be systematically extended. For instance, if *building a house* brings something into existence, then so do *baking a cake*, *sculpting a statue*, *weaving a blanket*, and *knitting a sweater*—in each of which the main verb has the sense of what Levin calls a *Build Verb*, i.e., a verb that "describe[s] the creation of a product through the transformation of raw materials" (Levin 1993, pp. 173-174). Likewise, if *burning the gasworks* brings it about that something no longer exists, then so do *shattering the vase*, *smashing the window*, *destroying the factory*, and *obliterating the enemy*—the first two from the Levin

⁵ For a related use of 'schema', see Vendler 1957/1967; and cf. Jackendoff's (1990) notion of "conceptual structure". In this paper I'll often use 'form' because of its Aristotelian undertones.

class of *Break* Verbs and the second two from the class of *Destroy* Verbs (Levin 1993, pp. 241-242 and 239-240), all of which “relate to the total destruction of entities” (Levin 1993, p. 240). Likewise, with *paint the statue* we have *dye the dress* and *butter the bread*—the former a Verb of Coloring, which “describe[s] changing the color of an entity, usually by the application of some coating the covers the surface of the entity” (Levin 1993, pp. 168-169), and the latter a *Butter* Verb, whose “meaning can be paraphrased as ‘put X on/in (something),’ where X is the noun that the verb takes its name from” (Levin 1993, pp. 120-121). Finally, with *put the baby to bed* we can compare *arrange the flowers in the vase* and *mount the portrait on the wall*—both of these *Put* Verbs, which “refer to putting an entity at some location” (Levin 1993, pp. 111-112). The focus of my analysis will be on these aspects of shared meaning, scrutinized in much more detail.

Let me make a few more preliminary points. The reader may have noticed that Kenny’s schema ignores Aristotle’s mention of change in quantity: I will return to this point below. She may also have noticed that all Kenny’s examples concern change that an agent brings about “in another”: the builder constructs *a house*, the arsonist destroys *the gasworks*, the painter paints *the statue*, and the parent puts *the baby* to bed. I will adopt this restriction for the sake of simplicity, setting aside the sort of change involved when you “grow up, learn to drive a car, join the Communist Party or commit suicide” (Kenny 1963/2003, p. 125). Likewise, and again for the sake of simplicity, I’ll also largely ignore the important differences between causation by commission and by omission, and between producing, preventing, enabling, and allowing change.⁶ While in general the causative expressions that I survey in this paper seem to be overwhelmingly “commissional” and productive, I won’t explore this matter systematically.

One last preliminary question is that of whether it is a mistake to think of causal concepts as expressed at the level of individual causal verbs.⁷ To see what’s at stake here, consider the sentences under (1) and (2) below, which are sometimes taken to show that a verb like ‘kick’ should not be classified as causative (cf. Wolff 2003, p. 41; following Shibatani 1976, p. 2):

- (1) ?John melted the ice, but nothing happened to it.
- (2) John kicked the ice, but nothing happened to it.

This test reveals an important difference in the semantics of these two verbs, namely that ‘melt’ is *essentially* causative in a way that ‘kick’ is not. But I think it’s wrong to conclude from this that ‘kick’ shouldn’t be included in a classification

⁶ On causation by omission, see McGrath 2005; Wolff, Barbey, and Hausknecht 2010; Henne et al. 2013; and Clarke et al. 2015. On the second family of concepts, see Talmy 1988; Wolff 2007; and Sloman, Barbey, and Hotaling 2009.

⁷ Here I am grateful to an anonymous referee.

of English causative expressions. That's because 'kick' can function as a causative in the context of appropriate resultative phrases, as shown in (3) and (4):

- (3) John kicked the ice *across the kitchen floor*.
- (4) John kicked the ice *to pieces*.

Here, the italicized phrases require us to interpret John's kicking as efficacious, as a way of causing change in what he kicks. If that's right, then 'kick' as it appears in (3) and (4) should receive a causative analysis no less than does 'melt' as it appears in (1). If we say this, however, then how can we treat classes of *verbs*, rather than verbs in the context of wider constructions, as the primary units of an analysis of causal language?⁸

I believe this is a false choice. In (2), 'kick' is used as what Levin calls a *Hit Verb*, as it describes an event of "moving one entity in order to bring it into contact with another entity, but [does] not necessarily entail that this contact has any effect" (Levin 1993, p. 150). By contrast, the addition of the resultative phrases in (3) and (4) mandate a different construal of the event that the kicking is part of: specifically, in (3) 'kick' is used as a *Throw Verb*, or a verb that describes a way of "instantaneously causing ballistic motion" (Levin 1993, p. 147); and in (4) describes a way of affecting a thing's material integrity. However, it is not just an accident that the verb 'kick' can have all these uses: rather, it's precisely because kicking is a motion by which something can be forcibly contacted, that kicking a thing can be a way of causing it to move or break apart.⁹ It is, in other words, the abstract meaning of the verb that determines what constructions it can be part of, and the construction a verb is part of that determines what it is used to say in any given instance—including, as the examples above reveal, whether it is used to describe a causal process.

4. The Categories of Causation

In this main part of the paper, I begin with the four categories of causation distinguished above and then divide each one into further sub-categories and sub-sub-categories that reflect the semantic properties of different English verb classes. My aim is to be as systematic and comprehensive as possible, highlighting all of the kinds of causal process that our language allows us to distinguish. Subsection

⁸ For important discussion of how *constructions* are an indispensable element in linguistic meaning, see Goldberg 1995, 2006, and 2019.

⁹ I speak "uses" rather than "senses" to avoid committing myself to saying that, e.g., 'kick' has different *meanings* in (2), (3), and (4). This issue is complicated, of course: for a position that is similar to mine in spirit but perhaps different in the details, see Levin and Rappaport Hovav's (1995, ch. 5) discussion of what they call "regular polysemy". I thank Juan Piñeros Glasscock for pushing me to be clearer on this point.

(A) considers the category of change in place; (B), change in state; (C), the categories of destruction and creation; and (D) a few categories that the preceding analysis seems to overlook. A detailed outline of all these categories and their sub-categories, with further discussion and reference to the corresponding Levin classes, is presented in the concluding Appendix.

A. *Causing change in place*

What are some ways of affecting the location or “place” of an object?¹⁰ My analysis will center on three sub-categories: (i) ways of causing changes that are purely in the physical location of an object; (ii) ways of changing the locations of things with respect to surfaces and containers; and (iii) ways of causing changes in location that also involve an element of possession.

(A.i) *Purely locational changes*

My first subcategory is that of acts that result in what I call *purely locational* changes. What makes these changes “purely” locational is that, in themselves, the only difference they make is in where a given thing is. This category encompasses several further distinctions. The primary ones are between (a) causal acts that *impart* motion to an object that then continues moving on its own, (b) causal acts in which the agent’s own motion continuously *accompanies* the motion of the object whose location she changes, (c) causal acts that involve *directing* an object to a location (and sometimes a manner of rest), and (d) causal acts in which the agent (which may be inanimate) merely *impacts* the object whose location is thereby changed. Alongside these further subcategories, I will also distinguish (e) acts in which an object is moved in a way that relates to a special form of bodily motion.

To illustrate the first two subcategories, consider the two lists shown in Table 2. All of the phrases in these lists describe ways of changing where things are located. But they differ in an interesting way. In throwing, kicking, sliding, or rolling an object, you act in a way that *imparts* motion to a thing which then continues moving, thereby *making* it go somewhere on its own. By contrast, carrying, dragging, and hauling are all different kinds of *accompanied* motion, in which a person *takes* something somewhere as she herself goes to that place. This second kind of act requires that the agent be “entangled” in some way with the thing that she acts: for example, by *clasping*, *clutching*, *grasping*, or *gripping* either the thing itself or something (such as a handle, tow line, etc.) it is attached to. In this

¹⁰ Except when it becomes unbearably stilted, throughout this section I will mainly use ‘object’, ‘entity’, and ‘thing’ to describe that which is acted on or affected in a productive causal process; ‘agent’ to describe that which affects it; ‘process’ and ‘act’ to refer to the causal process itself; and ‘one’ (or ‘someone’) and ‘she’ (or ‘they’) as my generic pronouns for presumptively animate agents or targets of action.

respect these *(b)*-type acts are similar to ways of moving things by means of a vehicle or by a special manner of locomotion: for example, *driving* someone to their house, *carting* groceries out of the store, *parading* a championship trophy through the city, or *running* a misdelivered package across the street. In these cases, too, there must be an ongoing connection between the agent and the thing that she acts on, such that the agent can move what she moves as she herself moves along with it.

<i>(a)</i>	<i>(b)</i>
<i>throw</i> (a stone into a creek)	<i>carry</i> (a child to the car)
<i>kick</i> (a ball into a goal)	<i>drag</i> (the bins to the curb)
<i>slide</i> (a puck across the ice)	<i>haul</i> (trash to the dump)
<i>roll</i> (a log down a hill)	<i>tote</i> (a bag onto a plane)
<i>float</i> (a stick down a creek)	<i>tow</i> (a car to the shop)

Table 2: *(a)*- and *(b)*-type ways of affecting things' locations.

A similar distinction to this first one is explored in detail in a recent paper by Robert Reimer (2022), who elucidates the difference between what he calls “causation-as-control” and “causation-as-triggering”. For Reimer, *causation-as-control* involves an agent who uses her body parts (in the case of humans, paradigmatically the hands) to act on a target object with which those parts remain in contact such that the movements of each are “closely entangled” (Reimer 2022, p. 14204). This entanglement between agent and target means that “the target-object moves or changes in accordance with the agent’s own motion”, and therefore the agent can fully determine the direction, speed, and degree of the target-object’s motion or change throughout the causal interaction” (ibid.). This is contrasted with *causation-as-triggering*, in which “the agent determines the direction, speed, and degree of the target-object’s motion or change only at the beginning of the causal interaction. Once triggered, the motion or change unfolds independently of the agent’s own motion” (ibid.).¹¹ Reimer’s distinction is helpful in explaining how *(a)*- and *(b)*-type acts are different. While some ways of imparting motion, or *making* things move, do require a degree of “entanglement” between agent and

¹¹ As Reimer explains (ibid., pp. 14205-14206), this distinction is similar to, but not quite the same as, Jennifer Hornsby’s (2011) distinction between *mediated* and *unmediated* forms of causation, as some ways of acting on objects through the use of machines count as mediated by Hornsby’s criteria while nevertheless being forms of causation-as-control. For other related discussion, see Rowland Stout’s analysis of what he calls “ballistic actions”, which are actions “where the agent is in control of initiating a process which results, and is intended to result, in the goal of the action, but where the agent has no intention of being involved ... in the action beyond setting up this process; their agency is going to be completely withdrawn from the process” (Stout 2018, p. 220). By contrast, in a non-ballistic action “the agent is involved throughout the process that results in the intended goal, with some ... level of control until the goal is achieved” (ibid.).

target (e.g., in throwing a ball you must first *hold* it in your hand and then let go at the appropriate time), in *taking* things places this entanglement extends throughout the process of causing the target entity's motion.

Reimer's distinction is also helpful in bringing to light a further way of acting on the locations of things, namely by *directing* them in a special way to where they go. Having carried your laptop onto a plane, you are likely not to shove or toss it into the overhead bin, but rather to *place* it beneath your seat or *set* it on the tray table. In acts of this kind, the agent not only takes an object somewhere but also exerts control over the path that it takes to its resting point. The same thing is true of acts like *dangling*, *hanging*, *leaning*, and *standing* things, though these descriptions also lexicalize something about the consequent spatial configuration of the entity that is moved. This notion of "directedness" is at the core of subcategory (*c*). While it is difficult to give it a non-circular characterization, for a start we might say that placing is to tossing as landing on a branch is to falling to the ground: it is a way one affects the location of an entity insofar as there is a *particular* manner in which the entity is meant to come to rest.

If this is right, then the polar opposite of (*c*)-type acts like putting, setting, and placing objects (down, on the table, etc.) is found, not in (*a*)-type acts that impart motion to objects by throwing, kicking, or pushing them, but rather in those that belong in a fourth subcategory, namely that of processes in which things are made to move simply by being impacted in some way, such as by having someone or something *bang*, *bump*, *hit*, or *knock* (into) them. Notably, these (*d*)-type ways of causing motion wholly lack even the minimal element of directedness that is involved in (*a*)-type acts like kicking and throwing—as, for example, one has not really *kicked* something (over, down the stairs, into the goal) just in virtue of *bumping* or *knocking* it (there) with her foot. (That is to say, even when you accidentally "kick" the foot of your bed, that's only because *you move your foot* into it with the same sort of motion that is used to kick a ball.¹²) This is why this last class of descriptions can apply literally to what is done by inanimate forces: so while it's only in an extended sense that we can describe the wind as *picking* something up or *carrying* it along, the same is not true when it *bangs* shut a door or *knocks* over a lamppost.¹³ There seems, then, to be a spectrum here, as illustrated in Figure 2: paradigm (*d*)-type acts of moving things by banging, bumping, and knocking (into) them lie on one end; (*c*)-type acts of placing, putting, and setting things places lie on the other; and (*a*)- and (*b*)-type acts of moving things by

¹² I thank Juan Piñeros Glasscock for prompting this clarification.

¹³ Thus Anscombe places acts like *kicking*, *abandoning*, *leaving alone*, *dropping*, *holding*, and *picking up* within the class of what she calls "vital descriptions", or descriptions that "go beyond physics" and are "basically at least animal" (Anscombe 1963/2000, p. 86; for discussion see Schwenkler 2019, pp. 166-167). A similar point is made by Reimer (2022, pp. 14204-14205).

throwing, kicking, carrying, dragging, and driving them places occupy various points in between.

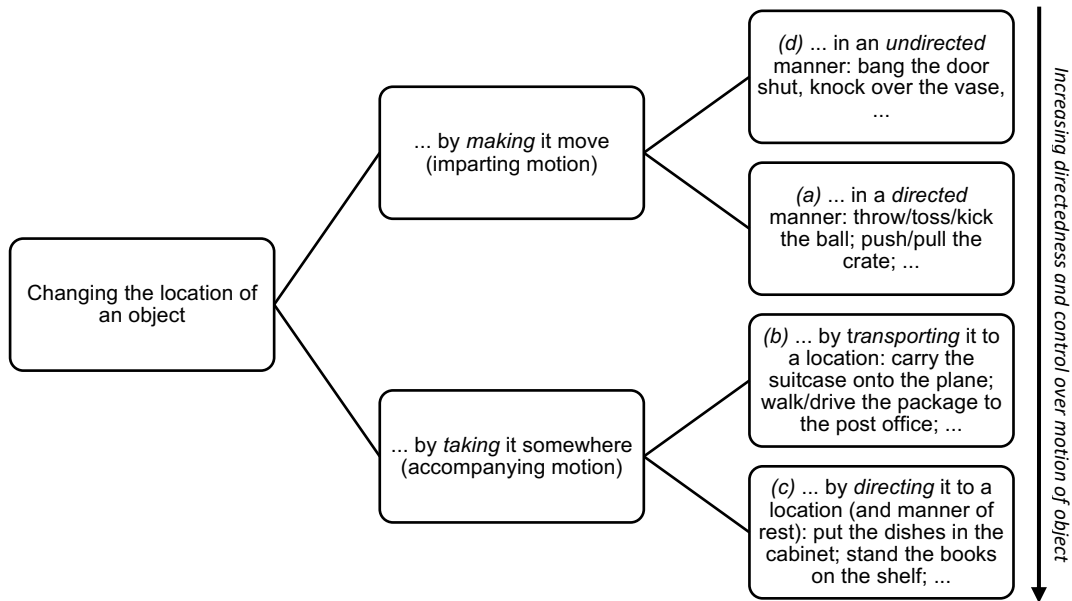


Figure 2: A spectrum of different ways of bringing about change in location.

A final, very heterogeneous subcategory, which I label *(e)*, consists of ways of causing purely locational changes through special forms of bodily motion. If, for example, someone *breathes* poisoned gas, *spits* out a piece of gum, *sweats* blood, or *vomits* up their breakfast, then that which is thereby moved will come into or out of the agent's body by means of a process that is essentially connected to nourishment and growth. While it could be questioned whether acts of this kind deserve to be marked off in this way, the notion of a vital or nutritive process will recur so frequently in the subsequent analysis that it seems to deserve being treated as a significant analytic category.

(A.ii) Changes in place with respect to a surface or container

Our next main subcategory is that of acts that change where objects are located in relation to surfaces and containers. While it's not clear that these acts should be counted as distinctive ways of changing *where* things are, they are worth treating separately because of how they correspond to some important distinctions that will be explored in some detail below, namely those that concern different ways of affecting the *state* of the surfaces and containers with respect to which things can be moved. For now, however, a simple outline will suffice. First, acts like *cramming*, *loading*, and *injecting* all change where things are by moving them into some kind of container, while *brushing*, *scattering*, and *spraying* are different ways of moving things onto a surface. Second, acts like *draining*, *emptying*, and *flushing*, on the one hand, and *erasing*, *clearing*, *raking*, and *vacuuming*, on the other, are

the mirror images of these groups: they are ways of moving things out of containers or off of surfaces, as opposed to making them go onto or into them. Finally, in acts such as *dribbling*, *dripping*, *pouring*, and *spilling*, things are caused to move downward under the force of gravity, thanks to having been “released” from a state of containment. All these distinctions will receive further attention in section (B.i), where our interest will be in the corresponding notions of how the states of surfaces and containers can be affected.

(A.iii) *Changes in place involving an element of possession*

Many acts that change the locations of objects thereby make a difference to how those objects are possessed—as, for example, *throwing someone a ball* is not just a matter of throwing the ball *toward* the person or even *at* them, but rather of throwing the ball in order for them to catch or take possession of it. Likewise for *bringing* (or *taking*) *a present to a friend*: this is not just a matter of accompanying the motion of the present until it ends up where one’s friend is located, but moving the present to a location in order that the friend will thereby come to possess it. Constructions like these can help to mark the third main subcategory of ways of causing change in place, namely that of causing changes in place that involve an element of possession.

The nature of the grammatical rules governing the two constructions just highlighted— $\langle V Y X \rangle$, or the *double object* construction, and $\langle V X \text{ to } Y \rangle$, or the *prepositional dative*—is the focus of much ongoing debate in contemporary linguistics, and it is beyond the scope of this paper to wade into these controversies.¹⁴ What is important for our purposes is to see how they introduce a notion of possession that is absent from constructions like *kick the ball into the goal* and *drag the trash bin to the curb*, which were analyzed above as describing purely locational changes. This notion implicates a kind of “entanglement” that is more robustly social than the one discussed by Reimer: just as I argued above that there is something more involved in *taking* things places than in merely *making* them move, and likewise something yet more involved in *putting* things where they

¹⁴ To give one example, while the prepositional dative can also be used in a way that involves no notion of possession, the double object construction cannot be: thus one can *throw a dish to the ground* but not *?throw the ground the dish*, and *haul the trash to the dump* but not *?haul the dump the trash*. (What makes the latter phrases unacceptable is that neither the ground nor the dump is a potential possessor of the things in question, nor indeed of anything at all, but the double object construction requires this interpretation.) Strangely, however, some verbs that clearly involve transfer of possession nevertheless don’t tolerate the double object construction: e.g., one can *donate money to a charity* but not *?donate a charity money*, and *return an item to the store* but not *?return the store an item*. A widespread view is that some, though not necessarily all, of this variance is determined by the phonology of the verb in question. For an important discussion of this matter, including experimental evidence supporting the role of phonology, see Gropen et al. 1989, especially Experiment 2.

eventually go, so it is with this notion of possession, which gets a hold only in relation to agents who can have things be somehow *theirs*.

Notably, the examples just considered all involve verbs that were discussed already in (A.i): they are verbs whose “minimal” use describes only a way of changing an entity’s location, but which in the appropriate constructions can take on a richer sense that describes things as actually or potentially possessed. There is a contrast here with acts like *delivering*, *handing*, and *mailing*, each of which can only be directed toward an entity, whether actual or merely intended, that is capable of taking hold or “receiving” the object that is moved. Likewise, perhaps, for acts like *fetching* a stick, *gathering* berries, and *plucking* flowers, and likewise *bagging* groceries, *pocketing* coins, and *sheathing* a knife: all these processes involve (particular ways of) affecting the locations of objects by agents who, in a broad sense, thereby take those objects into their possession.

B. *Causing change in state*

Kenny’s second variety of productive causal process is that of causing a change in state, or as he puts it “bringing it about that some substance possesses a property which it did not hitherto possess”. My analysis in this section will divide this category into three further ones: (i) ways of causing purely physical changes in state, (ii) ways of causing changes in state involve a social element, and (iii) other ways of causing changes in state, especially in relation to psychological categories and vital processes.

(B.i) *Purely physical changes in state*

A neat way to introduce the notion of a change in state is by reflecting on the much-studied “locative alternation”. Consider, for example, the pairs under (5) and (6):

- (5) a. John brushed paint on the wall.
b. John brushed the wall with paint.
- (6) a. Joan crammed groceries into the cupboard.
b. Joan crammed the cupboard with groceries.

A bit of reflection reveals that the sentences in these pairs each differ in the following respect. In *brushing paint on a wall* or *cramming groceries into a cupboard*, one changes the location of some something (the paint, the groceries) with respect to something else, which happens to be a surface or container—one brings it about that the paint is (spread) on the wall, or the groceries (crammed) in the cupboard. By contrast, *brushing a wall with paint* and *cramming the cupboard with groceries* rather describe ways of bringing it about, by means of those ways of

affecting the location of the paint and the groceries, that some surface or container is in a different state than it was before: the wall, now covered with paint; the cupboard, now full of groceries.

Nothing should surprise us in the fact that the same process can be described as both a way of affecting the location of one object and a way of affecting the state of another. What's more puzzling is the way that some verbs, like 'brush' and 'cram' in the examples above, can be used with both a location- and a state-affecting sense, while others can be used in only one or the other. Why is it, for example, that one can *stuff* groceries into the cupboard and also *put* them there, yet can *stuff* but not *?put* the cupboard with groceries? Why can one *fill* but not *?pour* a glass with water, and *pour* but not *?fill* water into a glass? These questions, like those about the rules governing the prepositional dative and double object constructions, have been discussed at length by linguists, but what matters for our purposes is to see how these patterns are connected to an intuitive distinction between state- and location-altering acts. It is, on the one hand, because the construction <V X on(to)/in(to) Y> describes a way of *changing the location of X with respect to Y*, and because verbs like 'brush', 'cram', 'put', and 'pour' admit of a location-affecting use, that these verbs can fit into that construction. And it is, likewise, because <V Y with/full of X> describes a way of *changing the state of Y by means of X*, and because verbs like 'brush', 'cram', and 'fill' admit of a state-affecting use, that these verbs can fit in there.

The second of these constructions gives us our first main subcategory of ways of causing purely physical changes in state: that of (a) processes that alter the state of surfaces and containers, by affecting whether they are covered or filled. There are several further distinctions to be drawn within this group. First, acts such as *cramming* (the cupboard with groceries, the suitcase with clothes), *filling* (the glass with water, the shelf with books), and *loading* (the wagon with wood, the bus with passengers) are ones in which a "container" (in a broad sense) is changed from being (relatively) empty to being (relatively) full. Second, acts like *spreading* (the wall with paint, the toast with jam, the garden with fertilizer), *sprinkling* (the oatmeal with sugar, the garden with seeds, the ground with rain), and *covering* (the bed with a blanket, the counter with dishes, the ground with mulch) all change the state of a *surface* by covering it with something else. Finally, other acts are the inversion of these two kinds: *emptying* (the car of groceries, the suitcase of clothes), *draining* (the glass of water), and *clearing* (the table of dishes), on the one hand; and also *raking* (the yard), *shoveling* (the sidewalk), *sweeping* (the floor), *erasing* (the chalkboard), on the other. In these cases, too, we can apply the distinction between processes that empty a container of some stuff or things, and ones that clear or clean a surface by removing some stuff or things from it.

A second subcategory comprises (*b*) acts that affect an object's material form or integrity. Once again, several further distinctions can be drawn within this category. First, acts such as *bending* (a stick), *creasing* or *crumpling* (a sheet of paper), and *folding* (a chair, a pair of pants) all make changes to something's shape. Second, in acts like *breaking* (a window), *chipping* (a stoneware dish), *shattering* (a vase), and *tearing* (a cloth)—and also *cutting* (a loaf of bread), *sawing* (a branch), *dicing* (an onion), and *pruning* (a rosebush)—the material integrity of a thing is somehow altered. Finally, in *coring* (an apple), *gutting* (a fish), *pitting* (an olive), or *weeding* (a garden), the state of a thing is affected by the *removal* of something from it, while its material integrity remains otherwise intact.

Third, an act may change an object's physical state by (*c*) altering its surface appearance. This can be done in at least two ways. First, acts like *coloring* (a picture), *dyeing* (an egg), *staining* (a deck), or *varnishing* (a cabinet) involve changing the total surface appearance of an object through the application of some substance to its surface. Second, *embroidering* (a blanket), *engraving* (a ring), *stamping* (an envelope), and *tattooing* (someone's bicep), are examples of acts that alter the surface of an object by creating some kind of image or pattern on it. As we will see in Section C, the latter acts can also be described as ways of creating the image by means of which this change of state is brought about.

Fourth, objects can have their physical states altered by being somehow (*d*) *brought together* or (*e*) *taken apart*. One form of combination includes acts like *amalgamating*, *blending*, *commingling*, *incorporating*, *mixing*, *scrambling*, and *whisking*, through which ingredients are brought together into a novel kind of stuff. Another includes *entangling*, *interconnecting*, and *mingling*, in which objects are brought together in a way that preserves some of their own integrity. Finally, in *bolting*, *connecting*, *fastening*, *joining*, *linking*, *pinning*, *soldering*, *stapling*, *taping*, *tying*, and so on, things are made to be attached to one another in various ways. And on the side of taking apart, an amalgam may be *separated* into its constituents or ingredients; things once entangled can be *disentangled*; and things once attached can be *unbolted*, *unfastened*, *untied*, or simply *detached*, *decoupled*, or *broken*, *cut*, or *pried* apart.

It is at this point that the hope fades of giving any truly systematic or comprehensive classification of the ways of causing changes in the physical states of things. Consider just a few of the forms of such causation that we have so far not explored: *cooling* (or *chilling*) and *heating* are two ways of affecting a thing's temperature; *compressing*, *expanding*, *shrinking*, *enlarging*, *inflating*, *deflating*, *deepening*, *narrowing*, *widening*, *heightening*, and *lengthening* are ways of affecting a thing's volume or size; and still more classes are marked by pairs like *cleaning* and *dirtying*, *wetting* (or *soaking* or *moistening*) and *drying*, *melting* (or *thawing*) and *freezing*, *hardening* and *softening*, *igniting* and *extinguishing*,

opening and shutting, lighting and darkening, loosening and tightening, and more. What accounts for this variety is simply the immense range of physical states that objects of different sorts have the potential to be in—an immensity which, in a language as productive as English, makes for a similarly large and heterogeneous range of verbs that describe the associated causal processes.

(B.ii) Changes in state involving a social element

As was the case with location-changing acts, within the broad category of state-affecting acts there is an interesting subcategory of acts whose elements are in some respect “social”. Within this subcategory I will draw a further distinction between (a) acts that affect whether and how objects are *possessed*, and (b) acts that alter the *social status or social role* of the person or thing they concern.

Acts of type (a), which are similar to those discussed under (A.iii), can be divided into a few further subtypes. First, there are acts that involve *taking* possession of an object: either from someone else who possessed it previously, for example by *accepting, borrowing, buying, earning, inheriting, leasing, receiving, renting, seizing, or stealing* it; or where the object may have been previously unpossessed, for example by *catching, collecting, gathering, getting, obtaining, picking, or otherwise procuring* it. Second, other acts involve *transferring* possession of an object from one’s own possession to the possession of another party, for example by *contributing, donating, giving, lending, loaning, relinquishing, renting, selling, trading, or transferring* it to them. Third, some acts combine these two dimensions into a single act of intersubjective *exchange*: for example, *swapping, trading, or otherwise exchanging* one thing for another.

Our other group is that of acts that affect, not the possession or ownership of things, but other aspects of social status or role. Many Austinian “performatives” (cf. Austin 1975) are acts of this kind: for example, in *appointing, crowning, electing, or ordaining* someone (as chief of staff, king, senator, or priest), the agent thereby alters this person’s social status in some way. Likewise, acts like *anointing, branding, christening, dubbing, and terming* are all ways of giving a *name* to some object (which may be a person, place, idea, or institution), while in *pricing* an object one determines what it can be sold for. Finally, in *apprenticing, cuckolding, martyring, orphaning, or widowing* someone, an agent does something with the effect that someone else acquires a distinctive status, namely that of an apprentice, a cuckold, a martyr, an orphan, and so on.

(B.iii) Other special forms of change in state

Our final subcategory is a heterogeneous quartet of further groups—each of which could arguably be included within one of the categories above, but which are treated separately here in order to highlight their interesting features.

The first such group is of *(a)* acts that cause changes in the *vital* state of a human being or other living organism. It includes, for example, acts like *bruising*, *fracturing*, *hurting*, and *spraining*, which are all ways of causing damage to the affected body part. Likewise, *electrocuting*, *hanging*, *poisoning*, *shooting*, *stabbing*, and *strangling*, as well as *choking*, *drowning*, and *suffocating*, are all ways of impairing the vital functioning of a person or animal, usually as a way of bringing about its death. Opposite these, *healing* a person and *curing* a disease are acts that change the state of a living organism to one of health or well-functioning.

A second interesting subcategory comprises *(b)* acts whose effect is on the *psychological* state of a person or other sentient animal. This group is as massive and diverse as the range of attendant psychological concepts: for example, *aggravating* someone is causing them to become aggravated, *amazing* someone is causing them to be amazed, *bewildering* someone is causing them to be bewildered—and likewise for *captivating*, *convincing*, *dismaying*, *enticing*, *fascinating*, *gladdening*, *humbling*, and so on.

Two more sub-categories remain. One comprises *(c)* acts that affect the appearance of a person or animal: for example, *bathing*, *dress*ing, and *grooming* are ways to care for the whole body of a person or animal, which may be the agent herself; while *braiding*, *brushing*, *dyeing*, *manicuring*, *shampooing*, and *shaving* are similar acts that are usually directed at specific body parts. Finally, other acts are distinctive in that they are *(d)* ways to affect the state of various foodstuffs: for example, *beating* (eggs), *kneading* (dough), *melting* (butter), and *whipping* (cream), which transform ingredients as part of the cooking process; as well as *baking*, *boiling*, *frying*, *grilling*, *parboiling*, *poaching*, *sautéing*, and *stir-frying*, which transform ingredients through different ways of cooking them. Acts of this last kind will get another look in just below, in our discussion of acts of creation.

C. Destruction and creation

(C.i) Acts of destruction

I will distinguish four main ways of causing a thing to go out of existence: *(a)* ending the life of an animate organism; *(b)* demolishing a physical but nonliving thing; *(c)* consuming things through a nutritive process; and *(d)* getting rid of “things” in a broad sense like scratches and wrinkles.

The way to end the existence of a living thing is through one of the various ways of *killing*—or, again, *assassinating*, *executing*, *immolating*, *massacring*, *murdering*, *slaughtering*, or *slaying*—it. In every case this will be done in some particular manner, many of which were discussed under *(B.iii)* in exploring the ways of impairing an organism’s vital functioning: so *asphyxiating*, *choking*, and *suffocating* can be ways of causing death by disrupting an organism’s breathing,

while *crucifying, drowning, electrocuting, hanging, poisoning, shooting, stabbing,* and *strangling* achieve the same effect in other ways.

Next, in many cases the way to end the existence of a concrete but *non*-living is by somehow *destroying*—or *annihilating, demolishing, extirpating, ravaging,* or *wrecking*—it, where means reducing the thing in question to its material components. Again, the specific means of doing this will often be from among the different ways of causing change in physical state that were discussed in (B.i): so the gasworks may be destroyed by *burning* it (down), the vase demolished by *shattering* it, an onion by *dicing* it to pieces, and so on. (It is, of course, often hard to say whether acts of this kind result in the total destruction of the entity in question, rather than its continuing to exist in a disintegrated state.)

A third category of ways to take things out of existence is through processes by which humans and other animals *consume* or *ingest* objects in a nutritive process. Our two paradigms of this kind of act are *eating* (solid substances) and *drinking* (liquid ones), while acts like *gobbling, gulping, swallowing,* and *swigging* are further modifications of the manner in which eating and drinking are done. Also related to this kind of activity are specific forms of motion like *chewing, gnawing, licking, munching, nibbling, sipping,* and *sucking*—all of which need not, in any particular case, result in the total or even partial consumption of that at which they are directed, but whose form seems to be essentially tied to processes by which things are consumed.

Finally, and less confidently, we may also try saying that “things” in a very broad sense are taken out of existence by acts such as *buffing* (scratches from the body of a car), *combing* (tangles from a child’s hair), *erasing* (pencil marks from a page), *ironing* (wrinkles from a shirt), *rinsing* or *washing* (stains from an article of clothing), and *wiping* (smudges from a window). All of these acts involve removing things from surfaces or containers in a way that does not involve simply putting them somewhere else, but rather results in the non-existence of that which is “removed”.

(C.ii) *Acts of creation*

Kenny’s paradigm of an act of creation or “bringing-into-existence” was the act of building a house, where *building* is a process of transforming some kind of raw material into a novel product. This is the paradigm of subcategory (a) of creative acts, which also includes acts like *assembling* (a model), *blowing* (a bubble), *carving* or *casting* or *chiseling* or *sculpting* (a statue), *folding* (an origami swan), *knitting* (a scarf), *molding* (a vase), *sewing* (a dress), *weaving* (a blanket), and *whittling* (a toy). As we saw at the end of (B.iii), a similar characterization seems to apply to a wide range of common domestic activities, such as *baking* a cake, *brewing* a pot of coffee, *lighting* a fire, *pouring* a drink, and *running* a bath: all

these are processes through which certain useful things (a cake, a pot of coffee, a fire, a drink, and a bath, respectively) are brought into existence through certain ways of acting on their ingredients or components. And there are, in addition, many other similar ways of creating physical substances in addition to these, through acts such as *concocting* potions, *fabricating* computer chips, *manufacturing* automobiles, *minting* coins, and *synthesizing* chemicals from their components.

Two further categories of creative activity involve the generation of “objects” with a special status in human life. The first of these is (b) the creation of patterns or images on the surfaces of objects: for example, *carving* one’s initials into the bark of a tree, *drawing* a sketch on a napkin, *embroidering* an insignia on a shirt, *engraving* a name on a ring, *painting* a portrait on a canvas, *sketching* a landscape in a notebook, *stamping* a seal on an envelope, *tattooing* an image on someone’s arm, and *writing* the date at the top of a page. And a final sub-category of creative activity is through (d) the authorship and performance of such things as songs, poems, and stories, for example by *composing* a symphony, *humming* or *whistling* a tune, *performing* a play, *reciting* a poem, *singing* a song, or *writing* an academic article. Within this latter class there is, in addition, a further distinction to be drawn according to whether the created entity has an existence independent of the creative activity itself—as the composer’s symphony will remain in existence even as she moves on to the next assignment, whereas the “product” of reciting a poem is nothing other than the very act of reciting it.¹⁵

D. Some groups that are so far unclassified

What remains? One interesting group of acts that doesn’t fit squarely into any of the above categories is made up of those that involve causal relations to processes and events: for example, *beginning* or *ending* a meeting, *halting* a conversation and then *continuing* after the interruption, *terminating* or *resuming* someone’s employment, *quitting* a job or *completing* work on an assignment. While the ontological status of their relata raises many puzzling questions, these acts do seem genuinely causal: for example, to *begin* a meeting is to stand in quite a different relation to what happens than if one simply *attends* it, and to *finish* a meal quite a different matter than imply to *order* one. What’s not always clear, however, is how this kind of “event-causation” should be categorized. Sometimes it seems to turn on a change in state, as when a game is *halted* or *resumed*. In others, however, there might seem to be a kind of creation or destruction involved: thus if, for example, the department chair *begins* a meeting or *completes* her review, is there now a meeting (underway) where there wasn’t one before, or no longer a review

¹⁵ Or, again: the “product” of reciting (in contrast with writing) a poem is not the poem itself, but the recitation of it. The same point applies to the objects of ‘hum’, ‘whistle’, and ‘sing’ when these verbs are used transitively. I am grateful to an anonymous referee for suggesting these formulations.

(happening) where previously there was? As these parentheticals suggest, however, it could be argued on the contrary that these uses should be classified as ways of changing the state of the process or event in question.

A second group of processes that we haven't so far discussed is interesting because of the way that the "affected" entity's own activity plays a role in their unfolding. Here we may consider, as a first example, an act like that of *feeding* (or *bottlefeeding*, *breastfeeding*, *forcefeeding*, or *spoonfeeding*) a pet or a child: as any parent knows, the difficulty in *feeding* a child is that the child has to *eat*—and this is not something you can cause a child to do in quite the same way as, for example, you can cause her to be buckled in her stroller. Likewise for acts like *walking* a dog, *waltzing* your partner across the ballroom, and *hurrying* your children through the mall. There is, it seems, an important difference between these ways of "causing motion" in a thing and the ways of changing an object's location that were discussed in (A.i): for the motion that is brought about in these cases itself *active* rather than passive, and so it seems a stretch to say that this motion really is *caused*. But how else are we to account for the difference between, say, *walking a dog* and simply *walking along beside it*, except by identifying the former act as causal?

As I argued earlier, however, the mere fact that the word 'cause' isn't ordinarily used in this way, should be no barrier at all to adopting this analysis. Indeed, in ordinary English we sometimes express the distinction just elicited, between ways of causing that do and do not depend on the continuing activity of the affected entity, with talk of what an agent 'gets' or 'makes' someone or something else to do: so the struggle in *feeding* a child is simply that of *getting* the child to eat, and when to *hurry the children* through the museum is simply to *make* them hurry through—i.e., move through the museum quickly. If this is the right way to unpack the sense of these verbs, then the kind of causation they involve will be given by the content of the verb that is the complement of this 'get' or 'make': thus if feeding a child is making her eat, then it is making her destroy (in the specially nutritive way discussed above) the food that she consumes; if walking the dog is getting it to walk, then it is getting it to change its (own) location; and so on.

The final group that we have yet to consider comprises acts like *growing* flowers and *hatching* chicks.¹⁶ These are like the acts just discussed in that they require a kind of "cooperation" on the part of the entity (which, here, is always a living organism) that is otherwise the patient of the activity in question: so in order for you to grow flowers, the flowers themselves must grow; and if a hen hatches her chicks then *they* must hatch from their eggs, and so on. Because of this, what sets these processes apart from other ways of causing change is that the change they involve is distinctively "vital": it involves the growth or maturation of a thing *according to the principles of its kind*—not merely becoming longer or hairier or

¹⁶ As I discuss in the Appendix, this category does not map neatly onto any Levin class.

fruitier or longer or wider, but developing as things of this kind are disposed to.¹⁷ And such change seems to belong to the Aristotelian category that was left off of Kenny’s list: it is a change in quantity, i.e., a change in “what can be increased and its opposite what can be decreased” (*Phys.* III.1). Again, however, that these processes have this distinctive character does not mean that they can’t involve a genuine kind of causation. For there is a great difference between, say, *growing* string beans and merely *letting* them grow or *watching* while they do. The first of these is patently a way of acting on the world so as to bring something about—even if a great deal of the activity involved is that of waiting for things to unfold according to their own governing principles.

5. Conclusion

My aim in this paper has been to show what can be gained by reflecting on causal language in its full variety. Philosophizing about causation only with ‘cause’—or even with ‘cause’ plus some other abstract verbs like ‘influence’ and ‘affect’ (see Gallow 2022)—is like trying to do ethics wholly by means of ‘permissible’, ‘obligatory’, and ‘morally wrong’: the strategy sharpens some questions, but only by blunting many others and obscuring the texture and complexity that’s present in our pre-philosophical understanding.¹⁸ In this last section, I’ll briefly discuss the relevance of this lesson to current work in metaphysics and experimental philosophy.

Let’s start with metaphysics. It’s impossible to deny that ‘cause’-talk has been treated in analytic metaphysics as the central way of expressing causal judgments in English, with verdicts about hypothetical statements of the form ‘... caused ...’ or ‘... a/the cause of ...’ then functioning as the central form of causal “intuition”.¹⁹

¹⁷ More specifically, Aristotle identifies three characteristics of this kind of change: “(a) that every part of the growing magnitude is greater (for example, if flesh grows, every part of it grows); (b) that it grows by the accession of something; and (c) that it grows because that which grows is preserved and persists” (*Gen. et Corr.* I.5, 321a20-23; and cf. *Gen. An.* II.1). I thank Nat Stein for the reference.

¹⁸ I mean to echo Anscombe’s (1958/1981b) diagnosis of the state of modern moral philosophy; but cf. also this remark of Austin’s on the sense-datum theory of perception:

... it is a typically *scholastic* view, attributable, first, to an obsession with a few particular words, the uses of which are over-simplified, not really understood or carefully studied or correctly described; and, second, to an obsession with a few (and nearly always the same) half-studied ‘facts’. ... The fact is, as I shall try to make clear, that our ordinary words are much subtler in their uses, and mark many more distinctions, than philosophers have realized ... It is essential, here as elsewhere, to abandon old habits of *Gleichshaltung*, the deeply ingrained worship of tidy-looking dichotomies. (Austin 1962, p. 3)

I thank Nat Hansen for reminding me of this passage.

¹⁹ While most of the time this strategy is simply taken for granted, even without comment, here is what looks like an explicit endorsement of it by Bradford Skow: “... the most fundamental causal locution is ‘X caused Y to Z by Ving,’ where terms for things (that are not events) go in for ‘X’ and ‘Y’” (Skow 2018, p. 19). (Admittedly, I don’t know well enough what ‘most fundamental’ means in this context to be totally sure what Skow is saying.) An exception that proves the rule is Byrne

Sometimes this strategy yields sentences that, though strange, seem like they *could* be uttered outside a seminar room, such as when Davidson (1967, p. 691) invites us to replace ‘Brutus killed Caesar’ with ‘The stabbing caused Caesar’s death’.²⁰ Other times, however, the translation is totally baffling, such as when Paul and Hall say of two people who work together move a heavy piece of furniture that they “cause the furniture to be moved”, and then try to illuminate the transitivity of causation by saying that “when you kick the ball towards the goalie, and the ball flies into the net, by transitivity, you caused the goal” (Paul and Hall 2013, pp. 94 and 219). This is methodologically hazardous: to the extent that these would be incredibly *strange* things to say about the cases at issue, whatever “intuitions” are prompted by these statements might reveal less about ordinary causal thinking than about the facility with this kind of ‘cause’-talk that we’ve gained through philosophical training.²¹ But there are substantive risks to consider as well, among them that this strategy makes it too easy to assume that causation is a relation between events. That *could* be the right way to think about Brutus and Caesar, if ‘kill’ has a sense like ‘cause to die’.²² But painting a wall, folding up a newspaper,

(2021), in which it’s argued that lexical causatives should be analyzed in terms of a notion called MAKE, whose meaning is about equivalent to the English word of the same name: so ‘Annie breaks the window’ should be read as ‘Annie MAKES the window break’, rather than as ‘Annie causes ...’. I have doubts about this analysis, but even if it were successful there are many English causatives that just are not susceptible to it: e.g., *carry, throw, pour, draw, build, devour*, etc. all do not have intransitive counterparts that could be said to be MADE to occur.

²⁰ In that paper, Davidson’s other paradigms of singular causal statement are ‘The flood caused the famine’ and ‘The burning of the house caused the roasting of the pig’—the second of which is definitely a mouthful. At another point (*ibid.*, pp. 697-698) Davidson reflects briefly on the semantics of ‘Flora dried herself (with a towel on the beach at noon)’, though without considering what it would take to rephrase it in canonical form.

²¹ Baz (2017) is a forceful discussion of these hazards. As he writes, in the standard methodology of analytic philosophy the function of judgments about cases is

... to *anchor* our philosophical theorizing, to ensure that our theories are actually beholden to X, or at the very least to our concept of X (or to the meaning of “x”), and not merely to compelling pictures of X that we have formed for ourselves, or to misguided theoretical assumptions to which we have grown attached, whether individually or communally. (Baz 2017, p. 62)

By contrast, when the judgments we’re supposed to make are expressed in awkward or unusual language, there’s little chance that they can serve this function. A new longitudinal study of the “intuitions” of undergraduate philosophy majors seems to me to support the hypothesis that philosophical education has the kind effect Baz is worried about: Maćkiewicz, Kuś, and Hensel (2023) studied responses to a number of different cases as students progressed through their undergraduate training, and found that these judgments moved in the direction of philosophical orthodoxy *mainly to the extent that the cases were directly discussed in class*. As the authors argue, these findings are a poor fit for the idea that philosophical training leads to general expertise in philosophical judgment; instead, the likelier hypothesis is simply that, in the classroom context, “the student is required to know the canonical analysis and interpretation of certain thought experiments, and, having learned what they are, may simply adopt the corresponding beliefs without much deliberation” (Maćkiewicz, Kuś, and Hensel 2023, p. 44).

²² That’s a vexed question, to say the least. For influential arguments that it doesn’t, see Fodor (1970) and Wierzbicka (1975); and for a different view see Lewis (1986, pp. 184-188). Among linguists, the idea that certain verbs contain a hidden semantic element commonly named ‘CAUSE’

pouring a glass of milk, tying your shoelaces? It's likely no accident that phrases like these, which stubbornly resist translation into 'cause'-talk, are also very hard to read as describing *events* that are somehow brought about.²³

As is often the case, Aristotle is a nice counterweight here. I believe it's fair to say that for Aristotle, the central case of causal activity is that of someone *making something be*: in his well-known paradigm, an artist or builder constructing an artefact from some raw material. And as Anscombe (1958/1981b) once observed about his relevance to contemporary moral philosophy, Aristotle's taking this as a paradigm makes it difficult to align his views with our contemporary treatments of this topic. It's rather Hume whose thinking articulates the world-picture that most of today's philosophers work to spell out. That picture is philosophically potent, and it deserves to be taken seriously—but not in a way that would have it prevail by linguistic *fiat*.

Despite their skepticism about armchair metaphysics, experimental philosophers have also treated 'cause'-talk as if it were the paradigm expression of causal judgment. Consider the following selection of prompts, drawn from the the nine highest-impact experimental papers in the "Experimental Philosophy: Causation" section on PhilPapers:²⁴

'The fact that the red wire touched the battery caused the machine to short circuit.'

'Billy caused the motion detector to go off.'

'How much did the attending doctor's actions and decisions cause the patient's recovery?'

'Sue caused them to possess the paired set of bookends.'

'Professor Smith caused the problem.'

'Doug caused the office supply company to send pens.'

'The collision of the balls will cause the ball to reach the goal.'

'Alex caused the Cerbolis plant to survive.'

'The motorboat started because Ned did not change the position of the motor'.

Not one of these statements centers on a lexical causative, and all but the last are in the canonical form <X cause Y to V> that, in Section 2, I gave reason to think is

(or 'BECAUSE') is *not* supposed to mean that they can be paraphrased with English 'cause'-sentences. For development of that idea, see e.g. Levin and Rappaport Hovav (1995, ch. 3) and Pietroski (2005, ch. 3); and for nice textbook treatments see Goddard (2011, ch. 10) and Swanson (2012, section 3).

²³ I am grateful to Robert Reimer for illuminating discussion of this matter.

²⁴ See <https://philpapers.org/browse/experimental-philosophy-causation>; accessed 29. September, 2023. These studies are, respectively, Hitchcock and Knobe 2009, Experiment 1; Icard, Kominsky, and Knobe 2017, Experiment 1; Alicke, Rose, and Bloom 2011, Study 1; Kominsky et al. 2015; Knobe and Fraser 2008; Lombrozo 2010, Experiment 1a; Henne et al. 2021; Rose 2017, Study 3; and Henne et al. 2019, Experiment 1a.

not used in ordinary English as a catch-all causal construction. This leads to at least two specific risks.

First, to the extent that these statements are interpreted by participants as using ‘cause’ to assign responsibility for an outcome, the judgments that they evoke will do just that: they’ll be judgments that identify which party deserves blame, or perhaps credit, for the outcome that was somehow “caused” to happen. And there is evidence for thinking that this happens: for example, Sytsma (2021; 2022) and Schwenkler and Sytsma (in prep.) find strong correlations between agreement with ‘cause’-statements and agreement with statements assigning responsibility for a good or bad outcome; and Samland and Waldmann (2016, Experiment 3) found that the norm effect on ratings of ‘cause’-statements disappears when a chemical substance, rather than a human agent, is used as the locus of causal attribution. There’s no question that it’s worth investigating how people use ‘cause’ to make judgments of responsibility. But it’s just a tiny part in the study of human causal judgment.

Second, even if these prompts manage to invoke a notion of causal connectedness that’s not in itself a matter of moral responsibility, that notion will be a very general and abstract one. What makes this a problem is that, in the world as we find it, there is no such relation as that of merely “causing” such-and-such a thing to happen, but only of doing so *by* doing specific causally efficacious things like pulling a trigger, turning a knob, throwing a ball, or moving the handle of a pump up and down. In the right circumstances, a person’s doing things like these may also be, or result in, her causing a weapon to fire, a machine to turn on, a window to shatter, or the water-supply of a house to fill with poison. However, if experimenters probe causal judgments only with descriptions of this second kind, they’ll overlook whatever goes into people’s understanding of the specific causal processes that underlie them. To bring out the richness of that naïve ontology, we need to draw on a wider range of causal descriptions.

It’s fair to question my insistence on this last point. If the ordinary use of the English word ‘cause’ is so limited, then what ground am I standing on, and what sense am I trying to give this word, when I say that the constructions I’ve discussed in this paper are all ways of describing different kinds of *causation*? Here we should return to the passage in Anscombe’s “Causality and Determination” that contains the list of causal verbs that I gave at the start of Section 3:

The truthful—though unhelpful—answer to the question: “How did we come by our primary knowledge of causality?” is that in learning to speak we learned the linguistic representation and application of a host of causal concepts. Very many of them were represented by transitive and other verbs of action used in reporting what is observed. Others—a good example is

“infect”—form, not observation statements, but rather expressions of causal hypotheses. The word “cause” itself is highly general. How does someone show that he has the concept *cause*? We may wish to say: only by having such a word in his vocabulary. If so, then the manifest possession of the concept presupposes the mastery of much else in language. I mean: the word “cause” can be added to a language in which are already represented many causal concepts. A small selection: *scrape, push, wet, carry, eat, burn, knock over, keep off, squash, make* (e.g. noises, paper boats), *hurt*. But if we care to imagine languages in which no special causal concepts are represented, then no description of the use of a word in such languages will be able to present it as meaning *cause*. (Anscombe 1981a, p. 137)

Imagine we were in the position of those in Anscombe’s fantasy, trying to see how to *add* a general word like ‘cause’ to a language in which many special causal verbs were already present. In such a situation, our justification for using this word to describe certain processes could not be that we spoke about them using a construction like the English ‘... caused ...’. Instead, we might begin by saying: there is something in common to words like ‘scrape’, ‘push’, ‘wet’, ‘carry’, and so on, in contrast with words like ‘think’, ‘touch’, ‘find’, and ‘admit’, that allows us to put them to a certain use, namely that of saying *how things got to be* some way.²⁵ If we recognized this difference, it would show that in some sense we possessed the concept of causation already: not in what Anscombe calls the “manifest” way that comes with being able to use a word to talk *about* the difference between causal processes and other ones, but in the practical manner of those who are able to operate sensibly *with* it.²⁶ And if we then we began using a word like ‘cause’ as a way to mark this difference, we’d be able to say many things that previously we could not—though at a level of generality that’s different from what happens when, for instance, words like ‘roast’, ‘poach’, and ‘sauté’ are added to one’s vocabulary in the process of learning to cook. What we’d be able to do when we acquired this general word is to step back from all that first-order vocabulary and say: *these* are

²⁵ As Hornsby puts it: “The generic notion of ‘causing’ [that unifies Anscombe’s list] is something that we glean when we bring the verbs together: we understand it by recognizing the causative character that unites them” (2011, p. 107). For related discussion, see Steward’s response to Anscombe’s (1981a, p. 136) claim that “everyone will grant that physical parenthood is a causal relation”:

*Will everyone grant that physical parenthood is a causal relation? It sounds strange to modern ears, perhaps, to say that a parent is the cause of their child. But it sounds less strange to say that the parents begat or conceived or gave birth to the child and then in turn to insist that *begetting* and *conceiving* and *giving birth* are causal relations. (Steward 2022, p. 8)*

In fact, the idea that parenthood is a causal relation has been taken by some bioethicists as the ground of parents’ duties to their children: for a recent defense of that view, see Porter 2014.

²⁶ Here I echo Ryle 1949/2009, pp. lix-lx.

all (words for) ways of causing, ways that one thing can bring about change in another.

Of course, in this imaginary situation it would not matter at all what word we used to mark the difference we had noticed. For those of us in philosophy the situation is different: the word ‘cause’ is in our possession already and is the one that we use to mark off a domain of philosophical enquiry. What’s mistaken is to suppose that this general concept can find application only where ordinary talk of “causing” also does. For *that* is only one, and a fairly uncommon and uninformative one at that, among the many ways that we have of talking about causation.

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Appendix: Summary outline of the categories of causation

- (A) Ways of causing **change in place** ...
- (A.i) ... that is **purely in physical position**:
- (a) Affecting a thing's location by **imparting** motion to it:
- Throw Verbs (§17.1): e.g., *hit, kick, throw*—these describe ways of “instantaneously causing ballistic motion’ ... by imparting a force” (Levin 1993, p. 147; citing Gropen et al. (1989)).
 - Slide Verbs (§11.2): e.g., *slide, roll, float*—these are “transitive verbs of causing a change of position” in which “[t]he agent simply brings about the change of location described by the verb, but does not accompany the moving entity” (Levin 1993, p. 134).
 - Some Send Verbs (§11.1): e.g., *send, ship, transport*—these “relate to causing an entity to change location” in such a way that its “motion is ‘mediated by a separation in time and space, sometimes bridged by a particular means of transfer’” (Levin 1993, p. 133; quoting Pinker 1989, p. 110). The relevant use must have a mere location as the recipient (e.g., ‘send the package to the border’).
- (b) Affecting a thing's location by **accompanying** its motion:
- Carry Verbs (§11.4): e.g., *carry, drag, haul, tote, tow*—these “relate to the causation of accompanied motion” (Levin 1993, p. 136).
 - NB: Causation by accompanied motion often involves the agent **being “entangled” in some manner** with the object that is moved, as described by Hold Verbs (§15.1) like *clasp, clutch, grasp, grip*—these “describe prolonged contact with an entity, but ... do not describe a change of possession or a change of location” (Levin 1993, p. 145).
 - Bring and Take Verbs (§11.1): *bring, take*—these are “verbs of continuous causation of accompanied motion in a deictically-specified direction” (Levin 1993, p. 135; quoting Gropen et al., 1989).
 - Drive Verbs (§11.5): e.g., *drive, cart, parade, run*—these “describe the causation of accompanied motion” in a way that “inherently specif[ies] something about the manner of motion, typically the vehicle or means used” (Levin 1993, p. 136).
 - Some Run Verbs (§51.3.2): e.g., *run, rush, walk*, used in the form <V X to Y>; and perhaps likewise some Waltz Verbs (§51.5).
- (c) **Directing** a thing to a location (and possibly a **special manner of rest**):
- Put Verbs (§9.1): e.g., *put, set, place*—these “refer to putting an entity at some location” (Levin 1993, p. 112).
 - Most Verbs of Putting in a Specified Direction (§9.4): *hoist, lift, lower, raise*—these “relate to putting an entity somewhere, typically by moving it in a specific direction”. The exception here is *drop*, which might belong with the verbs in (A.ii.c), on the assumption that the dropped object was originally *held* in the sense discussed under (A.i.b):
 - Verbs of Putting in a Spatial Configuration (§9.2): e.g., *dangle, hang, lean, stand*—these are verbs of putting that further “specify the particular spatial configuration that the placed entity ends up in with respect to the location” (Levin 1993, p. 112).

- Coil Verbs (§9.6): e.g., *coil, twirl, whirl, wind*—these “relate to putting something around something else” (Levin 1993, p. 117).
 - Some Tape Verbs (§22.4): e.g., *anchor, bolt, cement, lock, tape*.
- (d) Affecting a thing’s location merely in virtue of **impacting** it:
- Hit Verbs (§18.1): e.g., *bang, bump, knock*, used with a resultative construction specifying the direction of motion.
- (e) Affecting a thing’s location in a way that relates specially to a **form of bodily motion**:
- Breathe Verbs (§40.1.2): e.g., *breathe, spit, sweat, vomit*—all of these “relate to emitting a substance *from* the body”, while ‘breathe’ “can also describe taking air *into* the body” (Levin 1993, p. 218).
- (A.ii) ... with respect to a **surface or container** (see (B.i.a) for related discussion):
- (a) Moving a thing **onto** a surface or **into** a container:
- Spray/Load Verbs (§9.7): e.g., *cram, inject, load* (concerning containers) and *brush, scatter, spray* (concerning surfaces), used in the form <V X into/onto Y>: these “relate to covering surfaces and putting things into containers” (Levin 1993, p. 188).
 - Funnel Verbs (§9.3): e.g., *dump, funnel, hammer, squeeze*—these “relate to putting an entity in some location in some manner” (Levin 1993, p. 114).
 - Many Pocket Verbs (§9.10): e.g., *bag, box, cage, coop*.
- (b) Moving a thing **off** a surface or **from** a container:
- Clear Verbs (§10.3): *clear, clean, drain, empty*, used in the form <V X from Y>: these “relate to the removal of a substance from a location” (Levin 1993, p. 124).
 - Wipe Verbs (§10.4): e.g., *erase, flush, rake, vacuum*, used in the form <V X (from Y)>: these are like *Clear Verbs* except in that they also “lexicalize a manner or means of removal” (Levin 1993, p. 126).
- (c) Causing a thing to move by **releasing it from containment**:
- Pour Verbs (§9.5): e.g., *dribble, drip, pour, spill*
 - NB: The causation here is by a kind of cessation, as an entity that once was held or contained in certain place is then let to move on its own due to an inanimate force.
- (A.iii) ... involving a **social dimension**:
- (a) Moving something into **someone else’s possession**:
- This notion is essential to the meaning of some Send Verbs (§11.1), such as *hand* and *slip*.
 - It is also widely available for the verbs discussed under (A.i.a-b), with an animate entity as the recipient (e.g., ‘toss/slide/carry/deliver/take the package to the boarder’).
- (b) Moving something into **one’s own possession**:
- Many Get Verbs (§13.5.1): e.g., *fetch, gather, pluck*
 - Some Pocket Verbs (§9.10): e.g., *bag, pocket, sheathe*
- (B) Ways of causing **change in state** ...
- (B.i) ... that is **purely physical**:
- (a) Affecting the state of **surfaces and containers**:
- ... by **filling** containers:

- Some Spray/Load Verbs (§9.7): e.g., *cram, fill, load*, used in the form <V Y (with X)>.
- Some Fill Verbs (§9.8): e.g., *clog, plug, saturate*—these “typically describe the resulting state of a location as a consequence of putting something on it or in it”.
- ... by **covering** surfaces:
 - Some Spray/Load Verbs (§9.7): e.g., *brush, dust, drizzle, slather*, used in the form <V Y (with X)>.
 - Many Fill Verbs (§9.8): e.g., *blanket, cover, pave, shroud*
 - Many Butter Verbs (§9.9): e.g., *butter, oil, salt, water*—these are verbs whose “meaning can be paraphrased as ‘put X on/in (something),’ where X is the noun that the verb takes its name from” (Levin 1993, p. 121).
- ... by **emptying** or **clearing** a surface or container:
 - Clear Verbs (§10.3): *clear, clean, empty, drain*—used in the form <V Y of X>, in which they lexicalize “a state that can hold of a ‘location’ as a result of removing something from that location” (Levin 1993, p. 125).
 - Wipe Verbs (§10.4): e.g., *erase, flush, sweep, wipe* and *brush, filter, rake, shovel*—used in the form <V Y (clean, clear, free of X)>. These divide into two subclasses, depending on whether they lexicalize a manner or an instrument of removal.
- (b) Affecting the **material form** of a thing:
 - ... by altering its **shape**:
 - Bend Verbs (§45.2): e.g., *bend, crease, crumple, fold*—these “relate to a change in the shape of an entity that does not disrupt its material integrity” (Levin 1993, p. 243).
 - ... by affecting its **material integrity**:
 - Break Verbs (§45.1): e.g., *break, chip, shatter, tear*—these “refer to actions that bring about a change in the ‘material integrity’ of some entity” (Levin 1993, p. 242; quoting Hale and Keyser 1987).
 - Cut Verbs (§21.1): e.g., *cut, saw*—these are like *Break Verbs* except in that they further specify something about “the instrument or means” by which a separation in material integrity is affected (Levin 1993, p. 157).
 - Carve Verbs (§21.2): e.g., *dice, prune*—these sometimes specify “the nature of the result” of a process of separation, as in the case of ‘dice’ (Levin 1993, pp. 157 and 158).
 - ... by **removing** something from it:
 - Pit Verbs (§10.7): e.g., *core, gut, pit, weed*—their meaning “could be paraphrased as ‘remove X from (something),’ where X is the noun zero-related to the verb” (Levin 1993, p. 130).
 - Some Debone Verbs (§10.8): e.g., *debone, debowel, devein*
- (c) Altering the **surface appearance** of a thing:
 - ... by **coating its surface**:
 - Verbs of Coloring (§24): e.g., *color, dye, stain, varnish*—these “describe changing the color of an entity, usually the application of some coating that covers the surface of the entity and, therefore, changes its color” (Levin 1993, p. 168).
 - ... by creating an **image or pattern** on its surface:

- Some Verbs of Image Impression (§25.1): e.g., *embroider, engrave, stamp, tattoo*—these are verbs “relating to the creation of images on surfaces” (Levin 1993, p. 169). These also have a creative use that is discussed under (C.ii.b).
 - Illustrate Verbs (§25.3): e.g., *autograph, decorate, illustrate, label*
- (d) **Combining** things:
- ... into a **homogeneous stuff**:
 - Some Mix Verbs (§22.1): e.g., *blend, mix*
 - Some Amalgamate Verbs (§22.2): e.g., *amalgamate, incorporate*
 - Some Shake Verbs (§22.3): e.g., *beat, scramble, whisk* (together)
 - ... in a manner that **preserves their original integrity**:
 - Some Mix Verbs (§22.1): e.g., *combine, commingle*
 - Some Amalgamate Verbs (§22.2): e.g., *conjoin, entwine, entangle, interweave*
 - Some Shake Verbs (§22.3): e.g., *bundle, gather, jumble, mass*
 - ... by **attaching** them to one another:
 - Tape Verbs (§22.4): e.g., *bolt, connect, fasten, join, link, pin, solder, staple, tape, tie* (together)—these differ from the classes above in that their meanings “relate to the manner/means in which things are combined, rather than the result of the combining” (Levin 1993, p. 163).
- (e) **Separating** things (here there is room to apply the further distinctions made under (B.i.d)):
- Separate Verbs (§23.1): e.g., *decouple, disentangle, separate, sever*—these “have meanings that specify the endstate of their direct object and not the means or manner in which this endstate is reached” (Levin 1993, p. 165).
 - Split Verbs (§23.2): e.g., *pry, pull, split, tear*—these “manifest an extended sense which might be paraphrased as ‘separate by V-ing,’ where ‘V’ is the basic meaning of that verb” (Levin 1993, p. 166).
 - Disassemble Verbs (§23.3): e.g., *detach, disconnect, unleash, unzip*—in contrast with *Separate Verbs*, the meaning of these verbs “includes a specification of the manner or means in which a separation can be brought about, without specifying the result of this process” (Levin 1993, p. 167).
- (f) Causing **other kinds of physical change**:
- Other Alternating Verbs of Change of State (§45.4): this is a large and motley class that includes “a variety of verbs that relate to externally caused changes of state” (Levin 1993, p. 246), including for example changes:
 - ... in **temperature**: e.g., *cool, heat, chill*
 - ... in **size**: e.g., *compress, expand, shrink, enlarge, inflate, deflate, deepen, narrow, widen, heighten, lengthen*
 - ... and in **other respects**: e.g., *clean, dirty; wet, soak, moisten, dry; melt, thaw, freeze; harden, soften; ignite, extinguish; open, shut; lighten, darken; loosen, tighten; etc.*
- (B.ii) ... involve a **social dimension**:
- (a) Altering what is **possessed**:
- ... by **taking possession** of something, possibly from someone else:
 - Steal Verbs (§10.6): e.g., *confiscate, grab, pilfer, steal, take, wrest*
 - Verbs of Obtaining (§13.5): e.g., *acquire, gather, pick,*

- And cf. also some Cheat Verbs (§10.6): e.g., *con, defraud, dispossess, rob, swindle*
 - ... by **transferring possession** of something to another:
 - Give Verbs (§13.1): e.g., *give, lend, loan, pay*
 - Contribute Verbs (§13.2): e.g., *contribute, donate, relinquish, transfer*
 - Verbs of Providing (§13.4): e.g., *arm, credit, furnish, issue, supply*
 - ... by **mutual exchange** of possessions:
 - Verbs of Exchange (§13.6): e.g., *swap, trade, exchange*—these “relate to exchanging one thing for another” (Levin 1993, p. 144).
- (b) Altering **social status or role**:
- ... by “performative” bestowal of **social status**:
 - Appoint Verbs (§29.1): e.g., *appoint, crown, elect, ordain*
 - ... by bestowing **names**:
 - Dub Verbs (§29.3): e.g., *anoint, brand, christen, dub, term*
 - ... by deciding **prices**:
 - Some Price Verbs (§54.4): e.g., *fix, peg, price, value*—these “describe an agent measuring the value of an attribute of an entity along a [relevant] scale” (Levin 1993, p. 273), though in the relevant use that value is not *measured* but rather *established*.
 - ... by altering **social status** in other ways:
 - Orphan Verbs (§29.7): e.g., *apprentice, cuckold, martyr, orphan, widow*—these are verbs whose meaning is roughly of the form “make someone an X”, where X is the noun to which the verb is zero-related.
- (B.iii) ... in **other special ways**:
- (a) Affecting the **vital state** of a living organism:
- ... by some form of **bodily damage**:
 - Hurt Verbs (§40.8.3): e.g., *bruise, fracture, hurt, sprain*—these “relate to the occurrence of damage to the body through a process that is not under control of the person that suffers the damage” (Levin 1993, p. 226).
 - ... by impairing its **vital functioning**:
 - Poison Verbs (§42.2): e.g., *electrocute, hang, poison, shoot, stab, strangle*—these “relate to actions which can be ways of killing”, and further tend to lexicalize the means by which this is done (Levin 1993, p. 232).
 - Suffocate Verbs (§40.7): e.g., *choke, drown, suffocate*—these “relate to the disruption of breathing” (Levin 1993, p. 224).
 - ... by **restoring it to a state of well-functioning**:
 - Two examples are *cure*, which is a Cheat Verb (§10.6), and *heal*, which is one among the many Other Alternating Verbs of Change of State (§45.4), as discussed under (B.i.f).
- (b) Affecting the **psychological state** of a sentient animal:
- Amuse Verbs (§31.1): e.g., *aggravate, amaze, bewilder, captivate, convince, dismay, entice, fascinate, gladden, humble*, etc.—these “describe the bringing about of a change in psychological or emotional state” (Levin 1993, p. 191).
- (c) Affecting the **outward appearance** of a person or animal:
- Verbs of Caring for the Whole Body (§41.1): e.g., *bathe, dress, groom*

- Verbs of Caring for a Specific Body Part (§41.2): e.g., *braid, brush, dye, manicure, shampoo, shave*
- (d) Affecting the state of **foodstuffs**:
 - ... by **transforming ingredients**:
 - Knead Verbs (§26.5): e.g., *beat* (eggs), *knead* (dough), *melt* (butter), *whip* (cream)
 - ... by **cooking foods**:
 - Cooking Verbs (§45.3): e.g., *bake, boil, fry, grill, parboil, poach, sauté, stir-fry*

(C) Acts of **destruction and creation**

(C.i) Acts of **destruction**:

- (a) **Ending the life** of a living organism:
 - Murder Verbs (§42.1): e.g., *assassinate, execute, immolate, kill, massacre, murder, slaughter, slay*
 - Suffocate and Poison Verbs (§40.7 and §42.2), as discussed under (B.iii.a), now used in a way that entails death.
- (b) Reducing a thing to its **material components**:
 - Destroy Verbs (§44): e.g., *annihilate, demolish, destroy, extirpate, ravage, wreck*—these “relate to the total destruction of entities” (Levin 1993, p. 239).
 - Also some uses of Break Verbs (§45.1), as discussed in (B.i.b)—unlike Destroy Verbs, these also “describe specifics of the resulting physical state of an entity (e.g., whether something is broken, splintered, cracked, and so on) rather than simply describing the fact that it is totally destroyed” (Levin 1993, p. 239).
- (c) **Consuming** things through a nutritive process:
 - Eat Verbs (§39.1): *drink, eat*—these are “simple verbs of ingesting” whose meaning “does not specify the manner of ingesting or the meal involved” (Levin 1993, p. 214).
 - Chew Verbs (§39.2): e.g., *chew, gnaw, lick, munch, nibble, sip, suck*—their meaning “involves a specification of the manner of ingesting” an object (Levin 1993, p. 214).
 - NB: As discussed in the main text, while not all uses of *Chew Verb* describe acts of consuming the stuff in question (e.g., ‘lick a stamp’ or ‘chew on a pen’), their meaning seems to be internally related to corresponding means of consumption.
 - Gobble Verbs (§39.3): e.g., *drink, eat, gobble, gulp, swallow, swig*—they are verbs of ingestion meaning “involves the complete, and usually speedy, consumption of something” (Levin 1993, p. 215).
 - Devour Verbs (§39.4): e.g., *consume, devour, swill*
- (d) Getting rid of “**things**” in a very broad sense:
 - Some uses of Wipe Verbs (§10.4): e.g., *buff* (scratches), *comb* (tangles), *erase* (pencil marks), *iron* (wrinkles), *rinse* or *wash* (stains), *wipe* (smudges). As discussed in Section (B.i.a), all these verbs also have a state-changing use.

(C.ii) Acts of **creation**:

- (a) Transforming raw materials into **novel products**:

- Build Verbs (§26.1): e.g., *assemble, blow, build, carve, cast, chisel, fold, knit, mold, sew, weave*—these “describe the creation of a product through the transformation of raw materials” (Levin 1993, p. 174). Verbs in this class can also be used in dative and/or double object constructions to describe a way of making something *for* someone, e.g. ‘build a house for X’ and ‘build X a house’.
 - Verbs of Preparing (§26.3): e.g., *bake* (cake), *brew* (coffee), *light* (fire), *pour* (drink), *run* (bath)—these “describe the creation of a product, usually through the transformation of raw materials ... [Many] describe the preparation of food; most of the rest deal with other types of household activities” (Levin 1993, p. 175).
 - Some Create Verbs (§26.4): e.g., *concoct, fabricate, manufacture, mint, synthesize*
- (b) Creating **images or patterns** on surfaces:
- Verbs of Image Impression (§25.1): e.g., *embroider* (insignia), *engrave* (name), *stamp* (seal), *tattoo* (pattern). These also have a state-affecting use that was discussed in (B.i.c).
 - Scribble Verbs (§25.2): e.g., *carve* (initials), *draw* (landscape), *paint* (portrait), *sketch* (picture), *write* (name).
- (c) **Authorship and performance:**
- Performance Verbs (§26.7): e.g., *compose* (symphony), *hum* or *whistle* (tune), *perform* (play), *play* (symphony), *recite* (poem), *sing* (song), *write* (article)—these “describe performances, broadly speaking, and these performances are themselves the effected object” (Levin 1993, p. 179). Arguably there is a further distinction to be drawn here according to whether the created entity has an existence independent of the creative activity itself: e.g., composing a symphony vs. reciting a poem.

(D) Further Categories

(D.i) Causal relations to **processes and events:**

- Begin Verbs (§55.1): e.g., *begin, continue, end, halt, repeat, resume*—these “describe the initiation, termination, or continuation of an activity” (Levin 1993, p. 179).
- Complete Verbs (§55.2): *complete, discontinue, initiate, quit*—these are like *Begin Verbs* except in that they don’t have an intransitive use (e.g., *The meeting ended/?completed*).

(D.ii) Causal acts involving **activity on the part of the affected entity:**

(a) Getting a person or animal to **eat:**

- Verbs of Feeding (§39.7): *bottlefeed, breastfeed, feed, forcefeed, handfeed, spoonfeed*—these “describe causing someone to eat” (Levin 1993, p. 217).

(b) Getting a person or animal to **move:**

- Run Verbs and Waltz Verbs (§51.3.2 and §51.5): e.g., *run, walk, waltz*—as discussed in (A.i.b); used transitively and with an animate entity as direct object.
- Some Accompany Verbs (§51.7): e.g., *escort, guide, lead, shepherd*—and perhaps also *chase*, which is classified a Chase Verb (§51.6).
- Verbs of Rushing (§53.2): *hasten, hurry, rush*—used transitively and with an animate entity as direct object.

(D.iii) Causing **growth or vital development**:

- This category does not map neatly onto any Levin class. Two paradigms of it are in the transitive uses of *grow* and *hatch*, which Levin classifies as Build Verbs (§26.1); however, as discussed under (C.ii.a), the verbs in this class paradigmatically “describe the creation of a product through the transformation of raw materials” (Levin 1993, p. 174). What distinguishes *grow* and *hatch* from most *Build Verbs* is that they also have intransitive uses that place them in the Levin class of Grow Verbs (§26.2), whose other members are *develop*, *evolve*, and *mature*. But while Levin says that these latter verbs “simply describe the transformation of an entity from one form to another” (1993, p. 174), this characterization ignores the way that the change in question is by way of the transforming entity’s vital activity. This last dimension also belongs to causative acts like growing tomatoes and hatching chicks, etc. There is a transitive use of *raise* (e.g., ‘raise children’) that has this sense as well.