Mixers, Mufflers and Mousers: The Extending of the –Er Suffix as a Case of Prototype Reanalysis

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One of the more productive derivational processes in present-day English is the -er suffix, which is used to produce a wide variety of nominals, a very small sample of which is given in (1):

(1) **inputter:** someone who inputs data to a computer
muffler: part of a car that muffles sound
thriller: movie that thrills the audience
mudder: horse that runs well in the mud
blue-hairer: low-risk investment suitable for "blue-hairs", i.e. little old ladies with blued hair

(See Ryder 1991 for a more complete list of types of -er nominals.) While this suffix has evidently been fairly common throughout the history of English, its range of uses was much narrower during the Old English period, when -er forms almost exclusively denoted human agents, and were based predominantly on verbs describing the action of the agent (Kastovsky 1971), as in (2):

(2) **bæcere:** baker
fullere: fuller
steorere: steersman
writere: writer

Purely syntactic treatments of -er forms have been proposed (e.g. Levin and Rappaport 1988), but in addition to their failure to account for the complete range of present data, none of them provides motivations for the expansion in the use of these expressions since the Old English period.

In this paper, I propose a model that characterizes -er forms in terms of semantic case, event structure and prototype reanalysis. I claim that many of the present types of -er forms derive from a single prototype agentive form:

(3) **Agentive prototype:** an -er form refers to someone who is the agent in a highly transitive event (Hopper and Thompson 1980, Langacker in press) represented by the verb on which the form is based.

Fillmore (1977) and Langacker (in press) among others have pointed out that attempts to set up case descriptions based on a finite number of cases, each having a set of absolute characteristics, have met with a number

of serious problems. One piece of evidence for this is the variation in both the number of different cases proposed and the characteristics given for each case by different linguists (Dillon 1977). Even for the notion of "agent", which is one of the more agreed-upon cases, some (e.g. Jackendoff 1972) consider intentionality to be definitional, while others (e.g. Chafe 1970) define agents as self-energy sources. So for Jackendoff, the subject of (4a) would be an agent, but that of (4b) would not, while Chafe would consider both subjects to be agents:

(4) a. John punched George.
b. The wind blew the table over.

An examination of different treatments of case shows a general, if not complete, agreement on some characteristics, with decreasing agreement on others. Such a pattern suggests that the different semantic cases are better viewed as prototypes rather than as absolute categories. While some event participants will be considered agents by everyone, other, less prototypical ones will be considered agents to the extent that they can be construed as matching or approximating the prototype (Langacker 1987).

Semantic cases are defined in relation to an event. Our observation of the world consists of the perception of a series of temporally contiguous events, which I will refer to as an *event-chain*. We group different subsets of an event-chain together to form a unit I call an *episode*. Although there is a certain amount of natural clustering among events in a chain, what is construed as an episode can vary greatly. To a quarterback, an entire game could be perceived as an episode; to a neurobiologist, an episode could be the firing of a single neuron. The prototypes for semantic cases have been based on roles played by participants in what I will call a *basic-level episode*, on analogy with Rosch's basic-level categories (Rosch 1978). The sentence in (5) describes such a basic-level episode, involving an agent, instrument, and patient:

(5) Hubert carefully smashed the plate with a mallet.

This type of episode is centered around a fairly brief, continuous, and highly visible action. The agent is a person who volitionally performs the action. The instrument he uses is an inanimate, non-self-moving object. The agent and the instrument simultaneously participate in the action, which creates a radical change of state in the patient, a concrete, inanimate, non-volitional object. Because the event is centered on a continuous action, its boundaries can be fairly clearly defined. From this basic-level episode, we can factor out the characteristics that a prototypical agent will have, which are given in (6):

(6) **Description of a prototypical agent:**

1) volitional
2) self-moving
3) concrete
4) entity
5) producing a discernible change in
6) a concrete entity (patient)
7) by means of a discernible action with definable boundaries

However, just as some birds are more birdish than others, so events and their corresponding case roles in the real world match the prototype of a basic level episode in varying degrees. Some of the differences are due to aspects of the real world. Some actions are more rapid, more visible or more continuous than others. Some produce greater or lesser changes in their recipients. The elements initiating the event have varying degrees of volition and intrinsic energy.

The other major source of differences between events is the observer's point of view. How fine-grained is his analysis of a series of events? While the sentence in (5) is most often viewed as a single episode, it can easily be broken down into an event-chain, each unit of which will have much narrower boundaries. Such a chain is given in (7):

(7)

simultaneous actions
Herbert swung his arms (gripping the mallet)
The mallet moved through the air

\/

the mallet struck the plate

\/

the plate broke

At the level of detail given in (7), it is possible to construe causation as a relationship between two events, rather than between a person and a single action. This is the interpretation of causation used in Dowty's (1979) analysis of verbs discussed in Foley and van Valin (1984). The existence of these two possible construals of causation based on different episode structures probably contributes to the tendency noted by Lyons (1977) "to identify causality with agency."

We can use a much coarser-grained analysis on the event described in (5) by expanding the boundaries of what is considered to be a single episode. Suppose Hubert is a professional plate-smasher. He might view his whole day's routine, including readying himself, driving to work, repeated plate-smashing, driving home, and changing clothes as a single episode, encoded as:

(8) I went to work today.

In this case, all the actions encoded in (5) constitute one sub-component of the single episode encoded in (8).

Within each episode, however it is defined, a person's perspective may change based on which elements of the episode are in focus, or foregrounded. The episode described in (5) certainly involved a number of elements not mentioned in the sentence, including whatever the plate was resting on and other items in the room such as windows or wall-clocks. What is foregrounded depends in part on the characteristics of the event's elements; some qualities are intrinsically more salient than others. All other things being equal, human beings are more salient than animals, which are more salient than concrete objects (Langacker in press). It is because of this that the agent in a prototypical basic-level episode is generally viewed as the causer rather than the instrument, even though both of them participate fairly equally in the action. Elements that are moving or experiencing obvious changes of state are more salient than those that are not (Fillmore 1977). The three elements encoded in sentence (5) all exhibit one or more of these naturally salient characteristics. The agent, Hubert, is both a human being and a moving object. The instrument, the mallet, is inanimate but moving. The patient, the plate, is undergoing a drastic change of state which probably also involves movement. Most of the other objects likely to be in the room will have few if any of these characteristics.

However, as anyone who has ever stood before an inattentive audience knows, people are quite capable of ignoring the naturally more salient elements in a scene, and foregrounding virtually anything. For example, the episode described in (5) could have been perceived and encoded as:

(9) The clock face, obscured briefly by some moving object, indicated two minutes until quitting time.

As a result of these sources of variation in the real world and in the viewer's perspective, many elements will have some but not all the qualities found in the agents of prototypical events. In determining which episode participants can be described using the originally agentive -er forms, I suggest that speakers have constructed different episode structures, and then

reanalyzed the structure of -er forms accordingly. This claim is summarized in (10):

(10) Extensions to other referent types found in modern -er forms are the result of shifts in construal of the defining episode, with resultant changes in the importance of each of the characteristics of the referents of originally agentive -er forms.

In this paper, I will support these claims using evidence from *instrument Er's*, *event Er's* and *patient Er's*.

Prototypical instruments share with prototypical agents the characteristic of producing a discernible change in a concrete object, although they contrast in volitionality and often in self-movement as well. Moreover, if we consider the finer-grained analysis of a basic-level episode, as in (7), we see that the action of the prototypical instrument overlaps significantly in time and in form with that of the agent. One way in which episodes become less prototypical is for the actions of the agent and instrument to become more temporally separated and less similar in form of movement, until they are more easily construed as comprising two episodes rather than one. This is exemplified in the actions encoded in the sentences in (11):

(11) a) John struck the wall with the bat. (agent and instrument actions simultaneous and overlapping in type of movement)
b) John drilled a hole in the wall with his power drill. (agent and instrument actions simultaneous but distinct in type of movement)
c) John shot a hole in the wall with his rifle. (agent and instrument actions in close sequence and distinct in type of movement)
d) John blew up the wall with a time bomb. (agent and instrument actions separated in time and distinct in movement)

As participants in an action, instruments are intrinsically less salient than human beings, being inanimate. However, even in the basic-level prototype, they have a more direct effect on the patient than does the agent. As the agent and instrument become more separated from each other in time, and the instrument's action becomes increasingly independent of the agent, the agent's action may be construed as outside the episode, leaving the instrument as the most agent-like participant remaining. Even in the prototypical case, it is possible for a perceiver to narrow the boundaries of the episode to include only the instrument-action-patient portion of the event chain (Langacker in press), again promoting the instrument to a more agent-like position as the immediate causer of the action and the only actor in the

episode. Grammatical evidence that agents and instruments are indeed construed as highly similar comes from the use of *with* (prototypically an instrument marker) and *by* (prototypically an agent marker) in both Early Modern and Present-Day English:

(12) **Early Modern:** a) Like to a ship...boarded *with* a pirate.
b) Exit, pursued *with* a bear.

Modern: a) George hit it with/*by a hammer. (agent within the episode)
b) He was struck by a hammer. (agent outside the episode)

It is the shift of the agent to outside the boundaries of the episode that motivates the extension of agentive -er forms to include *instrument Er's*. Kastovsky (1971) cites only three instrument Er's in Old English:

(13) **wisere:** signpost (wisian = to point the way, direct)
sceawere: mirror (sceawian = to look at, see, inspect)
punere: pestle (punian = to pound)

A sampling of instrument Er's show citations in the Oxford English Dictionary almost entirely from the 1500's through the 1800's:

(14)

atomizer	1875	plunger	1777
bailer	1883	poker	1534
borer	1572	scraper	1552
clipper	1578	(back)scratcher	1835
grinder	1688	(candle)snuffer	1552
knocker	1598	toaster (toasting fork)	1695
lighter	1487		
peeler	1883	washer	1808

This was a period of great proliferation in implements and machines whose movements were increasingly differentiated from that of their human operators. However, while the use of instrument Er's may have been motivated originally by this increase in agent-like machines and tools, once people began to use these forms for some instruments, even non-prototypical ones, the -er expression was reanalyzed to include any instrument, including quite prototypical ones. A sampling of modern instrument Er's is given in (15), in order of increasing prototypicality as instruments:

(15) **Self-moving instruments, agent absent:** dishwasher, (clothes) washer, drier, sprinkler, record player, computer, timer
Self-moving instruments, agent present: (power) screwdriver, (power) stapler, can opener, lawn mower, vacuum cleaner
Non-self-moving instruments that diverge from their agent in time or form of movement: bird feeder, egg timer (hour-glass type)
Non-self-moving instruments overlapping in time and form of movement with their agents: screwdriver, stapler, grinder, plunger, clippers, cleaver, peeler, butter curler, potato masher, grater

Once the pattern for -er forms had been reanalyzed to include instruments as referents, a second episode restructuring produced another extension. Returning to Hubert, the professional plate-smasher, I proposed earlier that he may see his whole daily routine as a single, fairly routinized episode. Suppose Hubert not only uses a particular kind of mallet for smashing, but also wears a special type of clothing that is designed to protect him from flying plate shards. Both Hubert's clothing and mallet are salient to the episode because its main repeated action requires both of them to be present. Moreover, since the episode covers his whole day's routine, both clothing and mallet are taken up before the central actions begin and discarded after the central actions are over. As a result, clothing intended to be worn while performing central actions in an episode can be construed as similar to an instrument used in the episode. If this is the case, we would expect -er forms to be extended from instruments to clothing, as in fact they have been:

(16) loafers, sneakers, waders, loungers, boater (hat to go boating in), sleeper, jumper, romper, pedalpushers

Although this use of -er forms does not seem to have spread a great deal, I have found one novel use:

(17) **stroller:** fur coat of the right length and cut to stroll in.
Example: We're having a sale on fur coats, stoles and strollers. (with accompanying pictures of each kind of coat)

As I already noted, in basic-level episodes, human agents are more likely to be construed as the causer than the actions they are performing, due to their intrinsic salience and their temporal closeness to the central action of the episode. In other types of events where one or both of these factors are not present, the second analysis of causation will be favored, in which events rather than agents are construed to cause other events. For example, when groups of people act in concert, their salience as individual humans is

reduced. This is reflected in the acceptability of using singular noun phrases and the neuter pronoun to refer to them:

(18) As the crowd exploded onto the field, *it* was hotly pursued by hordes of police.
The team roared out *its* approval.
The union's position was that management was out to destroy *it*.

With the salience as humans downgraded, the actions of the group can be construed as a separate event from the behavior of the group's individual members, as is shown in the ways these actions are often encoded:

(19) The party was raucous. (Not: The actions of the people at the party were raucous.)
The game was boring. (Not: The actions of the people playing were boring.)
My 1:40 class is very irritating. (Not: The actions of the people attending my 1:40 class are very irritating.)

The potential separation of an event and the people involved in it is also revealed in the ambiguity of many terms which can refer to the participants of an event or to the event abstracted away from the people:

(20) The wedding was lovely, although I didn't like the words of the service very much. (wedding = participants)
The wedding was lovely, although I didn't care for the colors everyone wore. (wedding = event)

Thus, the transfer of a kind of agentivity from individuals to the events involving those individuals is easily motivated.

Causative events may also be construed as independent of human agents due to temporal separation. In these cases, the event causing the change in a patient is the product of a person who is outside the normal boundaries of the episode. Examples are given in (21):

(21) Noam Chomsky changed the nature of linguistic research in the twentieth century with his book, *Syntactic Structures*.
Syntactic Structures changed the nature of linguistic research in the twentieth century.

The choreographer moved the audience to tears with his interpretation of *Swan Lake*.
Swan Lake moved the audience to tears.

Sinclair Lewis used *Babbitt* to portray the crass commercialism of American society.
Babbitt portrayed the crass commercialism of American society.

With their film, *Star Wars*, Lucas and Spielberg changed the criteria for excellence in special effects.
Star Wars changed the criteria for excellence in special effects.

In all these cases, there are human agents indirectly causing the reaction of the patients, but they are all distant from the event. The possibility of using *with* and *use* to introduce these product events reveals that they can be construed somewhat like instruments, but the fact that they are also perceived as events, and as such can be construed as independent causers of reactions, is evident from their acceptability in sentences with predicates that require a causative event, or an agent instigating such an event, as their subject:

(22) John made her angry. (agent instigating action)
The breaking of the window with a rock made her angry. (action)
?The rock made her angry. (instrument)
The poem/book/film/play made her angry. (event)

In both the *group event episodes* and the *product event episodes*, the human agents have been downgraded in salience, either by being present in an undifferentiated mass, or by not being present in the episode at all. As with the instruments, when this happens, the event alone can be construed as agent-like since it is the only foregrounded participant remaining in the episode that has some of the qualities of a prototypical agent.

Thus, we can construct a natural continuum from using -er forms to refer to prototypical, individual agents who are present, to using them to refer to causative events participated in by a group of people, or produced by people who are absent. Such *event Er's* are exemplified in (23):

(23) **opener:** sporting event (intentionally participated in by humans) that serves to open the sport's season
mixer: a party or dance (intentionally participated in by humans) that mixes people together
thriller: a film or book (intentionally produced by humans not present) that thrills the viewer/reader
chiller: a film or book (intentionally produced by humans not present) that chills the viewer/reader

As with instrument Er's, once it has been established that -er forms can refer to causative events where the agents are not present or are not salient in the immediate episode, the pattern can be reanalyzed to include reference to causative events that may not have an agent at all, as in (24):

(24) **bummer:** event that bums a person out
puzzler: event that puzzles people
Example: John acted like he didn't want to see you again and you didn't do anything to offend him? Hmmm. That's a real puzzler.
shocker: an event that shocks people
killer: event that (literally or metaphorically) kills people
Example: That exam/race was a real killer.
gully-washer: weather event (no human agent) that washes out gullies
scorcher: weather event (no human agent) that scorches living things

And, in fact, event Er's have now spread to include reference to events that cause the action described in their base to occur in others (rather than the action being a part of the event itself) and to some events that are not causative at all:

(25) **laugher:** game or other event which causes spectators to laugh
weeper: game or other event which causes spectators to weep
nail-biter: game or other activity which causes spectators to bite their nails
groaner: type of joke that makes the listener groan
cliff-hanger: type of movie in which someone traditionally hung from a cliff
squibber: action of a ball that a kicker has squibbed
chopper: action of a ball that a batter has chopped
comebacker: baseball hit that comes directly back at the pitcher
upper: event (not drug) that causes positive feelings in the viewer
Example: The Super Bowl was one of the few uppers for the Commissioner this year.
in-the-parker: home run that lands inside the baseball park
no-brainer: move or decision that requires no brain to perform
Examples:
a) (describing an easy putt) That's a no-brainer.
b) (in a pizza ad) Deciding to call us for your pizza delivery is a no-brainer.

Although patients seem at first to be quite different from agents, being at the opposite end of the event-chain in a prototypical episode, there are some possible episode structures that allow plausible extensions from agents

to patients. These are episodes containing participants that can be construed as having the agent-like properties of being self-moving or self-changing, but that, like patients, are moving or changing due to the actions of another participant. When the instigators of the movements or changes differ in their actions and are distanced in time, the agent-like qualities of these participants become much more salient than their patient-like ones. So, for example, if a person turns on a burner under a pot of water and then leaves, when the water later begins to boil, the natural boundaries of the episode will exclude the instigator of the action, and the boiling water will be the most salient and agent-like element remaining. The relationship

between the construals when the agent is included in the episode and when it is not is encoded in verbs appearing in both causative and intransitive uses:

(26) Susan is baking the cake.
The cake is baking.

Jeff is boiling the water.
The water is boiling.

Peter has cracked the nutshell.
The nutshell has cracked.

In the second of each pair of sentences, the agent is outside the boundaries of the episode, leaving the original patient as the most agent-like element remaining. I call these entities *active patients*. Not surprisingly, a number of these agent-like active patients can be referred to with -er forms, as in (27):

(27) frier, baker, steamer, broiler, roaster
page-turner: a book that you turn the pages of, but it almost forces you to do so
best seller: a book that is sold well, but almost sells itself

And although originally the referents may have been interpreted with their agent-like construal (e.g. a steamer is a clam that steams), the linguistic structures have been reanalyzed so that these referents are interpreted as patients (a steamer is a clam that is steamed). This is clear, because *patient Er's* have now been extended to include fairly prototypical patients that have few if any agent-like qualities:

(28) **dipper:** something that is dipped before being eaten
sipper: a drink that is sipped
dunker: something that is dunked before being eaten

teether: something that is teethed on
scratcher: a lottery ticket that is scratched to reveal the potentially winning patterns
beater: a car that someone has beat up, i.e. a car in bad shape
keeper: something that should be kept (note: not something that keeps well)
Example: That class sure has a lot of expensive books you have to buy. And the worst of it is, I know most of them will be keepers.
drive-it-yourselfer: a truck that you drive yourself, like a Ryder truck
Example: It wasn't a commercial truck; it looked more like one of those drive-it-yourselfers.
sneaker: something that was sneaked in
Example: (looking at a pair of small houses built in the middle of a much nicer group of homes)
A: There are those two little houses they snuck in up here.
B: Yeah, I don't want to see another house put in here like those two sneakers.

Because most prototypical patients share so few characteristics with agentive prototypes, patient Er's are still fairly uncommon; however, it is possible that they are beginning to expand.

In conclusion, the extensions of agentive -er forms from agents to instruments, causative events and patients, and from instruments to clothing, were originally based on the construction of different episode structures to accommodate less typical transitive events. However, once -er forms began to be used for entities that were somewhat atypical representatives of these new semantic cases, a reanalysis took place extending the use of these expressions to more prototypical examples of each case.

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