

TRACKING THE EVOLUTION OF LANGUAGE

Researchers discover that irregular verbs change in a predictable manner—just like genes and living organisms.

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Irregular deaths	
After analyzing 1,200 years of the English language and a formula based on the one used to calculate the half-life of radioactive material, researchers say they can predict when irregular verbs will become regular verbs.	
■ The past-tense of regular verbs end in "ed." For example, the past-tense of chide was chode, but has now regularized into chided.	
A sampling of the 177 verbs stode, er, studied:	
Irregular verbs (Boldfaced verbs have become regular verbs)	Predicted half-life (In years)
Be, have	38,800
Come, do, find, get, give, go, know, say, see, take, think	14,400
Begin, break, bring, buy, choose, drink, drive, eat, fight, forget, hang, help , leave, lie, reach , run, seek	5,400
Arise, bake , bear, bind, bite, blow, bow , burn , carve , cling, creep, dare , fly, freeze, grind, ride, rush , sink, smoke , spring, steal, swim, weep	2,000
Bark , bellow, braid , brew , cleave, cringe , dive, fret , glide, gnaw , grip , milk, mourn , mow , reek , slay, sting, stink, tread , wade , wring	700
Bide , chide , delve , flay , hew , rue , shrive , slink, snip , sup, wreak	300
<i>Source: Nature</i>	
<i>Los Angeles Times</i>	

Tracing the evolution of English verbs over 1,200 years—from the Old English of “Beowulf” to the modern English of “The Princess Diaries”—researchers have found that the majority of irregular verbs are going the way of Grendel, falling to the linguistic equivalent of natural selection.

The irregular verbs, governed by confusing and antiquated rules, came under evolutionary pressure to obey the modern “-ed” rule of regular verb conjugation, according to a report today in the journal *Nature*.

That the English language has undergone dramatic change over a millennium will come as no surprise to generations of high school students who have struggled to decipher “Beowulf,” which dates to the 9th century, or Chaucer’s “The Canterbury Tales,” written about 1200.

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Linguists have constructed elaborate “family trees” showing how English has developed over time but have been unable to detect the principle driving irregular verbs toward regularity.

The researchers, led by Martin A. Nowak, an evolutionary theorist at Harvard University, discovered that irregular verbs evolve in a predictable manner—just like genes and living organisms. Analyzing databases containing millions of words, Nowak and colleagues showed that the patterns of change depended on how often irregular verb forms were used.

Infrequently used irregular verbs were quickest to evolve. For instance, “holp,” the past tense of “help,” became the modern “helped.” Similarly, “chode” became “chided” and “swole” became “swelled.”

Researchers found they could compute the precise rate by which irregular verbs became “regularized” in the same way physicists calculate the half-life of radioactive materials.

In general, they discovered, a verb used 100 times less frequently evolved 10 times as fast.

Coauthor and Harvard graduate student Jean-Baptiste Michel said irregular verbs were like fossils that could reveal how linguistic rules—and perhaps cultural rules—were born and then died.

The research brings the field of linguistics, which inspired Charles Darwin as he pondered biological evolution, full circle, said W. Tecumseh Fitch of the University of St. Andrews in Britain, who wrote a commentary accompanying the report.

In the 18th and 19th centuries, he said, linguists were focused on how languages developed over time. Their crowning achievement, Fitch said, was a comprehensive “family tree” that showed how such modern languages as English, Russian, Spanish and Hindi diverged from Indo-European, a dead ancestral tongue spoken about 10,000 years ago. This elaborate construct informed Darwin’s thinking.

Darwin’s contemporaries in linguistics, however, were not evolutionists and adhered to quasi-mystical ideas to explain language development.

One influential linguist believed languages were living things; another proposed that an internal spirit drove language change.

Modern linguists have been more focused on the biological capacity of individuals to learn and use language, Fitch said, leaving questions about the evolution of language largely unanswered.

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Still unresolved in the latest study is why the –ed rule emerged as dominant over at least seven other classes of irregular verbs, each governed by specific rules, or in some cases (as in “go” and “went”) no rule at all.

Lead author Erez Lieberman, also a Harvard graduate student, said the answer might lie in the simplicity of the –ed rule, which is far easier to remember than, say, the rule governing the conjugation of “grow” to “grew.” (In one-syllable words that begin with two consonants, keep the first two letters and add –ew.)

New verbs entering the English language, such as “to google,” almost always follow regular conjugation rules, he said. But there are exceptions: “Snuck” slipped into the language in the late 19th or early 20th century as the past tense of “sneak,” although it hasn’t supplanted “sneaked.” Lieberman said “snuck” might have come about because of the influence of “struck,” the past tense of “strike.”

To track verb evolution, researchers probed vast word databases to determine how frequently specific irregular verbs were used, and analyzed archaic grammars to see how verbs were conjugated in Old English and Middle English, the language of “The Canterbury Tales.”

Researchers compiled a list of 177 Old English irregular verbs, 145 of which remained irregular in Middle English and 98 of which remain irregular today.

Moving backward through time, spanning a period that included the Norman invasion and the invention of the printing press, researchers were able to quantify the evolutionary trajectory of irregular verbs.

If the trend toward “regularization” continues—and researchers believe it will—just 83 of the 177 irregular verbs studied will remain in the year 2500.

Some irregular verbs are so embedded in everyday language that they will never regularize, researchers said. Although less than 3% of modern verbs are irregular, the 10 most common verbs (be, have, do, go, say, can, will, see, take, get) are irregular, researchers said. They calculated the half-lives of “be” and “have” at 38,800 years, making them the least mutable of the irregular verbs.

Which irregular verb will next take an –ed? Researchers predict it will be “wed.” It seems a safe bet, since four major dictionaries, including Webster’s New World and Merriam-Webster, conjugate what was wed/wed/wed as wed/wedded/wedded.

“Now is your last chance to be a newly wed,” researchers wrote. “The married couples of the future can only hope for ‘wedded’ bliss.”

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