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WHEN NOUNS SURFACE AS VERBS

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People readily create and understand denominal verbs they have never heard before, as in *to porch a newspaper* and *to Houdini one's way out of a closet*. The meanings are best accounted for by a theory of interpretation that specifies what the verbs mean on particular occasions of their use. Our proposal is that their use is regulated by a convention: in using such a verb, the speaker means to denote the kind of state, event, or process that, he has good reason to believe, the listener can readily and uniquely compute on this occasion, on the basis of their mutual knowledge, in such a way that the parent noun (e.g. *porch* or *Houdini*) denotes one role in the state, event, or process, and the remaining surface arguments of the denominal verb denote others of its roles. This convention accounts for the meaning and acceptability of innovative verbs in various contexts; similar conventions may be needed to account for other innovative uses of language.*

One remarkable aspect of our capacity to use language is our ability to create and understand expressions we have never heard before; we will call these INNOVATIONS. In the right contexts, we readily understand *He enfant terrible'd gracefully* (said of a workshop participant), or *Ruling in death of Ferrari woman* (newspaper headline referring to a woman whose will stipulated that she be buried in her Ferrari), or *Never ask two China trips to the same dinner party* (cartoon caption referring to people who had taken trips to China)—even though we have never before heard *enfant terrible* used as a verb, *Ferrari woman* used as a compound noun, or *China trips* used as a shorthand expression. Part of this creativity is readily accounted for, linguistically, by rules of composition. Thus the meaning of *ritualness* is composed of the meanings of *ritual* and *-ness*, according to rules of word formation. But innovations such as *enfant terrible'd*, *Ferrari woman*, and *China trips* do not appear to be explainable in that way. To decide what they mean on a particular occasion, we must know not only the meanings of their parts, but also something about the time, place, and circumstances in which they are uttered. How these meanings are determined is the main question to which this paper is addressed.

To examine this question, we have chosen to look at denominal verbs, i.e. nouns that have come to be used as verbs. Innovations within this category are abundant, in such examples as *Ruth Buzzi houseguested with Bill Dodge* (Herb Caen, SF Chronicle); *He wristed the ball over the net* (tennis commentator); *When you're*

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starting to Sunday School members, then I think you're going too far (a Californian legislator); She would not try to stiff-upper-lip it through (Time magazine); Will you cigarette me? (Mae West); We all Wayned and Cagneyed (NY Times magazine); They timbered off the hills in the 1880's (conservation article); and 'Let us cease to sugar-coat, let us cease to white-wash, let us cease to bargain-counter the Bible!' the speaker implored us (James Thurber). The meanings of these innovations are readily determined; but how? Our goal in this paper is to propose an answer to this question, and so to suggest an explanation for lexical innovation in general.

Our account is based on the following line of argument. Innovative denominal verbs like *Wayned* have a SHIFTING sense and denotation—one that depends on the time, place, and circumstances of their use. That makes them different, formally, from indexical expressions like *he*, as well as from purely denotational expressions like *bachelor*, both of which have a FIXED sense and denotation. So innovative denominal verbs require a different explanation, namely a theory of interpretation that will account for their sense and denotation on particular occasions. Our theory asserts that there is a convention that speakers and listeners follow in uttering and interpreting such verbs. The convention is that when a speaker utters such a verb, he intends his listener to see that the verb picks out a readily computable and unique kind of state, event, or process that the speaker is confident the listener can figure out—on the basis of the verb itself, the linguistic context, and other mutual knowledge. This convention has a number of consequences for the acceptability and meaning of innovative denominal verbs in context. We provide evidence that these consequences hold.

The paper is organized as follows. In §1, we present our data, a preliminary classification of English denominal verbs. In §2, we show how innovative denominal verbs formally contrast with indexicals like *he*, and with purely denotational expressions like *bachelor*. In §3, we outline our theory of interpretation to explain these verbs. In §4, we develop some of the consequences of this theory, and present supporting evidence. In §5, we consider several general issues that innovations raise for non-innovative denominal verbs, for other types of innovations, and for the lexicon as a whole.

1. CATEGORIES OF DENOMINAL VERBS. The meanings of ordinary denominal verbs, it seems clear, bear at least an approximate relationship to their 'parent' nouns, from which they were historically derived. The verb *bottle* bears some relation, at least diachronically, to its parent noun *bottle*. To illustrate the major relationships, we will present a classification of more than 1300 denominal verbs collected from newspapers, magazines, novels, radio, television, consultants, and previous studies (Adams 1973, Green 1974, Jespersen 1942, McCawley 1971, Marchand 1969, Menken 1929, Rose 1973, Watt 1973). To make our task manageable, we have included only those verbs that fit these four guidelines:

(a) Each verb had to be formed from its parent noun without affixation (though with possible final voicing, as in *shelve*). This is by far the commonest method of forming denominal verbs in English.

(b) The parent noun of each verb had to denote a palpable object or property of

such an object, as in *sack*, *knee*, and *author*—but not *climax*, *function*, or *question*. As Marchand (367) points out, the former comprise the majority of denominal verbs in English. In any case, we wished to found our theory of interpretation on what people know about states, events, and processes associated with concrete objects. There is no theoretical reason to assume that the other denominal verbs are subject to fundamentally different principles.

(c) Each verb had to have a non-metaphorical concrete use as far as possible. This again was to help keep our theory of interpretation within limits, although in some cases we couldn't avoid examining certain extended meanings.

(d) Each verb had to be usable as a genuine finite verb. This excluded expressions like *three-towered* and *six-legged*, which occur only as denominal adjectives (see Hirtle 1970, Hudson 1975, Ljung 1974).

In this classification we have put innovations like *houseguest*, *Sunday School*, and *Wayne* in with ordinary denominal verbs like *land*, *ape*, and *man*, which are already well established as verbs. For one thing, innovations and well-established verbs are really two ends of a continuum, with no sharp dividing line between them. For another, the words that are at present well established as verbs were themselves once innovations; so, by surveying both, we will get a more complete picture of the process of innovation. These are issues we will take up in more detail later. Nevertheless, we have marked what to our British or American ears are innovations with a raised plus (thus ⁺*blanket the bed*). We cannot expect full agreement on these judgments, for reasons that will become clear later.

The classification that we have come to, like those of Jespersen, Marchand, and Adams, really applies to the PARAPHRASES of these verbs. For each main category there is a general paraphrase that roughly fits most of its members. The paraphrases themselves are then classified on the basis of the case role that the parent noun plays in them; we have labeled most of the categories with the names for the case roles given by Fillmore 1968, 1971. These paraphrases, however, are no more than heuristic devices, enabling us to group verbs with similar origins. They do not (and, as we shall see, cannot) capture all the content of each verb. Most of the well-established verbs are specialized in ways not capturable in general paraphrases. More importantly, these paraphrases are not intended to represent the sources from which the verbs are derived, either now or historically. Indeed, the theories that assume such derivation, we will argue, are inadequate to handle even the innovations among these verbs. The theory of interpretation we offer below does not work from these sources. In brief, the paraphrases are not themselves intended to carry any theoretical significance.

1.1. LOCATUM VERBS are ones whose parent nouns are in the objective case in clauses that describe the location of one thing with respect to another. *Blanket* is such a verb, as shown by the relation between the verb *blanket* in 1 and the noun *blanket* in 2, a paraphrase:

- (1) Jane blanketed the bed.
- (2) Jane did something to cause it to come about that [the bed had one or more blankets on it].

Extending our kinship terminology, we will call the clause in square brackets in 2 the 'parent clause' for the verb *blanket*. In the parent clause, *blanket* is in the objective case. All the other transitive locatum verbs in List 1 also fit this pattern.

LIST 1: LOCATUM VERBS.

A. *On*. Coverings: TEMPORARY—+blanket the bed, +bedspread the bed, +coverlet the bed, slipcover the cushion, cover the cushion, +sheet the furniture, +oilcloth the table, linoleum the kitchen, carpet the floor, +wool-carpet the floor, +shag-rug the floor, newspaper the shelves, +roll the trees (with lavatory paper), camouflage the tents, litter the highway. PERMANENT—paper the wall, wallpaper the wall, paint the ceiling, spray-paint the door, water-paint the wall, flat-paint the cupboards, oil-paint the house, +polyurethane the floor, +acrylic the car, varnish the furniture, shellac the furniture, enamel the chair, +lime the wall, beeswax the table, wax the table, whitewash the fence, coat the furniture. PERMANENT SOLID—roof the house, cedar-shingle the house, brick the path, tile the floor, +parquet the floor, plaster the ceiling, +turf the yard, cobblestone the road, tarmac the road, gravel the driveway, asphalt the lot, seed the lawn, forest the land, feather the nest, pad the cell, panel the room, +plank the floor. Viscous—marmalade the toast, butter the bread, jam the scones, +lemon-icing the cake, ice the cake, +extract-of-beef the bread [Punch], +almond-topping the cake, grease the pan, +Crisco the pan, soap one's face, cold-cream one's face, pomade his hair, salve the cut, balm the wound, ink the nib, perfume her neck, blood the huntsman, oil the hinges, water the roses, +mist the plants, tar-and-feather the prisoner. POWDERY—powder her nose, rouge her cheeks, talc the baby, chalk the cue, flour the board, crumb the ham, bread the cutlets, dust the cake, sugar the fruit, +graphite the lock, +cork his face, resin his shoes (ballet), sawdust the floor. METAL—chrome the knife, silver the dish, tin the tray. HUMAN—man the ship, people the earth, +personnel the office, +tenant the building, mob the speaker. OPAQUE—(tr.) +rime the window; (intr.) ice over, mist over, fog up, cloud over. INDIVIDUAL OBJECTS: DRESS—dress the boy, clothe the child, +robe the child, +shawl the child, +sweater the child, +shirt the model, +trouser the boy, belt his pants, +jacket the child, glove her hands, +cloak the model, +uniform the guards, +straitjacket the patient, mask the players, diaper the baby, +Pamper the baby, nappy the baby, crown the king, +beard the actor, wig the actress, +cap the child, +fig-leaf the statue, veil one's face, +black-tie it, kerchief her hair, shroud the corpse. ANIMAL PARAPHERNALIA—saddle the horse, halter the donkey, shoe the horse, muzzle the dog, rug the horses, bridle the horse, rein the horse, collar the dog, harness the donkey, yoke the oxen. SYMBOLS—date the check, sign the check, +receipt the bill, initial the memo, address the letter, zip-code the letter, graffiti the walls, asterisk the sentence, star the sentence, +watermark the paper, brand the cattle, stamp the passport, cross oneself. LABELS—ticket the car, label the jars, +badge the members, name the dog, nickname the child, stamp the letter, seal the letter, wax-seal the letter, poster the wall, +placard the wall, tag the bird, signpost the entrance, +license-plate the car. DECORATIONS—festoon the room, garland the door, sequin the dress, +polka-dot the wall, +picture the walls, +pearl the headdress, +ring their fingers, +jewel her hands, +pattern the plate, +tin-can the wedding car, +vine the terrace. MISCELLANEOUS—tea-cosy the pot, crown the tooth, cap the tooth, +lid the jar, cushion the chair, bandage his ankle, string the guitar, bait the hook, +stair-rod the carpet, flag the towns on a map, +battlement the castle, +pickle the hamburger, scar his arm, +scab his arm, bruise his elbow, chin the bar, breast the wave, dog-ear the page, patch the jacket, spot the cloth, +shaft the arrow, feather the arrow, +we rebristle your hair-brushes [ad], timber the house.

A'. *Not-on*. COVERINGS: skin the rabbit, feather the goose, shell the peanuts, shuck the corn, scale the fish, peel the apple, +rind the lemon, dust the shelf, husk the corn, hull sunflower seeds, +bark the tree, fleece the sheep, +flesh the hide, +rind the bacon, +hide the carcass, sweat the horse (riding). INDIVIDUAL OBJECTS: +limb the tree, +stem the grapes, +stalk the elder flowers (recipe), girdle the tree, top the tree, +fin the fish, +gill the fish, pinion the bird, beard the oysters, head the willow, bur the wool, poll/pollard the tree, pants the boy, +lint the clothes [Consumer Reports], scalp the settler, +flea the dog, louse the children.

B. *In*. CONDIMENTS: spice the food, salt the food, pepper the food, salt-and-pepper the food,

*lemon the tea, sugar the tea, cream his coffee, cream-and-sugar the coffee, *ligase the DNA, ice the drinks. FUELS: gas the car, *Quaker State the car [ad], fuel the 747, coal the ship, fire the kiln. CLOTHING PARTS: *seam the dress, *gusset the dress, hem the garment, hemstitch the cuff, buttonhole the shirt, stitch the seam, ladder the nylons, *dart the blouse. MISCELLANEOUS: thread the needle, lace the shoes, block the shoes, partition the room, block the road, barricade the road, cork the bottle, stopper the bottle, bug the room, *stepping-stone the stream, plug the hole, *tree the shoes, dam the river, soil the clothes, leaven the bread, *pill the cat, *mast the ship, pit the paint, rafter the house, beam the ceiling, *lantern the window, *restump the house (put in new supports for a house).

B'. *Not-in.* Pit the cherries, pip the grapes, stone the dates, core the apple, bone the fish, gut the fish, grallach the deer (hunting), brain the man, wind the man, worm the puppy, weed the garden, fish the stream, milk the cow, juice the orange, burl the cloth, loot the town, pillage the city.

C. *At, to.* *Gift the city, *Christmas-gift each other, *cocktail the diners, fodder the sheep, pension the old man, horse the soldiers, arm the men, *postcard the friend, petition the governor, summons the driver, subpoena the president, serenade the crowd, *allowance his children, *message the president, water the horses, *fee the lawyer, bribe the official, drug the man, poison the rat, dope the horse, earth the radio, ground the radio, *tomato the passerby, *rotten-egg the speaker, *The people on the street were handbilled with information [NBC], snowball the visitor, *tin each other (throw pie tins at), *chair up (acquire chairs) [ad].

D. *Around.* Fence the yard, wall (in) the garden, frame the picture, screen (in) the porch, glass (in) the sundeck, *greenbelt the town, *ring-road the town.

E. *Along.* *Tree the avenue, fence the street, hedge the road, *gutter the street, *curb the street, *billboard the highway, signpost the road.

F. *Over.* Bridge the stream, span the river, *lid one's eyes.

G. *Through.* *Tunnel the mountain.

H. *With.* *Trustee the property.

By definition, the parent clauses for locatum verbs describe locations, e.g. that blankets are *ON* the bed. The locatum verbs can therefore be subdivided by the locative preposition in the parent clause. The prepositions that turned up in our classification, in either our British or American usage, are *on, in, at, around, along, over, through, and with*, and the negative prepositions *not-on* and *not-in*. It is noteworthy that there are many locatum verbs for the positive prepositions (especially for the elementary prepositions *in, on, and at*), but only a few for the negatives *not-on* and *not-in*.

The remaining parts of the parent clauses are systematically related to the arguments and prepositions associated with each locatum verb. The general case can be illustrated for a transitive and an intransitive verb. For the tr. *blanket the bed*, the parent locatum (*blanket*) corresponds to the surface verb, and the parent location (*bed*) to the surface object; the parent preposition (*on*) is left unspecified. For the intr. *The windows iced over*, the parent locatum (*ice*) again corresponds to the surface verb, the parent location (*windows*) to the surface subject, and the parent preposition (*over*) to the verb particle. Prepositions don't appear as particles very often. Some of the transitive verbs also occur as middle verbs, as in *The wall papered nicely* and *My arm bruises easily*, where the agent that is normally explicit is left unspecified. Of course, both the true intransitive and the middle verbs are related to the transitive verbs, just as *The men marched in* (intr.) is related to *The sergeant marched the men in* (tr.); and *The floor swept easily* (middle) is related to *Bill swept the floor* (tr.; see Lyons 1968:365-6). Among denominal verbs, the transitive verbs describe outcomes that are normally caused by agents, whereas the true intransitive verbs describe outcomes that are not.

1.2. LOCATION AND DURATION VERBS. For location verbs, the parent nouns are in the locative case:

- (3) Kenneth kenneled the dog.
- (4) Kenneth did something to cause it to come about that [the dog was in a kennel].

Again, the parent clause is locative, but here the parent location (*kennel*) corresponds to the surface verb, and the parent locatum (*dog*) to the surface object. This pattern is just the reverse of locatum verbs. In *gas the car*, with a locatum verb, the gas goes in the car; but in *kennel the dog*, with a location verb, the kennel doesn't go in the dog—the dog goes in the kennel. The location verbs in List 2 have been further categorized by the preposition in the parent clause, and by properties of the entities denoted by the parent nouns. Although most are transitive, some are ordinarily only intransitive, e.g. *surface*; others can be either, e.g. *bed down*. For the intransitives, the parent locatum corresponds to the surface subject, making the usual parallel between intr. *The child bedded down* and tr. *We bedded the child down*.

LIST 2: LOCATION VERBS.

A. *On*. STORAGE PLACES: ground the planes, beach the boats, land the boat, bench the players, +clothes-rack the hat, +clothes-horse the trousers, +doormat the boots, shelve the books, spool the thread, +rack the plates, +hook the cups. STRINGS: string the beads, spit the chicken, skewer the meat, tender the balloon, leash the dog. LISTS: list the participants, blacklist the director, +short-list the candidate, +sick-list the patient, +wait-list the traveller, book the flight, log the travel, docket the case, schedule the appointment, slate the speakers, inventory the goods, +front-page the scandal, headline the story, +bulletin the news, +banner the message. VISUAL LOCATIONS: screen the movie, chart the route, map the area, +blueprint the plans. MISCELLANEOUS: land the plane, floor his opponent, stage the play, table the document, +easel the canvases, +sidewalk the merchandise, strand the passengers, +island the travellers, +horse the troops, curb the dog, spot the ball (football), sidetrack the detective, +keyboard a new computer language, shoulder the knapsack, hip one's opponent (wrestling); (intr.) The bird perched, The boat landed.

A'. *Not-on*. Tee off the (golf) ball.

B. *In*. HABITAT: (tr.) headquarter the troops, bivouac the soldiers, lodge the guests, bed the stones in mortar, field the candidates, jail the prisoner, jug the thief, quod the burglar, cloister the nuns, shelter the fugitives, house the people, stable the horse, +stall the horse, +barn the cows, +shed the cows, kennel the dogs, pen the pigs, +sty the pigs, coop the chickens, cage the tigers, +hive the bees, earth the badger (hunting), +tanker extra fuel [Jack Anderson]; (intr.) +hut, nest, roost, slum, camp, room at the Waldorf, +youth-hostel in Europe, +office in Houston [ad], hole up in the woods, +tidepool in the shallows of the Stanislaus river, +head-quarter in San Raphael, +tent along the frontier [Time]. STORAGE PLACES: cellar the wine, +closet the clothes, +cloakroom his briefcase, +cupboard the stores, garage the car, park the car, harbor the boat, berth the boat, drydock the boat, +hangar the airplane, dairy the milk, +silo the corn, corral the horses, pasture the cows, +warehouse the aliens [CBS], pigeonhole the bill, +desk the papers, file the reports, +file-cabinet the letters, +showcase the rings, +billfold the money, pocket the change, +coin-purse the pennies, bank the money, +piggy-bank the nickels, +shrine the relics, +scabbard the sword. CONTAINERS: pot the begonias, can the fruit, tin the peaches, jug the hare, +creel the trout, sack the potatoes, bag the potatoes, box the apples, +barrel the apples, +case the violin, bottle the wine, +keg the beer, +pouch the tobacco, +flask the whisky, +coffer the jewels, +casket the jewels, +coffin the body, +litter-basket your empties [beer carton], +hole the ball. PICTURES: picture the man, graph the data, +window the view, film the action, +snapshot his team, photograph the children. MISCELLANEOUS: package the books, parcel the presents, book the receipts, dish up the food, brine the pickles, seat the people, corner the mouse, tree the possum, pillory the prisoner, cradle the child, +cache the booty,

bed the child, bunk the children down for the night, ⁺porch the newspaper, catalog the pictures, register the guests, palm the card, air the clothes, mothball the sweaters, church the women (after childbirth), mire the horses, ⁺footnote her colleagues, ⁺card the example (write on a card), ⁺minute the decision (put into the minutes), orbit the satellite, sun oneself, ⁺sky his surplus guests [Heath Robinson]; orbit (around) the moon, ⁺sauna after exercising.

B'. *Not in.* Mine the gold, quarry the marble, pod the peas, shell the peas.

C. *At, to.* (tr.) ⁺site the power-plant, ⁺parking-meter the car, ⁺desk oneself [Sunday Times], floor the accelerator, boundary the ball (cricket), dock the boat, station the troops, center the picture, face the enemy; (intr.) The diver surfaced, ⁺His beer brimmed over, The well bottomed out, ⁺The fire spread by crowning (jumping from one treetop to another) [SF Chronicle].

For location verbs, the prepositions have dwindled to the simplest three: *in, on*, and *at*, with a few examples of *not-on* and *not-in*. *Tee off the golf ball* is classified as *not-on*, since its parent clause can be said to be *The ball is not on the tee*. *Off* marks it as negative, perhaps to contrast it with *tee up*. The other negative verbs are not marked this way. In any case, negative verbs are rare.

The duration verbs in List 3, like the location verbs, have parent nouns in prepositional phrases:

- (5) Julia summered in Paris.
- (6) Julia did something to cause it to come about that [Julia was in Paris for a summer].

The parent noun, however, must denote a stretch of time and take a preposition like *for*. This rules out points of time, like *noon* and *midnight*, and qualifications incompatible with the stretch of time, as in **Julia summered for a week in Paris*. Although most duration verbs are intransitive, some can be transitive too, as in *Washington wintered his troops at Valley Forge*.

LIST 3: DURATION VERBS.

Summer in France, winter in California, vacation in Mexico, holiday in France, weekend at the cabin, honeymoon in Hawaii, ⁺Christmas in England, ⁺New Year in Omaha, ⁺Thanksgiving with his parents, moonlight as a watchman, ⁺daylights as a barber [Herb Caen], ⁺jet-lag from Sydney to London [Caen], ⁺overnight at the White House [CBS].

1.3. AGENT AND EXPERIENCER VERBS. With agent verbs, the parent nouns are in the agentive case:

- (7) John butchered the cow.
- (8) John did to the cow the act that one would normally expect [a butcher to do to a cow].

In the parent clause, the butcher is an agent. Altered appropriately, the paraphrase in 8 works fairly well for the other transitive verbs (*jockey the horse*), the intransitive verbs (*clown around*), and even the verbs with animal parents (*ape the politician*), all given in List 4.

LIST 4: AGENT VERBS.

A. OCCUPATIONS: (tr.) butcher the cow, jockey the horse, referee the game, umpire the match, nurse the patient, doctor the victim, ⁺nursemaid the baby, tutor the boys, valet the squire, pilot the ship, captain the destroyer, skipper the boat, police the park, guard the jewels, emcee the show, model the clothes, shepherd the sheep, vet the dog, ⁺general the army, ⁺agent a book, author the book, ⁺broker insurance, tailor the suit; (intr.) soldier, maid, butler, clown, smith, ⁺goldsmith, ⁺silversmith, ⁺carpenter, apprentice for a job, pioneer, ⁺buccaneer, ⁺pickpocket, ⁺gigolo, pimp, pander, ⁺chef, ⁺laundress [Dickens], ⁺blackleg, ⁺lawyer, ⁺pilot, priest, ⁺waitress, ⁺housewife (for a living).

B. SPECIAL ROLES: (tr.) monitor an exam, referee the game, champion the cause, partner the host, usher the people to their seats, escort the ambassador, +companion the queen, squire his cousin, chaperone his daughter, mother the child, sire the child, father the child, parent the children, husband someone, wife someone, +uncle someone, lord it over people, queen it over her friends, +god it, bully the children, boss the employee, +chairman the department, master the horse, doctor the drinks, pirate the ship, lynch the prisoner, Burke the man, jobe the crowd [archaic], filibuster the bill, +to Beck (act badly, like Beck) [film review], volunteer the information, +Ancient Mariner someone, +heir the estate [Pope], +fishwife each other, marshal the crowd, rival his cousins, spirit the man away, +high-hat the guest, +Rolf the patient, picket the factory, dragoon someone into doing something, +housewife the money [Defoe], +Don't Bogart that joint [song], vaquero the cow [Herb Caen]; (intr.) +funkey for someone, +soprano, star in a film, corpse in the last scene (acting), +houseguest with the Joneses, clown around, +racketeer, fool around, +barbershop, clerk in a shop, slave over the work, +post-doc with someone, minister to the needy, +pundit at the meeting, chum up with him, buddy around together, +one boy—one girl it, knight, gipsy, quarterback for the giants, vagabond in Europe, +tourist through the East Coast, neighbor on, +private-eye, gossip, +lover, +heroine, meander, +man it out, +he enfant-terrible'd gracefully.

C. ANIMALS: (tr.) +fox the people, outfox his followers, parrot every word, dog the escapee, bird-dog the escapee, +watchdog the house [Peanuts], hound the politician, ape the policeman, copycat the teacher, ferret out the burglar, squirrel away the money, buffalo the audience, wolf the food down, +spaniel'd me at heels [Shakespeare]; (intr.) worm out of a commitment, chicken out of a fight, pig at the dinner-table, snake through the cars, duck down, leech (to, onto), rat on the fugitive, clam up, buck up, monkey with the door, hare down the road, +rabbit along at 90 miles an hour (talk fast) [SF Chronicle], skylark, crane, beef about the food, +moused along the parkside [Galsworthy], crow about something, +peacocked about his ancestry [Galsworthy], +cat it up the waterpipe.

Experiencer verbs (List 5) are apparently rare. *Witness the accident* is classified that way on the premise that witnesses do not watch accidents, but see them. As for *boycott* and *badger*, historically they meant 'do the act one would do to Captain Boycott' and 'do the act a dog would do to a badger'.

LIST 5: EXPERIENCER VERBS.

Witness the accident, boycott the store, badger the officials.

1.4. GOAL AND SOURCE VERBS. For the goal verbs in List 6, the parent nouns are in the goal case:

- (9) Edward powdered the aspirin.
- (10) Edward did something to cause it to come about that [the aspirin was powder].

In 10, the powder comes to exist because of Edward's action, and so *powder* is in the goal case. In *loop the rope*, only part of the rope may become a loop, but *loop* is still in the goal case. When the verb is transitive, the parent clause specifies both a source (*aspirin*) and a goal (*powder*). The source denotes the substance from which the goal is made. When the verb is intransitive, as in *the cow calved*, the parent clause specifies only a goal, as in *There was a calf*. The parent noun, here *calf*, denotes the entity brought into existence, with no mention of the substance from which it was made. The important characteristic of these verbs is their factitivity: the shape, entity, form, or role denoted by the parent noun comes to exist by virtue of the action denoted by the verb.

LIST 6: GOAL VERBS.

A. HUMAN ROLES: Fool the man, orphan the children, baby the student, knight Gawain, sucker the public, scapegoat the Jews, cuckold his neighbour, cripple the man, beggar his

opponents, gull the onlookers, dupe the voter, widow the woman, outlaw the thief, ⁺countess the woman [Meredith], dwarf his enemies, ⁺saint the reformer, martyr the woman, ⁺god the hero, ⁺hostage the child, recruit the boy, ⁺monk the man, apprentice the youth.

B. GROUPS: (tr.) group the actors, pod the seals, regiment the crowd, parade the troops, line up the class, sequence the lessons, array the jewelry, swarm the bees, order the data; (intr.) cluster around the hive, group together, club together, gang up, line up, queue up, The fish schooled, The politicians caucused.

C. MASSES: (tr.) pile the money, mass the money, heap the dirt, hoard the acorns, pool the savings, carpool the people, bundle the clothes, ⁺lawn the grass, stack the boards, sheaf the wheat, bale the straw, pulp the oranges; (intr.) The water puddled/pooled on the floor; ⁺It tills and hills (ad for garden equipment).

D. SHAPES: (tr.) loop the rope, coil the rope, knot the string, crook his finger, ⁺hinge his knee, curl up his toes, ball up the handkerchief, braid her hair, plait her hair, ringlet her hair, wrinkle the sheets, crease the tablecloth, pleat the kilt, ⁺accordion the curtains, honeycomb the cliffs, dice the potatoes, cube the potatoes, ⁺match-stick the potatoes, ⁺julienne the potatoes, ⁺square his fists, cup his hands, ⁺tent the blanket, ⁺balloon up his clothes, block his hat, form the circle, terrace the slopes, ⁺spread-eagle his opponent, silhouette the tree against the sky, ⁺concertina the place-card, ⁺lump the sugar, ⁺loaf the dough, ⁺layer the cake, ⁺bulbed his nose [Farris]; (intr.) bead with sweat, cave in, balloon up, The clouds mushroomed, The trains telescoped, cocoon with blankets, ⁺It's stratus-ing right now [weather report], The truck jack-knifed.

E. PIECES: Powder the aspirin, crumb the bread, ⁺joint the chicken, cash the check, flake the paint, quarter the carcass, segment the sentence, portion the loot, share the cake, ⁺fission the nucleus, parcel out the land.

F. PRODUCTS: ⁺monolog, cipher, script the movie, fingerprint the immigrant, copy the paper, ⁺alphabet, ⁺cuneiform, number, psalm, Latin the speech; burrow, nest; smoke, leaf out, branch, flower, bud, bloom, blossom, ⁺The stalks eared early this spring; foal, cub, calve, lamb, fawn, kitten, pup, litter, whelp, spawn, child [archaic]; teethe, tear (of eyes), freckle; The trail elbowed, fork, zigzag, spiral; ⁺before the grapes begin to raisin [article on wine].

G. MISCELLANEOUS: sandwich the man between them, cream the butter, lather the soap, flame the pudding, pickle the watermelon, ⁺blot the ink, strand the wool, ⁺image the scene, ruin the building, treasure the necklace, pawn the ring, quilt the coat, riddle the door with holes, dart across the road, tower over the child, ⁺The neons rainbow the California night [ad.], His hair silvered, The beer frothed, The waves foamed.

The goal verbs labeled human roles in List 6 contrast with the agent verbs in an important way. In *John fathered the child*, with an agent verb, John is the father; but in *John orphaned the child*, with a goal verb, the child (not John) is the orphan. But what makes some roles agentive and others factitive? From the examples in List 6, the answer seems clear. For agent verbs, the parent nouns denote roles or professions that people take on deliberately. For goal verbs, however, the parent nouns denote roles conferred on people by external forces, sometimes against their will. It is because butchering is an active role that *The school butchered John* cannot be taken to mean 'The school turned John into a butcher.' Yet being a fool is a role that can be either active or receptive, as in *Nick fooled around with Asta* vs. *Nick fooled Nora*.

In List 7, *piece the quilt together* is classified as a source verb on the basis of the rather awkward paraphrase *do something to cause it to come about that [the quilt is together out of pieces]*, i.e. *put the quilt together from pieces*. Here *piece* denotes the substance from which the quilt is formed, and is therefore in the source case. *Word the sentence carefully* and *letter the sign* may also be source verbs.

LIST 7: SOURCE VERBS.

Piece the quilt together, word the sentence, letter the sign.

1.5. INSTRUMENT VERBS. The commonest of the denominal verbs are those whose parent nouns denote instruments:

(11) John bicycled into town.

(12) John caused it to come about that he was in town by doing the act one would normally expect [one to do with a bicycle].

In 12, *bicycle* is in the instrumental case; so in 11 *bicycle* is an instrument verb. Like most such verbs, *bicycle* has an informal paraphrase, *go by bicycle*, that reflects what one would ordinarily do with a bicycle, and so it can be classified under the simple verb *go*. The instrument verbs in List 8 have been similarly classified. The majority fall under the verbs *go*, *fasten*, *clean*, *hit*, *cut* (or *stab*), *destroy*, *catch*, *block*, and *follow*; the rest, for lack of precise verbs, are listed under such headings as simple instruments, complex instruments, and miscellaneous instruments.

LIST 8: INSTRUMENT VERBS.

A. *Go*: (intr.) auto, +sports-car, caravan, +trailer, +tractor, +cablecar, +tram, +trolley, +streetcar, scooter, motorcycle, bicycle, bike, cycle, +tricycle, +van, +cab, taxi, +jitney, +Greyhound, +Buck, +V-8, +limousine, +elevator, +escalator (somewhere); boat, +sailboat, +steamship, +Queen Mary, yacht, punt, +flatboat, +lighter, barge, raft, canoe, kayak (somewhere); jet, +747, +Concorde, sailplane, +glider, helicopter, +chopper, +Zeppelin, balloon, parachute, +TWA, +UA, +Air California, rocket (somewhere); sleigh, sledge, sled, ski, +t-bar, skate, roller-skate, +pogo-stick, +skateboard, water-ski, surfboard, snowshoe (somewhere); pole, +barge-pole, paddle, +oar, scull, +ski-pole, +ice-pick, +pickax, pedal (somewhere); +rope, +crampon (one's way somewhere); sail, wing, steam, motor (somewhere); +subway to 64th Street, +BART to Berkeley, thumb to LA, surf onto shore, +whirlwind across the US, +guitar his way across the US, +The police sired up to the accident [Herb Caen]; (tr.) +ambulance, truck, bus, +trailer, +wagon, cart, +pushcart, +barrow, +stretcher, wheelbarrow (something somewhere); ferry, wherry, ship (something somewhere); telegraph, telephone, wire, cable, +long-distance, +postcard, +semaphore, +flag, radio, beam (a message somewhere); +satellite (news); dial the number; paddle the canoe, pedal the bicycle; wheel the patient into surgery, sail the boat to LA, pipe the oil to Oregon, +tanker the oil to the US.

B. *Fasten*: NAILS—nail, tack, staple, bolt, screw, paper-clip, pin, rivet, wire, solder (something to something else). GLUES—paste, cement, glue, gum, +epoxy, tape, scotch-tape, cello-tape, +masking-tape (something to something else), +web his clothes to the wall [Spiderman]. RESTRAINERS—shackle, clamp, handcuff, gyve, fetter, manacle, chain, gag, belt, +seat-belt (someone); cord the wood. LOCKS—latch, padlock, bar, lock, +hasp (the door). CLOTHING PARTS—buckle his belt, clasp his belt, hook her dress, zip the dress, snap the shirt, button the shirt, strap on the skis, +thong the sandals on. LINES—tether, cable, anchor (something to something else).

C. *Clean*: IMPLEMENTS—mop the floor, +broom the floor, +floor-sweeper the carpet, Hoover the rug, snowplow the road, rake the grass, filter the wine, bath himself, shower, +floss one's teeth, +Stimudent one's teeth. CLOTHS—sponge the window clean, flannel one's face, chamois the window clean, sandpaper the board smooth, steel-wool the pan, towel himself dry, washcloth his face clean. CLEANSERS—shampoo his hair, +Ajax the bath, +Vim the bath, +Windex the panes, +soap-and-water one's hands.

D. *Hit*: hammer the nail into the board, club the man over the head, bat the ball, +shillelagh his cousin, +bottle the sailor, +poleax the intruder, boot the man in the pants, +shoe-heel the nail into the frame, stone the witch, +rock the men, press the tongue, +rawhide his companion, whip the prisoner, bullwhip the dog, cane the child, +ruler the child's hand.

E. *Cut, stab*: knife the man, bayonet the enemy, +sabre the enemy, +tusk the dogs, +razor off his beard, +scissor through the material, drill the hole, saw the plank, lance the armor, +hatchet the tree down, ax the tree down, +broadax the log flat, hacksaw through the board, +ripsaw the board, spear the fish, scythe the grass, +bill-hook the grass, tomahawk the settlers, machete his way through the jungle, harpoon the whale, +toothpick the clam.

F. *Destroy*: bomb the village, torpedo the ship, ⁺avalanche the village, grenade the bunker, ⁺napalm the village, shell the fort, gas the soldiers, dynamite the building, torch the house, ⁺frag the sergeant, ⁺TNT the building, fire-bomb the car, gun down the man, ⁺sten down the enemy, ⁺M-1 the sniper, tear-gas the sniper, ⁺Mace the strikers, ⁺carbon monoxide oneself to death, garotte the prisoner.

G. *Catch*: trap the gopher, bear-trap the man, net the fish, seine the fish, snare the rabbit, hook the fish, lime the bird, lasso the calf, rope the calf, collar the dog, ⁺jaw the swimmer (following the film *Jaws*).

H. *Block*: shield the child, screen out the flies, screen the people from view, block the road, blockade the road, barricade the road, cordon off the area, rope off the area, dam the river, sandbag the house, The fishing fleet is iced in [NBC], ⁺mud in (seal the opening to a nest with mud), brick up.

I. *Follow*: shadow the suspect, track the criminal, trail the deer, tail the spy.

J. **MUSICAL INSTRUMENTS**: ⁺trumpet the music, ⁺bugle reveille, pipe the tune, fiddle the tune, ⁺harp the tune, whistle the tune, ⁺guitar.

K. **KITCHEN UTENSILS**: fork the pickle, ⁺teaspoon, spoon, ladle, ⁺tablespoon the soup into the bowl, ⁺chopstick the beansprouts, ⁺spatula the pancakes over, sieve the flour, ⁺blender the soup, ⁺microwave the chicken.

L. **PLACES**: (tr.) ⁺launderette the clothes, ⁺greenhouse the seedlings, ⁺nursery the tomatoes, lobby the congressmen for the bill, school the children, ⁺church the savages, ⁺bargain-counter the Bible [Thurber], market the goods, ⁺She Lincoln Tunneled her way to New York [Vogue]; (intr.) ranch, farm, garden, market; ⁺hotel it, and inn it, and pub it [Jerome].

M. **BODY PARTS**: head the ball, ⁺eyebrow one's surprise, eyeball the data, eye the guard-dog, bad-mouth someone, mouth the words, tongue the note (brass instruments), ⁺nose the bone, ⁺lip the sugar-lump, ⁺The old man gummed the bread, hand the spoon, ⁺mitt someone (shake hands), finger the material, thumb the pages, ⁺knuckle someone's face, ⁺arm someone out of the way, straight-arm someone aside, shoulder, elbow someone aside, knee someone, jaw the truant, shin up a tree, foot the ball, ⁺heel the broken glass aside, toe the resin.

N. **SIMPLE TOOLS**: lever the door open, wedge the window open, wrench the bolt loose, plane the wood smooth, level the floor, chisel the groove, spade the dirt, shovel the dirt, ⁺trowel the mortar smooth, file the board down, pitchfork the hay into the wagon, plough the field, hose the garden, rake the leaves, hoe the garden, cork on a moustache, pencil in the answer, pen the reply, crayon in the picture, ⁺crayon (up) the walls, charcoal the sketch, chalk on the board, blue-pencil the manuscript, red-pencil the errors, comb her hair, brush her hair, riddle the potatoes, siphon the gas, funnel the gas, ⁺hairpin the lock open, ⁺skeleton-key the door open, ⁺celluloid the lock, ⁺torch the safe open, ⁺shoehorn his shoes on, fan the fire, ⁺anvil the horse-shoe, ⁺crutch the branch, ⁺pulley up the pail, helm the boat.

O. **COMPLEX TOOLS**: jack up the car, winch the truck up the slope, brake the car, catapult the rock into the fortress, mill the grain, gin the cotton, ⁺centrifuge the solution, ⁺meter the water, ⁺autoclave the utensils, pump the water, Xerox the article, Ditto the article, clock the race, rack the prisoner, guillotine the criminals, iron the clothes, ⁺steam-iron the clothes, ⁺sewing-machine the torn sail, type the paper, print the newspaper, balance the two sides, Zeppelin the fleet [H. G. Wells].

P. **MISCELLANEOUS**: ⁺school-bell the class to order, gavel the meeting to order, bankroll the venture, ⁺nettle the children's legs, dye the cloth, ⁺ink someone (sign him on), ⁺Rit the material, ⁺Clairol one's hair, ⁺straitjacket the patient (restrain), ⁺x-and-m out a word, ransom the child, X-ray the bone, requisition the horses, blackball the applicant, ⁺sir the general, smoke the fish, steam the vegetables, claw the branch, horn in on the conversation, putty the glass, ⁺Christian-named each other [Thackeray], ⁺bad-worded 007 [Kipling], ⁺Carte Blanche it [ad], ⁺86 a customer (throw out for drunkenness by ordinance 86) [Herb Caen].

Most instrument verbs can take a type of reduced complement. Consider *bicycle*. As 12 shows, 11 expresses (or contains) the complement *John was in town*, which describes the result that John brought about by his use of the bicycle: he caused

himself to be in town by bicycling. But alongside 11, there is the ordinary *John walked into town*. It contains the same complement; but now the result is brought about by John's walking: he caused himself to be in town by walking. Sentences like these, then, divide notionally into a causative portion (*John caused himself to be in town*) and an instrumental portion (*by John's bicycling/walking*). Similarly, *Julia hammered the nail into the board* divides into *Julia caused the nail to be in the board* and *by Julia's hammering the nail*; and *George towed himself dry* divides into *George caused himself to be dry* and *by George's toweling himself*. Note that, if Julia had willed, thrown, or shot the nail into the board (or if George had shaken, blown, or walked himself dry), only the instrumental portions of these sentences would have changed.

But what about the instrumental portions of *John bicycled*, or *Julia hammered the nail*, or *George towed himself*? These are simple instrumental verbs, as can be illustrated for *John bicycled*. As 12 shows, this means simply 'John did the act one would normally expect [one to do with a bicycle]'. In this paraphrase, the bicycle is an instrument for moving; the moving is not itself instrumental in accomplishing something else.

To make things difficult, however, locatum and location verbs often look very much like instrument verbs. Take *Ned leashed the dog*: is *leash* a locatum verb ('Ned caused the dog to have a leash on it'), or an instrument verb ('Ned caused the dog to be restrained by doing the act one would normally expect to do to a dog with a leash')? Or take *Bob netted the fish*: is it a location verb ('Bob caused the fish to be in a net'), or an instrument verb ('Bob caused the fish to be captive by doing the act one would normally expect to do to the fish with a net')? Indeed, both sentences could be ambiguous, or both could be vague. Fortunately, there are several criteria that generally distinguish locatum and location verbs from instrument verbs.

The first criterion is that locatum and location verbs have resultant states in which the parent noun plays an intrinsic role—as the thing placed or the location at which it is placed—whereas instrument verbs do not. Compare *plaster the wall* (with a locatum verb) to *trowel the plaster onto the wall* (with an instrument verb). The resultant state for both is *Plaster is on the wall*. This contains *plaster*, the parent noun of the locatum verb, but not *trowel*, the parent noun of the instrument verb. In trowelling the plaster onto the wall, the trowel is necessary for accomplishing the final result, but is not itself part of that result. The contrast between *bottle the beer* (with a location verb) and *siphon the beer into the bottle* (with an instrument verb) works the same way. The resultant state, *the beer is in a bottle*, contains *bottle* but not *siphon*. This criterion, however, must be applied with care. *Plaster the wall*, one might argue, is really 'cause the wall to have a cover on it by plastering it', and so *plaster* is really an instrument verb. But in this paraphrase *cover* is really the superordinate of *plaster*, and merely conceals the fact that the plaster is an inherent part of the resultant state.

Watt 1973 provides further evidence for this criterion, at least for location verbs. He notes that *do it* can be used to refer to the 'fasten' part of the meaning of *nail*, as in 13 (Watt's ex. 21):

- (13) Dognog wanted to NAIL the boards together, but Gripsnake made him do it with TAPE.

This sort of anaphora appears possible for most instrument verbs, but not for what we are calling location verbs (Watt's ex. 25):

- (14) *Dognog wanted to BOTTLE the home-brew, but Deadwood wanted to do it in PICKLE-BARRELS.

And 14 is no better if *in* is replaced by *with*. Watt argues, therefore, that *bottle the beer* does not mean 'containerize the beer with/in bottles', but rather 'put the beer into bottles'. The bottles aren't instruments by which a result is accomplished, but an intrinsic part of the result itself—the beer's being in the bottles. So while instrument verbs are generally paraphrasable as 'do it with X', location verbs are generally paraphrasable as 'do it in/on/at X'. Watt's evidence adds credence to the first criterion, and to the idea that there is a genuine distinction between 'pure' cases of instrument and location verbs.

Instrument verbs are also distinguishable from locatum and location verbs in the way they form antonyms. *De-* and *dis-*, Marchand observes (1969:134–5), can be used with locatum and location verbs. When added to locatum verbs, they result in 'privative verbs' like *defrost* and *disarm*; when added to location verbs, they result in 'ablative verbs' like *deplane* and *disbar*. In effect, they add a negative to the parent clause of the positive verbs *frost*, *arm*, and *plane* (*bar* cannot stand alone). But *de-* and *dis-* cannot be added to instrument verbs. To make these verbs 'reversative', one must add *un-*, as in *unglue* and *unshackle* (although one can also add *un-* to location verbs, as in *unsaddle*); thus, *debuttoning* a shirt should be different from *unbuttoning* it, and it is. In *debuttoning*, one takes buttons off; but in *unbuttoning*, one unfastens them, reversing their usual instrumental effect.¹ So instrument verbs are distinguished on morphological grounds too.

Yet some instrument verbs appear to work BY VIRTUE OF their being locata or locations. Let us return to *leash* and *net*. As a locatum verb, *leash (the dog)* means 'put a leash on the dog'. But dictionaries also list what amounts to 'cause the dog to be restrained by putting a leash on the dog', as if *leash the dog* were actually *leash the dog restrained* with the *restrained* implicit. In this interpretation, *leash* is an instrument verb, but one that works by virtue of its first being a locatum verb. *Leash the dog* should therefore be ambiguous, and it is. *Unleash* means to reverse the constraints, based on the instrument reading; *deleash* means to take the leash off, based on the locatum reading, although both are accomplished by the same action. Note that *leash the dog to the post* forces the instrument reading—so, while one can *UNLEASH* the dog from the post, one cannot *DELEASH* it from the post. Similarly, *net the fish* seems ambiguous. It can be a location verb, 'cause the fish to be in a net', or an instrument verb, 'cause the fish to be captive by causing it to be in a net', which works by virtue of its first being a location verb.

¹ There is another use of *un-* that may be confused with this. Compare *declawed* with *un-clawed*: the latter is not a denominal verb form with reversative meaning, but rather a denominal adjective meaning 'without claws' (see further fn. 7).

1.6. MISCELLANEOUS VERBS. Besides the main verb types already discussed, there are several miscellaneous types, shown in List 9.

LIST 9: MISCELLANEOUS VERBS.

A. **MEALS:** lunch, luncheon, breakfast, *brunch, snack, *cheeseburger, supper, picnic, banquet, feast (somewhere on something), *I dinner'd wi' a lord [Burns], *nightcap, *liquor, booze, wine, *grub, nosh, *You could come and tea with me [Dickens].

B. **CROPS:** *blackberry in the woods, *nut in the woods, hay the top field, *timber off the hills, log the west slopes, *crab, fish, shrimp, *shark, whale, *pearl, *sponge (for a living); *mouse, *termite.

C. **PARTS:** *His ball lipped the cup (failed to go in, golf); *The shot rimmed off the basket (basketball), wing the bird, *kneecap the businessman, *rear-end the van, *rim the glass with salt, bean the catcher (baseball), *blindsight a player (hit on the blind side).

D. **ELEMENTS:** rain, snow, hail, sleet.

E. **OTHER:** *We housed [hawst] your wife's steak (put the steak 'on the house').

The first type has parent nouns that are meals or foods:

(15) Jeff lunched on a hotdog and a coke.

(16) Jeff ate a lunch of a hotdog and a coke.

In 16, *lunch* is in the objective case, so the verb *lunch* could be called an object verb. The category, however, is much more restricted than the name 'object verb' suggests.

The next type is much like the locatum verb with negative prepositions:

(17) Roger hayed the top field.

(18) Roger caused it to come about that [hay was not in the top field].

But these crop verbs differ from the earlier locatum verbs in that the location does not have to be mentioned, e.g. *Roger hays for a living*; the emphasis is more on collecting hay than on ridding the field of it. It is as if these verbs, like *leash* and *net*, are instrumental, in that collecting the hay is achieved in part by taking it from the field. In any case, their meanings are more complex than those of locatum verbs with negative prepositions like *pit* and *core*.

The third type is another variety of object verb, but one in which the verb denotes an action that happens to the entity denoted by the parent noun that itself is PART of the entity denoted by the surface object:

(19) The car rear-ended the van.

(20) The car did to the rear-end that belonged to the van the action one would normally expect [a car to do to a rear-end].

With *lip* and *rim*, the ball and shot careened off these parts; with *rear-end*, the car crashed into that part; and with *wing* and *kneecap*, the agent injured these parts. But clearly these paraphrases do not do justice to the surplus meanings in each expression.

Finally, there are a few element verbs, which are still another kind of object verb, since they denote the activities characteristic of rain, snow, hail, and sleet. *It is raining* might be paraphrased 'It (the weather) is doing the activity that one would normally expect [rain to do].'²

These categories don't really do justice to denominal verbs. Many examples

² See Bolinger 1977 (Chapter 4) for ambient *it* in weather and time constructions in English.

don't fit neatly into these categories, and others have the characteristics of more than one category at a time. For example, instrument verbs like *leash* and *net* seem to have properties of both instrument and locatum or location verbs, and the crop verbs *hay* and *log* combine properties of negative locatum and part verbs. *Smoke*, as in *George smokes the pipe*, provides another example. Because George causes the pipe to produce smoke, it could be a goal verb. Because he extracts smoke from the pipe, it could be a locatum verb with a negative preposition. And because he does what one would do with smoke—namely, inhale and exhale—it could also be an instrument verb, though of an odd sort. *Smoke* seems to belong to all three categories at once. Its complexity probably has a historical explanation. It may once have had clear limits—although that isn't obvious from the OED—but with time has become specialized for the particular activity we call smoking. Its origins as a noun are recognizable only on reflection.³ The same process has worked on many other denominal verbs as well; so it isn't surprising that they don't fit neatly into these categories.

2. INNOVATIONS. These categories, rough as they are, suggest that denominal verbs might be accounted for by derivation. Several linguists have argued just that. As Marchand says 'Denominal verbs are verbalized sentences.' McCawley, for example, suggests (28–9) that 21 be derived from 22:

- (21) John nailed the note to the door.
- (22) John CAUSED a NAIL to HOLD the note ON the door.

In this derivation, the capitalized words in 22 conflate to form the verb *nail* in 21. Green (221–2) proposes a similar analysis. Although McCawley and Green have not investigated the full range of denominal verbs, presumably they would derive the rest of them from sources not too different from our paraphrases.

But is this the right approach? For many common denominal verbs, derivations lead to problems. First, the noun origins of many verbs have been completely lost. How many people go back to Captain Boycott, Judge Lynch, and writing slates on hearing *boycott the store*, *lynch the prisoner*, and *slate the event*? These verbs have become opaque idioms. Second, even the more transparent verbs have interpretations that, strictly speaking, don't contain the parent noun. If *land* and *park* truly meant 'put onto land' and 'put into a park', how could one land on a lake and park in a garage? Third, denominal verbs usually have semantic idiosyncrasies. Why should *land the plane* mean 'put down' and *ground the plane* 'keep down', instead of the reverse? That is, most common denominal verbs seem to be full or partial idioms. Their meanings have become fully or partially specialized, and are not fully predictable by an across-the-board process of derivation (see also Bolinger 1975, 1976, 1977, Chomsky 1970, Downing 1977).

Innovative denominal verbs, however, do not have these problems. By definition they are not idioms; therefore they must be accounted for by some productive mechanism. But what is the mechanism like? We will be in a position to offer an answer to this question once we have considered the special properties of innovative verbs.

³ Synchronic criteria for deciding whether verbs are denominal have been discussed by Mühlhäusler 1975 and Ljung 1977.

2.1. CONTEXTUAL EXPRESSIONS. Most semantic theories distinguish what we will call purely denotational expressions (*man, blue, walk, day, bachelor*) from indexical or deictic expressions (*he, over there, yesterday, the bachelor*). For an expression to be purely denotational, it must have a fixed sense and denotation. *Bachelor*, for example, has a fixed sense, say ‘unmarried man’, and denotes unmarried men in every real or imaginary world. Most English nouns, verbs, adjectives, and adverbs are of this type. For an expression to be indexical, however, it must have a fixed sense and denotation, but a shifting reference (Bar-Hillel 1954). *He*, for example, has a fixed sense, say ‘male person’, and denotes male people in every real or imaginary world. But the particular person it refers to—its referent—changes with the time, place, and circumstances of its utterance.⁴ The referential shifting is critical. Note that while *bachelor* is purely denotational, *the bachelor* is indexical because its referent will change from one use to another. What about innovative verbs? We will argue that they are neither purely denotational nor indexical, for they have a SHIFTING sense and denotation. They constitute a new category that we will call CONTEXTUALS.

To identify contextuals, one must be able to distinguish shifting from fixed sense and denotation. For that, we suggest three interrelated criteria.

(a) **NUMBER OF SENSES.** Purely denotational and indexical expressions normally have more than one fixed sense and denotation. *Bachelor*, according to Katz & Fodor 1963, for example, has four: ‘unmarried man’, ‘young knight’, ‘person with baccalaureate degree’, and ‘mateless breeding fur seal’. In expressions like this, the number of senses is always small. Ambiguity of this type does not constitute shifting sense. To get some idea of what does, consider shifting reference. *He*, depending on the context, can be used to refer to any of an INDEFINITELY large number of male humans—past, present, and future. Its referents cannot be enumerated. A distinguishing characteristic of something that shifts, then, is that it has an indefinitely large number of possibilities. So contextuals should possess not a small finite number of potential senses, but an indefinitely large number of senses.

(b) **DEPENDENCE ON CONTEXT.** When expressions have a fixed sense and denotation, these do not change with context (except for disambiguation). What about expressions with shifting sense and denotation? Once again we get a clue by considering shifting reference. The referent of *he* doesn’t merely change with the context. Listeners cannot hope to identify that referent without consulting information provided by the context—facts about the time, place, and circumstances of the utterance. This is a logical requirement for most uses of *he*. Because their referents cannot be identified from the sentence alone, they must be identified from the other facts associated with the utterance of that sentence, namely the context. So if contextuals have a shifting sense and denotation, these should depend on any occasion on the context too.

(c) **COÖPERATION BETWEEN SPEAKER AND LISTENER.** Shifting reference places a

⁴ By REFERENCE we mean the relationship that ‘holds between an expression and what that expression stands for on particular occasions of its utterance’ (Lyons 1977:174). Reference is therefore distinguished from DENOTATION, which we take to be the relationship that a term has to objects, states, events, and processes in any real or imaginary world.

much greater obligation on the speaker and listener than does fixed sense and denotation. To use *bachelor*, the speaker must merely make certain that its denotation is correct—that the class of things it is intended to denote consists, say, of unmarried men. To use *he*, however, the speaker must also rely on the close coöperation of the listener, who must normally take note of such things as the speaker's gestures, the people he has just mentioned, esoteric or private allusions, and other momentarily relevant facts about the conversation. That is, shifting reference requires a moment-to-moment coöperation that fixed sense and denotation do not. If contextuals with their shifting sense and denotation make similar demands, then we should expect moment-to-moment coöperation to be essential to their interpretation too.

Using these criteria, we will argue that innovative denominal verbs are contextuals. They have an indefinitely large number of potential senses; and their interpretation depends on the context, especially the coöperation of the speaker and listener. Once this is granted, innovative verbs must be dealt with differently from both purely denotational and indexical expressions.

2.2. PROPER NOUNS. Denominal verbs based on proper nouns are common, although most are virtually complete idioms. There are agent verbs based on people's names: *diddle*, *dun*, *finagle*, *fudge*, *lynch*, *pander*, *philander*—all current; and *balb*, *bant*, *bishop*, *burke*, *dido*, *hector*, *marcel*, *nap*, *swartout*—all obsolete. There are recipient verbs from names of people who met defeat, hanging, or similar fates: *boycott*, and the now obsolete *burgoyne*, *cornwallis*, *dewitt*, *job*. There are verbs from place names, most with complicated histories: the current *charleston*, *meander*, *saunter*, *shanghai*; and the obsolete *barbadoes*, *chevy*, *copenhagen*, *dunkirk*, *japan*, *levant*, *maffick*, *rotterdam*, *stellenbosch*. And there are instrument verbs based on company names: the current *hoover*, *scotchtape*, and *xerox*, and the obsolete *archie*, *baby*, and *roneo* (Partridge 1950).

Proper nouns, however, are also an excellent source of innovations, as in these attested examples: *to Luchins out* (to get stuck in problem-solving because of set as discovered by Luchins); *to Shylock £2700 from the £17,000 raised*; *The wind Bernoullis around the building* (speeds up according to Bernoulli's Law); *We then Kleinschmidted the DNA* (used a method of visualizing DNA developed by Kleinschmidt); a conductor *simply Elvira Madigans the movement to death* (conducts soppily, as in the film *Elvira Madigan*); *I wanted to Rosemary Woods out that conversation* (erase as Woods is alleged to have done); *you're in danger of being Hieronymus Bosched* (put in a nightmare setting); *He is Svengali-ing her to death*; *She wasn't Krishna'd out, she was only hippied out* (affected as a member of the Krishna sect); *the perils of Don Juaning*; *She seemingly malapropped; we all Wayned and Cagneyed*—*to buy breathing space from the guy who really did like to fight*; and *I Walter Mitty'd*. They are also easy to create: *to Ralph Nader the insurance industry*, *to Valentino the woman*, *to Bonny and Clyde one's way through the West*, *to TWA to New York*, *to Ajax the sink*, and *The canoe Titanicked on a rock in the river*.

How are these innovations to be accounted for? In semantic theories as different as those of Mill 1843, Katz 1972, 1977, and Kripke 1972, 1977, proper names have

reference but no sense. *Harry Houdini* is intended to pick out a specific historical individual, but not by virtue of a set of properties all or some of which that individual must satisfy—being an escape artist, an early airplane pilot, and an exposer of mediums. Rather, it is intended to pick him out by virtue of the fact that, at least for Kripke, the name rigidly designates him—picks him out in all possible worlds.

But if proper names are assumed to have no sense, where does the sense of the denominational verbs come from? In *My sister Houdini'd her way out of the locked closet*, uttered in the right context, *Houdini* has the sense ‘escape by trickery’. If the proper name *Houdini* has no sense, it provides no source for ‘escape by trickery’, let alone any other sense. It is as if ‘escape by trickery’ had been *Houdini'd* out of thin air. So *Houdini* the verb, although clearly the morphological child of *Houdini* the proper noun, cannot get its meaning from the parent noun in the expected way. Under these assumptions, it cannot be handled by such proposals as McCawley's and Green's, which derive the child's sense from the parent's.

Moreover, under the McCawley and Green proposals, *Houdini* the verb would be a purely denotational expression; but actually it is a contextual, a clear case of shifting sense and denotation. It depends for its interpretation on the context, and on the coöperation of the speaker and listener. For Sam to tell Helen *My sister Houdini'd her way out of the locked closet*, he must believe that they mutually know that Houdini was an escape artist. Mutual knowledge is used here in the technical sense of Lewis 1969 and Schiffer 1972 to mean that Sam and Helen each knows this particular fact about Houdini, each knows that the other knows the fact, each knows that the other knows that the other knows the fact, and so on. If Sam believed that Helen didn't know about Houdini's escape artistry (even though everyone else did), he couldn't have used *Houdini* coöperatively on that occasion with the sense ‘escape by trickery’. Yet if he believed she knew about Houdini's manner of death and his investigations of fake mediums (even though most other people didn't), he could have expected her to understand *Joe got Houdini'd in the stomach yesterday* ('hit hard without warning') and *I would love to Houdini those ESP experiments* ('expose as fraudulent by careful analysis'). In short, *Houdini*'s sense and denotation on each occasion depends on the time, place, and circumstances of its utterance. It depends not merely on one's knowledge of English, but also on one's knowledge of particular facts about Houdini the historical figure.

If *Houdini* is a contextual, it should have an indefinitely large number of potential senses; and it does. Indeed, it has as many senses as there are facts that speakers and listeners could mutually know about Houdini. In theory, that number is indefinitely large. In context, of course, the number is narrowed down to one; it must be, just as the indefinitely large number of possible referents for *he* is narrowed down to one. That is accomplished through the speaker's and listener's judicious use of contextual facts. We will consider how that is done later.

Against this analysis, however, one could argue that the verb *Houdini* is derived from *a Houdini*, a common noun, rather than *Houdini*, the proper noun. Since *a Houdini* can be purely denotational, as in *He is a Houdini* (the argument would go), the verb *Houdini* could be derived with a fixed sense and denotation. For one class of innovative denominational verbs, however, this is not a possible explanation. Consider

the report by Herb Caen, in the San Francisco Chronicle, that a woman had been *Jarvis-Ganned out of her Convention and Visitor's Bureau job*, where Jarvis-Gann is the name of a California tax-cut initiative that resulted in the axing of many jobs throughout the state. Caen didn't mean that the job was eliminated by A Jarvis-Gann initiative (the common-noun interpretation), but by THE Jarvis-Gann initiative. Another example appeared in the title of a 1966 Paul Simon song, *A simple desultory Philippic, or how I was Robert McNamara'd into submission*, where the person responsible for the submission was Robert McNamara himself.⁵ Similar innovations are easy to create: *Richard M. Nixon was John Deaned right out of the White House*; *General Motors was Ralph Nadered into stopping production of the Corvair*; *Napoleon was Waterlooed in 1813*; and *The medium Margery of Boston was Houdini'd into disgrace in 1924*. If these proper nouns are assumed to have a reference but no sense, then the previous arguments apply, and these verbs must be contextuals.

Even under the common-noun proposal, however, the verb *Houdini* must be a contextual. Note that *a Houdini* is itself an innovation, whose sense and denotation on each occasion depends on the speaker's and listener's mutual knowledge about Houdini and the context. So if the verb *Houdini* is formed from *a Houdini*, it too must be a contextual. At present, we know of no evidence favoring either *Houdini*'s direct formation from the proper noun or its indirect formation via the common noun. We will assume the direct route, although nothing critical to our argument hangs on that assumption.

2.3. COMMON NOUNS. Unlike proper nouns, most common nouns have a sense that could conceivably serve as the basis for the sense of innovative verbs. *To loaf the dough*, for example, might be derived from something like *to cause the dough to come to be like a loaf*. The sense of the lexical constants *cause*, *come*, *be*, and *like* would be conflated with the sense of *loaf*, to form the sense of *to loaf*. This is the essence of Green's and McCawley's approaches.

The trick is to find the right lexical constants. Thus Green (221) argues that instrument verbs (like *hammer* and *radio*) are derived from 'as by using NP (on) in the usual manner, for the purpose for which it was designed'. Given the hammer's design and usual manner of use, *hammer* gets roughly the right interpretation in *hammer the nail into the board* and *hammer on his head with a shoe*. The representation also accounts for such innovations as *unicycle down the street*, *autoclave the scalpels*, and *keypunch the data*.

Counter-examples, however, are easy to find. On the BBC in 1976, a demonstrator complained, *We were stoned and bottled by the spectators as we marched down the street*; and the (London) Observer noted that battered wives *may be stabbed or bottled as well as punched*. Bottles, of course, are designed for storing liquid, as reflected in *bottle the beer*; yet both innovations are perfectly interpretable. Most objects can be used for purposes for which they weren't designed, and

⁵ The song itself, brought to our attention by George Furnas, used numerous other proper names as verbs in exactly the same way: Norman Mailer, Maxwell Taylor, John O'Hara, Rolling Stone(s), Beatle(s), Ayn Rand, Phil Spector, Lou Adler, Barry Sadler, Mick Jagger, Roy Hale, and Art Garfunkel.

denominal verbs can reflect those purposes. This is also shown in such innovations as *celluloid the door open* ('use a credit card to spring the lock open', from the *San Francisco Chronicle*), *hairpin the lock open*—and, from a *Time Magazine* article on pie-throwing, *pie the woman in a local doughnut store*.

What is critical for innovative instrument verbs is not normal function or usual manner, as Green claims, but the speaker's and listener's mutual knowledge, along with certain other criteria. Imagine that Ed and Joe have an odd mutual acquaintance, Max, who occasionally sneaks up and strokes the back of people's legs with a teapot. One day Ed tells Joe, *Well, this time Max has gone too far. He tried to teapot a policeman.* Joe arrives at *teapot*'s sense, 'rub the back of the leg with a teapot', not by using Green's normal function, but by finding a situation that is consistent with Ed's and Joe's mutual knowledge about Max and teapots—the situation Joe thinks Ed intended to denote. If Ed hadn't believed that Joe knew about Max's compulsion, he couldn't have meant what he did, nor expected Joe to see what he meant.

So *teapot*, like *Houdini*, is a contextual, with a shifting sense and denotation. First, *teapot* has an indefinitely large number of possible senses. It has as many senses as there are Max-like stories that one could contrive, and that number is without limit. Second, its sense and denotation on each occasion depend on the context. If *teapot the policeman* had been uttered under different circumstances, it could have had the sense 'bash a teapot over the head of', 'offer a teapot to', 'turn by sorcery into the shape of a teapot', etc. Note, incidentally, that in each of these senses, the verb *teapot* 'relies' in part on the fixed sense of the noun *teapot* in denoting teapots. It is just that, of the many situations in which teapots can play a role, the one intended can only be determined at the time of utterance. Third, the sense of *teapot* intended on each occasion depends critically on the coöperation of the speaker and listener. They must assess their mutual knowledge at the moment, and use other constraints that we will take up later. What holds for *teapot* appears to hold for every other innovative denominal verb, as well. Thus innovative verbs formed from common nouns appear to be contextials too.

Although Green's representation for instrument verbs makes them appear to have a fixed sense and denotation, that isn't really so. Note that her representation contains the phrases 'the usual manner' and 'the purpose for which it was designed'—both indexical expressions whose referents change with the time, place, and circumstances of the utterance. Both phrases refer to facts that presumably lie outside one's linguistic knowledge. Since these indexicals depend on context, so must the senses that contain them; and the same obviously holds for many of our initial paraphrases. The one for *butcher* 'do the act that one would normally expect a butcher to do' hides an assortment of similar indexicals, as does the one for *bicycle*. Treating innovative verbs as contextials makes quite explicit what up to now has always been implicit in such paraphrases.

3. A THEORY OF INTERPRETATION. If innovative denominal verbs are contextials, they cannot be accounted for by the traditional theories that assume fixed sense and denotation. They require a theory of what a speaker means in uttering such a verb on particular occasions—a theory of interpretation. Note that the indexical *he*, which has shifting reference, requires a theory that characterizes how its referent

is determined for each utterance. The theory must specify when a speaker has good grounds for believing that the listener can, on the basis of their mutual knowledge, identify its referent uniquely (H. Clark & Haviland 1977; H. Clark & Marshall 1978, ms; Searle 1969; Strawson 1950, 1961). The same goes for innovative denominal verbs, which have shifting sense and denotation. They require a theory that characterizes how their senses are determined in each utterance. Our first task is to outline such a theory.

3.1. INTERPRETING INNOVATIONS. At the heart of this theory is a convention, in Lewis's sense, about the use of language. The idea is this. In using an expression sincerely, the speaker intends the listener to come to a unique interpretation of what he has said—not from the meanings of the words alone, but also on the assumption that the speaker has good grounds for thinking that the listener can come to that interpretation uniquely on the basis of what they mutually know. This convention is obviously akin to Grice's coöperative principle (1975). For innovative denominal verbs, the convention takes this particular form:

- (23) THE INNOVATIVE DENOMINAL VERB CONVENTION. In using an innovative denominal verb sincerely, the speaker means to denote
- (a) the kind of situation
 - (b) that he has good reason to believe
 - (c) that on this occasion the listener can readily compute
 - (d) uniquely
 - (e) on the basis of their mutual knowledge
 - (f) in such a way that the parent noun denotes one role in the situation, and the remaining surface arguments of the denominal verb denote other roles in the situation.

'Situation' is being used here, following Comrie 1976, as a cover term for states, events, and processes.

This convention, in effect, has two parts. Conditions 23a–e, or something like them, appear to apply to all contextials. The condition specific to denominal verbs is 23f, which refers to the syntactic structure of denominal verbs as opposed to compound nouns, shorthand expressions, or other contextual expressions. The importance of these conditions will become clear as we proceed.

To see how this convention applies, imagine a news agent one day insisting to us that *The boy porched the newspaper*. By the convention, the news agent had in mind a kind of situation he felt we would be able to identify uniquely from our mutual knowledge of porches, their relation to newspapers, paper boys, and the topic of conversation—the boy's delivery of the newspaper. To be so confident, he must have judged that this kind of situation would be salient—conspicuously unique, given our mutual knowledge or beliefs. What could be so salient? A distinguishing characteristic of porches is that they are shelters adjacent to the main door into a house. They are associated with a state that can, for convenience, be expressed as the propositional function *On(x, a porch)*—‘x is on a porch’, where x is ordinarily something susceptible of being sheltered. The direct object of *porched*, namely *the newspaper*, refers to an entity that fits x's specifications, so we have *On(the newspaper, a porch)*. To use up the surface subject *the boy*, we can best view

this state as the consequence of the boy's action, adding the inchoative *Come-about*(x), the causative *Cause*(x, y), and the act *Do*(x, y) to give 24 and its paraphrase 25:

- (24) *Cause*(*Do*(the boy, something), *Come-about*(On(the newspaper, a porch)))
- (25) The boy did something to cause it to come about that [the newspaper was on a porch].

As part of this reasoning, we also realize that the news agent's topic of conversation was newspaper deliveries; and that he mentioned the paper boy, the newspaper, and a porch. On these grounds alone, we could infer that he very likely intended *porch* to denote the act of the boy's delivering the newspaper onto the porch. That agrees with 24 to give us more confidence in our inductive inference.

This, however, isn't enough. The propositions in 24 express only the bare bones of what the news agent meant. From *The boy porched the newspaper*, we wouldn't infer that the boy had pinned the newspaper page by page to the inside of the porch. The news agent wouldn't have had good reason to think we could arrive at that interpretation uniquely. From our mutual knowledge, we are warranted in inferring only the ordinary manner of delivery. The kind of situation denoted has to be the most salient one under the circumstances; and the ordinary manner is the most salient unless there is good reason to think otherwise.

This convention, therefore, relies critically on a theory of what people know about concrete objects. Although such a theory is not available, there are strong suggestions about what it might look like from the work of Berlin, Breedlove & Raven 1968, 1973; Brown 1976; Brown et al. 1976; Hampton 1976; Smith, Shoben & Rips 1974; Rips, Shoben & Smith 1973; Smith, Rips & Shoben 1974; Smith 1978; and Rosch and her colleagues (Rosch 1973, 1977, Rosch & Mervis 1975, Rosch, Mervis et al. 1976). We will begin by outlining a suitably-framed theory suggested by this work. The aim, we emphasize, is not to establish a theory of real-world knowledge, but to outline an empirical enterprise that we claim must be worked out before one can have an adequate explanation of innovative denominal verbs.

3.2. WORLD KNOWLEDGE can be divided roughly into two parts. **GENERIC KNOWLEDGE** is what people tacitly know about space and time, the basic physical laws, natural kinds, manufactured artifacts and their functions, and so on. People normally assume that generic knowledge doesn't vary much from person to person; they believe that a large core of it is shared by friend and stranger alike. **PARTICULAR KNOWLEDGE**, however, is what people tacitly know about particular or individual entities—particular objects, events, states, and processes.⁶ Particular knowledge

⁶ We mean particular and individual in the sense of Strawson's individuals (1959). The distinction between generic and particular knowledge here is similar but not identical to the distinction widely used in psychology between the badly misnamed 'semantic' memory and episodic memory. As defined by Tulving (1972:385–6), episodic memory consists of 'temporally dated episodes or events, and temporal-spatial relations among these events', which 'are stored in terms of [their] autobiographical reference to the already existing contents of the episodic memory store'. By exclusion, semantic memory consists of all other types of knowledge. Philosophically, it is more defensible to divide knowledge into particulars and non-particulars. Anyway, Tulving's episodes—particular events—cannot be given 'autobiographical reference'

depends critically on a person's history. The particulars that one person knows—his parents, his experiences yesterday, and the person to whom he has just talked—won't necessarily be particulars that the next person knows. The commonest denominational verbs, both idiomatic and innovative, depend mainly on generic knowledge about concrete objects; and so it is important to understand what this knowledge might be like.

Our first premise is that people have **GENERIC THEORIES** about concrete objects, theories they use for categorizing objects. These theories specify three basic aspects of an object: its physical characteristics, its ontogeny, and its potential roles. The theory for ordinary bricks, for example, specifies (a) the normal range of their physical characteristics, e.g. their color, shape, weight, and breakability; (b) their normal ontogeny, e.g. that they are molded from clay, baked in ovens, and sold by building-supply firms; and (c) their potential roles, e.g. that they are ordinarily cemented with mortar in horizontal rows to form walls, are sometimes used as doorstops, and can be used as riot missiles. These theories, we assume, have evolved to be conceptually optimal; in these three respects, the objects within a category are as similar as possible to each other, and as different as possible from objects in neighboring categories at the same level of abstraction. This assumption has empirical support in Rosch & Mervis 1975 (see also Tversky 1977).

These theories are essential in order for people to deal effectively with the world around them. If something looks like a brick, people must be able to infer that it probably has certain other physical characteristics, the normal brick ontogeny, and the potential to play the normal brick roles. Without such a theory, each new brick would have to be treated as novel and without predictable properties. Animals must also have such theories, of course; the ability to categorize isn't an exclusively human prerogative.

Because of these theories, some objects are viewed as more central to (or typical of) a category than others. Red bricks, for example, are probably viewed as more typical of the category 'brick' than gold bricks, wooden bricks, glass bricks, bricks of cheese, or bricks of ice cream: red bricks fit people's theory for bricks best. As has been shown by Rosch & Mervis and by Hampton, the more properties an object shares with other objects in a category, the more typical of that category it is judged to be.

The properties within each theory, however, do not carry equal weight; some are more central to the characterization of the category than others. The most central of these we will call **PREDOMINANT FEATURES**. Thus predominant features of bricks seem to be their box shape and child's-shoebox size. The brick's other physical characteristics, ontogeny, and potential roles seem generally less central, although not equally so. The predominant feature of orphans, in contrast, is a fact about their ontogeny: they are people whose parents died before they were raised. The predominant feature of vehicles is the fact about their potential role that they are used for transportation.

to other contents of 'episodic memory' without referring to particular objects (the *I* of the autobiographer), particular states, and particular processes. Particular knowledge seems to fit Tulving's requirements for episodic memory better than his own definition does.

What exactly are predominant features? Our hypothesis is that they can be derived from notions of 'cue validity'. According to work by Rosch and her colleagues (1975, 1976) and Tversky 1977, the categories that people prefer for natural objects and human artifacts are those that maximize both the similarity between any two members of the same category and the dissimilarity between any two members of different categories. That is, the categories maximize 'cue validity': the more that cues or features are associated with the members of a category, and not with the members of other categories at the same level, the better that category is. As for any particular cue, the more it distinguishes the members of the category from the members of other categories, the more VALID it is said to be. Formally, cue validity can be defined very precisely.

Since there has been little discussion of the practical identification of predominant features, we will offer several tentative procedures. A predominant feature of a category is one that tends to hold for most of its members—especially its typical members—but not for members of neighboring categories. So a predominant feature of a widow is that she is a woman whose current social status is the result of her husband's being deceased. Being human, adult, or female are not by themselves predominant features of widows—since these do not distinguish widows from wives, spinsters, husbands, and widowers. When a predominant feature is relational, its relation to a second category tends to be asymmetric; thus a predominant feature of quivers is that they are for holding arrows. If arrows didn't exist, neither would quivers. But it is not a predominant feature of arrows that they can go in quivers, since arrows can exist on their own. Not all asymmetric relations take this form: parts tend to be related to their wholes, not vice versa. It is a predominant feature of arms that they are related to the whole body, but not vice versa. Note that a category may have more than one predominant feature, since it may be distinguished from different kinds of neighbors in different respects.

How, then, do concrete nouns work? Our assumption is that, in using a concrete noun, a speaker intends to denote objects by virtue of their membership in the category defined by the appropriate generic theory. In using *brick*, a speaker intends to denote the kind of object that fits his theory for bricks. For this to succeed, speakers and listeners must share roughly the same generic theory for bricks. The work on categories shows that this is a reasonable assumption—at least for the most prominent real-world categories, those named most simply within languages.

Under this view, concrete nouns are related in meaning to the extent that the theories conventionally associated with them are related. One way in which two theories are related is by predominant features. 'Ball' and 'brick' form one class of theories, because both have predominant features that specify size and shape. 'Widow' and 'orphan' form another, because both have predominant features that concern ontogeny. And 'tool' and 'vehicle' form a third class, because both have predominant features that specify potential roles. These classes, of course, can be further subdivided according to the kinds of physical characteristics, ontogeny, and potential roles that are referred to in the predominant features.

When the parent nouns of denominal verbs are classified in this way, we argue, they fall into classes and subclasses that correspond closely (if not exactly) with the classes and subclasses that we arrived at in our analysis of denominal verbs.

Briefly, the parent nouns can be classified according to their predominant features roughly as follows:

(a) **PLACEABLES.** The parent nouns of locatum verbs denote placeables—things whose conventional role is to be placed with respect to other objects. A predominant feature of carpets, for example, is that they potentially go on floors. Note that carpets depend for their characterization on floors, not the reverse. So the right characterization of carpets is as placeables (carpets go on floors), not as places (floors go under carpets).

(b) **PLACES.** For location verbs, the parent nouns denote places—things with respect to which other objects are conventionally placed. Thus a predominant feature of kennels is that they are places where one ordinarily keeps dogs. Note that kennels rely for their characterization on dogs, whereas dogs can exist without kennels.

(c) **TIME INTERVALS.** The parent nouns of duration verbs denote time intervals—temporal ‘places’ in which events and processes can be located. Thus summers consist of June, July, and August, a specific time interval.

(d) **AGENTS.** The parent nouns of agent verbs denote agents, things whose predominant feature is that they do certain things. Butchers cut meat professionally; companions accompany people; and tailors make clothes professionally.

(e) **RECEIVERS.** The parent nouns of experiencer verbs denote things picked out for their role in receiving or experiencing things, e.g. witnesses.

(f) **RESULTS.** With goal verbs, ontogeny is important. Their parent nouns denote results, entities whose predominant feature is that they are end-products of some action or transformation. Thus widows form a category because they are a social product caused by the loss of their husbands. For many results, like braids, powder, and sandwiches, physical characteristics are also important: the end-product is distinguished not just by the action or transformation carried out, but also by the physical characteristics that result.

(g) **ANTECEDENTS.** For source verbs, ontogeny is also important, but the parent nouns denote antecedents—the beginnings, not the final states—of some actions or transformations. A predominant feature of some types of pieces, for example, is that they are things out of which some products can be made.

(h) **INSTRUMENTS.** The things denoted by the parent nouns of instrument verbs are picked out for their potential roles as instruments. One of their predominant features is that they must be physically present for certain actions to take place, or for certain results to be accomplished. It is a predominant feature of ambulances that they are instruments for transporting the sick or wounded; a predominant feature of glue is that it is an instrument for attaching one object to another.

These eight categories, of course, do not exhaust the way predominant features can be classified. The miscellaneous denominal verbs have special predominant features; six of the eight categories are susceptible to a finer analysis; and some predominant features can be cross-classified—e.g., those of both places and placeables concern location. At this time, more detail would help very little.

The eight major types of predominant features can be represented, for convenience, as propositional functions. For example, a predominant feature of carpets

is that they are located on floors: *On(carpets, floors)*. More generally, placeables like carpets fit the broad locative proposition *Loc(e,x)* ‘*e* is located with respect to *x*’ (in which *e* denotes the entity in the category, and *x* denotes the class of things with respect to which it can be located). The propositional functions for these eight predominant features are listed in Table 1. We turn next to the role these predominant features play in the interpretation of innovative verbs, and to other empirical consequences of the innovative denominal verb convention.

CATEGORY	EXAMPLES	PREDOMINANT FEATURE
1. Placeables	blankets, spice	<i>Loc(e,x)</i>
2. Places	kennel, bench	<i>Loc(x,e)</i>
3. Time intervals	summer, weekend	<i>During(x,e)</i>
4. Agents	butcher, usher	<i>Do(e,x)</i>
5. Receivers	witness, boycott	<i>Happen-to(x,e)</i>
6. Results	group, powder	<i>Become(x,e)</i>
7. Antecedents	piece together	<i>Become(e,x)</i>
8. Instruments	handcuff, autoclave	<i>With(Do(x,y),e)</i>

TABLE 1. Principal categories and their predominant features.

4. CONSEQUENCES. According to the proposed convention, there are constraints on the kind of situation that an innovative denominal verb may denote. It has to be (a) the kind of situation (b) that the speaker has good reason to believe (c) that on this occasion the listener can readily compute (d) uniquely (e) on the basis of their mutual knowledge (f) in such a way that it encompasses the parent noun and the other surface arguments of the verb. These constraints tell us not only what a verb will be taken to mean on particular occasions, but also when and why it will be judged acceptable or unacceptable. These constraints interact, and so are difficult to examine separately. Instead, we will consider seven major consequences of their interaction.

4.1. MUTUAL KNOWLEDGE. The kind of situation that a verb denotes, according to condition (e) above, is intended to be computed on the basis of things mutually known or believed by the speaker and listener. Normally this constraint is easy to satisfy, since most of the needed facts belong to the core of generic knowledge; and these core facts are ordinarily assumed to be mutual knowledge. When two strangers meet, they normally assume that each knows—and that each knows that the other knows, etc.—almost everything in this core. So when they want to create a new verb interpretable to everyone, all they need do is make sure it is computable from the facts in this core. This is a property of most denominal verbs, both the well-established and the innovative.

How do listeners decide which kind of situation a verb picks out? Consider how they see that *brick* in *brick the ice cream* means ‘form into the shape and size of a brick’. By conditions (a)–(d), the verb must denote ‘the kind of situation which the speaker has good reason to believe that on this occasion the listener can readily compute uniquely’. The speaker would have just such a reason if the kind of situation denoted were a SALIENT, or CONSPICUOUSLY UNIQUE, part of core knowledge (see Lewis). But the most salient part of one’s generic knowledge of bricks is their predominant features—e.g., that they have a rectangular shape and child’s-shoebox size. Because of this salience, the listener can readily infer that the speaker could

well have intended *brick* to denote a kind of state, event, or process having to do with these predominant features. The choice of this kind of situation, of course, depends on the other constraints as well; but the salience of these predominant features is critical.

The denominal verbs that we classified earlier provide excellent evidence that the salience of predominant features is truly critical. Most of these verbs are well established. For them to have become well established, when they were created, they had to have been interpretable to nearly everyone. And for that to have happened, most of them had to have been computable from the core of generic knowledge—in particular, from the salient parts of this core. Most of these verbs, then, should reflect the predominant features of the entities denoted by their parent nouns; and they do. As we noted earlier, when these concrete entities are classified by their predominant features, they fall into such classes as placeables, places, and agents. These classes correspond almost exactly to such classes among the denominal verbs as locatum, location, and agent verbs. So the very classification provided earlier is evidence for the use of constraints (b)–(e).

Many generic theories of concrete objects, however, have more than one predominant feature; and so the corresponding well-established denominal verbs are often ambiguous. Shelves, for example, have at least two predominant features: they are places that things are put on, and placeables that are put on walls. This has allowed *shelf* to establish two meanings, those in *shelve the books* and *shelve the closet*. Other well-established verbs with at least two interpretations include *floor the rooms/opponents*; *lime the walls/starlings*; *riddle the potatoes/the door with holes*; *brick the fireplace/cheese*; *curb the dog/street*; *cream the butter/coffee*; *tree the cat/avenue*; and *powder the nose/aspirin*. Listeners resolve these ambiguities, as usual, by selecting the interpretation that they believe the speaker could reasonably expect them to pick out uniquely on that occasion. They can often do this merely by consulting the direct object of the verb: *shelve the books* means ‘put the books on shelves’ because it couldn’t reasonably mean ‘put shelves on the books’.

Some concrete objects have predominant features that lead to a remarkable type of ambiguity. Two predominant features in the generic theory for ‘milk’, for example, are that milk is a substance put into or onto certain foods (its potential roles) and that it is a substance extracted from the mammary glands (its ontogeny). Consequently, *milk* has developed two meanings. In *milk the tea* it means ‘put milk in’; in *milk the cow* it means ‘take milk out’. This type of ambiguity is remarkable because the second interpretation is contradictory to the first—which in List 1 we labeled ‘in’ and ‘not-in’. Other verbs that have developed contradictory senses include *seed the lawn/grapes*; *scale his hand/fish*; *cork the bottle/oaks*; *wind the organ/man*; *fleece the stones with moss/the sheep*; *top the cake/tree*; *shell the roadbed/peanuts*; *fin the boat/fish*; *girdle the waist/tree*; *The tree barked over/Bark the tree*; and *dust the shelf*.

It is easy to see how such contradictory interpretations can arise. Negative locatum verbs generally have parent nouns that denote parts of whole objects. Rinds, fleeces, and cores are proper parts of lemons, sheep, and apples (see Brown). Normally, these parts can be moved in only one direction with respect to their wholes—out or off—and so *rind the lemon*, *fleece the sheep*, and *core the apple* are

all interpreted negatively. Yet the objects denoted by some of these parent nouns are conventionally placed in or on something else—as milk goes into tea or onto cereal—and this leads to the positive, the contradictory, interpretations in *milk the tea* and *milk the cereal*. The contradictory interpretations appear able to develop because they arise in contexts where they would not be confused.⁷

However, some kinds of situations can be made salient in context, even though they are not based on predominant features, as in *celluloid the door open*, *hairpin the lock open*, *bottle the demonstrator*, and *pie the woman*. Thus *hairpin*, by virtue of its reduced complement *the lock open*, must denote a kind of situation in which a hairpin is an instrument for opening the lock. This rules out any predominant feature of hairpins, which are normally instruments for pinning up hair. The listener is expected to consult his knowledge of the physical properties of locks and hairpins, and infer that the hairpin is to be used as a picklock. The salience of the necessary mutual knowledge may be only momentary. *Pie*, for example, was interpretable by Time readers as ‘throw a pie in the face of’ only because it appeared in a story about pie-throwing.

Although most kinds of situations are made salient through allusions to generic knowledge, some are made salient through allusions to mutual knowledge of particulars. Thus the sense of *My sister Houdini'd her way out of the locked closet* relies on the speaker's and listener's mutual knowledge of a particular historical figure, Houdini, and of particular events in his life. The same goes for all other innovative verbs built on proper nouns.

Mutual knowledge of particulars is also critical for many innovations built on common nouns. The intended denotation of *Max teapotted the policeman* was salient in context only because of Ed's and Joe's mutual knowledge about Max and his compulsion. When the circumstances are just right, such particular knowledge may even override otherwise plausible generic knowledge. Normally, *closet* in *Professor Jones closeted three students last week* would have the sense ‘put and keep in a closet’. But for the speaker and listener who mutually knew that Jones had a pillory in her closet for punishing students—a piece of particular knowledge—*closet* would take on the sense ‘punish by means of the pillory in Jones' closet’. Instances of this kind are not all that rare.

Mutual knowledge is also critical for the interpretation of verbs as distributive or collective. By virtue of generic knowledge, *stamp the envelopes* would normally be construed to mean that there was one or more stamps per envelope (a distributive interpretation), not that there was one or more stamps for the envelopes taken as a set (a collective interpretation). *Blanket the children*, however, could be taken either way; e.g., unlike *stamp*, it could be collective, with one or more blankets for the children as a set, if there were two children in one bed. Mutual knowledge of the particulars in each context is normally required to decide the issue.

This issue, however, tends to have a uniform resolution for location verbs with

⁷ Because of the existence of denominal adjectives, as in *three-towered castle*, negative denominal verbs like these can lead to unfortunate ambiguities when used as past participles. *Pitted dates* can be either dates with pits (the denominal-adjective reading), or dates that have had their pits removed (the denominal-verb reading). This ambiguity is compounded, since both forms can be negated with the prefix *un-*: *unpitted dates* can also be dates with or without pits.

mass or collective parent nouns. Note that *shellac the wall* requires shellac to COVER the wall: a dab of shellac on the wall won't do. Given the uniqueness condition (d), this makes good sense. The speaker must have good grounds for believing that the kind of situation denoted by *shellac* can be computed uniquely. But how much of the wall is covered by shellac? The only unique but reasonable answer is 'as completely as would be expected under the circumstances'. *Connie powdered her nose*, therefore, implies that the powder covered all those parts of Connie's nose that the listener would expect to be covered. Its precise interpretation depends on the speaker's and listener's assessment of their mutual knowledge about nose powdering, Connie, and her habits. And *carpet the floor*, *carpet the room*, and *carpet the house* would ordinarily all be construed to mean that the carpet went only on the floors—consistent with our generic theory for carpets—and, for *carpet the house*, only on those floors that are normally expected to be covered (which excludes the kitchen, the cellar, and the garage). Yet *carpet the wall* would not be construed to mean that the carpets went on the floor, since wall contrasts with floor, and rules out just such an interpretation.

The point of the examples in this section is that mutual knowledge is essential to the interpretation of innovative denominal verbs. To select the unique sense intended on a particular occasion, the listener must decide which of the possible senses is most salient. Generally he can look to the predominant features of the generic theory associated with the parent noun, which will always be fairly salient. But salience is a relative notion, and depends on context. The listener must always assess his and the speaker's mutual knowledge of the particulars in the present context, since that may make some other sense the most salient. The listener's ultimate goal is to find that sense which 'the speaker has good reason to believe that on this occasion the listener can readily compute uniquely.'

4.2. KINDS OF SITUATIONS. According to condition (a), an innovative denominal verb is intended to denote a KIND of situation. What is meant by 'kind'? That is a difficult epistemological question that we would not presume to answer here; but to get off the ground, let us begin with an intuitive characterization. A kind is a class or category of things with a rationale for membership, based on human conceptual and perceptual principles. So a kind is not a category of arbitrarily chosen things, like the class consisting of male humans and pine needles, but a category with a rationale that makes sense, like the class consisting of male humans and female humans.

Rationales for kinds come in many different forms. One we have already mentioned is the optimization of cue validity: things in the world tend to be categorized into kinds such that things within each category are as similar as possible to each other, and as different as possible from things in other categories. It is on this basis that fruits divide into such kinds as apples, oranges, and bananas; that furniture divides into such kinds as tables, chairs, and bookcases; and so on (Rosch & Mervis, Rosch et al., Tversky). Things can also be categorized into kinds on the basis of just one or a few distinguishing properties; thus dogs, cats, turtles, and goldfish constitute a kind because they are domesticable.

Some rationales for kinds, however, are apparently valued more highly than

others; and the kinds they define are therefore deemed 'better' than others. For example, rationales based on permanent, inherent properties seem more highly valued than those based on temporary, non-inherent ones. 'Round-things' make a better kind than do 'things likely to be found in a garage'. And rationales based on prominent properties seem to be more highly valued than those based on non-prominent ones. 'Foods that taste sweet' make a better kind than 'foods that are rich in calcium'. In effect, kinds lie on a continuum from those with highly valued and obvious rationales to those that are so arbitrary that any rationale they can be given will seem ad-hoc.

When it comes to situations, kinds are particularly difficult to characterize, because situations are themselves difficult to characterize. Unlike concrete objects, situations do not come ready-made in discrete bundles. An act of sautéing, for instance, has no clear beginning or end; it may or may not include fetching the butter, turning on the heat, and scrubbing the pan afterward. Like other situations, it has vague boundaries. Situations are also vague in their range. Cooking may include sautéing, frying, and broiling; but what about roasting marshmallows, making popcorn, and defrosting orange juice? Vagueness in boundaries and range is typical of most kinds of situations.

Yet situations clearly fall into kinds when they have good rationales. One common rationale is that a kind of situation consists of all situations that have the same goal, purpose, or outcome. Thus sautéing consists of activities whose goal is the irreversible change in food to make it suitable for eating. Another common rationale is that a kind consists of all situations that employ the same means toward some end. Sautéing, to continue the example, consists of activities whose means requires the application of heat in a pan with hot fat (Lehrer 1969). For sautéing, in fact, both the goal and the means seem to be critical. It is easy to see how, with these rationales, sautéing would have both vague boundaries and a vague range. But these examples give only a flavor of possible rationales for kinds of situations. A full account of innovative denominal verbs will require a proper epistemological theory of situations and how they fall into kinds.

Kinds are critical to the interpretation of innovative denominal verbs. For any such verb, there may always be a unique class of situations that the verb could denote in that context; but uniqueness isn't enough. Unless this class constitutes a kind with a highly-valued rationale, the verb will be judged relatively unacceptable in context. In *He Houdini'd something*, for example, *Houdini* could denote the unique class of things that we know Houdini did—escape from locked boxes, dote on his mother, and unmask fraudulent mediums. But this class is too diverse to have a highly-valued rationale, and so in this instance the verb is not very acceptable. But change the sentence to *He Houdini'd the locks open* or *He Houdini'd his mother* or *He Houdini'd the fake palm reader*, and suddenly it becomes more acceptable. Now the unique class that one can arrive at has a highly-valued rationale, since any one of these activities—picking a lock, doting on one's mother, or unmasking frauds—is a kind with a common means, a common end, or both. As another example, *She wanted to Richard Nixon her friend* allows us to arrive at a unique class of situations—the class of things Richard Nixon did that one person could do to another. This diverse class, however, does not have a rationale that is

highly-valued; hence *Richard Nixon* as a verb is not very acceptable. Yet change the sentence to *She wanted to Richard Nixon a tape of the damaging conversation she had had with her friend*, and it suddenly becomes more acceptable. Now the class of situations has a common means and a common end—erasure to get rid of incriminating evidence—and that makes it a better kind.

4.3. SPECIFICITY. Another consequence of the convention on innovations is captured thus:

- (26) **PRINCIPLE OF SPECIFICITY:** The kind of situation that an innovation denotes is intended to be as specific as the circumstances warrant.

On hearing *Margaret jetted to London*, for example, we are warranted in inferring that she traveled by jet, but not that she travelled by just any type of airplane (which is not as specific as the circumstances warrant), or that she traveled by 747 (which is more specific than the circumstances warrant). The rationale for this principle is straightforward. According to condition (f), the kind of situation denoted by *jetted* must be one in which jets, Margaret, and London play roles. For this kind of situation to be unique—condition (d)—the means of transportation could not be anything more general than jets. We would have no way of deciding uniquely among the possibilities: any type of fast airplane, any type of airplane, any type of flying machine, or any type of vehicle. Nor could we infer a means of transportation that is more specific (like a 747, 707, or Concorde), because we could still not do so uniquely. It must be just right—as specific as the circumstances warrant.

With many denominal verbs, the more specific the circumstances, the more interpretable the verb becomes. In *He Houdini'd something*, the context warrants a kind of situation that is so general and diverse that it doesn't have a very highly-valued rationale. With increasing amounts of syntactic context—by condition (f)—*Houdini* becomes more and more interpretable, as in this sequence: *He Houdini'd the locks*; *He Houdini'd the locks open*; *He Houdini'd the box's locks open*; and *He Houdini'd the box's locks open from the inside*. With each additional restriction, the rationale for the kind that one can infer becomes more highly valued. There is a similar progression in *Abner spatulaed*; *Abner spatulaed the pancakes*; *Abner spatulaed the pancakes over*; and *Abner spatulaed the pancakes over with a flick of his wrist*. Greater specificity alone, of course, isn't sufficient for better interpretations, but it often helps.⁸

Yet there must always be a reason for greater specificity as warranted by circumstances. This is particularly evident in the choice of parent nouns. In selecting *Margaret 747'd to London* over *Margaret jetted* (or *flew*) *to London*, the speaker must want to contrast flying by 747 with other modes of flying. This kind of contrast is not always appropriate. For example, in most circumstances *Julia Chevied downtown* would be too specific. But if a speaker wanted to contrast Julia's use of the Chevy with her use of another car, he might say *Julia didn't take the SAAB downtown—she CHEVIED there*, with stress on *Saab* and *Chevy* to mark the contrast. As it happens, distinctions this specific are rarely needed; and so denominal verbs,

⁸ Indeed, it is surprising how non-specific some interpretations can be, and still be acceptable, as in Hamlet's advice to his players: *I would have such a fellow whipt for o'erdoing Termagant, it out-Herods Herod, pray you avoid it.*

especially the well-established ones, tend to be at the so-called 'basic' or 'generic' levels of abstraction—the level generally used for naming concrete objects (Berlin et al. 1973, Cruse 1977, Rosch et al. 1976).

4.4. PRE-EMPTION. Another consequence of conditions (b) through (d) is embodied in the following principle:

- (27) **THE PRINCIPLE OF PRE-EMPTION BY SYNONYMY:** If a potential innovative denominal verb would be precisely synonymous with a well-established verb, the innovative verb is normally pre-empted by the well-established verb, and is therefore considered unacceptable.

The rationale of this principle can be illustrated for *hospital*, an innovative verb intended to mean 'put into a hospital'. By conditions (b)–(d), the speaker must have good reason to believe that the listener can readily compute the intended sense uniquely. Thus the listener would 'reason' as follows: Suppose my interlocutor had intended to convey the sense 'put into a hospital'. If he had, he would have used the well-established verb *hospitalize*, which means precisely 'put into a hospital', because then he would have had good reason to think I would compute the intended sense uniquely. Since he used *hospital*, he must have meant something distinct from 'put into a hospital'. Yet the only reasonable sense I can come up with is 'put into a hospital', which I already know to be impossible. Thus I find *hospital* to be uninterpretable, and therefore unacceptable.

There appear to be several distinguishable sources of pre-emption by synonymy. The three we have identified are suppletion, entrenchment, and ancestry.

4.41. SUPPLETION. In the paradigm of *work/worked*, *talk/talked*, *jog/jogged* etc., the past tense of *go* is not *goed* but *went*. This is an instance of suppletion: *goed* is unacceptable because of the presence of the suppletive form *went*. There is a similar type of suppletion among denominal verbs. The regular way of forming a verb meaning 'go by [vehicle]' is to make a denominal verb from the unadorned name of the vehicle, as the noun/verb paradigm *helicopter/helicopter*, *bicycle/bicycle*, *taxi/taxi*, *canoe/canoe* etc. But there are two striking gaps in this list, *car/car* and *airplane/airplane*; i.e., *Jack carred downtown* and *Connie airplaned to London* are unacceptable. They appear to be ruled out because of the presence of the suppletive forms *drive* and *fly*, which in the same contexts would mean precisely 'go by car' and 'go by airplane'. Just as *go/goed* and *bring/bringed* are replaced in the past-tense paradigm by *go/went* and *bring/brought*, so *car/car* and *airplane/airplane* are replaced in the denominal-verb paradigm by *car/drive* and *airplane/fly*.⁹

Car and *airplane* are not pre-empted because the names of cars and airplanes in general cannot surface as verbs. In the right circumstances, *Julia Chevied downtown* and *Connie 747'd to London* are quite all right. Indeed, *motor* and *auto* are two relatively obsolete denominal verbs that actually do mean 'go by car'. According to the OED, these appeared in 1896 and 1898—when, of course, *drive* still meant

⁹ For other examples of pre-emption by suppletion, see Gruber (1976: 295–6). He notes, for instance, that *pheasant*, *chicken*, *turkey*, *rabbit*, *buffalo*, *lamb*, and most other animal names double as the term for meat, as in *I saw a pheasant* and *I ate pheasant*. But for cows, sheep, pigs, and a few other animals, this use is pre-empted by the special terms *beef*, *mutton*, *pork* etc., as in *I ate pork*, not **I ate pig*. Pre-emption like this appears to be common.

'go by horse-drawn vehicle', and therefore contrasted with *motor* and *auto*. With the passing of horse-drawn vehicles, *drive* has come to mean 'go by car', and now pre-empts the verb *car*, whose parent noun is the ordinary name for this vehicle. The verbs *motor* and *auto*, based on uncommon names for car, have been retained—but with a quaint, dated flavor for a specialized register that makes each of them contrast in meaning with *drive*.¹⁰

Suppletion can also be exemplified among the terms for body parts. Thus *elbow*, *hip*, *shoulder*, *finger*, *eye*, *chin*, and other body-part names occur as denominal verbs; but *fist the man in the face*, *palm his face*, *foot him in the knee*, *lip someone on the cheeks*, and *fingernail his back* do not—at least in the senses of 'hit', 'slap', 'kick', 'kiss', and 'scratch'. The reason, we suggest, is that they are pre-empted by these well-established verbs with which they would be precisely synonymous. Of course, the expressions with *fist*, *palm*, *foot*, *lip*, and *fingernail* can be used innovatively; but then they are taken to mean something different. Thus *fist the man in the face* could mean 'grind a fist into the face of the man', and *palm his face* could mean 'brush his face with one's palm'; but they could not mean simply 'hit' or 'slap'. On the other side of the coin, the verbs *eye* and *eyeball*, which at first seem to be synonymous with *look*, actually belong to the large semantic field of looking terms—*look*, *watch*, *observe*, *view*, *ogle*, *survey*, *regard*, *gawk at*, *stare at* etc.—and form subtle contrasts with each of them. Indeed, although *foot the ball through the uprights* is sometimes used by sportswriters to mean something like 'kick', it is always intended to contrast with *kick* in some way or another—in register or humor. So suppletion appears to account for the unacceptability of certain denominal verbs, and for the contrast in meaning in others.

4.42. ENTRENCHMENT. In pre-emption by entrenchment, the presence of one idiomatic denominal verb prevents the formation from the same parent noun of a second denominal verb with the same meaning (cf. Rose). *Hospitalize*, built on the noun *hospital*, is so entrenched that it pre-empts the creation of the second verb *hospital* with the same meaning. There are many such cases in English. *Prison the thief*, parallel to *jail the thief*, is pre-empted by the well-entrenched *imprison the thief*; *tomb* is pre-empted by *entomb*, *pollen* by *pollenate*, and *throne* by *enthrone*. When there are two denominal verbs formed from the same parent noun, they contrast in meaning, e.g. *winter* vs. *winterize* and *list* vs. *enlist*. In other words, if their meanings would be identical, the entrenched verb always takes precedence over and pre-empts the newcomer.

4.43. ANCESTRY. Some denominal verbs are pre-empted because the parent nouns are themselves formed from verbs that are synonymous with their grandchildren. Thus, while *butcher the meat* is acceptable, *baker the bread* is not. *To baker* appears to be pre-empted by its obvious ancestor, *bake*, with which it would be

¹⁰ The contrast of *drive* vs. *auto* or *motor* is much like the contrast between other near-synonyms, like *try* vs. *attempt* (or *endeavor*), *buy* vs. *purchase*, and *start* vs. *commence*. The first of each pair is for casual talk; the second is often for formal, stuffy, or pretentious talk. It is typical of two otherwise synonymous words like these to come to be conventionally used in different registers, thereby maintaining a meaning contrast between them (Bolinger 1975:358–66).

synonymous. *To butcher* is acceptable because it has no such ancestor. Pre-emption by ancestry also seems to account for the unacceptability of *to farmer the hillside*, *to banker the money*, and *to driver the car*, which are otherwise similar to *to umpire the game*, *to volunteer the information*, and *to chauffeur the car*. As before, however, a denominal verb can be acceptable if it contrasts in meaning with its grandparent. *Sweeper the floor* is acceptable, despite the presence of *sweep*, because *sweeper* entails the use of a carpet-sweeper, while *sweep* does not. An obvious ancestor, therefore, will pre-empt its descendant denominal verb if its descendant would have the identical meaning.

These three types of pre-emption—suppletion, entrenchment, and ancestry—prevent true synonyms. The obvious verb senses of *car*, *hospital*, and *baker* are prevented outright by *drive*, *hospitalize*, and *bake*; while the senses of *palm*, *list*, and *sweeper* are forced to be distinct from those of *slap*, *enlist*, and *sweep*. As Bolinger 1977 and others have argued, language in general eschews complete synonyms. This tendency may reflect the general applicability of conditions (b)–(d). When an expression has a true synonym, the speaker must have a good reason for selecting it over its alternative; and the listener, to satisfy unique computability, will try to find one. This does two things. It prevents the speaker from creating new expressions that are completely synonymous with old ones; and it forces him to add distinctions whenever he uses one of two expressions that would otherwise be completely synonymous. Both forces tend to prevent the creation of true synonyms.

A fourth type of pre-emption works by homonymy instead of synonymy, as stated in this principle:

- (28) PRINCIPLE OF PRE-EMPTION BY HOMONYMY: If a potential innovative denominal verb is homonymous with a well-established verb and could be confused with it, the innovative verb is normally pre-empted, and therefore is considered unacceptable.

So *Jan Dodged to New York*, meaning ‘Jan went to New York by a Dodge’, is normally unacceptable, because it would be confused with the common verb meaning ‘shift suddenly’. The same goes for *Jan Fорded to New York*, though the parallel construction *Jan Chevied to New York* is quite all right in the appropriate contrastive context. To take another semantic domain: *to summer, autumn, and winter in France* is acceptable, but *to spring and fall in France* is not, being pre-empted by the homonymous common verbs *spring* and *fall*. When marked for past tense, as in *She springed and falled in France*, they get even worse: the speaker now sounds as if he had also added the wrong inflections. Homonymy, then, is still another source of pre-emption.

4.5. READY COMPUTABILITY. Condition (c) on its own requires that the sense of a denominal verb be one that the listener can compute readily. The idea is that, although some denominal verbs may be comprehensible on every other count, they may not be READILY computable in this context by this particular listener. As an analogy, imagine that Helen told Sam, *I asked Linda and Winifred over tonight, but THE OLDER one couldn't make it*. If Linda and Winifred were of similar age, and Helen knew that Sam couldn't figure out which was older without considerable thought, she shouldn't have referred to Winifred as *the older one*. Its referent,

although computable, cannot be computed readily. She could have used *the latter* instead, since its referent is computed readily from information easily accessible in what she said. The relative acceptability of *the older one* and *the latter*, then, depends not merely on computability, but on READY computability. These examples have their parallels in innovative denominal verbs.

In order for the sense of an innovation to be computed readily, the listener must ordinarily be able to bring to mind very quickly the information necessary for its computation. Many people, for example, would find *It's stratusing right now*, uttered by the first person they met in the morning, to be unacceptable—even though, with some thought, they could figure out what it meant. But said by a television weather reporter, in a discussion about cloud formation (as it actually was), it is quite acceptable. In that context, the listener finds it easy to recall that stratus is a type of cloud, and to see that the speaker must be talking about cloud formation. Similarly, *My telephone was Hoovered once* would be unacceptable in many contexts, since it would be difficult to discover the eponym J. Edgar Hoover and to sift through all we know about his activities to arrive at wiretapping. But in a conversation about FBI wiretapping, an utterance of the same sentence is fully acceptable. Accessible information seems to be crucial to ready computability.

Accessibility of information can also make a difference to what a verb is taken to mean, since one criterion for the salience of a particular kind of situation is its accessibility in memory. Thus, in *Roger speared a cake of soap*, *spear* would ordinarily be taken in one of its conventional senses, ‘pierce as with a spear’. But in a conversation on how Roger had managed to carve soap into different shapes for a display on hunting, it would be taken as an innovative denominal verb meaning ‘form into the shape of a spear’. In this context, the conventional meaning of *spear* is pre-empted, not merely because Roger’s carving activities are mutually known by the speaker and listener, but also because that knowledge is readily accessible. The speaker can be confident the listener will see this information to be relevant, simply because it is so accessible in this context. So the constraint on ready computability is an important part of the innovative denominal verb convention.¹¹

4.6. RHETORICAL CONSIDERATIONS. Why invent denominal verbs? The main reason, perhaps, is economy of expression. As Grice notes, the speaker who observes the coöperative principle will try to avoid unnecessary prolixity. When someone says *I guitared my way across the US*, he is trying to pack into *guitar* what would otherwise have taken him many words to express. This economy is especially useful in new areas of technology for which there are too few verbs for situations that occur constantly. In computer circles, for example, people have evolved such denominal verbs as *key in the data*, *flowchart the program*, *program the system*, *output the results*, and *CRT the trace*, along with many others that are utterly opaque

¹¹ What is readily computable by one listener may not be so readily computable by another. Thus children may have all the prerequisite knowledge for understanding a particular innovation, but lack the ability to do the computation. In speaking to children, we make these judgments, and avoid innovations that surpass their ability. We do much the same thing in talking to foreigners, drunks, and other people we judge to be temporarily or permanently less able.

to outsiders. New technologies seem to be responsible for many of the denominal verbs that are now very common—*Xerox*, *telephone*, *wire*, *radio*, and *paperclip*. In each case, a complicated situation is expressed economically in a single verb.

Economy of expression apparently has its rewards. First, there is precision. For the hospital worker, *autoclave the scalpels* is more precise than *sterilize the scalpels*, and yet takes no longer to say. Second, there is vividness. For a political writer, it is more effective to say *The mayor tried to Richard Nixon the tapes of the meeting* than to use *erase* in place of *Nixon*. The allusion to Nixon calls forth an image of an unscrupulous politician trying desperately to cover his tracks—an image that even a longer description could never capture adequately. There seems to be an intrinsic value to making allusions without belaboring them. Third, there is surprise. Jokes, witticisms, and other rhetorical devices depend for their effect on surprise, which in turn depends on economy of expression. This effect is exploited daily by such newspaper columnists as Herb Caen: *The SF Progress is not a biweekly, as ERRATUM'd here yesterday, but a semi-weekly, and Chevy [Chase] especially has been CHOP-STICKING all over the place, starting with Kan's.*

When economy of expression is taken too far, it loses its ready computability, and the result is inelegant. Some verbs seem inelegant because they are cumbersome, as in *We Fourth-of-July'd at Lake Tahoe*. This inelegance, however, is sometimes used deliberately, for comic effect, as in Punch's *He extract-of-beefed his bread*. Other verbs require so much extra work in computing that the effort doesn't seem worth it. While the attested example *Karen weekended in the country* seems good enough, *Karen Saturdayed in the country* does not. It appears that the effort demanded for computing *Saturdayed* outweighs any economy of expression, although this too may be an asset for comic effects.

There are also some clear cases of morphological confusion, where an innovation is unacceptable because its parent noun is already inflected for tense or number. Compare these forms:

- (29) *John United'd/United-Airlines'd/Trailways'd to Los Angeles.
- (30) John UA'd/American'd/Greyhounded/Air-California'd/Hughes-Air-wested/PSA'd to Los Angeles.

In 29 the verbs are cumbersome: they seem difficult to parse, and their parent nouns difficult to identify. It isn't just the double inflections in 29 that make them awkward, for they are equally unacceptable in infinitival constructions:

- (31) *John decided to United/United-Airlines/Trailways to Los Angeles.

In these verbs, the inflections on the parent nouns seem to conflict with construing the verbs as infinitives. Note, however, that the adjective-forming suffix in *American* in 30 does not lead to such unacceptability. In general, then, parent nouns ending in *-ed* or *-s* lead to morphologically confusing innovations, avoided because they are not so readily computable.

4.7. SYNTACTIC CONSTRAINTS. By condition (f), the kind of situation that a verb denotes must encompass the parent noun plus all the verb's surface arguments. For *Julia centrifuged the solution*, the kind of situation denoted must simultaneously involve Julia, centrifuges, and the solution—not just Julia and centrifuges, or just centrifuges and the solution. That can be done if Julia is an agent, the solution is the patient of her action, and the centrifuge is the instrument by which her action is

carried out. This constraint, along with conditions (a)–(e), is fulfilled if *centrifuge* is taken to mean ‘separate by means of a centrifuge’. The kind of situation denoted by a verb, then, will change with the surface arguments present. *Tent* has different meanings in *David tented the blanket*; *David tented the baby before the storm hit*; *The marines tented the hillside*; and *David tented near the river*, each depending on the surface arguments present. This condition, of course, has played a critical role in our discussions of mutual knowledge, kinds of situations, specificity, and ready computability.

Many innovative verbs require more inferential filling in than either *centrifuge* or *tent*, because the parent noun does not play such a direct role in the kind of situation denoted. Consider these five uses of *siren* (34–35 are examples we have actually heard):

- (32) The fire stations sired throughout the raid.
- (33) The factory sired midday and everyone stopped for lunch.
- (34) The police sired the Porsche to a stop.
- (35) The police car sired up to the accident.
- (36) The police car sired the daylights out of me.

In 32 the siren’s role is already indirect, since *siren* means ‘produce a wailing sound by means of a siren’; and in 33–36, it is this sound that is critical. In 33–34, the sound is used as a signal—for midday in 33, and for the Porsche to stop in 34—but the way it works in the two instances is distinctly different. In 33 it is a time marker, and in 34 a police warning; these two aspects are meant to be taken as part of the situations denoted. In 35, the siren’s role is still less direct. To account for the police car doing something involving a siren up to the accident, one is led to the sense ‘drive quickly accompanied by the sound produced by a siren’. The warning function of the siren here is less central. Example 36 is particularly interesting, for it is a syntactic blend of *siren* and the idiom *scare the daylights out of*. The superficial arguments *the daylights* and (*out of*) *me* together signal the presence of the idiom, and *siren* itself requires that this scare involve a siren. One is therefore led to the sense ‘scare by means of the sound produced by a siren’. Syntactic blends of this sort are not uncommon.

This sketch of syntactic constraints brings out two points. First, the interpretation of an innovative verb is strongly constrained by its syntactic environment. This is hardly surprising. But second, these constraints do not work in a vacuum. To distinguish the interpretations of *siren midday* and *siren the Porsche to a stop*, one must know the difference between factory and police sirens, and how they are used. To interpret Ed’s *teapot the policeman*, one must know even more. So syntactic constraints must be considered along with all the other conditions placed on interpretations—conditions (a)–(e). No single constraint will suffice.

5. INNOVATIONS VERSUS IDIOMS. Innovations that are contextually common in other areas of the language too. Among noun compounds we find *egg plate* (said of a plate decorated with pictures of eggs), *mystery woman* (said of a woman who wrote mystery stories), and *umbrella head* (said of a man who wore an umbrella on his head). Downing 1977 (see also Gleitman & Gleitman 1970, Zimmer 1971, 1972) argues that these cannot be handled by derivation. Among denominal adjectives we find *Stonehengey* (said of a man with conservative views), *dinnery* (said of food more

appropriate for dinner than for other meals), and *Beethoveny* (said of music that sounded as if Beethoven could have composed it). Among possessives we find *Justin's bus* (the bus Justin watched yesterday), *my tree* (the tree I always point out as we pass), and *Erle Stanley Gardner's lawyer* (Perry Mason, the lawyer Gardner created). And among shorthand expressions we find *two Picassos* (two people who paint much like Picasso), *my street* (the majority of adults on my street), and *San Francisco* (the basketball team based in San Francisco; cf. H. Clark 1978). These four categories are just a sample of the places in English where innovations are common.

Like denominal verbs, these categories span the continuum from innovation to idiom (or well-established construction). Among noun compounds, for instance, contrasting with the innovations are virtually opaque idioms like *bulldog*, *thunder-mug*, and *tinderbox*; while *birdcage*, *dogsled*, and *bookshelf* probably lie in the middle. But just what is this innovation-idiom continuum? We will consider this question briefly from four different points of view: the history of English, the acquisition of English by the child, the processing of English by the language user, and the synchronic description of English. Each viewpoint yields a somewhat different answer. In our discussion we will use only denominal verbs as illustrations, but the points we make are equally applicable to other types of innovation as well.

5.1. HISTORICAL CHANGE. Nearly every denominal verb in the lists above, we assume, was introduced into English as an innovation. This is generally confirmed by the OED—though there may be exceptions. Each verb, then, arrived at its present form by a complex historical process we will call IDIOMATIZATION. Because the process is gradual, each verb passes through several stages on its way from innovation to idiom; and because fresh verbs are being introduced into this process all the time, at any moment there are verbs at each stage. We tentatively propose six stages in this process, and illustrate each with examples from present-day English.

(a) **COMPLETE INNOVATIONS.** Denominal verbs begin their lives as complete innovations. To our ears, *Wayne*, *Cagney*, *pie*, *erratum*, and *bargain-counter* are complete innovations. Some may remain nonce forms, while others may proceed to the next stage.

(b) **NEAR-INNOVATIONS.** When a speaker or group of speakers uses an innovation more than once, and it is recognized as the same form, then we have a near-innovation. Thus Herb Caen has used *houseguest* and *chopstick* more than once, and readers have begun to recognize these as 'his' words. Once again, these may or may not proceed to the next stage.

(c) **HALF-ASSIMILATED TRANSPARENT IDIOMS.** Some verbs become transparent idioms for one group of speakers, but remain innovations for everyone else. *Key in the data*, for example, appears to be idiomatic among computerniks, as noted earlier, but it is still perceived as an innovation by the rest of us. *Satellite the broadcast* was probably idiomatic within CBS before it was used on television, where it was perceived by most viewers as innovative. For verbs at this stage to move on to the next, they must generally be transparent to the outgroup, as both *key in* and *satellite* are.

(d) ASSIMILATED TRANSPARENT IDIOMS. Verbs like *bicycle*, *truck*, *crowbar*, and *paperclip* appear to be fully assimilated into English as verbs, even though their interpretations are fully transparent. We would know what they meant even if we hadn't heard them before.

(e) PARTLY SPECIALIZED IDIOMS. A great many verbs are no longer entirely transparent because they have become partly specialized. Four we have already mentioned are *smoke a pipe*, *park the car*, *ground the plane* ('keep down'), and *land the plane* ('bring down'). *Land*, for instance, was originally used in navigation to mean 'disembark'. Earlier in this century, it was transferred (along with many other navigational terms) to aeronautics—for airplanes putting down on land from the air. When airplanes were designed to put down on water, the idiomatization was apparently so complete that it didn't seem odd to 'land' on water.

(f) OPAQUE IDIOMS. Many verbs have come to have such obscure denominal origins that, for most people, they are completely opaque. *Boycott*, *dun*, *diddle*, and *fudge* are based on the names of long forgotten individuals, and most people now think of them as verbs pure and simple. *Charleston* and *shanghai* are based on familiar place names, but few people know the connection. *Riddle* and *ferret* are based on common nouns unfamiliar or unknown to most people. *Slate*, *badger*, and *beef* are based on familiar nouns, but few people are aware of the noun-verb relations.

Not all denominal verbs will pass through the stages in this order, or even complete the series. A verb like *key in* could lose its transparency within the computer community even before it is assimilated into English; and verbs like *ground* and *eye* will probably never become opaque. The majority of denominal verbs, it seems, have become assimilated just because they are virtually transparent. This makes them readily understood by people who have never heard them before, especially children, and they are therefore readily maintained with a stable meaning. Yet when there is a lexical gap that could usefully be filled, opaque verbs like *lynch*, *boycott*, and *pander* are also readily maintained—but as verbs unconnected to nouns.

Because one of the main functions of idiomatization is the creation of special-purpose verbs, dictionaries are strewn with partly specialized idioms. The verbs formed from *shell*, as listed in the OED, are quite typical: 'remove (a seed) from its shell', 'expel (a growth)', 'shed (milkteeth)', 'drop out of a shell', 'remove the shell of', 'bring forth as from a shell', 'scale off', 'enclose in a shell', 'furnish with shells for collecting oyster spawn', 'spread shells on', 'bombard with shells', and 'drive out by shelling'. Many of these senses are utterly unfamiliar to modern ears, as we would expect. Such specialized senses should be abandoned when the object is no longer in use, as in *to archie* or *to roneo* (Partridge); when the object no longer has the particular use, as in *Zeppelin the fleet*, used in World War I to mean 'bomb the fleet from Zeppelins' (Jespersen); or when the special allusion is no longer recognizable, as in *Copenhagen the fleet* 'sink without warning', or *Burgoyne a general* 'capture' (Partridge). Dictionaries probably underestimate the number of specialized uses that have arisen by this process.

5.2. LANGUAGE ACQUISITION. Children learning their first language almost certainly do not distinguish innovations and idioms the way adults do. They appear

to treat many adult idioms as if they were innovations, and many adult innovations as if they were idioms. These two 'errors' have important consequences.

Children produce innovations from a very early age, and some of these conform to the adult constraints on innovations. Thus one child, C, said *I'm crackering my soup* as she dropped crackers in her soup (age 3;11); another child, D.H., said *Mummy trousers me* in talking about getting dressed (age 2;3); still another, S, said *I broomed her* after hitting his baby sister with a toy broom (age 2;7). But the innovative denominal-verb convention takes time to learn, and many early innovations fall short of the adult constraints—some wildly—even though most are interpretable in context. So C, fantasizing about a trip, said *We're all going to Mexico—Not drive to Mexico—Not CAR to Mexico—AIRPLANE to Mexico* (age 4;0). And, S, wanting to have some cheese weighed, said *You have to scale it first* (age 2;4). On other occasions, he commented *That truck is cementing* of a cement truck with its back revolving but not pouring cement (age 3;1); *It flagged* of a flag that suddenly billowed in a gust of wind (age 3;2); and, asking if his pants had been mended, *Is it all needled?* (age 3;2). From our observations, many (perhaps most) children produce innovative denominal verbs, though they vary greatly in how often they do so (E. Clark 1978, ms).

Because of this early facility, children may produce and understand particular denominal verbs very differently from adults. Consider these four possibilities. First, they may learn the noun *hammer*, and then create and use the verb *hammer*, even though it is idiomatic for adults. Here their innovation corresponds to the adult's transparent idiom. Second, they may hear the verb *truck*, and from their prior knowledge of the noun *truck* interpret it as an innovative denominal verb. Again, their innovation corresponds to the adult's transparent idiom. Third, they may learn the noun *dial* as applied to clocks, bathroom scales, and gas meters, and separately learn the verb *dial the number* for push-button (and dialless) telephones, never realizing that the two are related.¹² In this case their opaque idiom corresponds to the adult's partly specialized idiom. Fourth, they may hear a near-innovation like *Let's chopstick for dinner again*—in the absence of chopsticks—and interpret it as an idiom meaning 'have Chinese food'. In this instance, their opaque idiom corresponds to the adult's near-innovation. There are other possibilities, too, including those in which the child and adult agree in their treatments. The point is that, as children create their own system of language, they may alter the status of verbs as innovations or idioms.

Children, then, may play a role both in keeping language stable and in speeding language change. They probably contribute to language stability when they treat adult idioms as innovations. For example, in producing or understanding *bicycle*, *truck*, and *jeep* as innovations, they may prevent those verbs from deviating too far from the paradigm 'go by [vehicle]', from becoming partly specialized idioms like *land*, *ground*, and *smoke*. On the other hand, children probably spur on language change when they treat near-innovations and partly specialized idioms as opaque. Thus, treating the noun and verb *dial* as unrelated, they may contribute to the acceptance of *dial* as an opaque idiom; in treating *chopstick* as an opaque idiom,

¹² We are indebted for this example to Charles J. Fillmore.

they may effectively be introducing it into English as just such an idiom. Here as elsewhere, children are probably instrumental in both maintaining and changing language.

5.3. LANGUAGE PROCESSING. In speaking and listening, people must certainly process innovations and idioms very differently. Consider comprehension. For innovations, at one extreme, people must create completely new meanings: confronted with *Wayned*, they cannot retrieve a ready-made meaning from their mental lexicon, since they have none for verbs they have never heard before. If the line we have taken is correct, they must construct the meaning of *Wayned* in conformity with the innovative denominal-verb convention. For idioms, at the other extreme, listeners must retrieve ready-made senses: they must look for *boycott* as a verb in their mental lexicon, since they don't have the parent noun *Boycott* available. Parallel arguments hold for innovations and idioms in production.

Between the two extremes, it isn't always clear what should happen. Transparent idioms, for example, could be processed either as innovations or as opaque idioms; both processes would lead to the right interpretation. But these verbs are so frequent, and so well assimilated as verbs, that they are presumably processed most of the time like opaque idioms. In comprehension, it would be inefficient for their meanings to be recreated each time when they could be retrieved from the lexicon ready-made—like most other word meanings. Indeed, this almost has to be true if we are to account for pre-emption. When a verb has a common idiomatic sense, that normally takes precedence over certain innovative senses. Thus, although on reflection the noun *bottle* may be recognized in *bottle the beer*, this information isn't normally used in the process of saying or interpreting it.

Yet, in the right circumstances, transparent idioms may be processed as innovations. Imagine hearing *We used everything—we snowmobiled, snowshoed, and skated*, as opposed to *We did everything—we hiked, drank beer, and skated*. The first sentence contrasts the three instruments, and invites *skated* to be processed as an innovation on a par with *snowmobiled* and *snowshoed*. But the second contrasts three activities, and invites *skated* to be treated as an opaque idiom on a par with *hiked* and *drank*. With contrastive stress, the noun origins of a verb are readily brought to the fore. In *We didn't use our CAR—we TAXIED to the airport*, the instruments are contrasted, a car vs. a taxi, while the rest of the meaning of *taxied*, 'went by X', is backgrounded (Watt). How transparent idioms like *skate* and *taxis* are processed, therefore, may depend on the context. This may also be true of partly specialized idioms.

The presence of innovations, near-innovations, and idioms sometimes processed as innovations offers a distinct challenge to most theories of comprehension and production. These theories implicitly assume that all word meanings are available ready-made in the mental lexicon. That assumption is clearly wrong. If innovations of all types are as common and as readily understood as we suppose, then no theory of comprehension or production can be complete unless it handles them in the natural course of the relevant processes. Right now this goal seems far off.

5.4. SYNCHRONIC DESCRIPTION. Contemporary English has denominal verbs at each stage of idiomatization—from full innovations, like *bargain-counter*, to opaque

idioms like *boycott*. How much of this information belongs in the synchronic description of English? If such a description is supposed to characterize the ideal speaker/listener's 'knowledge' of English, we have a problem—because, as applied to denominal verbs, 'knowledge' has at least four interpretations. First, it could mean 'always-used information': in comprehending *bargain-counter*, listeners probably always use the fact that it comes from the noun. Second, it could mean 'usable information': for *taxis*, listeners may not normally use the fact it comes from a noun, but in contrastive contexts they can. Third, it could mean merely 'awareness on reflection': many people are surprised when they are shown that the noun and verb *land* are related—but, on reflection, they could probably figure this out for themselves. Fourth, it could mean simply 'intellectualizable information': most people could not figure out for themselves the relation between *boycott* and *Captain Boycott*; but when informed by a dictionary or a specialist, they would in some sense 'know' the denominal character of *boycott*. These successively more inclusive criteria for 'knowledge', of course, lead to different synchronic descriptions of denominal verbs.

Forced to make a choice, we would probably opt for a synchronic description that included only 'usable information', knowledge that is or can be accessed in normal language use. But it may be more defensible to include all information about denominal verbs, yet distinguish which parts are known at which level of knowledge. The synchronic description, in any event, will have to do more than just dichotomize denominal verbs into innovations and idioms.

There is a further complication: note that idioms and innovations can co-exist with the same parent noun. The idioms *shelve the books* and *shelve the closet* co-exist with innovative uses of *shelve*, as in *While maneuvering through the door, the carpenter shelved his assistant in the back* ('poked with a shelf'). The complication is that these idioms often shade off into innovations, with no clear boundary. In *Alex forked the peas into his mouth*, for example, *fork* has an idiomatic sense 'convey in the normal manner by means of a fork'. We all know, of course, what the normal manner is—which, if this sense is to be idiomatic, must be defined independently of any context. But if it is mutual knowledge that Alex is a child who uses a fork two-fisted, or backwards, or only as a means to catapult food into his mouth, the speaker would intend *fork* to mean 'convey by a fork in a two-fisted manner', or 'convey by a backward fork', or 'catapult by means of a fork'. At what point has Alex strayed too far from the 'normal manner'? At what point have we moved from the idiomatic sense of *fork* to an innovative one? There is no obvious answer, and this adds still another complication to the synchronic description of denominal verbs.¹³

6. CONCLUSION. We have argued that, although denominal verbs belong to a unified morphological family (they are all parented by nouns), they do not allow a unified semantic description. Innovations like *Wayne* and *houseguest* must be dealt with differently from opaque idioms like *lynch* and *badger*, and differently even from transparent but well-established verbs like *bicycle* and *smoke*. As for the

¹³ Weinreich (1966:411–12) raised a similar problem in considering the lexical entry for the verb *eat*.

innovations, we have argued, they are not derived from nouns in the usual sense of semantic derivation. What they mean depends on the time, place, and circumstances in which they are uttered, and must be accounted for by a convention about their use. This convention makes essential use of such notions as kinds of situations, rationality, ready computability, uniqueness, the speaker's and listener's mutual knowledge, and certain syntactic constraints.

Innovations, however, are found not only among denominal verbs, but pervade virtually every other construction in the language. Forming and understanding them is therefore an intrinsic part of our capacity to use language, and should be accounted for by any theory of language that claims to be complete. So far, however, most attention has been paid to innovations that are NOT contextual. Yet, if we are right, many innovations are contextual, including (besides denominal verbs) compound nouns, possessive constructions, 'eponymous' verbs, commonized proper nouns, and shorthand expressions. There are probably many more types. If these are truly contextual expressions, they will require an account very much like the one we have given here for denominal verbs. As we have suggested, conditions (a)-(e) of our convention may be common to all such contextual expressions—with condition (f), which refers to syntactic constraints, changing from construction to construction. All this, in turn, is part of a broader attempt to specify what speakers mean in uttering sentences on particular occasions. This is an enterprise that has been neglected for too long.

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