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Mark Aronoff

WHEN NOUNS SURFACE AS VERBS

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. 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 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.

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. 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 . 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 walls, 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 hairbrushes [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.). 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, +headquarter 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. <...>

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, ⁺this beer brimmed over, the well bottomed out. <...>

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.) ⁺flunkey 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 tie 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. <...>

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 stratusing right now [weather report], the truckjack-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, +Buick, +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 tailor, +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, +rule the child's hand.

E. *Cut, slab:* 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.

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

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

L. 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.

M. 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].

N. 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.

P. 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 horseshoe, ⁺crutch the branch, ⁺pulley up the pail, helm the boat.

R. 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].

S. 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 towelled 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 toweled 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 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:

- (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:

- (14) Dognog wanted to *bottle* the home-brew, but Dead wood 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 <...>, 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 effect¹. 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.

1.6. **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), ⁺blindside a player (hit on the blind side).

¹ There is another use of *un-* that may be confused with this. Compare *declawed* with *unclawed*: the later is not a denominal verb form with reversative meaning, but rather a denominal adjective meaning “without claws”.

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]".

These categories don't really do justice to denominal verbs. Many examples 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 but with time has become specialized for the particular activity we call smoking. Its origins as a noun are recognizable only on reflection. 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 <...> 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 *nailed* in 21. Green <...> 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.

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.

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. *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. 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) *Cooperation between speaker and listener.*

Shifting reference places a 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 cooperation 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 cooperation 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 cooperation 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 cooperation 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 the obsolete *archie, baby, and roneo*.

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 sopfully, 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 Svengaling 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 exposé 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 denominal 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 cooperation 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* cooperatively 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 denominal 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. 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 contextuais.

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 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 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 cooperation 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 contextuals 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 contextuals makes quite explicit what up to now has always been implicit in such paraphrases.

3 A theory of interpretation

If innovative denominal verbs are contextuals, 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. 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. Infusing 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 cooperative principle. 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 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 contextuials. 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* ($x, a \text{ porch}$) — “ 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. 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. Particular knowledge 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 denominal 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.

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.

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 and Tversky, 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 verb, 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.

Table 1 — Principal categories and their predominant features

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

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*; *gir-dle 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 confused¹.

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 Houdin'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”.

¹ 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.

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 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. 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. 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.

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 Cheved 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, 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.

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 bounces of pre-emption by synonymy. The three we have identified are suppletion, entrenchment, and ancestry.

4.4.1. **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*.

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 “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-empted 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*.

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.

4.4.2. **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. *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 *enthroned*. 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.

4.4.3. **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 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 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 Forded 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.

4.6. **Rhetorical considerations.** Why invent denominal verbs? The main reason, perhaps, is economy of expression. As Grice notes, the speaker who observes the cooperative 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 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 weekendened 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-Airwested / 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 daylight 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 daylight out of*. The superficial arguments *the daylight* 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 contextuials are 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 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 *Erie 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). 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 *bird-cage*, *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 *toarchie* or *toroneo* (Partridge); when the object no longer has the particular use, as in *Zepelin 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. <...> From our observations, many (perhaps most) children produce innovative denominal verbs, though they vary greatly in how often they do so.

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. 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, 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 *taxi* 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 *taxi*, 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* coexist 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.

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 innovations, 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.

Aids to the study of the text

1. What are the main types of denominal verbs that can be singled out according to their roles?
2. What criteria help to distinguish:
 - locatum verbs from location verbs;
 - agent verbs from goal verbs;
 - locatum and location verbs from instrument verbs?
3. Is it possible for a denominal verb to have the characteristics of more than one category at a time? Give examples.
4. Explain the difference between the following notions: denotational expression, indexical expression and contextuels. What is necessary to identify contextuels? What criteria can help to identify contextuels?
5. What are the peculiarities of denominal verbs based on proper nouns and how are these verbs accounted for by the author?
6. To what category does the author refer innovative verbs formed from common nouns?
7. What predetermines the possible double interpretation in the following phrases: *to shelve the books / the closet, to floor the rooms / opponents; to lime the walls / starlings; to riddle the potatoes / the door with holes; to brick the fireplace / cheese; to curb the dog / street; to cream the butter / coffee; to tree the cat / avenue; to powder the nose / aspirin; to seed the lawn / grapes; to scale his hand / fish; to cork the bottle / oaks; to wind the organ / man; to fleece the stones with moss / the sheep; to shell the roadbed / peanuts; to fin the boat / fish; to girdle the waist / tree?* What is the possible way out to solve this ambiguity in practice?
8. What factors benefit or hinder the process of coining denominal verbs?
9. What conclusion does M. Aronoff arrive at having analyzed the meaning of contextuels? Do you agree with his idea that contextuels possess the individual contextually free meanings?

Robert Beard

THE AGENDA OF MORPHOLOGY

1 Setting Our Bearings

Morphology is superficially the sum of all the phonological means for expressing the relations of the constituents of words, of words in phrases, and of the phrasal constituents of sentences. The key element of morphology is the *word*, a symbol comprising mutually implied sound and meaning. The central purpose of morphology, therefore, is to map sound to meaning within the word and between words. The issues of

morphology are what constitutes linguistic sound, what determines linguistic meaning, and how the two are related. Since these questions are central to the linguistic enterprise in general, morphology should be the centerpiece of language study. Yet, instead of gravitating to the center of linguistics during the recent Generativist revolution in language studies, in the past few decades morphology has all but vanished from the agenda of linguistic inquiry.

One reason for this malaise of the discipline is the unresolved flaws in the European Structuralist model of morphology inherited by Generativist theory — zero morphology, empty morphology, morphological asymmetry. Perhaps for this reason, the Generativist tradition has yet to find a firm place for morphology in its theoretical models. Indeed, some Generativists argue that morphology does not even exist outside the general principles of syntax and phonology, and the storage capacities of the lexicon. The reason for the underestimation of morphology's contribution to the sentence is the Generativists' simple view of the morpheme. From Plato to Baudouin, the word was taken to be the smallest linguistic sign. Since Baudouin, however, "the minimal meaningful unit of language", has been the *morpheme*, the sublexical constituent of words. While the status of the word as a linguistic sign is uncontroversial, the term "word" itself has defied all attempts at definition; indeed, this recalcitrance prompted the original interest in the proposition that morphemes are the primitive linguistic signs. The result is a genuine quandary: morphemes fail to behave consistently like signs and words defy definition.

The second reason for the malaise in the discipline is that while the word and morpheme have two sides: the semantic and phonological, only for a brief period in the 19th century did research treat both sides evenly in any attempt to account for the relation between the two. The initial interest of the Greeks centered exclusively on the semantic side of words, their various categories and subcategories. Over the centuries interest slowly shifted, not to a balanced scrutiny of the meaning and sound of morphemes, nor to the crucial relation between the two, but rather to the exclusive study of the phonological side of morphemes that dominated the Structuralist school.

The next section, a brief overview of this historical shift, outlines this imbalance and provides a frame of reference for the present work. The central issues and assumptions of morphology, which this book will address in subsequent chapters, will be drawn from this historical survey.

1.1 A Brief History of Morphological Studies

The Stoic philosophers (Diogenes Laertes, Apollonius) first defined the word as a bilateral association of “the signifier” (τὸ σημαίνον) and “the signified” (τὸ σημαίνομενον). The Greeks did not analyze the word; they considered the word the smallest indivisible meaningful linguistic element. They used the formal regularities existing between words only as clues to grammatical and semantic categories. They defined the lexical classes, noun and verb (including adjectives among the former), and undertook the first investigations into Gender. Aristotle advanced these studies with his definition of words other than nouns, verbs, adjectives, and adverbs as “conjunctions” or “connectives” (σύνδεσμοι). He defined this latter class in terms of their relational functions and their lack of referential meaning in isolation. This distinction is an important one that will be restored and refurbished in the next chapter.

The Classical Greek philosophers then focused on the categories expressed in words without formally analyzing words. This fascination with semantic categories continued in Alexandria even though the Alexandrian grammarians are credited with converting language study from a subdiscipline of philosophy to an independent “technical” discipline. The Alexandrians expanded the number of recognized grammatical categories, defining them in terms of the formal characteristics of their inflectional paradigms as well as their referential properties.

Aristarchus and Dionysius Thrax categorized words into the canonical eight parts of speech, but their categories, too, were restricted to whole words, and did not include any analysis of sublexical elements. By the time of Dionysius, the Alexandrians had identified three Tenses (Present, Past, Future), two Aspects (Perfective, Imperfective), and three Voices (Active, Passive, Middle) among verbs. Dionysius reported 22 subclasses of nouns: proper, collective, generic, specific, appellative, and so forth; three Genders: Masculine, Feminine, Neuter; three Numbers: Singular, Dual, Plural; the five Cases: Upright, Generic, Dative, Causal, Vocative; two species: primitive and derivative, which had seven subspecies: patronymic, possessive, comparative, superlative, hypocoristic, denominal, and deverbal; and three shapes: simple, compound, and double compound. The Alexandrians did not associate these categories with distinct morphemes; rather, they simply sorted out whole words with inflectional variations expressing these categories. However, the individuation

of all these categories laid the foundations of our understanding of lexical behavior across the succeeding centuries.

The Latin grammarians continued the Greek tradition with greater dexterity. In *De Lingua Latina* (47—45 BC), Marcus Varro classified the major parts of speech according to two properties: Case or Tense. Assuming much like Chomsky (1981) that either of these properties could be absent or present in a form, he came to the very modern conclusion that Latin has four major categories, not the N, V, A, P yielded by $[\pm N, \pm V]$, but (i) nominals (Ns and As), which he might have symbolized as $[+Case, -Tense]$, (ii) verbs, $[-Case, +Tense]$, (iii) participles, $[+Case, +Tense]$, and (iv) adverbs, $[-Case, -Tense]$.

Varro also distinguished attested from potential paronyms, noting that *unguentum* “perfume” has a Plural *unguenta* because of the existence of several kinds of perfume. Were similar differences in the kinds of olive oil and vinegar to arise, so would Plurals *olea* “olive oils” and *aceta* “vinegars”. However, Varro is perhaps best known for his discussions of the extensive violations (*anomalía*) of derivational regularity, for instance, the indeclinable nouns, the irregular Comparatives like *bonum, melius, optimum*, and derivational irregularities like those of:

vin-um	“wine”	vin-aria	“wine shop”
unguent-um	“perfume”	unguent-aria	“perfume shop”
car-o	“meat”	*carn-aria	“butcher’s shop”

Instead of the expected *carnaria*, the word for “butcher shop” in Latin is *laniena*. So the discovery of lexical exceptions to morphological patterns is ancient, indeed.

Despite their interest in paradigms, the Latin grammarians, like their predecessors, explored sublexical derivational properties only minimally and focused most of their efforts on the categories and etymologies. Problems such as those listed in the given example were not discussed in terms of differences in affixation; rather, the major categories were seen as whole words with “flexible ends”, the concept which underlies the current term, “inflection”. Not until Priscian (*Institutiones grammaticæ*, Books 9—10) do we find rules predicting inflected forms. Even here the rules predict the form of a whole word from that of another whole rather than from the behavior of sublexical elements. For example, Priscian’s rule for the Past Imperfective is as follows (from Kiel, 1857—1870, II, 457—58: quoted here from Matthews 1972: 10—11, my translation):

præteritum imperfectum ... a præsentī fieri sic: in prima quidem et in secunda coniugatione et quarta in “eo” desinente a secunda persona ablata “s” finali et addita “bam”: “amas amabam”, “doces docebam”, “is ibam”; in tertiæ vero omnibus verbis et quartæ in “io” desinentibus prima persona mutat “o” in “e” productam et assumit “bam”: “lego legebam”, “facio faciebam”, “venio veniebam”.

The Past Imperfective ... is formed from the Present like this: for the 1st and 2nd Conjugation and the 4th Conjugation ending in *eo*, the final *s* is deleted from the 2nd Person and *bam* is added: *amas amabam, doces docebam, is ibam*; for all verbs in 3rd Conjugation, however, and [those of] the 4th in *io*, *o* is changed into *e* and *bam* is added: *lego legebam, facio faciebam, venio veniebam*.

Primary interest here focuses on disambiguating the categories themselves rather than on the allomorphy of the “accidents” of ending which symbolized them.

The study of the word strayed little beyond the accomplishments of the Latin grammarians throughout the Middle Ages and Renaissance. From a contemporary perspective, one might question how much morphological study had in fact been conducted up to this point, since the means of signaling categories generally remained all but wholly beyond the pale of interest. Reuchlin (1506) finally introduced the analysis of words in terms of roots and affixes to European audiences, a practice he had observed in the works of the Hebrew grammarians. In a more influential work a century and a half later, Schottelius (1663) extended Reuchlin’s division by distinguishing *stammwörter* (stems), *hauptendungen* (main (= derivational) endings), and *zufällige endungen* (accidental (= inflectional) endings), thereby recognizing differences in inflection and derivation for the first time.

Schottelius’ work began a shift toward a balanced study of the signified and the signifier. By and large, however, morphological research did not advance beyond the work of Reuchlin and Schottelius until the turn of the 19th century, when the discovery of the Hindi grammarians generated an interest for formal decomposition. The Indian grammars from Pānini’s *Astādhyāyī* (ca. 500 BC) on distinguished derivation and inflection. They contained formal rules governing the behavior of sublexical elements, for example, Pānini’s *affixes* (*pratyaya*) and *augment*s. Pānini’s affixes could be replaced before the surface level or deleted to accommodate zero morphology; empty realizations were also possible. All these wonders began to emerge in European word study on

the wave of proofs that Sanskrit was related to the languages of Western Europe, which culminated in William Jones’ famous report to the Royal Society in 1786.

Von Humboldt (1836) turned attention outside the IE family, introducing infixation and incorporation to European theoreticians. Since these new types of morphology are formally, not categorially, distinguished from other types of morphology, von Humboldt was led to conclude that the variation in the *sound form (Lautform)* is the primary element distinguishing languages. Thus the first language typology, von Humboldt’s isolational, agglutinative, and inflectional types, is based exclusively on formal distinctions. Morphology had become a fairly clear component of grammar and its formal side, an accepted fact. Schleicher (1859) next produced the first formal theory of morphology. A forewarning of things to come, it dealt solely with the possible structural relations of affixes and stems as a basis for predicting language typology.

The influential work of von Humboldt and Schleicher, however, did not spell the end of categorial studies. Neogrammarians like Brugmann and Delbrück consistently discussed both the form and the grammatical functional categories associated with them in their monumental works at the end of the 19th century. The Neogrammarians, in fact, first distinguished lexical classes (N, V, A, Adv) from the categories of grammatical functions, for example, Number, Person, Gender. Indeed, the brief Neogrammarian period represents the apogee of morphological studies balancing concern for content with that for form. The phenomenon was short-lived, however, for the Structuralist school accelerated the shift away from the study of morphological categories to the exclusive study of the allomorphy.

The Structuralists’ point of departure was the Classic assumption that the relation of all lexical and morphological sound to meaning is direct, mutual implication; Saussure even adopted the Greek terms, “signifier” and “signified”. Baudouin then combined the Greek concept of the sign with the newly discovered sublexical units to reorient the definition of the sign from the word as a whole to its sublexical elements. Baudouin placed roots, affixes, and inflectional endings into a single natural class, which he called, for the first time, “morpheme”. He originally defined his new concept as “the simplest psycho-linguistic elements in the guise of sound” (Baudouin de Courtenay 1889). But in Baudouin de Courtenay (1895), he refined this definition to “that part of the word

which is endowed with psychological autonomy and for that reason is not further divisible". Baudouin, therefore, not only distinguished sublexical units; he raised the status of affixes to that of the stems that bear them, defining both identically.

Saussure, mindful of the problems with Baudouin's definitions, carefully avoided the term "morpheme" in his lectures and associated his definition of the sign only with words. Bloomfield, however, carried Baudouin's definitions even further. Having shifted the classical definition of the word as a bilateral sign to the morpheme, Bloomfield then took the next logical step, to place all morphemes in the lexicon, previously the storage component of words. Bloomfield's overall vision of morphology included (i) Baudouin's Single Morpheme Hypothesis, which unifies all sublexical elements under the single rubric "morpheme"; (ii) the Sign Base Morpheme Hypothesis, which defines all such morphemes as signs, directly related associations of form and meaning; and (iii) Bloomfield's own Lexical Morphology Hypothesis, which locates all such morphemes in the lexicon, where they are subject to the same selection and copying processes, without distinguishing the behavior of stems from that of affixes. This cluster of independent assumptions will be referred to throughout this book as the *Lexical Morpheme Hypothesis (LMH)*, a hypothesis that dominates the contemporary language sciences.

Simultaneous to listing grammatical morphemes in the lexicon, Bloomfield denied any relevance of semantics to the study of linguistics. This step led to an abrupt shift of interest away from morphological categories altogether to Trubetskoi's *morphophonemics*, allomorphy pure and simple. When Nida completed the first structuralist treatise on morphology, it represented little more than a set of discovery procedures for isolating affixes and determining their allomorphy. It simply ignored the categories that affixes express.

Not all thinkers were unaware of the problems with the structuralist assumptions. Saussure (1916) pointed out the fundamental contradiction of *zero morphs* to his theory of the linguistic sign and the complications in defining the word raised by compounds and contractions (one word or two?). In 1929 Karcevskij discovered *morphological asymmetry* in Russian inflection: the same ending may mark more than one grammatical function, while any given function may be marked by more than one ending. The inflectional ending *-a* in Russian, for example, marks

NomSgFem, GenSgMas/Neu, and NomPlNeu. It is therefore multifunctional. On the other side, each of these Case functions, say, NomSg, is marked not by one, but by a set of endings: NomSgFem = **-a**, NomSgMas = **-o**, NomSgNeu = **-o**. Karcevskij saw a major problem for sign theory in this since such patterns are not found among stem morphemes.

Bazell examined many problems with the structuralist approach to morphology: asymmetry, zero morphology, the bias in favor of form. His most enlightened criticism identified *the correspondence fallacy*, the presumption that an analysis at one linguistic level isomorphically corresponds to the analysis of the same object at other levels. Examining the problem of morphological asymmetry discovered by Karcevskij, Bazell (1949, 1952) argued that it follows neither that the phonological analysis of a word will isomorphically correspond to the semantic, nor that, because of this, no analysis is possible. Bazell chided attempts to conceive of such morphemes as the English Past Tense marker in *sang* as an ablaut variant of the suffix **-ed**. It does not follow from the fact that these two markers express the same grammatical function, he reasoned, that they are identical at any other level. It is quite possible that each level is defined in its own terms (in which case a set of principles mapping one level to the other will be required of linguistic theory).

Despite the catalogue of problems facing sign-based morphology compiled by Bazell, Saussure, and Karcevskij, neither Structuralism in its decline nor Generativism in its rise addressed the shortcomings of Bloomfield's assumptions. In its first two decades, the Generative Revolution ignored morphology. Aronoff's dissertation on derivational morphology was published 19 years after Chomsky's *Syntactic Structures*. It is true that the Natural Phonology movement of the late 1970's was a response to the level of abstraction allowed by the allomorphy of Chomsky and Halle. However, initial concern focused primarily on phonological issues of allomorphy rather than the elementary questions of morphology. Recent schools of GB morphology, such as Lexical Morphology and Autosegmental Morphology, started out as Kiparsky's Lexical Phonology and the Autosegmental Phonology of Goldsmith, respectively. Neither of these theories deals with meaning explicitly, though meaning is curiously the basis of the determination of formal units. Both theories assume Bloomfield's three principles on the nature and place of morphemes in grammatical theory (LMH).

The history of morphological studies, in conclusion, teaches us that the critical objects of morphological research are lexical and grammatical

categories, sublexical phonological constituents and, crucially, the relation between the two. The course of this history has witnessed a shift from the exclusive study of categories to an exclusive study of formal elements. Only very recently, and only in the work of a handful of contemporary morphologists, has morphological research returned to a balanced study of both form and function; however, the question of the relation between categories and exponents remains largely unexplored terrain.

1.2 A Survey of Current Agendas

Having surveyed the history of word studies from the Greeks to modern times, the next step is to examine current research programs in morphology to determine our bearings. To redress the current imbalance in allomorphic and semantic studies of morphology, we need first to understand that imbalance as it presently stands. This section, therefore, will review current research programs in morphology with a view toward assessing their contribution to the core concern of morphology: the relation of linguistic sound and meaning.

Recent work in morphology has, by and large, continued the Structuralist emphasis on allomorphy, though some studies have returned to the issue of grammatical categories. Carstairs-McCarthy refers to the Structuralist approach as the “bottom-up” approach, because it focuses on phonological issues at the expense of semantic ones. The “top-down” approach focuses on the semantic side of morphology or, more correctly, on the combinations of grammatical categories which grammatical morphemes, inflectional and derivational, mark. Those who approach morphology from either direction seldom deal with the whole morpheme, sound and meaning. “Bottom-up” and “top-down” frameworks usually focus on the phonological or categorial side of the morpheme, respectively, without reference to the other, the most common assumption being that the two are simply directly associated with each other.

Research in morphology associated with the GB school of grammatical studies all share in the common basic assumptions of the LMH mentioned in the discussion of Bloomfield above. Lieber claims, for example, that “affixes differ from non-affix morphemes only in that affixes have as part of their lexical entries, frames indicating the category of items to which they attach as well as the category to which they belong”.

She emphasizes also that “especially important for the theory to be developed below is the fact that lexical entries for affixes are identical to lexical entries for non-affix morphemes, except for the presence of sub-categorization information in the entries of the former”.

The appeal of this hypothesis lies in its simplicity: it provides only one basic grammatical element, the morpheme, which is more or less isomorphic with referential terms and predicates. This element is stored in a single component, the lexicon, and is copied into words and phrases by the same simple selection rule that interprets the symbol of a minimal projection and copies an appropriate lexical item onto it from the lexicon. The assumption that affixes belong to the same categories as stems (N, V, A) and are inserted like stems, allows lexical derivation to be conflated with compounding. That is, the copying of a prefix into a derivation is the same process as adding an attribute to a noun to form a compound: *do* ® *undo*, *boat* ® *houseboat*.

The simplicity of this approach, in fact, is such that Pesetsky, Sproat, and Di Sciullo and Williams have concluded that the lexicon does not contain a rule component. Rather, the lexicon is boring: “The lexicon is like a prison — it contains only the lawless, and the only thing that its inmates have in common is lawlessness”. The principles of derivation and inflection, the inheritance of category features, subcategorization frames, and the like, are those of syntax. The lack of research into the nature of grammatical categories in the published accounts of GB morphology is thus justified by the assumption that grammatical categories differ in no way from those of syntax.

1.2.1 Level-Ordered (Stratal) Morphology

Kiparsky, Halle and Mohanan, Booij and Rubach, and Inkelas have sought to develop morphological and phonological systems void of diacritic features like [\pm Latinate], while explaining the different types of phonological changes that take place at the boundaries of Latinate and native affixes in English. English, for example, has two negative prefixes, the Latinate (*in-*) and the native (*un-*). When attached to stems, the Latinate prefix undergoes assimilation across a broad range of consonants, for example, *immovable*, *incorrect* ([iŋkərəkt]), *irrelevant*, *illegal*, to which *un-* is not susceptible, as in *unmoved*, *uncompromising*, *unreal*, *unlikable*. Chomsky and Halle posited two types of boundary, a morpheme boundary “+” and a word boundary “#”, stipulating that the lexical

representation of *un-* would be [ən#] and that for *in-* would be [in+]. Since “#” was a word boundary marker, only postcyclic phonological changes which occur across word boundaries were allowed between *un-* and its stem, while morphophonemic alternations were allowed across the morpheme boundary “+”.

Although Chomsky and Halle distinguished two types of boundaries, they could not account for a major generalization: while word-boundary affixes may be attached to both word-boundary and morpheme-boundary (Latinate) affixes, it is not generally possible to attach morpheme-boundary affixes to word-boundary (Germanic) affixes. For example, the suffix *+ion* motivates morphophonemic changes in the stems to which it attaches: *submit* : *submission*; *deride* : *derision*, so it must be assigned a morpheme boundary. The native suffix *#ing*, on the other hand, does not, so it needs a word boundary: *ride* : *riding*; *roll* : *rolling*. Consequently, while it is possible for *#ing* to occur outside *+ion*: *positioning*, (*air*) *conditioning*, *requisitioning*, *+ion* cannot occur outside *#ing*.

Allen proposed that rather than distinct boundaries, affixes are attached at different levels of derivation, so that morpheme-boundary affixes simply attach to stems at an earlier stage of derivation than word-boundary affixes. Phonological rules apply cyclically so that all phonological rules relevant to a given affix apply immediately upon attachment, before the next affix is copied. This is accomplished by Kiparsky's *bracket erasure principle*, which erases the brackets around an affix when all P-rules relevant to it have applied. P-rules continue applying inside brackets until all brackets are erased. Level I affixes require allomorphic operations; they are inserted at a higher level than those affixes which involve only regular phonological alternations and no allomorphic ones. This ordering captures the generalization that the “+” boundary affixes tend to occur closer to the stem and not outside a “#” boundary affix without postulating different types of boundaries. This approach is called *Stratal Morphology*.

Stratal Morphology raises the question of whether there are different classes of operations on morphemes and whether they affect the order of affixes in lexical and inflectional derivations. Notice that this brand of morphology speaks only to the issue of the order of these *classes* of affixes or operations, not to the order of specific affixes within those classes. For example, while Stratal morphology predicts the order of the

set of cyclic suffixes like *+ion*, *+ous*, *+ity* vis-à-vis the set of noncyclic suffixes like *#er*, *#ing*, *#en*, it does not predict the order of the affixes within these sets, for example, why we find derivations with *+ous +ity* (*generosity*) but not **+ous+ion*, e. g. **generosion*. The predictions of Stratal morphology are thus very general and require further specification to be useful.

1.2.2 Word-and-Paradigm Morphology

Matthews and S. Anderson argue for a separation of inflectional affixation from the “morphological representations” (grammatical feature inventory) of lexical items. These advocates of *Word-and-Paradigm* (WP) morphology argue for unordered morphosyntactic features in the morphological representation and the application of unordered realization rules which attach affixes or otherwise modify a lexical stem (reduplication, metathesis, and so forth). Affixation is therefore the result of operations on stems, rather than listed items. Although Matthews and Anderson offer theories of mapping of morphological to phonological representations, they say little about the nature of the categories featured in those representations.

Matthews developed the classical WP approach to morphology by refining and elaborating the rules of Priscian’s *Institutiones Grammaticæ*. From this Classical point of departure, he developed a formal model particularly adept at handling the problems encumbering sign-based morphology pointed out by Karcevskij and Bazell: morphological asymmetry, and null and empty morphology. In place of an ordered arrangement of morphological functions for a Latin form like *ferri*, such as, [FER- + Infinitive + Passive], Matthews proposes a simple statement of unordered morpho-lexical features like “the Passive Infinitive of *fero*”. Independent phonological operations interpret these features. One such realization rule might be: “the terminal ending (or Termination) *-i* is selected if the word is characterized by the elements 1st, Singular, Perfective and Present Indicative”.

An interesting claim of WP morphology is that the ordering of inflectional desinences is a matter of language specific morphotactics. Moreover, contra the *mirror principle* of Baker, morphological features are not mapped one-one onto affixes in fusional languages as they sometimes seem to be in agglutinative languages. Rather, inflectional derivations are built up from stems by algorithmic operations, which may map

one feature onto two or more affixes or more than one feature onto one affix. Matthews, however, is careful to explain that his WP framework may be valid only for fusional languages; an Item-Arrangement or Item-Process model may be better suited for agglutinative languages. Affix order can be crucial in agglutinative languages like Turkish: *Türk-ler-dir* means “they are the Turks” while *Türk-tür-ler* means “they are Turkish”. Here the order of affixes seems to isomorphically follow that of the morphosyntactic features. Hence the cost for Matthews’ compelling solution to the problems of fusional morphology may be the universality of his model.

Anderson’s *A-morphous Morphology* is an extension of what was previously called the *Extended WP Model*. Anderson returns to the Aspects model of syntax in postulating terminal syntactic nodes with complex symbols containing just those category features necessary for inflection: Number, Gender, and Case features for nouns, Person, Number, and Tense features for verbs. This provides a source for the morphosyntactic feature representation that Matthews assumed. Anderson maintains Matthews’ claim that the features of a morphosyntactic representation are unordered, but adds that they are *layered*; that is, they accumulate in ordered layers. This accounts for languages like Turkish, where some affixes are ordered vis-à-vis each other, but others are not. Features within layers trigger those affixes whose order is irrelevant; features ordered with respect to each other trigger ordered affixes. Anderson in particular notes that layering accounts for the ordering of Subject and Object agreement in languages which maintain both. The order of the pronominal affixes more often than not determines whether they are coindexed with the Subject or Object position.

Derivational morphology and compounding are processes altogether different from inflectional processes in the WP model. Because they see differences in productivity and rates of idiomaticity radically different among lexical and inflectional derivatives, Matthews and Anderson assign lexical derivation exclusively to the lexicon. This was a major issue in the 1960’s and 1970’s in Europe; Fleischer, Dokulil, Kubriakova, Vinogradov, Zemskaia, and many others have written extensively on it, generally concluding that the two morphologies are distinct but without establishing clear and reliable criteria for distinguishing them. Perlmutter dubbed this hypothesis the *Split Morphology Hypothesis*. Since the origin of morphosyntactic features is syntax and word formation processes operate

from the lexicon, the WP model with Split Morphology accounts for the distinction of inflection and word formation. It also accounts for the *Lexicalist Hypothesis* (=Lexical Integrity Principle), that the operations of syntax have no access to the internal structure of lexical items.

WP morphologies raise at least three fundamental issues. First, is there a universal order of (derivational and) inflectional morphemes and, if so, what determines that order? Matthews denies a universal order of fusional morphemes but leaves the door open for a model of agglutinative morphology that might specify order. Anderson provides layered morphological representations, which can accommodate both strictly ordered and unordered markers. Second, what is the relation between morphological expression and the category it expresses? If the relation is not everywhere homomorphic, there must be more than one derivational level and a set of principles for mapping one level onto the other, principles which account for ordering and scope differences between levels. Matthews was the first to explore the indirect articulation of grammatical categories in inflection and to postulate mechanisms for mapping between the categorial and phonological levels. Finally, is inflection radically distinct from lexical derivation and compounding? Although much has been written on this subject, it remains an unsettled issue.

1.2.3 The Morphological Structure of Word Syntax

Word Syntax raises the question of whether lexical rules and morphology exist at all. Rather than special lexical rules constraining derivational and inflectional operations, Word Syntax proposes that the principles of GB syntax constrain them. Baker, Lieber, Roeper and Siegel, Roeper, Scalise, Selkirk, Di Sciullo and Williams, and Halle and Marantz argue that word formation processes are constrained by argument structure inherited from the stem plus the principles of GB syntax. Selkirk, for example, claims that internal (Object) arguments of verbs in compounds must be satisfied in a compound just as they must be satisfied in a VP. Moreover, just as an external (Subject) argument cannot be satisfied within the VP, it also cannot be satisfied within a compound. Hence **tree-eating of pasta* is ruled out because the Object, *pasta*, must be satisfied within the compound. By the same principle, **girl-swimming* is ruled out because *girl* must serve the function of Subject in the compound. *Pasta-eating in trees* is perfectly acceptable.

To account for the lexical categories of derived words, Williams posited his controversial *right-hand rule*, that the rightmost element of derivations and compounds is always the head and categorizes the neologism, for example, [re[read v]]v, [house n[boat]n], and [bak v[er]n]n. He takes advantage of the status of affixes as listed objects with its implication that affixes belong to the same lexical classes as do stems. It follows that affixes are the lexical heads of derived words. It also follows that prefixes will not change the category of the stems to which they attach, as suffixes do. By and large, this prediction is realized in English and a few other languages, but not in predominantly prefixing languages like Yoruba or left-branch compounding languages like Vietnamese.

Recent Word Syntax studies have focused on thematic relations (Agent, Patient, Recipient) of argument structures for which verbs sub-categorize. They have shown that these relations must be inherited by derivations or compounds from their underlying bases and that such inheritance precludes any further use of them by syntax in the phrase. For example, the Agentive sense of *driver*, by these accounts, derives from the Agent relation in the argument structure of *drive*: [Agent (Theme)]. Once an argument role is linked to an affix by derivation, as [Agent] is linked to *-er* in this case, it is unavailable for further lexical or syntactic service. *Man-driver* should not be interpretable as “a man who drives” since the Agent argument of *drive* has been assigned both to the suffix *-er* and, in the compound attribute, to *man*. The same applies to the syntactic construction *a driver of a man* where *man* and *-er* would also have to be assigned the same Agent argument. *Truck-driver* and *the driver of the truck* are acceptable since *truck* is assigned the unoccupied Theme (Patient) role in either case.

Some recent Word Syntax literature has gravitated toward proof that word formation and inflection do not exist as discrete components of grammar, that is, do not possess their own rules and categories. Sproat, Baker, and Lieber argue explicitly that the principles of morphology are just those of GB syntax applied to lexical structure. Word Syntax is of interest, therefore, because it focuses on the categories of morphology and what determines them. It thereby complements the theoretical work of the allomorphic research of Stratal Morphology also conducted within the GB model, and certainly frames two of the major questions on the agenda of morphology: do words have internal structure? and are the terminal elements in all that structure lexical items?

1.3 Separating the Central from Peripheral Issues

Argument linking and inheritance, on the one hand, and autosegmental representations and level ordering, on the other, raise issues of constraints on the categorial and formal sides of morphology, respectively, and must be dealt with in the chapters to follow. However, these treatments of categories and allomorphy do not get at the central issue of morphology: the relation between the two. Because morphology bridges the levels of meaning and sound, this issue is paramount to morphological research. How is it that phonological expressions convey meaning when we speak? What are the constraints on the mapping of meaning to sound at the atomic level? This issue is not a trivial one because the widespread occurrence of zero and empty grammatical morphemes brings sign theory itself into question in ways which cannot simply be ignored as they have been in the recent past.

The literature up to now has revealed several types of morphological objects and operations. Lexemes, morphemes, stems, and roots are the fundamental objects of morphology, while the most salient operations are derivation, conversion, transposition, compounding, affixation, revowelling, reduplication, contraction, and metathesis. No complete list of grammatical categories has been compiled and the number seems to be quite large though closed. The list would include such expressive derivational categories as Diminution, Augmentation, Pejorativity, Affection, and functional categories such as Subjective (*baker*). Objective (*employee*), Instrumental (*mixer*), Locational (*bakery*). A workable theory of morphology in any viable model of grammar must not merely account for all these operations, categories, and objects, but also demonstrate how they interact and interrelate.

The fundamental questions of morphology which emerge from the ancient and current research on the structure of words, then, seem to be the following:

- (1) What are the grammatical atoms, the basic elements of language:
 - (a) the morpheme (lexical and grammatical)?
 - (b) the lexeme and the grammatical morpheme?
- (2) How are phonological, grammatical, and semantic representations of the basic grammatical elements related at each of their respective levels:
 - (a) directly (biuniquely)?

- (b) indirectly (conditionally and, if so, how)?
- (c) both?
- (3) How many morphologies are there:
 - (a) inflectional and derivational (Split Morphology)?
 - (b) only one (Integrated Morphology)?
- (4) What are the categories of morphology?
 - (a) What is the outer limit on their number and what determines it?
 - (b) What is the nature of these categories?
 - Grammatical or semantic?
 - How are derivational and inflectional categories related?
- (5) What are morphological rules:
 - (a) special morphological operations (WP morphology)?
 - (b) lexical insertion + allomorphy (Lexical Morphology)?
 - (c) the operations of syntax (Word Syntax)?
- (6) Finally, what adjustments to syntactic theory are required to accommodate a theory of morphology?

This book will develop a model of lexicology and morphology focused specifically on these issues.

1.4 Basic Principles

In order to develop answers to the questions catalogued in the previous section, we need a base of central truths to draw upon during our investigations that will serve as anchors and a point of departure for the argumentation. Over the history of linguistics few principles have become so axiomatic as to provide such a base; however, the first two principles below seem to me to be axiomatic. They are followed by three theoretical principles of modern linguistics and cognitive science which seem firmly established even though troubled by lingering questions of detail.

I. *The uncontroversial prototypical major class lexical items (nouns, verbs, and adjectives) consist of nonnull, mutually implied (directly articulated) phonological, grammatical, and semantic representations.*

This principle is a specification of the Stoic (and subsequently Saussurian) definition of the classical linguistic sign. Throughout this book, noun, verb, and adjective stems will be referred to as “prototypical major lexical class items”. “Prototype” is used in this context to distinguish

these uncontroversial lexical items from other potential types of lexical items, which some morphologists argue must belong to an independent morphological component. That Principle I holds for these three classes of lexical items has been assumed for centuries and is, to my knowledge, uncontroversial. The exact status of adverbs, however, is controversial. Manner adverbs seem to derive rather freely from qualitative adjectives while spatio-temporal adverbs do not seem to do so. It is widely recognized that items referred to as adverbs in the past in fact are several marginally connected classes. This category will be examined in what follows and most of the items composing it will be included under Principle I. All types of bound and free grammatical morphemes are considered controversial and are included among the data investigated here. The central issue of chapter 2 will be whether grammatical morphemes are covered by this principle. Whether the phonological representation may be null is an issue which still emerges from time to time, so it will also be examined in chapter 2.

II. *Prototypical major class lexical items constitute synchronically open classes.*

The lexical stock of the prototypical major lexical classes may be expanded synchronically by lexical derivation and a wide variety of logical, nongrammatical means described as *lexical stock expansion* by Beard: borrowing, loan translation, onomatopoeia, blending, backformation, clipping, acronymization, and the like. Whether the lexicon also contains some closed classes is an issue at stake in the remainder of this book. The point of Principle II is that the closed status of classes like prepositions and auxiliaries may not be ignored, which brings into question their assignment to the lexicon. In order to mix the two types of classes, one must first prove that nothing of significance motivates the distinction, that is, the differences between grammatical relations and semantic classes.

III. *Prototypical major class items belong to one and only one lexical class (category).*

Principle III means that each uncontroversial major class item belongs to a single, discrete lexical class. A major class item may be a noun, verb, or adjective but not both a noun and verb. Items like *love*, therefore, which have both a verbal and a nominal sense, are either accidental homonyms, or one is a principled derivate of the other. The assumption here is that the lexical categories are distinct and mutually exclusive,

overlapping nowhere, but that they are related to each other by rules whose nature is an empirical question. Notice that this principle does not speak to the issue of *squishes*, that is, *mixed categories*. The category to which a major class item belongs may in fact be a mixed category, which derives its properties from two other, pure categories. However, if a major item belongs to a mixed or pure category, it belongs to that one category alone unless it is shifted to another by derivation. The reason that this principle is desirable, aside from the rigor it imparts to the model, is that it motivates derivation rules. Without Principle III there is no explanation of why languages have derivation rules, especially transposition <...> whose unique purpose is to convert members of one class to another.

IV. *The operations of an autonomous module have no access to operations internal to any other module.*

This is the principle of modularity as presented by Chomsky and Fodor. If we assume that objects and operations of various grammatical subcomponents are distinct, we assume that they interact in only one way: the output of one set may be the input of another set. The operations of one distinct module or component cannot interact in any way with those of another. Hence, if the evidence shows the conditions on morphological rules to be compatible with those of syntax, the two grammatical components cannot be independent. However, if the conditions on their operations are incompatible, we must conclude that the two constitute discrete components, either one of which may operate only on the input or output of the other.

An important implication of Principle IV is that the outputs of various modules will reflect the nature of that module. In terms of the lexicon and syntax, this means that should the lexicon and syntax contain similar categories or operations, lexical output will nonetheless differ from syntactic output over the same categories and operations. Moreover, the differences will reflect the different natures of the modules involved: lexical output will always be words, while syntactic output will always be phrases, whatever similarities the two modules might otherwise share.

V. *The parameters of morphology are universal.*

This is the principle of Universal Grammar (UG), revised by Chomsky to make clear the claim that the components of grammars of various languages are not necessarily identical but simply share a universal set of parameters. These parameters exhibit a limited range of settings which

may vary from language to language. Assuming this claim as axiomatic commits the remainder of this book to a search for a set of categories and operations available to all languages. The possibility that the grammatical categories of English represent a different set of parameters from those of, say, Mohawk, will not be entertained, even though it is an equally reasonable a priori assumption. Principle V is thus little more than a stipulation at this point, an attempt to restrict the enormous range of theoretical possibilities to an addressable set.

1.5 Conclusion

This book is a work of lexicology and morphology at the edge of syntax rather than at the edge of phonology. Because work on allomorphy since the Generative revolution has been conducted at the expense of methodical examination of morphological categories, we have a much clearer picture of the interface of morphology and phonology than we have of the lexicon-morphology and syntax-morphology interfaces. For this reason, the present work will concentrate on categories and the abstract operations of derivation rather than on allomorphy. Within these areas, this book will recommend some rather bold changes in syntactic and lexical theories. The benefit of taking these radical demands seriously is a more complete, more integrated overall theory of language.

Aids to the study of the text

1. What are the reasons that morphology has almost vanished from the agenda of linguistic inquiry in the past few decades?
2. Describe the scientific achievements of linguists in ancient times.
3. Name the main directions of morphological studies in the 16th—19th centuries.
4. Cite Baudouin de Courtenay's definition of the morpheme and compare it to the ones used today.
5. What are the essential features of L. Bloomfield's treatment of morphology?
6. State the difference between the "bottom-up" and "top-down" approach to morphology.
7. Dwell on the essence of Lexeme-Morpheme Hypothesis. What are the main points of Level-Ordered Morphology?
8. Interpret the hypothesis known as the Split Morphology Hypothesis.
9. Speak of the answers to the fundamental questions of morphology within the linguistic schools you know.

Leonard Bloomfield

LANGUAGE

Phonetic structure

8.8. A phonetic form which has a meaning, is a *linguistic form*. Thus, any English sentence, phrase, or word is a linguistic form, and so is a meaningful syllable, such as, say, [mɛl] in *maltreat* <...>; a meaningful form may even consist of a single phoneme, such as the [s] which means “more than one” in plural-forms like *hats, caps, books*. <...>

Meaning

9.5. <...> Our fundamental assumption implies that each linguistic form has a constant and specific meaning. If the forms are phonemically different, we suppose that their meanings also are different — for instance, that each one of a set of forms like *quick, fast, swift, rapid, speedy*, differs from all the others in some constant and conversational feature of meaning. <...> On the other hand, our assumption implies also that if the forms are semantically different (that is, different as to linguistic meaning), they are not “the same”, even though they may be alike as to phonetic form. Thus, in English, the phonetic form [bɛə] occurs with three different meanings: *bear* “to carry; to give birth to”, *bear* “ursus”, and *bare* “uncovered”. Similarly, [pɛə] represents two nouns (*pear* and *pair*) and a verb (*pare*), and many other examples will occur to the reader. <...>

10.1. <...> A linguistic form which is never spoken alone is a *bound form*; all others (as, for instance, *John ran* or *John* or *run* or *running*) are *free forms*.

In other cases we wait in vain for the occurrence of a form even as part of some other form. For instance, having heard the form *cranberry*, we soon recognize the component *berry* in other forms, such as *blackberry*, and may even hear it spoken alone, but with the other component of *cranberry* we shall have no such luck. Not only do we wait in vain to hear an isolated **cran*, but, listen as we may, we never hear this element outside the one combination *cranberry*, and we cannot elicit from the speakers any other form which will contain this element *cran-*. <...> We shall come to the conclusion that the element *cran-* occurs only in the combination *cranberry*. However, since it has a constant phonetic form,

and since its meaning is constant, in so far as a *cranberry* is a definite kind of *berry*, different from all other kinds, we say that *cran-*, too, is a linguistic form. Experience shows that we do well to generalize this instance: *unique elements*, which occur only in a single combination, are linguistic forms. <...>

10.2. We see, then, that some linguistic forms bear partial phonetic-semantic resemblances to other forms; examples are, *John ran, John fell, Bill ran, Bill fell; Johnny, Billy; playing, dancing; blackberry, cranberry; strawberry, strawflower*. A linguistic form which bears a partial phonetic-semantic resemblance to some other linguistic form, is a *complex form*.

The common part of any (two or more) complex forms is a linguistic form; it is a *constituent* (or *component*) of these complex forms. The constituent is said to be *contained in* (or to be *included in* or to *enter into*) the complex forms. If a complex form, beside the common part, contains a remainder, such as the *cran-* in *cranberry*, which does not occur in any other complex form, this remainder also is a linguistic form; it is a *unique constituent* of the complex form. The constituent forms in our examples above are: *John, ran, Bill, fell, play, dance, black, berry, straw, flower, cran-* (unique constituent in *cranberry*), *-y* (bound-form constituent in *Johnny, Billy*), *-ing* (bound-form constituent in *playing, dancing*). In any complex form, each constituent is said to *accompany* the other constituents.

A linguistic form which bears no partial phonetic-semantic resemblance to any other form, is a *simple form* or *morpheme*. Thus, *bird, play, dance, cran-, -y, -ing* are morphemes. Morphemes may show partial phonetic resemblances, as do, for instance, *bird* and *burr*, or even homonymy, as do *pear, pair, pare*, but this resemblance is purely phonetic and is not paralleled by the meanings.

From all this it appears that every complex form is entirely made up, so far as its phonetically definable constituents are concerned, of morphemes. The number of these *ultimate constituents* may run very high. The form *Poor John ran away* contains five morphemes: *poor, John, ran, a-* (a bound form recurring, for instance, in *aground, ashore, aloft, around*), and *way*. However, the structure of complex forms is by no means as simple as this; we could not understand the forms of a language if we merely reduced all the complex forms to their ultimate constituents. Any English-speaking person who concerns himself with this matter, is sure to tell us that the *immediate constituents* of *Poor John ran away*

are the two forms *poor John* and *ran away*; that each of these is, in turn, a complex form; that the immediate constituents of *ran away* are *ran*, a morpheme, and *away*, a complex form, whose constituents are the morphemes *a-* and *way*; and that the constituents of *poor John* are the morphemes *poor* and *John*. Only in this way will a proper analysis (that is, one which takes account of the meanings) lead to the ultimately constituent morphemes. The reasons for this will occupy us later.

10.3. A morpheme can be described phonetically, since it consists of one or more phonemes, but its meaning cannot be analyzed within the scope of our science. For instance, we have seen that the morpheme *pin* bears a phonetic resemblance to other morphemes, such as *pig*, *pen*, *tin*, *ten*, and, on the basis of these resemblances, can be analyzed and described in terms of three phonemes, but, since these resemblances are not connected with resemblances of meaning, we cannot attribute any meaning to the phonemes and cannot, within the scope of our science, analyze the meaning of the morpheme. The meaning of a morpheme is a *sememe*. The linguist assumes that each sememe is a constant and definite unit of meaning, different from all other meanings, including all other sememes, in the language, but he cannot go beyond this. There is nothing in the structure of morphemes like *wolf*, *fox*, and *dog* to tell us the relation between their meanings. <...>

A workable system of signals, such as a language, can contain only a small number of signaling-units, but the things signaled about — in our case, the entire content of the practical world — may be infinitely varied. Accordingly, the signals (linguistic forms, with morphemes as the smallest signals) consist of different combinations of the signaling-units (phonemes), and each such combination is arbitrarily assigned to some feature of the practical world (sememe). The signals can be analyzed, but not the things signaled about. <...>

10.4. Since every complex form is made up entirely of morphemes, a complete list of morphemes would account for all the phonetic forms of a language. The total stock of morphemes in a language is its *lexicon*. However, if we knew the lexicon of a language, and had a reasonably accurate knowledge of each sememe, we might still fail to understand the forms of this language. Every utterance contains some significant features that are not accounted for by the lexicon. <...>

(3) *Phonetic modification* is a change in the primary phonemes of a form. For instance, when the forms *do* [dʊw] and *not* [nɒt] are combined into

a complex form, the [uw] of *do* is ordinarily replaced by [ow], and, whenever this happens, the *not* loses its vowel, so that the combined form is *don't* [downt]. In this example the modification is optional, and we have also the unmodified forms in *do not*, with a difference of connotation. In other cases we have no choice. Thus, the suffix *-ess* with the meaning “female”, as in *count-ess*, is added also to *duke* [d(j)uwk] but in this combination the form *duke* is modified to *duch-* [dʌtʃ-], for the word is *duchess* ['dʌtʃɪz].

Strictly speaking, we should say that the morpheme in such cases has two (or, sometimes, more) different phonetic forms, such as *not* [nɒt] and [nt], *do* [duw] and [dow], *duke* and *duch-*, and that each of these *alternants* appears under certain conditions. In our examples, however, one of the alternants has a much wider range than the other and, accordingly, is a *basic alternant*. In other cases, the alternants are more on a par. In *run* and *ran*, for instance, neither alternant is tied to the presence of any accompanying form, and we might hesitate as to the choice of a basic alternant. We find, however, that in cases like *keep*: *kep-t* the past-tense form contains an alternant (*kep-*) which occurs only with a certain accompanying form (*-t*); accordingly, to obtain as uniform as possible a statement, we take the infinitive form (*keep, run*) as basic, and describe the alternant which appears in the past tense (*kep-, ran*) as a phonetically modified form. We shall see other instances where the choice is more difficult; we try, of course, to make the selection of a basic alternant so as to get, in the long run, the simplest description of the facts.

Morphology

13.3. <...> This principle (the principle of immediate constituents — *Ed.*) leads us, at the outset, to distinguish certain classes of words, according to the *immediate constituents*:

A. *Secondary words*, containing free forms:

1. *Compound words*, containing more than one free form: *door-knob, wild-animal-tamer*. The included free forms are the *members* of the compound word: in our examples, the members are the words *door, knob, tamer*, and the phrase *wild animal*.
2. *Derived secondary words*, containing one free form: *boyish, old-maidish*. The included free form is called the *underlying form*; in our examples the underlying forms are the word *boy* and the

phrase *old maid*.

B. *Primary words*, not containing a free form:

1. *Derived primary words*, containing more than one bound form: *re-ceive*, *de-ceive*, *con-ceive*, *re-tain*, *de-tain*, *con-tain*.
2. *Morpheme-words*, consisting of a single (free) morpheme: *man*, *boy*, *cut*, *run*, *red*, *big*.

The principle of immediate constituents will lead us, for example, to class a form like *gentlemanly* not as a compound word, but as a derived secondary word, since the immediate constituents are the bound form *-ly* and the underlying word *gentleman*; the word *gentlemanly* is a secondary derivative (a so-called *de-compound*) whose underlying form happens to be a compound word. Similarly, *door-knobs* is not a compound word, but a de-compound, consisting of the bound form [-z] and the underlying word *doorknob*.

The principle of immediate constituents leads us to observe the *structural order* of the constituents, which may differ from their actual sequence; thus *ungentlemanly* consists of *un-* and *gentlemanly*, with the bound form added at the beginning, but *gentlemanly* consists of *gentleman* and *-ly* with the bound form added at the end.

Morphologic Types

14.1. Of the three types of morphologic constructions which can be distinguished according to the nature of the constituents — namely, composition, secondary derivation, and primary derivation — the constructions of compound words are most similar to the constructions of syntax.

Compound words have two (or more) free forms among their immediate constituents (*door-knob*). Under the principle of immediate constituents, languages usually distinguish compound words from phrase-derivatives (as, *old-maidish*, a secondary derivative with the underlying phrase *old maid*), and from decompounds (as, *gentlemanly*, a secondary derivative with the underlying compound word *gentleman*). Within the sphere of compound words, the same principle usually involves a definite structural order; thus, the compound *wild-animal-house* does not consist, say, of three members *wild*, *animal*, and *house*, and not of the members *wild* and *animal-house*, but of the members *wild animal* (a phrase) and *house*; and, similarly, the compound *door-knob-wiper* consists, unmistakably, of the members *door-knob* and *wiper*, and not, for instance of *door*

and *knob-wiper*. The grammatical features which lead us to recognize compound words differ in different languages, and some languages, doubtless, have no such class of forms. The gradations between a word and a phrase may be many; often enough no rigid distinction can be made. The forms which we class as compound words exhibit some feature which, in their language, characterizes single words in contradistinction to phrases.

In meaning, compound words are usually more specialized than phrases; for instance, *blackbird*, denoting a bird of a particular species, is more specialized than the phrase *black bird*, which denotes any bird of this color. It is a very common mistake to try to use this difference as a criterion. We cannot gauge meanings accurately enough; moreover, many a phrase is as specialized in meaning as any compound: in the phrases a *queer bird* and *meat and drink*, the words *bird*, *meat* are fully as specialized as they are in the compounds *jailbird* and *sweetmeats*.

14.2. In languages which use a single high stress on each word, this feature distinguishes compound words from phrases. In English the high stress is usually on the first member; on the other member there is a lesser stress, as in *door-knob* ['dɔə-nɒb], *upkeep* ['ʌp-ki:p]. Certain compounds have the irregularity of leaving the second member unstressed, as in *gentleman* ['dʒentlmən], *Frenchman* ['frentʃmən]; contrast *milkman* ['milk-,mən]. Certain types of compounds, chiefly some whose members are adverbs and prepositions, stress the second member: *without*, *upon*. Accordingly, wherever we hear lesser or least stress upon a word which would always show high stress in a phrase, we describe it as a compound-member: *ice-cream* ['ajs-,kri:m] is a compound; but *icecream* ['ajs 'kri:m] is a phrase, although there is no denotative difference of meaning. However, a phrase as prior member in a compound keeps all its high stresses: in *wild-animal-house* [wajld-'eniml-'haws] the stress assures us only that *house* is a compound-member; the rest of the structure is shown by other criteria. <...>

The order of the members in a compound word may be fixed, while that of the phrase is free, as in *bread-and-butter* ['bred-n-,bʌtə] “slices of bread spread with butter”, contrasting with the phrase, as in *she bought bread and butter*, *she bought butter and bread*. This criterion is likely to breakdown, however, because the order in a phrase, too, may be fixed: we have also a specialized phrase [bred n ' bʌtə] with the same order and

the same meaning as the compound. Contrasting order is a surer mark: French *blanc-bec* [bla-bæk] “callow young person” (literally “white-beak”) is characterized as a compound, because adjectives like *blanc* in the phrase always follow their noun: *bec blanc* “white beak”. English examples are *to housekeep*, *to backslide*, *to undergo*, since in a phrase a noun goal like *house* and adverbs of the type *back*, *under* would follow the verb (*keep house*, *slideback*).

14.3. <...> Sometimes the compound-member resembles an inflectional form, but one which would be impossible in the phrase. The [-z, -s] of the prior members of *bondsman*, *kinsman*, *landsmen*, *marksman* resembles the possessive-adjective suffix, but possessive adjectives like *bond's*, *land's* and so on, would not be used in the phrase. <...>

A compound-member may be characterized by some feature of word-formation which differs from what would appear in an independent word. <...> Compounds with special features of word-formation are known as *synthetic compounds*. Synthetic compounds occurred especially in the older stages of the Indo-European languages, but the habit is by no means extinct. In English, the verb *to black* underlies the independent agent-noun *blacker* (as in *a blacker of boots*), but forms also, with a zero-element, the agent-noun *-black* which appears in the compound *boot-black*; similarly, *to sweep* forms *sweeper* and the second member of *chimney-sweep*. Even forms like *long-tailed* or *red-bearded* are not aptly described as containing the words *tailed*, *bearded* (as in *tailed monkeys*, *bearded lady*); the natural starting-point is rather a phrase like *long tail* or *red beard*, from which they differ by the presence of the suffix *-ed*. This is the same thing as saying that we use compounds of the type *long-tailed*, *red-bearded* regardless of the existence of words like *tailed*, *bearded*: witness forms like *blue-eyed*, *four-footed*, *snub-nosed*. Another modern English synthetic type is that of *three-master*, *thousand-legger*.

In English, we freely form compounds like *meat-eater* and *meat-eating*, but not verb-compounds like **to meat-eat*; these exist only in a few irregular cases, such as *to housekeep*, *to bootlick*. Now, to be sure, words like *eater* and *eating* exist alongside the compounds; the synthetic feature consists merely in the restriction that a phrase like *eat meat* is paralleled by compounds only when *-er* or *-ing* is at the same time added. We may designate the types *meat-eating* and *meat-eater* as *semi-synthetic* compounds.

14.4. Among the word-like features of the forms which we class as compound words, indivisibility is fairly frequent: we can say *black* —

I should say, bluish-black — birds, but we do not use the compound word *blackbird* with a similar interruption. <...>

Generally, a compound-member cannot, like a word in a phrase, serve as a constituent in a syntactic construction. The word *black* in the phrase *black birds* can be modified by *very* (*very black birds*), but not so the compound-member *black* in *blackbirds*.

14.5. The description and classification of the forms which the structure of a language leads us to describe as compound words, will depend upon the characteristic features of this language. Linguists often make the mistake of taking for granted the universal existence of whatever types of compound words are current in their own language. It is true that the main types of compound words in various languages are somewhat similar, but this similarity is worthy of notice; moreover, the details, and especially the restrictions, vary in different languages. The differences are great enough to prevent our setting up any scheme of classification that would fit all languages, but two lines of classification are often useful.

One of these two lines of classification concerns the *relation of the members*. On the one hand, we have *syntactic* compounds, whose members stand to each other in the same grammatical relation as words in a phrase; thus, in English, the members of the compounds *blackbird* and *whitecap* (the difference between these two examples will concern us later) show the same construction of adjective plus noun as do the words in the phrases *black bird* and *white cap*. On the other hand, we have *asyn-tactic* compounds like *door-knob*, whose members stand to each other in a construction that is not paralleled in the syntax of their language — for English has no such phrasal type as **door-knob*.

The syntactic compound differs from a phrase only in the essential features which (in its language) distinguish compound words from phrases — in English, then, chiefly by the use of only one high stress. It may differ lexically from the corresponding phrase, as does *dreadnaught*; the corresponding phrase, *dread naught*, has an archaic connotation, and the normal phrase would be *fear nothing*. We can set up sub-classes of syntactic compounds according to the syntactic constructions which are paralleled by the members, as, in English, adjective with noun (*blackbird*, *whitecap*, *bull's-eye*), verb with goal noun (*lickspittle*, *dreadnaught*), verb with adverb (*gadabout*), past participle with adverb (*castaway*), and so on.

Many compounds are intermediate between the syntactic and asyntactic extremes: the relation of the members parallels some syntactic construction, but the compound shows more than the minimum deviation from the phrase. For instance, the compound verb *to housekeep* differs from the phrase *keep house* by the simple feature of word order. In such cases we may speak of various kinds of *semi-syntactic* compounds. The difference of order appears also in *upkeep* versus *keep up*, in *turnkey* versus *turn the key* or *turn keys*, the difference lies in the use of the article or of the number-category. Even types like *blue-eyed*, *three-master*, *meat-eater*, viewed as synthetic compounds, can be said to correspond to *blue eyes*, *three masts*, *eat meat* and to differ from these phrases by simple formal characteristics, including the addition of the bound forms *-ed*, *-er* to the second member. <...>

Where semi-syntactic compounds are definable, they can be further classified in the same manner as syntactic compounds: thus, in the semi-syntactic *blue-eyed* the members have the same construction as in the syntactic *blackbird*, in *three-master* the same as in *three-day*, in *house-keep*, *turnkey* the same as in *lickspittle*, in *upkeep* the same as in *gadabout*.

Asyntactic compounds have members which do not combine in syntactic constructions of their language. Thus, in *door-knob*, *horsefly*, *bedroom*, *salt-cellar*, *tomcat* we see two nouns in a construction that does not occur in English syntax. Other asyntactic types of English compounds are illustrated by *fly-blown*, *frost-bitten* — *crestfallen*, *footsore*, *fireproof*, *foolhardy* — *by-law*, *by-path*, *ever-glade* — *dining-room*, *swimming-pool* — *bindweed*, *cry-baby*, *drive-way*, *playground*, *blow-pipe* — *broadcast*, *dry-clean*, *foretell* — *somewhere*, *everywhere*, *nowhere*. Compounds with obscure members, such as *smokestack*, *mushroom*, or with unique members, such as *cranberry*, *huckleberry*, *zigzag*, *choo-choo*, are, of course, to be classed as asyntactic.

Although the relation between the members of asyntactic compounds is necessarily vague, yet we can sometimes extend the main divisions of syntactic and semi-syntactic compounds to cover also the asyntactic class. In English, for instance, the co-ordinative or copulative relation which we see in a semi-syntactic compound like *bittersweet* (compare the phrase *bitter and sweet*), can be discerned also in asyntactic compounds like *zigzag*, *fuzzy-wuzzy*, *choo-choo*. Most asyntactic compounds seem to have a kind of attribute-and-head construction: *door-knob*, *bulldog*, *cranberry*. To the extent that one can carry out this

comparison, one can therefore distinguish between *copulative* compounds (Sanskrit *dvandva*) and *determinative* (*attributive* or *subordinative*) compounds (Sanskrit *tatpurusha*); these divisions will cross those of syntactic, semi-syntactic, and asyntactic compounds. One may even be able to mark off smaller divisions. The Hindu grammarians distinguished among copulative compounds a special sub-group of *repetitive* (*amredita*) compounds, with identical members, as in *choo-choo*, *bye-bye*, *goody-goody*. In English, we can mark off also a class in which the members show only some elementary phonetic difference, as *zigzag*, *flimflam*, *pell-mell*, *fuzzy-wuzzy*. The Hindus found it convenient to set off, among the determinatives, a special class of syntactic attribute-and-head compounds (*karmadharaya*), such as *blackbird*.

14.6. The other frequently usable line of classification concerns the relation of the compound as a whole to its members. One can often apply to compounds the distinction between *endocentric* and *exocentric* constructions which we met in syntax. Since a *blackbird* is a kind of a *bird*, and a *door-knob* a kind of a *knob*, we may say that these compounds have the same function as their head members; they are endocentric. On the other hand, in *gadabout* and *turnkey* the head member is an infinitive verb, but the compound is a noun; these compounds are exocentric (Sanskrit *bahuvrihi*). To take a copulative type as an example, the adjective *bittersweet* (“bitter and sweet at the same time”) is endocentric, since the compound, like its co-ordinated members, *bitter* and *sweet*, has the function of an adjective, but the plant-name *bittersweet* is exocentric, since, as a noun, it differs in grammatical function from the two adjective members. Another type of English exocentric compounds consists of adjectives with noun head: *two-pound*, *five-cent*, *half-mile*, (*in*) *apple-pie* (*order*).

The difference of form-class may be less radical, but still recognizable in the system of the language. In English, the nouns *longlegs*, *bright-eyes*, *butterfingers* are exocentric, because they occur both as singulars, and, with a zero-affix, as plurals (*that longlegs*, *those longlegs*). <...> In the English type *sure-footed*, *blue-eyed*, *straight-backed* the synthetic suffix [-*ed*, -*d*, -*t*] goes hand in hand with the exocentric value (adjective with noun head); however, one might perhaps hesitate as to the classification, since *-footed*, *-eyed*, *-backed* might be viewed as adjectives (compare *horned*, *bearded*). Types like *clambake*, *upkeep* are better described as endocentric, in English grammar, because the head members *-bake* and *-keep* can be viewed as nouns of action derived,

with a zero-feature, from the verbs; if English did not use many zero-features in derivation and did not form many types of action nouns, we should have to class these compounds as exocentric. Similarly, our description will probably work out best if we class *bootblack*, *chimney-sweep* as endocentric, with *-black* and *-sweep* as agent-nouns.

On the other hand, the large class of English compounds that is exemplified by *whitecap*, *longnose*, *swallow-tail*, *blue-coat*, *blue-stocking*, *red-head*, *short-horn* has noun function and a noun as head member, and yet is to be classed as exocentric, because the construction implies precisely that the object does not belong to the same species as the head member: these compounds mean “object *possessing* such-and-such an object (second member) of such-and-such quality (first member)”. This appears in the fact that the number-categories (*longlegs*) and the personal-impersonal categories (*nose ... it*; *longnose ... he, she*) do not always agree. In *three-master*, *thousand-legger* the synthetic suffix goes hand in hand with this exocentric relation. Nevertheless, there are borderline cases which may prevent a clear-cut distinction. The compound *blue-bottle* is endocentric if we view the insect as “like a bottle”, but exocentric if we insist that the “bottle” is only part of the insect.

14.7. In *secondary derivative words* we find one free form, phrase (as in *old-maidish*) or a word (as in *mannish*), as an immediate constituent; in the latter case, the underlying word may be a compound word (as in *gentlemanly*) or, in its own turn, a derived word (as in *actresses*, where the underlying word *actress* is itself a secondary derivative from the underlying word *actor*). <...>

In the same way, phrase-derivatives, such as *old-maidish*, derived from the phrase *old maid*, offer no special difficulty so long as they contain a derivational affix, such as *-ish*, but when the phrase is accompanied only by a zero-feature, as in *jack-in-the-pulpit* or *devil-may-care*, we have the difficult type of *phrase-words*. These differ from phrases in their uninterrupted and syntactically inexpandable character, and often in their exocentric value.

14.8. *Primary words* contain no free forms among their immediate constituents. They may be *complex*, consisting of two or more bound forms, as *per-ceive*, *per-tain*, *de-ceive*, *de-tain*, or they may be *simple*, as *boy*, *run*, *red*, *and*, *in*, *ouch*.

The bound forms which make up complex primary words, are determined, of course, by features of partial resemblance, as in the examples

just cited. In many languages the primary words show a structural resemblance to secondary words. Thus, in English, the primary words *hammer*, *rudder*, *spider* resemble secondary words like *dance-r*, *lead-er*, *ride-r*. The part of the primary word which resembles the derivational affix of the secondary word (in our examples, **-er**) can be described as a *primary affix*. Thus, the primary words *hammer*, *rudder*, *spider* are said to contain a primary suffix **-er**. The remaining part of the primary word — in our examples, the syllable [hɛm-] in *hammer*, [rʌd-] in *rudder*, [spajd-] in *spider* — is called the *root*. The root plays the same part in primary words as the underlying form (e. g. *dance*, *lead*, *ride*) in secondary words (*dancer*, *leader*, *rider*).

This distinction between primary affixes and roots is justified by the fact that the primary affixes are relatively few and vague in meaning, while the roots are very numerous and therefore relatively clear-cut as to denotation.

In accordance with this terminology, primary words that do not contain any affix-like constituents (e. g. *boy*, *run*, *red*) are classed as *primary root-words*. The roots which occur in primary root-words are free roots, in contrast with bound roots which occur only with a primary affix, such as the root [spajd-] in *spider*.

Primary affixes may be extremely vague in meaning and act merely as an obligatory accompaniment (a *determinative*) of the root. In English, the commonest primary suffixes do not even tell the part of speech; thus, we have, with **-er**, *spider*, *bitter*, *linger*, *ever*, *under*; with **-le**, *bottle*, *little*, *hustle*; with **-ow**, *furrow*, *yellow*, *borrow*. In other cases the meaning is more palpable; thus, **-ock**, in *hammock*, *mattock*, *hassock*, and so on, forms nouns denoting a lumpy object of moderate size, and this is confirmed by its use as a secondary suffix (class-cleavage) in words like *hillock*, *bullock*. Our foreign-learned prefixes get a vague but recognizable meaning from contrasts like *con-tain*, *de-tain*, *per-tain*, *re-tain*. In some languages, however, primary affixes bear relatively concrete meanings. <...>

A foot may appear in only one primary word, as is the case with most ordinary English roots, such as *man*, *boy*, *cut*, *red*, *nast-* (in *nasty*), *ham-* (in *hammer*), or it may appear in a whole series of primary words, as is the case with many of our foreign-learned roots, like [-sɪjv] in *deceive*, *conceive*, *perceive*, *receive*. In either case, the primary word may underlie a whole series of secondary derivatives; thus, *man* underlies

men, man's, men's, mannish, manly, (to) man (mans, manned, manning); deceive underlies *deceiver, deceit, deception, deceptive*; *conceive* underlies *conceivable, conceit, concept, conception, conceptual*; *perceive* underlies *perceiver, percept, perceptive, perception, perceptible, perceptual*; and *receive* underlies *receiver, receipt, reception, receptive, receptable*. Moreover, secondary derivatives like these may exist where the primary word is lacking; thus, we have no such primary word as **preceive*, but we have the words *precept, preceptor*, which are best described as secondary derivatives of a theoretical underlying form **pre-ceive*.

The roots of a language make up its most numerous class of morphological forms and accordingly bear its most varied and specific meanings. This is clearest in languages which have roots as free forms, as, in English, *boy, man, cut, run, red, blue, green, brown, white, black*. The clear-cut meaning will be found also in bound roots, such as *yell-* in *yellow*, *purp-* in *purple*, *nast-* in *nasty*, and so on. In most languages, however, there are also roots of very vague meanings such as, in English, the foreign-learned roots of the type *-ceive, -tain, -fer* (*conceive, contain, confer*, and so on). This is particularly the case in languages whose primary affixes are relatively varied and specific in meaning.

Once we have set up a root, we face the possibility of its modification. This possibility is obvious when the root occurs as an ultimate constituent in a secondary derivative: thus, in the secondary derivative *duchess* the modification of the underlying word *duke* is at the same time a modification of the root *duke*, and in the secondary derivatives *sang, sung, song*, the modifications of the underlying *sing*, are necessarily modifications of the root *sing*. The alternant shapes of roots are in some languages so varied that the describer may well hesitate as to the choice of a basic form. <...>

The roots of a language are usually quite uniform in structure. In English they are one-syllable elements, such as *man, cut, red*; many of them are free forms, occurring as root-words, but many, such as [spajd-] in *spider*, [hæm-] in *hammer*, and, especially, foreign-learned roots like [-sijv] in *conceive, perceive*, are bound forms. Some of these bound roots end in clusters that do not occur in word-final, as [lamb-] in *lumber* or [liŋg-] in *linger*.

Aids to the study of the text

1. What is understood by the term “linguistic form” ?
2. What is the difference between a free form and a bound form?
3. How does Bloomfield understand a complex form?
4. How does a constituent form differ from a linguistic form?
5. What is Bloomfield’s definition of a morpheme?
6. What is the difference between a linguistic form and a morpheme?
7. What is understood by the terms “immediate” and “ultimate constituents” ?
8. What is the relation between a morpheme and a sememe?
9. What does Bloomfield understand by morpheme alternants?
10. What classes of words are distinguished by Bloomfield?
11. How do primary words differ from secondary words?
12. How are primary and secondary words subdivided?
13. What distinguishes compound words from free phrases?
14. What types of compound words are distinguished by Bloomfield?
15. What principles underlie the classifications of compound words?
16. What is understood by a “primary affix” ?
17. Does Bloomfield make any difference between a word and a free morpheme?

Madelon E. Heatherington

THE FORMS OF LANGUAGE

There are many parallels between phonology, the study of the sounds of a language, and morphology, the study of the forms of a language. The specialized terminology belonging to each discipline is an example of such paralleling, as table 1 indicates. There is no equivalent in morphology of phonetics, for when we wish to represent the sounds of a morpheme, we simply use a phonetic transcription. But what is a morpheme?

Table 1 — Comparison of Terms in Phonology and Morphology

Study of	phonology	morphology
Smallest Unit	phoneme	morpheme
Variant	allophone	allomorph
Actual Speech	phone	morph
Transcription	phonemic symbols / / phonetic symbols []	morphemic symbols { }

Morpheme

Let us first state what a morpheme is not: it is not a word, nor is it a syllable. Like the phoneme, the morpheme is frequently an abstraction, covering a range of possible variant forms (or allomorphs). But here, the abstraction is a unit of meaning, not a unit of sound: a *morpheme* is the smallest unit of meaning in language.

Lexical and syntactic meaning

Immediately, however, we encounter trouble with the word “meaning”, which itself has many meanings. We shall examine the question of meaning in much more detail in chapter 9, but here let us stipulate that there are two basic kinds of morphological meaning: lexical, or semantic, and syntactic, or structural.

Lexical meaning

Lexical, or semantic, meaning is the type we ordinarily intend when we use the *word* “meaning”. Lexical meaning has a sense of content or reference about it; morphemes having lexical meaning are listed in dictionaries or thesauruses. Lexical meaning is then further divided into denotative meaning (ordinary usage, common, widespread) and connotative meaning (private or localized, not widespread). Thus, the usual lexical denotation of “apple” is: a red, yellow, or green fruit from the tree *Pyrus malus*. But the connotations may range all the way from pleasant (tastes good, supposedly keeps the doctor away) to unpleasant (symbol of strife, temptation, destruction). A morpheme that has more lexical than syntactic meaning is called a lexical morpheme.

Syntactic meaning

The other principal kind of meaning, syntactic, has less to do with content or reference and more to do with what we might call internal traffic directing. A morpheme that has syntactic meaning — a syntactic, or structural, morpheme — tends to direct other, more lexical morphemes, to signal relationships within a syntactic unit, to indicate what is subject and what is predicate, for instance.

Frequently, a syntactic morpheme is attached to a lexical one, in which case the attachment is called an *inflection*. The plural allomorphs are inflections, as are the tense markers, possession markers, and comparison markers. Such inflections as these do not have much lexical

meaning themselves; the {ed} that signals the past tense in English does not have the content-meaning of a lexical morpheme like the word “apple”. But the inflections are necessary to show how one lexical morpheme is related to another, as in the phrase “John’s book”, where the possessive inflection {’s}¹ indicates that the book belongs to John. Similarly, tense signals a relationship: the word “pour”, which lacks an inflection, indicates action going on right now, in the present, whereas the word “poured”, composed of the lexical morpheme {pour} plus the inflection {ed}, signals a condition that has already occurred in the past. The relationship here is of time rather than of possession. Just as frequently, however, a syntactic morpheme is not attached to a lexical one, but occurs alone. Separate forms that primarily serve a syntactic rather than a lexical function are called function words, or sometimes operators. Examples of such words include “and”, “there”, “because”, “or”, “but”, “so”, “than”. Like inflections, these words are low in lexical meaning but high in traffic-directing or relationship-signaling function. The operator {and}, for example, primarily serves to connect two or more lexical words in a way that shows the two to have equivalent weight: “cats and dogs”, “red, white, and blue”. (Note that the connection is not “cats and dog” or “red, white, and cow”. Like other function words, “and” does not *mean* much, as we ordinarily use the word “mean”, but it *does* much in those phrases. If we changed “and” to “or” in each phrase, the relationship signaled among the words would be quite different.

Often it seems nearly impossible to distinguish lexical from syntactic meaning; there is much overlap between the two. Thus, almost any given morpheme may be classed as lexical or as syntactic, depending on how it is functioning in an utterance.

Morphology

Morphology, or the study of morphemes, can be most usefully subdivided into two types of analysis. One type, called synchronic morphology, investigates morphemes in a single dimension of time — any particular time, past or present. Essentially, synchronic morphology is a linear analysis, ask-

¹ Strictly speaking, the apostrophe (’) is not morphemic, but appears here because the word “John’s” is written rather than spoken. The possessive morpheme actually is {s}, pronounced [z].

ing what are the lexical and syntactic components of words, and how do the components add, subtract, or rearrange themselves in various contexts.

Synchronic morphology is not concerned with the word's history in our language. If we bring in a historical dimension, however, and ask how a word's contemporary usage might be different from its first recorded usage, then we are moving into a field of historical linguistics called etymology, or diachronic (two-dimensional time) morphology.

Anyone concerned with a full examination of a word's or a morpheme's meanings will, of course, pursue both a synchronic and a diachronic inquiry. A complete morphological analysis will require us to check the word's current phonemic and morphemic structure as well as its past and present lexical meanings. Obviously, we can investigate historical alterations simultaneously with a synchronic look at the morphemic components. For purposes of discussion here, however, we will treat the two branches of morphology as separate entities.

Synchronic morphology

A synchronic investigation is asking, basically, what kinds of morphemes are combining in which sorts of ways to form a word. Often, a synchronic analysis of morphemes begins to spill over into an analysis of syntax, for morphology in general often becomes the shared territory of word meaning and sentence structure. We will try here, however, to keep our analysis of morphemes separate from syntax as much as possible.

To begin such a synchronic investigation, we must first discover in what ways morphemes can be synchronically classified. Most useful may be three binary terms, three sets of two words nearly opposite in meaning. One term from each set can be applied to each morpheme as we encounter it. <...> Each morpheme should be describable by one, but not the other, of the words in each binary set. We have already mentioned the first pair of classifiers: *lexical* — *syntactic*. Nearly all words in the lexicon can be identified as either lexical or syntactic morphemes.

Free — *bound*. The second such binary set is free-bound. Morphemes can be classified as either free or bound, that is, either capable of standing by themselves, as words, or not capable of standing by themselves. A free morpheme can be either lexical, like the word {rat}, or syntactic, like the operator {or}. If the free morpheme is syntactic rather than lexical, other morphemes will not combine with it. Lexical morphemes, however, can combine with other morphemes or other

words. For example, to the free lexical morpheme {rat}, we can add the bound allomorph {s}, producing the word “rats”, or the bound morpheme {ty}, producing “ratty”, or another free morpheme {catch}, plus a bound one, {er}, producing “rat-catcher”.

Base — affix. The third useful binary set for synchronic analysis of morphemes is base — affix. A morpheme may be classified as a base or as an affix but not as both — at least, not in the same word. (Like the other terms in the two previous binary sets, “base” and “affix” are relational classifications rather than pure opposites. It is possible for the same morpheme to be free in one use and bound in another, or lexical in one case and syntactic in another.) A base — sometimes called a root — is a morpheme to which other morphemes are attached. The attaching morphemes are called the affixes.

Bases are morphemes that lexically, rather than syntactically, dominate other morphemes. Bases always have more lexical than syntactic meaning but bases are not always free. There are many bound bases in English as well as free bases. An example of a bound base is {gen}, a morpheme that has more lexical than syntactical meaning (*gen* = beginning), so it is a base rather than an affix; but it cannot stand by itself as a word, so it is bound, not free. Put together with various other attaching morphemes, {gen} gives us words like “generic”, “gene”, and “engender”.

Affixes. The affixes, or attaching morphemes, can be further subdivided by two subsidiary binary sets. The first set, *prefix — suffix*, merely indicates where the attachment occurs. If the affix is attached at the beginning of a base, as {un} is, then the technical term used is *prefix*. Prefixes alter the lexical meaning of a morpheme, but do not change its syntactic function. The prefix {un} and its allomorphs {im} and {in}, for example, turn an affirmative base into a negative one: {un} + {well} means “not well”; {im} + {possible} means “not possible”; {in} + {secure} means “not secure”.

If the attachment appears at the end of a base, as does {ed}, then the name for it is *suffix*. It is in connection with suffixes that the second binary subdivision should be applied, for there are two kinds of suffixes: inflections and derivations. As we indicated earlier, inflections alter the syntactic function of a base but do not change the lexical meaning very much. The class of inflections is very small (plural, tense, possession, comparison) and very stable; no new forms are being added. Derivational morphemes, however having more lexical meaning than do the

inflections, belong to a larger and a more open class. New derivations can easily be added. Like inflections derivations can change a base's syntactic function, but they can also alter the base's lexical meaning somewhat, in a way that the inflections do not. For example, take the base {friend}. This is a noun of the type called [\pm count], that is, having the feature "capable of being counted individually". Such a noun can be made plural by the addition of the plural allomorph {s}: we can speak of one "friend" or of many "friends", and we can count the number of friends if we wish, one by one. The basic lexical meaning of {friend} has not been much altered by the addition of an inflection. But if to the singular base, we add the derivation {ship}, to produce the word "friendship", we have a different sort of change. The syntactic meaning has not been altered, for the word is still a noun, but now the lexical feature shifts from [+count] to [-count]; "friendship" is ordinarily a mass noun, one that refers to a quality or a concept rather than to a number. Ordinarily, such nouns cannot function as plurals: we say "friendship is" rather than "friendships are".

As another example, if we add the derivational suffix {tion} to the base {derive}, the suffix will change the function of the word from verb to noun. If we then add another suffix, {al}, to the newly produced noun "derivation", we get a second category change: the word "derivational" is an adjective. Add one more, {ly}, and there is a third change in function, to adverb. Derivational suffixes, like {ship}, {tion}, {al}, and {ly}, are added to a base before the inflectional suffixes: inflections always tag along last.

Now let us try a little practice with synchronic analysis. <...> ... keep in mind that the principle of minimal-pairing applies in morphology as well as in phonology: investigating types of morphemes, we should use morphemes that are as syntactically similar as possible — preferably identical — but are different in lexical meaning. Let us use the word "geography" as a test case, to discover how many morphemes it contains and of what sort they are.

Let us substitute {bio} (life) for {geo} (earth); we get a recognizable word, "biography". So {geo} is a morpheme. Substitute {logy} (study of) for {graphy} (writing about), and the result is another familiar word, "geology". Finally, change {y} (activity or product) to {ic} (characteristic of), and we have a new word, "geographic". Since we cannot change any other part of "geography" and still get a standard English word —

that is, we cannot subdivide the meaningful forms of “geography” any more than we already have — these must be the only three morphemes in the word: {geo}, {graph}, {y}. One of these morphemes never appears by itself as a separate word; therefore, it is not a free morpheme, but a bound one. Is it a bound base or an affix? It has very little lexical meaning, serving mainly to direct traffic, so it must be an affix. Since it appears at the end, it is specifically a suffix. Since it has some lexical meaning of its own, as well as indicating the function — noun — of the word “geography”, {y} is a derivational rather than an inflectional suffix.

{Geo} is a bound base. It cannot stand by itself lexically as a word and therefore is not free; in other words, it is bound. But morphemes with even less lexical meaning do attach to {geo}, so it is a base. In fact, other morphemes *must* attach to {geo} in order for there to be anything like a word formed from it, so it has to be a bound base.

Finally, there is {graph}, the most independent morpheme in “geography”. It is, we discover, a free base: free, because it can stand by itself as a word; base, because it can accept other, attaching morphemes. Like other free bases, {graph} is unlimited positionally. It can appear at the beginning of a word (“graphology”), in the middle (“geography”), or at the end (“photograph”).

Around such bases as {graph} is our English lexicon built. One of the reasons for the flexibility of English is that it borrows bases from just about every language there is; {graph} comes from Greek. Another reason for this flexibility is that English constantly uses bases and affixes to produce precise distinctions of lexical meaning. This manipulability of parts allows for marvelous adaptability to the shifting demands of linguistic contexts, the changes that happen to all languages in response to historical, social, or other pressures. In the next section, we will discuss some specific ways in which morphemes can be manipulated to form different kinds of words.

Diachronic morphology

If we alter our investigative stance from a word’s present morphological construction to its historical development, we move from a synchronic to a diachronic analysis. (It is perfectly possible to do both, but we are here keeping them separate.) Diachronically, we would ask where a given word came from and how has it changed its meanings as it has changed its forms.

Not all words do change their lexical meanings over time. For example “stone” currently, in standard usage, has pretty much the same referent as it did when it was the Old English *stan*. Most function words, such as prepositions (words like “with”, “out”, “of”, “under”, or “over”), have remained pretty much unaltered in meaning and in form since they entered the language. But enough words do change to make reading older literature difficult, as you know if you have tried Shakespeare or *Beowulf*. The constancy of change will also make a prowl through the etymologically oriented many-volumed *Oxford English Dictionary* entertainingly worthwhile; check the O.E.D., for instance, on what has happened to the word “nice”.

Occasionally writers will make deliberate use of a change in a word’s meaning, playing off an older meaning against a contemporary one, like a historical pun. Blake does that with “appalls” in these lines from the poem “London”: “How the Chimney-sweeper’s cry / Every blackning Church appalls...”. On one level, the word has the contemporary meaning of “horrifies”, but on another level, it echoes an archaic meaning, “turns pale”. As a contrast with “blackning” (Blake’s spelling), “appalls” suggests the terrible plight of the chimney sweep in an industrialized city, so terrible that even the sooty buildings, and the social institutions symbolized by the buildings (the Church), grow pale with alarm.

We can discover general patterns of lexical change in words, trends that the English lexicon as a whole tends to follow over time. Broadly speaking, there are two ways of classifying the trends, as processes and as directions. If we are concerned with etymological processes, we are investigating morphological changes that can occur at any time to alter a word’s lexical meaning. Directions, on the other hand, reflect the incremental drifts from one stage to the next stage of specifically historical change in meaning.

Processes

Different etymologists will classify the processes and directions in different ways, but this is the one used here for processes:

- (1) analogy;
- (2) compounding;
- (3) reduplication;
- (4) derivation;
- (5) back-formation;

- (6) base-creation;
- (7) shortening.

Analogy. Of these processes, analogy may be the most significant; some linguists have argued that all the processes involve some sort of analogy. (Other linguists disagree.) In any case, analogy in effect matches an already existing pattern with the demands of a new context. The new context produces a new word or a new usage of an old word. For example, “defense” /difens/ used to be a noun only, but now is commonly also used as a verb /difens/ by sports commentators and fans, as in “to defense against the Cowboys” front four”. Everybody uses analogy to some extent, but children in particular are prone to doing so during the overgeneralizing stages. “I toed to town” is a common analogy with the regular {ed} past-tense inflectional affix. My daughter, Joni, was once told to “Behave!” (phonetically: [bi’heiv]). Her answer was, “I’m being have!” (phonetically: [‘biŋ heiv]), an analogy with linking-verb-predicate-adjective constructions such as: “Be good!” — “I’m being good!”

Many standard constructions and words have come into Modern English by way of analogy. There was, for example, an Old English verb, *drincan* /drinƿon/, “to drink”, and a noun, *drenċ* /drenċ/, “a drink”. The verb *drincan* produced a converted form, the noun *drinc*, which has come down to us as “drink”, while the old *drenċ* disappeared as a noun. But *drenċ* also produced a conversion, the verb *drenċan*, which is now our word “drench”. The conversions from verb to noun to verb were made by analogy of the respective noun-verb derivational suffixes. So Modern English has one verb, “drench”, and one noun, “drink”, as well as the original verb (“drink”).

The other processes involve a systematic juggling of morphemes:

Free + Free: compounding, reduplication.

Free + Bound: derivation.

Free – Bound: back-formation, shortening.

+ Free: base-creation.

Compounding and reduplication. Compounding, discussed earlier when we were examining free bases, simply combines two or more bases into one new word: {road} + {block} = “roadblock”; {stop} + {light} = “stoplight”; {over} + {see} = “oversee”. Note that the resulting compound word means something different from the sum of its

parts; it is a new word. Reduplication, the repetition of phonologically similar free morphemes, almost always produces a comic effect because of the near rhyme in key phonemes: “mish-mash”, “helter-skelter”, “zigzag”. Consequently, reduplicated words appear more often in colloquial or slang use than in formal utterance.

Derivation and back-formation. Derivation, possibly the most common etymological process after analogy, and back-formation, which is far less common, are in effect opposites of each other. As we mentioned in the section on bases and affixes, derivation adds affixes to a base, as in {com} (affix) + {pound} (base) + {ing} (affix), “compounding”. Where that process derives words by the addition of affixes, back-formation deprives a base of its apparent affixes, producing a new word in the form of an unadorned base. The verb “edit”, for instance, comes from the Latin noun *editor*, one who gives out, that is, one who publishes and distributes copies of something. The suffix {or} on the bound base {edit} dropped off, resulting in a back-formed free base. “Sidle”, meaning a sort of crablike shuffle, is backformed from the Middle English adverb *sideling*, beside or alongside of “nestle”, to cuddle close to, comes from an Old English noun, *nestling*, a creature still young enough to be confined to its nest. In all three instances the bases — {edit}, {sid<e>l}, and {nestl} — came into existence after a longer word had already been in use.

Shortening. Shortening (sometimes called abbreviation) is like the process called synecdoche in poetry: a part is substituted for a whole. In poetry, it is common to find such substitutions as “the crown” for “the king” or “the monarchy”; in diachronic morphology, we find “cab” substituting for “cabriolet”, “extra” for “extraordinary”, or “varsity” for “university”. In “varsity”, the graphic shift form <e> to <a> reflects the common British pronunciation of short <e> as [a], where Americans would say [ɛ]. <...>

Base-creation. As its name suggests, a base-creation makes up bases, using morphemic relations as guidelines. A base-created word often echoes natural sounds onomatopoeically, as in “hiss”, “mumble”, “hum”, or “drizzle”. There is, of course, no such thing as a completely new word, since we are limited generally by the sounds the human speech organs can produce and particularly, by habit as much as anything else, to the sounds with which we are familiar. Thus, while the

word “drizzle” (as either noun or verb) is a base-creation, it is also phonologically and etymologically related to the Middle English noun *mizzle*, a fine mist. Even the brand name Kodak, often cited as an example of “pure” base-creation, did not come out of thin air. Whether its creators intended it or not, “Kodak” follows a familiar English phonological pattern. It consists of two syllables with the accent on the first syllable and an alternation of consonant and vowel sounds. Compare [ˈkɔwdæk] with these transcriptions of common nouns that follow the same phonetic pattern of first-syllable stress and consonantal-vocalic alternation: [ˈnɔwtɪs], [ˈrɪvər], and [ˈtuwtər].

Directions

As with processes, the directions of etymological change will be classified in different ways by different people; we will use this scheme (the classifications here are not mutually exclusive):

- (1) deterioration;
- (2) elevation;
- (3) specialization;
- (4) concretization;
- (5) extension;
- (6) metaphorization;
- (7) radiation.

We can divide these seven into three groups according to the direction of change each manifests. Deterioration and elevation are opposites of each other; specialization and concretization develop in similar ways, the approximate opposite of those followed by extension and metaphorization; and radiation’s directions include nearly all of those followed by the others. We might suggest their relationship by diagrams like those in figure 1.

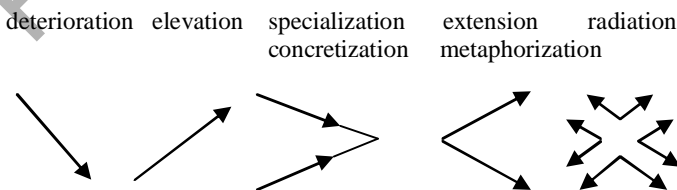


Figure 1 — Relationships among the Etymological Directions

Deterioration and elevation. When a word deteriorates (in etymology, the term has no bad connotations, such as of decay), it changes from a relatively exalted or at least neutral significance in its first recorded usage to a relatively condemnatory or trivial meaning. “Silly”, for instance, originally meant blessed, not its current foolish; “knave” referred to a youth or boy, not to a rascal. The opposite happens when a word’s semantic meaning is elevated from something neutral or deprecatory to something more suggestive of approval. “Knight” originally referred to any young man and carried none of its present associations with romantic gallantry and glory. “Fond” first meant foolish, daft, or crazy, not affectionate (although it is easy enough to see how the meaning changed as it did). A “surgeon” began as a barber who also drew blood, applied leeches, and pulled teeth; his sign, incidentally, was a bloody rag, which survives in the red-and-white barber’s pole.

Specialization and concretization. In specialization and its analog, concretization, the motion of change is from the general or metaphoric to the specific or concrete. The opposite path is followed by extension and metaphORIZATION, which change from the specific or concrete to the general or metaphoric. A word is said to have become specialized if its application has become narrower over time. “Meat” has come to refer particularly to animal flesh rather than to food generally, and “starve” now means death through failure to ingest food instead of death by any means. But a concretized word has moved from an abstract reference to a more concrete one. “Multitude” now means a crowd, a collection of tangible, individual, countable bodies. It has the feature [+count] now. Originally, however, it was a mass [-count] noun meaning “many-ness”. Similarly, the word “youth”, which originally referred only to the abstract, [-count] concept “youngness”, now also has acquired a [+count] reference to young people, as in “the youth of this nation are its best chance for the future”.

Extension and metaphORIZATION. Extension reverses specialization: an extended word now has a wider application than it did at first. For example, “bird” currently is a generic reference to any member of the class *Aves*, rather than its original, specific reference to a young, nesting bird. Similarly, metaphORIZATION reverses concretization: what once had only a specific, concrete reference can now be applied in a metaphoric, nonliteral fashion. “Bright” no longer applies only to a quality of light; we can intelligibly speak of a bright boy. “Sharp” can be applied to

tongues or winds, not just to blades; a smile is “cold”, not only the temperature. Many words that technically are the products of metaphorization have been in use so long that they have lost their flash of metaphor: “*blanket* of snow”, “to *labor* under an illusion”, “*casting* aspersions”, “the *grasp* of a subject”. These are known as dead metaphors.

Radiation. Finally, although radiation is probably most closely related to extension, it actually combines the directions of the last four types. When a word’s meanings undergo radiation, they spread or branch out into near-metaphor, in the sense that the meanings are applied in unusual contexts. But unlike extension and metaphorization, the meanings are not derived chronologically from one another, in a sequential alteration of meaning. Rather, the present meanings of a radiated word coexist with the original ones and all meanings past and present, still refer to essentially the same idea. For instance, all the current applications of the word “paper” — from those referring to an essay or journal to the references to a governmental policy statement — still carry some sense of the original, literal reference to a papyruslike material on which to write. Similarly, “head” still conveys the notion of that part of the body containing the brain, even in such diverse uses as “head of state”, “head of the bed”, or, in the slang of some drug users “head” meaning one who uses drugs extensively, as in “He’s a real dope head”.

Folk etymology. One further pattern in diachronic morphology we have not yet discussed is folk etymology. This is a change in the form of a word or phrase, resulting either from an incorrect popular notion of the term’s original meaning or from the influence of more familiar terms mistakenly taken to be analogous. “Sparrow-grass”, or “sparrygrass”, a regional-dialectic word derived by folk etymology from “asparagus”, and “cold slaw”, from “coleslaw”, reflect mistaken analogies. The Middle Ages were particularly fond of the first type of etymologizing, as can be seen in the common medieval spelling of “abomination” as “abhominatiōn”, with an <h> in its middle. The word actually comes from the Latin *ab*, away from, and *omen*, evil *sign* or portent, and thus means an ill omen to be shunned. But throughout the sixteenth century, the assumption was that it had come from *ab homine* away from man, that is, something inhuman.

All of these directions and processes of morphological change depend to some degree upon phonological shifts as well. All the changes stem from one of any language’s, and therefore one of the English language’s, more important traits: its open-ended acceptance of change, particularly

lexical change. Bear in mind that the open-endedness in turn depends upon majority rule, or conventionality, which itself is an aspect of language's systematic and sociocultural functions. Languages change because speakers participate in and accept the changes. Those lexical and structural shifts may reflect alterations in the speakers' perceptions of the varying realities around them: social, political, economic, psychological, and so on. Alterations in a language over time probably reflect the alterations in the society of which that language is a part.

Aids to the study of the text

1. Why is there no such thing as “morphetics”?
2. What are the two major kinds of meaning dealt with in this chapter?
3. Give some examples of inflections, of operators, of affixes.
4. Distinguish between diachronic and synchronic morphology.
5. What three binary sets do we use in synchronically describing a morpheme?
6. Distinguish between inflectional and derivational suffixes.
7. What are processes in morphology? What are directions in morphology? How does each function?
8. Which of the processes do linguists identify as most significant? Why?
9. What is folk etymology? What is a blend, or portmanteau, word? What is a dead metaphor?
10. Upon what universal trait does etymological function depend?
11. Give the definition of a morpheme and say what property of a morpheme makes it different from a phoneme.
12. What kind of meaning does a lexical morpheme possess?
13. Give examples of syntactic morphemes. Find other terms applied to this type of morphemes.
14. What time dimensions can morphemes be viewed from?
15. Compare bases and affixes and point out their similarities and differences.
16. What accounts for the flexibility of English?
17. Name the processes of lexical change described in the paper and define each of them.
18. What are the directions of word change?

Charles Hockett

A COURSE IN MODERN LINGUISTICS

Morphemes

14.1 Definition

If the utterances of a language consisted merely of arrangements of phonemes, there would be no point in speaking or in listening. But people do speak and listen, and their oral communication transmits information and instructions and serves to coordinate their activities. That utterances can serve in this way is because they have another kind of structure in addition to the phonemic, one, a structure in terms of *morphemes*.

Morphemes are the smallest individually meaningful elements in the utterances of a language.

To illustrate, we shall examine the following English sentence:

[³ján + ²trijtsiz + owldər + sístər + vérij + ²nájsl²].
(*John treats his older sisters very nicely.*)

In order to determine the morphemes of which this sentence is composed, we pull out any portion and ask the following questions about it:

(I) Does the portion recur in various utterances, with approximately the same meaning? If the answer is no, then the portion we have chosen to examine is of no use to us, and we try another. If the answer is yes, then the portion is tentatively a *grammatical form* (or, for short, simply a *form*), but not necessarily a single morpheme. (It is unfortunate that we must include “tentatively” in the preceding statement, especially since the reasons for the reservation cannot be explained until § 19. In the meantime we shall proceed as though no reservation had been expressed.)

(II) Can the form be broken into smaller pieces, each of which recurs with approximately the same meaning, in such a way that the meaning of the whole form is related to the meanings of the smaller pieces? If the answer is yes, then the form is larger than a single morpheme (is a *composite form*) and we must subject each of the pieces, in turn, to the same two-step examination. But if the answer is no, then the form is itself a single morpheme.

Thus each portion we choose is shown, by Test I, to be either a bad choice or a grammatical form, and each grammatical form is shown, by Test II, to be either a composite form or a morpheme. By a series of such operations, we can discover all the morphemes of an utterance.

Let us apply the tests to the following extracts from our sample sentence: [já], [ján + tr], [owldər] and [sístər].

The first portion, [já], fails Test I. It recurs, true enough — for example, in *Jobs are scarce here, He’s a jolly old man, Two jars of shaving cream.*

But we detect no common feature of meaning in these utterances which could reasonably be assigned to the recurrent portion [já].

The second portion also fails Test I. The portion recurs: *John traded his watch for a pencil. If John tries that he'll fail. From the broken demijohn trickled a stream of wine.* But the requirement of similarity of meaning is not satisfied.

Test I is quickly passed by [owldər]. Its meaning in the original sentence is certainly much the same as in such sentences as *He is older than I; The older of the two is a girl; I do declare, I'm getting older every day!* In order to apply Test II, we must decide how to break [owldər] up into smaller pieces. If we were working with an alien language we might have to test many alternatives — say [ow] and [ldər], [owl] and [dər], and so on. Since we control English natively we can avoid this complication and proceed immediately to the cut which we feel will yield positive results: [owld] and [ər]. The former recurs, with reasonably constant meaning, in such sentences as *He's an old man, He's the oldest of their three children, Jack is quite an active oldster.* And the latter recurs in such sentences as *When I was younger I enjoyed such things more, You should learn to enjoy the finer things of life.* The evidence seems quite clear: *older* is more than one morpheme.

Similar testing of [owld] and [ər] shows that each is only a single morpheme; *older*, then, is exactly two morphemes.

Finally [sístər]. This quickly passes Test I: *My sister Eileen; OK, sister, get moving!; Sister Angela will be here in a moment.* Turning to Test II, once again we have to decide what break-up to try. Let us first try *sist-* and *-er*, if only because this is much like the cut of *older* which proved fruitful.

Now there can be no doubt but that the string of phonemes [síst] occurs in environments other than those in which it is immediately followed by [ər], and it is equally obvious that the latter occurs where it is not preceded by [síst]. Thus, for [síst], we have *He has a cyst which must be removed; I have a system, I can't lose; Whipped cream consists largely of air; I don't mean to insist.* And for [ər], in addition to the examples given earlier, we could find sentences involving *brother, father, mother, daughter; hammer, butter, fetter, wither; singer, writer, actor, better.*

But this is not enough. We get into trouble on the score of meaning, just as we did with the portions [já] and [ján + tr] which we tested first. There seems to be no reasonable similarity of meaning between the *sist-* of *sister* and any of the other [síst]'s illustrated. The words *sister, brother, father, mother, daughter* are all kinship terms, which means that they

share some feature of meaning; on this basis one might want to extract the element *-er* as a morpheme carrying this shared feature of meaning. However, to do so leaves us not only with a [síst] which — in this meaning — seems not to recur, but also with similarly forlorn elements [brəð], [fað], [mæð] and [dɒt]. Thus it seems reasonable to conclude that *sister* should not be regarded as a combination of smaller forms *síst-* and *-er*.

No other way of cutting *sister* into smaller pieces seems to have even the partial justification which we have found above for the cut into *síst-* and *-er*. We therefore decide to accept *sister* as a single morpheme.

Proceeding in this same way with all the different parts of our original sentence, we arrive finally at the following list of the constituent morphemes:

- | | |
|--------------------------|---|
| (1) <i>John</i> [ján] | (8) <i>sister</i> [sístər] |
| (2) <i>treat</i> [tri:t] | (9) <i>-s</i> [z] |
| (3) <i>-s</i> [s] | (10) <i>very</i> [veri:] |
| (4) <i>hi-</i> [ɪ] | (11) <i>nice</i> [nájs] |
| (5) <i>-s</i> [z] | (12) <i>-ly</i> [li:] |
| (6) <i>old</i> [owld] | (13) [³ ² ²²]. |
| (7) <i>-er</i> [ər] | |

Note the following points:

– first, the intonation must not be overlooked; we have taken it as a single separate morpheme;

– second, (5) and (9) are phonemically the same, but certainly not the same morpheme, because of the difference in meaning;

– third, the breakdown of *his* [ɪz] into *hi-* [ɪ] and *-s* [z] may seem unconvincing. The [z] recurs, with exactly the same meaning, in *John's book, the men's room*, and the like. But the [ɪ] recurs only in *him* (as in *hit 'im*).

If this evidence is enough to persuade us to break up (*h*)*is*, then maybe we want to break up *very* top, into a *ver-* which recurs in *verity, veritable*, perhaps *veracious*, and an element *-y* which recurs in *pretty (pretty well)* and perhaps elsewhere.

Marginal uncertainties of this sort are to be expected — in any language, not just in English. They must not be allowed to disturb us too much. Most problems of whether to cut or not are answered easily and quickly. Where there is conflict of evidence, it is often not very important which alternative we choose. The uncertainties lie in the nature of language, rather than in our method of attack.

Words

19.5 Idioms

A final lay assumption about “words”, which does not actually hold either for the layman’s words or for ours, is that they should always have some sort of meaning of their own, predictable in terms of their structure if they are larger than morphemes, and reasonably constant from one occurrence to another.

Minimum free forms and lexemes also do not meet this requirement. The units which do are the least wordlike of any of the types we srtail discuss. The best approach to these units, which we shall call *idioms*, is via examples in some other language.

The Chinese form *youtung* has as ICs the two morphemes *you* “oil, grease”, and *tung* “large cylindrical container” ; the first IC modifies the second, as *black* modifies *cat* in *black cat* or *grease* modifies *rack* in *grease rack*. Given this information, but knowing, nothing else about Chinese or the culture of China, we can venture a reasonable guess as to the meaning of *youtung*: “oil container”, “oil drum”, or the like. This guess is correct.

The ICs of Chinese *mashang* are *ma* “horse” and *shang* “space on or above, top, ascend”. As in the preceding example, the first constituent modifies the second. Reasonable guesses at the meaning of *mushang* would be “horse’s back”, “horseback”, or possibly “on horseback”. These are wrong. The meaning is “quickly, right away”.

This meaning is not surprising when we remember that until recently the most rapid mode of travel was by horse. But it is one thing to consider a meaning reasonable after we know it, and quite different to deduce the meaning of a form from its structure. A native speaker of Chinese is no better off than we, for he can know *ma* and *shang* and still not understand *mashang* unless he has learned the meaning of the latter as a separate fact about his language.

Let us momentarily use the term “Y” for any grammatical form the meaning of which is not deducible from its structure. Any Y, in any occurrence in which it is not a constituent of a larger Y, is an *idiom*. A vast number of composite forms in any language are idioms. If we are to be consistent in our use of the definition, we are forced also to grant every morpheme idio-

matic status, save when it is occurring as a constituent of a larger idiom, since a morpheme has no structure from which its meaning could be deduced.

Thus *new* is an idiom in *She wants a new hat*, but not *I'm going to New York*, because here it is part of the larger idiom *New York*. *New York*, in turn, is an idiom in the preceding sentence but not in *The New York Times* or *The New Yorker*, since in the latter expressions *New York* occurs as part of larger idioms. The advantage of this feature of our definition, and of the inclusion of morphemes as idioms when they are not parts of larger idioms, is that we can now assert that any utterance consists wholly of an integral number of idioms. Any composite form which is not itself idiomatic consists of smaller forms which are.

A composite form in another language cannot be called an idiom merely because its meaning seems queer to us.

The test must be applied within the language. French *Elle est garde-malade* "She is a nurse" may seem peculiar to us because it contains no equivalent for English *a*, but this is the regular habit in French, and the sentence is no idiom. On the other hand, though French *mariage de convenance* finds its exact counterpart in English *marriage of convenience*, both the French and the English phrases are idioms.

An idiomatic composite form may coincide in morphemic shape with a form that is not idiomatic. *White paper* is an idiom when it refers to a certain sort of governmental document, but not when it refers merely to paper that is white.

A single form can be two or more idioms. *Statue of Liberty* is one idiom as the designation of an object in New York Bay; it is another in its reference to a certain play in football. *Bear* is presumably the same morpheme in *women bear children* and in *I can't bear the pain*, but it is different idioms in these two environments.

Idioms are unwordlike especially in that they can be much larger than single words: *Now is the time for all good men to come to the aid of the party*. Yet some idioms are smaller than words. *Bought, went, paid, sold, sang, rang* consist of two morphemes each. One is, respectively, *buy, go, pay, sell, sing, ring*; the other, in all of them, is the "past tense" morpheme. In most occurrences, however, the meanings of the whole forms are predictable from the meanings of the constituents, so that the whole words are not idioms.

In theory, and largely in practice, idioms are the stuff of which dictionaries are made. The reason is obvious: a dictionary-maker need not

include a non-idiomatic nonce-form, since a speaker of the language would never look up such a form. He would look up the component parts, if he needed to, and automatically know the meaning of the whole. In practice, of course, no dictionary is ever complete. There are far too many idioms in any language, and more come into existence every day.

19.6 Idioms and Morphemes

The recognition of idioms larger than single morphemes requires a modification of what has heretofore been said about morphemes as the raw-materials from which we build utterances. An idiomatic composite form, like any single morpheme, has to be learned as a whole. Thus it is equally legitimate to say that the raw-materials from which we build utterances are idioms.

Furthermore, we can often be sure that a small form is an idiom, even when it is difficult to decide whether it is one morpheme or more than one. For example, English has many words of the type *remote*, *demote*, *promote*, *reduce*, *deduce*, *produce*, each apparently built of two smaller parts, a prefix *re-*, *de-*, *pro-*, or the like, and a second part *-mote*, *-dace*, or the like. But the relationships of meaning are tenuous. Grammarians are not in agreement. Some brush aside the semantic difficulties and take each word as two morphemes, following the phonemic shapes; others regard the parallelisms of phonemic shape as unconvincing and take each word as a single morpheme. Similar problems appear in the analysis of almost every language. An obvious practical step is to set the morphemic problem aside, recognizing that each form is an idiom whether it is one or more morphemes.

Idiom formation

36.4 Idiom Formation and Derivation; Productivity

There has been a tendency in the technical literature of linguistics to confuse idiom formation and derivation. It is important for us to understand clearly not only the distinction between these two, but also the reason for the confusion.

To start with, we need the notion of *productivity*. The productivity of any pattern — derivational, inflectional, or syntactical — is the relative freedom with which speakers coin new grammatical forms by it. Thus

the formation of English noun-plurals with [z, s, əz] is highly productive. The addition of **-ly** to produce an adverbial is fairly productive; the addition of **-dom** to form a noun from a noun is quite restricted.

The productivity of a pattern varies in time: some of our freer patterns were highly limited five hundred years ago, and conversely. There are also shorter-termed variations of the sort we might call “fashion”. For example, twenty-odd years ago, when the type of restaurant called a *cafeteria* was spreading across the country, there was a short explosion of similarly-formed names for stores in which there was an element of self-service: *grocceteria*, *booteteria*, *booketeria*, and so on, to a total of well over a hundred, most of which are now completely in limbo.

Setting such brief fads aside, we find that, by and large, syntactical patterns tend to be the most productive, inflectional patterns next, and derivational patterns least.

It also appears that, the *less* productive a pattern is, the *more* likely it is that if a new form does get coined by the pattern it will have idiomatic value. We do have idioms involving highly productive patterns: e. g., *the coast is clear*. But it is relatively difficult to create a new idiom by the subject-predicate pattern, as in the instance just given. On the other hand, consider the English derivational suffix **-ward** or **-wards**. We inherit a double-handful of perfectly ordinary words containing this suffix: *northward(s)*, and so forth with names of compass-points, *inward(s)*, *backward(s)*, *sunward(s)*. We do not freely say such things as *He walked tablewards* or *on my Chicagoward journey*. Therefore, when P. G. Wodehouse wrote *Lord Emsworth ambled off pigwards*, the stretching of the pattern beyond its ordinary limits achieved some sort of special effect: *pigwards* was a new idiom.

In the above we see one reason why there has been the confusion between derivation and idiom formation: derived stems are often idioms, and newly-created derived stems tend to have idiomatic value because of the relatively unproductive nature of the majority of derivational patterns. Clearly, however, the association, between idiom formation and derivation is not identity. Derived stems are not always idiomatic; idioms are not always derived stems. Currently the formation of adjectives with a suffix [-ij] is rather productive: one hears new combinations like *Chinesey*, *pavementy*, *New Yorky*, and even phrase derivatives like *a paper-boxy sort of contraption* — the forms are highly colloquial and do not turn up in print. But they are not idioms: the special value adheres to the suffix, not individually to each new combination. *Awful* is both a derivative (stem **awe-** and affix **-ful**) and an

idiom. *Darts*, as the name of a game, is an idiomatic fixation of the ordinary plural of the noun *dart*, and is thus an idiom but not a derivative. <...>

Types of idioms

37.3 Abbreviation

<...> In English we find also a rather different pattern of abbreviative idiom formation, not attested for many other languages: that of replacing a long word or phrasal compound by its first, or its stressed, syllable, whether or not that syllable has previously been a morpheme. Thus we have *cab* and *bus* from earlier *cabriolet* and *omnibus*; similarly *cello* from *violoncello*, *piano* from *pianoforte*, *plane* from *airplane* or *aeroplane*; and *gent*, or more often the plural *gents*, from *gentleman* or *gentlemen*. The pattern exhibits some variation: *cello* is two syllables, and *plane* is not the most loudly stressed syllable of *airplane*. Some people still write *'plane* and *'cello* with an apostrophe as graphic indication of the abbreviation, as though there were something slightly improper about it.

In some circles abbreviations of this sort abound and new ones are freely coined. From the college scene we have many:

[sowš]	for	sociology
[ænθ], [ænθrow]	for	anthropology
[ékow]	for	economics
[howm ék]	for	home economics
[kém læb]	for	chemistry laboratory
[fiz éd]	for	physical education

The results of this type of abbreviative idiom formation can sometimes not be distinguished from those of another type, found in many literate communities, in which a spoken abbreviation stems from a reading-off of a written abbreviation. The Cornell student word [rowtəsɪj] must be of this sort, from the written abbreviation “R. O. T. C.” = *Reserve Officers’ Training Corps*, because no sort of abbreviative effort on the spoken phrase would yield the shape of the slang term, [kém læb] might be of either origin, since the written form “Chem. Lab.” could hardly be read off otherwise. [sowš] is certainly invented without writing, since the written abbreviation “Soc.” would yield something like [sák].

In the administration of F. D. Roosevelt and during World War II, the custom of calling governmental and military agencies and programs by abbreviative nicknames, derived (usually via writing) from their full official titles, became very popular. Two special developments should be noted. If the abbreviated written form can be read off as though it were an ordinary English word, the abbreviated nickname is often produced in this way: [æmgət] from “AMGOT” for “Allied Military Government of Occupied Territories”. In a number of cases, the official long title has been worked out with a conscious view to this kind of abbreviation: thus “Women’s Auxiliary Volunteer Emergency Service” was chosen because its initials, “WAVES”, spell an ordinary English word of apt denotation and connotation; “United Nations Educational, Scientific, and Cultural Organization” was originally to have a designation minus the word *Scientific*, and that word was added especially to make the written abbreviation “UNESCO” yield what was thought to be an appropriate (though not theretofore meaningful) pronunciation, [juwnéskow]. The second special development is akin to the first: when circumstances lead an organization to change its official name, it may stick to one which yields the same abbreviation, so that the publicity value of the latter will not be sacrificed. “Transcontinental and Western Air” changed to “Trans-World Airlines”, preserving the initials “TWA”; the “Committee on Industrial Organization” became the “Congress of Industrial Organizations”, preserving the initials “CIO”.

Aids to the study of the text

1. What are two fundamental types of sense relations?
2. What is Hockett’s definition of morphemes?
3. What is Hockett’s procedure of determining morphemes?
4. Does Hockett make any difference between morphemes and inflectional endings?
5. What does Hockett understand by a “grammatical form”?
6. What difference does Hockett see between a grammatical form and a morpheme?
7. What does Hockett understand by the term “idiom”?
8. What is the connection between an idiom and a composite form?
9. What is Hockett’s definition of productivity?
10. What leads to the confusion of derivation and idioms?
11. What is understood by abbreviations?
12. What are the main types of abbreviations described by Hockett?

David Isitt

**CRAZIC, MENTY AND IDIOTAL.
AN INQUIRY INTO THE USE
OF SUFFIXES -AL, -IC, -LY AND -Y
IN MODERN ENGLISH**

We are to undertake a task involving much segmentation and morpheme identification, and we shall need to establish very strict criteria for their application. The criteria must be stringent enough to guarantee, as far as this is possible, the purity of our stock material. We shall prefer an incomplete but genuine list of instances of (AL) adj, (IC) adj, (LY) adj and (Y) adj to a larger but impure one.

**The existence of the morphemes (AL), (IC), (LY) and (Y)
is demonstrated**

An assumption underlying this investigation is that our four suffixes are morphemic. This assumption is justified by the following demonstration:

Compare

form (FORM)	formal (FORM) + (AL)
base (BASE)	basic (BASE) + (IC)
man (MAN)	manly (MAN) + (LY)
horse (HORSE)	horsy (HORSE) + (Y)

In these four examples the first word, being a free form, is thereby established as morphemic. It is then recognized in the bound form as the same morpheme and leaves the suffix as — at the least — a residual morpheme.

This method of demonstrating the morphemic status of our suffixes is not as simple as it looks and it will receive further comment later. But as we shall not have cause to quarrel with these particular conclusions we can accept them for the time being and go on to gather our stock material.

The difficulty of identifying *-al*, *-ic*, *-ly*, and *-y* as instances of suffix morphemes (AL), (IC), (LY) and (Y)

Reliable stock material implies a list of genuine occurrences of our suffix morphemes. This requires that we have means of telling whether or not an instance of final *-al*, *-ic*, *-ly* or *-y* in a word of adjective function is identical with the morphemes (AL), (IC), (LY) or (Y) respectively. Our means for doing this are unfortunately rather inadequate.

The difficulty is that we are trying to identify units which are both short (thus having small phonemic and graphemic distinctiveness) and, most often, semantically vague. It is their deficiencies in these respects which make them difficult to identify with any confidence.

Two simple examples may illustrate this:

antic (adjective)

Can we really identify final *-ic* here as our suffix morpheme (IC)? They are phonemically, graphemically and syntactically identical, but it would be presumptuous to deduce from this and identify it as an instance of (IC). Our intuition tells us that this may not be a case of a suffix at all (what, then, is the stem?). Intuition is “evidence” which should be called on as seldom as possible of course, yet the weak distinctiveness of these suffixes seems likely to involve us in many such cases.

Or take *basic*. To identify *-ic* here with (IC) would of course be right, but by good luck rather than by good logic. Logically *basic* may consist of a stem [beys] + [ik] or [bey] + [sick] or even [beysi] + [k] and accordingly to recognize (IC) here is really an example of wishful thinking. If one takes *base* into account the picture is quite different, but this only confirms the inadequacy of attempts to identify *-ic* as (IC) without recourse to external evidence, i. e. to the morphemic status of the rest of the word. Identification of such distinctively weak units falls down if it is not supported by other means.

We could of course propose that every occurrence of final *-al*, *-ic*, *-ly* and *-y* in adjectives be taken as an instance of one of our suffix morphemes. There is, however, one good reason for rejecting this suggestion outright, and that is that many such occurrences are certainly not instances of our suffix morphemes; we have only to think of the common adjective suffixes (ARY), (ORY) (in e. g. *military*, *accessory*) to realize how false a picture we should obtain of our suffix (Y) if these were included in our statistics.

The first task remains: we must devise some reliable means for identifying these indistinctive units with the morphemes (AL), (IC), (LY) and (Y).

“Stem morpheme identification” as a means to suffix segmentation

We have concluded so far that instances of final *-al*, *-ic*, *-ly* and *-y* are incapable of reliable identification with morphemes (AL), (IC), (LY) and (Y) owing to their relative lack of phonemic, graphemic and semantic distinctiveness.

We must approach the problem from a new direction. If we cannot identify *-al*, *-ic*, *-ly* and *-y* with the morphemes (AL), (IC), (LY) and (Y) by holding each one up for examination, we can at least aim at *segmenting* the suffix by establishing the morphemic status of the rest of the word. Segmentation can be done in two ways:

S 1 (= Segmentation rule no. 1): if we can recognize the stem (or that part adjacent to the affix) as appearing elsewhere in Webster or Brown as a free form we thereby establish the morphemic status of that form. By this means we isolate and segment the affix.

Example 1: *fishy* to be segmented;
fish appears in Webster as a free form;
segmentation of *fishy* = ***fish-*** + *-y*.

Example 2: *grandfatherly* to be segmented;
grandfather appears in Webster as a free form;
segmentation of *grandfatherly* = ***grandfather-*** + *-ly*.

Example 3: *unmanly* to be segmented;
man appears in Webster as a free form;
segmentation of *unmanly* = ***un-*** + ***-man-*** + *-ly*.

S 2: if the stem or its final part does *not* appear elsewhere as a free form, the morphemic status of the stem can be proved by means of this pattern:

undeserv-: *undeev-* + *-ed*: *-ing*

(The shift within each of the two pairs must be semantically, phonologically, and graphemically consistent.) We then go on to segment the suffix. <...>

Note that in both *S 1* and *S 2* we first establish the morphemic status of the stem, thereby isolating and segmenting the affix.

These two methods are adequate for most cases, but a smallish number of cases remain when we feel strongly that we have a right to segment but are not permitted to do so by rules *S 1* and *S 2*. Such a case is *cordial*, where the stem **cordi-** is neither a free form nor segmentable by the pattern:

cordi-: ? + *-al*: ?

We have however the related form *cordiform* where we recognize *form* as appearing elsewhere as a free form, leaving us with a *bound* form **cordi-** with morphemic status. With the help of this **cordi-** we can isolate and segment the suffix **-al**.

We need a new rule to enable us to use this principle for segmenting *cordial*.

This rule is *S 3*.

S 3: a stem can be segmented from its affix(es) if the stem or its affix-adjacent morpheme(s) appear in Webster or elsewhere in Brown as a *bound* form segmentable by *S 1* and/or *S 2*.

Example: *rational* to be segmented;
consider the word *irrational*;
rational appears in Webster as a free form;
segmentation of *irrational* = **ir-** + **-rational** (by rule *S 1*);
again consider the word *irrational*;
apply pattern **irration-**: **soci-** + **-al**: **-able**;
segmentation of *irrational* = **ir-** + **-ration-** + **-al** (by rule *S 2*);
segmentation of *rational* = **ration-** + **-al**.

These three segmentation techniques we shall call “stem morpheme identification”.

Note that Recognition criteria must be applied at all times (see section III below).

The initial limit of the suffix is defined

Whenever we can succeed in applying “stem morpheme identification” we also succeed in isolating and segmenting the suffix. But segmenting is not the same as identifying that suffix with a particular mor-

pheme, which is what we are trying to do, and it may be wondered if we have really achieved very much when it was identification of our suffixes with the morphemes (AL), (IC), (LY), and (Y) which we found too unreliable to accept and which we abandoned in order to seek a round-about approach. We are back where we started from, but we possess one piece of knowledge which we did not possess before; we know the outer limits of our phonemic cluster which we are hoping to identify with one of our four suffixes. An example will make this clearer. In the case of *basic* we saw that in attempting to identify the final *-ic* with morpheme (IC) we were forcing the evidence to suit ourselves. Given just the form *basic* there is no evidence whatever for segmenting [beys] + [ik] any more than [bey] + [sik]; the meaning of *basic* (= “fundamental”) could be imagined to be built up of *(BA) = “ground foundation” + *(SIC) adj. Given only the form *basic* this hypothetical morpheme segmentation is as likely as (BASE) + (IC). But our approach to the suffix via morphemic analysis of the stem changes this significantly; the existence in our language of that, which does not permit of morphemic subdivision, makes it unnecessary and uneconomical to propose the existence of a semantically similar morpheme *(BA) in *basic*; there is now every reason to recognize (BASE) in *basic*, leaving us with *-ic*. We now know that the initial limit of the suffix is [i] as in [ik] and not e. g. [s] as in [sik].

(A quibbler might object that in identifying [beys] in *basic* with morpheme (BASE) we are allowing ourselves a freedom which we rejected when it was a case of identifying [ik] with (IC). Given [beys], he reminds us, we permit ourselves to recognize [beys] in *basic*; given [ik], however, we did not permit ourselves to recognize [ik] in *basic*; what has [beys] got that [ik] has not? The answer is, of course, that it has greater semantic, graphemic and phonemic distinctiveness, having clear meaning and being graphemically and phonemically longer, consisting of three graphemes and three phonemes as against [ik] with two. Furthermore, the morphemic status of [beys] is clear in that it occurs as a free form; the same cannot be said of [ik].

Suffix morpheme identification

Having segmented the suffixes by means of our segmentation rules, we now wish to identify the clusters *-al*, *-ic*, *-ly* and *-y* as instances of the morphemes (AL), (IC), (LY) and (Y). Can we make this identification on reasonable grounds?

We know now that the clusters *-al*, *-ic*, *-ly* and *-y* are graphemically and phonemically no longer than our hypothetical morphemes, but we

still do not know that, for example, [əɪ] does not in fact consist of two morphemes *(A) + *(L).

However, there is one sufficient reason for rejecting such an idea and that is that no convenience is gained by it. This is cause enough but we can also add:

(a) that morphemes consisting of a single consonant are relatively rare in our language so that we have a right to be sceptical,

(b) that the combination of vowel + consonant is a well established morphemic pattern in our language, and

(c) that the clusters *-al*, *-ic*, *-ly* and *-y* are so frequent as to make us suspect single morphemes at work.

We therefore choose to regard all cases of segmentable *-al*, *-ic*, *-ly* and *-y* in adjective forms as morphemic and identify them as instances of (AL), (IC), (LY) and (Y).

A review of the segmentation rules

The condition we have set up for identifying *-al*, *-ic*, *-ly* and *-y* as instances of the morphemes (AL), (IC), (LY) and (Y) is that the stem is in each case segmentable from its suffix on the grounds of its possessing established morphemic status. Segmentability of the stem is thus a precondition to the morphemic recognition of the suffix, and the criterion on which the whole of our stock material will rest. A review of these segmentation principles is now called for.

Segmentation rules

The principles for segmentation which we have proposed above can be summarized here:

S 1 (segmentation rule no. 1): a stem can be segmented from its affix(es) if the stem or its affix-adjacent morpheme(s) appear in Webster or elsewhere in Brown as a free form.

Example: *misplace* to be segmented;
place appears in Webster as a free form;
segmentation of *misplace* = *mis-* + *-place*.

S 2: a stem can be segmented from its affix(es) by application of the pattern:

undeserv-: undeceiv- + -ed: -ing.

Note: the shift within each of the two pairs must be semantically, phonologically and graphemically consistent.

Example: *imperial* to be segmented;
apply pattern **imperi-**: **industri-** + **-al**: **-ous**;
segmentation of *imperial* = **imperi-** + **-al**.

These two examples serve well to illustrate how difficult it is to ensure objective *semantic* consistency. Phonological and graphemic consistency offer few problems but semantic consistency is a much vaguer and less definable area. Nevertheless we still believe that the principle is a sound one and efforts should be made to follow it in practice as far as this is possible.

S3: a stem can be segmented from its affix(es) if the stem or its affix-adjacent morpheme(s) appear in Webster or elsewhere in Brown as a *bound* form segmentable by *S 1* and/or *S 2*.

Example: *rational* to be segmented;
consider the word *irrational*;
rational appears in Webster as a free form;
segmentation of *irrational* = **ir-** + **-rational** (by rule *S 1*);
again consider the word *irrational*;
apply pattern **irration-**: **soci-** + **-al**: **-able**;
segmentation of *irrational* = **ir-** + **-ration-** + **-al** (by rule *S 2*);
segmentation of *rational* = **ration-** + **-al**.

Note that recognition criteria must be applied at all times (see section III below).

Choice of stems — unclear segmentation

The segmentation rules we have allowed ourselves are fairly powerful. The question is not so often how to segment but where.

The difficulty is that our segmentation rules sometimes indicate the presence of distinct morphemes/morpheme clusters but fail to chart the exact location of the distinction. This uncharted area occurs when more than one segmentation is possible or when there is a phonemic overlap of potential stem and suffix. The phenomenon at its simplest appears in the forms *aura*: *aural*, *prosody*: *prosodic*. The potential

stems *aura*, *prosody* overlap phonemically with suffixes (AL) and (IC), thus:

[orə]	[präsədi]
[əl]	[ik]

(Note that “ä” is Webster’s symbol for the common US pronunciation of letter “O” in *bother*, *cot*, the same vowel — says Webster — that most American speakers have in *father* and *cart*).

Our rules for segmentation do not advise us whether to cut *aur-* + *-al*, *prosod-* + *-ic* (leaving *-a* and *-y* as commuting suffixes) or *aura* + *-l*, *prosody* + *-c* (with *-a* and *-y* reappearing in the extended environments + *-l* and + *-c*).

We choose to make the stems *aur-* and *prosod-* and the suffixes *-al* and *-ic* for this reason: if we make the stems *aura* and *prosody* we obtain suffixes *-l* and *-k* which involve the creation of new adjective morphemes (L) adj and (C) adj. These new (L) and (C) morphemes we reject on the grounds of:

- (a) economy;
- (b) rarity of single-consonant morphemes.

This solution is best from all points of view: it preserves our suffixes unadulterated, and it stores the segmented *-a* and *-y* away under “commuting suffixes”.

One principle emerges from this discussion which we shall use to guide us in localizing the point of segmentation, and which must be incorporated into our segmentation rules: with the exception of forms in *-ary*, *-ery* and *-ory* (see section IV.1, below), wherever our S rules segment final *-al*, *-ic*, *-ly*, *-y* in adjectives we accept that segmentation *even if our S rules will also permit of other segmentations*.

Recognition

A further condition for admission to our stock material

A further condition before admitting a form to our stock material has as yet only been hinted at. This condition is that stem-suffix segmentation and morpheme identification must satisfy recognition criteria at all times.

The need for recognition criteria

Recognition criteria are a necessary part in the equipment for this study. All segmenting and morphemic principles are based on comparison of one form with another. To recognize two forms as being one and the same requires the stating of certain criteria. If the principles by which recognition operates are not defined, the foundations both of segmentation and of morpheme analysis remain unsound.

To take simple example, rule *S 1* enables us to segment *-y* in *fishy*, since we recognize *fish*. The recognition seems obvious and if pressed as to how we do it we should answer that the word is spelt the same, pronounced the same and means the same. It shows, in other words, total graphemic, phonemic and semantic identity. These three criteria are all important. The first one, graphemic identity, is less often insisted upon but can reasonably be considered in comparisons of forms which (as in our case) occur only in written texts.

Take *basic* again. We feel confident that we can recognize *base* here, thus segmenting (IC). Phonemic and semantic identity is totally present but not quite graphemic. If we are not to be prevented from making this recognition we must have clear principles to follow as to what degree and kinds of graphemic variation we can tolerate. We may feel easy in accepting *base* in *basic* without demur, but are we as uncritical of *face* in *facial*, *sex* in *sexual*, *nose* in *nasal*, *mother* in *maternal*, or *governor* in *gubernatorial*? We clearly need a set of principles to guide us, which will prevent us from a too tolerant segmentation, and consequently a false identification of the suffix morpheme.

Morpheme recognition rules

It is proposed that the following two rules for recognizing morphemes (called R rules, for short) will suffice to keep allomorphic variation within acceptable bounds.

A phoneme or phoneme cluster can be recognized as an instance of an established morpheme or morpheme cluster:

R 1: if the two are graphemically, phonemically and semantically identical.

Ex a m p l e s: (CELT) recognized in *Celtic*, (FISH) recognized in *fishy*.

R 2: if the two are not graphemically, phonemically and semantically identical but clearly similar in all three respects, and display a graphemic and/or phonemic divergence which is paralleled by another instance in Webster or Brown. (Semantic divergence is impossible to define objectively and for this reason no parallel instance of semantic divergence has been required.)

Examples: (ABDOMEN) recognized in *abdominal* showing a graphemic shift E : I and a phonemic shift [ə] : [i]; these shifts are paralleled in the form (NOMEN) recognized in *nominal*; (NECROMANC) (as in *necromancy*) recognized in *necromantic* showing a graphemic shift C : T and a phonemic shift [s] : [t]. These shifts are paralleled in the form (ROMANC) (as in *romance*) recognized in *romantic*. (WORTH) recognized in *worthy* showing a phonemic shift [th] : [θ]; this shift is paralleled in the form (SWARTH) recognized in *swarthy*.

Note 1: phonemic variation follows Webster's system of transcription and uses lower case letters.

Note 2: shifts of stress — e. g. *sulphu: sulphuric* — are covered by R 2 and will generally receive no further mention here.

R 1: raises no problems. Rule R 2 calls for consideration.

Recognition of allomorphs

Rule R 2 is concerned with allomorphy. Allomorphy is variations in the form of a morpheme. These variations clearly must not be so extreme that a native speaker fails to identify the phonemes with the morpheme they claim to represent. If a native speaker does not recognize the variations as instances of the same morpheme, then he recognizes them as two different morphemes and the matter is no longer a question of allomorphy.

The central problem is how to define the permissible limits of allomorphic variation, i. e. how much divergence, and of what kinds, before the identity is broken and a new morpheme has to be established. Allomorphy is usually limited to variations within the phonemic shape of a morpheme. Occasionally (as here) graphemic variation is considered; semantic variation much less often. All three variations can be subsumed under the term allomorphy, always provided a recognizable degree of identity is maintained.

These examples illustrate the range of the phenomenon.

Phonemic variation only:

worth: worthy (shows [th] : [θ] shift only).

Graphemic variation only:

bone: *bony* (shows variation E : Ø only); *panic*: *panicky* (shows C : CK shift).

Semantic variation only:

accident: *accidental* (shows semantic shift: *accident* = “a sudden event ... producing an unfortunate result”; *accidental* = “occurring *sometimes* [my italics] with unfortunate results”).

There can naturally be combinations of phonemic, graphemic and semantic variation.

Examples are: (With both phonemic and graphemic variation.)
Face: *facial*.
(Shows CE : CI shift and [s] : [sh] shift.)
Abdomen: *abdominal*.
(Shows E : I shift, [ə] : [i] shift, [ə] : [ä] shift.)
Climax: *climactic*.
(Shows X : CT shift and [ks] : [kt] shift.)

Recognition rule *R 2* provides umbrella coverage for a wide range of allomorphic variation. (A complete list of variations permitted under this rule will be found in Appendix 1). If our concern were to propound a complete system for morpheme identification then *R 2* would need to be reconsidered more stringently from that point of view. For our present purposes — to obtain reliable segmentation of our four suffixes — *R 2* is fully adequate.

It is worth noticing that although *R 2* appears to be generous its effect is never to force upon us segmentations to which intuition or good sense objects. On the contrary it prevents our segmenting in a number of cases where intuition or good sense tell us we could be right to do so. *Scholastic* and *parochial* remain unsegmentable since the patterns *school*: *scholastic* and *parish*: *parochial* are not echoed in another Webster or Brown form.

In other words, we follow our stated principle of restricting our material to the most clearcut instances. There is no implication that the forms excluded should be excluded in general, under other circumstances, or for other purposes.

Degrees of allomorphy

Allomorphy can be subdivided into several types. It would be quite possible to formulate the allomorphic rules so that variations explainable in consistent morphological, phonological or morpho-phonological terms (for instance *race: racy*, *anger: angry* or the shift of stress before (IC) in *humanist: humanistic*) were placed in a category of their own and covered by their own rules. Rule *R 2* should then be rephrased to limit its coverage to variations (such as *symptom: symptomatic*, *produce: product*) which are not explainable in such terms.

However, there are reasons for thinking this is unnecessary. One is that *R 2* provides umbrella coverage for graphological and other such variation already, so to exempt these forms would be superfluous. Secondly, none of the variations quoted is 100% consistent. Beside *race: racy* we find *lace: lacey*; beside *anger: angry* we find *bluster: blustery*; beside *humanist: humanistic* we find *Arab: Arabic*.

It may also be objected that to allow *symptom: symptomat-* as allomorphs dangerously facilitates the process of segmentation. The suggestion is that while *symptomatic* can now be segmented by *S 1* — on the grounds that it consists of (SYMPTOM) + (IC) — it might well be difficult to segment by *S 2*. (This argument is not in fact applicable to *symptom: symptomatic* since we can easily segment also by *S 2* on the pattern:

symptomat-: anatom- + -ize: -ic.

And the same is true of the great majority of these forms. *S 2* is applicable in almost every case. But there are nevertheless cases where this objection holds good.)

We see no reason to doubt the rightness of this *R 2* at least so far as it serves our present purpose of suffix-segmentation. This means that we shall indeed be willing to recognize *symptomat-* (in *symptomatic*) as an allomorphic instance of (SYMPTOM), paralleled by, for example:

(PARADIGM) recognized in *paradigmat-* + (IC).

(PROBLEM) recognized in *problemat-* + (IC).

(ERR) recognized in *errat-* + (IC).

(IDIOM) recognized in *idiomat-* + (IC).

(SYSTEM) recognized in *systemat-* + (IC).

It is not true that rule *R 2* in any way “corrupts” our segmentation procedures or the statistics which arise from them. We should, that is, have been forced to find some other way to make the *symptomat-* + (IC) segmentation in any case. When we examine the considerable pattern strength represented in Webster and Brown it becomes clear that this *-at-* is a feature of our language that has to be dealt with under any circumstances. It is no rare occurrence but a recurring unit, albeit of uncertain function. We shall (if we reject the stem-allomorphy proposal offered above) have to classify *-atic* either as an allomorphic variant of (IC), or as a new morpheme (ATIC), (an uneconomical suggestion), or in some other way.

Aids to the study of the text

1. Describe the procedures used to identify affixal morphemes.
2. Compare the rules of segmentation and state the points that make them different.
3. Find your own examples in which segmentation is questionable and give arguments of your solutions.

Howard Jackson

ANALYZING ENGLISH

Derivational Morphology

Besides inflexions there is one further aspect of modern English word structure: *derivational morphology*. This branch of morphology aims to describe the formal relationships between lexical items and the ways in which new lexical items may be created from the stock of those existing. These relationships or processes are of three kinds: *affixation* (both prefixation and suffixation), *compounding* and *conversion*.

Affixation involves the addition of a bound morpheme to a root morpheme. In English, suffixation usually changes the class of a word, while prefixation nearly always maintains it. The following are examples of affixation: *internal-ize* (creating a verb from an adjective), *quick-ness* (making a noun from an adjective), *walk-er* (making a noun from a verb), *friend-ly* (making an adjective from a noun), *slow-ly* (making an adverb from an adjective), *anti-coagulant* (which remains a noun). Here also

a morpheme may have a number of allomorphs, but not such complex patterns arise as with some inflexional morphemes. For example, the “negative” prefix has the phonologically conditioned allomorphs [im-], [in-], [iŋ-] ([im-] before root initial bilabial consonants, [iŋ-] before initial velar consonants, and [in-] elsewhere), and the morphologically conditioned allomorph *un-*, which has a similar range of phonological variants, i. e. [ʌm-] before bilabials, [ʌn-] before velars, and [ʌn-] before other sounds, e. g. *unpleasant, unkind, untouched*.

The process of *compounding* involves the combination of more than one root, e. g. *star-gaze, witch-hunt, stop-light, wastepaper-basket, baby-sit*. In writing, these roots are either joined together or attached by means of a hyphen. The relations between the parts of a compound may be of various kinds; illustrated here are: noun + verb, noun + noun, verb + noun, adjective + noun + noun, noun + verb. And the resultant meanings are attained in a variety of ways; the examples have the following meaning relations: “gaze at stars”, “hunt for a witch”, “light to indicate stopping”, “basket for containing paper that is waste”, “sit in and care for a baby while its parents are out”. Like other roots, compound roots may be subject to inflexion or further derivation by means of affixation, e. g. *stargazer, babysitter, stoplights*.

Conversion involves no addition of new material to a lexical item but merely a change in word class. For example, the lexical item *net* may be both a noun and a verb; it seems likely that the object “net”, and so the noun, was the initial form and that the verb has been derived from it, i. e. by conversion. Similarly the lexical item *catch* is both verb and noun, but it seems likely that the verb is the primary form and the noun derived by conversion. Further examples are: *skin* (verb derived from noun), *push* (noun derived from verb), *invoice* (verb derived from noun), *win* (noun derived from verb). It is not always beyond doubt what the process of conversion is, e. g. in the case of *plan* which is both noun and verb.

This last type of process raises an interesting question of derivational morphology: are we dealing here with a *synchronic* or with *diachronic* (i. e. historical) matter? How these words came to be added to the language is a matter of history, and thus of little consequence to a description of how the language system operates at the present time, but there are two ways in which derivational morphology is of relevance to a synchronic study of the modern language. Firstly, it is clear that some words are

related to others in form, differing only in the addition of some morpheme, and these relations are the proper study of synchronic linguistics. Secondly, many of the derivational processes that have brought new words into the language in the past are still *productive*, i. e. they continue to be used in creating new words at the present time. For example, the prefix *anti-* is still being added freely to all kinds of roots, as *anti-Common Market*, *anti-pornography*. <...>

“Grammar” of words

“The fills basined the apply out of the squeeze”. It is clear that a word may not combine freely with just any other word or words: there are constraints on the “grammar” or combinability of words. Some constraints arise from the general grammatical or syntactic system of the language, from the rules for phrase, clause and sentence structure. Other constraints arise from the nature of the word itself and its particular place and function in the language as a whole. The first kind of constraint can be illustrated by the fact that adjectives usually precede nouns in noun phrases, or that subject noun phrases usually precede verb phrases in the structure of declarative clauses. Constraints of the second kind fall into two categories. On the one hand there are constraints which are purely syntactic, arising from the classification and subclassification of the word. On the other hand there are constraints which are more of a semantic nature, “collocational” restraints. We will now look at these categories of constraint in more detail.

Syntactic constraints

As may be seen by looking at dictionary entries, the word class label of a word (noun, verb, preposition, etc.) is a designation of the syntactic operation of a word. So, the label “noun” indicates in a fairly specific way where in syntactic structure a word with that label may operate, i. e. as head of a noun phrase, as a modifier immediately before the head in a noun phrase. The label “adjective” indicates that the word so labelled may operate as head of an adjective phrase, or as modifier after a determiner and before a noun modifier in a noun phrase. But in general these broad word class labels are not in themselves sufficient to specify all the constraints operating for individual items in the class: they refer to the class as a whole. Not all nouns, for example, may operate as noun modifiers. There is therefore a need to subclassify, particularly in the open classes.

In the case of nouns, then, a subclassification needs to be made into those that may function as modifiers in noun phrases and those that may not. Again in the case of nouns, a number of compatibilities with determiners need to be accounted for. This will entail a subclassification into count nouns and mass nouns, the latter being compatible with a “Ø” determiner, *some* and *the*, and the former being compatible with “Ø”, *a*, *the*, *some*, *many*, etc. (compare *butter* and *saucepan*). Furthermore, some nouns may be followed by particular post-modifiers; for example, *determination* may be followed by a to-infinitive clause (*his determination to succeed*); *affection* by a prepositional phrase introduced by *for* (*his affection for Lucy*); *regret* by a that-clause (*his regret that he had failed*). This syntactic constraint also needs to be accounted for by subclassification.

In the case of verbs, a basic distinction needs to be made between those which function as the head of a verb phrase, i. e. lexical verbs, and those which have an auxiliary function. Auxiliary verbs need to be further subclassified into primary auxiliaries and modal auxiliaries, and according to the position they may occupy in the verb phrase. Lexical verbs, on the other hand, have to be subclassified according to the types of structure in which they may occur. Basically this involves the kinds of object, complement and obligatory adjunct that may co-occur with a particular verb, sometimes called the “complementation” of the verb. For example, there will be a subclass of verbs like *remember*, which enter a “SVO” structure, where the object may be a noun phrase (*Do you remember Jim*), a that-clause (*He remembered that he was supposed to phone her*), a to-infinitive clause (*He remembered to phone her*), or a wh-clause (*Do you remember where I hid the key?*); and which also enter a “SVOC” structure, where the object is a noun phrase and the complement is an adjective phrase (*I remember him bald*) or a noun phrase (*I remember him a young man*).

This kind of subclassification obviously goes much further than the traditional distinction between “transitive” and “intransitive”. However, this latter distinction is important from another point of view: part of the lexical information about a verb is its ability or otherwise to be made passive, or more accurately for the clause in which it occurs to be made passive, and the transitive-intransitive distinction represents this information. Transitive verbs are those taking objects, i. e. entering mono-transitive, di-transitive and complex-transitive structures, and this is a pre-requisite for the passive transformation. The notion may have to be broadened, however, to take account of the fact that some preposi-

tional phrases functioning as adjunct may become the subject of a passive clause, e. g. *My chair has been sat on*.

We have seen that to take account of the syntax of adjectives a sub-classification into attributive adjectives and predicative adjectives is required, since some adjectives are restricted to one or the other of these two positions, e. g. *mere* to the attributive position (*a mere boy*), and *asleep* to the predicative position (*the boy is asleep*). A subclassification of adjectives also needs to be made in order to distinguish between those adjectives which may take complements and those which may not, and to indicate which kinds of complement are involved in each case. For example, *ready* may be followed by a to-infinitive clause (*they are ready to admit defeat*) or a prepositional phrase (*they are ready for their meal*); *sorry* may be followed by a to-infinitive clause (*I am sorry to call at this hour*), a that-clause (*I am sorry that you are disappointed*) or a prepositional phrase introduced by *for* or *about* (*I am sorry for Jim, about the mess*).

Adverbs, as we discussed earlier, are subclassified into intensifying and non-intensifying, the latter functioning as head in an adverb phrase and the former as modifier in an adverb phrase or an adjective phrase. One group of adverbs presents an interesting problem of classification. Compare the status of *off* in the following clauses: *Jim jumped off the bus*; *Jim jumped off*. The first of these clauses would be analyzed as: S:NP V:VP A:prep P, i. e. *off* would be classed as a preposition. The second clause would be analyzed as: S:NP V:VP A:adv P, i. e. *off* would be classed as an adverb. But consider *The meeting is off*, where *off* would again be classed as an adverb. But this case is different from *Jim jumped off*, since here *off* could not be completed with a noun phrase to become a prepositional phrase. In other words, in *Jim jumped off* the word *off* appears to be both adverb and at least potentially preposition. We can either assign *off* to both the class of prepositions and the class of adverbs, or we can create a new class of words, adverb-prepositions, which would include those which function like *off*, but not like *to* (a preposition only), nor like *away* (an adverb only).

Collocational restraints

This, then, is one kind of constraint on the combinability of words, a syntactic one. Now let us turn to the collocational constraints on word combinations. “Collocation” is a term that has been used in a number of ways. We shall use it to refer to two kinds of combinability: firstly, the regular expectations that a word has for one or more other words; and secondly, the semantic compatibilities that exist between words having particular syntactic functions.

The first sense of collocation covers facts like the following: in geometry we say that we *describe a circle*, *construct a triangle* and *drop a perpendicular*, where all these verbs refer to drawing a particular line or series of lines on a two-dimensional surface. But these kinds of compatibility are not restricted to specialized registers. We talk of someone *raising* his eyebrows, not *lifting* them. We talk of a *powerful* motorcar, but of *strong* coffee, and of both *powerful and strong* arguments. We talk of *raising* or *breeding* cattle, but of *bringing up* children (though *raise* is perhaps possible here also), and of *breeding* dogs or cats. Compare also the collocations of *good*, *strong* and *high* with the nouns *likelihood*, *probability*, *possibility* and *chance*:

good	likelihood probability possibility chance	strong	likelihood probability possibility	high	probability
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From this notion of collocation derives the idea that some words have a strong mutual expectancy, e. g. *lay* and *egg*, *knead* and *dough*, *white* or *black* and *coffee*, *turn on* or *turn off* and *switch* or *tap*. Obviously many of these expectancies arise from the extra-linguistic situation that the words are referring to; we are after all dealing here with semantic constraints. When the expectancies become particularly strong, and words are continually found in each others' company, then this gives rise to the development of idioms and clichés. For example, the following would count as idioms: *red revolution*, *purple passage*, *be worth while*, *find fault with*, *seek help from*, *to and fro*, *kith and kin*, *without let or hindrance*; and the following as clichés: *desirable residence* in estate agents' blurb, *at this present moment in time* in politicians' speeches, *exclusive interview* or *revelation* in journalistic jargon, *unrepeatable offer* in salesmen's talk, and perhaps *real meaning* in students' essays!

The other sense of collocation, referring to the semantic compatibilities between words having a particular syntactic function, may be illustrated by a sentence that has become a classic in linguistics: *Colourless green ideas sleep furiously*. *Colourless* and *green* are semantically incompatible adjectives; they in turn are incompatible with the noun *idea*, since ideas cannot have colour predicated of them.

Likewise *idea* is incompatible with *sleep*, since that is not something that ideas are deemed capable of doing; and *sleep* is incompatible with

the adverb *furiously*, since that is not a way in which people can sleep. Obviously, these incompatibilities arise from the nature of extra-linguistic reality; but it is nevertheless arguable that they reflect facts about the operation of words in the language system, facts that need to be taken account of in a linguistic description.

We have so far stated the matter rather negatively, in terms of incompatibilities. It is possible to make more positive statements. For example, taking the verb *eat*, it is possible to say of this verb that the subject associated with it must be a noun phrase referring to an animate object, human or animal, and that the object must refer to an edible object, food, meat, cereal, plants, etc. By stating the regular collocations of words in this way it is possible to account quite easily for metaphor. For example, the sentence *He ate his words* will obviously be classed as metaphorical, since words are not normally edible objects. As in the case of syntactic compatibilities, it is easier to state semantic collocational compatibilities in terms of what particular verbs require, rather than in terms of what particular nouns require. For example, the noun *man* as subject could require any of the verbs that refer to actions that men are capable of doing. This merely emphasizes the centrality of the verb in the clause, and its function as the departure point in description, if not in communication.

As a postscript, let us come back to the question of what is a word. We have distinguished between phonological, grammatical and lexical words (also called *lexical items* or *lexemes*). Given the notion of collocation, and more especially the notion of idiom or fixed collocation, it seems that we shall have to recognize as lexical items groups of more than one word, in an orthographic sense, and consider them to have the same value in the language system as individual words. For example, in the clause *She went at him hammer and tongs*, the last three words constitute a single lexical item. This can be demonstrated if we consider its syntactic status, i. e. whether it should be classed as a noun or as an adverb. Using the criterion of word classification that we have already established, namely that of function, we see that *hammer and tongs* here functions as head of an adverb phrase functioning as adjunct in the clause and referring to the “manner” of the action. Since it is head of an adverb phrase it must be considered to be an adverb, even though analytically the individual parts are nouns. In other words, our principles of classification will on occasions compel us to regard groups of orthographic words as single lexical items from a structural point of view.

Aids to the study of the text

1. Name the ways new lexical items may be created in English.
2. Describe affixation, compounding and conversion and the processes they involve.
3. Find your own examples of affixation, compounding and conversion in English.
4. Demonstrate the mechanism of constraints on the combinability of word. Analyze the role of morphological properties of the word in this mechanism.
5. In what senses can the term “collocation” be used?
6. What are the factors that determine semantic compatibility of words in collocations?

Otto Jespersen

A MODERN ENGLISH GRAMMAR ON HISTORICAL PRINCIPLES

Word classes

6.1.2. One of the most characteristic traits of ModE is the formal identity of a great many words belonging to different word-classes; this constitutes one kind of grammatical homonymy.

The development of such identical forms must be reckoned one of the chief merits of the language, for this “noiseless” machinery facilitates the acquirement and use of the language enormously and outweighs many times the extremely few instances in practical life in which ambiguity can arise. In at least 999 out of 1 000 sentences the context shows unmistakably whether a word is to be taken as a sb or a vb, etc. See, e. g. *water works wonders* (the inspector of the *water works wonders* how it came about).

The phenomenon here dealt with is often termed conversion (sbs converted into vbs, and vice versa); it would be better to speak of verbs formed from sbs with a suffix zero, to use a now fashionable term. Instead of saying that a sb is made into a vb, or a vb into a sb, we should rather say a verb made from a sb, or a sb made from a vb, without any change. Anyhow it is ridiculous to say, as is sometimes done, that English no longer distinguishes between the parts of speech, between noun and vb, etc. As a matter of fact English distinguishes between the sb and the vb *love*, because the former has the pl *loves*, and the latter, besides the 3rd person sg *he loves*, has the form in **-d** as preterit and as participle, and the form **-ing** as participle and gerund.

Verbs from Substantives

6.7.1. It is difficult to give a general definition of the sense-relation between substantives and de-substantival verbs. The verb may designate any action or state that bears a relation to the substantive in question.

One and the same verb may very often mean two or more different things, the context only showing what is meant in each particular case. Thus the vb in *stone a man* means “kill by throwing stones”, but in *stone cherries* “remove the stones from”. *To powder* has the sense of “sprinkling or covering with powder”, but *to dust* generally means “to free from dust”, <...> *father a child* means “be or become the father of a child”.

6.7.2. Substantives indicating a *place* or the like may be used to form verbs with the sense of “putting in that place”; *book* “enter in a book”, <...> *corner* “place in a corner, drive into a corner, put in an awkward position” <...>.

6.7.3. De-substantival verbs frequently come to mean “provide with or furnish with smth, put on a garment, etc.” This process may have been furthered by the use of the adjective-ending *-ed*. Thus, from the sb *wing* is formed an adj *winged* (“having wings”) which is easily apprehended as the past participle (“furnished with wings”) of a vb. *wing*. <...> *Diet*: I wonder whether I ought not to *diet* you (feed you with plain meats, and leave out the sauce). <...> *Horse*: Every man that we can *horse*; *initial*: She wrote the bill and took it to Miss Connor to *initial*.

6.7.4. The vb means to deprive of that which the sb indicates:

Bone “pull out the bones of”; *brain* “knock out the brains of”; black cock and grey hen *dusting* themselves in the road <...>.

6.7.5. From the names of implements (in a widened sense) are derived a great many verbs that denote the action for which the implements are meant (cf. *cable, nail, screw, wire*).

Axe “cut down (expenses)”; *bomb*; he was *caned* every day, except on holiday and Monday when he was only *ruler'd* on both hands <...>. Names of drinks may be regarded as implements in a widened sense: *liquor* “consume strong drinks” / You could come and *tea* with me / dine and *wine* with some one / Will you come and *wine* with me next Thursday?

But we never have verbs in that way from names of food: we cannot possibly say to *bread* or to *meat*.

6.7.6. *Parts of the body*: used as a kind of implement: *body*: imagination *bodies* forth the forms of things unknown, *breast* “present the breast to (the waves, a storm)” <...>.

6.7.7. Another minor group is formed by words denoting periods of time, weather, etc. Derivatives from these generally mean “spend the time indicated by the substantive”: *honey-moon*, We shall, certainly, *winter* in Rome, Wouldn't it be a good idea if they *week-ended* there?, It began to *mist* pretty hard, it *frosted* heavily last night.

6.7.8. Not infrequently, a de-substantival verb is used, about an action or state that resembles the thing in shape.

6.7.9. Verbs derived from the names of animals to denote the action characteristic of the animal in question, are not so frequent:

Buck up “cheer up”, I *crowfished* as fast as I could; *dog* “follow closely”; *fox* “behave craftily” <...>.

Names of persons may produce vbs meaning “make, be, become, or do the thing characteristic of”. Some of them, such as *father* have several significations.

Baby “treat as a baby”, *boss* “be the manager (boss) of” <...>.

Verbs formed from names of persons occupied in a certain way are comparatively rare because many of these substantives are in their turn derived from verbs by means of *-er* or *-or*. <...>

6.8.1. Verbs are, of course, rarely formed from action-nouns which have themselves been derived from a verb. When it does happen, the new verb generally has a special application: *Allowance*: to allowance him. To do what? To put him upon a fixed allowance, I am allowed two glasses before dinner. <...>

6.8.3. With regard to form, we must notice:

(1) In the majority of cases the vb is taken from the singular of the sb. An exception is the vb *dice*.

(2) Verbs are freely formed from compounds: *bee-bonneted*, his face looks *machine-made* and *beeswaxed*. Sometimes they whistled and *cat-called* at the very sight of her.

6.8.4. The ease with which the English language coins “nonce-words” is especially seen in the frequent formation of a verb from a sb, an adj, an adv, or indeed any kind of word, or phrase, without any formal alteration. In many cases the urge to use such a term is so great and universally felt that the word is coined independently by several speakers at different times, and the word will then have to be reckoned among the common stock of words in the language. In other cases the term is so bold, being produced by the requirements of an individual speaker on the spur of the moment, that it can never be counted more than a momentary outgrowth of the state of language in which the type “sb = vb” has become fixed.

“Nonce-words” are found early, even before the loss of the endings that distinguish verbs from substantives, but then only rarely. They become very common from the 15th century.

6.8.5. A special class of “nonce-words” is often used in retorts. In anger one simply seizes one word or phrase in what was said by the other party, and repeats it as a verb in a scornful tone of voice.

Come, Mother Prat... — I’ll *prat* her; ... the roast turned powder — I shall *powder* you; Trinkets! <...>

When the word taken up for retort is, or resembles, an agent-noun, the ending is often removed (“back-formation”): You will be killed: he is a prize-fighter. — I’ll *prize-fight* him.

6.8.6. Outside retorts proper, “nonce-words” are common in the sense of calling somebody something: She began to read, “Dear Sir.” “He *dears* me too, you see.” “Darling,” he cried in amaze. “I told you not to “*darling*” me.” I do not choose to be *mistressed* by a maid of honour; They *my-loved* and *my-deared* each other; She neither *sir’d* nor *my-lorded* him; If you call me Mr. Tennyson any longer, I think that I must *Yourgrace* you till the end of the chapter.

6.8.7. When from a sb is formed a vb which from its signification must be intransitive, there is a strong tendency to add *it* as a kind of “empty” object. Many of these formations are nonce-words and phrases.

From adjectives we have: *brave it*, a nice one indeed to *high-and-mighty it* over her, *rough it*.

Perhaps on the analogy of *foot it* and *leg it* we have also: *walk it*.

Aids to the study of the text

1. What phenomenon is often termed “conversion” ?
2. Why does Jespersen believe it ridiculous to say that English no longer distinguishes between the parts of speech?
3. Why does the author say it is difficult to give a general definition of sense-relation between substantives and de-substantival verbs?
4. What are the most typical cases of sense-relation between substantives and de-substantival verbs?
5. How does Jespersen think the use of the adjective-ending *-ed* favoured the formation of de-substantival verbs meaning “provide with or furnish with smth” ?
6. Why are verbs rarely formed from names of persons occupied in a certain way and from action-nouns derived from a verb?
7. What peculiarities of coining “nonce-words” does the author point out?
8. What does the author mean by “a kind of empty object” ?

LEXICAL FIELDS AND WORD-FORMATION

1.1. It is often assumed that the vocabulary of a language, and, correspondingly, the “lexicon” as that subcomponent of the grammar which formally represents the lexical competence of a native speaker, are structured by two unconnected and quite different organizational principles: a semantic and a formal-morphological one. Semantic structures result from the existence of various kinds of sense relations between lexical items, or, rather, the meanings of lexical items, on the basis of which one obtains sets of lexemes sharing a common basic meaning. These sets are usually referred to as lexical fields. Formal-morphological structures derive from the ability of already existing lexical items to combine with other lexical items or with bound morphemes (prefixes, suffixes) forming morphologically complex new lexical items. These processes, i. e. compounding, prefixation, suffixation, etc., characterize the field of word-formation, and they are usually regarded as a means of extending the vocabulary almost without limits in order to adapt it to the ever-changing referential requirements of a speech community. This leads to a formal division of the vocabulary into primary and secondary lexemes, to take up a terminological distinction suggested by Coseriu. Primary lexemes, e. g. *big, mountain, give, in*, etc., are simple, arbitrary linguistic signs in the sense of Saussure. Secondary lexemes, e. g. *spaceship, steamboat, sailing boat, rewrite, atomize, whiten, rider, departure, disestablish-mentarianism*, etc., are lexical syntagmas. As such they are characterized by a determinant/determinatum relation; they are relatively motivated with regard to their constituents and parallel formations; and they are based on certain morphological, semantic, and syntactic patterns.

1.2. While the morphological and the semantic aspects of word-formation are quite obvious and uncontested, its syntactic aspect is by no means uncontroversial. This is most obvious in the controversy between the so-called transformational and lexicalist hypotheses in generative-transformational grammar. The former relates word-formation directly to the syntactic rules of the grammar by deriving word-formation syntagmas transformationally from underlying representations which are identical or at least closely related to those also underlying syntactic constructions such as relative or complement clauses, infinitives, gerunds, etc.

Accordingly, (1 a) and (1 b — e), and (2 a) and (3 b, c), respectively, would have similar underlying representations:

- (1) a. Peter regretted Harriet's early departure,
b. Peter regretted Harriet's departing early.
c. Peter regretted Harriet having departed early.
d. Peter regretted that Harriet had departed early.
e. Peter regretted the fact that Harriet had departed early.
- (2) a. I know an alleged discoverer of time-travel.
b. I know someone having allegedly discovered travelling through time.
c. I know someone of whom it is alleged that he has discovered that / how one can travel through time.

Adherents of the lexicalist hypothesis, on the other hand, would relegate such relationships to the lexicon, regarding word-formation as a purely lexical matter.

These two positions do not constitute genuine alternatives, however, but only reflect the inherently ambivalent position of word-formation with regard to syntax and the lexicon. Thus there are numerous phenomena similar to (1) and (2) which require a syntactic explanation and can best be handled transformationally. The close relationship of word-formation to the lexicon, which cannot be denied, of course, can then be regarded as a kind of spin-off effect due to the format of the output of word-formation rules: in contradistinction to regular syntactic transformations, it consists of lexical items (lexemes), which can readily be incorporated into the lexicon as fixed units and can therefore also be recalled as such. This aspect accounts for the view that word-formation is a means of systematically enriching the lexicon. Thus both aspects, the syntactic and the morphological one, are equally important.

1.3. In descriptions of the lexicon, semantic and formal-morphological structures are as a rule kept strictly apart. Thus Coseriu regards both lexical semantics and word-formation as legitimate parts of "lexematics", as he calls the functional analysis of the vocabulary. Nevertheless, he treats them as two basically unrelated phenomena, viz. as primary paradigmatic lexical structures or lexical fields and secondary paradigmatic lexical structures or word-formation. Both are kept apart from a third type of relation between lexical items, viz. syntagmatic lexical structures or lexical solidarities. These describe the same kind of phenomenon as the selection restrictions in generative grammar, although from a purely semantic rather than a syntactic point of view. Thus no direct

relationship between these subdivisions is assumed, although Coseriu does not deny that word-formations may function in lexical fields alongside primary lexemes. But this is regarded as a by-product only of their integration into the lexicon, while the structures themselves are strictly kept apart.

2.1.1. I will begin with some observations from historical linguistics, which already provide a good indication of the kind of relationship that obtains between primary and secondary paradigmatic lexical structures.

2.1.2. These observations relate to the fact that there are transitions between these types of structures in both directions.

2.1.3. One factor involved in a lexeme's transition from monomorphemic to polymorphemic, i. e. syntagmatic status is folk-etymology. This refers to the reanalysis of a monomorphemic lexical item (moneme) as consisting of more than one morpheme on the basis of phonetic associations with morphemes resembling parts of the reinterpreted item. Semantic analogy may also play a role in this process, which is still little understood. Examples are:

(3)	OE scamfaest	Mod.E shamefaced
	asparagus	sparrow-grass
	E hammock	G Hängematte

2.2.1. Similar processes are involved in the reinterpretation of the direction of the derivation with backformations. A case in point is the relationship between *peddle* and *peddler/pedlar*. Historically, *peddle* vb was backderived from the originally monomorphemic noun *peddler* with the meaning "act as peddler". In the course of time, this relationship came to be reversed by analogy with the usual pattern *write: writer*. As a result, *peddler* was reinterpreted as a bimorphemic lexeme meaning "someone who peddles", i. e. as a derivative from *peddle*, which was originally the derivative but must now be regarded as a moneme acting as the basis for the derivative *peddler*.

2.2.2. These phenomena, however, concern individual cases only and are not pattern-forming. Closely related, but much more important, are the processes which lead to the adoption of a foreign word-formation pattern and to its becoming productive in the target language.

English prefixes and suffixes of Latin or French origin such as *de-*, *co-*, *dis-*, *in-*, *re-*; *-able*, *-ize*, *-ify*, *-ive*, *-ation*, etc. were not borrowed into English directly as isolated morphemes. Rather, they were taken over as constituents of foreign word-formation syntagmas which were

borrowed into English, such as *deplume*, *decipher*, *co-author*, *disallow*, *recharge*, *acceptable*, *harmonize*, *edification*, etc. But these loans could be recognized as word-formations in English only if the corresponding bases had also been borrowed. Thus *acceptable* would be a moneme in English if the verbal base *accept* had not been borrowed as well. Only then did a derivative relationship develop between *accept* and *acceptable*, and *acceptable* could be interpreted as a syntagma. And it was only on the basis of such pairs that these affixes could become productive in English itself. There are two aspects to this phenomenon which are of particular interest in this connection.

First of all, often a Latin or French derivative was borrowed before its base was also adopted. Consequently, such loans lost their status as word-formation syntagmas in the process of borrowing and became monemes in English, until their bases were also taken over. Only then did they regain their syntagmatic status. There is thus a constant give and take between primary and secondary lexemes from this point of view, which is only possible, however, if the semantic structures of simple lexical items and word-formation syntagmas closely resemble each other.

Secondly, the base of the original derivative may not have been borrowed, as was the case with *laudable*, *magnify*, *pensive*, *receive*, *discern*, *inert*, *inane*, which have therefore remained unanalysable monemes in English. But, on the other hand, a word like *laudable*, due to its origin as the Latin derivative *laudabilis* from *laudare*, will have a semantic structure which is completely analogous to the semantic structure of a syntagma such as *acceptable*. So here again we have a strong indication that the semantic structures of primary and secondary lexemes must be extremely similar.

2.3.1. In contradistinction to the phenomena described so far, the transition from a motivated syntagma to a moneme is a gradual process. Synchronically, we are confronted with a scale or cline of various degrees of motivation; diachronically this means that a word-formation syntagma may move along this scale from complete motivation to complete arbitrariness. This development is triggered by the lexicalization of word-formations, i. e. their incorporation into the general, accepted vocabulary in a fixed, often somewhat idiosyncratic meaning.

2.3.2. The specialization of meaning often accompanying the lexicalization of a word-formation syntagma may be due either to the addition of certain semantic components to the syntagma as a whole, or to

some change in the meaning of the constituents, or both. As a result, the overall meaning of the respective word-formation can no longer be deduced completely from the meanings of the constituents and the structural meaning of the word-formation pattern; rather, additional information is required, which constitutes the first step towards complete idiomatization. This can be illustrated by the following examples.

For the correct interpretation of *rattlesnake* we need nothing more than the simple syntactic paraphrase “snake which can rattle”. But for *call-boy* or *callgirl* a definition as “boy who calls” and “girl who is called”, respectively, is by no means sufficient. The restriction to these two paraphrases is already an indication of their lexicalization and the beginnings of idiomatization, because these two nouns could theoretically just as well mean “boy who is called” and “girl who calls”. In order to understand *callboy* correctly, one has to know that this formation refers to someone who summons the actors onto the stage; and a *callgirl* is by no means just any girl one talks to on the phone, but rather some female one calls up for some very specific, well-known purpose. It would not do to call one’s girlfriend a *callgirl* just because one happens to call her up once in a while and invites her home. Idiomatization has progressed even further in the case of *blackboard* due to a change in the object referred to by this compound: blackboards today are usually green and not black. And the compound *butterfly* is completely idiomatic, since its meaning no longer has anything to do with the meanings of its constituents. From a purely formal point of view, *butterfly* is still a syntagma; from the point of view of the relation between meaning and form it behaves like a simple lexical item. This borderline case thus has the same status as syntactic idioms like *kick the bucket*, *spill the beans*, *pull someone’s leg*, etc.

Idiomatization can be accompanied by formal demotivation, which results in a moneme on the morphological level, too, e. g.

(4)	OE	hlāfweard	“loaf-guard”	lord		
	OE	hlæfdige	“loaf-kneader”	lady		
	OE	hūswif	“housewife”	hussy		
	OE	freond	“friend”	feon	“love”	friend
	OE	feond	“enemy”	feon	“hate”	fiend.

Friend and *fiend* have lost their syntagmatic status because their verbal bases no longer exist and, moreover, the derivative pattern has also become extinct.

It is not likely, however, that this process will have fundamentally altered the underlying semantic structures, although some modifications have of course taken place: all the words in (4) continue to refer to persons, *butterfly* still denotes some kind of insect, etc. Thus, from a diachronic point of view there is considerable evidence for the assumption that on the semantic level there exist close parallels between primary and secondary lexical structures.

3.1. Turning now to synchronic considerations, the same conclusion results from a comparison of lexical solidarities and word-formation syntagmas. Lexical solidarities are defined by Coseriu as syntagmatic implications holding between various types of lexical structures, which are due to the fact that the meaning of some lexeme, or of a whole lexical field (i. e. of an archilexeme) is contained in the meaning of some other lexeme where it functions as a semantic component. In this sense, the verbs *bark*, *neigh*, *miaow* imply the nouns *dog*, *horse*, *cat* as agents; *fell* implies *tree* as object; *see*, *look* and *hear*, *listen* imply *eye* and *ear*, respectively, as instruments; similarly, *kiss* implies *lips*, *sweep* implies *broom*, etc. Bally talks in this connection of implicit syntagmas or of “motivation par cumul des significés”; Gruber uses the term “incorporation”, and Lyons the term “encapsulation” for basically the same phenomena.

Now Porzig, who was probably the first to call attention to this phenomenon, referring to it as “wesenhafte Bedeutungsbeziehungen”, pointed out that pairs like *hämmern*: *Hammer* (*hammer* vb: *hammer* sb) etc. exhibit the same type of relation. Coseriu, however, rejects this partial identification of word-formation processes and lexical solidarities. He regards word-formation as a primarily paradigmatic process having a syntagmatic basis, e. g. *mit dem Hammer* + verbalization → *hämmern*, in contradistinction to lexical solidarities, which are basically a syntagmatic phenomenon caused by paradigmatic oppositions, e. g. *schneiden* + *Zahn* = *beßen*, *schneiden* + *Baum* = *fällen*, *schneiden* + *Gras/Getreide* = *mähen*. From a purely analytic point of view focussing on morphological distinctions, this may be justified. From a genuinely semantic point of view, however, this strict separation strikes me as unsatisfactory and incoherent. Rather, it seems to me that these two phenomena are much more closely related than Coseriu is inclined to admit. In fact, pairs like *hammer* vb: *hammer* sb, *shovel* vb: *shovel* sb, *telephone* vb: *telephone* sb, *knife* vb: *knife* sb, etc. differ from lexical solidarities only in that the semantic implication is accompanied by a formal implication. In word-formation syntagmas,

one lexeme is contained in the other both semantically and formally, and it is this kind of formal-semantic implication which is the essential characteristic of word-formation. Conversely, we might speculate that the sense-relations characterizing the structure of the primary vocabulary are taken up in word-formation and are made explicit by corresponding formal relations, which then accounts for the relatively motivated character of the resulting lexical items.

Aids to the study of the text

1. What groups of lexemes is the lexicon (vocabulary) divided into? Find your own examples of primary and secondary lexemes in English.
2. What are the foundations of the controversy between the transformational and lexicalist hypotheses in generative-transformational grammar?
3. Which of the two approaches do you support? Account for your choice.
4. Give your understanding of the term "moneme".
5. Under what conditions can affixes be borrowed?
6. Account for the fact that the borrowed lexemes *laudable*, *receive*, etc., though of derived character in Latin or French, are primary in English.
7. Name the causes of demotivation and a shift from a derived unit to a primary one?
8. What is the essential characteristic of word-formation?
9. Make up a list of linguistic terms used in the paper and write out their definitions by D. Kastovsky.

Arthur G. Kennedy

CURRENT ENGLISH

Chapter VIII. Conversion and confusion of the parts of speech

One of the chief results of the foregoing attempt at a systematic classification of the eight parts of speech and their various subdivisions should be a realization that all words do not lend themselves at all times to clear-cut distinctions. Words shift from one part of speech to another by the process of conversion; at times a word becomes a sort of hybrid, functioning as two different parts of speech at the same time and fusing them together; and sometimes a word is so utilized that this fusion or confusion produces uncertainty in the mind of the speaker or writer. <...>

When Sweet used the word *conversion* in his New English Grammar in 1892, he was one of the first grammarians to employ the term in its more restricted grammatical sense and perhaps one of the first to revolt against a tendency to put every word into a hard-and-fast classification as a part of speech. Since that time there has been a more general recognition of the shifting character of the Modern English parts of speech and of the almost puzzling flexibility that this one characteristic of Current English gives to the language. <...>

A. Conversion

Conversion has already been defined as “a shift from one part of speech to another.” But this functional change has also been observed in a shift from one kind of noun to another, or one kind of verb to another, or one kind of adverb to another; and it seems logical to regard conversion as functional change not only between the parts of speech but also within each part of speech. It should be insisted also that conversion and derivational change are two distinct processes; derivational change by the use of prefixes and suffixes shifts words between the parts of speech, and also within each, by producing different forms, as, for example, the adjective *wide*, the noun *width*, and the verb *widen*, whereas conversion makes no change in the form of a word but only in its general functions. And, finally, it is necessary to recognize various stages of conversion; in “The *poor* are with us always” the adjective is not completely converted into a noun, but in “He sold his *goods* finally” the adjectival value of *good* has disappeared so completely that the word can take the plural ending *-s* like any other noun. When a word has changed its function to such an extent that it is capable of taking on new inflectional endings, then the process of conversion may be considered complete. Moreover, conversion may be regarded as complete when a word has been substantivized to the point where it can be modified by adjectives, as in *the others*, *a lunatic*, *good reading*; or verbalized to the point where it can be modified by adverbs, as in *telephone soon*, *motor often*.

(a) Interchange of nouns and verbs in Current English is so common a form of conversion, as in *a run* and *to run*, *a try* and *to try*, “to make a go of it” and *to go*, that further discussion should be unnecessary.

(b) The substantivation of adjectives has always been an important process in English and is active today. Some of the earlier substantivations have been so long established as nouns that English-speakers no

longer realize that they ever were adjectives; in many instances, however, the substantival use of the adjective is only temporary, and as soon as the need is past, the word reverts to its usual adjectival function. <...>

There are two stages in the substantivation of adjectives: the more complete, when the word can be declined like any other noun; and the less complete, when declension is not yet possible. The most advanced stage has been reached by the old native or borrowed adjectives in *aliens, the ancients, belles, the commons, elders, goods, innocents, negro spirituals, nobles, pagans, privates, a quarterly, the ritual, sides* (early meaning as adjective “wide”), and *thoughts*. All the collective names like *American, Asiatic, Bostonian, and Chinese* are substantivized proper adjectives. Many older participles are today nouns, such as *a compact, the deceased, a drunk, dug-out, fact, fiend, friend, a grown-up, the illustrated, her intended, left-overs, Occident, Orient, and primate*. Sometimes even the compound adjectives are so completely substantivized as to be capable of declension, as, for instance, *Black and Tans, hand-mades, two-year-olds*.

Adjectives are usually still in the indeclinable stage when they become collective nouns like *the aged, the dead, the halt and the blind, the infirm, rich and poor, the wealthy, young and old*.

(c) The interchange of concrete, abstract, and collective nouns, such as *battery, circle, and shaving*, has already been commented upon. The verbal nouns in **-ing** often take the plural **-s** endings when they become concrete, as in *earnings, filings, findings, shavings, sweepings*.

(d) The verbal noun in **-ing**, often known as the gerund, is sometimes confused with the verbal adjective, known as the participle. Ordinarily there is no reason for confusion when the gerund is used in nominative constructions, as in “*Seeing is believing*”; but in objective constructions, after a verb or a preposition, there is often a fusion of adjectival (participial) and nominal (gerundial) functions which causes uncertainty regarding both the proper classification of these **-ing** words and the correct syntactical uses of them. <...>

(e) Commonization is merely the process of making a common noun (or a verb or a common adjective) out of a proper noun (name). Since it has added largely to the English vocabulary, it will be considered in detail later. But it is too important a phase of conversion to be entirely passed over in this present survey. At first some familiar name of history or literature is used figuratively, and a man is called a *gay Lothario*, a *Shylock* of greed, or a *Solomon* of wisdom. If the idea needs frequent expression, the term becomes

more and more common, until we find embedded in the English vocabulary such words as *a guy* (from *Guy Fawkes*), *to hector*, *a jehu*, or *maudlin* (from *Magdalen*). So place-names likewise yield common nouns, giving, for example, *buncombe*, spelled also *bunkum* (from *Buncombe County*, North Carolina), *currants* (from *Corinth*), *wienies* (from German *Wien*, English *Vienna*).

(f) When the relative and interrogative pronouns *which* and *what*, the demonstratives *this*, *that*, *yon*, and *yonder* and various indefinites like *many*, *some*, and *each* are used as modifiers of nouns, the conversion may be regarded as complete and the term *pronominal adjective* an appropriate one. They are pronouns when they stand in place of nouns, and adjectives when they modify nouns, and it is always possible to distinguish clearly between the two functions.

(g) The varying use of *who*, *which*, and *what* as relatives introducing subordinate clauses, as in “I saw the man *who* brought it”, and as interrogatives introducing questions, as in “*Who* brought it?”, may well be considered in a discussion of conversion, since their functional shift changes their pronominal classification.

(h) The same thing may be said of those compound pronouns like *myself* and *themselves* which function as intensives when they follow in apposition, as in “I *myself* will go” or “I will go *myself*”, but as reflexives when they become the objects of verbs, as in “They have hurt *themselves*”. <...>

(j) When the same form is used for both adjective and adverb as in the case of *better*, *high*, *low*, *right*, *well*, and *wrong*, only the function of the word determines which part of speech it is. So the adjective of “He looks *well*” is converted into an adverb of manner in “He sings *well*”.

(k) The auxiliary verbs *be*, *have*, *do*, and *will* can be converted into notional verbs by a simple change of construction. As long as they are used with verbal forms, as in *be going*, *have finished*, *do wish*, *will come*, they are auxiliary, or helping, verbs; but when they are used with nouns, pronouns, adjectives, or adverbs, as in *be sick*, *be away*, *have need*, *do well*, and *will a thing*, they become notional verbs.

(l) Active verbs are converted into passives when they are used in such a manner as to indicate that the subject is really acted upon, as in “How *did* it *clean*?” and “It *dyes* beautifully.”

(m) When a preposition such as *about*, *by*, *down*, *in*, *on*, or *over* has an object, as in “*in* the box”, its prepositional status is unquestioned; but when it has no object, as in “Come *in*”, it is certainly an adverb. <...>

(n) The gradual conversion of adverbs of manner like *awfully*, *likewise*, *simply*, and *surely* into adverbs of degree of assertion is a fairly common process in English. From the careful use of the word *simply* as an adverb of manner in “He spoke *simply* and clearly” it is but a step to the colloquial use of it to show degree of intensity in “He was *simply* wild”. <...>

(p) Several conjunctions become prepositions when they are followed by objects instead of clauses or other coordinate constructions. Some grammarians call the coordinating conjunction *but* a preposition in “I saw no one *but* his father”, although others consider it still a conjunction; certainly *for* is a preposition in “tea *for* seven”. Likewise the subordinating conjunctions *after*, *as far as*, *before*, *ere*, *since*, and *until* become prepositions in such constructions as *after dark*, *before night*, and *until noon*. It is this interchangeable character of these words, no doubt, that is responsible for the objectionable use of the prepositions *except*, *like*, and *without* as conjunctions in such sentences as “Don’t take it *except* (*unless*) I give you permission”, “He plays *like* (*as*) I do”, and “He couldn’t come *without* (*unless*) I brought him”.

Aids to the study of the text

1. What does Kennedy understand by the term “conversion” ?
2. What difference does Kennedy see between conversion and derivational change?
3. What is understood by complete and partial conversion?
4. What types of functional change does Kennedy distinguish?
5. What does Kennedy understand by commonization?
6. Does Kennedy make any distinction between a word as a unity of all its forms and the dictionary form of the word?

Rochelle Lieber

MORPHOLOGY AND LEXICAL SEMANTICS

In his comprehensive descriptive work on English word formation, Hans Marchand expressed the following opinion about the meaning of derivational suffixes (1969, 215): “Unlike a free morpheme a suffix has no meaning in itself, it acquires meaning only in conjunction with the

free morpheme which it transposes.” In context, what Marchand means does not seem nearly so radical. He goes on in the same passage to explain that derivational suffixes change either syntactic or semantic class, and his prime example is the suffix *-er* (1969, 215):

As a word class transposer, *-er* plays an important part in deverbal derivatives, while in denominal derivatives its role as a word class transposer is not important, since basis and derivative in the majority of cases belong to the same word class “substantive” ...; its role as a semantic transposer, however, is different in this case. Although most combinations denote a person, more specifically a male person (types *potter*; *Londoner*; *banqueter*; *weekender*), many other semantically unrelated senses are possible. Derivatives with *-er* may denote a banknote, bill (*fiveer*; *tenner*), a blow (*backhander*), a car, a bus (*two-seater*; *two-decker*), a collar (*eight-incher*), a gun (*six-pounder*), a gust of wind (*noser*; *souther*), a lecture at a certain hour (*niher* “a class at nine o’clock”), a line of poetry (*fourteener*), a ship (*three-decker*; *freighter*; ...).

Marchand of course does not mean to say that *-er* actually means “car,” “bus,” “banknote,” or “gust of wind” in these forms. Rather he suggests that the meaning of the affix is fluid enough to allow all of these meanings in combination with particular bases. But why should this be? What, if anything, does *-er* add to a base to give rise to these meanings?

This book is about the semantics of word formation. More specifically, it is about the meaning of morphemes and how they combine to form meanings of complex words, including derived words (*writer*; *unionize*), compounds (*dog bed*; *truck driver*), and words formed by conversion. To my knowledge there is no comprehensive treatment of the semantics of word formation in the tradition of generative morphology. One reason for this is perhaps the late start morphology got in the history of generative grammar; generative morphology has arguably come into its own as a legitimate field of study only since the mid-1970s and has concentrated on structural and phonological issues concerning word formation to the neglect of semantic issues.

But, another reason, a more important reason, I would argue, is that up until now a systematic way of talking about the lexical semantics of word formation (as opposed to words) has largely been lacking. Yet questions like the following concerning the meaning of word-formation processes have continued to be raised sporadically:

– *The polysemy question*: for example, why does the affix *-ize* in English sometimes seem to mean “cause to become X” (*unionize*, *ran-*

domize), sometimes “cause to go into X” (*containerize*), and sometimes “perform X” (*anthropologize*); why does the affix **-er** sometimes create agent nouns (*writer*), sometimes instrument nouns (*opener*), and sometimes patient nouns (*loaner*)! Do these affixes have any unitary core of meaning at all, and if so, what is it?

– *The multiple-affix question*: why does English often have several affixes that perform the same function or create the same kind of derived word (e. g., **-ize**, **-ify** for causative verbs; **-er**, **-ant** for agent nouns)?

– *The zero-derivation question*: how do we account for word formation in which there is semantic change without any concomitant formal change (e. g., in so-called conversion or zero derivation)?

– *The semantic mismatch question*: why is the correspondence between form and meaning in word formation sometimes not one-to-one? On the one hand, why do there sometimes seem to be morphemes that mean nothing at all (e. g., the **-in-** in *longitudinal* or the **-it-** in *repetition*)? On the other hand, why do we sometimes find “derivational redundancy,” that is, cases in which the same meaning seems to be expressed more than once in a word (e. g., in *dramatical* or *musicianer*)? Finally, why does the sense of a morpheme sometimes seem to be subtracted from the overall meaning of the word (e. g., *realistic* does not mean “pertaining to a realist”)?

Such questions are related: all are part of a larger question of how we characterize the meanings of complex words. The goal of this work is to develop and justify a framework in which such questions can fruitfully be raised, discussed, and answered.

I am, of course, not the first to raise these questions. They have their origins at least as far back as American Structuralist debates about the architecture of the theory of word formation. Hockett perhaps first framed the question in Structuralist theory, contrasting Item and Arrangement (IA) theories of word formation with Item and Process (IP) theories. In a classic Item and Arrangement theory, a word is built up by addition of morphemes, each of which contributes a distinct meaning to the complex word; the relationship between form and meaning is presumed most often to be one-to-one. Item and Process theorists look at word formation as the operation of processes or rules on base morphemes or words, each rule adding to or changing the form of the base, and concomitantly having some characteristic semantic or morphosyntactic effect;

but again, the relationship between process and semantic or morphosyntactic effect is typically one-to-one. Contrasting with IA and IP theories are so-called Word and Paradigm (WP) theories, which map semantic and morphosyntactic properties onto words in a many to one fashion. IA, IP, and WP frameworks have all had their advocates within generative traditions. My own work has rightly been characterized as falling within the IA camp, as has been the work of Selkirk, Williams, and others. The theory of Aronoff falls into the IP camp, and that of Anderson into the Word and Paradigm camp.

Further, the question of form-meaning correspondence in word formation has led in recent years to the “Separation Hypothesis”, most prominently advocated in Beard’s *Lexeme Morpheme Base Morphology*. Beard, and also Corbin and Szymanek have argued that since the form-meaning correspondence in morphology is rarely one-to-one, the semantic effects of word formation should be strictly separated from its formal effects. Word formation consists in such theories of a semantic or morphosyntactic process (for example, formation of causative verbs or agent nouns) which is strictly separated from the addition of formal morphological markers (e. g., *-ize* or *-er*). There is no expectation within such a theory that the correspondence between meaning and form should be one-to-one.

On its surface, this debate seems to be about the architecture of a morphological theory, specifically about whether morphemes — units smaller than the word — should be treated as Saussurian signs, that is, pairings of sound and meaning, and if so what we should expect about the pairing of sound and meaning. The discussion, that is, has largely been over the issue of correspondence. But at the heart of the problem is a more fundamental question: how do we talk about the meanings which can be said to be in correspondence (one-to-one, one-to-many, many-to-one) with structural units?

I argue in this book that this issue will not be resolved by looking at the architecture of a morphological theory, at least not until we have a way of talking about (describing, comparing) the semantic effects of word-formation processes in some detail and depth. We will not be able to talk about the correspondence of meaning and form until we can say in some useful way what complex words mean — what the meaning or meanings of the suffix *-ize* is (is it one or many meanings, and if many are they related meanings?), whether this meaning is the same as that of *-ify*, and so on.

I suggest that we do not yet have the theoretical apparatus to conduct such discussions. In order to talk about the semantics of word formation we need a framework of lexical semantic description which has several distinctive properties. First, it must be decompositional; it must involve some relatively small number of primitives or atoms, and the primitives or atoms it makes available should be of the right “grain size” to allow us to talk about the meanings of complex words. Further, such a descriptive framework must allow us to concentrate on *lexical* semantic properties, rather than semantic properties that manifest themselves at higher levels of syntactic structure (i. e., phrases, sentences, propositions, discourses). It must also be thoroughly cross-categorical, allowing us to discuss in equal depth the semantic characteristics of nouns, verbs, adjectives, and perhaps other categories. Finally, if we agree that word formation often creates new lexemes, our theory must allow us to talk about the meanings of complex words in the same terms that we use to talk about the meanings of simplex lexemes.)

Let me start first with why such a theory of semantic description must be decompositional. This is a controversial choice in light of Fodor’s extensive arguments that decompositional semantics is a waste of time. Fodor defends a position he calls *Informational Atomism*, consisting of two parts:

Informational semantics: content is constituted by some sort of nomic, mind-world relation. Correspondingly, having a concept (concept possession) is constituted, at least in part, by *being in* some sort of nomic, mind-world relation. *Conceptual atomism*: most lexical concepts have no internal structure.

I have no quibble with Fodor’s doctrine that nomic mind-world relations are the fundamental stuff of meanings at some level, that is, that meaning must ultimately be grounded in a lawful relation between language and the world. I understand from the philosophers that the only game in town is to anchor meaning in truth conditions at some level. But I find Fodor’s notion of conceptual atomism to be question-begging, especially if one is interested in questions concerning the meanings of complex words. Fodor argues that there is no sound justification for lexical decomposition: “I know of no reason, empirical or a priori, to suppose that the expressive power of English can be captured in a language whose stock of morphologically primitive expressions is interestingly smaller than the lexicon of English.” The process of decomposing words —

so the argument goes — merely defers the problem of meaning by passing it on to a metalanguage whose semantics generally remains unexplored. Nevertheless, Fodor believes in the *compositionality* of meaning — meanings are built up of smaller pieces.

Fodor is right to question the nature of primitives. But in doing so, he declares that we have no grounds for preferring one set of primitives to another, and that the default set of primitives is “the lexicon of English,” that is, the set of words of which the lexicon is constituted. But surely we must consider carefully what constitutes the lexicon — what its parts are, what makes up words — before we decide that the *word* is the correct grain size for conceptual primitives. If words are themselves formally complex, can't they be semantically complex, and therefore might not the right grain size for semantic primitives be smaller than the concepts embodied in words? In other words, there may be nowhere to go but decomposition if one wants to talk about the meanings of complex words; I therefore take the leap into decompositional semantics in full knowledge of the philosophical problems it engenders.

There are, of course, many systems of semantic description in the literature which are decompositional in one way or another and which we might bend to our purposes. Nevertheless, I suggest that none of the currently available theories of semantic analysis has all the right properties for the job at hand.

First, Logical or Model Theoretic Semantics is not suitable for my purposes, as it does not yet allow for a sufficient focus on lexical aspects of meaning. Model Theoretic Semantics has concentrated primarily on aspects of propositional meaning including predication, quantification, negation, and the semantics of complementation. There has, of course, been work on lexical meaning, most notably the work of Dowty and Verkuyl on verbal aspect and verb classes generally. Dowty is especially notable in that he directly addresses issues of derivation as well as issues concerning the simplex verbal lexicon. Other researchers in this tradition have contributed enormously to our understanding of other lexical classes; see, for example, Carlson, Kratzer, on the individual / stage level distinction in adjectives and nouns; Landman, Gillon, Schwarzschild, Schein, among others on plurals; Bierwisch on prepositions; and Bierwisch on adjectives. Nevertheless, at this point Model Theoretic Semantics has not yet produced a system of decomposition that is suffi-

ciently broad and cross-categorical, and at the same time fine-grained enough to address the questions I raise here.

Also available for our purposes are semantic systems such as those of Szymanek, Jackendoff, Pustejovsky, and Wierzbicka, all of which are decompositional in one way or another and more closely concentrated on the lexical domain. Although each of these systems has some attractive characteristics, none of them has all the characteristics that I believe are necessary to the task at hand.

Ray Jackendoff has, since the early seventies, developed a decompositional system of semantic representation or Lexical Conceptual Structure, as he calls it, which has many of the characteristics I mention above. Jackendoff's Lexical Conceptual Structures (LCSs) are hierarchical arrangements of functions and arguments. The primitives of the system are semantic functions such as BE, GO, STAY, ORIENT, CAUSE, TO, FROM, THING, and PATH, and in some later work increasingly smaller atoms of meaning represented as features (e. g., [bounded], [internal structure]) which allow for the discussion of aspectual characteristics of verbs and quantificational characteristics of nouns. I see my own work largely as an outgrowth and extension of the work of Jackendoff and related theorists, and I owe a great debt to their pioneering work. Nevertheless, Jackendoff's system as it stands is not entirely suitable to tackle the issues of morphological semantics I raised above. For one thing, his work has been heavily weighted towards the description of verbal meanings, and as yet is insufficiently cross-categorical to allow for a full discussion of the semantics of nouns and adjectives, which we would need in a full consideration of word-formation processes such as derivation, compounding, and conversion. Secondly, as I will argue in what follows, the "grain size" of many of Jackendoff's primitives is not quite right for our purposes. So although much of what follows will be couched in terms similar to those of Jackendoff, the system I will develop below will differ from his in significant ways.

Similarly, I cannot simply adopt the system of semantic description that has been developed in the work of Anna Wierzbicka. Her framework is decompositional, and unlike Jackendoff's, it is very broadly cross-categorical. It is also admirably comprehensive. Wierzbicka, unlike most other semantic theorists, claims that the primitives of lexical semantics are a Natural Semantic Metalanguage comprised of word-sized chunks

such as I, YOU, HERE, NOW, DO, HAPPEN, MANY, and the like (in Wierzbicka the number of primitives is set tentatively at fifty-six):

Semantic primitives are, by definition, indefinable: they are Leibniz's ultimate "simples", Aristotle's "pioria", in terms of which all the complex meanings can be articulated, but which cannot be decomposed themselves. They can, of course, be represented as bundles of some artificial features, such as "+Speaker, -Hearer" for "I", but this is not the kind of decomposition which leads from complex to simple and from obscure to clear. As pointed out earlier, the meaning of a sentence like "I know this" cannot be clarified by any further decomposition — not even by decomposition into some other meaningful sentences; and "features", which have no syntax and which are not part of natural language, have no meaning at all; they have to be assigned meaning by sentences in natural languages, rather than the other way around.

In other words, the only candidates for primitives in Wierzbicka's framework are chunks of meaning that cannot be explicated in simpler words; these chunks of meaning are themselves word-sized.

While I agree with Wierzbicka's judgment that putative primitives must be simple, I also believe, and hope to show in what follows, that the particular word-sized chunks that she deems to be primitives sometimes do not allow us to answer the questions about the semantics of complex words that I have raised above. The problem with Wierzbicka's system of lexical semantic description is therefore the one of "grain size."

Another attractive theory of lexical semantic representation is Pustejovsky's theory of the Generative Lexicon. This theory, like Wierzbicka's, is broadly cross-categorical, and allows us to represent many aspects of the meanings of lexical items. A lexical semantic representation for Pustejovsky consists of four parts:

These include the notion of *argument structure*, which specifies the number and type of arguments that a lexical item carries; an *event structure* of sufficient richness to characterize not only the basic event type of a lexical item, but also internal, subeventual structure; a *qualia structure*, representing the different modes of predication possible with a lexical item; and a *lexical inheritance structure*, which identifies how a lexical structure is related to other structures in the dictionary, however it is constructed.

The *qualia* part of the lexical semantic structure can in turn include several types of information about the meaning of a word: constitutive information ("the relation between an object and its constituent parts"); formal information ("that which distinguishes it within a larger domain");

telic, information (“its purpose and function”); and agentive information (“factors involved in its origin or “bringing it about”).

Pustejovsky’s theory is decompositional, but he does not argue for a fixed number of primitives. Indeed, it is not clear that the descriptive elements in his lexical entries are primitives at all. What matters more for Pustejovsky is the process by which lexical items are combined — the ways in which their composition into larger units determines the meaning of each item in situation. His primary goal is to account for the polysemy of lexical items in the larger sentential context, for example, why we understand the word *window* to refer to an object in the sentence *She broke the window*, but an aperture in *She climbed through the window*.

With its emphasis on polysemy, the Generative Lexicon might seem to afford a possible framework in which to discuss the semantics of word formation. However, we will see that this system of description does not provide us with the means to discuss all the questions raised above — in particular the multiple-affix question — and that this latter question can in fact be answered only within a representational system that relies on a fixed (and presumably relatively small) number of primitives.

Finally, I must consider the descriptive system developed by Szymanek and adopted in large part by Beard for his *Lexeme Morpheme Base Morphology*. Unlike the descriptive systems provided by Jackendoff, Wierzbicka, and Pustejovsky, Szymanek’s system is specifically intended to address questions of meaning in word formation. It therefore might seem the best place to start for the present endeavor. Further, Szymanek’s system has several of the characteristics that we seek: it is broadly cross-categorical and decompositional, and relies on a (perhaps fixed) number of primitives. The problem, however, is with the primitives themselves.

These include semantic categories like the following: OBJECT, SUBSTANCE, PERSON, NUMBER, EXISTENCE, POSSESSION, NEGATION, PROPERTY, COLOR, SHAPE, DIMENSION, SIMILARITY, SEX, SPACE, POSITION, MOVEMENT, PATH, TIME, STATE, PROCESS, EVENT, ACTION, CAUSATION, AGENT, INSTRUMENT. Szymanek suggests a condition which he calls the Cognitive Grounding Condition: “The basic set of lexical derivational categories is rooted in the fundamental concepts of cognition.” In other words, word formation is typically based on one or more of the seman-

tic/conceptual categories, above. I believe that Szymanek is right about the issue of cognitive grounding: (derivation must be rooted in the basic concepts of cognition, as he puts it. But again it will become apparent that Szymanek's categories do not exhibit the right "grain size" needed to give interesting answers to the questions at the heart of this book. In fact, it appears that Szymanek adopts this list not so much for its intrinsic merit, but as a sort of first approximation, a useful heuristic: "Up to a point, then, the categorial framework to be developed will constitute a cumulative list of the fundamental categories of cognition as discussed by other authors. It should be noted, however, that we omit from the inventory a few concepts whose status seems rather dubious or simply non-essential from the point of view of the present Study". In other words, unlike Jackendoff and Wierzbicka, who are interested in establishing the nature and necessity of the primitives themselves, Szymanek is content with a list of provisional labels. These are, of course, labels that are useful in describing derivational processes, but I will try to show that answers to our basic questions begin to emerge only when we leave behind provisional labels such as AGENT and CAUSATION and try to establish the precise nature of the descriptive primitives in our system of lexical semantic representation.

Let me briefly outline the sort of framework of lexical semantic description which I think we need, and which I will develop in this book. As I mentioned above, I see my own work in some ways as an outgrowth and extension of that of theorists like Jackendoff, Wierzbicka, Pustejovsky, and Szymanek. But I distinguish my theory from theirs. First, I believe that noninflectional word formation — derivation, compounding, and conversion — serves to create lexemes and to extend the simplex lexicon; for that reason, I believe that the meanings it expresses ought to reflect the semantic distinctions that are salient in the simplex lexicon. That is, to the extent that we find semantic classes that are significant in distinguishing the behavior of underived lexemes, we might expect derivation, compounding, and conversion to extend those classes. And to the extent that we find polysemy in complex words, it ought to be like the polysemy we see in simplex lexical items.

Second, I conceive of lexical semantic representations as being composed of two parts, what I will call the Semantic/Grammatical Skeleton (or skeleton, for short) and the Semantic/Pragmatic Body (body, for short). The distinction I make here between skeleton and body

is not particularly new, although some elements of both skeleton and body are designed in this theory to allow discussion of problems associated with the semantics of word formation. But the skeleton and body I develop in what follows do have elements in common with what Rapaport Hovav and Levin call respectively the “event structure template” and the “constant,” or what Mohanan and Mohanan call “Grammatical Semantic Structure” and “Conceptual Structure.”

The skeleton in my framework will be comparable in some but not all ways to Jackendoff’s Lexical Conceptual Structures. It will be the decompositional part of the representation, hierarchically arranged, as Jackendoff’s LCSs are. It will seek to isolate all and only those aspects of meaning which have consequences for the syntax. This part of the representation will be relatively rigid and formal. It is here that I will try to establish primitives, and specifically a small number of primitives of the right “grain size” to allow us to address issues of the semantics of derivation, compounding, and conversion. Instead of Jackendoff’s semantic functions (BE, GO, CAUSE, etc.), Wierzbicka’s simple concepts, or Szymanek’s cognitive categories, I will propose a broadly cross-categorial featural system for decomposing meanings of morphemes.

The other part of the semantic representation, the body, will be encyclopedic, holistic, nondecompositional, not composed of primitives, and perhaps only partially formalizable. It will comprise those bits of perceptual and cultural knowledge that form the bulk of the lexical representation. The body will include many of the aspects of meaning that Pustejovsky encodes in his Qualia Structure — information concerning material composition, part structure, orientation, shape, color, dimensionality, origin, purpose, function, and so on .

My theory is consciously based on an anatomical metaphor. The skeleton forms the foundation of what we know about morphemes and words. It is what allows us to extend the lexicon through various word-formation processes. The body fleshes out this foundation. It may be fatter or thinner from item to item, and indeed from the lexical representation of a word in one person’s mental lexicon to the representation of that “same” word in another individual’s mental lexicon. But the body must be there in a living lexical item. Bodies can change with the life of a lexical item — gain or lose weight, as it were. Skeletons, however, are less amenable to change.

My main claim is that the semantics of word formation involves the creation of a single referential unit out of two distinct semantic skeletons

that have been placed in a relationship of either juxtaposition or subordination to one another. The primary mechanism for creating a single referential unit will be the co-indexation of semantic arguments. Compound formation will involve juxtaposition of skeletons with concomitant co-indexing. Derivational affixation will involve the addition of skeletal material to a base whose own skeleton is subordinated; in other words, the semantic representation of a derivational affix will be a bit of semantic skeleton which subordinates a lexical base. The skeletons of which compounds are formed will typically have accompanying bodies, but derivational affixes will often have little or nothing in the way of semantic bodies. Both derived words and compounds may, however, over time develop substantial and distinctive bodies as a function of their lexicalization. Lexicalization, we shall see, proceeds on an item-by-item basis, thus allowing a wide range of meanings to exist in items formed by the same process of derivation or compounding.

Semantic variation among items formed by the same process of derivation or compounding will not merely be a function of the lexicalization process, however. In fact, a concomitant of the claim that the semantics of derivation should reflect the semantics of the simplex lexicon is that the sorts of polysemy we find in the simplex lexicon should also be found in derived words. I will show in what follows that both of the main types of polysemy that are manifested in the simplex lexicon — what Pustejovsky and Boguraev call “logical polysemy” and “sense extensions” — are to be found in derivational affixes as well. Logical polysemy will be seen to arise from the composition of skeletons, and specifically from the effects of underdetermination in skeletal meanings. It is here that the choice of primitives in our system will receive its justification: only a featural system such as the one to be proposed in this book will give rise to the right level of underdetermination of meaning to account for affixal polysemy. We will see that sense extensions sometimes arise in affixation, as well, although not as frequently as logical polysemy.

A word about the scope and limits of this book. I cannot hope to cover everything that needs to be said about the semantics of all sorts of word formation in all sorts of languages without promising to write a book I would never finish or could never hope to get published. I have chosen to narrow the scope of this work to three types of word formation that are well represented and fairly well understood — derivation, compounding, and conversion — and to limit my discussion in most cases to these processes in English.

This is not to say that inflection is unimportant, or to deny that there is an enormous amount that we could learn from scrutinizing word formation in languages other than English. In this work, I propose to confine myself to bona fide processes of lexeme formation in the hopes that the foundation of lexical semantics developed here will eventually allow us to proceed to a fruitful discussion of inflection. Other theorists such as Anderson, Aronoff, and Stump have tended to take the opposite route, building their theories primarily on the basis of a study of inflectional phenomena and giving shorter shrift to derivation, compounding, and conversion.

Similarly, these theorists have tended to look at inflection in a wide variety of the world's languages, a methodological choice that has certainly borne fruit in the study of inflection. But specifically because of my concentration on processes of lexeme formation in this work, I will tend to focus attention on a single language — English. My justification is the following: the sort of semantic work that I hope to do requires a detailed and intimate look at the meanings of lots of words formed with the same affix, or by the same type of compounding or conversion. Indeed, as will become apparent in the chapters that follow, I cannot even hope to provide an exhaustive description of the semantics of all of English word formation. Rather, I must narrow discussion to a series of case studies of particular realms of word formation: formation of personal / instrumental nouns; root and synthetic compounding; formation of verbs by affixation and conversion; negative affixation; and a few select others. These case studies are carefully chosen to reveal answers to the four central questions with which I began this introduction. So I beg the reader's indulgence on what might initially seem to be a rather narrow range of analysis. I cannot hope to do such detailed work with languages of which I am not a native speaker. I would hope that native speakers of other languages will eventually help to corroborate or criticize any of the theoretical apparatus that I build here.

Aids to the study of the text

1. What are the central questions concerning the meaning of word-formation processes?
2. Is the form-meaning correspondence in morphology one-to-one? Give different points of view.
3. What requirements should a theory of derivational semantics meet?
4. What decompositional semantics theories are discussed by the author?
5. What are the two parts that compose lexical semantic representation of derived words?

Hans Marchand

**A SET OF CRITERIA FOR
THE ESTABLISHING OF DERIVATIONAL
RELATIONSHIP BETWEEN WORDS
UNMARKED BY DERIVATIONAL
MORPHEMES**

1.1. In a recent article I have taken up the question of derivational relationship between derivationally unmarked words, extending it in another article to backderived words. Here I propose to conclude the argument by giving a survey of the criteria used and adding a few not yet dealt with. The criteria fall into two groups, those of content and those of external form. The criteria of the first group (2—5) are: semantic dependence, range of usage, semantic range, and semantic pattern. The most important is that of semantic dependence, as it is as often as not sufficient in itself to solve the question of derivational relationship while the other criteria have a more or less concomitant character. The criteria of the second group (6—8) are: phonetic shape, morphologic type, and stress. They will illustrate how external factors can help to indicate derivational relationship.

1.2. A derivational connection between words presupposes a correspondence both on the plane of expression (phonic form) and content. With derivationally unmarked words, as *bridge* sb and *bridge* vb, the first is automatically established by the lack of morphologic characterization which entails phonic identity. We thus are, in the case of homophonous or rather quasi-homophonous word pairs, only confronted with the problem of content. I say “quasi-homophonous”, as in many cases, e. g. *conflict* sb from *conflict* vb, we have at the same time phonological changes of vowel and/or consonant.

1.3. The term “derivationally unmarked” is important. Many words are marked with regard to the class of words to which they belong, as is evident from the stress-distinguished type *conflict* sb from *conflict* vb. But this mark is not a derivational mark as is a suffix. The suffix *-ize* (e. g. *westernize*) not only tells us that the word formed with it is a verb, but at the same time that the verb is derived from the unsuffixed word *western*. Stress, however, in the above mentioned type, shows only cate-

gorial appurtenance without giving us immediate information as to which word is derived from the other.

Stress distinction is on the same level with distinction by absence or presence of voice in the case of words ending in a fricative, type *belief* from *believe*. The character of the fricative does not indicate whether the substantive is from the verb or the verb from the substantive. This derivational dependence is established by means of content and of semantic pattern. The voiced or voiceless character only places the respective verb in a certain word class, but it is not more than a categorial marker, not primarily connected with derivation. See below 8.1.

1.4.1. It will be understood from the outset that there is no derivational connection between words if the words have no semantic features in common. This is clear for such obviously unrelated words as *exact* adj. and *exact* vb, *handle* sb and *handle* vb, *exploit* sb and *exploit* vb, *defect* sb and *defect* vb which are therefore out of consideration. There is no relationship between *convict* “prove or find guilty” and *convict* “person serving a prison sentence”, though etymological ties do exist. The sb *account* in the majority of its meanings has no connection with the verb *account* which is chiefly used in constructions like *account for*, *account to*. The only connection is between *account* “render an account of” and *account* sb, as in *render an account to God*, where the substantive is a deverbal derivation from the verb. The verb *mind* (*do you mind*, *I do not mind*) is today not connected with *mind* sb, nor is the verb *matter* (*it does not matter*) connected with the substantive *matter*. Between *object* sb (all senses) and *object* vb, *project* sb and *project* vb (the sense “plan” is hardly alive with the verb) there exist no semantic ties.

1.4.2. A word may be a derivative in one sense and not in another. Both verb and substantive may follow separate trends of semantic development that are not necessarily paralleled by the other pair member. There is no connection between *trust* vb and *trust* “cartel” though there is one between the verb and the substantive in various other senses. The substantive *act* (as in *the act of a madman*, or in the sense “simulated performance”) is a deverbal derivative (*act like a madman*, *he is merely acting*), but *act* as in *Act of Parliament*, *act* “division of a play” is not, as it cannot be connected with any sense of the verb *act*. The sb *care* and the verb *care* are no longer closely related semantically. Only for the sense “charge, responsibility, look after” is there a connection between verb and substantive. Sentences such as *She cares for the children* lead

to a deverbal substantive *care*: *the children are in her care, she takes care of the children*, also to such recent compounds as *caretaker* and *baby care*. But other senses of the verb are not matched by substantives and vice versa. *I don't care, who cares? To care about a person* have no substantive to go with, nor are *care* “watchful attention” (as in *with care, careful* and *careless*), *care* “grief, anxiety” (as in *carefree, careworn*) accompanied by verbal uses of *care*. In some cases, the verb *taste* derives a deverbal substantive (*I have tasted the pleasures of life / I have had a taste of the pleasures of life*). But *taste* “perceive by the sense of taste” (*I can neither taste or smell*) is derived from the substantive *taste*. And *taste* as in *the milk tastes sour* is a derivative from the substantive *taste* “savour”. On the other hand, there is no verb for *taste* “sense of appropriateness”.

2 Semantic dependence (SD)

2.1. The word that for its analysis is dependent on the content of the other pair member is necessarily the derivative.

2.2. The verb *saw* must be derived from the substantive *saw*. *Saw* sb is satisfactorily defined as “a cutting instrument with a blade, having a continuous series of teeth on the edge”. That the instrument may be used for the action of *sawing* need not be included in the definition. On the other hand, the content analysis of the verb must necessarily include the semantic features of the substantive *saw*: *saw* vb “use a saw, cut with a saw”. The verb *knife* is naturally analysable as “wound with a knife” whereas the substantive *knife* does not lean on any content features of the verb *knife*, which does not exist in the vocabulary of many speakers who commonly use the noun. A parallel case we have in *telephone* vb and *telephone* sb. For its analysis, the verb relies on the semantic features of the substantive *telephone*. Though seemingly parallel to *telephone* and *saw* the case of *whistle* sb (the name of the instrument) with regard to *whistle* vb is the reverse. The analysis of the verb does not call for any semantic features of *whistle* sb (the instrument). *Whistling* is aptly described by “forcing the breath through the teeth or compressed lips” whereas the instrument *whistle* has for its explanation recourse to the content features of the verb: *whistle* “instrument used for whistling”.

The criterion applies to a number of backderived verbs which are mentioned here for the sake of semantic similarity though they seem to

contain a derivational marker. *Television* is not dependent on *televise* which is a much less common word, whereas *televise* is only explained by the content of *television*: “put on television”. *Televise* is the derived word.

3 Restriction of Usage (RU)

3.1. If one word has a smaller range of usage than its pair member, it must be considered the derivative. The following possibilities may arise.

3.1.1. One of the words is not generally accepted while the other is common. The substantive *author* is in general use while the verb is not. *Author* sb will therefore be considered the basis from which the verb is derived.

3.1.2. The preceding rule may be expressed in terms of frequency. One pair member is less common than the other and therefore less frequently used. The substantives *father* and *author*, for instance, are high frequency words whereas the verbs are used much less frequently. The word with the lesser degree of frequency will be regarded as the derivative. A few other relevant examples are the verbs *knife*, *waterproof*, *copyright*, *anger*.

3.1.3. If the use of one of the pair words is restricted to certain verb forms while the other occurs without any restriction, the latter is considered the basis. The verb *neighbour* occurs almost exclusively in *ing*-forms whereas the substantive is unrestricted use. The latter therefore is the basis. *Amends*, which is only found in the plural and only in phrase *make amends*, is the derivation while the verb *amend* is the basis. Similar considerations apply to the substantives *thanks* and *travels*. *Thanks* is only used in the plural, *travel* chiefly so (*travel* sg is “the principle of travelling, travelling in general”, but it cannot be used with *a*). There can be no doubt, therefore, that the verbs are the bases.

3.1.4. If one word is used only as a half serious word, it cannot be considered the basis. Though the verb *burgle* seems to be the basis of *burglar*, it is nevertheless the derivative as it is a semi-facetious word while *burglar* is not.

3.1.5. The verbs *hunger* and *thirst* are literary or poetic while the substantives are in colloquial use. The substantives therefore will be considered the bases.

4 Semantic Range (SR)

4.1. Of two homophonous words exhibiting similar sets of semantic features the one with the smaller field of reference is the derivative. In general terms this means that the more specific word is the derivative.

4.2. The content of the substantive *butcher* appears also in the verb *butcher*, but with restricting depreciative features, involving a particular field of reference. The substantive enters into the verb with a narrow specification of its content, *butcher* being emotionally motivated as “slaughter of animals”. The verb *butcher* therefore is derived from the substantive *butcher*. The verb *cheat* does not mean “be a cheat, i. e. an habitual cheater”, so the substantive cannot be the basis. A *convert* is “a person that has been converted to a religious or other belief”. The verb *convert* does not only mean “make into a convert” but has many more content features. Therefore the substantive must be considered a derivative from the verb. An *invert* is simply a “sexually inverted person” whereas the verb has a wide range of meanings though none that connects it with the substantive. We will therefore say that the substantive is derived from the verb with a special meaning. The case of *pervert* is almost exactly parallel. The substantive cannot be the basis as the verb has several semantic features beside that of “make into a pervert”. The verbal phrase *run about* cannot be derived from the substantive *runabout* as it does not mean “be a runabout (= roving person, light wagon, roadster)”, but is much wider in meaning. The criterion is applicable in general to post-particle combinations, as the substantives are more specific in meaning than the verbal phrases.

5 Semantic pattern (SP)

5.1. Certain words have characteristic meanings which mark them as derivatives. If, for instance, the content analysis of a substantive follows one of certain typical patterns which connect it with a homophonous verb, it must be considered a deverbal derivative. Examples are the personal substantives *cheat* and *convert*. *Cheat* is naturally analysed as “one who cheats (habitually)”, *convert* as “one who has been converted”. Substantives so analysable are deverbal derivatives. Smaller sense groups not mentioned there are “distance covered by —”, as in *drop*, *fall*, *run*;

“the typical qualities or properties of something as determined by —”, found with the five verbs *feel, look, smell, taste, touch*. *The cough*, comparable to *G der Husten* (the article as in *the plague, the cholera*), to denote the affection in general, was, acc. to *OED*, common down to 1600. Today we have a similar type of deverbal substantives, used in plural form, to denote nervous fits: *the gripes* “spasms of intestinal pain” 1601, *the fidgets* 1674, *the creeps* 1862, *the jumps* 1879, *the jitters* 1931.

5.2. On the other hand, there are certain sense groups characteristic of desubstantival verbs. The verb *baby* is analysed as “treat as a baby”, the verb *father* as “act as father”, *bridge* as “connect by means of a bridge”, *herd* as “form into a herd”. Substantives so analysable must be regarded as derivatives from the respective verbs.

6 Phonetic shape (PS)

A certain phonetic shape may put a word in a definite word class. Most words ending in [ʃən], as *-ation, -action, -ension, -ition, -otion*, can only occur as substantives. Our inference from this fact therefore will be that verbs showing these phonetic features are derived from substantives: *probation, station, ration, mention, pension, fraction, traction, acquisition, audition, condition, motion*. Another characteristic substantival ending is [mənt], as in *compliment, document, implement*: the verbs will be considered derived from substantives in [mənt], unless other criteria exclude such an analysis. The criterion of stress excludes *torment* and *ferment*. As desubstantival verbs do not shift their stress (though trisyllabic words change their [ə] to [ɛ]: [mənt] sb / [mənt] vb), we cannot consider the verbs derived from the substantives, an analysis which is also excluded by analysis of content for *ferment* (the verb cannot be analysed as “treat with ferment” or the like), though *torment* vb could be analysed as “subject to torment”. But the criterion of semantic pattern (*torment* sb falls under one of the headings of deverbal substantives, either “state of being tormented” or “particular instance of tormenting”) will induce, us to regard the substantive *torment* as the derivative. It will be noted that only primary substantives in *-ment* (*document*, etc.) have [ə] in the final syllable whereas the vowel of the final syllable with the derived deverbal substantives is unshifted [ɛ]: *ferment, torment*. The

vowel [ɛ] in the final syllable of the substantives *torment* and *ferment*, therefore, would be an additional external criterion for their derived character. The majority of polysyllabic words in [tʃər, tʃur] spelled **-ture**, or [ed], spelled **-ade**, are substantives. A verb therefore with one of these endings will be considered a derivative: *capture, fracture, gesture, puncture / barricade, cascade, crusade, serenade*.

7 Morphologic type (MT)

Morphologic type is indicative of the primary or derived character of composite words. The overwhelming number of substantives as against verbs with the types *blacklist* (adj/sb), *snowball* (sb/sb), *sideslip* (sb/dev sb) entitles us to the conclusion that the types are basically nominal ones and the verbs so structured are derived.

8 Criterion of Stress (St)

8.1. With composites, stress is sometimes indicative of derivational relationship between a substantive and a verb. Compound verbs with locative particles for a first member have the basic stress pattern middle stress / heavy stress, as *outlive, underestimate* whereas compound substantives have the heavy stress on the first element, as *outhouse, undercurrent*. A verb therefore which conforms to this latter stress pattern is characterized as a desubstantival verb. Cases in point are such verbs as *outlaw, outline, outfit, understudy* “act as understudy” (for which *OED* gives the wrong stressing <...>).

8.2. To a certain extent, the criterion of stress applies to verbs of French and/or Latin origin which are monemes in English, but are etymologically analysable as “prefix + verb” in Latin or French, as in *conflict* sb from *conflict* vb.

8.2.1. If the substantive is distinguished from the verb by stress, it must be considered a derivative from the verb, unless content criteria preclude such an analysis. This follows from the rule that desubstantival verbs retain the stress pattern of the underlying substantive (as in *focus* “bring into focus” vb from *focus* sb). This postulate would apply to *abstract* “epitome”, *compound, compress, concert* “agreement”, *conduct, confines*,

conflict, conscript, consort, construct, contest, contract BE (AE has for-estress with both sb and vb), *contrast, convert, digest*, in sense “arrange methodically” vb, “methodically arranged compendium” sb, *discount, escort, export, extract, ferment, import, impress, increase, insert, insult, intercept, invert, invite, perfume, permit, pervert, present* “gift”, *proceeds, produce, progress, protest, rebel, recess, regress, retail* BE, *survey, torment, transfer, transform, transplant, transport*.

The substantives are all analysable as deverbal derivatives according to one of the sense groups typical of deverbal substantives.

8.2.2. The rule formulated above states nothing about endstressed nouns, (as *nuance, cement, crusade, festoon*) from which verbs are zero-derived. All denominal verbs (verbs derived from substantives or adjectives) retain the entire phonetic pattern of the respective nouns. Nor does our rule imply that substantives derived from end-stressed verbs should shift their stress. The tendency toward homologic stressing is observed with most deverbal substantives: *advance, approach, attack, attempt* are stressed like the corresponding verbs. Our rule does not apply either to the few adjectives which would seem to be derivationally connected with verbs: *absent, present, subject* cannot be regarded as derivatives from verbs. Nor can the verbs be derivatives from the adjectives. Deadjectival verbs can only follow the semantic patterns “make —”, “become —”, “be —” into which the verbs *absent* and *subject* can be made to fit only with some semantic or syntactic restrictions. The verb *absent* occurs only in combinations with *self*-pronouns (*absent oneself*). *Subject* fits in only in sense “make liable to” from *subject* adj. “liable to” (as in *subject to temptation*). The verb *present* has no semantic connection with the adjective *present* for any speaker of present-day English. That the verbs fall outside the homologic stress and vowel pattern of deadjectival verbs, as already mentioned, that the verb *absent oneself* was coined on the analogy of *present oneself* rather than as a derivative from the adjective *absent* shall be added only for the sake of completeness.

8.2.3. The reason for the stress distinction was probably the awareness of educated speakers of the composite character of the verbs in French and/or Latin. In deriving substantives from the verbs, they followed the native pattern of words for which there existed both a verb and a substantive, differentiated only by stress, preparticle words of the type *overthrow* vb / *overthrow* sb, postparticle words of the type *black out* vb / *blackout* sb. A stress-distinctive pattern has developed chiefly

with disyllabic words beginning with *con-*, *trans-*, *pro-*. It will be difficult to tell why others similarly structured, as *detain*, have not developed. But then we do not know either why some real prefixal verbs have developed stress-distinguished substantival derivatives (*re-* (*a refill*, etc.), *mis-* (*a misprint*, etc.), and *inter-* (*an interchange*), etc.) while others have not (*dis-*; *un-*; *de-*). At any rate we notice that of the many zero-derivatives from verbs of the *detain* type which were made in earlier stages of the language almost none have survived.

Aids to the study of the text

1. What criteria are used to establish derivational relationship between derivationally unmarked words? Explain the difference between derivationally marked and unmarked words.
2. What is the difference between homophonous and derivationally unmarked words? Think of your own examples.
3. What makes it difficult to define the directionality in zero derivation?
4. Explain how each of the criteria suggested by the author works.

Hans Marchand

EXPANSION, TRANSPOSITION, AND DERIVATION

1.1. The coining of new words proceeds by way of combining linguistic elements on the basis of a determinant/determinatum relationship called syntagma. It is claimed that there are only two basic categories of word-formation which may be termed *expansion* and *derivation*. Whether a syntagmatic combination belongs to one or the other category depends on whether the determinatum is an independent morpheme or not. This will be illustrated in the following.

1.2. No syntagma is possible that does not contain at least one independent morpheme. Only this independent morpheme interests us in connection with the problem under discussion. Typifying it by the word *boat* we will say that *boat*, when taking part in the formation of a syntagma, may occupy one of two possible places: it will become either the grammatically dominant element, the determination (nucleus, head), or the determinant (satellite, modifier).

The problem is simple in case the word assumes the role of determinatum. *Steamboat* as compared with *boat* is a modified, expanded version of *boat* with its range of usage restricted (see below) so that *steamboat*, the syntagma, will be found in basically the same semantic contexts as the unexpanded *boat*. The syntagma *steamboat* also retains the syntactic primary feature of *boat*; *steamboat* belongs to the same word class “substantive” to which *boat* belongs. An adjective such as *colour-blind* is an expansion of *blind*. A person is called *colour-blind* because he is basically seen as *blind* though only so with regard to *colours*. *Rewrite* as compared with *write* is basically the verb *write* with which it is to a great extent exchangeable except for the modification expressed by *re-*. This does not, however, affect the word class of the syntagma, which is that of a verb. The rule for any expansion then will be the following. An expansion is a combination AB which is analysable on the basis “B determined by A” with AB belonging to the same word class and lexical class to which B belongs. All combinations whose determinata are independent morphemes (words) are expansions. Expansions of which both the determinatum and the determinant are words (such as *steamboat*, *blackbird*, *colour-blind*, *overdo*) are called compounds.

1.3. A further clarification may not be out of place. Semantically speaking, the determinatum represents the element whose range of applicability is limited through the determinant. A *steamboat* is basically a *boat*. But whereas *boat* as an independent unit can be used with reference to an unlimited variety of boats, the applicability of *steamboat* is limited to those which are powered by steam, excluding those which are not steamboats. We might say that this exclusion in *steamboat* of *non-steamboat* things constitutes the determination of *boat* as performed by the first element *steam*, which has therefore been called the determinant. *Boat*, as the element undergoing a semantic restriction or determination, has been called the determinatum. However, as a syntagma is a grammatical, not a semantic entity, we would say that the terms determinatum and determinant should be defined as grammatical terms. Grammatically speaking, the determinatum is that element of the syntagma which is dominant in that it can stand for the whole syntagma in all positions, as has just been stated in a formula.

1.4. It is important to stress the grammatical character of a syntagma. Semantically speaking, the grammatical determinant is in many cases the part that can stand for the whole combination. This would first apply to copula compounds, coordinative combinations of the type *girl*

friend. *Girl* may well fill the place of *girl friend*, but it has not become the grammatically dominant part. The semantic dominance of the determinator over the determinatum is, however, most in evidence in derivatives containing an appreciative suffix, as in *streamlet* “little stream”. *Streamlet* is basically a *stream* though an (emotionally) small one, and could therefore take the place of *stream*, if semantic considerations were the criterion of substitution. A *blackish suit* could substitute for *black suit* as from a purely semantic point of view *black* has merely been expanded into *blackish*. But grammatically speaking, *black* in *blackish* has lost its independence to *-ish* just as in *blacken* it has lost its independence to *-en*. In either case it is the suffix that dominates grammatically.

2.1. The independent morpheme, as has been stated, may enter a syntagma not as the determinatum but as the determinator. The word *boat* which is the determinatum of *steamboat*, is the determinator in *boathouse*. *Colour* has the role of determinator in *colour-blind*, just as *cry* is the determinator in *crybaby*. All these combinations are analysable on the basis posited for expansions, with one very important difference. The analysis applies to *house*, *blind* and *baby* respectively. The words, which interest us here, the determinators *boat*, *colour*, *cry* are not affected. *Boathouse* is an expansion of *house*, *colour-blind* an expansion of *blind*, *crybaby* an expansion of *baby*. The use of the word in a role other than the determinatum thus does not influence the syntagma, as the only relevant element in it is the determinatum which decides to which grammatical and lexical category the syntagma will belong. As far as the structure of the syntagma is concerned, the result is that any combination containing a word as its determinatum is by definition an expansion. The use of a word as a determinator is therefore less consequential than its use as a determinatum, so long as the determinatum of the combination is likewise a full word. Things are different when the determinatum of the syntagma is a dependent morpheme, as we will see later. But first we must discuss the general problem connected with the use of *boat* in *boathouse*, *colour* in *colour-blind*, and *cry* in *crybaby*. The process is called transposition, a term which calls for an explanation.

Transposition is the use of a word in another than its normal function. Applied to a morphologic syntagma this would mean that a substantive is naturally the determinatum (head, nucleus) of a nominal construction, while an adjective is designed to be its determinator (modifier, satellite). A substantive as determinator, as *stone* in *stone wall*, *government* in *gov-*

ernment official, colour in colour-blind, is therefore called transposed. *Black* in *blackbird* is not a transposition as the adjective naturally modifies a substantive. A verb is by definition a word functioning as the predication of a sentence. Consequently it is not part of a nominal construction. Its use as a determinant in a nominal construction, as in *cry-baby* or *G schreibfaul*, must therefore be considered a transposition.

2.2. The transposition of a word to the role of determinant in a syntagma where the determinatum is a dependent morpheme is called a derivation. Take the words *steamboat* and *steamer*. Formally speaking, both *steamboat* and *steamer* contain the word *steam* in a transposed function, but as in the case of *steamboat* the determinatum is a word, the whole combination will automatically become an expansion whereas in the case of *steamer* where the determinatum is a categorising suffix the whole combination automatically becomes a derivation.

2.3. The comprehensive term “transposition” (including derivation), as used by Bally and Secheyay, refers only to change of word class. There are, however, other cases of transposition. The use of *professor* in *professorship* implies not change of word class, as both words are substantives, but change from the semantic class “personal substantive” to “abstract, condition-denoting substantive”. We therefore must regard a change from one lexical class into another also as a “transposition” and consequently as a derivation. Change from “abstract” to “concrete”, from “personal” to “impersonal” must be considered in the same light as the change from one grammatical word class (part of speech) to another. *White* becoming *whitish* stays in the same word class “adjective”, but the colour-denoting word *white* is subsumed under the different semantic head “approximating” expressed by the suffix *-ish*. Though no change of word class is involved, nobody would doubt the derived character of *whitish*.

Bally uses the term transposition for various other grammatical phenomena. *Campagne* in *maison de campagne* is termed a “functional adjective”. This, however, would seem to imply recognition of a status similar to that of the transpositional adjective *polar* and the presence of a transpositional morpheme “adjective” in *campagne*. It would involve a series of consequences which are inadmissible, namely the recognition of a transpositional morpheme whenever a word is used in another than its primary function. We therefore will have to make a clear distinction between transposition, which is the general phenomenon, and derivation, which is a problem relevant to word-formation.

2.4. We will speak of derivation only when a word changes its word class (e. g. *clean* adj to *clean* vb) or its lexical class (*proffessor* to *proffessorship*). We will not, however, use the term for mere syntactic phenomena as when a substantive functions as the determinant of a group, as *government* in *government official*, or *stone* in *stone wall*. The use of a substantive as preadjunct is a normal syntactic phenomenon in English, and nothing is there to show that the substantive *government* here has become an adjective. By contrast, the word *governmental* in *governmental practice* will be considered a derivative though admittedly both *government* in *government official* and *governmental* in *governmental morale* have the same purely syntactic meaning “of the government”. But *government* has remained a substantive whereas *governmental*, through the adjectival categorizer *-al*, has become a full adjective, though only a syntactic derivative. The distinction between semantic and syntactic derivatives cannot be gone into here. We will only state that derivation has two facets, a semantic and a syntactic one, the first roughly corresponding to the derivation of semantic units which cannot be “generated”, that is units whose content is not describable solely in syntagmatic terms (as *skyscraper*, *manly*, etc.) while syntactic derivatives are satisfactorily explained as renderings of syntactic relations, as *writer* (of the letter), rendering the S-P relation “he wrote (the letter), *criminal* (court), mirroring the P-prep O relation “deals with crime”. Unlike semantic derivatives, syntactic derivatives are generable.

With the exception of E *-an* (e. g. *Roman*, *American*), which seems to form only syntactic derivatives, all suffixes in English, French and German I can think of form both types (cf. E *pol-ar bear* syn and *spectacul-ar sight* sem, F *végétation tropic-ale* syn and *chaleur tropic-ale* sem, G *der heut-ige Tag* syn and *eine vernünftige Regelung* sem). While mentioning the distinctness of the two types of derivation, it will therefore be advisable to include syntactic derivatives in word-formation, a procedure which is all the more advisable, as many words are partly semantic, partly syntactic.

2.5. We have proposed to include syntactic (transpositional) derivation in the treatment of derivation, because syntactic derivatives (*polar*, *writer*, *writing*) belong to a different word class from their bases. The change of word class is evident in form and syntactic behaviour as one that is irreversible. The transposed words *polar*, *writer*, *writing* cannot be used again in the same word class as *pole* and *write* respectively, quite

unlike *government* in *government official*: there is nothing final in the transposition of *government*, the word can at any moment be used again as a determinatum in another construction. Its primary character has not been affected by the possibility of its being used as preadjunct. The use of substantives as preadjuncts therefore will not be considered parallel to that of syntactic derived adjectives. A syntactic zero morpheme parallel to the overt morpheme *-ar* of the type *polar* cannot be claimed, the process is not relevant to derivation.

We might feel tempted to invoke the counter-argument that the existence of an overtly expressed pattern *legal/ize*, *atom/ize* induced us to assume a zero morpheme in the case of *clean/Ø* vb and *cash/Ø* vb, in order to argue for a zero transpositional morpheme in the case of substantives used as preadjuncts. The argument would be perfectly valid if we could show that (*government* in *government official* has really become an adjective. No transposed substantive can be called an adjective unless it has received a categorial marker: *-al* in *governmental* characterizes the word as an adjective, derived from the substantive *government*. The case of *clean* vb transposed from *clean* adj is clear: as a verb, *clean* is treated like any primary verb in all positions where it is used, exactly like *sing*, *read*, *write*. Through inflected forms such as *he clean-s*, *he clean-ed*, and its use in non-adjectival positions such as *he is cleaning the room* the verb *clean* is distinct from the adjective *clean*. This cannot be said of preadjunctal *government* as against the independent substantive *government*.

That *government* cannot be used in predicative position is of course no argument. Neither can *governmental*. It is precisely the characteristic of transpositional adjectives that they can only be used as preadjuncts, as they originate in rectional sentences and do nothing but transpose the verbal complement of a rectional sentence into a preposed adjective: *polar* in *polar bear* reduces the verbal complement of the sentence “the bear lives near the pole” to a preposed adjective in a nominal construction where *bear* is the head. The predicate of a rectional sentence cannot be made the predicate of a copula sentence.

There is another case of transposition which shall be discussed as complementary to that of *government (official)*. Any prepositional group can be used as preadjunct, either unchanged (as in *he gave a speech after dinner* → *afterdinner speech*), or with the preposition represented by an allomorph not occurring in syntactic use (as in *there were riots against foreigners* → *anti-foreign riots*), or without the preposition (as in

he is an official of the government → *government official*) which is the case discussed above. This means that the phenomenon must be considered a normal syntactic feature in English. The preadjunctal prepositional group is transposed, but it should not be interpreted as a transpositional derivative. The transpositional but non-derivational type *anti-Communist (policy)* would thus have its counterpart in *government (official)*. Both types are matched by genuine transpositional derivational types: *anti-cleric/al (attitude)* and *government/al (institutions)*.

Aids to the study of the text

1. What definitions does H. Marchand give to the terms “determinatum”, “determinant”? What is the role they play within the derived word?
2. What combination of morphemes is classified by the author as expansion? On what ground are such words as *steamboat*, *rewrite* *colour-blind* are considered to be examples of expansion?
3. What process is termed transposition? Find your own examples of transposition.
4. What is derivation?
5. Are the definitions of *expansion*, *transposition* and *derivation* universally accepted?
6. Give examples of transposition in English which are not simultaneously derivations.

Hans Marchand

THE CATEGORIES AND TYPES OF PRESENT-DAY ENGLISH WORD-FORMATION

I Introduction

Definition of the field of word-formation

1.2.1. Word-formation is that branch of the science of language which studies the patterns on which a language forms new lexical units, i. e. words. Word-formation can only treat of composites which are analysable both formally and semantically. <...> The study of the simple word, therefore, insofar as it is an unanalysable, unmotivated sign, has no place in it. It is a lexical matter. A composite, rests on a relationship between morphemes through which it is motivated. By this token, *do-er*,

un-do, *rain-bow* are relevant to ord-formation, but *do*, *rain*, *bow* are not.

1.2.2. The terms “analysable composite” and “motivation” require some comment. <...> While admitting that we have complete motivation only in combinations composed of full linguistic signs, i. e. combinations intellectually motivated by the significates (as in *rain-bow*, *do-er*; *un-do* where a certain form goes with a certain underlying concept) we find that this is not the only kind of motivation that occurs in the coining of new words. This book, therefore, will deal with two major groups: (1) words formed as grammatical syntagmas, i. e. combinations of full linguistic signs, and (2) words which are not grammatical syntagmas, i. e. which are composites not made up of full linguistic signs. To the first group belong Compounding, Prefixation, Suffixation, Derivation by a Zero Morpheme and Back-derivation, to the second — Expressive Symbolism, Blending, Clipping, Rime and Ablaut Gemination, Word-manufacturing. <...> What is common to both groups is that a new coining is based on a synchronic relationship between morphemes. Where there is no relationship in praesentia, we have to do with a moneme. That *chap*, for instance, is historically derived from *chapman*, is of no synchronic relevance. For the present-day speaker, no such relationship exists, therefore *chap* is a moneme.

1.2.3. As for derivatives of group 1), we have to state that a derivative is a syntagma consisting of a determinant and a determinatum, whether we have a compound (e. g. *head-ache*), a suffixal derivative (e. g. *father-hood*), or a prefixal derivative (e. g. *un-do*). Both parts are morphemes, i. e. signs based on a significate/significant relation. In the event of full compounds, the syntagma is opposable to either morphemic element (*head-ache* to *head* and *ache*). Prefixal and suffixal derivatives must be opposable to their unprefixal and unsuffixal bases (*un-do* to *do*, *father-hood* to *father*) and to other derivatives containing the same dependent morpheme (*un-do* to *un-fasten*, *un-roll*, etc., *father-hood* to *mother-hood*, *boy-hood*, etc.).

1.2.4. The process called backderivation (backformation) has diachronic relevance only. That *peddle* vb is derived from *peddler* sb through interpretation is of historical interest. However, for synchronic analysis the equation is *peddle* : *peddler* = *write* : *writer*, which means that the diachronic process of backderivation does not affect the derivative correlation for present-day speakers who do not feel any difference between the relationship *write* : *writer* on the one hand and *peddle* : *peddler* on the other.

1.2.5. The derivative element may be absent in the significant of the derivative in which case we speak of derivation by a zero morpheme (*father* vb “treat as a father”, *idle* vb “be idle”, etc.). <...> Yet one cannot “saw” without a “saw”, i. e. the concept “saw” is implied in the verbal concept “saw”. Though the problem is more complex than this isolated case suggests the general principle will be to assume that the concept which for its definition is dependent on the concept of the other pair member must be considered that of the derived word. <...>

1.2.6. From what has been stated about the syntagmatic character of derived words it is evident that whenever a word is not analysable as consisting of two morphemes it is a moneme, not a derivative. *Defense*, *apply* are opposable as whole units only, not to *fence*, *ply* (as far as the signs are concerned which are not identical with the sound clusters of the second syllable *-fence*, *-ply*). <...>

1.2.7. It should be clear that loans from other languages, unless they have become analysable syntagmas (as e. g. *dis-agreable* and *trans-alpine* in English) have no place in a study of word-formation. <...>

Derivative relevancy and descriptive analysis

1.3.1. It has been argued against my approach that “the unproductiveness of one of the morphemes is not a fatal bar to analysis”. This point can be argued in several ways. The composition of the words *half-penny* and *twopence*, pronounced [hɛpəni], [tʌpəns] is still recognizable to the speaker of English. We may consider [hɛ] an allomorph of /hæf/, [pəni] and [pəns] allomorphs of /pɜni/ and /pɜns/ respectively, thus giving the words the status of full compounds. However, descriptive analysis of words and derivative relevancy are not the same thing. While we have analysed the preceding combinations in terms of allomorph-containing compounds, it must be pointed out that the very fact of phonic change of one of the constituents contrasts with a relevant feature of compounding in English, viz. the preservation of the phonic character of the constituents versus their use as independent words. No first-word changes, and, with the exception of *man* and *berry* (in a few cases also *land*, as in *Finland*, *Scotland*), no second-word does either. In British English (not in American English), *berry* reduces the first vowel to [ə] while with *man* the reduction is common to both American and British English, but represents an unstable pattern (*policeman*, *seaman* etc. are regular with [ə]), but *milkman*, *mailman* and others vary).

Historically, the phenomenon is explained by the fact that the words *man*, *land*, and *berry* have been frequent as second-words from the oldest times of the language known to us. They have thus acquired a semi-suffixal character. Note that the pronunciation [lænd] occurs only with ethnic names, not in recent compounds such as *homeland*, *fatherland*, *dreamland*, and that similarly the vowel is not reduced in *man* when the concept “man” is fully present in the significate.

1.3.2. It is therefore not enough to give a descriptive analysis of a composite in terms of morphemes and allomorphs, we also have to state what is the position of those linguistic forms within the structural system of a given language. In the case of English compounds we have seen that no changes of vowel or consonant take place when an independent morpheme becomes the constituent of a compound. Exceptions to this rule are therefore indicative of formation outside the present-day stage of linguistic structure. <...>

Word-formation on a native and on a foreign basis

1.4.1. Bearing in mind the bi-morphemic, i. e. two-sign character of derivatives; and the ensuing opposability of both elements, it seems a little embarrassing to revert to the topic of the analysis of *conceive*, *deceive*, *receive* described as bi-morphemic by Bloomfield, Harris, and Nida. Newman establishes such suffixal derivatives as *horr-or*, *horr-id*, *horr-ify*; *stup-or*, *stup-id*, *stup-efy*. What are the bases **horr-** and **stup-** and what are the-meanings of the suffixes? With the exception of *stupefy* which by forced interpretation could be made to look like a syntagma, none of the “derivatives” is analysable into two significates. <...> The fact that we can align such formal series as *con-tain*, *de-tain*, *re-tain*; *con-ceive*, *de-ceive*, *re-ceive* does not prove any morphemic character of the formally identical parts as they are not united by a common significate. The preceding words are nothing but monemes. *Conceive*, *receive*, *deceive* are not comparable to syntagmas such as *co-author* “joint-author”, *re-do* “do-again”, *de-frost* “remove the frost” the correct analysis of which is proved by numerous parallel syntagmas (*co-hostess*, *co-chairman*, *co-defendant*; *re-write*, *re-hash*, *re-furbish*; *de-gum*, *de-husk*, *de-horn*). If the two series *con-tain*, *de-tain*, *re-tain* / *con-ceive*, *de-ceive*, *re-ceive*, through mere syllabication and arbitrary division of sound complexes yield morphemes, why should we not be allowed to establish the similar morpheme-yielding series *ba-ker*, *fa-ker*, *ma-ker* /

bai-ling, fai-ling, mai-ling? If we neglect content, how can we expose such a division as nonsensical? <...> In actual fact, nobody would think of making the wrong morpheme division as our memory keeps perfect store of free and bound morphemes as significant/significate relations. It is only with a certain restricted class of words of distinctly non-native origin that we fall into the error of establishing unisolable morphemes. <...>

1.4.2. If *receive, deceive, conceive* are matched by the substantives *reception, deception, conception*, this is so because Latin verbs in *-cipere* are anglicized as verbs in *-ceive* while the corresponding Latin substantives *receptio, deceptio, conceptio* in English have the form given above. The alternation *-sume* vb *-sumption* sb is obviously restricted to pairs corresponding to the Latin alternation *-sumere* vb *-sumptio* sb. Nobody, unless he was trying to be witty, would extend the correlative pattern to pairs of words outside the particular structural system to which the words ultimately belong. Rime with *receive / reception* could not make anyone derive *believe / beleption*, nor would the pattern *consume / consumption* produce *loom / lumption, boom / bumption*. The natural synchronic description will therefore deal with foreign-coined words on the basis of the structural system to which they belong.

1.4.3. With regard to compounding, prefixing, and suffixing, word-formation proceeds either on a native or on a foreign basis of coining. The term “native basis of coining” means that a derivative must be analysable as consisting of two independent morphemes (in the event of a compound as *rain-bow*) or of a combination of independent and dependent morpheme (in the case of prefixal and suffixal derivatives as *un-just, boy-hood*). By word-formation on a foreign basis of coining I understand derivation on the morphologic basis of another language. In English, French, and German, to give three principal European languages, most learned, scientific, or technical words are formed on the morphologic basis of Latin or Greek. <...>

Synchronic and diachronic method

1.5.1. Two principal methods are applied in the science of language: the synchronic and the diachronic one. With regard to word-formation, the synchronic linguist would study the present-day system of formative types while the scholar of the diachronic school would write the history of word-formation.

The chief purpose of this book is synchronic: to illustrate those derivative types which characterize the present-day English linguistic system. At

the same time I have made a tentative effort to describe the growth of these structurally relevant types in the past stages of the language. This explains why I have called my approach “synchronic — diachronic”. <...>

1.6. This book is not “structural” in the specific meaning the term has today. I have treated alternations only insofar as they have or have had derivative character. Mere semantic correlation is not enough to establish a phonological (phonemic) resp. morpho-phonemic opposition. <...> For the speaker, *dine* and *dinner*, *maintain* and *maintenance* and many others are semantically connected, but a derivative connection has not developed out of such pairs, so their opposition is not relevant to word-formation.

I disagree with analyses like the one Bloomfield gives for the word *duchess* <...>: “The complex form *duchess* [dʌtʃɪs] consists of the immediate constituents *duke* [djuwk] and *-ess* [ɪs]... The [juw] of *duke* is replaced by [ʌ], and the [k] by [tʃ].” Such analyses falsify the actual morphologic relations. The reader is apt to get the misleading idea that there is a morpho-phonemic relation as of /ju~ʌ/ resp. /k~tʃ/ in English. <...>

III Prefixation

Prefixes of native and foreign origin

3.1.2. We call prefixes such particles as can be prefixed to full words but are themselves not words with an independent existence. Native prfs have developed out of independent words. Their number is small: *a-*, *be-*, *un-* (negative and reversative), *fore-*, *mid-* and (partly) *mis-*. Prefixes of foreign origin came into the language ready made, so to speak. They are due to syntagmatic loans from other languages: when a number of analysable foreign words of the same structure had been introduced into the language, the pattern could be extended to new formations i. e. the prf then became a derivative morpheme. Some prfs have secondarily developed uses as independent words, as *counter*, *sub*, *arch* which does not invalidate the principle that primarily they were particles with no independent existence. The same phenomenon occurs with suffixes also. <...>

Prefixing on a Neo-Latin basis of coining

3.1.5. There are many prfs, chiefly used in learned words or in scientific terminology, which have come into the language through borrowing

from Modern Latin, as *ante-*, *extra-*, *intra-*, *meta-*, *para-*, etc. The practice of word coining with these particles begins in the 16th c., but really develops with the progress of modern science only, i. e. in the 18th and esp. the 19th c. <...> With these particles there is a practical difficulty. They may represent (1) such elements as are prefixes (in the above meaning) in Latin or Greek, as *a-* (*acaudal* etc.), *semi-* (*semi-annual*), (2) such elements as exist as prepositions or particles with an independent word existence, as *intra*, *circum*, *hyper*, *para*, 3) such as are the stems of full words in Latin or Greek, as *multi-*, *omni-*, *astro-*, *hydro-*. This last group is usually termed “combining forms” (OED, Webster). In principle, the three groups are on the same footing from the point of view of English wf, as they represent loan elements in English with no independent existence as words. That *macro-*, *micro-* a. o. should be termed combining forms while *hyper-*, *hypro-*, *intro-*, *intra-* a. o. are called prefixes by the OED, is by no means justified.

3.1.6. Only such pts as are prefixed to full English words of general, learned, scientific or technical character can be termed prefixes. *Hyper-* in *hypersensitive* is a prefix, but *hyper-* in *hypertrophy* is not, as *-trophy* is no word. We cannot, however, undertake to deal with all the prepositional elements occurring in English. Such elements as *astro-*, *electro-*, *galato-*, *hepato-*, *oscheo-* and countless others which are used in scientific or technical terminology have not been treated in this book. They offer a purely dictionary interest in any case. In the main, only those pts have been considered that fall under the above groups (1) and (2). But we have also included a few prefixes which lie outside this scope, as prfs denoting number (*poly-*, *multi-*), the pronominal stem *auto-* which is used with many words of general character, and pts which are type-forming with English words of wider currency (as *crypto-*, *neo-*, *pseudo-*).

Competition between prefixes

3.1.13. There is often competition between prfs as there is between sfs and independent words: *over-* and *out-* sometimes overlap, there is overlapping between *un-* (neg.) and *in-*, *un-* (reversative), *dis-* and *de-*, between *ante-* and *pre-*, *super-* and *trans-*, *super-* and *supra-*.

The conceptual relations underlying prefixed words

3.1.14. A pre-particle or prefix combination may be based on three different conceptual patterns and accordingly present the prefix in three functional aspects: 1) the prefix has adjectival force (with sbs, as in *an-*

teroom, archbishop, co-hostess, ex-king); 2) the prefix has adverbial force (with adjectives and verbs, as in *unconscious, hypersensitive, informal, overanxious / unroll, rewrite, mislay*); 3) the prefix has prepositional force (as in *prewar years, postgraduate studies, anti-aircraft gun / afire, aflutter / anti-Nazi, afternoon / encage*: sbs and vbs must be considered syntagmas with a zero determinatum, the cbs *anti-Nazi, afternoon, encage* being the respective determinants).

The preceding conceptual patterns are important in the determination of the stress: while a cb based on an adjunct / primary relation tends to have two heavy stresses (as in *árch-énemy*) or may even have the main stress on the prefix (as in *súbwa`y*), the prf has not more than a full middle stress in the other types.

The phonemic status of prefixes

3.1.16. <...> The semi-independent, word-like status of prefixes also appears from their treatment in regard to stress. With the exception of regularly unstressed *a-* (as in *afire, aflutter*), *be-* (as in *befriend*), and *em-, en-* (as in *emplane, encage*) all prefixes have stress. To illustrate this important point a comparison with non-composite words of similar phonetic structure will be useful. If we compare the words *rè-fill* and *repéat*, morphemic *re-* /ri/ in *re-fill* is basically characterized by presence of stress whereas non-morphemic *re-* [ri] is basically characterized by absence of stress. This is proved by the fact that under certain phonetically unpredictable circumstances, the phonemic stress of *re-* in *rè-fill*, though basically a middle stress, can take the form of heavy stress whereas phonemic absence of stress can never rise to presence of stress. *They rèfilled the tank* may become *they réfilled the tank* (for the sake of contrast) or *they réfilled the tank* (for emphasis), but no such shift is conceivable for mono-morphemic *repéat, incíte, préfér*, etc. which invariably maintain the pattern no stress/heavy stress. <...>

IV Suffixation

The term “suffix”

4.1.1. A suffix is a derivative final element which is or formerly was productive in forming words. A sf has semantic value, but it does not occur as an independent speech unit. <...>

Suffixes and endings

4.1.2. It is necessary to point out the similarity and difference between derivative and functional morphemes. Morphologically, two words such as *citizens* and *citizenry* are formed after the same principle of “root plus affix”. At first sight, the conceptual structure also looks very much alike: the *-s* of *citizens* and the *-ry* of *citizenry* both express the idea of plurality, collectivity. But the difference involved is one between grammatical function and lexical meaning. The *-s* of *citizens* is the inflectional formative of the grammatical category “plural”, whereas *-ry* forms a class of words with the semantic basis “group, collectivity of...”.

A suffixal derivative is primarily a lexical form. It is a two-morpheme word which behaves like a one-morpheme word in that it is “grammatically equivalent to any simple word in all the constructions where it occurs” <...>. An inflected word is primarily a grammatical form which does not meet the requirements just stated. While in a sentence such as *this citizenry feels insulted* we could substitute the simple, one-morpheme words *crowd*, *multitude*, *nation* for bi-morphemic *citizenry* without any change in the behavior of the other members of the sentence, replacement by the two-morpheme word, *citizens* would involve a change of *this* to *these* and of *feels* to *feel*. The formatives *-er*, *-est* as expressing degrees of comparison are endings, not suffixes. In a sentence such as *Paul is older than Peter* we could not substitute any one-morpheme word for bi-morphemic *old-er* whereas in *he is rather oldish* the adj *old* can take the place of *old-ish*. It will also be interesting to note the different phonetic make-up of comparatives and superlatives as compared with derived adjs. *Youngish*, *longish* betray the morpheme boundary before *-ish* in that the final consonant does not change before the initial vowel of the derivative suffix whereas in *younger*, *longer* the consonants are treated as standing in medial position in unit words, just like *finger* or *clangor*, [ŋg] being the antevocalic (and antesonantic) allophone of [ŋ]. <...>

The origin of suffixes

4.1.4. As to the origin of sfs, there are two ways in which a sf may come into existence: (1) the sf was once an independent word but is no longer one; (2) the sf has originated as such, usually as a result of secretion. Case (1) applies to a few native sfs only. The sfs *-dom* and *-hood* are independent words still in OE, so the process whereby a second-

word becomes a sf can be observed historically. <...> An instance of case (2) is the sf **-ling** which is simply the extended form of sf **-ing** in words whose stem ended in **-l**.

Half-way between second-words and sfs are certain second elements which are still felt to be words though they are no longer used in isolation: **-monger**, **-wright** and **-wise** exist only as second parts of cbs. I have treated them as semi-suffixes. The fact that a word is frequently used as the second element of a cb gives us no right to call it a suffix. Thus the following are not sfs: **-caster** (as in *broadcaster*, *gamecaster*, *news-caster*), **-fiend** (as in the AE words *cigarette-fiend*, *opium-fiend*, *absinthe-fiend*, *cocaine-fiend* etc., <...>) **-craft** (as in *witchcraft*, *leechcraft*, *priestcraft*, *statecraft*, *smithcraft*, *mothercraft*), or **-proof** (as in *bomb-*, *fire-*, *rain-*, *sound-*, *water-*, *hole-*, *kiss-*, *humor-* etc. *proof*) which Jespersen <...> wrongly terms one.

4.1.5. The contact of English with various foreign languages has led to the adoption of countless foreign words. In the process, many derivate morphemes have also been introduced, suffixes as well as prefixes. As a consequence, we have many hybrid types of composites. We have to distinguish between two basic groups. A foreign word is combined with a native affix, as in *clear-ness*, *un-button*. Just as the introduction of a foreign word is an essentially uncomplicated matter, so is its combination with a native derivative element. As no structural problem is involved in the use of a foreign lexical unit, it can be treated like native words. This is the reason why native prefixes and suffixes were added to French words almost immediately after the words had been introduced. Suffixes such as **-ful**, **-less**, **-ness** were early used with French words so we find *faithful*, *faithless*, *clearness* and others recorded by 1300. The case is different with foreign affixes added to native words. Here, the assimilation of a structural pattern is involved, not merely the adoption of a lexical unit. Before the foreign affix can be used, a foreign syntagma must have come to be familiar with speakers so that the pattern of analysis may be imitated and the dependent morpheme be used with native words. This is much more complicated. When it does happen, such formations are found much later than those of the first type. This is to be regarded as a general linguistic phenomenon. It explains why combinations of the types *break-age*, *hindr-ance*, *yeoman-ry* crop up much later (about 1375 at the earliest) and are less numerous. The early assimilation of **-able** is

exceptional. Some foreign affixes, as *-ance*, *-al* (type *arrival*), *-ity* have never become productive with native words.

4.1.6. The majority of foreign suffixes owe their existence to the reinterpretation of loans. When a foreign word comes to be analysed as a composite, a syntagma, it may acquire derivative force. The syntagmatic character of a word therefore is a precondition for the development of a derivative morpheme.

From *landscape* (which is Du *landschap*) resulted *scape* which is almost entirely used as the second element of cbs, as in *seascape* 1799 and later *earthscape*, *cloudscape*, *sandscape*, *mountainscape*, *moonscape*, *parkscape*, *skyscape*, *waterscape*, *house-scape*, *roadscape*, *mindscape*. *Bootlegger* attracted *booklegger* “one trading in obscene books”, *foodlegger* “illicit foodseller”, *meatlegger*, *tirelegger* (used at a time when things were rationed in U.S.).

The word *hierarchy* attracted *squir(e)archy* 1804, which does not, however, mean that there is a suffix *-archy* <...>. The attraction is prob. due to the rime only, and other coinages have not been made. <...>.

Another AE sf is *-eteria* with meaning “shop, store, establishment”. The starting-point is prob. Mexican Spanish *cafeteria* which passed into American English (first used about 1893). <...> As it was immediately analysable in American English, with the first element interpreted as an allomorph of [kɔfi] it attracted a good number of words (chiefly since 1930). Mencken has about 50 words, such as *basketeria*, *caketeria*, *candyteria*, *cleaneteria*, *luncheteria*, *drygoodsteria*, *drugteria*, *fruiteria*, *shoeteria*, *chocolateria*, *furnitureteria*. The original implication was “place where articles are sold on the self-service plan” (so in the recent coinage *gas-a-teria* <...>. The only common word, however, is *café-teria*, stressed as indicated. <...>

4.1.7. The process of secretion requires some more comment. The basic principle is that of re-interpretation; but there are several ways in which re-interpretation occurs.

(1) A cb may be analysed by the general speaker as having two constituent elements, the basis as an independent morpheme and the sf as a derivative element. This is the case of the preceding types *lemonade* and *landscape*. This process of direct re-interpretation is the form secretion commonly assumes.

(2) A cb is not made up of two constituent elements as far as the general speaker is concerned. If *aristocracy*, *democracy*, *plutocracy* yield

more or less jocular words such as *landocracy*, *mobocracy*, *cottonocracy*, this is due to a meeting and blending of two heterogeneous structural systems: a certain structural element of one linguistic system is isolated and introduced into another linguistic system. The speaker with a knowledge of Greek isolates **-ocracy** “rule” in a series of Greek-coined words and introduces it as a derivative element into the structural system of English. But dependent structural elements are tied up with certain morphologic conditions of the linguistic system to which they belong and cannot therefore be naturally transplanted, unlike words which are independent lexical elements, not subject to any specific morphologic conditions. Such coinages are felt to be hybrids by the word-coiner himself, so the process is not used for serious purposes as a rule. Admittance of such foreign derivative elements is also impeded by the fact that they bear no resemblance to any morpheme with which the hearer of the hybrid is familiar. The linguistic situation is different with foreign-coined words of which one element is immediately associated with a morpheme of the hearer’s language. Words like *barometer*, *thermometer* are automatically connected with the independent word *meter* whose unstressed allomorph the words contain. This explains the rise and currency of *speedometer*, *creamometer*, and quite recent *drunkometer*.

But otherwise, hybrid coinages of this derivative pattern will always have a limited range of currency or the tinge of facetiousness, as *bumpology*, *bumposopher* (both jocular from *bump* “protuberance on the cranium as the sign of special mental faculties”), *storiology*, *weatherology*, *dollolatry* a. o. Parallel to the above words in **-ocracy** are such in **-ocrat**, as *mobocrat*, *bankocrat*, *shopocrat*. Very similar to the case of *barometer* / *speedometer* is that of the American **-fest**. From the German words *Sangerfest* and *Turnfest*, which were first used in the early 50’s in U.S., a series of other words were derived, such as *smokefest*, *walkfest*, *eatfest*, *stuntfest*, *bookfest*, *gabfest*. The element **-fest** was obviously interpreted as the “allomorph” of *feast*. The word *cavalcade* was re-interpreted as containing the element **caval-** “horse” and the **sf cade** “parade” and attracted such coinings as *aerocade*, *aquacade* (on a Latin basis of coining), *autocade*, *camelcade*, *motorcade* (on a native basis of coining), recent words which may not stand the test of time. From the word *panorama* the characteristic ending **-rama** was secreted with the

meaning “pageant, show” and has recently led to such words as *cinerama*, *motorama*, *autorama*.

Sometimes ignorant but pretentious people take to coining words, re-interpreting foreign words in their own way. They vaguely feel that there is some characteristic termination in a Greek or Latin word which they then attach to some English basis to give the cb a “learned” tinge. As a result, we get barbarisms in **-athon**, coined after *Marathon*, such as *danceathon*, *swimathon*, etc., in **-torium**, such as *corsetorium*, *lubritorium*, etc.

Thus, the rise of sfs illustrated by types *aristocracy* / *landocracy*, *barometer* / *speedometer* and others treated in the preceding passage can stay out of account for suffixal derivation.

4.1.8. There is yet a third way in which sfs may arise. Words of apparently only one constituent element may develop derivative morphemes. If we take, such a word as *hamburger*, we observe that it has attracted other coinings like *cheeseburger*, *beefburger*, *fishburger*. The analysis of the word cannot be, as one may feel tempted to assume, that of *ham* and *burger* as there is no ham in the hamburger. So the word *cheeseburger* has not arisen from re-interpretation. What has taken place is a shortening of the morpheme *hamburger* into a fore-clipped **-burger**, this part being taken as representative of the semantic elements contained in *hamburger*. The cb *cheeseburger* therefore is a clipped word for non-existent *cheese hamburger*. Parallel to **-burger** words are such in **-furter**, as *shrimp-furter*, *krautfurter*, *chickenfurter* <...>. In election campaign words such as *Hoovercrat*, *Willkiecrat*, **-crat** was short for *democrat*. The word *telegram* 1852 gave rise to *cablogram*, *radiogram*, *pidgeongram*, *lettergram* where **-gram** is short for *telegram*. The diminutive sf **-ling** originated in the same way. *Wolfling* “young wolf” is a blend of *wolf*, and *young-ling* “young animal”.

Nominal and verbal suffixes

4.1.9. In PE there are nominal and verbal sfs. The sfs **-fold**, **-most**, and **-ward** form words which are used both as adjs and adverbs. <...>

4.1.10. The meaning of a suffix is conditioned by the particular semantic character of the basis to which the sf is attached, also by the linguistic circumstances in which the coinage is made. In general parlance, a *fiver* is a bill of five (dollars or pounds), in cricket jargon it is a hit for five, in school life it may denote a boy who always scrapes

through with a five. A *greening* is a green variety of apple or pear, but a *whiting* is a white variety of fish. For other possibilities see **-er** and **-ing**, for instance. Some concepts are apt to be represented by sfs in many languages, as those of condition (state, quality etc.), appurtenance, collectivity, endearment, agent a. o., but theoretically there is no telling what concept may not develop to find expression in a sf. French has a sf **-ier** (type *pommier*) to denote fruit trees, there is L **-ile** for the idea of “stable for domestic animals”, OGr has a sf **-itis** (type *nephritis*) meaning “disease”. These have no parallels in English, or in German either. But no intrinsic linguistic principle is involved in the absence of such morphemes. The rise of new sfs in English goes to corroborate this.

A few words are needed with regard to deverbal derivatives. A deverbal derivative is not fundamentally different from a cpd whose first member is a verb stem, so, as in the case of denominal sfs, a great number of meanings are possible <...>. In practice, however, the possibilities are much restricted. Deverbal sfs express grammatical functions rather than semantic concepts, and the usual implications are “act, fact, instance of...” (*arrival, guidance, warning*), sometimes “state of...” (*starvation, bewilderment*), “agent” (personal or impersonal: *baker, eraser, disinfectant*), “personal object” (direct or indirect, only with **-ee, transferee, draftee**), “object of result” (*breakage, savings*), “place” (*settlement, brewery, lodgings*). Similar considerations apply to derivation by a zero morpheme (*pickpocket, blackout, look*). <...>

The two morphological bases of derivation

4.1.11. To give a preliminary survey of the several methods of suffixing in English we may distinguish six ways:

(1) Derivation by native sfs, as *goodneis* f. *good*. This process involves no changes of stress, vowels or consonants in derivative as against the basis.

(2) Derivation by means of imported sfs under the same phonologic conditions as group 1), as *lovable* f. *love*.

(3) Derivation by means of imported sfs, involving phonologic changes of stress, vowels or consonants, as *Japanese* f. *Japan*, *historicity* from *historic*. The three preceding groups will be referred to as word-formation on a native basis of coining (*wfnb*).

(4) The *sf* is tacked on not to an English word but on to a Latin stem, which closely resembles, however, the word that stands for it in English, as *scient-ist* f. *science*.

(5) The *sf* is tacked on to a Latin or Greek stem which has, however, no adapted English equivalent, as *lingual* from L *lingua*, *chronic* f. Gr. *chronos*. Groups (4) and (5) will be referred to as word-formation on a foreign or Neo-Latin basis of coining (*wffb*).

(6) Words which, have originally been borrowed separately come to take on the form of derivative alternations in English on whose pattern new words may be derived: on the analogy of *piracy* as from *pirate*; *candidacy* can be formed from *candidate*. This method will, be referred to as correlative derivation.

4.1.12. The difference made here between the two methods of *wfnb* and *wffb* does not correspond to the traditional distinction between derivation by means of native, and foreign sfs. For native sfs, as pointed out, the derivative basis is always native. But with sfs of foreign origin the basis of coining may be either native or foreign or both. The *sf* **-al** derives *postal*, *seasonal* f. E *post*, *season*, and *lingual* f. L stem *lingua*, *horizontal* f. Gr stem *horizont*; **-ify** forms *dandify*, *monkeyfy* as well as *aurify*, *carnify*, **-ism** derives both words such as *Englishism*, *Irishism* and *Anglicism*, *Briticism*.

V Derivation by a zero-morpheme

The term “zero-derivation”

5.1.1. Derivation without a derivative morpheme occurs in English as well as in other languages. Its characteristic is that a certain stem is used for the formation of a categorically different word without a derivative element being added. In synchronic terminology, we have syntagmas whose determinatum is not expressed in the significant (form). The significate (content) is represented in the syntagma but zero marked (i. e. it has no counterpart in form): **-loan** vb is “(make a) *loan*”, *look* sb is “(act, instance of) *look* (ing)”. As the nominal and verbal forms which occur most frequently have no endings and (a factor which seems to have played a part in the coining of the term “conversion” by Kruisinga) are those in which nouns and verbs are recorded in dictionaries, such words as *loan*, *look* may come to be considered as “converted” nouns or verbs. It has become customary to speak of the “conversion” of substantives, adjectives

tives, and verbs. The term “conversion” has been used for various things. Kruisinga himself speaks of conversion whenever a word takes on a function which is not its basic one, as the use of an adjective as a primary (*the poor, the British, shreds of pink, at his best*). <...> Our standpoint is different. The foregoing examples illustrate nothing, but syntactic patterns. That *poor* (preceded by the definite article, restricted to the plural with no plural morpheme added) can function as a primary, or that *government*, as in *government job*, can be used as a preadjunct, is a purely syntactic matter. At the most we could say, with regard to *the poor*; that an inflectional morpheme is understood but zero marked. <...> We will not, therefore, use the term “conversion”. As a matter of fact, nothing is converted, but certain stems are used for the derivation of lexical syntagmas, with the determinatum assuming a zero form. For similar reasons, the term “functional change” is infelicitous. The word itself does not enter another functional category, which becomes quite evident when we consider the inflected forms.

VI Backderivation

6.4. Backderivation offers linguistically interesting problems. Synchronically speaking, not all backderivations have the same status. We distinguish two groups: 1) *burgle* vb fr. *burglar* sb, 2) *swindler* sb fr. *swindle* vb. While a swindler is “one who swindles”, surely a burglar is not “one who burgles”. In terms of synchronic analysis this means that *swindler* is no longer felt to be a pseudo-agent substantive but is considered a genuine derivative from *swindle* vb. With regard to the pair *burglar* / *burgle*, however, the relationship is different. Here the deriving basis is *burglar* while *burgle* is the derivative. The verb *burgle* is zero derived from *burglar*; analyzable as “be, act as a burglar”. It is parallel to the verb *father* derived from the substantive *father*; the only difference being the pseudo-morpheme /ə(r)/ which is clipped from *burglar*. Originally, all backderived verbs belong to this type and most present derivatives must still be analyzed as zero-derivatives from their “suffixal” basis. The verb *televise* is naturally analyzable as “put on television”. The type *swindler* sb fr. *swindle* vb therefore represents an advanced stage of semantic development that many correlative pairs will perhaps never attain. Pseudo-compound verbs of the type *stagemanage* from *stagemanager*; for instance, are all derivatives of the semantic type *burgle* fr. *burglar*. The use of such verbs is still widely

restricted with regard to their acceptance by speakers as well as with regard to their use in all verb forms alike. While the derivative correlation of agent sb in *-er* and verb is absolute (any verb can derive an agent substantive as a grammatical form), that of composite agent substantives in *-er* and pseudo-composite verbs derived from them is not: we are far from being at liberty to derive such verbs, and a great number of speakers are still reluctant to use them, at least in all verb forms. Historical knowledge of the problem here greatly helps us to understand the present-day linguistic situation; and explains the limited functional yield of both the type, *stagemanager* fr. *stagemanager* and the type *burgler* fr. *burglar*. On the other hand, we cannot grant derivative status to alternations (such as *enthuse* / *enthusiasm*) unless they are represented by at least several derivationally connected pairs of words. We have included them to show the possible patterns that may develop in speech. With regard to their linguistic value, however, we have to state that non-typical alternations are not relevant to word-formation, which is essentially a system of functional, i. e. type-forming patterns.

VII Phonetic symbolism

7.1. The principle of sound symbolism is based on man's imitative instinct which leads us to use characteristic speech sounds for name-giving. We may imitate things which we perceive through our senses (Direct Imitation). We may also use speech sounds to express feelings (Expressive Symbolism). We cannot tell which is primary as the wish to give vent to our feelings seems as natural as our desire to render adequately what we perceive with our senses. We will call these expressive morphemes symbols.

7.2. As for direct imitation, we imitate by speech sounds what we hear, i. e. noises, sounds. As, however, noises and sounds are often accompanied by movements (as in *whish*, *swish*, *dash*, *tap*, etc.), these also come to be denoted by symbols. By extension, even the originator of a sound may be characterized by the use of a symbol (e. g. *pom-pom* "kind of machine-gun"). Strictly speaking, there is direct imitation of sounds only when we render our own vocal sounds or those of others. The sound then stands either for the position the mouth assumes or for the sound produced in the respective position. In *bawl*, the *b* renders the softened explosive opening of the lips, while in *baa* "bleat" the *b* renders

the opening of the sheep's mouth. The initial *p* of *peep* imitates the movement little birds make when opening their beaks for a cry. Lull-words are all renderings of the position of the mouth: *ba ba, ma ma*, etc.; initial *m* forms almost exclusively words of this kind.

7.3. With regard to expressive symbolism we note that sounds are often emotionally expressive: /l/ is suggestive of the subjectively, emotionally small and therefore frequent with diminutive and pet suffixes (*-ling, -let, OE -icel; G -lein, L -icellum, -iculum*). Initial /t/, /p/, less so /b/, often express scorn, contempt, disapproval, disgust: *pish, pooh, ph, fie, foh, faugh* (cp. the exclamation *fiddlesticks, I don't care a fig*, contemptuous words such as *fiddle-faddle, fingle-fangle*, G *p, pah, puh*, F *fi, L fu*). Only certain sounds lend themselves to being used as emotionally expressive symbols. The sounds [k], [g], [d] for instance, are not used at all, [t] rarely.

Initial symbols and word families

7.18. The imitative principle is often misunderstood or misrepresented. It is commonly thought that an onomatopoeia should be the exact rendering of the corresponding noise. The explanations as to the differences in languages is that “our speech organs are not capable of giving a perfect imitation of all “unarticulated” sounds” and that therefore “the choice of speech sounds is to a certain extent accidental”. This is, of course, right, but only partly. It overlooks the fact that onomatopoeia is not a mere imitation of a sound.

7.20. Onomatopoeias are not coined haphazardly. Their composition is determined by the system of the language to which they belong, which partly accounts for the differences of words for the same concept in different languages. Such onomatopoeias have usually one or more elements in common (E *whisper, G flüstern, Tu fisildamak, L susurrare*, etc.) which are those that have imitative character. But there are also elements which differ from one language to another. As every language has its own phonological system, onomatopoeic coining is largely dependent on the phonemes and phonemic combinations of the language. Words with the initial symbol /hw/ which are frequent in English would be impossible in French or German, words with initial /kn/ which are frequent in German are no longer possible in English, and so on.

7.25. Eugene Nida rejects the morphemic value of such initials as *sl, fl* on the ground that they do not occur... with forms which occur in

other combinations. The argument holds good insofar as, indeed, symbols have not the standing of words, prefixes or suffixes which are full morphemes and combine into bimorphemic units (*tea-pot, un-do, childhood*). Symbols differ from full morphemes in that they combine into units which are not syntagmas in a grammatical sense, but monemes (one-morpheme words). This is a feature that expressive words have in common with other types which are usually treated in word-formation: blending of non-expressive words (type *motel* from *motorist hotel*) and manufactured words (type *NATO* from *North Atlantic Treaty Organization*). This reservation granted, it is hardly possible to deny the morphemic character of expressive symbols. <...>

General remarks on initial symbols

7.31. To deny the word forming character of initial symbols is hardly possible. Many of the words listed under the respective symbols are usually considered as of uncertain or obscure origin. Now, I am not pretending to furnish a method by which everything unknown is explained as “symbol-blending”. But if we consider how many words suggestive of the same idea are characterized by the same symbol, it is impossible to deny that the coinage was prompted by the symbol. To say that an initial may introduce a lot of other ideas would not be to the point. Initial *sp* is certainly found in *speed, spin, spot, span*, etc. where the idea of symbol is absent. But then, /au/ in *shout, howl, yowl* is suggestive of a long-drawn and loud sound while in *house, mouse, lout*, etc., there is no such implication. There is no common semantic feature in *speed, spin, spot, span* whereas words with the symbol /sp/ have a common semantic denominator.

VIII Motivation by linguistic form

Ablaut and rime combinations

8.1. Ablaut and rime gemination are based on the principle of coining words in a phonetically varied rhythmic twin form. As I hope to show later, such combinations are essentially pseudo-compounds, motivated by the significant, whether they are made up of two real morphemes (as *singsong / walkie-lalkie*), of only one sign (as *chitchat / popsy-wopsy*), or whether they are entirely unmotivated by semantic

content (as *flimflam* / *boogie-woogie*). They are not therefore compounds comparable to such types as *rainbow* or *colorblind*, which are grammatical syntagmas based on a determinant/determinatum relationship. <...>

Ablaut combinations

8.2.1. Ablaut combinations are twin forms consisting of one basic morpheme, sometimes a pseudo-morpheme, which is repeated with a different vowel in the other constituent. Types *chitchat* and *singsong* illustrate the most frequent forms of ablaut gemination, i. e. twin words with the vowel alternation, [i – æ] and [i – ʊ]. <...>

8.2.6. The symbolism underlying ablaut variation is that of polarity which may assume various semantic aspects. Words denoting sounds form a large group, the vowel alternation symbolizing the bipolar range of sound possibilities: *click-clack*, *clink-clank*, *clip-clop*, *clitter-clatter*, *ding-dong*, *jingle-jangle*, *pitpat*, *pitter-patter*, *slip-slap*, *snip-snap*, *tick-tack*, *tick-tock*. With words expressive of movement the idea of polarity suggests to and fro rhythm: *crinkle-crinkle*, *criss-cross*, *flip-flap*, *flip-flop*, *dingle-dangle*, *nid-nod*, *wibble-wobble*, *wigwag*, *zigzag*. Related to this group are words for games, as *wiggle-waggle*, *kit-cat*, *ping-pong*, all in a way characterized by two-phase movement. Another aspect of “to and fro movement” is the idea of hesitation, as we have it in *shilly-shally*, *dilly-dally*, *wiggle-waggle*, *bingle-bangle* (dial.). <...>

Rime combinations

8.3.1. Rime combinations are twin forms consisting of two elements (most often two pseudo-morphemes, i. e. fanciful, meaningless sound clusters) which are joined to rime. Rime is obviously the basic factor in these combinations, and to speak of “repetition with change of initial consonants” (Jespersen and Koziol) is to miss the point. Admittedly the choice of the initial consonants is not arbitrary, but the characteristic mark of this type of twin words is that they rime.

8.3.5. As with ablaut combinations, we distinguish certain semantic groups. Rime, the magic fitting together of words, naturally lends itself to being used in the sphere of jugglery, sorcery or the like, which accounts for such words as *hocus-pocus*, *hokey-pokey*, *pokemoke*, *handy-dandy*, *hanky-panky*, (prob. a blend of *hokey-pokey* and *handy-dandy*), *mumbo-jumbo*. Many words connote the idea “disorder, confusion,

tumult” or the like, as *hugger-mugger* (in sense “muddle, disorderly”), *higgledy-piggledy*, *hurly-burly*, *hurry-scurry*, *helter-skelter*, *razzle-dazzle*, *hodgepodge*. As rime combinations are essentially non-serious, they may convey derogatory, contemptuous or ridiculing shades of meaning when used without the intention of being playful. Names for persons are derogatory: *fuddy-duddy*, *loco-foco*, *sacky-dacky*, *humdrum*, *fuzzy-wuzzy*, the obsolete words *hoddy-doddy* “simpleton”, *huffsnuft* “conceited fellow”. Nursery words have only a playful character; they are not derogatory, *humpty-dumpty*, *popsy-wopsy*, Impersonal substantives with a derogatory shade are *hurdy-gurdy*, *rumble-tumble* “cart”, *ragtag*, *claptrap*. Adjectives fitting into this group are *amby-pamby*, *fliberty-gibberty*, *hoity-toity*, *rumble-tumble*.

A comparison between ablaut and rime combinations

8.4. Most ablaut combinations have a real morpheme for a basis which is in many cases an expressive word of the “sound” or “move” class. There are very few words which are not based on a recognizable morpheme. Things are different with rime gemination. On the one hand, there are many more words whose formative elements are obviously not expressive morphemes: *even Stephen*, *handy-dandy*, *hodgepodge*, *harum-scarum* (*scare*), *higgledy-piggledy*, *hotsy-totsy*, *hy-spy*, *lovey-dovey*, *namby-pamby*, *peepie-creepie*, *walkie-talkie*, *roly-poly* (*roll*), *rowdy-dowdy*, *sacky-dacky*, *super-duper*, *slangwhang*, *teeny-weeny*, *tit-bit*, *willy-nilly*. On the other hand, there are many more rime than ablaut combinations which are entirely unmotivated. Their riming constituents do not call to mind any simple word of similar phonetic makeup. Practically speaking this means that no basic linguistic sign is required so long as rime itself is preserved. In ablaut combinations, the strict vowel alternation, combined with a definite underlying morpheme, leaves no room for the complete facetiousness that is possible with rime combinations. While both ablaut and rime are basically playful, ablaut gemination is so in a neutrally esthetic way. Rime gemination is facetious, or playful in a childish, even babyish manner. In contrast to ablaut gemination, it also has a sentimentalizing effect. <...>

The linguistic value and status of varied twin forms

8.5.1. If we consider the strictly grammatical categories of word-formation, i. e. compounding, suffixation, and prefixation, we observe

that a composite is a syntagma based on a determinant/determinatum relationship. Whenever a word is not analysable as consisting of meaningful signs, in other words, when it is unmotivated by content, it is not relevant to grammatical word-formation. The question therefore arises whether rime and ablaut reduplications which (at least in principle) are not made up of two real signs, are relevant to word-formation at all. A sign has two facets, that of the significate (signifie, content) and that of the significant (signifiant, form). Syntagmas such as *rainbow*, *fatherhood*, *undo* are motivated by the contents of *rain* and **-bow**, *father* and **-hood**, **un-** and *do*. This is obviously not the kind of motivation that applies to ablaut and rime combinations. But we may find a motivation by form. It cannot, indeed, be denied that the rhythmic doubling and the elements of ablaut and rime do in fact constitute a motivation, and that these esthetic elements determine the character of the combinations based on them.

8.5.2. According to their motivation, we may distinguish the following types:

<i>sing-song</i> / <i>walkie-talkie</i>	motivation by two signs (but see below);
<i>chit-chat</i> / <i>super-duper</i>	partial motivation by the significate plus
motivation by rhythm and ablaut (or rime):	
<i>flim-flam</i> / <i>boogie-woogie</i>	motivation by rhythm and ablaut (or
rime) only.	

All these words are basically motivated by rhythm and ablaut (or rime) underlying the significant of the twin form. Even those combinations which are composed of two independent words do not speak against this essential character of twin words. *Singsong* is not really a combination of two signs comparable to *rainbow*. Though a purely intellectual analysis may define the twin form as a compound, the joining of the two contents is not what makes the characteristic feature of the combination. Nor is *walkie-talkie* just *walkie* + *talkie*, but we have a playfully matched combination whose elements were attracted to each other, so to speak, by the esthetic element of rime while the putting together of logical contents is more or less incidental. Nobody would consider *cook book* a riming combination as here rime is incidental while the logical content of the constituents is the only relevant fact.

8.5.4. The problem of motivation is more complicated in rime combinations. Riming twin forms are, to a large extent, made up of fanciful elements, i. e. they consist of pseudo-morphemes. As a result, they have a less serious character than ablauting combinations. While the majority

of the latter derive from one real morpheme and can therefore point to the significate, those rime combinations which are composed of pseudo-morphemes, cannot give us any clue as to the significate. Playful motivation by the form of the significant is therefore more complete with riming twin words. This applies also to combinations which are partly motivated by the significate. Rime is less serious than ablaut. This is probably the reason why ablaut often plays a grammatical role (as in IE languages, cp. *sing* / *sang* / *sung*) whereas rime never assumes any grammatical function at all.

The higher degree of purely playful motivation in rime combinations gives those words their particular stylistic quality. In general, they are indicative of the speech environment where they originated or where they are used. Of the examples in our list, quite a number are slang terms: *flubdub*, *heebie-jeebies*, *hoity-toity*, *hokey-pokey*, *hootchie-kootchie*, *hotsy-totsy*, *lovey-dovey*, *sacky-dacky*, *super-duper*, *ram-jam*. Others belong to the nursery: *handy-dandy*, *hy-spy*, *humpty-dumpty*, *popsy-wopsy* (or slang), *tootsie-wootsie* (or slang). <...>

8.5.6. To sum up: while compounding, prefixing, and suffixing have a primarily practical purpose, i. e. that of signalling intellectual messages, rime and ablaut subordinate the intellectual purpose of signalling to the emotional one of playing. The type of emotional motivation; we have in rime and ablaut combinations must not be confused with that which we find in appreciative suffixes. In *daddy* from *dad*, the suffix *-y* is a complete linguistic sign expressive of emotion. In ablaut and rime combinations, emotion is not expressed by a sign, but suggested only by the form of the significant: twinning combined with phonetic alternation. <...>

IX Clipping

9.1.1. Clipping consists in the reduction of a word to one of its parts. It would, of course, be erroneous to think that the new word is nothing but a shorter form with no linguistic value of its own. It is true that the information received from a native speaker will probably be the one I have tentatively given: *mag* is short for *magazine*, *math* is short for *mathematics*. The difference between the short and the long word is obviously not one of logical content. The same informant, asked about the differ-

ence between *book* and *booklet*, would say that a *booklet* is a small book, thus adding the logic element of “small”. What makes the difference between *mag* and *magazine*, *math* and *mathematics*, is the way the long word and the short word are used in speech. They are not interchangeable in the same type of speech. *Magazine* is the standard term for what is called *mag* on the level of slang. The substitution of *Mex* for *Mexican* implies another shift in linguistic value in that it involves a change of emotional background, based on the original slang character of the term. Moreover, the clipped part is not a morpheme in the linguistic system (nor is the clipped result, for that matter), but an arbitrary part of the word form. It can at all times be supplied by the speaker. The process of clipping, therefore, has not the grammatical status that compounding, prefixing, suffixing and zero-derivation have, and is not relevant to the linguistic system (*la langue*) itself but to speech (*la parole*).

The moment a clipping loses its connection with the longer word of which it is a shortening, it ceases to belong to word-formation, as it has then become an unrelated lexical unit. The speaker who uses the word *vamp* has no idea that historically the word has its origin in *vampire*. An American who speaks of *pants* does not think of the word as the shortened form of *pantaloons*. The study of such words has become a lexicological matter.

It is with the reservations just made that clippings are treated in this book.

9.1.2. There are different kinds of clipping: (1) Back clipping (*lab* for laboratory); (2) fore-clipping (*plane* for airplane); (3) clipping-compounds (*navicert* for navigation certificate; *Eurasia* for Europe + Asia).

General remarks on clipping

9.6.7. Clippings are mutilations of words already in existence. They are all characterized by the fact that they are not coined as words belonging to the standard vocabulary of a language. They originate as terms of a special group, in the intimacy of a milieu where a hint is sufficient to indicate the whole. *Prep* may be anything for the outsider, but it has specific meanings in school slang. *Con* is “conductor” in the slang of American tramps, it is “convict” in prison slang. Slang is a private language. But circumstances will always have it that words, in our case clippings, of a certain class or group pass into common usage, especially so if publicity is made for them in speeches, newspapers, on the radio, on the screen etc. Not every word has the same chances, and clippings of a socially unimportant class or group will remain group slang. It is

usually easy to trace the milieu in which a clipping was coined. In school slang originated *digs* (diggings), *exam*, *grad*(uate), *graph*(ic formula), *gym*(nastics), *math*, *matric*(ulation), *lab*, *mods* (moderations, an examination at Oxford), *prog* (proctor), *dorm*(itory) and many others. *Consols* (consolidated securities), *divvy* (dividend), *spec*(ulation), *tick*(et = credit) and others originated in stock-exchange slang, whereas *vet*(eran), *cap*(tain), *loot* (lieutenant) and others are army slang. We can place *undies*, *panties*, *nighty* (= nursery), *bra*, *pants*, *spats* (= shop slang), *ad*, *mag*, *caps*, *par* (= printers and journalists' slang) and undoubtedly a great many others. But there are such as can not with certainty be located. It is impossible to say whether *jap* (1880) originated in newspaper language or not, whereas the words *movie*, *talkie*, *speakee* sprang from the masses of picturegoers. *Yank* was coined in the days of the Declaration of Independence (1778), but under what circumstances is not clear.

9.6.8. We have seen that in the course of time a good many slang clippings have found their way into StE. We are then confronted with an important question. How are the conventional, undipped forms affected by the acceptance of their clipped counterparts? It is against the law of balanced economy in language to have two words for the same thing. In the majority of cases the solution is that the clipping keeps its slangy or colloquial tinge. Through this attachment with its sphere of origin it is isolated from the traditional word, with which, therefore, it does not properly interfere. The other solution in case of homonymy in language is that one of the words gives way to the other. The result is either the ousting of one of the words from the vocabulary, or semantic differentiation to establish the balance of power. Both ways are to be observed with English clippings. In a few cases the full words have died out, so the clippings become new roots. This is the case with *chap* (chapman), *brandy* (brandywine), *mob* (mobile), *cad* is derived from *caddie*, but has semantically lost its connection with it. With other clippings we are no longer aware of their original character or are slowly forgetting it. <...>

X Blending and word-manufacturing

10.1. <...> Blending can be considered relevant to word-formation only insofar as it is an intentional process of word-coining. We shall use the term here to designate the method of merging parts of words into

one new word, as when *sm/oke* and *f/og* derive *smog*. Thus blending is compounding by means of curtailed words. However, the clusters *sm* and *og* were morphemes only for the individual speaker who blended them, while in terms of the linguistic system as recognized by the community, they are not signs at all. Blending, therefore, has no grammatical, but a stylistic status. The result of blending is, indeed, always a moneme, i. e. an unanalysable, simple word, not a motivated syntagma. Once the blend *smog* has been formed, it ceases to contain the two (curtailed) morphemes which the word-coiner intended to combine in it. Unless speakers have received extralingual information about the composition of the blend, such words as *brunch* (*br/eakfast* + *l/unch*), *smaze* (*sm/oke* + *h/aze*) and others are simple words, the subject matter of lexicology. <...>

Aids to the study of the text

1. How does Marchand define word-formation?
2. What does Marchand understand by the terms “composite”, “moneme”, “full linguistic sign”, “determinant”, “determinatum”?
3. What distinction is made between the two major groups of words from the point of view of their formation?
4. What is understood by derivative correlation?
5. What is the criterion of the derived word in such cases as *saw* — *to saw*, *pen* — *to pen*, etc.?
6. What is understood by semi-suffixal character of *man*, *land*, *berry* in such words as *Finland*, *Scotland*, *gooseberry*, *cranberry*, *milkman*, *mailman* and the like?
7. What is the difference between derivative relevancy and descriptive analysis of words?
8. What does Marchand understand by word-formation on the native and the foreign basis of coining?
9. Why is a mere semantic correlation not enough to establish derivative connection between words?
10. How does Marchand define prefixes?
11. What are the three main groups of prefixes as described by Marchand?
12. What does Marchand understand by the competition between prefixes?
13. What difference in stress is observed between morphemic and non-morphemic *re-*, *in-*, *pre-*?
14. How does Marchand define the term “suffix” and what distinction does he make between suffixes and endings?
15. By what factors is the meaning of a suffix conditioned?
16. Describe six ways of suffixation in modern English.
17. What does Marchand understand by derivation by a zero-morpheme? What reasons does he give for rejecting the terms “conversion” and “functional change”?
18. What is understood by the term “back-derivation”?

19. What types of back-derivation are distinguished by Marchand? How are these types connected with derivation by zero-morpheme?
20. What accounts for the limited productivity of back-derivation?
21. What does Marchand understand by phonetic symbolism?
22. Why does Marchand refer phonetic symbolism to word-formation?
23. What is understood by the term “expressive morpheme symbols”?
24. What is the connection and what is the difference between onomatopoeia and expressive symbolism?
25. How does Marchand account for the difference of onomatopoeias in different languages?
26. What is the difference between full morphemes and expressive morpheme symbols?
27. What does Marchand understand by motivation by linguistic form?
28. What does Marchand understand by “ablaut combinations”?
29. Which is the main function of ablaut and rime combinations — to signal intellectual messages or to express emotion?
30. How does Marchand define “clipping”?
31. What kinds of clippings are distinguished by Marchand?
32. What are the main semantic, stylistic and structural peculiarities of clippings?
33. What is the difference between the clipping and the source word?
34. Under what circumstances can clipping be regarded as belonging to word-formation?
35. What is the peculiarity of blending as a means of word-formation?
36. What makes it possible to consider blending irrelevant to word-formation?
37. What structural type of words does blending result in?

Stanley S. Newman

ENGLISH SUFFIXATION: A DESCRIPTIVE APPROACH

0. The procedure to be followed in a descriptive treatment of suffixes seems, on the face of it, obvious and self-evident. A suffix is first isolated and then described. But what are the features of any suffix that are significant for describing it? What, in short, constitutes a description of a suffix?

The adjective-forming suffix *-less* appears with a stem of French origin in *blame-less* but with a stem of native origin in *tame-less*.

In modern English morphological elements are combined without regard for their historical source. The etymological statement, which is of prime significance for certain types of linguistic investigation, has no proper place in a descriptive treatment of modern English, for morphemes do not operate in separate compartments according to their origins. Not only have, these etymologically diverse elements become

naturalized in English, but they have been welded into a system possessing its own distinctive features. It is these features which remain to be discovered inductively through the descriptive approach.

From this point of view, a truly valid description of any given morpheme is nothing less than a statement defining it in terms of the total linguistic system of English. To illustrate from one class of phenomena, suffixes are by definition morphological units appended to themes, units manifesting a type of junction behavior. But varying degrees of junction are found among suffixes; thus, the suffix *-id* (*turg-id*, *horr-id*) is more tightly joined to its theme than *-ful* (*hand-ful*, *bucket-ful*). And such combinatory phenomena, furthermore, are not confined to suffixation. As a matter of fact, the loose type of theme-plus-suffix junction exemplified by *hand-ful* or *war-like* shades into the type of theme-plus-theme junction occurring in such compounds as *water-proof* or *air-tight*.

Approached in this light, then, suffixation can be treated neither as an isolated nor as a homogeneous system. It is, rather, a particular type of morphological process participating in a number of formal and functional systems; and suffixes differ among themselves in the ways in which they participate in these systems.

1 Formal characteristics

1.1 Phonetic form

There is little need to stress the fact that the phonetic form of a suffix, or of any morphological element, is a descriptive feature of paramount significance. But it should be pointed out that, by itself, the phonetic description does not offer an infallible criterion for identifying a suffix in English. English possesses a remarkable number of homonymous morphemes; thus, the suffix *-əl*, added to substantives and adjectives, forms adjectives having an antepenultimate stress [*ə*'ri:ʃən-əl, *his*'tɔ:rik-əl]; another *-əl*, neutral in its stress effect, is employed only with verbs to form substantives [*rə*'fju:z-əl, *'bæ*rii-əl]; a suffix *-əl*, occurring only in bisyllabic words with stress on the first syllable, forms verbs from verbs [*'s*ʌk-əl, *'træ*mp-əl, *'wæ*g-əl]. Other formal criteria, in addition to stress, distinguish these three homonymous suffixes from one another.

Conversely, a difference in phonetic form is not necessarily an indication of distinct suffixes. Although a phonetic difference distinguishes *-ærii* from *-ðrii*, which appear as *-ærii* when the word stress immediately precedes ['sekænd-`ærii, kən'tribjuut-`ðrii, 'elə`ment-ærii, kəm'pʌls-`ærii], these forms represent the same suffix as tested by functional criteria and by formal criteria other than phonetic form.

Suffix affiliations

Within the total suffixing system, groups of suffixes tend to align themselves into derivational subsystems. On a purely mechanical plane these affiliations can be described in terms of suffix interchanges and suffix combinations. An interchanging series [-əd, -ər, -əfai] is illustrated in the following set of examples:

'hɔrəd', 'hɔr-ər, 'hɔr-əfai
'stuup-əd, 'stuup-ər, 'stuup-əfai

Derivational patterns are likewise formed by suffix combinations, such as

'nɔrm-əl, nɔrm-'eel-ətii, 'nɔrm-əl-aiz
'liig-əl, liig-'eel-ətii, liig-əl-'aiz

In English the derivational system does not, of course, operate with a thoroughgoing formal regularity, as it does in some languages. The statement that English *-əd*, *-ər* and *-əfai* form an interchanging set of suffixes, or that *-eel-ətii*, *-əl-aiz*, *-eiš-ən*, *-ist-ik*, *-ik-əl* constitute suffix combinations does not mean that these interchanges and combinations take place with infallible regularity. It is an intrinsic peculiarity of the English derivational system, rather than a negation of it, that the potentialities of this system are actualized with varying degrees of completeness and regularity at different points. The main channels of this derivational system and their intricate convolutions can be mapped out only by patiently describing the affiliations of each suffix and by combining these descriptions into a total picture.

2 Functional characteristics

The definition of suffixes in terms of their functional characteristics is a common practice. Dictionaries and grammars generally provide

definitions of the grammatical and semantic functions of suffixes. However, the functional phenomena of modern English have never been described systematically. In addition to their value in defining and identifying particular suffixes, these functional definitions will furnish an important part of the information leading toward a description of the total functional system of English.

2.1 Grammatical function

Words in English may be grouped into classes of grammatical types, each defined in terms of its behavior. Suffixation is, of course, the most extensive morphological process in English for converting words from one grammatical class to another. Since a suffix operates in the grammatical system by changing the grammatical classification of a word, a proper grammatical definition should take into account the word class (or classes) to which the suffix is added as well as the word class (or classes) formed by the suffix. Thus, both *-al* and *-ik* are adjective-forming suffixes; but the former is added to substantives and adjectives, the latter only to substantives.

In spite of its practical value for referring to suffixes briefly and intelligibly, the grammatical description does not furnish a precise criterion for identifying a suffix. English has many suffixes fulfilling the same grammatical function: e. g. *-al* and *-ik* are analogous in grammatical function, for both are adjective-forming suffixes added to substantives.

2.2 Semantic functions

The most subtle problem in dealing with English suffixes is that of adequately defining their meaning. In the descriptive approach, any attempt to define semantic functions in terms of a ready-made logical or supposedly empirical system of meanings must be avoided. The semantic distinctions actually present in the language are to be accepted as crucial, however arbitrary they may appear from a logical or empirical point of view.

Certain of these distinctions are comparatively clear-cut. In the category of voice, for example, a distinction is commonly made between

agent (one who acts upon..., as em'ploi-ər) and receptor (one who is acted upon, as emploi-'ii). The suffix *-ər*, as a matter of fact, is heavily ear-marked for the agentive function. But even in its most common and well-developed categories, the English semantic system is by no means regular. Terms referring to agent and to receptor are formed by a variety of derivational processes; and, for many verbs, such terms are lacking, although the semantic function of such absent terms can be expressed by phrase locutions. The variety and irregularity of the derivational processes expressing the semantic relation em'ploi-ər : emploi-'ii may be illustrated by the following examples:

'kept-ər : 'kept-iv
 'naamen-`eit-ər : 'naaman-`ii
 kən'faid-ər : 'kaanfəd-ənt
 kən'fes-ər (one who confesses) : kən'fes-ər (one who is confessed to)
 səs'pekt-ər : 'səs`pekt
 disəplən-'ee`rii-ən
 'eksə`kjuut-ər, eg'zekjət-ər, eg'zekjət-iv, 'eksə`kjuus-ən-ər <...>

Even from this brief list, it is clear that no simple relation between form and function can be assumed among English suffixes. Each suffix expresses several semantic functions, and, conversely, each function is expressed by several formal processes. The intricate overlapping of form and function in English necessitates a careful definition of each suffix with reference to the total set-up of semantic categories expressed in the language.

Aids to the study of the text

1. How does Newman regard the role of the etymological factor in the analysis of English suffixation?
2. What is understood by the terms “junction” and “varying degrees of junction”?
3. Why is a difference in phonetic form not indicative of distinction of suffixes?
4. What is the difference between suffix interchanges and suffix combinations?
5. What is the grammatical function of suffixes according to Newman?
6. Does Newman draw a line of demarcation between word-building suffixes and inflections?
7. What is described as semantic functions of suffixes?

Eugenius M. Uhlenbeck

PRODUCTIVITY AND CREATIVITY

Some remarks on the dynamic aspects of language

The conception of language as one single closed system shared by all members of a monolingual society and consequently completely present in and completely mastered by each adult individually is now generally recognized as being inadequate. Such a conception is too static, too monolithic and too simple. Too static, because it is unable to explain why a language has the flexibility to adapt itself to and to cope with the ever-changing communicative and cognitive needs of society and its members. Too monolithic, because it does not take into account that a language is a delicate mechanism in which systematic and obligatory features of phonology and grammar interact with essentially non-obligatory semantic and grammatical devices which permit the user of language to engage in a productive and creative activity without jeopardizing successful communication. Finally, this conception is too simple, in at least two respects. First of all it presents a simplified account of the way language actually functions by suggesting that it can function independently of extra-lingual knowledge, that is knowledge which speaker and hearer have of the speech situation, of each other, and more generally of the world and the society in which they live.

Secondly, this conception operates with the simple view that in society the position of each individual member towards his language is basically the same, whereas in fact it displays a variety determined by social factors and by individual differences in linguistic skills.

It is the aim of this short paper to take a closer look at the dynamic nature of language by examining the productive and creative devices available to a native speaker.

Since Karcevsky's *Système du verbe russe* and, even earlier since the Neo-grammarians, the concept of productivity has been recognized as being indispensable in the study of morphology. In all morphological research, diachronically or synchronically motivated, it is considered to be of prime importance to determine what is productive and what is not. Productive categories are characterized by natural expansion: new words can be and are being made by the speaker largely without any

awareness that a new, previously nonexistent item is being produced, while the hearer for his part unhesitatingly accepts and understands it, again without any feeling of strangeness or newness. Although morphologically productive processes may be of a quite different nature (transpositional processes: *dark* (adj.) — *darkness* (noun), non-transpositional processes: Dutch *ui*, *onion* — *uitje*, small onion (both nouns), compounding and various mixed processes) one may say that the main function of these processes is to give the user of language the means to expand the lexicon without unduly burdening his memory. This is not to say that all speech communities and all individual users of language will show the same readiness to apply these processes in actual speech: some communities and some individuals are more conservative than others and prefer to cling to those items which already have a well-established position within language, only rarely daring to make use of the morphological potential of their native language.

One might consider people who are able to exploit the morphological potential of their language to be creative speakers, but the term “creativity” can better be reserved for those cases in which a speaker makes new words on the basis of unproductive formations. This is known to happen occasionally. It is true that not all such new words are made on purpose. Sometimes they are made out of ignorance and are simply errors. However, in most cases, new words of this type are consciously made with the intention to create some sort of special effect. Poets, writers and in general all people who have a strongly developed linguistic awareness, and who might be called players of language games (not in the Wittgensteinian sense, of course), such as journalists, writers of commercials or advertisements, entertainers, cabaret artists and even sometimes linguists, are especially creative in this respect.

A good example recently produced by a linguist is the word *iffyness*, the result of a double process of transposition: first of a noun formed on the basis of the adjective *iffy*, itself based on the conjunction *if* which, like all other conjunctions, but unlike nouns, normally does not allow such a transpositional formation of the type *leaf* : *leafy*; *silk* : *silky*; *room* : *roomy*; *bush* : *bushy*; *nut* : *nutty*.

In contrast to words which are the result of the application of productive processes, words such as *iffyness* pose an interpretive problem to the hearer or to the reader. The speaker or writer presents some sort

of challenge to his speech-partner. The special effects he aims at may be quite diverse. He may want to be facetious, or it may be that the newly coined word has an archaic flavor which is felt to be especially apt under certain circumstances or in a certain line in a poem. In the Binnick-case the author was clearly in need of a noun for a property of certain English verbs for which no term had yet been proposed. It seems reasonable to assume that both types of word-formation occur in speech everywhere. The normal expansion follows a number of easily identifiable and in principle exhaustively describable patterns, but the other type, which is the result of conscious reflection by the native speaker on his language, is erratic, creative and therefore essentially unpredictable.

Aids to the study of the text

1. Analyze E. Uhlenbeck's criticism of the conception of language as one single closed system shared by all members of a monolingual society and express your view on it.
2. What is the basis for differentiating productive and creative processes of making new words?
3. Which of the two processes do you observe in the formation of the word *zillion*.

Karl E. Zimmer

AFFIXAL NEGATION IN ENGLISH AND OTHER LANGUAGES: AN INVESTIGATION OF RESTRICTED PRODUCTIVITY

Problems in the Description of Processes of Word Formation

Word formation appears to occupy a rather special place in grammatical description. In many cases the application of apparently productive rules leads to the generation of compounds or derivatives that are, for one reason or another, felt to be unacceptable or at least very odd by native speakers, and the grammarian must decide what status he is to give to such rules and their output in his grammar. The decision is by no means easy, and can lie anywhere between the setting up of maximally

general rules of a generative type, with little concern for the fact that much of their output may in some sense be questionable, and the simple listing and classifying, in terms of syntactic function and internal structure, of attested forms. The latter procedure is of course safer, but it is the former which raises the more interesting problems. Are e. g. *unbad* and *puppycat* “grammatical but non-occurring” in the same sense as a sentence, such as *Colorless green ideas sleep furiously*? It can certainly be argued that they are; but if we are justified in asserting that the sentence status of the last example is clearer than the word status of the first two, then we are still faced with the question why this should be the case if they are all three grammatical. It would seem that the role of formal criteria in decisions about sentence status is likely to be much greater than it is in decisions about word status (it is, for one thing, probably generally true that there are, in the case of sentences, more formal criteria available on which a decision can be based). Processes of word formation often seem to belong to a somewhat vague intermediary area between grammar and lexicon, and while this need not prevent us from giving formal statements of these processes, it may often be necessary to state restrictions on their output in primarily semantic terms (i. e. to insure that their output is not “unsemantical”) if we want to hold on to the criterion of native speaker acceptance as an essential measure of the adequacy of our description. Thus in the area of English nominal compounds it would seem that actually occurring compounds are not as a rule created like new sentences in order to refer to momentary conditions. Leaving aside the possible difficulties of stating such semantic considerations in a reasonably rigorous way in any given case, the problem is to determine, for the various word-formative processes in which they appear to play a part, how they can most reasonably be accommodated within an over-all framework of grammatical and semantic description.

In our investigation of restrictions on the use of negative affixes with evaluatively negative stems we shall attempt to deal with the question of how such restrictions are to be treated descriptively, and particularly whether rules for such restriction should be incorporated into a “generative” morphology. In this connection we shall be concerned with the notion of productivity as it is applied to morphological processes. The term “productive” is often used rather indiscriminately to refer both to certain aspects of the behavior of the speakers of a language and to certain diachronic trends; while there is presumably in many cases a con-

nection between these two aspects of productivity, it is necessary to keep the distinction in mind. Moreover, and more importantly, the concept of what we might term “synchronic productivity” is itself often used in a rather ill-defined way in the area of word formation, and it is in many cases difficult to decide just what is being implied when a morphological process is said to be synchronically productive. <...>

Negative Affixes in the Derivation of English Adjectives

We shall now proceed to an examination of the role of negative affixes in the derivation of English adjectives...

We shall confine ourselves to the derivation of adjectives from other adjectives, <...> we shall be especially concerned to discover whether it is true that in English negative affixes are not used with adjectival bases that have a negative value on such evaluative scales as “good — bad”, “desirable — undesirable”.

The derivational affixes that must be considered are the prefixes *a-*, *dis-*, *in-*, *non-*, and *un-*.

1. *a-/an-*

This prefix, which goes back to a borrowing of the Greek *alpha privativum*, is clearly of very limited occurrence in English. Many of the adjectives in which it is etymologically present have been borrowed in the derived form from Greek (sometimes through Latin), and frequently have no positive counterpart in English (e. g. *anomalous*, through Late Latin *anomalus* from the Greek *anomalos*, literally “uneven”, “irregular”, from *an-* “not” + *homalos* “even”, “level”). A large proportion of adjectives containing the prefix belong to highly specialized areas of the vocabulary, and new formations in English are scarcely frequent enough to justify the inclusion of adjective derivation by means of *a-/an-* in the repertory of productive morphological processes. In this and similar cases one is faced with a dilemma: on the one hand new formations that gain currency follow an established pattern of composition, on the other hand the number and/or semantic field of these new formations is so margined that it would seem neither reasonable nor accurate to assign to this pattern a status similar to others of less questionable productivity. One might perhaps relegate such marginal processes to a kind of “recognition morphology” which would assign an interpretation to new formations that become established, and treat the process of formation itself as

an unpredictable accident that lies outside the scope of productive grammatical rules.

As for the semantic function of the prefix, it is either negative — apparently generally contradictory — or privative, more or less equivalent to the suffix *-less*, as for instance in *aplacental*. The semantic relationships between the non-prefixed adjectives and the prefixed forms are not always predictable. <...> An interesting set of forms is constituted by *amoral*, *immoral*, *nonmoral* and *unmoral*, where *immoral* is the contrary opposite of *moral* on the dimension of morality, but where the precise differences, if any, between *amoral*, *nonmoral* and *unmoral* are not very clear.

When we come to examine the forms in *a-/an-* in which the prefix has a purely negative rather than a privative function from the point of view of the “positive” or “negative” value of the underlying bases, it must be said that our second hypothesis is borne out quite well. We have not found a single form which could be said to be derived from a negatively evaluated base (this applies, incidentally, both to negatively prefixed forms borrowed *in toto* and to English new formations). On the other hand it would certainly be wrong to claim, as Jespersen did for the forms in *un-*, that most of the derived adjectives have a depreciatory sense; most of them are rather clearly, neutral on an evaluative scale. This is hardly surprising in view of the high proportion of scientific terms among them. <...>

4. *non-*

There can be little doubt that *non-* is more productive than the prefixes we have examined so far. The *NCD* lists only 26 adjectives in *non-* with definitions (including such “non-derived” ones as *nonchalant*, *non-descript*), but includes a list of about 850 others with the note that “the meanings of the words in the list can be understood from, the definitions of the terms with which *non-* is combined”. The listing is rather arbitrary (it includes *non-Turkish* but not *non-Bulgarian*, *nonintuitive* but not *nondeductive*), and it is in fact hard to see what usefulness it has. The same can be said of the listing of non-forms in the *NID3* (all of them with definitions, a good many of these of the type *non-x*: not x); *nonwhite* is listed, *noncolored* is not, *nonpsychitric* is, *nonpsychological* is not, etc. Where one is dealing with a clearly productive morphological process, a simple statement of the semantic content of the process in question, which would enable one to interpret new formations, seems to be as much as can or should be expected of a dictionary (together, of course,

with a list of attested forms that are semantically specialized or irregular). A listing of semantically, transparent attested forms (which in any case in practice is bound to be incomplete) is hardly less futile than an attempt to count the drops in a pool during a rainstorm. Moreover, it has to some extent the effect of obscuring the fact that the process *is* synchronically productive.

It is interesting to note that the great majority of *non-forms* in the dictionary listings have underlying forms which are themselves morphologically complex; most of them end in *-al*, *-ible*, *-ic*, *-ous*, etc. This may be connected with the fact that many simple adjectives (such as *small*, *long*) have obvious simple antonyms; *nonred* is probably more acceptable than *nonlong*. The listing in the *NCD* also includes some double negatives: *nondisfranchised*, *noninfinite*, and the noun *nondiscontinuance*.

As for the semantic function of *non-*, the definition of it given by the *NCD* seems quite satisfactory:

A prefix in common use in the sense of *not-*, *un-*, *in-*, *non-* is generally less emphatic than *in-* or *un-*, being merely negative, while *in-* and *un-* are positive, often implying an opposite thing or quality. Cf. *nonreligious*, *irreligious*; *nonmoral*, *immoral*; *non-Christian*, *unchristian*.

In our terms, *non-* generally expresses contradictory opposition, while *in-* and *un-* often express contrary opposition. The fact that most derivatives in *non-* are not compared and are not modified by *very*, etc., also supports the interpretation of *non-* as a contradictory negative.

There is a considerable number of cases where the *un-* derivative of a given base seems to imply the absence of a desirable or expected quality, while the *non-* derivative of the same base does not have this implication (e. g. *unremunerative* vs. *nonremunerative*). And often the contrast between *x* and *non-x* lies as it were along a different dimension from that between *x* and *un-x* (or *in-x*). Thus the contrast *Christian* vs. *non-Christian* appears to be primarily one between “related to, pertaining to, characteristic of certain religious doctrines” and “not related to, etc., these doctrines”, while that between *Christian* and *unchristian* rather involves a scale of conformity or opposition to certain norms. Comparable contrasts are quite frequent (cf. *non-American* vs. *un-American*, *non-grammatical* vs. *ungrammatical*). We might say in general that in such cases *non-* selects the descriptive aspect of the stem for negation, while *un-* selects the evaluative one. Moreover, the evaluative aspect thus selected appears to be in general a positive one; in *un-Cartesian* for instance it would seem that certain praiseworthy features of the meaning of Carte-

sian are negated, so that *un-Cartesian* sounds evaluatively negative (as opposed to *non-Cartesian*). The selection of an evaluatively positive sense is of course contingent upon the existence of one; it would, be interesting to determine whether derivatives of certain terms which have, for most speakers of English, no such “positive” aspect available (e. g. *fascist*, *totalitarian*) would generally be considered as to some extent peculiar. We might further note in this connection that for terms such as *maternal*, which have both an evaluative and a descriptive aspect, we have two acceptable derivatives (e. g. to take the stem just cited, *unmaternal* and *nonmaternal*), while for related terms with a primarily evaluative —and “positive” —aspect such as *motherly* the *un-*derivative is often well-established, while a derivative in *non-* seems quite odd (cf. *unmotherly* and *nonmotherly*).

As we might expect in view of the foregoing remarks, the great majority of the non-derivatives listed in the NCD have “neutral” underlying stems. A few do have “negative” stems (e. g. *nonpalpable*, *nonmalicious*, *nonreprehensible*), and an approximately equal number have “positive” stems (e. g. *nonadvantageous*, *nonbenevolent*, *noncommendable*). It would seem that we are justified in assuming that the use of *non-* is primarily confined to descriptive, i. e. “neutral” terms, or at least to terms which have a possible interpretation under which they are evaluatively neutral, and that its use with both “positive” and “negative” terms is rather marginal.

As for a generative account of derivation by means of *non-*, this could perhaps best be handled in terms of a “degrees of grammaticalness” approach (or in terms of degrees of acceptability, if we want to avoid the thorny question of what is more grammatical or less grammatical). We would then have a class of derivatives in *non-* for which the underlying stems would have to be specified only so as to insure a minimum degree of acceptability; let us say that we require merely that the stem be an adjective (we are not concerned with non-derivatives of nouns here). There would further be two subclasses of this class of minimally acceptable forms, the members of both of which would all have a higher degree of acceptability; one would be composed of the non-derivatives of stems without simplex antonyms, the other one of the *non-*derivatives of evaluatively neutral stems. The highest degree of acceptability could then be specified in terms of membership in both of these two subclasses, i. e. of belonging to their intersection. To give some examples, the class of minimally acceptable forms would contain no derivatives

less acceptable than *nondelicious* and *nonlong*, respectively; and their intersection would contain only fully acceptable forms such as *nonelongated*. It might be considered whether morphological complexity as such should be specified as a desirable condition for derivatives in *non-*.

It need hardly be added that our remarks here are only meant as a suggestion for a possible scheme of description. It would be necessary to investigate in much more detail the importance of the two factors we have discussed, and the possible role of other ones, before we could decide whether this outline should be adopted. In any case it is clear that such an approach, if feasible, would constitute a semantic specification of the acceptability of the output of a formal morphological process, for the two subclasses of adjectives that we have suggested above are defined in semantic rather than in grammatical terms.

Aids to the study of the text

1. What is understood by the term “productivity”?
2. What is implied by the “criterion of a native speaker acceptance”?
3. What is meant by the limitations of the productivity of a pattern?
4. What does Zimmer understand by the term “recognition morphology”?
5. Why is it practically impossible to list all semantically transparent productive words in a dictionary?
6. What is the difference in the meaning of un-derivative and non-derivative of the same base (e. g. *non-American*, *un-American*; *ungrammatical*, *non-grammatical*)?

ETYMOLOGY

Charles F. Hockett

A COURSE IN MODERN LINGUISTICS

The conditions for borrowing

47.1. <...> Whenever two idiolects come into contact, one or both may be modified. In face-to-face communication, either speaker may imitate some feature of the other's speech; when the contact is indirect, as in reading, the influence can of course pass only in one direction. The feature which is imitated is called the *model*; the idiolect (or language) in which the model occurs, or the speaker of that idiolect, is called the *donor*; the idiolect (or language) which acquires something new in the process is the *borrowing idiolect* (or language). The process itself is called "borrowing", but this term requires some caution, thus, that which is "borrowed" does not have to be paid back; the donor makes no sacrifice and does not have to be asked for permission. Indeed, nothing changes hands: the donor goes on speaking as before, and only the borrower's speech is altered.

From our definition, we see that the conditions for borrowing are present constantly, as a natural accompaniment of every use of language except genuine soliloquy. In the contact of idiolects A and B, the chances that borrowing will actually occur depend on several factors, one of which is the degree of similarity of A and B. If the two idiolects are very similar, borrowing is unlikely, since neither speaker is apt to use any form unknown to the other. If A and B are so divergent that the speakers cannot understand each other, borrowing is equally unlikely. Between the two extremes we find the situations in which borrowing is more probable. In practice, these situations can be classed roughly into two types. In one type, the two idiolects share a common core; under these conditions we speak of *dialect borrowing*. In the other, there is no common core but rather some degree of bilingualism or semibilingualism; in this case we speak of *language borrowing*.

47.2. Individual and Mass Effect

A single act of borrowing affects, in the first instance, only the borrowing idiolect. <...> If I take a fancy to the French word *ivrogne*, and start to use it in my English, my idiolect is modified. The future of the language is not affected unless others imitate me, so that the newly imported word passes into more or less general usage and is transmitted to subsequent generations. This would be more probable if a number of speakers of English who knew some French were, at more or less the same time, to start using the French word in their English. Such mass importation from another dialect or language is very common, and in historical linguistics is the kind of borrowing that interests us most.

Consequently, it is customary to speak loosely of a “single” borrowing even in cases where thousands of individual acts of borrowing from one idiolect to another must have been involved. Thus we say that the Latin word *vinum* has been borrowed into English just twice (not thousands of times); once into pre-English, giving OE [win], NE *wine*; later, via Norman French, giving ME [vijnə], NE *vine*. Even if the factor mentioned in the preceding paragraph were not operative, this sort of mass-statistical approach would be forced upon us by the limitations of our documentary evidence.

47.3. Conditions for Borrowing

The mere contact of idiolects A and B does not guarantee that one will borrow from the other. For a borrowing to occur, say from B to A, two conditions must be met:

- (1) The speaker of A must understand, or think he understands, the particular utterance in idiolect B which contains the model.
- (2) The speaker of A must have some motive, overt or covert, for the borrowing.

The first condition need not detain us long. Our reference must be to apparent rather than genuine understanding, because in many known instances there is really some measure of misunderstanding. <...>

The second is more difficult. We cannot profit from idle speculation about the psychology of borrowers, but must confine ourselves to such overt evidence as is at hand. This may lead us to miss some motives of importance, but we can be much surer of those which we do discern. These are two in number: *prestige* and *need-filling*.

47.4. The Prestige Motive

People emulate those whom they admire, in speech-pattern as well as in other respects. <...> Upper- and middle-class Englishmen, in the days after the Norman Conquest, learned French and used French expressions in their English because French was the language of the new rulers of the country. <...>

Sometimes the motive is somewhat different: the imitator does not necessarily admire those whom he imitates, but wishes to be identified with them and thus be treated as they are. The results are not distinguishable, and we can leave to psychologists the sorting out of fine shades of difference. <...>

The prestige motive is constantly operative in dialect borrowing; it becomes important in language borrowing only under special conditions. When speakers of two different languages live intermingled in a single region, usually one of the languages is that spoken by those in power: this is the *upper* or *dominant* language, and the other is the *lower*. Such a state of affairs has most often been brought about by invasion and conquest, more rarely by peaceful migration. The prestige factor leads to extensive borrowing *from the dominant language into the lower*. Borrowing in the other direction is much more limited and largely ascribable to the other principal motive.

47.5. The Need-Filling Motive

The most obvious other motive for borrowing is to fill a gap in the borrowing idiolect. <...>

...New experiences, new objects and practices, bring new words into a language. <...> *Tea, coffee, tobacco, sugar, cocoa, chocolate, tomato* have spread all over the world in recent times, along with the objects to which the words refer. *Typhoons* and *monsoons* have not spread, but direct or indirect experience with them has. <...>

Immigrants to the United States in the last seventy-five years have drawn heavily on English for new words, partly on the prestige basis and partly for need-filling purposes: the two motives must often be mingled, and we cannot always say which was more important in a given instance. In exchange, however, American English has acquired only a sparse scattering of need-filling loans from the various languages of the immigrants: *delicatessen, hamburger* <...> from immigrant German, *chile con carne, tortilla* from Mexican Spanish, *spaghetti* from Italian —to stick to the sphere of humble foodstuffs. <...>

If a local dialect gains ascendancy for political and economic reasons, then one expects extensive borrowing *from* that dialect for prestige reasons, but forms borrowed *into* the ascendant dialect have to be explained—and usually, if the records are not too scanty, explanation on the need-filling basis is possible.

Kinds of loans

48.1. The examples of borrowing given in part 47 involve in most cases the development of an *idiom*—be it word or phrase—in one language or dialect on the basis of one already current in another. There are several different ways in which this can come about, and there are also known or suspected cases of borrowing of other than lexical items. In this section we shall sort these out, and also specify the kinds of phylogenetic change that can be brought about, directly or indirectly, by the different kinds of borrowing.

Whenever the need-filling motive plays a part, the borrower is being confronted with some new object or practice for which he needs words. Under these conditions <...> three rather distinct things may happen, giving rise respectively to *loanwords*, *loanshifts*, and *loanblends*.

48.2. Loanwords

The borrower may adopt the donor's word along with the object or practice; the new form in the borrower's speech is then a *loanword*.

The acquisition of a loanword constitutes in itself a lexical change, and probably we should say that it constitutes or entails a semantic change. A shape change is sometimes involved. <...> English acquisition of *wiener* [wijnər] involved no such change, since the language already had a morpheme represented by the shape [wijn] and several morphemes represented by suffixed [-ər]. Our acquisition of *allegro* [əlégrow], on the other hand, entailed a shape change of the type just described.

Other kinds of phylogenetic change are not directly implied by a single new importation, but they may come about as the result of a whole wave of loanwords from some single source, along the following lines:

Grammatical change

ME acquired a large number of Norman-French adjectives containing the derivational suffix which is now *-ablej/-ible*: *agreeable*, *excus-*

able, variable, and others. At first, each of these whole words must have functioned in English as a single morpheme. But English has also borrowed some of the verbs which in French underlay the adjectives, and in due time there came to be a large enough number of pairs of borrowed words for the recurrent termination to take on the function of a derivational affix in English. This is shown by the subsequent use of the suffix with native English stems: *bearable, eatable, drinkable* (the stems tracing back to OE /béran/, /étan/, /drinkan/). <....>

...It is to be noted that the derivational affix was not borrowed as such: it occurred as an integral part of various whole words, and only the latter were actually borrowed. Apparently we can generalize on this point: *loanwords are almost always free forms* (words or phrases); bound forms are borrowed as such only with extreme rarity. <....>

Alternation Change

Our learned vocabulary, borrowed directly or indirectly from Latin and Greek, includes a good number of words like *datum: data, phenomenon: phenomena, matrix: matrices*. What has happened here is that we have borrowed both the singular and the plural forms of the word. <...> Since English already had the inflectional category of number, these importations do not imply any grammatical change, only additional patterns of alternation. In such cases there is usually competition between the imported and native patterns. Most of us tend to use *data* as a singular “mass-noun”, like *milk*, saying *this data is* rather than *these data are*. Doublet plurals in competition are even commoner: *matrixes* [méjtriksəz] and *matrices* [méjtrəsi:jz], *automata* and *automatons*, *gladioluses* and *gladioli*. One cannot safely predict which alternative in such a case will in the end win out; currently, in English, the imported plural has a more learned connotation than the native one. <...>

Phonemic and Phonetic Change

The first few members of a community to use a word from another language, or from a highly divergent dialect of their own, may imitate the pronunciation of the model accurately. Any isolated borrowing which spreads into general usage, however, is unlikely to retain its foreign pronunciation if that in any way goes against the pronunciation habits of the borrowers. <...> Some of us pronounce initial [ts] in *tsetse fly, tsar*; most, however,

begin the words with [z]. Even French words like *rouge*, *garage*, *mirage*, probably end more commonly in English with [j] than with [ʒ].

However, it would seem that a great flood of loanwords from some single source, involving many bilinguals as the channel for the borrowings and with a major prestige factor, can have some striking consequences in articulatory habits. The stock example, once again, is the influence of Norman French on English: it was through this influence that English acquired initial [v z j], and, consequently, the phonemic contrast between [v] and [f], [z] and [s]. <...>

48.3. Loanshifts

When confronted with a new object or practice for which words are needed, the borrower may somehow adapt material already in his own language. ...a new idiom arises, and since it arises under the impact of another linguistic system, it is a *loanshift*.

The spread of Christianity into England in the 7th century carried many Latin words into OE as cultural loanwords: *abbot*, *altar*, *pope*, *cap*, *sock*, *cook*, to cite but a few. <...> But for some of the fundamental notions of the religion, old Germanic words were used: *God*, *heaven*, *hell* were merely stripped of their heathen connotations and invested with the meanings described by the missionaries. The influence on the borrowing language is minimal in cases of this kind: the only change directly entailed is semantic. <...>

If the model in the donor language is a composite form, then the borrower may build a parallel composite form out of native raw material; the result is a *loan-translation*. English *marriage of convenience* and *that goes without saying* are loan-translations from French; <...> *loanword* is a loan-translation from German *Lehnwort*. <...>

Loanshifts involve lexical and semantic change, and in some cases may lead to minor grammatical change. The latter is effected if the literal following of a foreign model in the creation of a new idiom gives rise to some type of construction previously alien to the borrowing language. The English pattern of two nouns in succession, the second attributive to the first, as in *operation Coronet*, seems to have come in from French in this way. <...>

48.4. Loanblends

A loanblend is a new idiom developed in the borrowing situation, in which both the loanword and the loanshift mechanisms are involved: the

borrower imports part of the model and replaces part of it by something already in his own language. <...>

An interesting case is the common substandard English *chaise lounge*, where the first word of the French model *chaise longue* “long upholstered chair of a certain kind” is imported, but the second part is mistranslated so as to seem to make sense.

Records of earlier borrowings often do not permit us to determine whether a hybrid word is the result of loan-blending at the time of borrowing or a later coinage of native and well-assimilated foreign elements. In most of the above examples we have reason to believe that loanblending was involved. In the case of English *talkative* and *bearable* we have documentary evidence to show that they were later hybrid formations. But in many other instances we cannot be sure.

48.5. Pronunciation Borrowing

If a speaker imitates someone else's pronunciation of a word which is already familiar to the borrower, we may speak of *pronunciation borrowing*. Usually the donor and borrowing idioms are mutually intelligible and the motive is prestige. <...>

ME [gíʋ] “give”, from Scandinavian, supplanted the inherited form [jiv].

48.6. Grammatical Borrowing

We have seen that grammatical change can be brought about indirectly by borrowing —via sets of related loanwords. There is some doubt that grammatical change can result from borrowing *from another language* in any other way, but the issue is not settled.

Adaptation and impact

49.1. Adaptation

Once a borrowed word has been thoroughly “naturalized”, its subsequent history is like that of any form already in the language. French *state*, *navy*, *danger* came into ME with stressed [á^v], also found at the time in such inherited words as [ná^vmə] “name”, [šá^vkə] “shake”, [bá^vðə] “bathe”; we now have [éj] in all these words. <...>

...during the period of importation, the shape of an incoming word is subject to more haphazard variation. Different borrowers will imitate a

foreign word in slightly different ways. Monolinguals to whom the word is passed on will alter its shape even more. This modification of the shape of the incoming word is called *adaptation*: usually it leads to a shape more in keeping with the inherited pronunciation habits of the borrowers.

The buffeting-about of the incoming word often results, in the end, in a single surviving and fixed shape, but sometimes two or more shapes become more or less equally naturalized and survive, side by side, in competition. Thus *garage* has three current pronunciations: [gə'rɑːʒ], [gə'rɑːj], and [gærij], the last primarily British. In the future, one of these may spread at the expense of the other two until finally only one survives.

If a language or dialect takes only scattered loans from a single donor, one is not apt to find any great consistency in the adaptation. The few English words from Chinese, such as *chop suey*, *chow mein*, *typhoon*, entered English at various periods and from different Chinese dialects, and show no regularity of correspondence with the shapes of the Chinese models.

On the other hand, if many loanwords come from a single source over a relatively short period, there may develop a *fashion* of adaptation, which then makes for greater consistency in the treatment of further loans from the same source. The Normans, later the North French, had such a fashion for the importation of learned loans from book or clerical Latin. English borrowed many of the words which had come into French from Latin in this way, and in time developed its own fashion of adaptation for words taken directly from Latin. *Procrastination* came into English directly from Latin; it does not occur in older French, yet has just the shape it would have had if it had been borrowed via French. Indeed, we are now able to make up new English words from Latin (or Latinized Greek) raw materials, even when Latin or Greek did not have the word, and the shapes taken by the coinages depend ultimately on the fashions of adaptation just mentioned: *eventual*, *immoral*, *fragmentary*, *telegraph*, *telephone*.

49.2. The Impact of Borrowing on a Language

In theory, one language might influence another so drastically that subsequent scholarship would be unable to determine which of the two had played the role of borrower and which that of source. English, despite its tremendously heavy load of French loans, is really a very poor candidate for this theoretical possibility: the grammatical cores of ME and NE trace back uninterruptedly to that of OE. <...>

To the historian, the English words *chair* and *table* are loanwords as of a certain date, while, as of that date, *stone*, *bench*, and *pope* are not. Viewed descriptively, of course, all five of these words are today simply ordinary English. In some instances, however, the vocabulary of a language can be divided, even on a purely descriptive basis, roughly into two portions, the elements in one portion showing certain features of morpho-phonemic or grammatical behavior not shown by those in the other; and one of the portions may in fact be composed largely of relatively recent loanwords. Sometimes it does not even require the critical eye of the specialist to make this analysis. <...> they follow divergent patterns of stress and, to some extent, of consonantism and vocalism, which mark them off from the ordinary vocabulary. Whenever some portion of the vocabulary has such clear marking, then even, in synchronic discussion, it can properly be called the *foreign vocabulary* of the language. <...>

51.4. Analogy and Borrowing

Now <...> it will be worthwhile to mention briefly certain ways in which analogy operates in conjunction with borrowing.

The most obvious instance is in loan-translations (part 48.3). The operation of analogy in this case cuts across from one language (or dialect) to another, about as follows:

<i>French</i>	<i>English</i>
mariage	marriage
de	de
convenance	convenience
mariage de convenance	X

The bilingual, solving the proportion, finds that X is *mariage of convenience*.

Analogy comes into play, secondly, when a regular fashion for the reshaping of words borrowed from some single donor has become established (§ 49.1):

<i>Latin</i>	<i>English</i>
actionem	action
afflictionem	affliction
separationem	separation
procrastinationem	X

The first three forms are the accusatives of Latin nouns, <...> which obviously parallel the already existent English words on the right. <...> All of the cross-language patterns participate in determining what X shall be: *procrastination*.

When a suffix or other bound form common to a number of borrowings from a single source is cut off and becomes productive (§ 48.2), we again have the operation of analogy, but in this case the words have already been assimilated, and the analogy involved does not cut across from one language to another. <...>

Aids to the study of the text

1. How does the author understand the process of borrowing?
2. What difference does he see between dialect borrowing and language borrowing?
3. What does a single act of borrowing affect?
4. What is the accepted understanding of the expression "single borrowing" in historical linguistics?
5. What conditions must in the author's opinion be met for a borrowing to occur?
6. What motives for borrowing does the author distinguish?
7. What does the author mean by the prestige motive? Under what conditions is it operative?
8. What is understood by the need-filling motive?
9. What kinds of loans does the author discern?
10. What is understood by the term "loanword"?
11. What kinds of phylogenetic change come about as a result of a single borrowing and as a result of a whole wave of loanwords from some single source?
12. In what way do loanshifts arise?
13. How are loan-translations created?
14. What kinds of phylogenetic change do loanshifts involve?
15. What kind of borrowing does the author name loanblends?
16. What is meant by pronunciation-borrowing?
17. What does the author say about grammatical borrowing?
18. What modification is the shape of an incoming word subject to during the period of importation?
19. What does the author mean by the "development of a fashion of adaptation"?
20. How does the author characterize the general impact of borrowing on the English language?
21. What is the term "foreign vocabulary" applied to in the text? What is the relation between the terms "loanwords" and "foreign words" in the author's understanding?
22. How does analogy operate in conjunction with borrowing?

Otto Jespersen

GROWTH AND STRUCTURE OF THE ENGLISH LANGUAGE

31. Loan-words have been called the milestones of philology, because in a great many instances they permit us to fix approximately the dates of linguistic changes. But they might with just as much right be termed some of the milestones of general history, because they show us the course of civilization and the wanderings of inventions and institutions, and in many cases give us valuable information as to the inner life of nations. <...> When in two languages we find no trace of the exchange of loan-words one way or the other, we are safe to infer that the two nations have had nothing to do with each other. But if they have been in contact, the number of the loan-words and still more the quality of the loan-words, if rightly interpreted, will inform us of their reciprocal relations, they will show us which of them has been the more fertile in ideas and on what domains of human activity each has been superior to the other. If all other sources of information were closed to us except such loan-words in our modern North-European languages as *piano*, *soprano*, *opera*, *libretto*, *tempo*, *adagio*, etc., we should still have no hesitation in drawing the conclusion that Italian music has played a great role all over Europe. Similar instances might easily be multiplied, and in many ways the study of language brings home to us the fact that when a nation produces something that its neighbours think worthy of imitation these will take over not only the thing but also the name. This will be the general rule, though exceptions may occur, especially when a language possesses a native word that will lend itself without any special effort to the new thing imported from abroad. But if a native word is not ready to hand it is easier to adopt the ready-made word used in the other country; nay, this foreign word is very often imported even in cases where it would seem to offer no great difficulty to coin an adequate expression by means of native word-material. As, on the other hand, there is generally nothing to induce one to use words from foreign languages for things one has just as well at home, loan-words are nearly always *technical* words belonging to one special branch of knowledge or industry, and may be grouped so as to show what each nation has learnt from each of the others. <...>

150. ...The classical words adopted since the Renaissance have enriched the English language very greatly and have especially increased its number of synonyms. But it is not every “enrichment” that is an advantage, and this one comprises much that is really superfluous, or worse than superfluous, and has, moreover, stunted the growth of native formations. The international currency of many words is not a full compensation for their want of harmony with the core of the language and for the undemocratic character they give to the vocabulary. While the composite character of the language gives variety and to some extent precision to the style of the greatest masters, on the other hand, it encourages an inflated turgidity of style. Without siding completely with Milton’s teacher Alexander Gill, who says that classical studies have done the English language more harm than ever the cruelties of the Danes or the devastations of the Normans, we shall probably be near the truth if we recognize in the latest influence from the classical languages “something between a hindrance and a help”.

Aids to the study of the text

1. What makes Jespersen draw the conclusion that loan-words may be considered milestones of general history?
2. How does the author define the general character of loan-words in English?
3. What is the author’s opinion on the effect of the great number of synonyms (especially from the classical languages) in English?

J. A. Sheard

THE WORDS WE USE

Introduction

<...> A chronological investigation most obviously begins with the native tongue, that was brought to these islands in the fifth century by the Germanic tribes who eventually overran the native Britons. The importance of this purely Germanic basis is often overlooked, largely because of the great number of foreign words incorporated in our present-day vocabulary. But an examination of actual usage, as opposed to mere presence in

a dictionary, shows how important the native words are. The next step will be to discuss the foreign words which have found a way into our language from those early days, and see not only which words they have displaced, when the object or idea was already known, but also what effect they have had on the native element.

Our method, then, will be to take the old Germanic element as the basis, and regard everything else as foreign. But it is not easy at first to grasp what this means. Many of the words we shall have to class as “foreigners” will seem at first sight “true-born Englishmen”, for they have been part of our vocabulary for centuries, but they have only a “certificate of naturalization”, not a right by birth. When, under this heading, such familiar words as *candle, face, inch, mile, ounce, rose, school, street* and *wine* are mentioned, it will be realized that we shall need to classify under foreign borrowings, or loan-words, to use the technical term, many more words than the ordinary reader has been accustomed to consider under that heading, and some, at least, which are usually looked upon as native words <...> two ways, through the spoken word, by personal contact between the two peoples, or through the written word by indirect contact, not between the peoples themselves but through their literatures. The former way was more productive in the earlier stages, but the latter has become increasingly important in more recent times. Direct contact may take place naturally in border regions, or by the transference of considerable numbers of people from one area to another, either by peaceful immigration, settlement, or colonization, or through invasion and conquest. It may also take place, though to a more limited extent, through travel in foreign countries and through residence abroad, for trade or other purposes, of relatively small numbers of people.

The type of word borrowed by personal contact would undoubtedly at first be names of objects unfamiliar to the borrowers, or products and commodities exchanged by way of trade. If the contacts were maintained over a long period, then ideas concerned with government, law, religion, and customs might be absorbed, and perhaps the names of these would be adopted. Only in the case of nations in relatively advanced stages of civilization would there be much influence exerted through the written word; concrete objects would come first, then abstract ideas learnt from what might actually be seen from their effects in everyday life and abstract ideas through the indirect contact achieved by books would come much later. <...>

The Normans

<...> It is impossible to understand the effect of the influence of French in the Middle English period without knowing the historical and social conditions operative at the time, the relations between conquerors and conquered, the language used by the two races, their respective standards of culture. Moreover, the question of dominant and submerged races, of superior and inferior cultures, is an important factor in the way one language may influence another, and so this factor must of necessity be considered in this particular case, where the effect is so obvious.

In spite of Latin, Celtic, and Scandinavian influence, the general character and vocabulary of Old English in the middle of the eleventh century was essentially what it had been five centuries before, but in 1066 came the Norman Conquest, an event which had more influence on the English language than any other from outside... <...> There is an important difference between the influence now to be examined and the earlier foreign influences. The native language was not completely driven out, leaving little impression on the language of the conquerors, as had happened when the Angles and Saxons conquered the Britons, nor modified by a related language, as in the case of the Scandinavian invasion, but instead a second language was established in the country, in use side by side with the native language. The comparison may be carried further; Scandinavian first came into, and influenced chiefly, the north and north-east, whereas French was most influential in the south and south-east, a fact which became of increasing importance as a standard English language gradually developed in the fifteenth and sixteenth centuries. Scandinavian modified the existing language through related words and constructions, but French introduced entirely new words. Scandinavian made its way into the everyday speech of the people, whereas, although many French words eventually became part of our everyday speech, and can hardly be recognized today as foreign loan-words, the French element was in the main composed of words reflecting a high state of culture, and influenced at first chiefly the language of the upper classes. Or we may look at the question from another angle: English had held its ground easily against the competition of the native Celtic of the subject race; it had had little competition from Latin, as a spoken language; it had been but little affected by the closely-related Scandinavian, the language of a conquering people, probably because the conquest did not last long and was closely followed by another conquest, and also

because the peoples and languages were closely related. But now we find English facing the competition of an entirely different language, that of a conquering people who were able to maintain their position as distinctly foreign rulers for a comparatively long period. <...>

English, which before the Conquest had been the official language of the country, used by all classes of people, and in which an important literature had been written, became merely the language of a subject lower class. In addition, the knowledge of French gave access to a rich literature. For nearly three centuries much of the literature written in England was written in French, translated from French, or strongly influenced by French models, and so it is not strange that the literary language was enriched by many French words, and these gradually made their way into familiar speech, so that today a large part of our vocabulary consists of words introduced from French in the four centuries following the Conquest. The influence which French exerted on our language is seen in all aspects of life, social, political, and religious, and hardly any walk of life was unaffected by it. Had the Conquest not taken place it may be that English would have developed along entirely different lines, keeping in the main its Germanic characteristics, particularly as regards vocabulary, much as the German and Scandinavian languages have done, and therefore lacking the tremendous number of Romance words which are now an accepted part of our language. <...>

...It may be interesting to consider the general implication of such a large adoption of French loan-words into English. The first point to be emphasized is that here we are not dealing with completely new ideas introduced from a different type of civilization and culture, but rather the imposing by a dominant race of their own terms for ideas which were already familiar to the subject race. Such a state of affairs obviously means that there will arise pairs of words, the native and the foreign term, for the same idea, and a struggle for survival between the two, so that one of the words was eventually lost from the language, or else survived only with some differentiation of meaning.

Let us first take examples of native words replaced by French words; it is possible to compile a very long list, so here we must confine ourselves to a few, merely by way of illustration. ...*cynelic* was replaced by *royal*, *cynestol* by *throne*, *cynehelm* by *crown*. <...> *Dema* was replaced by *judge*, *firen* by *crime*, *rihtoew* by *justice*, *sacu* by (law) *suit*. <...> Much of the loss of Old English vocabulary can be accounted for by the influx of French words for the same or a similar idea in the Middle English period.

Sometimes both the words have survived side by side, but in that case there has usually been some differentiation of meaning. <...> Although *dema* had given way to *judge* we still use the verb *deem* ... , the unmutated form related to *dema* — *judge*, and *deman* — to *judge*. <...> There are many examples of these pairs of words, one a native word, the other a Romance loan, originally of either identical or similar meaning, with some distinction made today, such as ... *freedom* and *liberty*, *happiness* and *felicity*, *help* and *aid*, *hide* and *conceal*, ... *love* and *charity*, *meal* and *repast*, *wedding* and *marriage*, *wish* and *desire* ..., and we should find that the native word has a more emotional sense, is homely and unassuming, whereas the loanword is colder, aloof, more dignified, more formal. Sometimes, though very rarely, the native word may have the higher tone, as in *deed* and *act* or *action*. An obvious example to illustrate this point is the native *stink* and *stench* alongside *perfume* and *scent*... <...>.

Sometimes the word may have disappeared from the standard language and yet have survived in regional dialect. OE *earn* was replaced by *uncle*, yet *erne* still survives in Scots dialect; *flitan* disappeared from the standard language, but some dialects retain *flite* — to struggle, contend, especially with words.

This large-scale adoption had two other effects on our vocabulary. We saw that in the Old English period many ideas new to the English were expressed by a native form derived from a combination of native material, such as *bocere*, *sundor-halza*, *proprung*, and many others. Another characteristic of Old English had been its ability to form many derivatives from a single root, thus extending the vocabulary at will by forming noun, verb, adjective or adverb, once the basic root was available. The adoption of these numerous French words in the Middle English period marks the beginning of the decline of these two native characteristics. In spite of the wholesale change in the character of the vocabulary, this change in the nature of the language is perhaps the greatest effect of French, and later Latin, influence. We have an entirely new approach to language, which is now expanded chiefly by borrowing, not creating. <...>

Profit and loss

<...> ...It was emphasized that all words of foreign origin were to be regarded as loans, no matter how well they might be established in the language, but now that we are considering the question from the point of

view of improvement of the language, and as the question of the type of word will arise, and the difference between native and foreign words, we should bear in mind that the earliest Latin, Scandinavian, and French words have been so well assimilated that they seem to be almost as English as the native words — for the ordinary man there is a great deal of difference between such words as *mile*, *ounce*, *law*, *face*, and *beef* on the one hand, and *hypochondriac*, *orthodontics*, and *schizophrenia* on the other — and often the early loans are as short, expressive, and convenient as the native words. There is, then, a difference between the two types of loan-words, and the position of the former group lies perhaps midway between that of the original native word and the easily-recognized loan-word of later times, so that there is perhaps not the wide gulf between native word and loan-word, the hard and fast division into two sharply-differentiated types, that might be expected. We have indeed, in the ultimate analysis, native words and borrowed words, but it would seem that, apart from actual origin, there is a good deal in common between some of the loan-words and our native words. This has been recognized from the very beginning of the purist reaction against loan-words, for very rarely has there been objection raised to these earlier, well-assimilated loan-words, especially from Scandinavian and French, but only to the later, longer, usually learned borrowings.

Another point must also be borne in mind in discussing the effect of all this borrowing on our language. If we are to base our reasoning on a study of the forms recorded in the dictionary it is very easy to overestimate the effect of the foreign words. The actual number of native words in any of our large standard dictionaries is extremely small compared with the number of foreign borrowings recorded, and even if we were to confine our examination to those words in common use we should still find the native material outnumbered by about four to one. On the other hand, if we were to take a piece of English written on the popular level, or, better still, a passage of familiar conversation, we should find the proportions about reversed. It has been estimated that less than fifty words, all of them native words, suffice for more than half our needs, if we count every word used, including repetitions. The proportion of native words to foreign will naturally vary with the subject-matter, and a present-day article on some aspect of scientific knowledge would naturally contain a higher proportion of loan-words than, say, a simple essay on a walk through the countryside, yet even in the scientific article

the native words would probably outnumber the borrowings, if each word is counted every time it is used. <...>

Since the general opinion is that English has, in the main, benefited from the adoption of so many foreign loanwords, the advantages which have accrued from the use of these borrowings may be taken first, and the obvious one is the wealth of synonyms which have been created by the adoption of a foreign word — in some cases, words from more than one foreign language — to express an idea for which English already had a word. Some of these are what we may call perfect synonyms, those in which it is very difficult to detect any difference at all in the meaning; others are not quite so exact, and there is some differentiation, though perhaps only in usage; a third group shows marked differences within the same basic idea, differences which arise from desynonymization, a process which we might expect to take place in any language which possesses several words for the same idea. <...> ...There is a tendency for the words to diverge somewhat in meaning, while still retaining the original basic idea, and the result of this is extremely advantageous, for the language is thereby enabled to express subtle differences in the same thought. Sometimes the differentiation may go no further than the use of a particular word in one context and its approximate synonym in another... <...>

Aids to the study of the text

1. What does the author understand by the term “native words”?
2. In what meaning does he use the term “foreign words”?
3. In what ways may the influence of a foreign language be exerted?
4. What type of word is in the author’s opinion usually borrowed by personal contact and by indirect contact?
5. What was the general character of Old English in 1056?
6. What were the historical and social conditions operative at the time of the French influence?
7. In what way did the French influence differ from the earlier influences?
8. How does the author characterize the general effect of the Norman Conquest upon the English language?
9. What was the outcome of the struggle between native and French synonyms?
10. What is the author’s opinion as to the effect of the large-scale adoption from French on the means of vocabulary extension in English?
11. What groups of borrowed words does the author distinguish?
12. What is the proportion of native words to foreign in the dictionary and in speech?
13. How does the author regard the abundance of synonyms created by borrowing in English?

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