Surfaces and Essences

Analogy as the Fuel and Fire of Thinking

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CHAPTER 2

The Evocation of Phrases

Categories Vastly Outnumber Words

What is it that links words and categories? To be sure, words are often the verbal counterparts of categories. We can describe and refer to categories with them, but that does not mean that categories should be equated with words — not even with the broader notion of lexical items — for categories are mental entities that do not always possess linguistic labels. Often words are names of categories, often they can be used to describe categories, but sometimes they simply are lacking. All in all, the connection between categories and language is complex. A single word can of course bring a category to mind — "mother", "moon", "chair", "table", "office", "study", "grow", "shrink", "twirl", "careen", "thanks", "ciao", "much", "and", "but", and so on — but the correspondence is somewhat lopsided, because in fact we all know many more categories than we know words.

Coining a word is cognitively costly, and our mental categories are so numerous and constantly changing that it would take an astronomical repertoire of words if we wanted to have exactly one word per category. As a consequence, humans have figured out how to economize with words. Thus, there are many words that have multiple meanings, depending on the context. Such words cover a variety of categories (consider the multitude of meanings of a simple word like "trunk", for instance). Another word-saving device is that many categories have verbal labels that consist of a string of words rather than just one word, and that idea will be the central focus of the present chapter. And then there are myriads of categories that simply have no verbal label at all, and the goal of the next chapter will be to shine a bright light on those.

In sum, whereas Chapter 1 focused on categories whose labels are just one word long, this chapter is concerned with categories whose linguistic labels are more complex; thus compound words, idiomatic phrases, proverbs, and fables are among the scenic spots we shall visit.

Psychology does Not Recapitulate Etymology

No less than indivisible words, compound words designate categories. Thus the word "airplane" is no less the name of a category than are "air" and "plane"; the same goes for "airport", "aircraft", "airfield", "airlift", "airsick", "airworthy", "airhead", "airbag", "airplay", "airtight", and so forth. There are many words whose components are so tightly fused inside them that the individual pieces are seldom if ever noticed, since (in most cases) the wholes are not analyzable in terms of their pieces — for example, "cocktail", "cockpit", "upset", "upstart", "awful", "headline", "withstand", "always", "doughnut", "briefcase", "breakfast", "offhand", "handsome", "cupboard", "haywire", "highjack", "earwig", "bulldozer", "cowlick", "dovetail", and so on.

To be sure, in some of these cases — for instance, "cupboard" and "headline" — a little guesswork provides a plausible story about their origins, but the possibility of doing an intellectual analysis doesn't mean that a fluent speaker conceives of the word — that is, hears it — as a compound word. For example, we don't pronounce "The plates go in the cupboard" as if it were written "The plates go in the cup board", and we don't hear it that way. In fact, we never say "board" when we mean a storage location, even if it once had that meaning. What we say aloud sounds more like "cubberd" than like "cup board", and virtually no one hears either part inside the whole. As for "airport", although we can deliberately slow down and hear "air" and "port" inside it, who ever thinks about the *atmosphere* and about a *harbor* when picking up a friend at the baggage area, or when transferring between planes? Indeed, were someone to call an airport an "atmospheric harbor", it would invite ridicule, if not sheer incomprehension.

Many compound words are positively mysterious if one starts to think about them. Why do we sometimes call a woman's purse a "pocketbook"? It's not a book by any stretch of the imagination, and it certainly doesn't fit in any kind of pocket! Nor is it a book of pockets! And how can we understand the compound word "understand"? Understanding has nothing obvious to do with standing anywhere, let alone underneath something. Then again, in certain compound words, just one of the two components sounds strange and strained, such as the "body" in "nobody".

An analysis of where words come from and how they came to mean what they now mean belongs to the classic discipline of etymology, and often it is truly fascinating, but it does not have much bearing on how words are actually perceived by a native speaker. In that sense, psychology does not recapitulate etymology (to tip our hat to the phrase "ontogeny recapitulates phylogeny"). Many compound words simply act like indivisible wholes; we learn them as wholes as children, and it is as such that we usually hear them.

Thus a toddler learns and uses the word "pacifier" without having any idea of the existence of the verb "pacify" or the suffix "-er" inside it (not to mention the Latin root "pax" and the suffix "ify" found inside the verb "pacify"!). For a toddler's purposes, the sound "pacifier" is simply that concept's arbitrary-seeming label, and the word doesn't need to be broken down or analyzed. As for adults, they seldom need to decompose compound words, either; indeed, doing so would often be more confusing than helpful, as in "eavesdrop" or "wardrobe", for example. Who ever thinks of a *wardrobe* as a place

where one *wards* one's *robes*? The standard pronunciation ("war-drobe") would not suggest hearing it or thinking of it that way (and in any case, the verb "to ward" is quite a stretch when one is talking about storing clothes in a closet). As for "eavesdrop", well, that's just as opaque as "understand", "handsome", "cockpit", and "cocktail".

Often we hear one part of a compound word quite clearly inside the word, and the other part less clearly. Thus, people called "gentlemen" are always of the male sex (showing that the second component is heard loud and clear), but they are certainly not always gentle. It is perfectly possible to say, "Would the rowdy gentlemen in the corner of the room please pipe down?" On the other hand, a freshman is always fresh (in the sense of being new), but only about half the set of freshmen in a typical high school are men. A great-grandson and a great-grandmother are unlikely to be particularly great or grand, but the former is sure to be somebody's son, and the latter to be somebody's mother. A restroom is certainly a room, but seldom if ever is it a place to take a rest.

Compound words whose components are still at least blurrily heard in the whole can be a bit tricky when it comes to pluralization, because one isn't sure to what extent one hears their parts resonating inside them. Thus when we sit in a café, do we gaze at the passersby or the passerbys as they stroll before us? And how many teaspoonsful of sugar do we add to our coffee? That is to say, how many teaspoonfuls? Are we thinking of giving our children jacks-in-the-box when Noël rolls around, or contrariwise, jack-in-the-boxes at Yuletide? On the golf course, do we aspire to make holes-in-one, or would we prefer the glory of hole-in-ones? And in golf tournaments, do we beam if we are runners-up or are we disappointed to be mere runner-ups? As married folk, are we fond of our mothers-in-law while finding our father-in-laws rather stuffy? And turning the tables, how do those respected elders feel about their sons-in-law and daughter-in-laws?

Looking at the statistics of the rival plurals for compound nouns of this sort gives one a sense for where those nouns lie along the slippery slope on which the parts slowly "melt", over time, into the whole. But once the parts have truly been absorbed into the whole, then the whole becomes truly a single unit, and no one hears the pieces any longer. Thus "handsome" might as well be spelled "hansim", "nobody" might as well be spelled "gnobuddy", "cupboard" "cubberd", and so on — and of course we have all seen "donut", "hiway", and "hijack", which show the parts as they make their way towards absorption (much like the vestigial "five" and "ten" inside "fifteen" and the vestigial "two" inside "twelve" and "twenty").

Often compound words have drifted so far from their etymological roots that native speakers can easily miss what is right in front of their eyes. Thus in German the word for "nipple" is "Brustwarze", which, broken up into its parts (the two nouns "Brust" and "Warze"), means "breast-wart". Once again in German, the word for "glove" is "Handschuh" ("hand-shoe"), and the French word for "many" is "beaucoup", which, decomposed, is "beau coup" — that is, "beautiful blow". But no native speaker would hear these words in the way that they strike us — namely, as ugly or strange — because over time, they have melted together to make category names that are seamless wholes and which therefore feel completely bland.

How could the native speakers of these languages possibly fail to see (or hear) something that is so blindingly obvious? Is it really possible? Well, yes — it's just as possible for them as it is for us anglophones to fail to see or hear the "dough" and the "nut" inside "doughnut", or the "break" and "fast" inside "breakfast", or the "under" and "stand" inside "understand". And keep in mind that no one flinches at the overtly sexual allusions in the common terms "male plug" and "female plug".

Opening the Door Doesn't Require Taking the Lock Apart

"Front door", "back door", "doorknob", "door knocker", "dog door", "dog dish", "dish towel", "dishwasher", "washing machine", "dining room", "living room", "bedroom", "bathroom", "bathtub", "bath towel", "towel rack", "kitchen table", "tablecloth", "table lamp", "lampshade", "desk chair", "hair dryer", "grand piano", "piano bench", "beer bottle', "bottlecap", "toothbrush", "toothpaste"… Here, without our once setting foot outdoors, are some compound words or phrases that designate familiar household sights. Some are written with a space between their components, and some are not. Fairly often it takes a trip to the dictionary to find out which ones take a space and which do not, and at times the official word handed down from on high runs against the grain or seems totally arbitrary, and moreover the official spelling frequently changes as one traverses the Atlantic or the decades. Indeed, from a psychological as opposed to an etymological point of view, the presence or absence of a space (or sometimes of a hyphen) makes no difference to the typical language user (or language-user), who is unaware of such fine points and will usually just improvise in writing such things down. One's point will be made equally well whether one writes "door knob", "door-knob", or "doorknob".

Although the types of words (and phrases) shown above have visible, hearable inner parts, these expressions are every bit as much the names of mental categories as are "simpler" nouns, such as "chair", "table", and "door". These longer words and phrases are, just like the things that they name, wholes that are built out of parts. And yet, no more than we need to understand a physical tool in order to use it do we need to take apart a compound word or phrase in order to use it. We use our dishwashers and our loudspeakers as wholes or "black boxes", undismantled and unexamined, and much the same holds for their names.

This observation has important consequences. Contrary to what one's intuition might suggest, using a compound noun or phrase rather than a "simple" word does not mean that more cognitive activity is required to understand it, or that the named category resides at a higher level of sophistication. When we hear "living room", for instance, it doesn't mean that first we activate the most general concept of *room* (which includes dining rooms, bedrooms, bathrooms, restrooms, waiting rooms, etc.) and then maneuver inside the abstract space of *room*-ness until we locate the appropriate subvariety. Our concept *living room* enjoys the same status as do "simple" concepts such as *room* or *bed*. In other words, the fact that "living room" is a compound word doesn't cast doubt on its status as the name of a stand-alone mental category. The same holds

true for "bottlecap". Understanding this word doesn't require locating it among the subcategories of the concept *cap*, which include polar caps, yarmulkes, dental crowns, and lens covers. Cognitively speaking, *bottlecap* is no less simple a concept than are *cork*, *plug*, and *lid*, which, like bottlecaps, are devices for closing containers of liquid.

Jumping around from language to language helps make this idea clearer and more believable. Thus to express our simple noun "counter", French uses three words — namely, "plan de travail" ("surface of work") — while Italian uses just one — "banco". Our two-word noun "dish towel" is merely the atomic "torchon" in French and the slightly molecular "strofinaccio" ("wiper") in Italian; similarly, our "living room" is merely "salon" in French and "soggiorno" in Italian. Our compound noun "bedroom" is "chambre à coucher" ("room for sleeping") in French but merely "camera" (not a compound noun) in Italian. And our "camera" is "appareil photo" ("photo device") in French and "macchina fotografica" in Italian. And oddly enough, our compound noun "video camera" is simply "caméra" in French and "telecamera" in Italian. The moral here is that what seems like a blatant compound in one language may perfectly well seem atomic — that is to say, unsplittable — in another language. (Speaking of atoms, the indivisible English word "atom" comes from a compound word in the original Greek — "a-tomos" — meaning essentially "without a cut" or "part-less". Thus, as was wittily pointed out by David Moser, the word "atom" is an unsplittable etym in English despite not being so in the original Greek, and contrariwise, physical atoms are now known to be splittable despite what their etymology would suggest.)

In order to understand a compound noun, we do not need to break it down into its parts and then put together their "simpler" meanings in order to figure out what is being spoken of. To be sure, we are all aware that the words "bath" and "room" are found inside "bathroom", and that "tablecloth" means a piece of cloth that one spreads out on a table, but we don't need to take those words apart to understand them — no more than we do with "afternoon", "psychology", or "atom" — unless there is a special context that calls for it, such as explaining their meanings to a foreigner or a child.

By Concealing their Constituents, Acronyms Seem Simple

A widespread linguistic phenomenon that clearly illustrates the universal human tendency to represent complex concepts by short chunks whose parts are clearly "there" and yet are seldom if ever noticed is that of the creation and propagation of acronyms. Among the earliest-known acronyms are in Latin: "SPQR", standing for "Senatus PopulusQue Romanus" ("The Roman Senate and People") and "INRI", standing for "Iesus Nazarenus Rex Iudaeorum" ("Jesus the Nazarene, King of the Jews"). For ages, letter writers have used "P.S." ("post scriptum"), and mathematicians, not to be left behind, have for centuries used the classic Latin abbreviation "QED" ("quod erat demonstrandum" — "which was to be demonstrated") to signal that the end of a proof has been satisfactorily reached. For centuries the British have used "HRH" (His/Her Royal Highness) and "HMS" (His/Her Majesty's Ship), and of course there is the famous old call for help, "SOS" (Save Our Ship).

In the early twentieth century, the tendency to reduce stock phrases down to either the initial letters or the initial syllables of their component words grew more widespread, with such examples as "Nabisco" (National Biscuit Company), "Esso" (Standard Oil), "Texaco" (The Texas Company), "GBS" (George Bernard Shaw), "FDR" (Franklin Delano Roosevelt), "RCA" (Radio Corporation of America), "CBS" (Columbia Broadcasting System), and so on. And as the century progressed, the tendency gradually heated up, and the acronymic world started becoming more and more densely populated, with such well-known denizens as:

TV, LP, UFO, ESP, BLT, LIRR, ILGWU,
SPCA, PTA, YWCA, RBI, HQ, BBC, AA, AAA

Most fluent adult speakers of American English today should be able to say without too much trouble what lurks behind most of these acronyms, although perhaps a few of them will elude solution because, several decades after having been coined, they have run their course and are becoming dated.

A number of twentieth-century American political figures were popularly known by their initials (*e.g.*, JFK, RFK, MLK, and LBJ); indeed, it is said that Richard Nixon was intensely jealous of JFK's having been thus "canonized", and dreamed of becoming canonized as "RMN", although that monicker never caught on.

By the end of the twentieth century, what had a hundred years earlier been just an amusing little novelty had become an unstoppable tsunami, with opaque sets of initials coming at speakers of English left and right. And although our stressing their opacity may make it sound as if we are pointing out a defect, it is precisely that quality, paradoxically, that makes acronyms so catchy and so cognitively important, as we will discuss below.

We give the following sampler of acronyms in various fields as a set of challenges for the reader to unpack into their constituents. Although many will be fairly easy, others will probably be hard, either because they are almost never unpacked or because they are now growing obsolescent or are already obsolete:

computers and information technology: WWW, HTML, CRT, IT, URL, PDF, JPG, PC, CPU, CD-ROM, RAM, SMS, PDA, LED, GPS;

banking and finance: ATM, SEP-IRA, GNP, VAT, NASDAQ, NYSE, IPO;

automobiles: HP, MPH, MPG, RPM, GT, SUV;

companies: GE, GM, IBM, AMOCO, BP, HSBC, AT&T, HP, SAS, TWA;

business: CEO, CFO, CV, PR, HR;

chemistry and biology: TNT, DNA, RNA, ATP, pH;

communication: POB, COD, AM, FM, VHF, TV, HDTV, PBS, NPR, CNN, ABC, NBC, CBC, CD, DVD, WSJ, NYT;

photography: SLR, B&W, ASA, UV;

medicine: MD, DDS, AIDS, HIV, ER, ICU, ALS, CLL, DT's, HMO, STD, MRI, CAT, PET;

entertainment: PG, T&A, HBO, MGM;

labor: AFL-CIO, UAW, IBEW;

government: AEC, HUAC, DOD, DOE, FDA, NSF, CIA, FBI, NIH, NASA, SSN;

the military: GI, AWOL, MIA, MAD, ICBM, NORAD, USAF, USN, ABM, SDI, WMD;

education: GED, BS, BA, MA, MS, MBA, PhD, LLD, SAT, LSAT, MCAT, TOEFL, TA, RA, ABD, MIT, UCLA, USC, UNC, UNLV, UTEP, SUNY, CCNY;

sports: AB, HR, RBI, ERA, TD, KO, TKO, QB, NBA, NFL, NCAA;

organizations: AMA, AAAS, APS, UN, UNICEF, UNESCO, PLO, IRA, MADD, NAACP, NRA, NATO, IMF;

cities and countries: LA, NYC, SF, SLC, DFW, UAR, UAE, USA, UK, USSR (CCCP), PRC, GDR

miscellaneous: WASP, FAQ, LOL, BTW, IMHO, R&R, VIP, PDA, AKA, LSD, RSVP, OED, MOMA, GOP;

and so forth. Our challenge list is, of course, just the TOTI.

The Utility of Acronymic Opacity

The purpose of acronyms, and the reason that they are so popular all around the world these days is, of course, that each one takes a long (sometimes very long) and complex linguistic structure and makes it much simpler and more digestible, by sweeping the parts under a kind of "linguistic rug", or, to change metaphors, by making a black box that carries out its function very efficiently but into which no one ever bothers to peer, or at least not very often. The parts of acronyms are deliberately buried so that listeners and readers won't see them, can't get at them, and thus will not be distracted by mental activity going on at too fine a level of detail. Listeners and readers are meant to focus on a higher, more relevant, more chunked level.

Indeed, the parts of an acronym are hidden by a kind of membrane or "skin", making a concept that might otherwise be off-putting become palatable and even sometimes pleasing by its relatively simple, attractive packaging. Thus for most people, "DNA" is easy to remember, while "deoxyribonucleic acid" seems forbiddingly technical and complex. The fact that "DNA" seems to mean nothing at all whereas "deoxyribonucleic acid" clearly *does* mean something is precisely the advantage of the acronym. It becomes much more word-like and much less like a technical term.

When an utterance uses an acronym instead of the full phrase that it stands for, the number of visible parts in it is smaller than it would have been, as several pieces have been chunked into a single piece, and so the processing by the mind is easier. The principle here is similar to that of checkout lanes marked "10 items or fewer" in grocery

stores, where a pack of six bottles of beer counts as just one item, as does a bunch of grapes with 100 grapes, and a bag of sugar containing a million grains of sugar. If each beer bottle were autonomous, if each grape were wrapped in an individual small bag, or if sugar were sold by the grain (heavens forbid!), it would be quite another story. Just as chunking of grocery-store items greatly simplifies the processing, so does linguistic chunking in acronyms. Our short-term or working memory does not get overloaded by too many items.

As an example, consider the following hypothetical announcement, which may seem a little heavy in the acronyms, but compared to much of the bureaucratic email we receive, it is actually pretty tame:

MIT and NIH announce a joint AI/EE PhD program in PDP-based DNA sequencing.

As is, it contains about fifteen "words", but if it is unpacked into more old-fashioned English terminology — "The Massachusetts Institute of Technology and the National Institutes of Health announce a joint artificial-intelligence and electrical-engineering doctor of philosophy program in the sequencing of deoxyribonucleic acid based on parallel distributed processing" — it would be over twice as long. And is it clearer or more confusing in this unpacked version?

An actual bureaucratic email contained the following noun phrase:

the URDGS IT Training and Education Web Markup
and Style Coding STEPS Certificate Series

In this phrase, "URDGS" stood for "University Research Division and Graduate School", "IT" for "Information Technology", and "STEPS" for "Student Technology Education Programs". Thus if one unpacks all acronyms (and does not rephrase in an attempt at increasing clarity), one gets the following:

the University Research Division and Graduate School Information
Technology Training and Education Web Markup and Style Coding
Student Technology Education Programs Certificate Series

This is quite a proverbial mouthful, and it certainly taxes one's linguistic processing capability at or beyond its limits. The phrase with the acronyms is still hard to parse, but it comes closer to being humanly parsable.

Using acronyms is a favorite device of bureaucrats, but it's also popular usage, because if they're used in moderation and with care, they can be very helpful. Because our technological society is growing in complexity in many ways at once, we simply have to have ways of ignoring the details underlying things, whether they are physical or linguistic. A typical teen-ager's cell phone, for instance, has many millions of times more parts than does a grand piano, for instance, and yet because of the way it has been cleverly engineered for user-friendliness, it probably seems far simpler than a

piano to the teen-ager. Just as we need to hide the massively complex details inside our fancy gadgets by elegant and user-friendly packaging, so we need to hide the details of many ideas in order to talk about them in a sufficiently compact way that we won't get lost in a mountain of details. And thus acronyms flourish.

Furthermore, acronyms become more and more opaque over time, like metaphors. Just as we speak of "dead metaphors", so we could speak of "dead acronyms". For instance, probably most people today do not realize that the following words first saw the light of day as acronyms:

yuppie ("young upwardly mobile professional")
laser ("light amplification by stimulated emission of radiation")
radar ("radio detection and ranging")
modem ("modulator–demodulator")
snafu ("situation normal all fucked up")
scuba ("self-contained underwater breathing apparatus").

And indeed, who would want to think of, or say, "radio detection and ranging" instead of just "radar", or "light amplification by stimulated emission of radiation" instead of just "laser"? Cognitively, we *want* these membranes to be opaque. Just as we are happy not to see people's veins, intestines, brains, and other internal organs, so we don't want to be constantly reminded of all the infinite details inside the things we deal with on a daily basis. We want our eyes to be closed so that we can see better. In a word, we want to be spared looking at the trees so that we can clearly make out the forest.

Catholic Bachelors who are Jewish Mothers

Few dictionaries would have an entry for the compound noun "Jewish mother". And yet despite this lack, the phrase is the name of a well-known and fairly easily described category. At its core is the notion of an extremely overprotective, constantly worrying, ever-complaining mother, so much so that she wants to know everything about her children's lives, and to control everything in them. Her children are the entire focus of her life and she wants to be the same for them. Clinical psychologists might find Jewish mothers to be interesting case studies, while other people might tell jokes about them, caricaturing the nature of the category that they belong to:

> You know she's a Jewish mother if, when you get up at night to go to the bathroom, your bed is already made when you come back to go to sleep.
>
> A Jewish mother considers her fetus to be viable when it has finished medical school.
>
> A Jewish mother calls up the airline and without a word of prelude asks, "Excuse me; when will my son's plane be arriving?"
>
> Simon calls his mother up and says, "Hi, Mom, how are things?" "Oh, they're fine, Simon." "Oops! I'm sorry, ma'am — I must have dialed the wrong number."

The curious thing about this expression, revealing that it names something quite different from what its two sub-words would suggest, is that members of the category *Jewish mother* don't need to be Jewish, nor even mothers. A father, a grandparent, a co-worker in one's office, someone in a bureaucratic hierarchy — all of them can be members of the category *Jewish mother,* as long as they exhibit its more central and crucial features. Consider the following scenario, for instance.

> One of William's co-workers has taken William under his wing. He does all he can to help William rise up the company's ladder, taking it for granted that for William professional ascent is the absolute number-one priority. In fact, he wants William to consider him to be the linchpin of his professional life, so much so that he looks downcast whenever he sees William talking to any other co-workers. Not only does he advise William professionally, but he's taken it upon himself to give William personal counseling. He is convinced he knows what's best for William. In addition to making sure William gets promoted, ever since he found out that William is single, he's gotten into playing the role of matchmaker as well.

Calling William's intrusive and oversolicitous co-worker a "Jewish mother" involves dropping some of the *a priori* expected requirements for membership in the category — specifically, that it should involve a biological mother, that the person should be a woman, that there should be some kind of parental link, and of course that the person should be Jewish. Indeed, the key characteristics of a *Jewish mother* don't devolve from or imply any kind of religious beliefs. Thus a single and childless Catholic man — even a priest — could easily belong to the category *Jewish mother*, and contrariwise, many Jewish mothers are at best weak members of the category *Jewish mother.* What matters most of all for us to see someone as a *Jewish mother* is that the category's most stereotypical characteristics (overprotecting; kvetching; deriving one's main satisfaction from the successes of another person; giving boundlessly and expecting boundless reciprocation thereof) should be present to a sufficient degree, because it is they that most crucially help us to recognize members of the category.

Our ability to make analogies is what allows us to extend this particular category so that it includes all sorts of entities, such as William's co-worker, that share the category's most central characteristics independently of whether the surface-level description of those entities is consistent with the verbal label. When a category is deeply enough rooted in one's mind, its standard verbal label is but a relic reminding one of the early stages of the category's creation, rather than a fence sharply setting off the category's boundaries.

A Modest Sampler of Idioms

So far, we have been looking at rather short phrases. But what about phrases that stretch out a bit longer? Below we offer a sampler of idiomatic verbal phrases, none of which should strike a native speaker of American English as particularly strange:

to be up to one's ears in work, to go in one ear and out the other, to roll out the red carpet, to roll one's sleeves up, to be dressed to the nines, to be in seventh heaven, to be dead as a doornail, to wait until the cows home, to burn the candle at both ends, to swallow one's pride, to eat humble pie, to take it for granted, to kick the bucket, to let the floodgates open, to drop the ball, to catch the drift, to be caught off guard, to get away with murder, to read between the lines, to read the handwriting on the wall, to lick someone's boots, to have the time of one's life, to drop something like a hot potato, to throw someone for a loop, to throw someone into a tizzy, to get a kick out of something, to play it by ear, to bend over backwards, to fly in the face of the evidence, to tie the knot, to get hitched, to open a can of worms, to scrape the bottom of the barrel, to drop a bombshell, to be caught between a rock and a hard place, to paint oneself into a corner, to eat one's words, to let the cat out of the bag, to spill the beans, to be knocking at death's door, to play the field, to make a mountain out of a molehill, to shout at the top of one's lungs, to be scared out of one's wits, to act like there's no tomorrow, to take a rain check, to cry all the way to the bank, to cross swords, to drag someone over the coals, to hit pay dirt, to make hay while the sun shines, to rise and shine, to set one's sights on someone, to make someone's blood boil, to shout something from the rooftops, to lord it over someone, to even the score, to give someone a taste of their own medicine, to turn the tables, to miss the boat, to jump on the bandwagon, to have no truck with someone, to put the cart before the horse, to close the barn door after the horse is out, to while the hours away, to kill time, to spend like a drunken sailor, to get the hell out, to take it out on someone, to go for broke, to even the score, to be in the pink, to be riding high, to be down in the dumps, to throw the baby out with the bathwater, to carry coals to Newcastle, to scatter to the four winds, to open a Pandora's box, to be carrying a torch for someone, to get something for a song, to be whistling Dixie, to need something like a hole in the head, to tell it like it is, to be playing with a stacked deck, to make a long story short, to give someone short shrift, to be feeling one's oats, to sow one's wild oats, to butter someone up, to slip someone a mickey, to laugh on the other side of one's face, to hit the nail on the head, to miss the point, to make the grade, to lose one's marbles, to grasp at straws, to be on pins and needles, to run the gauntlet, to blow one's chances, to shoot one's wad, to keep one's cool, to throw a monkey wrench into the works, to screw things up royally, to look daggers at someone, to look white as a sheet, to be pushing up daisies, to send someone to kingdom come, to knock someone into the middle of next week, to cut the mustard, to cut to the chase, to jump ship, to crack the whip, to go belly-up, to be champing at the bit, to have one's cake and eat it too, to kill two birds with one stone…

This colorful list, illustrating the richness of the English language, names as many categories as it has entries. Suppose, for instance, that you're in a situation where you know something catastrophic might happen at any moment — for example, you have a heart condition that could trigger a sudden heart attack without warning. You might say, "I feel a sword of Damocles hanging above my head." You might also say this if you live in the San Francisco Bay Area, notorious for its seismic activity, and whose

residents live in fear of "the big one" (that is, the next big earthquake, whose date is of course completely unknowable). You might also say this if you live with someone who, once in a blue moon, throws a terrible temper tantrum. You can surely think of many other situations that belong to this natural-seeming category — for indeed, that is precisely what "the sword of Damocles" names: a *category*, with all that that entails.

If you are taking your daughter to breakfast in a coffee shop where you know that the server has a tendency to sound gruff but in fact he has always been very nice to you, you may well tell her in advance, "Don't take the server's tone seriously — his bark is worse than his bite." You might also say this about an old car that occasionally makes some strange loud noises when you drive it but that has run smoothly for years without ever giving you the slightest problem. Your spouse might also say this about you if you have occasional fits of pique in which you let steam off vociferously, but the moment it's over you're as good as new and as friendly as can be. And you can surely think of many other situations that belong to the *bark-worse-than-bite* category.

Expressions of this type (long phrases that superficially seem very narrowly focused but that in fact have a very broad coverage) pervade spoken and written language, and one gains mastery of them much as one masters individual words. One gradually extends the category boundaries in just the same way as one does for shorter linguistic expressions — by noticing analogies between a new situation and the existing category. The actual words constituting the category's name — "a sword of Damocles" or "to jump on the bandwagon", for instance — merely hint at the full richness of the associated category, often revealing little if anything about its nature.

Did I Spill the Beans or Let the Cat out of the Bag?

Colorful expressions often denote categories that are quite different from what a literal reading would suggest. Indeed, a literal reading often has nothing at all to do with the expression's meaning. Thus who can explain why the phrase "to spill the beans" involves the action of spilling and, in particular, the spilling of *beans*? Why should *beans,* of all things, symbolize hidden secrets? And why would the act of dumping them out onto some surface be synonymous with revelation? Why couldn't the phrase have been "to tip over the broccoli", "to pour out the peas", "to flip the Brussels sprouts", "to drop the apricots", "to release the acorns", "to liberate the peanuts", "to free the fleas", or even (really stretching things to the limits of plausibility) "to let the cat out of the bag"? Of course there is a good *etymological* reason behind the real phrase, but that doesn't make it *psychologically* more convincing.

And yet every adult native speaker of English takes this phrase for granted. We all know that it means that *a small group of people were sharing some secret and one of them, perhaps deliberately, perhaps accidentally, couldn't resist the temptation of revealing the secret to a non-member of the cabal (most probably by simply blurting it out without any forethought), and suddenly the secret was no longer a secret, to the regret of all its members.* When it is spelled out explicitly this way, one sees how complex and subtle the category really is, and yet there is no hint whatsoever of all this complexity and subtlety in the few words that constitute its concise name.

And then there is another phrase — a cousin phrase — that might at times be considered synonymous with "to spill the beans" — namely, "to let the cat out of the bag". The two expressions both stand for situations in which once-secret information has, to the regret of certain parties, been revealed to a larger public. And yet the two phrases, for all their similarity of meaning, don't apply to exactly the same set of situations. That is, they are names of slightly different categories (whose members have a considerable degree of overlap). Thus when a member of a criminal gang reveals (whether to the police or just to an outsider) the gang's plans for wrongdoing, it's a case of *spilling the beans* (and probably not of *letting the cat out of the bag*), whereas when a married couple tells a few of their close friends very early on that the wife is pregnant, despite having earlier resolved that they would wait a few more weeks before telling anyone, they are *letting the cat out of the bag* (and probably not *spilling the beans*). These are close calls, and some native speakers might disagree (actually, in an informal poll of native speakers of English that we took, almost all fully agreed with our judgment), but what is undeniable is that most of the time, just one of these phrases will pop to mind while the other remains dormant, and the reason is that the evoking situation *fits* one of the two cases more than it fits the other. The subtle difference in flavor between the categories denoted by the two phrases is certainly not a standard piece of conscious knowledge on the part of native speakers (most of whom would be hard put to spell it out), but is simply something that is acquired over time as the phrase is encountered in a wide range of contexts. There is nothing in the phrases themselves that reveals these subtleties in even the slightest degree.

To convince oneself that idioms are often arbitrary, one need only take a look at a few foreign-language idioms, as they are frequently resistant to literal interpretation. Who would have guessed that "to let go of the piece" ("lâcher le morceau") and "to sell the wick" ("vendre la mèche") are the closest French expressions to "to spill the beans" and "to let the cat out of the bag"? And how do French people feel who *have the peach* ("qui ont la pêche")? Well, they are *full of beans* (that is, energy and good health). And what is a French mother doing when she *passes a soap* to her child ("elle lui passe un savon")? Why, she's *giving him what-for*, of course! And French people who proclaim that they'll *see the mason at the foot of the wall* ("c'est au pied du mur qu'on voit le maçon"), well, what they mean is that *the proof of the pudding will be in the eating.* All of this is *clear like some water of rock* ("clair comme de l'eau de roche").

The writer Jean-Loup Chiflet has played with English and French idioms in his books, taking English idioms and translating them "at the foot of the letter" (that is, literally) into French, and vice versa. The results are often very amusing, because as we've just seen, most idioms, if translated literally, make no sense. Thus "Our goose is cooked", familiar to any native anglophone, if rendered as "Notre oie est cuite", will bring a puzzled look to a French face. Likewise, "Il a vu des étoiles" ("He saw stars") and "Personne n'osa faire allusion à l'éléphant dans la pièce" ("No one dared mention the elephant in the room") will cause brows to be scratched. Conversely, literal translations into French of the English sentences "The carrots are cooked" and "He fell into the apples" will be colorful eye-openers ("seront des ouvre-œil colorés").

If our idioms sound opaque to people from other cultures but clear to us, it's because they have, over time, lost their evocative power for us and become *dead* metaphors — labels whose literal meanings are no longer heard by us but that jump out at foreign speakers. To them, such expressions appear at first to be live metaphors, and thus, quite understandably, they hope that a sufficiently dogged effort at making sense of the stream of words will, in the end, result in a flash of illumination.

Indeed, looking at the component words in an idiomatic expression might help someone who is unfamiliar with it, though it's always a bit risky; however, that method is bypassed by native speakers, who retrieve the appropriate abstract category directly from their memory, without proceeding via a literal, piece-by-piece understanding. If it were necessary to figure out every idiom's meaning from the words that make it up, then our understanding of speech, normally very rapid and seemingly effortless, would turn into a complex problem-solving session with no guaranteed results.

Behind the Scenes of Mundane Sentences

As we have seen, mental categories don't limit themselves to what nouns denote; verbs, adjectives, adverbs, conjunctions, and interjections are every bit as much the names of categories as are nouns. So are longer phrases. And for that matter, full sentences (or sentence fragments) that do not seem at all like opaque idiomatic phrases can constitute the names of categories as well. For instance:

> What's up? What's new? Just barely made it. Why does it always happen to *me*? It's your bedtime. Are you out of your mind? Who do you think you are? Just what do you think you're doing? And don't come back. I'll be right with you. Can I help you? How's your meal? The check, please. Will that be all? Anything else? You're more than welcome. Oh, great… that's all I needed. I told you so! Spare me the details. *That's* a likely story! I wasn't born yesterday! Don't give me that. Don't make me laugh. I've really had it. Well, what have we here? And who would *this* be? That's beside the point. There you go again! I've heard that one before. You can say *that* again! *Tell* me about it! Get to the point, would you? Give me a break! I'm no fool. I hope I've made myself clear. So *now* you tell me! Don't get me wrong! Well, I'll be damned! How was *I* supposed to know? Now why didn't *I* think of that? You want it *when*? Go jump in a lake! Have it your way. See if I care! Take my word for it. *That's* putting it mildly! That's no excuse. I wouldn't know. What makes you say that? You've got to be kidding! There's nothing to do about it now. Might as well make the best of it. It's not worth the trouble. Keep it to yourself. Mind your own business. You think you're so smart. So where do we go from here? Don't worry about it. Don't give it a second thought. Oh, you really shouldn't have! It could be worse! What won't they think of next? Shame on you! I don't know what I was thinking. That'll be a hard act to follow. No harm trying! So what? What do you want me to do? So what am *I* — chopped liver? Is *that* all you wanted? All right, are you done now? Haven't I seen you somewhere before? We can't keep on meeting this way.

Each of these sentences (or fragments) names a familiar category — not because it is an idiomatic expression, but simply because it is so commonly used in certain contexts that it has acquired a rich set of implications. These useful little formulas, built from simple words and utterly bland-looking, are in fact the names of important categories, as they pithily encapsulate certain notions that crop up all the time in everyday exchanges. What appears to be a freshly manufactured sentence is in fact a stored phrase that can be called up as a whole by a situation that a speaker is in, and the phrase carries standard connotations that go well beyond the literal sense of the words making it up, in the same way as, for a dog, its master's retrieval of the leash goes far beyond the mere prospect of having the leash imminently attached to its collar — it connotes going outside, taking a walk, smelling things everywhere, encountering other people and dogs, marking one's territory, and eventually returning home.

For instance, the sentence-level categories *It's your bedtime* and *So what's new?* and *Are you out of your mind?* are as crisp, clear, and rich with layers of implicit meanings as, for a dog, is the retrieval of its leash, and as are categories designated by idiomatic phrases.

The category *It's your bedtime* involves, to be sure, the idea that the child being addressed needs to go to bed very soon, but it also involves the idea that one has to sleep well to be alert in school tomorrow, the higher priority of school than of playing video games, the importance in life of good grades, the fact that in family life, parents are the bosses, and the fact that children need more sleep than adults do.

So what's new? conveys much more than just the desire to be informed about recent events. It says that one cares about the life of the other person, that one would like to have a chat, that one is concerned about how the other person is currently doing. When this category has been activated, the range of possible answers is fairly well defined: family, personal projects, professional activities. If someone answered "My shirt" when asked "So what's new?", it would be totally out of line with expectations, and would constitute a joke rather than an answer.

As for *Are you out of your mind?*, this rhetorical question reveals not just a sharp disagreement but a sense of surprise and shock, a fair degree of familiarity with the person addressed, and an aggravation, and it also implicitly asks for some kind of explanation or else a sudden turnaround on the part of the person addressed, and lastly, it warns that there is a potential fight brewing.

Just as a non-native speaker can gradually master the subtle art of choosing different flavors of greetings or thank-you's in another language, so a native speaker slowly acquires the mental categories that are designated by short everyday sentences or fragments like those exhibited above, whose subtlety and complexity are masked by the bland appearance of their constituent words.

Truths Lurking in Proverbs

Sentences of the sort we've just considered fit into daily life in a very frequent fashion, because they involve extremely common categories of experience, some of which are encountered multiple times in a single day: asking others how they are doing,

saying how one is doing oneself, expressing disagreement, trying to figure out how much one disagrees with someone else, dealing cordially with people in a business role, suggesting that a conversation is approaching its end, and so forth. On the other hand, proverbs and sayings, although they are also frozen sentences, allude to situations that one may never have personally experienced but that nonetheless allow one to see events in one's own life from a novel and useful slant.

Proverbs are ideal illustrations of our book's thesis — that analogy-making and categorization are just two names of the same phenomenon. When, in a real-life situation, one finds oneself spontaneously coming out with "Once bitten, twice shy", "You can't judge a book by its cover", "A rolling stone gathers no moss", "An ounce of prevention is worth a pound of cure", "The early bird catches the worm", "Better late than never", "The grass is always greener on the other side of the fence", "When it rains, it pours", "If it ain't broke, don't fix it!", and so forth, the two sides of the coin of categorization through analogy-making are equally visible. Let's take a look at a particular example.

> Lucy, aged three, has just built a fence with her wooden blocks on the living-room floor. Jim, a family friend, accidentally bumps into her fence as he crosses the room and knocks over a couple of blocks with his foot. Lucy bursts into tears. A few minutes later, Jim is crossing the living room again, and as he approaches the same area, he conspicuously veers away from Lucy's fence and blurts out, "Once bitten, twice shy."

Now everyone will grant that Jim has come out with an *analogy*: he has implicitly mapped what just transpired in the living room onto a mythical situation in which an anonymous person, having been bitten one time by one dog (or some other animal), makes extra-sure never to go anywhere near any dog ever again. Obviously, the person is Jim, and the traumatizing bite is (*i.e.*, maps onto) Lucy's tears after the toppling of a block or two. The avoidance of all dogs henceforth maps onto Jim's pointed gesture of going far out of his way in order not to knock anything down the second time. What maps onto the fear of the bitten person? Clearly it's a more abstract concern than that of being hurt by a dog's teeth — it's the empathetic desire not to see Lucy in tears again. *Voilà* — there's the analogy, spelled out in full.

And yet we can just as easily characterize Jim's quoting of the proverb as an act of *categorization*, because he sees what has just transpired as a member of the public category *Once bitten, twice shy*. In quoting these four words, Jim has declared that this event belongs to that standard category. The very existence of the proverb in the mental lexicon of an English-speaking person amounts to the existence of such a category in their mind, and the triggering of the proverb by a particular situation reveals that at least for them (and hopefully for others), the situation is a member of that category. No less than public-category labels like "chair", "gentleman", "pacifier", "spill the beans", "go up in smoke", and "take matters into one's own hands", proverbs and sayings are the public labels of public categories — categories that most adult speakers know and share.

The act of recognizing in a given situation a case of a familiar proverb can cast new light on the situation. It provides a fresh, abstract, and non-obvious viewpoint, going well beyond the situation's superficial details. Since proverbs are the labels of rather subtle and complicated categories, slapping a proverb onto a situation is a way of bringing out aspects that otherwise might remain hidden. The use of a proverb as a label is a way of making sense — albeit perhaps a biased type of sense — of what one is seeing. Applying a proverb to a freshly-encountered situation results in a kind of insight that comes from filtering what one sees through the lens of the proverb, rather than from a purely logical analysis. In summary, a proverb is a convenient, concise label for a vast set of highly different situations — past, present, future, hypothetical — that are all linked to each other by analogy.

The experience-based (rather than purely logical) character of proverbs means that different people will see different proverbs (and hence will take different perspectives) in a given situation. For example, in France they say "L'habit ne fait pas le moine" ("Clothes do not make a monk"), while in England they say "Clothes make the man." Indeed, as Blaise Pascal once observed, "A truth becomes a falsity once it crosses the Pyrenees" (and probably he should have added "or the Channel"). As they say, "One man's meat is another man's poison", and this is certainly the case for proverbs. Thus, the sad tale of a nonconformist youth who was exiled and went on to become a famous poet but could never return home again (it could be the story of Dante) might be perceived by person A as teaching the important life lesson "To thine own self be true", while person B might see the selfsame story as exemplifying the wisdom of "When in Rome, do as the Romans do." A's selected proverb thus casts the story of the banished poet as a generic lesson that one should blithely ignore the masses and fearlessly step over the line in the sand, while B's selected proverb casts the same story as a lesson that one should respectfully follow the majority and cautiously toe the line.

The preceding examples are not in the least exceptional; there are enough pairs of mutually contradictory proverbs to make one's head spin:

Strike while the iron is hot…	but then again,	*Look before you leap.*
Good things come in small packages…	but then again,	*The bigger, the better.*
Nothing ventured, nothing gained…	but then again,	*Better safe than sorry.*
Two's company, three's a crowd…	but then again,	*The more, the merrier.*
Half a loaf is better than none…	but then again,	*Do it well or not at all.*
Absence makes the heart grow fonder…	but then again,	*Out of sight, out of mind.*
A penny saved is a penny earned…	but then again,	*Money is the root of all evil.*
Many hands make light work…	but then again,	*Too many cooks spoil the broth.*
Opposites attract…	but then again,	*Birds of a feather flock together.*
Don't judge a book by its cover…	but then again,	*Where there's smoke, there's fire.*
The pen is mightier than the sword…	but then again,	*Actions speak louder than words.*
It's never too late to learn…	but then again,	*You can't teach an old dog new tricks.*
He who hesitates is lost…	but then again,	*Fools rush in where angels fear to tread.*
Practice makes perfect…	but then again,	*All work and no play makes Jack a dull boy.*

We are tempted to add to this list one bilingual example — namely,

Pierre qui roule n'amasse pas mousse… but then again, *A rolling stone gathers no moss.*

Oddly enough, even if dictionaries compiled in Britain tend to agree with the French-language interpretation of this international proverb (namely, that by constantly moving about one never acquires any deep roots or anything of value), we have informally observed that most Americans hear this proverb in the opposite fashion. That is, they consider the gathering of moss to be an obviously bad thing to happen to a person (or a stone), and so from their point of view, the proverb exhorts people to stay constantly on the move in order to avoid acquiring a nasty crust. The irony is that although the English and French proverbs say the same thing on a word-by-word level, their interpretations are often quite opposite, and for Americans the meaning tends to be roughly, "Keep on rolling so you won't stagnate." Pascal might have said, "A truth becomes a falsity once it crosses the Atlantic."

But back to the main list… The fact that each line features a pair of proverbs that assert contradictory things shows that what counts is not a proverb's truth, but its ability to cast light on a situation, allowing it to be seen as more than simply a recitation of events. *Don't judge a book by its cover* and *Where there's smoke, there's fire* are categories that help one to highlight, on the one hand, the importance of not being distracted by cheap attention-getting tricks and of looking below the surface of things, and on the other hand, the importance of not ignoring what's right in front of one's eyes and of paying attention to salient clues. These two opposite stances, embodied in short and familiar phrases, can, if they form part of one's lexicon, be used to pin pithy labels on, and thus concisely categorize, novel situations that are very complex, thereby implicitly conveying entire attitudes about them.

The categories denoted by proverbs are not statements any more than other categories are statements. Thus the category *Don't judge a book by its cover* is not, despite its surface appearance, a statement (indeed, one shouldn't judge a book by its cover!) — no more than the category *table* or *bird* is a statement. It is a point of view that can be adopted on various situations. Just as the category *bird* is a platform for making inferences (if something is a bird, probably it flies, sings, has feathers, lives in a nest…) rather than a statement, so saying "Don't judge a book by its cover" is a sign of recognition that one is in a situation where prudence is called for in judgment, and where one should make sure to look well below the surface and to use one's critical faculties. And it's important to remember that this categorization of a situation, just like others, can be an inappropriate one. Just as one can assume that a small glass container filled with fine white grains contains salt rather than sugar, soon discovering one's mistake, so one can sometimes categorize a situation as belonging to the category *Don't judge a book by its cover*, only to realize later that this was an ill-advised judgment. In some cases, books *are* in fact perfectly represented and appropriately judged by their covers, and in some life situations, making a snap judgment based solely on surface-level cues can in fact be crucial. A person who intones "Don't judge a book by its

cover" has not necessarily put their finger on the crux of the situation that they have so labeled. It may well be a *Where there's smoke, there's fire* situation instead.

A Stolen Cell Phone can "Be" a Dog Bite

Obviously, "Once bitten, twice shy" goes way beyond the idea that someone who has suffered a dog (or snake) bite will henceforth steer clear of all dogs (or snakes) at all times. Although the proverb is ostensibly about animal-bite victims, it is really about any number of other situations whose details are completely unforeseeable. What counts is that those other situations should share a conceptual skeleton with the micro-event conjured up by the four words in the proverb. Thus, we could easily see any of the following situations as meriting the label:

> After marrying, A. had two children, and then her marriage started falling apart. She found out that her husband had been cheating on her and lying to her for years. It ended up in a very painful divorce. Ever since then, A. has been suspicious of all men, no matter how gentle and kind they are.
>
> B. and C. are from China and live in San Francisco. One day, their son was the victim of racial taunts from a classmate in his public school. The next day, his parents pulled him out of that school and enrolled him in a very expensive private school.
>
> While walking down a steep staircase, D. slipped and fell down several stairs. Although his fall had no serious effects, when he got back to his feet, he was trembling, because he knew he could easily have broken several bones. For the next two days, everywhere he walked, D. took exceeding care. While going up and down his stairs at home he went at a snail's pace, and the mere idea of riding his bicycle struck him as the height of insanity.
>
> After her apartment was burglarized, E., who till then had paid no attention to safety matters, all at once bought a fancy burglar alarm as well as the most expensive safety locks, and she promptly installed the locks on all her doors and windows, including her basement windows, which were so small that for anyone to break in through them would have been well-nigh inconceivable.
>
> F.'s cell phone was stolen in broad daylight by a mugger in the middle of the street in a somewhat dangerous part of town. Ever since then, whenever he uses his cell phone, F. is constantly on the highest level of alert, looking all around himself with great nervousness, even when he is in swanky hotels or ritzy restaurants.

As this shows, "Once bitten, twice shy" conveys the idea that when some event leads to negative consequences, some people develop a hypersensitive avoidance strategy, even at the price of missing out on potentially excellent opportunities, in order not to re-encounter any situation that is even vaguely reminiscent of the triggering one, no matter how little risk it would seem to pose objectively. More succinctly, in the wake

of a painful event, people tend to be skittish about events that remind them, however superficially, of the original event.

This idea, having to do with the aftermath of a traumatic event, is not self-evident. The idea that an emotional shock can have lasting negative consequences — that there can be "wounds to the soul" — became acceptable only in the last hundred and some years as a psychological notion. Trauma, originally thought of solely as *physical* damage to a living being, was extended to the realm of *psychic* damage when it became part of the received wisdom that deep emotional shock can cause long-lasting repercussions, which suck the victim into a vortex of changes at many levels, sometimes reversible, sometimes not.

The Irrepressibility of Analogical Associations

Several languages, including Turkish, Italian, Spanish, German, and French, have proverbs about the irrepressibility of seeing certain analogies. Thus in French one says, "Il ne faut pas parler de corde dans la maison d'un pendu", and it has a very rare English counterpart, "One mustn't speak of rope in a hanged man's house", and, even more obscure, "One mustn't say 'Hang up your fish' in a hanged man's house". The idea expressed by such proverbs is of course that people cannot help making analogical associations at the drop of a hat, and that everyone should be sensitive to this fact. Thus, even if one innocently wishes to allude to a piece of rope that was used to tie a package, or to say that some fish should be hung out to dry, it would be boorish to do so in the presence of the family of someone who had been hanged. The hanging would be vividly present in the uttered words, no matter how the thought was phrased. And so in certain circumstances, certain things cannot be said or even hinted at.

This proverb tips its hat to the fluidity of human cognition, but of course it doesn't tell the whole story. Indeed, the spontaneous retrieval of proverbs, triggered by situations one encounters (as described in the book *Dynamic Memory* by cognitive scientist Roger Schank), shows that our everyday perception goes far beyond just seeing the hanging of a loved one in a mention of rope. When a proverb comes to mind in but a fraction of a second, a link has been discovered between two situations that would seem, on first glance, to have nothing whatsoever in common. For example, in the story where Jim, as he widely skirts Lucy's rebuilt wooden-block fence, suddenly blurts out, "Once bitten, twice shy", the connections exist only at a deeply semantic level. There was no dog, no bite, and no physical pain; instead there was an accidental kick, a falling block, and some psychic pain witnessed (in other words, not Jim's own psychic pain, but vicariously-experienced anguish). Rather than fearing a deliberate external attack bringing about his own physical pain, Jim was concerned about accidentally causing someone else mental anguish. And yet the analogy seemed obvious, even trivial, to him — a throwaway remark, a mere bagatelle, nothing to write home about — hardly a mental feat to be proud of. And for all the other *Once bitten, twice shy* situations given in our list above, one could make similar comments. There is no dog, but there is an "abstract dog"; there is no bite, but an "abstract bite"; there is often no physical pain,

but just something that maps onto it. At the core of each event, however, there is a person who overreacts, sometimes wildly so, to an unpleasant situation. That is the crucial shared core.

The worldwide category *Once bitten, twice shy* pops up in many different verbal incarnations in various cultures around the globe, all of them superficially different, but tied to one another by their shared conceptual skeleton. It is interesting to notice how simple and down-to-earth each culture's quintessential situation is, a fact that makes the proverb's message seem very plausible, no matter what language it is in. Thus, for instance, in Romania people say, "Someone who gets burned while eating will blow even on yogurt." In Afghanistan, "Someone bitten by a snake fears even a rope." In China, "Bitten by a snake, frightened of tiny lizards." And of course in English-speaking countries, "Once bitten, twice shy." And thus this same category, whatever its surface-level linguistic guise may be, has a good chance of being evoked whenever (1) an event gave rise to negative consequences, and (2) a superficially similar event was subsequently avoided, no matter how unlikely it was to have negative consequences.

In France, the image is of boiling water scalding a cat, followed by the cat's shunning of all water, even cold. The fact that cold water cannot scald shows that the desire to avoid it is irrational, and thus that the caution is overdone. Likewise, while a snakebite is painful and harmful, neither a rope (superficially resembling a snake) nor a tiny lizard (a distant biological cousin) presents the slightest risk of harm.

Novel "proverbs" along the same lines can be created at will, which serve to label exactly the same category, or very close categories. The reader may find it amusing to play this game, giving birth to alternative versions of "Once bitten, twice shy". Here are a few sample pseudo-proverbs, just to set the ball rolling:

> Mugging victims flinch at their own shadows.
> Once fearless on ice, now fearful on driest dirt.
> Broke a bicuspid on a bone, balks at biting butter.
> Assaulted by one's enemy, afraid of one's best friend.
> Struck once by a stone, the cur now cringes at cotton.
> Robbed in the red-light district, terrified in a teahouse.
> A woman betrayed shuns even the most virtuous of men.
> Caught cold one winter; now dons sweaters each summer.
> One who's been through bankruptcy spurns the surest of deals.
> Little fingers smashed in doors will ever steer clear of doorknobs.

All the pithy phrases we've considered, whether taken from real cultures or invented by us, bring to mind and apply to situations centered on a traumatic event. In contrast to so many idioms that are impenetrable on the basis of just their component words, such as "to see red", "to sing the blues", "to be yellow", "to be in the pink", "to be in the black", "to spill the beans", "to shoot one's wad", "to fly off the handle", "to go on a wild goose chase", "to go Dutch", "to be in Dutch", "to say uncle", or "to be a Dutch uncle", a proverb has the twofold virtue of naming a category transparently and

doing so in a catchy fashion. Indeed, unlike the preceding idioms, which, even if an etymologist could explain their origins, will still strike foreigners as being just as opaque and arbitrary as compound words such as "cocktail", "understand", and "handsome", proverbs readily conjure up easily visualizable scenarios — "All that glitters is not gold", "A leopard cannot change its spots", "A rolling stone gathers no moss" — and this tightens and strengthens the link between the category and its linguistic label.

The Proper Scope of a Proverb

How broadly does a proverb apply? How wide is the scope of situations that a given proverb can be said to cover, without one feeling that one is stretching things uncomfortably? As we have seen in the foregoing, the mental categories associated with proverbs have members that on the surface are extremely different. This means that such categories are very broad, and that they bring together situations whose common gist is located only at a high level of abstraction.

The French proverb "Qui vole un œuf vole un bœuf" has a relatively little-known counterpart in English: "He who will steal an egg will steal an ox." There is also a proverb in Arabic that says "He who will steal an egg will steal a camel." Someone might argue that these two proverbs express very different ideas, a camel and an ox being rather different beasts. Of course this takes things at a ridiculously literal level. In hearing either proverb, we are meant to understand something far more general than the notion that a male human being who has stolen an egg will one day also steal either an ox or a camel. We are supposed to infer, through our natural tendency to generalize outwards, that any person, male or female, who steals something smallish stands a good chance of going on and committing more serious acts of thievery later on. A schoolchild who swipes a candy bar may well steal Picassos as a grownup, or perhaps "Paper-clip filcher at five, hardened bank robber at twenty-five." But the intended lesson hidden behind the proverb's surface is probably considerably broader than that, since thievery is not really the point here — the targeted idea is bad deeds of any sort, including cheating on tests, engaging in fights, and so forth. The crux of the proverb is that bad deeds on a small scale can be but the initial step on a slippery slope leading towards subsequent bad deeds that resemble them but on a much larger scale.

Aside from the idea of scaling up the initial bad deed, it is also possible that as the bad deed grows in size over time, it also changes in nature, moving from an insult to an assault, from an assault to an assassination. The kid who steals a pencil from another kid's locker in school and then as an adult becomes a hired killer would thus be covered by "He who will steal an egg will steal an ox."

But we are not done yet, for who says that our proverb covers only crimes? Why not let the category flex a bit more, allowing it to cover all kinds of negative behavior, criminal or not? For example, being fresh to one's parents as a kid could lead to habitual aggressive language when one is grown up, or telling little white lies as a kid could lead to telling whoppers to one's spouse, or saying "Darn!" as a kid could be a prelude to swearing like a sailor when one is big. All of these cases would then be

covered by "He who will steal an egg will steal an ox." Or would they? Where are the implicit, unspelled-out boundaries of this proverb's category?

Suppose we allow the scope to become more encompassing yet. We could, for instance, drop the idea that the behavior in question has to be negative. In that case, the proverb's meaning becomes roughly, "Small acts are a prelude to larger acts." This might mean, for instance, that a child who drops a penny in a beggar's cap stands a good chance of going on to head up a charitable organization when grown up, or that someone who starts a musical instrument when young will turn into a concert artist.

On the other hand, we suspect that most people would say that we've gone way overboard here — that expanding the scope of the proverb so that it applies to positive as well as negative actions, and not even caring about any similarity existing between the earlier and later acts that it is centered on, is not faithful to what it genuinely means. It's like taking the word "chair" to stand not only for all the standard chairs that people have deliberately designed over the millennia, but also for countless other physical objects, since a person can sit on just about anything. At that point, the word "chair" has lost most of its useful meaning. All this suggests that there is an optimal level of generalization of the proverb that does not dilute its meaning to the point of absurdity.

It is certainly too narrow to hear it as applying solely to acts of thievery, because the key idea seems to be some kind of slippery slope leading from small "sins" to larger sins of roughly the same type. To hear only an allusion to thievery in the proverb would be very limiting. Presumably, the proverb's purpose is to put people on guard concerning all sorts of negative actions early in life, so that they might try to prevent those actions from growing out of control as time goes by. "Nip bad acts in the bud!" would be the crux of the advice being given.

If, however, the scope is extended to actions without negative import, then the idea of being on guard against them no longer makes any sense. We don't need to be on guard against good deeds, don't need to nip them in the bud. To be sure, we can easily imagine a slippery slope leading from small good deeds to large ones — but that misses the proverb's point. In so doing, we will be sacrificing much of the "bite" of the proverb. Such a sacrifice might be seen as a standard consequence of the nature of abstraction, since by definition, "to abstract" means to abandon the less important aspects of what one is dealing with, but if a series of acts of abstraction is carried out without any attention being paid to intent, sooner or later the gist will simply be lost. Indeed, a small sin of abstraction may lead to a large sin of abstraction.

In the case of our proverb "He who will steal an egg will steal an ox", we could take things one level further in abstraction, not just ignoring the idea of magnification (from egg to ox), but also ignoring the sameness of the verbs in the two clauses and even any semantic relation between them; this would lead us to conclude that the proverb means that *one thing leads to another.* This extreme level of abstraction includes all situations in which there are causes and effects, but what good does such an extreme leap upwards do anyone? The richness of the original proverb is lost, and in fact, when carried to this stratospheric level of abstraction, "He who will steal an egg will steal an ox" winds up being no different from "Once bitten, twice shy."

Although jumping up the ladder of abstraction rung by rung may in some cases be a sign of intelligence and fluid thinking, if it is taken too far, it becomes a vacuous and frivolous game, and playing such a game with a proverb reveals an impoverished and superficial understanding of it. Indeed, in the end, an excess of abstraction winds up being similar to an excess of literality, because seeing any two things as analogous is no more insightful than not being able to see any analogies at all.

It would thus seem that there is an optimal level of abstraction, and that if we stop before reaching that level, we will exclude a host of situations that fit the proverb like a glove, such as the pint-sized swearer in nursery school who many years later turns into a volcanic spouse, and contrariwise, if we go beyond the optimal level of abstraction, we will let in a flood of irrelevant situations, such as the kid who at age six made three dollars selling lemonade at the corner and went on to become a billionaire in the soft-drink business at age sixty.

Jumping up to such a rarefied level of abstraction as a quest for some ultimate meaning of a proverb is reminiscent of a person who would label every object in sight a "thing", a "thingy", a "deal", or a "whatchamacallit", and thus would be prone to coming out with such abstract observations as "The thingy is sitting on the deal in the whatchamacallit", whereas most of us would find it clearer and more useful to say, "The pen is sitting on the desk in the living room." The greater specificity of the latter sentence strikes us as obviously preferable to the ambiguity of the former, but it's a matter of taste.

This recalls the cartoon figures called "smurfs", who have a highly abstract and concise lexicon, in which all nouns are covered by the super-abstract term "smurf", and other parts of speech are treated somewhat similarly. For example, they might enthusiastically announce, "We're off to smurf a smurf tonight!", and even if one didn't fully get the meaning of this utterance, it would be hard not to be caught up in the general feeling of excitement. And if the smurfs have a stock of proverbs, then it would contain such pearls of wisdom as "A smurfing smurf smurfs no smurf." Perhaps for the smurfs themselves, this phrase would be filled with insight, but for us its meaning remains elusive.

The problem with having only such an abstract mental lexicon — such a rarefied set of concepts — is the paucity of distinctions that it allows to be made, somewhat like the severe paucity of oxygen at rarefied altitudes. Abstraction has its virtues, which we will point out at an appropriate moment, but if one cannot draw distinctions, then thinking becomes as difficult as breathing at the top of Mount Everest.

From Eggs to Acorns, From Oxen to Oaks

Even if we forget about people who steal eggs and oxen, the notion that things can become bigger and better over time is everywhere to be found around us, for after all, grownups were once children; today's multinational giants were once fledgling outfits; Steve Jobs and Steve Wozniak made the first Apple computer in a garage before going on to found their legendary firm; Sergey Brin and Larry Page incorporated Google in a

humble dwelling in Menlo Park; Albert Einstein first learned to read and write before developing his theories of relativity; popes were once priests in little churches; conquerors of Everest climbed small hills before moving on to the big time; major acts of philanthropy were preceded by minuscule acts of charity; every great friendship was once just a tentative affinity; virtuoso instrumentalists were once musical novices; every chess master had to learn the rules at some point; powerful ideas gave rise to modest fruit before resulting in huge advances… All of this is far from egg-stealers turning into ox-stealers, but it nonetheless deserves a proverb or two, along with the rich category that any proverb covertly symbolizes.

How might "He who will steal an egg will steal an ox" be converted into a more upbeat thought? The key question is to pinpoint the core idea that one wishes to capture in this category, since various possibilities, related but distinct, might be imagined. The most general version would simply be the idea that things on a large scale are the fruits, in some fashion or other, of a process of "amplification".

Thus, amplification can come from putting together a number of small items: a big thing is the "sum" of many little things. There are numerous proverbs that capture this idea in some form or other. For example: "Many a mickle makes a muckle" (whatever those items might be!); "Many drops make a shower"; "United we stand; divided we fall" (which paints both an optimistic and a pessimistic picture); "E pluribus unum". All of them get across the idea that individually insignificant entities, when put together in large numbers, can give rise to entities of great magnitude and strength.

However, in none of these is time's flow explicitly involved. If we are looking for an optimistic counterpart to the pessimistic egg-thief-to-ox-thief metamorphosis, then our goal is a proverb highlighting the slow but steady process of evolution or growth of a single good thing over a very long time. Thus we have the famous proverb "Mighty oaks from little acorns grow", and a more elaborated version of this thought, from eighteenth-century English writer David Everett: "Large streams from little fountains flow, tall oaks from little acorns grow."

A related notion of amplification over time involves putting together many small acts (or objects), one by one, over a very long period of time in order to accomplish a grand goal — in short, temporal accumulation: "A long journey starts with a single step"; "Rome wasn't built in a day"; "Little and often fills the purse"; "Drop by drop fills the tub" (or, seeing things in a time-reversed fashion, "Drop by drop the sea is drained", which, in French, is a genuine proverb); and finally, in a more destructive vein, "Little strokes fell great oaks", a homily found in *Poor Richard's Almanac* by Benjamin Franklin.

A clear semantic reversal of "He who will steal an egg will steal an ox" is illustrated by the fund-raising style of American universities, which might be summarized as "A little giver will one day a grander giver be", or, more poetically, "Mighty donors from humble tippers grow." Or then again, "Someone who donates a book today may donate a library tomorrow", or even "Butter up a million, smile and snag a billion." Finally, to give it a more antique tone, we might rephrase it thus: "A giver of eggs may one day give an ox." Or a camel. Or a dromedary. Or a dormitory.

In Memory Retrieval, We Are All Virtuosos

So far in this chapter, we have been discussing acts of categorization that result in the retrieval of composite lexical entities or ready-made phrases, including compound words, idiomatic expressions, ready-made sentences, and proverbs. In particular, our discussion of people's effortless understanding of proverbs they hear and their fluent insertion of proverbs into conversations was intended to bring to light some of the memory-access processes that we all engage in automatically and ceaselessly, processes that transpire in but fractions of a second and with truly impressive precision. This fluid fashion of tapping into deep, dormant reserves of memory is a variety of virtuosity, and far from being limited to a few gifted and highly trained individuals, it comes along free with the possession of a normal human brain.

Telling one's loudly protesting children in the back seat that it's important to fasten their seat belts, one comes out spontaneously with the phrase "Better safe than sorry" without having had any prior intention of quoting a proverb. Hearing from friends who returned from a weekend vacation to find that their teen-age daughter had thrown a wild party in the house during their absence, one finds oneself thinking, "When the cat's away, the mice will play!" Advising a friend who's applied for several long-shot jobs of which one has suddenly come through and needs an instant reply or it will be lost forever, one blurts out, quite off the cuff, "A bird in the hand is worth two in the bush!" (We momentarily interrup the natural flow to remind readers that in Chapter 1 we announced our intention to distinguish linguistic expressions from the concepts they denote by using quotation marks or italics, respectively. In this paragraph, though, all the examples are delicately poised between the two; indeed, they are all cases of the category named by the phrase "neither fish nor fowl". But we had to make a choice, and so, throughout the paragraph, somewhat arbitrarily, we opted for quote marks.)

Just as words like "bottle", "table", and "chair" strike us as being objectively *there*, staring us in the face, when we are in the presence of certain visual stimuli, so the various proverbs that we have just cited above (and many others as well, needless to say) can, on occasions like those just cited, simply materialize out of thin air in our minds, as if handed to us on a silver platter — and when this kind of effortless, instantaneous retrieval happens, they simply feel *right*, every bit as right as calling the objects in front of us "a bottle", "a table", and "a chair". On such occasions, the members of the abstract category seem to us to be objectively *there* and objectively *real* — just as real and almost as visible and tangible to us as are the material objects before our eyes, even though, of course, they are not visible or tangible in the way physical objects are. No less than there are seat belts and children in the back seat, there is a *Better safe than sorry* situation inside the car. No less than there is a frightful mess of half-empty beer bottles and a bevy of reveling teen-agers in the living room, there is a *When the cat's away, the mice will play* situation in the house. No less than there is a job offer dangling in cyberspace and a threat of losing it forever, there is an *A bird in the hand is worth two in the bush* situation floating in the air. As these examples demonstrate beyond any doubt, categories go far beyond what is labeled by single words.

Fables

The further we've gone in this chapter, the longer the labels of the categories concerned have grown. First we discussed words such as "pacifier", "understand", "handsome", "cockpit", "cupboard", "wardrobe", "pocketbook", and "eavesdrop"; these words are made of components that are no longer felt as such by those who use them fluently, so that the compounds have a unique flavor all their own, reminiscent of a process of sedimentation in which the initial constituents have all melted together, or of a rich, tasty sauce that is so subtle that only an expert chef can figure out what went into it. Then we looked at compounds whose components seem more transparently present, such as "bedroom", "airport", "bottlecap", and "Jewish mother". Next, we moved to prefabricated idiomatic phrases like "to drop the ball", "to catch the drift", "to be caught off guard", and "to jump on the bandwagon". Then we moved on to short ready-made sentences such as "What's up?" and "It could be worse", and most recently, to proverbs such as "Better safe than sorry". At every stage of the game, our point has been firstly that such expressions are the names of categories in our minds, and secondly that, thanks to analogical perception, we feel the presence of instances of those categories no less than we feel the presence of instances of categories whose linguistic labels seem far more atomic, like "table", "chair", "moon", "circle", "office", "study", "think", "spend", "much", "and", "but", and "hub" (and whose presence we also detect through analogical perception). This is a quintessential theme of this book.

So how about fables, now — short fanciful tales that wind up stating a moral? Might those, too, be the names of categories? We shall answer in the affirmative — not just sometimes, but in all cases, as long as the fable is clearly understood. Reading a fable allows one to construct a category that is succinctly summarized by its moral; the fable itself is just one member — a very typical member — of the category, among a myriad potential members. After the fable has been understood, then, as is the case for any category, new situations will from time to time be encountered that, thanks to an analogy perceived, are seen to have a common essence with the fable, and will thus add to the category's richness.

From then on, a fable will act much like a word. It becomes a label that jumps to mind when someone who has incorporated it in their memory runs into a situation that "matches" or "fits" the fable — not in a word-for-word fashion, obviously (fables are seldom memorized), but by an abstract alignment with its moral, or with its title, or just with a blurry memory of its basic plot. If a flat surface comes into view off of which a person is seen eating food, this is very likely to trigger the word "table"; if a few children come into view who are playing hopscotch, this is very likely to trigger the word "jump"; in much the same way, there are certain combinations of actors and events in which they participate that are very likely to trigger the retrieval of certain fables (or of fable-labels, at least). Our claim — a very serious one — is that fables jump to mind as situation-identification labels no less than do proverbs, idioms, compound words, and "simple" words, and any situation that evokes the memory of a particular fable will be perceived as a very real member of the category that lurks behind the scenes.

Scorning What is Out of Reach

Æsop is remembered for the fables he wrote in the sixth century B.C., of which one of the most famous is "The Fox and the Grapes". It was so successful that it passed down through the æons and was even adapted by a number of later authors who, despite changing its form, retained its content. The Roman fabulist Phædrus included it in his collection of Æsop's fables in the first century A.D., and in the seventeenth century, the French poet–fabulists Isaac de Benserade and Jean de La Fontaine did the same. Here are the versions by these four authors, all translated into English:

"The Fox and the Grapes", by Æsop (sixth century B.C.):

> A famished fox observed some grapes dangling above him, on a very high trellis. They were ripe and the rascal would very gladly have absconded with them. But jump though he might, the trellis was simply so high that he couldn't reach them. Seeing that all his efforts were futile, the fox strutted away with his head held high, declaring, "I could grab those grapes in a trice if I had the slightest interest in them, but they look so green that it's simply not worth the trouble."

"The Fox and the Grapes", by Phædrus (first century A.D.):

> Driven by hunger, a fox was lusting after some grapes on a high vine, and he jumped with all his might to reach them. But he failed, and as he walked away, he remarked, "They aren't yet ripe, and I don't want to eat sour grapes."

"The Fox and the Grapes" (after Æsop), by Isaac de Benserade (1612–1691):

We can't have all we seek, alas, as shows this little scene.
A picture-perfect bunch of purple grapes was dangling high.
To snag them, up jumped Fox, but missed, despite his valiant try;
He jumped and jumped until he sighed, "Those grapes are far too green."

Our Fox, to put it frankly, felt despair and rage and pain.
Perhaps more calmly, later, he would muse in tones forlorn,
"Those grapes were ripe for plucking — but we mortals always scorn
The things we strive for valiantly but never do obtain!"

"The Fox and the Grapes" (after Æsop), by Jean de La Fontaine (1621–1695):

A certain fox from Normandy (though others say the South)
Was at death's door from hunger, when he spied, upon a vine,
A tempting bunch of grapes that he would fain place in his mouth,
All covered with a lovely skin so red it looked like wine.

The plucky fox would happily have made of them a meal,
But due to the chance happenstance that they were up too high,
He snapped, "Who'd want such sour grapes? They're food fit for a heel!"
He just was letting off some steam, for foxes never lie!

And now our readers, having read these four versions of the classic fable, are invited to supply the missing conclusion to the following brief anecdote:

> Professor C. had campaigned very hard to be elected Head of the Department, but Professor A. won the election hands down. At that point, Professor C. declared to everyone in the Department…

Here we have no animals, no vine, no trellis, no grapes, and no hunger, but rather some humans, a university, a department, an election, and a lust for power. And yet the reader most surely guessed the kind of sentence that Professor C. might have uttered. For example:

> "I ran for office solely out of my selfless dedication to our department's welfare. However, having lost the election, I am at peace with my conscience and luckily I will not have to do a thankless job."
>
> "Whew! Now, at last, I'll be able to dedicate myself to my true passion — research."
>
> "This responsibility would have eaten me alive. I'll be much happier being able to devote myself to my family, and to watch my kids grow up."
>
> "This department is just a bunch of prima donnas. Lucky for me that I escaped the nightmare of trying to run it!"

What amazing psychological insight allows us to come up with these conclusions to a story that has so little to do with Æsop's fable? Well, of course, there is no miracle here. The story of Professor C. is clearly understood as belonging to the same category as the fable itself — namely, the category of *things that one once craved deeply but that one failed to obtain, and that one therefore disparages.* This category of situations is well known to many people in our culture who have never read Æsop's fable itself. The familiar expression "sour grapes" is a very standard label for such situations.

Curiously, although a roughly equivalent expression exists in French — "les raisins sont trop verts" ("the grapes are too green") — it does not enjoy anything like the popularity of its English counterpart. This phrase, borrowed from La Fontaine's rhyming version of the fable, appeared in the 1832 edition of the official dictionary of the French language published by the French Academy, and it has remained in the dictionary ever since then. But even a speaker of French who has never run into the expression is quite likely to have observed that people often deprecate things that they have failed to obtain; such a person has thus already constructed the category without being aware of it.

If one hasn't already created the category, then reading the various versions of the story of the fox and the grapes will naturally and easily lead one to manufacture it. Once the fable has been understood, the category thus created has a decent chance of being evoked on occasions when a failure to obtain something cherished is followed in short order by a revised estimate of how desirable the original goal was.

We'll now take a brief look at some flagrant cases of the category of *sour grapes* — short scenarios that should very easily trigger the category, especially in the mind of a native speaker of English, for whom the category comes pre-equipped with a familiar, standard label.

A. didn't want his son to go to the local high school and tried to get him into an elite private school whose admission standards were very high. When his son was not accepted, A. declared to everyone in hearing range that he was actually very glad it worked out this way, because now his son would get to live in an environment of great social diversity, rather than finding himself cut off from reality and surrounded only by arrogant and superficial people.

B. wasn't able to purchase last-minute airplane tickets to Hawaii and thus had to give up his elaborate vacation plans. But he said to his friends that he was in fact relieved, not disappointed, because all the best spots in the islands are always hugely overcrowded during vacation periods, and that ruins all the fun of going there.

C.'s great dream was to become an actor, but after suffering a number of rejections, he finally said he had dropped that goal and would look for a more conventional kind of career. He added that the unhealthy atmosphere in the world of acting would have corrupted him, and that he would be far happier leading a more balanced life far from the glare of the footlights.

D. has just been dumped by her boyfriend, whom she'd always described to her friends as "Mister Right". Now, though, she's telling all her friends that their breakup has taken a great weight off her shoulders, and that she can finally breathe again; deep down, she'd always known that their love affair was doomed, but she just hadn't been able to take the step of breaking off with him herself, because she hadn't wanted to hurt him.

E. learned that her favorite rock band was going to give a concert in her town. As fast as she could, she scrambled to get a ticket, but unfortunately she was too late; they were already all sold out. E. said to her friends, "The auditorium is so huge that no one will really be able to see anything at all; you're probably better off watching the concert on television."

All the situations in the list above belong to a single category whose members, though very different, all share the same core — namely, the moral of the fable of the fox and the grapes. Each of these scenarios exemplifies, in its own way, the notion of *failure followed by belittling of the original goal*, and they are all located quite close to the core of the category *sour grapes*, which comes from the fable itself. Although the resemblances among all these scenarios probably strike you as glaringly obvious and thus of no interest, it's that very fact that is so remarkable. We all tend to pay so little attention to the surface level in these stories that it is very easy to slip into the belief that seeing the *sour grapes* concept in all these diverse contexts is utterly mechanical and trivial; the

truth, however, is that spotting this pattern beneath the surface is anything but a mechanical act. No search engine today is anywhere near being able to spot the deeper aspects of an anecdote like this, and to detect the *sour-grapes*-ness of all sorts of situations. Indeed, making these kinds of seemingly trivial perceptions has been a stumbling block for many years for researchers in artificial intelligence. Rapid spotting of this kind of essence is (at least so far!) a uniquely human capacity, and computers can only dream with impatience of that far-off day when they, too, will at last be able to perceive that two situations so different on their surface level are nonetheless "exactly the same thing". In the meantime, though, they all pooh-pooh the interest of such a goal…

How to Reduce Cognitive Dissonance in a Fox

Æsop's fox-and-grapes fable, more than two millennia old, insightfully anticipated some rather recent ideas. From the 1950's onwards, thanks to the pioneering work of social psychologist Leon Festinger, the notions of cognitive dissonance and its reduction have been part of psychology, and they are direct descendants of the fable, which, in expositions of the theory, is often given as a quintessential example. The basic idea of the contemporary theories is that the presence of conflicting cognitive states in an individual results in a state of inner tension that the individual tries to reduce by modifying one or another of their conflicting internal states. Thus, the fox is in a state of cognitive dissonance, since his desire to eat the grapes conflicts with his inability to reach them. He thus modifies one of the two causes of the conflict by denying that he wants to eat them. Since they are sour (so he says), they are no longer desirable, so his failure to reach them is no longer upsetting.

Much as the concept *once bitten, twice shy* contains the essence of the modern psychological notion that a traumatic experience leaves lasting after-effects in its wake, so the sour-grapes fable contains the essence of the notion of reduction of cognitive dissonance, and more generally, the notion of *rationalization*, where a painful situation is rendered less painful by the unconscious generation, after the fact, of some kind of arbitrary and often unlikely justification.

The blatant nature of the fox's lie makes the fable an ideal core member of the *sour grapes* category, and allows one to understand the structure of all *sour grapes* situations. The genius of Æsop was to have come up with such a simple, appealing situation in which dissonance is reduced. For this reason, his fable not only has survived many centuries but it also anticipated developments in modern psychology.

To see how the sour-grapes fable relates to the notion of cognitive dissonance in its full generality, one can cast the notion of *disparagement of an unrealized yearning*, which is the fable's crux, as a special case of the more general notion of *regaining a peaceful frame of mind by distorting one's perception of a troubling situation*, which is what the reduction of cognitive dissonance is all about. Equipped with this new category, we will far more easily and more rapidly recognize situations in which people spontaneously invent novel justifications, sometimes rather bizarre ones, in order to reconcile themselves with disappointing outcomes. And this new, more general category will start expanding in

an individual's mind as that person encounters unexpected situations that have varying degrees of similarity to the most central members of the category.

Let's now take a look at a sampler of situations that might fit into the new, broader category.

F. has reserved a table for two in a fancy restaurant highly recommended by friends. However, he and his date are caught in a traffic jam on his way, and their reservation is canceled. F. says, "There are terrific restaurants everywhere around here; let's go find one ourselves. It'll be much more romantic that way."

G. has a tradition of buying slashed-price theater tickets from a special agency. Tonight is the last night of a play that's received rave reviews from the critics, but it is sold out, and G. has to give up his plan. He muses, "That's the first time this has happened to me in all these years of using this strategy. That's a pretty darn good track record!"

H. is drooling over a certain *à la carte* dish in a restaurant. When orders are being taken, the server has disappointing news for H.: they've just run out of her dish. "Oh, well," says H. with a philosophical, on-the-rebound chuckle, "this way I'll save myself hundreds of calories and some cholesterol to boot." And she orders a lighter, healthier dish from the menu, one that her eye hadn't been so drawn to when she was first scanning the menu.

I. has just learned that her deeply-desired request for a transfer within her company has been denied. "All right, then — so be it!" says I. "I'm not going to let it bother me; I'll just quit and get another job in another firm. And my chances to make headway in my career will be a lot better than if I had stayed in this stodgy old place."

J. wasn't admitted by the art school he'd applied to. He says that only people who pull strings ever get admitted there; that's how everything is in today's corrupted society. The thought of so much rampant injustice everywhere in the world makes him sick.

K., after several years of marriage, is taking stock. He still feels great affection for his wife, but physical passion and spiritual intimacy are largely things of the past. "Everything has a way of eroding with time," K. thinks to himself, "and so it is with our marriage. But even if what I feel isn't as intense as it once was, our love has grown ever so much deeper."

L. just barely lost an election to represent his district in the state legislature. Months of sacrifice and day-and-night work have gone up in smoke. But L. says to himself that failures are part of the learning curve of politics; through this defeat he is becoming broader and deeper.

All these ingenious rationalizations do the job, in one way or another, of reducing some kind of tension created by the gap between hopes and reality. But do we easily see these as cases of *sour grapes*? Probably not, and this is in part because the device of dissonance reduction is a defense mechanism, and it's in our own best interest not to be

aware of how we protect our delicate psyches by deluding ourselves with defense mechanisms. If everyone saw through all defense mechanisms — their own as well as other people's — it would be a loss in many ways. In any case, the successful survival of the dissonance-reduction "trick" over eons reveals that we all have a certain kind of blind spot concerning it.

Sour grapes is certainly not the sole way of categorizing the string of anecdotes shown above. One could also see, in each of these (mis)adventures, a kind of instinctive wisdom in reacting to their various disappointments, an optimism that focuses on the positive and minimizes the negative. If we wished to categorize these little vignettes in different ways, we could focus on this aspect of the people's reactions, and could perfectly reasonably cast them as instances of the category *seeing the silver lining* (presumably at the edges of a storm cloud). Then again, some of them fit the category *walking on the sunny side of the street* or the category *counting your blessings* or the category *thanking one's lucky stars* or the category *being thankful for what you have.* And then again, some of them might arguably best be placed in the clichéd but nonetheless perfectly valid category *seeing the glass as half-full instead of half-empty.*

As is the case for any categorization, filing a situation under the "sour grapes" label is the result of a judgment call. We opened Chapter 1 with the idea that one is never confronted with a single isolated situation but is always in the midst of a vast multitude of situations, and that there is never just one single valid point of view to take but always a variety of reasonable points of view. For instance, in order to label a situation as "sour grapes", one has to recognize that someone saw a rare opportunity, tried to seize the moment, failed and was disappointed, and in the end came out with some dismissive comments that would never have been thought up had the original goal been obtained. The man who cheerily said that it's more romantic to chance upon a new restaurant while strolling about would doubtless have found dining at the posh restaurant that his friends had recommended to be boundlessly romantic had his reservation not been canceled. The great benefits of losing in politics would not very likely have sprung to the mind of the politician if he had just barely won the election instead of just barely lost it; in that case, he might more likely have thought to himself, "The world is my oyster!"

One way of verbalizing the essence of *sour grapes* situations is as follows: they are situations in which *disappointment turns a person into an intellectual opportunist* — that is, into someone who tries to paint a failure in rosy colors. The behaviors that are often called "seeing the silver lining" or "counting one's blessings" are somewhat different from this pattern. They involve a person searching for small positive aspects that lurk unseen in a mostly troubling situation. In contrast to *sour-grapes* situations, which involve the expedient distortion of one or more beliefs, *seeing-the-silver-lining* situations are ones in which the protagonist, though upset, does not distort any beliefs but instead is *selective* in terms of which beliefs to focus on.

The fox-and-grapes fable is (by definition!) a prototype of the *sour grapes* category. However, it is a very poor member of the *silver lining* or *blessing-counting* categories, because the fox does not foreground any positive aspects of the frustrating situation that

he finds himself in. On the other hand, this fable is a good member of the *bad faith* category (that is, situations whose protagonist lacks honesty and sincerity). In this category are found many situations that have nothing to do with the reduction of cognitive dissonance. Some simple examples would be:

A person who would file false reports after having had an automobile accident;

Politicians who would distort facts about the current economic situation in order to boost their chances of re-election;

A kid brother who would scream, "She started it!" when he knows there is no truth at all to his claim.

Any situation permits a host of diverse categorizations. The category that winds up being selected will determine the perspective that colors how the perceiver interprets the various facts that constitute the situation. The range of situations that have been explored in the preceding sections shows the impossibility of thinking of categories as having fixed boundaries and interpretations as being unique. To the contrary, categories evoked by fables are, like all categories, overarching frameworks that guide interpretations. The mental act of categorization shines a particular light on a situation. Thus the fox-and-grapes fable gives a first, basic sense for situations that clearly involve *sour-grapes*-ness, and later it helps us recognize this quality when it is less obvious. In the end, the fable enriches us with a sense for the various creative ways that people manage to find comfort in situations that in fact bother them.

Lacunæ in a Conceptual Space

We now take up once again the theme of *conceptual spaces*, which we introduced at the end of Chapter 1 to describe the relations between languages and concepts. Each word or expression of a given language is thought of as a colored blob occupying a portion of a conceptual space (and each color is thought of as representing a language). The center of a conceptual space consists of the set of concepts most frequently used in a given culture. All the different languages that share the same culture cover the core of the conceptual space in different fashions, using blobs of different sizes and shapes, and of course different colors.

We also introduced the metaphor of a ring or shell of concepts, meaning those concepts that share approximately the same frequency or importance. We had built up the image of concentric rings or shells that, given a particular color, are filled up with blobs of that color, with each blob having its own unique shape and size, and representing a specific concept. At the core of a conceptual space, each color does an essentially perfect job of filling the space up, and as one moves outwards to rings that lie near the core, each color continues to do an excellent job.

If we keep on going out further, however, sooner or later we come to areas of conceptual space where single-word lexical items almost never suffice, and where each language has a quite different way of covering those zones. For instance, English has

the phrase "it's nothing to write home about" (meaning "what happened isn't particularly thrilling or memorable", and if someone were to ask (quite reasonably), "How does French cover that zone?", the answer would be that it's not by reference to hypothetical postcards or letters that were never written or sent to one's family, but in a radically different fashion. The French get this same idea across by recourse to the colorful (although rather nebulous) phrase "ça ne casse pas trois pattes à un canard" ("it doesn't break three legs of a duck"). In some sense, the French phrase and the English phrase mean just the same thing, but they nonetheless convey the meaning in very different ways, since the concrete images that might be conjured up in the minds of speakers or listeners involve extremely different scenarios.

These differences between idiomatic expressions can be of any size. For instance, the closest French counterpart of the idiom "to be flat on one's back" (meaning "to be very sick") is "être cloué au lit" ("to be nailed to one's bed"), which conveys a similar but much more painful scenario. So we get discrepancies between different languages' ways of filling up a conceptual space not only in the sense that the blobs in the same part of space are shaped differently, but also in the way in which idiomatic phrases get across their messages.

Eventually, if we move out far enough, genuine *holes* will start to turn up — patches in conceptual space that one language covers very neatly with a single blob, but that the other simply doesn't cover with any standard word or phrase, no matter how voluminous is its repository of lexical items. A typical example was given in the Prologue, where we mentioned the lack in Mandarin of a generic verb meaning "to play" applicable to any musical instrument.

Thus, given any idiomatic phrase in English (and there are untold thousands of them), it makes reasonable sense to ask, "How does one say this in French?", because fairly often there is a nearly-perfect counterpart phrase, but sometimes the answer is not what one wants to hear; indeed, sometimes the blunt truth is: "There is no standard way to say that in French." Sometimes the answer is, in effect, "In the zone of conceptual space that is pinpointed and highlighted by that phrase in English, there is unfortunately a gaping hole in the French lexicon." Of course the French language can always *describe* the idea, but in these kinds of cases it cannot do so by means of a standard lexical item known to all or most native speakers. We hasten to point out that exactly the same phenomenon of unexpected lacunæ is encountered also by French speakers seeking to say things in English.

And the farther out one moves from the center of the shared conceptual space, the more often one will encounter these kinds of regions that, although easily and naturally accessible in one language, are simply uncovered by another language. Eventually, each language, as it approaches its own outer reaches, offers only spotty coverage, growing ever spottier as one gets further out. If at this point you are envisioning something like a nebula or galaxy whose core is densely packed with stars but whose fringes are populated more sparsely, and which eventually tails off totally, yielding to the utter blackness of the cosmos, then you have in mind exactly the image that we wish to convey.

Eventually, then, every language simply gives out, and from a certain point onwards the conceptual space is simply empty, uninhabited. What does this imply? It implies that if someone wants to talk about things in that remote zone of conceptual space, they can't just quote one standard building block, but instead must take a number of standard building blocks and string them together, thereby constructing a pathway that leads to the desired zone. In short, they must concoct new phrases or sentences. And if no single phrase or sentence will suffice, then a paragraph may be required. And if no single paragraph will suffice, then an article or a story may be required. In this fashion, arbitrarily remote spots in the black depths of conceptual space *will* be reachable by any language.

The Genius of Each Language

Here we are not primarily concerned with extremely remote, nearly empty areas of conceptual space. Instead, we wish to focus on little local pockets of conceptual space that are covered by one language's lexicon while being uncovered by another's. Are there any implications when some language hands to all of its speakers a ready recipe for picking out a small spot somewhere in conceptual space, while another language does not do so at all?

Let's take an example. American English has the picturesque idiom, "That's the tail wagging the dog!" Adult speakers of American English know what this means, which is to say, they readily recognize situations to which it applies and they can use it themselves in such cases, and they can also easily understand what is meant if someone else applies it to some situation.

In order to convey the meaning of this idiom, a speaker of American English cannot simply translate it word for word in the hopes that a French speaker will just "get it", suddenly becoming enlightened. That strategy won't work. One might try to get the concept across by giving an abstract description of the idea behind this idiom, and although doing so could be a good first step, it might be more helpful to provide a few quintessential examples of *tail-wagging-the-dog* situations, either by retrieving them from memory or by inventing new ones on the spot. Thus our imaginary American could recall or invent the story of seven-year-old Priscilla, a spoiled girl whose parents were eagerly planning a short vacation to New Orleans and were planning to take her along, but she didn't want to go at all, so she threw such a violent temper tantrum that her folks totally dropped their plans and submissively stayed home. Hearing about this, friends of the family tsk-tsked and said, "That little *enfant terrible* has her parents wrapped around her little finger. Talk about the *tail* wagging the *dog*!"

In order to convey the idea that *tail-wagging-the-dog* situations are not limited to those in which spoiled children have temper tantrums and foil their parents' vacation plans, our American could then recount the story of the grand new city hall that was being designed to beautify the central square of Waggington. After the first sketches had been submitted by the architect, the town council complained that there was no provision for parking. The idea was sent back to the architect, who responded with a new plan that

included a parking area, but when this was submitted to the town council, it was again rejected because, they claimed, this time, that there wasn't *enough* parking. After a couple more iterations of this, with the building growing smaller each time and the parking lot coming to dominate the entire design, one outraged citizen wrote a letter to the local paper that said, "So the need to park a bunch of cars is dictating the appearance of our new city hall? Well, if *that* ain't the tail waggin' the dog!"

As a brief third example, let's mention the story of a runner who had to stop running each day when his kneecap started to hurt. Thus his kneecap dictated to him how many miles he would run. Another excellent case of the tail wagging the dog!

After a few such stories, the gist of *tail-wagging-the-dog*-ness would hopefully have been gotten across pretty effectively; from there on out, the French speaker would hopefully be able to use the American idiom appropriately, although at the outset there might be some need for fine-tuning to clarify where the idiom is eminently applicable and where it is less so, though of course the borderlines are blurry, so that native speakers won't always agree. The French speaker might even start, at about this stage of the game, to feel a frustrating sense of French's "vacuum" in this part of conceptual space, not unlike the slight sense of vacuum created by the lack of a familiar phrase corresponding to English's "sour grapes".

Here, we would like to even up the score by giving English speakers the chance to experience the just-described feeling of vacuum, and to do so we will cite a typical French idiomatic phrase, often attributed to the philosopher Denis Diderot, that has no good English counterpart (and of course this one isn't unique; there are hundreds of others) — namely, "avoir l'esprit d'escalier". What does this mean? Well, translated literally (in the manner of Jean-Loup Chiflet's books), it means "to have the spirit of staircase", but as an idiom it basically means "to come up with the ideal retort to an annoying remark right after one has left the party and is heading down the stairs". In other words, to put it a bit more pithily, "to have staircase wit". Although it is a frustrating thing to find the perfect parry only when it no longer counts, it is also a fairly widespread phenomenon in life, and so you would think that the famously rich English language would offer its speakers a stock expression that gets efficiently at this notion, but no. That's just the way the cookie crumbles.

This contrast between language A, which has a blob where language B has none, is what we mean by the phrase "the genius of language A"; it is the special ability of language A to get at certain concepts that no other language gets at as easily — and complementarily, it is also the set of weaknesses that language A has in expressing certain things that, in some other languages, are as easy as falling off a log. Perhaps a language's unique set of frailties doesn't merit the positive-sounding word "genius". The phrase "lexical coverage" might be a bit more accurate, but in its staid neutrality it fails to suggest the special flavor of the idiosyncratic subtleties and the evolutionary potential of each different language.

Out near its fringes, each language has its own unique set of little blobs that fill up certain small zones of conceptual space that are covered by no other language. When Language A features a blob that elegantly fits into an area that was previously

uninhabited, then speakers of Language B may want to follow suit and fill in the same zone, either by coming up with a brand-new phrase or by literally borrowing Language A's appealing phrase (oftentimes, however, unintentionally changing the boundaries of applicability of the phrase, so that in Language B it no longer means exactly what it did in Language A).

Thus we English speakers occasionally have *déjà vu* experiences that give us a *frisson*, we try to avoid *faux pas* (they make us feel so *gauche*), we indulge in *hors d'œuvres*, *soupe du jour*, apple pie *à la mode*, and even *sorbet*, and once in a while we wear *décolletés* (as long as they're not too *risqué*), we sometimes take in *avant-garde* films, read an article about *coups d'état* caused by *fin-de-siècle* decadence while *en route* to a secret *rendezvous* whose *raison d'être* is to engage in a *tête-à-tête*, enjoy ogling a *femme fatale* who's *petite* but very *chic* and all decked out in *haute couture* duds, we always seek the *mot juste par excellence*, have an *idée fixe* of one day having *carte blanche* to hobnob with the *crème de la crème*, and of course if we are *nouveaux riches*, we seek out *objets d'art* (not likely to be made of *papier mâché*) to decorate our *pied-à-terre* while indulging ourselves in *dernier cri* technology. *Ooh la la!*

The French, meanwhile, leave their *break* (station wagon) in the *parking* (the parking lot), in order to go play *foot* and *flipper* (soccer and pinball), listen to *jazz* and *rock* on their *hi-fi*, place their *rosbif* and *pop-corn* in their *caddie* (shopping cart), and later that day they go to their *dressing* (clothes closet) in order to find a *smoking*, a *pull*, and a pair of *baskets* (a tuxedo, a sweater, and tennis shoes) to wear to a *rallye* (a high-society *surprise-party*), and last but not least, they read *magazines* about *le marketing* in order to be *smart* and they use *shampooing* in order to have a *look* that is very *sexy* in order to get a *job* very *cool*.

As is clear, some of these words have retained their original meanings, while others have somewhat drifted from their moorings. Indeed, we should keep in mind that these terms have been imported precisely in order to fill a gap in the receiving language. The new word fills the lacuna, even if the shape that it takes on may not exactly match the shape covered by the original blob in the source language. For instance, when speaking of "a hamburger", English speakers do not necessarily envision the ground beef as being found inside a bun (though of course it is a strong possibility), whereas for French speakers, the bun is an integral and necessary part of the concept (indeed, the bun even has to be circular!). What was missing in the French language was a phrase to denote ground beef between slices of bread, rather than a phrase to denote that kind of meat alone, since the expression "steak haché" (which already had an English flavor to it) was already available.

Moreover, unless a borrowed word or phrase has been so deeply integrated that its origin has been totally forgotten, it will generally exude a tone that conjures up something of the other culture, or at least a stereotyped vision of the other culture, and in itself that already means that a bit of drift has taken place. For instance, in English, the term "pied-à-terre" has a somewhat fancy or rich connotation to it, while in French that need not be part of the image at all.

Amusingly, some borrowings are the result of a series of cross-Channel bounces, where, for instance, old French becomes English and then bounces back home to become new French, or vice versa. An example is provided by the French word

"budget", which of course is a wholesale import from English, but the last laugh is on the anglophones, for it was they who, many centuries ago, acquired the word "budget" by importing (and distorting) the French word "bougette", meaning a small purse worn on one's belt. Another example with a similar story is the French word "étiquette" (meaning "label") which, in crossing the Channel, lost its first syllable and thus became "ticket", after which, decked out in its new guise and sporting a new meaning, it returned home, where it became a close cousin and occasional rival of the word "billet". Interestingly enough, there are dozens of such ricochet stories.

The upshot of such cross-cultural, interlingual borrowing processes is to enlarge both "galaxies" in conceptual space, adding blobs at various spots on their fringes, pushing them ever further outwards.

The Sapir–Whorf Effect

There are cases where one language pleasingly fills in some small zone, yet for some reason others do not follow suit. In such cases, it can be argued, speakers of that language benefit from the extra concept thus provided for free by their language. Let's take an example from American culture. There is an ancient disreputable business practice related to the timeless con game played with three shells on a table, in which an unsuspecting customer is lured by an attractive offer but then is told that that particular item is unfortunately out of stock or slightly outmoded, or that for some reason they are not eligible to buy it; then, in its place, another item, far more expensive, is aggressively pushed on the customer.

Variations on this theme are legion. For instance, a family seeking to buy a car is shown a model that they gush over. The wily dealer, quickly picking up on their strong interest, initially tells them that their down payment will be just $2,000. Delighted, the family eagerly says they want to buy, but then, when it comes to signing the contract, they are told that for some technical reason that they don't fully understand, the amount will "unfortunately" have to be "just a little bit higher" — and sooner than they can count to three, it has slid from $2,000 all the way up to $6,000.

People who rent cars will also be familiar with very tempting offers that give the impression that one can rent a car for a nominal sum, but when one shows up at the agency, one invariably discovers that the conditions for such a rate are very restrictive, and so in the end one winds up paying at least twice the rate quoted in the ad.

Such disreputable techniques, which often work like a charm, bear the evocative name, as our readers surely know, of "bait-and-switch". The category is broader than might be supposed. For instance, here is a case that in some ways is the flip side of the coin, yet it too counts as an excellent member. During a financial slump, an elegant old house has been on the market for some months with no takers, but one day, buyer A shows up and offers $1,000,000 for it. Shortly thereafter, by coincidence, Buyer B arrives and ups the ante to $1,050,000. The seller is ready to let B have it for the higher offer, but then along comes buyer C, who raises the stakes all the way to $1,200,000. On hearing this, both A and B immediately drop out of the bidding and

out of sight, angry to have been displaced after weeks of negotiation. And now, buyer C, having gotten rid of the competition, is much freer to maneuver than before. After having some inspections made, C suddenly declares, "Oh, what a shame — I can't stick to my previous offer, because the inspectors found some serious problems; nonetheless, I'm willing to offer $900,000." At this point, the seller has lost much precious time and is growing desperate, so the house winds up going to buyer C, but for far less than it is actually worth. This is a classic bait-and-switch maneuver, despite the fact that this time the actor doing the bait-and-switch was not the seller but a buyer.

The fact that this term exists in English and is daily used by thousands of people means that the idea in great generality (for instance, including the "flipped" case we just gave) is readily accessible and immediately understandable. At first, the existence of this term may not seem of much consequence, since anyone can understand the idea if told a couple of stories of this sort, but in fact the term's existence can help the concept to spread quickly and it also lends a sense of legitimacy to the concept (approaching a sense of total objectivity), since so many people know it. For instance, the existence of the concept and its standard name may well catalyze the writing of laws that seek to squelch the many-headed hydra of this phenomenon. By contrast, a culture in which there is no standard name for this disreputable technique will be less likely to enact laws that prevent it, because the notion is not "in the air"; it's not a recognized regularity in the world that most people are explicitly aware of, even in its more common forms, let alone in its more exotic variants.

Thus we see a genuine power that comes along with providing a concept with a name: it allows speakers to spread knowledge of it around easily and quickly, and that in turn allows it to enter public discourse on many levels, and to exert influences both on individuals and on society as a whole. The effect whereby the existence of a term in a given language allows its speakers certain advantages is known as the *Sapir–Whorf effect*, and although the idea has occasionally been advanced in extreme forms that have lent it a bad name, the fundamental premise is perfectly clear and there can be no denying that it exists.

What is Intelligence?

These considerations about thinking and concepts lead one naturally to wonder whether human intelligence might not reside, at least in part, in the number of concepts one has and the intricacy of the network that weaves them together. After all, we human beings are formed by the culture in which we grow up, which hands us vast numbers of conceptual tools. Does it then follow that our level of intelligence is determined by the repertoire of concepts that we inherit from our culture?

Indeed, what is the nature of the elusive quality called "intelligence"? Countless theories have been proposed. A search through dictionaries, encyclopedias, textbooks, and the Web will yield dozens of definitions rather quickly, many of them overlapping considerably, although occasionally one will turn up that has very little overlap with the others. The most frequently occurring themes are (in no particular order):

- the ability to acquire and use knowledge;
- the ability to reason;
- the ability to solve problems;
- the ability to plan;
- the ability to achieve goals;
- the ability to remember important information;
- the ability to adapt to new situations;
- the ability to understand complex ideas;
- the ability to think abstractly;
- the ability to learn and apply skills;
- the ability to profit from experience;
- the ability to perceive and recognize;
- the ability to create products of value;
- the ability to attain what one seeks;
- the ability to think rationally;
- the ability to improve.

Among the many characterizations of intelligence that we ourselves have run into, although each one undeniably touches on some qualities of the phenomenon, none quite strikes the bull's-eye. They all hover near it, but they all fail to pinpoint intelligence's core; they don't get to the heart of the matter, let alone hit the nail on the head. Never quite managing to put their finger on its essence, they merely skirt the crux, flirt with the nub, and miss the gist, curiously unable to zero in on the kernel of the phenomenon of intelligence.

Readers may well be anticipating what our own conception of intelligence is, but before we state it explicitly, we thought it would be of interest to quote here a provocative sentence that we uncovered about, of all things, military strategists, since the author of this sentence, in describing the quality that defines a great military leader, came up with a phrase that is very similar to the words that we would use to characterize intelligence:

> What distinguishes the great commanders — Napoleon, von Moltke, Grant, Patton, Zhukov — from the more ordinary leaders is the ability to see the essence of a situation at a glance, and strike directly at the enemy's greatest weakness.

Oddly enough, the author of this sentence is an individual identified merely as "Admiral Ghent" in a military role-playing game. The quality that Admiral Ghent most admires is the ability to pinpoint the gist of a situation in a flash — the ability to sort the wheat from the chaff, the ability to get quickly at what matters and to ignore the rest. Well, this is what we would take as our definition of intelligence.

Intelligence, to our mind, is the art of rapid and reliable gist-finding, crux-spotting, bull's-eye-hitting, nub-striking, essence-pinpointing. It is the art of, when one is facing a new situation, swiftly and surely homing in on an insightful precedent (or family of

precedents) stored in the recesses of one's memory. That, no more and no less, is what it means to isolate the crux of a new situation. And this is nothing but the ability to find close analogues, which is to say, the ability to come up with strong and useful analogies.

Trekking High and Trekking Low on the Slopes of Mount Analogy

The final chapter of our book is devoted to showing how analogy-making of a high order has given rise over millennia to the great ideas of mathematics and physics. But of course, the majestically soaring peak of Mount Analogy is by no means the entire mountain. Up there at the top, one finds analogies of great abstraction, while on the lower slopes one finds more concrete resemblances, which, although doubtless less scenic and striking, still result from the same cognitive mechanisms, merely applied in humbler and more familiar contexts.

For instance, in the previous chapter, we encountered, as they were meandering on the low foothills of Mount Analogy, two-year-old Camille, who "undressed" her banana, and eight-year-old Tom, who saw his uncle's cigarette "melting". These juvenile strollers were unwittingly demonstrating their keen intelligence when they retrieved those analogues from their personal stock of experiences, putting their finger on the crux of the matter at hand. Camille's idea of "undressing" her banana is quite a bright one, coming right to the point; indeed, it's the flip side of the quip someone twenty years older might make, after dancing all night: "When I got home, I had to peel all my clothes off my body!" As for Tom's idea of a cigarette "melting" in an ashtray, it's the flip side of what an adult might say upon finding that ten boxes of very expensive candy they'd bought for friends had all melted: "All those luscious chocolates went up in smoke."

When we effortlessly call something we heard a moment ago "a sound" rather than "a noise", it is because we've just made a mapping between a fresh mental structure, representing the sonic event, and a prior mental structure that we'd built up as a result of thousands of prior occasions — and we unconsciously chose *that* dormant structure because that mapping struck our brain as the best analogy in town. It's not as if we were ever formally taught the distinction between *sounds* and *noises*; indeed, we'd be hard pressed to explain what that elusive distinction is, but no matter: when we hear something, just one of those categories tends to be activated (*i.e.*, to spring to mind).

It's rather miraculous that we are all so good at unconsciously making these kinds of instant judgment calls among our many thousands of concepts, given that we were never taught formal criteria for them. What, indeed, is the difference between a *hill* and a *mountain*, or a *country* and a *nation*, or an *enemy* and an *adversary*, or a *sign* and a *symbol*, or a *piece* and a *part*, or an *idea* and a *thought*, or a *shop* and a *store*, or *picking* and *choosing*, or *falling* and *dropping*, or *throwing* and *tossing*, or *putting* and *placing*, or *smiling* and *grinning*, or *big* and *large*, or *sick* and *ill*, or *pretty* and *lovely*, or *delicate* and *fragile*, or *however* and *nevertheless*? No one would dream of trying to teach such distinctions in school.

The ceaseless activity of making mappings between freshly minted mental structures (new percepts) and older mental structures (old concepts) — the activity of

pinpointing highly relevant concepts in novel situations — constitutes the analogical fabric of thought, and the unceasing flurry of analogies that we come up with is a mirror of our intelligence. Thus when we reflexively make the fine discrimination of calling a very small object "teeny-weeny" (as opposed to "tiny", "teeny", "teeny-tiny", "teensy", and "teensy-weensy"), or when we unconsciously distinguish between cases of *clutching*, *clasping*, and *clinging*, or when we casually describe part of a city as a "district" (as opposed to "area", "zone", "region", "spot", "place", or "neighborhood"), we are unwittingly displaying our great finesse at the art of rapid retrieval of apposite analogues from our enormous storehouse of experience. In truth, far from being an unthinking activity, the art of super-rapid right-on retrieval is the core of thinking.

When a woman toting two bags nonchalantly saunters out of a butcher shop into the street in front of a car in which you are a passenger, the chances are virtually nil that you will exclaim, "Watch out for that biped!" or "Watch out for that female!" or "Watch out for that redhead!" or "Watch out for that customer!" or "Watch out for that carnivore!" To be sure, in different circumstances, the bag-laden damoiselle might well be perceived primarily as a *biped*, a *female*, a *redhead*, a *primate*, a *shlepper*, a *lady*, a *dress-wearer*, a *customer*, or a *carnivore* — but in this circumstance, she is most importantly a member of the category *pedestrian*. "Pedestrian" may not be the word we utter, but instantly recognizing that she is playing this role is a quintessential act of thinking.

Much the same could be said about rapidly spotting, in highly diverse situations, the telltale signature of the protean concept *mess*. Here we give a handful of typical members of the category (and we urge readers to come up with others):

- a spoiled child's bedroom, with toys strewn all over the place;
- a toolshed in which no one has set foot in decades;
- a plate of spaghetti accidentally dropped onto a white rug;
- a shoe with chewing gum stuck in the grooves on its sole;
- a china shop after a bull has been let loose for a half hour in it;
- books replaced at random on a shelf by someone who has just dusted the shelf;
- a complex algebraic expression that doesn't yield at all to attempts to simplify it;
- a musical manuscript covered with crossouts and revisions everywhere;
- the discovery of a pile of important bills that one had forgotten to pay;
- having hired a close friend's son who turns out to be totally incompetent;
- commitments made to two colleagues to meet them at exactly the same time;
- losing one's passport the day before one has to set off on an international trip;
- the decades-long strife in the Middle East;
- a romantic triangle.

No courses are needed by any speaker of English to learn the many subtleties of this concept; in fact, for a school to offer such a course sounds like an utter absurdity. Every adult will understand these cases of *mess*-ness without expending any effort.

We humans excel at making fluid mappings between new situations and old concepts lying dormant in our memory, although we seldom if ever focus consciously on the many thousands of such mappings that we carry out each day. Just as consummate dancers are constantly demonstrating their virtuosity at making rapid-fire maneuvers in physical space, so consummate speakers of a language are constantly demonstrating their virtuosity at making rapid-fire maneuvers in conceptual space, where a "maneuver" consists in darting into just the appropriate nook in one's vast stock of experiences and from it delicately plucking a highly apposite memory, overlapping in a deep and important way with the situation at hand.

Does Having More Concepts Mean One is Smarter?

If intelligence truly comes down to the ability to pinpoint the essence of situations, then it would seem that the larger and the more fine-grained the repertoire of concepts one has at one's disposal, the more intelligent one will be. After all, each of us grows up in some culture, and that culture provides its members with a myriad of useful conceptual tools. Thus it might seem that one's intelligence will be determined by the set of conceptual tools one inherits from one's culture. The question then becomes whether someone who grows up in a culture that is endowed with more conceptual tools will be more intelligent — that is, more capable of rapidly putting their finger on the nubs of situations they face — than someone whose culture is lacking such concepts.

We who live in today's highly technological, intensely commercial, advertising-drenched world are awash in a lush semantic sea rife with untold thousands of concepts that people of, say, two centuries ago lacked totally, and those tools pervade, and help to determine, our moment-to-moment thoughts. Consider, for instance, the following picturesque phrase that we encountered not long ago:

an ego the size of a Macy's Thanksgiving Day Parade balloon

To understand this phrase, one has to be familiar with Sigmund Freud's notion of an *ego*, with the notion of *department stores*, with the notion of *Thanksgiving* as well as the idea of vast long parades that march down large boulevards in big cities on holidays. In addition, one needs to know something about the gas called "helium" — at least the fact that a balloon filled with it will rise into the air. And lastly, one has to be familiar with the specific cartoon-character-inspired lighter-than-air balloons that are regularly featured in the Macy's Parade each year, and with how huge they loom above the massive crowds that line the wide avenues of Manhattan each Thanksgiving Day.

No one could possibly have dreamed of a phrase of this sort 200 years ago. And yet today it is a very clear, run-of-the-mill phrase that most American adults would have no trouble understanding. But this is only one tiny example. Below are listed some concepts — just a minuscule subset of the concepts that our culture abounds in — the possession of which would seem to give us a substantial leg up on people from previous generations or centuries:

Positive and negative feedback, vicious circle, self-fulfilling prophecy, famous for being famous, backlash, supply and demand, market forces, the subconscious, subliminal imagery, Freudian slip, Œdipus complex, defense mechanism, sour grapes, passive-aggressive behavior, peer pressure, racial profiling, ethnic stereotype, status symbol, zero-sum game, catch-22, gestalt, chemical bond, catalyst, photosynthesis, DNA, virus, genetic code, dominant and recessive genes, immune system, auto-immune disease, natural selection, food chain, endangered species, ecological niche, exponential growth, population explosion, contraception, noise pollution, toxic waste, crop rotation, cross-fertilization, cloning, chain reaction, chain store, chain letter, email, spam, phishing, six degrees of separation, Internet, Web-surfing, uploading and downloading, video game, viral video, virtual reality, chat room, cybersecurity, data mining, artificial intelligence, IQ, robotics, morphing, time reversal, slow motion, time-lapse photography, instant replay, zooming in and out, galaxy, black hole, atom, superconductivity, radioactivity, nuclear fission, antimatter, sound wave, wavelength, X-ray, ultrasound, magnetic-resonance imagery, laser, laser surgery, heart transplant, defibrillator, space station, weightlessness, bungee jumping, home run, switch hitter, slam-dunk, Hail Mary pass, sudden-death playoff, make an end run around someone, ultramarathon, pole dancing, speed dating, multitasking, brainstorming, namedropping, channel-surfing, soap opera, chick flick, remake, rerun, subtitles, sound bite, buzzword, musical chairs, telephone tag, the game of Telephone, upping the ante, playing chicken, bumper cars, SUVs, automatic transmission, oil change, radar trap, whiplash, backseat driver, oil spill, superglue, megachurch, placebo, politically correct language, slippery slope, pushing the envelope, stock-market crash, recycling, biodegradability, assembly line, black box, wind-chill factor, frequent-flyer miles, hub airport, fast food, soft drink, food court, VIP lounge, moving sidewalk, shuttle bus, cell-phone lot, genocide, propaganda, paparazzi, culture shock, hunger strike, generation gap, quality time, Murphy's law, roller coaster, in-joke, outsource, downsize, upgrade, bell-shaped curve, fractal shape, breast implant, Barbie doll, trophy wife, surrogate mother, first lady, worst-case scenario, prenuptial agreement, gentrification, paradigm shift, affirmative action, gridlock, veganism, karaoke, power lunch, brown-bag lunch, blue-chip company, yellow journalism, purple prose, greenhouse effect, orange alert, red tape, white noise, gray matter, black list…

Not only does our culture provide us with such potent concepts, it also encourages us to analogically extend them both playfully and seriously, which gives rise to a snowballing of the number of concepts. Thus over the years, the concept *alcoholic* has given rise to many spinoff terms such as "workoholic", "chocoholic", "shopoholic", and "sexoholic". Here we have linguistic playfulness marching hand in hand with conceptual playfulness. The ancient concept of *marathon* has likewise in recent times engendered countless variations on its theme, such as "dance-athon", "juggle-athon", "cookathon", "jazzathon", and so forth. In a more serious vein, the concept of *racism* has spawned many variations, including *sexism*, *ageism*, *speciesism*, and *weightism*, and today there are words for yet other forms of discrimination that previously had had no identity and that were therefore difficult to pick out from all the background noise.

One doesn't need, however, to engage in the act of coining catchy new words to benefit from the great richness of concepts of this sort. One can simply use conceptual broadening in the way it has always been done since time immemorial. Thus these days one often hears such sentences as "they had to make an end run around the President", "the two missile-rattling countries played chicken for several months", "we're just not on the same wavelength", "there's a huge gridlock in congress", "and as for the President's stance on tax cuts, well, that's still a bit of a black hole…", "there was a chain reaction crash on the freeway involving 80 cars", "those universities are playing musical presidents". In short, the concepts that our culture hands us are constantly being stretched outwards by analogy, increasing their reach and their power.

Given that such a list of contemporary concepts that are "in the air" could be extended for many pages, and that most adults can effortlessly apply many if not most of these abstract and insight-providing concepts to novel situations that they run across, does this mean that as culture marches forward in time, people are inevitably becoming ever more intelligent, ever more capable of rapidly pinpointing the cruxes of the situations they face, and of doing so with ever greater precision?

As evidence in favor of this idea, many people have pointed to what is now called the "Flynn Effect", after James R. Flynn, a political philosopher who in the 1980s drew attention to the fact that all around the world, scores on IQ tests were slowly but steadily rising, at the rate of roughly five points every twenty years. This unexpected observation has been confirmed many times in many countries. What could possibly account for such a striking effect, if not the notion that human intelligence is in fact steadily on the rise? And what could possibly lie behind the steady drumbeat of rising global intelligence if not the constant proliferation of new concepts coming from all across the vast spectrum of different human activities?

Are we to conclude that because our culture has handed us so many rich concepts on a silver platter, it follows that a random individual today might spontaneously come out with off-the-cuff remarks whose perspicacity would astonish Albert Einstein, James Clerk Maxwell, Alexander Pushkin, or Mark Twain, not to mention Shakespeare, Galileo, Newton, Dante, Archimedes, and so many other geniuses? Without doubt, the answer is "yes". Since people and cultures develop through the construction of new categories that sometimes are highly idiosyncratic and sometimes are shared by vast numbers of people, an individual who seems quite ordinary in today's society might well have a great intellectual advantage in various domains over people from earlier generations, simply because human beings, rather than storing their acquired ideas or abilities in their genetic material and passing it to their progeny at birth (Lamarck's vision of evolution was long ago discredited), store it in their personal concepts and in their shared tools and culture. Each person's repertoire of categories is the medium through which they filter and perceive their environment, as they attempt to pinpoint the most central aspects of situations that they come into contact with. And since our conceptual repertoires today are far richer than those of earlier eras, a random person today might well be able to astonish brilliant minds of previous ages by doing nothing more than making observations that to us seem routine and lacking in originality.

Does this mean that geniuses of bygone times would do poorly on contemporary IQ tests? And if so, what would that imply concerning their actual intelligence? It's hard to say what scores would have been obtained by historical figures on IQ tests, but the more interesting question is whether the intelligence level of geniuses from long ago has been reached and even surpassed by average people in today's world. We believe the answer to this question is "no", because the great gift of those exceptional individuals was that of being able to home in on what really mattered in situations that no one had ever understood before, by constructing original and important analogies that were built on whatever repertoire of categories they happened to have at their disposition. This is always a deeply rare gift, no matter in what era it arises.

Different Styles of Ascending Mount Analogy

Imagine some mountaineers who come across a very tall, sheer rock face for the first time. At the outset, only the very best climbers in the world can scale it, and even they do so only with extreme difficulty. But some of those highly talented climbers leave behind pitons in the rock face, which allow less experienced climbers to do some of the ascents. And then those climbers in turn leave behind yet more pitons, and after a few years the once-barren face is full of pitons, and now almost anyone with a modicum of experience in rock-climbing can scale what once was nearly unclimbable. It would be absurd, however, to conclude from this that today's climbers are superior to yesterday's. Only thanks to the great climbers who made it up *without* pitons or prior known routes can the average climbers of today negotiate the once-formidable cliff. The excellent climbers who blazed the first trails up the sheer face had numerous abilities, such as the skill of spotting promising routes, the intuitive sense of where it would be advantageous to place pitons, and the skill of knowing how to drive pitons into the rock so that they will remain reliable for future climbers.

We who are alive today are the beneficiaries of countless thousands of conceptual pitons that have been driven into the metaphorical cliffs of highly abstruse situations. We can easily climb up steep slopes of abstraction that would have seemed impossible a few generations ago, for we have inherited a vast set of concepts that were created by ingenious forebears and that are easy to use. And the set of concepts available to us is constantly expanding. Does all this easily accessible power, however, wind up making us smarter and more creative than our forebears?

Think of today's electronic music keyboards, which come with a host of built-in rhythmic accompaniments for many types of music. Does having a raft of such canned accompaniments turn the instrument's user into a deeply creative musician? Does having a slew of highly variegated typefaces at one's fingertips make one into a great graphic designer? Do the myriad bells and whistles supplied by PowerPoint turn all users of that software into world-class presenters of complex ideas? Certainly not! Likewise, the fact that we can easily put our finger on scads of situation-essences by exploiting standard labels that have been handed to us by our culture does not mean that we could do so in a trackless, uncharted wilderness where no one has gone before.

Concepts have a special property that distinguishes them from physical tools: as opposed to being just an external device, a concept becomes an integral part of the person who acquires it. The mathematician Henri Poincaré is said to have stated, "When a dog eats the flesh of a goose, it turns into the flesh of a dog." He was referring to how we internalize knowledge we acquire, and how it differs for that reason from mere tools, which remain separate from us, much as a piton is totally separate from a mountain climber. Merely having a library filled with books about, say, mathematics, fashion, or word origins does not make one a mathematician, a fashion designer, or an etymologist. What counts, rather, is the degree to which the concepts in those books are internalized by a person, thus enriching their conceptual space and turning them into a thinker able to make new categorizations and analogies. In contrast to the image suggested by our mountain-climbing metaphor, conceptual pitons are not just tools, but devices that enrich and transform people, allowing them to make deeper, more insightful, and more precise categorizations. These mental pitons are no longer just inert objects in an external cliff, but become parts of the person using them. They cannot be easily removed in the same way that one can take a piton out of a rock, because to remove a concept is to take away some of the person who owns it.

How would Albert Einstein contribute to contemporary physics, were he a young physicist today? What would Alexander Pushkin bring to today's poetry? What would Shakespeare or Dante write if they were alive today? What would Henri Poincaré give to mathematics, and Sigmund Freud to cognitive science? What analogies would they discover lurking implicitly in today's concepts? What depths could they perceive in the world around them, by using the tools of their new conceptual universe to interpret the surface appearances that they would encounter all around them?

Sailing Off into Outer Conceptual Space

In this chapter and the preceding one, we have presented an image of any particular language's repertoire of lexical items as forming a "lexical galaxy" in conceptual space. We want, however, to convey a polyglottal image — thus, the idea that different languages overlap strongly at the center of conceptual space, and that as one drifts outwards towards the fringes (where concepts are more and more complex and thus rarer and rarer), each language's coverage becomes not only sparser but also more idiosyncratic. The particular lexical galaxy associated with any specific language defines that language's "genius". And lying further out beyond each galaxy there is empty space — the sheer blackness of the untracked conceptual cosmos.

But things are not as bleak as that sounds. The fact is that a very large proportion of the concepts belonging to any person have no linguistic labels and yet are just as real as ones that have standard labels, such as "hand", "pattern", "green", "dogmatic", "twiddle", "sashay", "but", "indeed", "living room", "Jewish mother", "play it by ear", "sour grapes", "tail wagging the dog", "esprit d'escalier", and "bait and switch". This idea that so many of our concepts, often ones that we care deeply about, entirely lack names was saluted by American poet Tony Hoagland in the following poem.

There Is No Word

There isn't a word for walking out of the grocery store
with a gallon jug of milk in a plastic sack
that should have been bagged in double layers

— so that before you are even out the door
you feel the weight of the jug dragging
the bag down, stretching the thin

plastic handles longer and longer
and you know it's only a matter of time until
the bottom suddenly splits.

There is no single, unimpeachable word
for that vague sensation of something
moving away from you

as it exceeds its elastic capacity
— which is too bad, because that is the word
I would like to use to describe standing on the street

chatting with an old friend
as the awareness grows in me that he is
no longer a friend, but only an acquaintance,

a person with whom I never made the effort —
until this moment, when as we say goodbye
I think we share a feeling of relief,

a recognition that we have reached
the end of a pretense,
though to tell the truth

what I already am thinking about
is my gratitude for language —
how it will stretch just so much and no farther;

how there are some holes it will not cover up;
how it will move, if not inside, then
around the circumference of almost anything —

how, over the years, it has given me
back all the hours and days, all the
plodding love and faith, all the

misunderstandings and secrets
I have willingly poured into it.