Active Cognition in Bartending

by

John B. Gatewood
Department of Sociology and Anthropology
Lehigh University
Bethlehem, Pennsylvania 18015
JBG1@Lehigh.edu

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Abstract. Ordering a mixed drink and getting what you expect is a minor miracle of social organization. Although customers and bartenders pretty much talk the same talk -- they share the public code of drink names -- there is a large discrepancy between their, respective, understandings of the domain. Taking an order and making the drinks is a complex process. Whereas customers usually focus attention on the ingredients and particularly on the social meaning of drinks (as props for “face work”), the bartender’s knowledge involves hidden families of drinks based on their common deep structures. Thus, the first step in the production process is translation from the public code into the bartenders’ own production-oriented categories. Their specialist, sub-cultural knowledge includes ingredients and recipes, but also such matters as glassware, garnishes, price, and economy of motion (critically important when filling multiple orders). This paper describes aspects of the active knowledge involved in bartending, the “knowing how” that asymmetrically underlies the public discourse of drink names. The case illustrates one way in which specialist knowledge interlinks with public culture and raises general questions concerning technology transfer.
[cognition, skilled action, collective representations, personal knowledge]
Introduction

Much of the nomenclature for alcoholic drinks is referentially opaque. Names such as daiquiri, screwdriver, and manhattan give no clue to their ingredients, let alone the stages of their production, the glassware in which they should be served, or price. This state of affairs supports the view that bartending is an esoteric, secretive realm of human knowledge. Customers, and beginning bartenders alike, often believe the bartender’s task consists simply in memorizing the ingredients associated with each peculiarly named drink. Indeed, from the customer’s perspective, this is an entirely appropriate and sufficient understanding. It is not, however, accurate.

In this paper, I describe some of the action-oriented knowledge bartenders use as they translate customers’ orders and make drinks. Much of this knowledge is of the sort that is amenable to ethnoscience, i.e., it is explicit, classificatory, and lexicalized. Other aspects of the relevant knowledge are generally invisible and inaudible, particularly the kinesthetic and timing aspects of filling multiple orders. While sketching out the range of knowledge actually used in bartending, I shall also make mention of how this knowledge grows and develops as bartenders change from novice to expert. The finale will try to extract a useful lesson from my somewhat frivolous subject matter to applied efforts of a more serious nature.

The paper is organized as follows. First, we will analyze the public but mysterious code of “drink names,” including its latent sociolinguistic functions. Second, we will examine what the contents and organizational structures of “bartender’s manuals” would have one believe is involved in bartending. Third, I provide an overview of the different kinds of knowledge actually used when bartending. Then, with the details of the case clarified, we leap to broader implications concerning technology transfer.

Linguistic and Sociolinguistic Aspects of “Drink Names”

The lexical domain of “drink names” (by which I mean nouns for alcoholic beverages) is exceedingly large. It is also quite diverse. The Mr. Boston Deluxe Official Bartender’s Guide (Anonymous, 1974), for example, has a 23-page index of names for “mixed” alcoholic drinks. The entire domain of drink names would include all of these and a long list of un-mixed alcoholic beverages as well as their brand name varieties. The size and diversity of “drink names” is illustrated by the short list in Figure 1.

--- Figure 1 here. ---

(A Sample List of “Drink Names”)

An important feature of drink nomenclature, obscured by listings such as Figure 1, is that the drink names do not form a closed set. New names are coined all the time, most commonly for brand names and new mixed drinks, but occasionally for new “pure,” or “straight,” alcoholic beverages (Lehrer, 1983, notes the “wine descriptors” have this same property of open-endedness). Creativity is on-going, and the lexicon allows for this.
Lexical analysis of drink names reveals a shallow taxonomy. An ethnoscientist would rapidly discover that “brand names” refer to particular realizations of more basic, generic beverage types. Johnnie Walker Black, J&B, Chevas Regal, Pinch, and Cutty Sark are kinds of scotch; Tanqueray, Beefeater, Bombay, and Gordon’s are kinds of gin; Hennessey, Martell, and Courvoisier are kinds of cognac; Budweiser, Moose Head, Beck’s, and Heineken are kinds of beer; and so forth. Set inclusion of this sort might fascinate a Martian (or a teenager), but it is obvious and boring to most bar-goers.

A more interesting aspect of the classificatory system is the distinction between names for “pure” (“straight”) beverage types and names for “mixed drinks.” Of course, the notion that any alcoholic beverage is “pure” is absurd from a chemical perspective. Scotch, gin, beer, sherry, bourbon, etc., are made up of complex chemical compounds that vary from year-to-year and month-to-month even in products from the same distillery. Still, it is customary to think that categories such as these refer to stable, homogeneous substances that are, in some sense, fundamental for the domain as a whole -- rather like the periodic chart of elements. They constitute what Rosch (1973; Rosch, et al, 1976) would call the basic object level. Liquid substances such as scotch, bourbon, gin, vodka, anisette, triple sec, vermouth, beer, wine, and sherry occupy a privileged level in the classificatory system because they define the basic contrast set of ingredients from which other drinks (i.e., “mixed drinks”) can be made. Figure 2 shows the drink names from Figure 1 sorted into the three major categories recognized so far.

Today, there is very little change in the “basic beverage types” part of the classificatory system from one year to the next. By contrast, one can see sustained growth in the number of brand name varieties. The area of greatest productivity, however, is clearly in the culture’s inventory of named “mixed drinks.” Indeed, every self-respecting, pretentious bar will try to come up with its own specialty concoctions. Creative efforts of this sort justify higher prices all around.

Focusing on segregate labels for “mixed drinks,” we see several lexical forms in use. There are two fundamental dimensions of contrast: (1) morphological complexity of the name, and (2) whether the name gives a clue as to the ingredients or not. Figure 3 shows the previous sample data analyzed in this way (for definitions of lexeme types see Frake, 1962; Berlin, Breedlove, and Raven, 1973; Casson, 1981:79-80).

Although it might be entertaining to continue analyzing drink names as if we didn’t know anything about them, I’d like to draw this section to an end with some observations on the general social functions of drink names.

1. The primary function of drink names, independent of their linguistic form, is to establish an unambiguous, 1-to-1 referential relation -- a publicly-known semiotic code, a standardized system of collective representations -- whereby customers can ask for a particular potent potable and be reasonably assured of getting what they asked for. (I say reasonably assured because the precise
ingredients and/or their proportions associated with a given drink name vary somewhat from region to region and bar to bar.

2. The public code bridges over a very asymmetrical knowledge boundary. All the customer needs to know about a drink is its name. The bartender is supposed to supply all the other knowledge. The public code is, thus, for many customers, a matter of “loose talk” (Gatewood, 1983, 1984). So long as customer and bartender share the same public code, invoke the appropriate collective representation, they can interact successfully despite substantial differences in their knowledge of drinks.

3. Drink names serve an important, though latent, social function. They are used to signal in-group boundaries. People “in the know” can wield this lexical set to accomplish a variety of face-work (Goffman, 1958) vis-a-vis bartenders, cocktail waitresses, and other customers. (Spradley and Mann, 1975, expound of this social function at some length from the viewpoint of the cocktail waitress). This latent function probably accounts for the lexical irregularities and idiosyncrasies of drink names, as well as their referential opacity.

4. The referential focus of drink names is on the ingredients that make up the drinks, including their relative proportions. Other aspects of the actual drink -- what might be called the drink’s full “presentation” -- are usually left unsaid. There are, however, a few expressions whereby customers can emphasize, or deviate from, their drink’s standard presentation. These utterances are generally linguistic tag-on’s to the drink name, for example:
   
   “scotch, neat”
   “Wild Turkey, on the rocks”
   “whiskey sour, up”
   “Campari and soda, with a twist”
   and (as James Bond would say)
   “martini, shaken not stirred.”

There are some peculiar asymmetries in these abbreviated specifications. For example, the order, “a margarita, no salt”, is readily interpretable, i.e., do not rim the glass with salt. But, the converse order, “a margarita, with salt,” would be confusing. Is the customer asking for salt in the drink itself, or is the customer just being emphatic about wanting the usual salted rim? Correct usage of these auxiliary expressions, thus, signifies that one knows the unsaid standard or norm that is being modified. For this reason, correct talk of this sort conveys the meta-message that the customer is both discriminating in taste and knowledgeable as regards customary bartending procedures.

**Common Misconceptions of Bartending**

Most folks think bartending is pretty much a matter of memorizing the recipes that go with drink names: they think bartending is mixology. This view is supported, implicitly, in the way bartender manuals and guidebooks are written. I’ve selected two such books to illustrate this point, but I only have time to talk about one of them.
Mr. Boston Deluxe Official Bartender’s Guide is the classic recipe manual for bartenders, and it is an indispensable reference tool. Hundreds, if not thousands, of drink recipes are presented in the most useful way for a practicing bartender, i.e., alphabetically. I’m serious about this being the most useful organization. Many customers love to play “stump the bartender” — they take perverse pleasure in ordering an obscure drink as if every person in the world knows what it is and orders it all the time. If the customer is winning the silly game, then the bartender knows only the name for the drink. Mr. Boston’s alphabetical listing of drink, thus, provides the fastest way to discover what is in a “tuxedo cocktail” or a “Buck Jones,” and in the real-life context of bartending, speed is synonymous with useful.

Pages 1-168 of Mr. Boston (1974 edition), or about 78% of the whole book, consist of drink recipes organized in this fashion. Following the main recipe section, there are a series of special sections. These begin with 3 pages on egg-nog drinks and 2 pages devoted to the martini.

Pages 175-181 contain some brass tack, useful stuff: (1) the kinds of equipment needed to make drinks, (2) volumes and measures, and (3) succinct instructions concerning the essential drink-making techniques such as shaking, stirring, blending, flaming, floating, rimming, etc.

Pages 182-192 define and give some history for each of the major generic beverage types such as brandy, rum, gin, vodka, and whiskey.

Pages 193-215 cross-index all the drinks mentioned in the recipe section in broad categories based on either their principal alcoholic ingredients (e.g., rum drinks, vermouth drinks, coffee brandy drinks) or their shared production routines (e.g., fizzes, toddies, etc.). This section is useful for bartenders to study before coming to work.

The point of this textual review is that books such as Mr. Boston reinforce three popular misconceptions about real bartending:

1. **Drink recipes are as idiosyncratic and diverse as their names.** (Corollary: Bartenders must have prodigious memories.) The alphabetical listing of recipes by drink names totally obscures the essential similarities that exist among drinks. Unless you spend days pouring over the recipes, intuitively synthesizing as you go, you will fail to recognize from Mr. Boston that the huge array of drinks are just variants on a few themes.

2. **Drink recipes are immutable and unchanging.** The mere fact that drink recipes and names are printed supports the illusion that they are fixed and standardized. Recipes and names are much more flexible and fluid (sic). Accomplished bartenders play with the standard recipes in small ways to make their bars distinctive, e.g., adding a drop of scotch to an otherwise traditional martini to make it smoother, or mixing a stinger closer to a 1:1 ratio of brandy and creme de menthe instead of Mr. Boston’s recommended 2:1 ratio. Playful creativity of this sort goes on all the time. Sometimes what begins as a variant becomes a new named drink; other times the variant is just served under its standard name (e.g., “margaritas” are incredibly variable one bar to the next).

3. **The individual drink is the basic unit around which the bartender’s thoughts and actions revolve.** Because each drink’s recipe is discrete in the manual and each customer’s drink is served up discretely,
one is inclined to believe that bartenders make drinks one at a time. Unless the bar is full of slow-drinking social outcasts, this is patently false. Most orders come in batches, and the various drinks in a group-order are made concurrently rather than sequentially. Nothing in Mr. Boston explains how to organize actions for mass-production, yet this is the key to improving a bartender’s output efficiency.

Taking Orders, Making Drinks

Professional bartending involves quite a range of acquired skills. The outline in Figure 4 shows the range of activities. Since it is the second activity group (taking orders, making drinks) that distinguishes bartending per se, I’ll concentrate on it.

--- Figure 4 here. ---
(The Five Major Bartending Tasks)

The bartender’s action-oriented knowledge of drinks reflects several concerns. Firstly, bartenders need to know how and when to use the various tools of their trade (see Figure 5). Secondly, they need to know which kinds of drinks go in which kinds of glassware (see Figure 6). Indeed, proper presentation is a major difference between the usual home bar and the professional bar. Finally, experienced bartenders develop a specialized, usually implicit cognitive organization of drinks that simplifies the otherwise bewildering complexity of final products by grouping them according to their fundamental similarities (see Figure 7). These categories also relate easily to price structure, which is generally based on three considerations: (1) the cost of the ingredients, (2) the knowledge and mixing skill required of the bartender, and (3) how much time it takes to make the drink.

--- Figure 6 here. ---
(Glassware for Different Kinds of Drinks)

The principal difference between novice and expert bartenders is not so much how many drink recipes they have memorized, but the expert’s economy of motion and temporal efficiency when making drinks. Friends and relatives might be dazzled were you to memorize all the recipes in Mr. Boston’s guide, but if you knew all that and made drinks one at a time, you’d be an inept bartender. Recipe knowledge -- mixology -- is only one aspect of bartending skill. Anyone who can read a drink manual can make drinks. The trick is being able to make drinks very quickly and present them in aesthetically pleasing fashion, all without looking harried or upset.
Speed and efficiency generally increase concomitantly with the bartender’s recognition of what might be called “basic recipe templates.” Once the bartender develops this new and specialized understanding, and it usually takes some time, they are better at remembering multiple orders and can make several drinks at once. Let me expand on this peculiar, non-public cognitive organization a bit.

In the expert’s view, there are surprisingly few basic recipe structures underlying the domain of mixed drinks. The tremendous variety in finished products is generated simply by varying the particular alcoholic ingredients within a given recipe template and, to a lesser extent, by varying the kind of glass it is served in, how ice is used in the drink, the use of “spice” ingredients (bitters, Rose’s lime juice), and garnishes. Phrased another way, the domain of mixed drinks has a certain grammar.

Consider, for example, the following drinks: martini, gibson, manhattan, and rob roy. All four share the same recipe template or ‘deep structure’: they are 2:1 ratios of booze and vermouth, plus a customary garnish, and, in many bars, all would normally be served “up.”

| RECIPE TEMPLATE = BOOZE + VERMOUTH + GARNISH |
|-----------------|-----------------|-----------------|
| (1.5 oz.)       | (.75 oz.)       |                 |
| martini =       | gin             | dry vermouth    | olives          |
| gibson =        | gin             | dry vermouth    | onions          |
| manhattan =     | whiskey         | sweet vermouth  | orange/cherry   |
| rob roy =       | scotch           | sweet vermouth  | orange/cherry   |

Similarly, a daiquiri, whiskey sour, Tom Collins, and bacardi cocktail are all variants of the basic “sour” recipe: 1 oz. of booze and 2 oz. of sour mix, then shake or blend to a froth, pour, and add garnish. The differences reflect the main booze ingredient and a few slight “bendings” from the basic structure in terms of glassware, additional ingredients, and garnishes.

A third basic recipe structure is exemplified by the rusty nail, sidecar, and stinger (at least the way we used to make them). All three mix a straight booze with a sweet cordial in almost equal proportions, i.e., close to a 1:1 ratio, but slightly heavier on the booze side. A rusty nail is scotch and Drambuie, a sidecar is brandy and triple sec (with lemon juice), and a stinger is brandy and white creme de menthe.

Some recipe templates have names, others do not. They also vary in terms of their psychological salience among different bartenders. Figure 7 shows one classification scheme based on the deep structures (recipe templates) of drinks.

Now, to illustrate how all these sorts of knowledge come together in bartending, let’s follow step-by-step how a reasonably skilled bartender would handle two drink orders.
Example 1. Single Drink Order
Order = 1 Margarita

STAGE 1 -- Cognitively Process the Order
- repeat the customer’s order with internal speech
- assimilate “margarita” to its basic recipe template, i.e., a “sour”
- recall the standard presentation for margaritas: served in stemmed glass with salt on rim

STAGE 2 -- Prepare the Glassware
- get the appropriate glass from rack
- rim the glass with a lime wedge
  (put lime aside for the moment)
- twirl rim of glass in salt dish until the rim is coated
(While preparing the glass, recall the exact recipe for margarita, i.e., 1 oz. of clear tequila, 1 oz. of sour mix, .5 oz. of triple sec, and .5 oz. of Rose’s lime juice.)

STAGE 3 -- Mix the Drink
- scoop up some ice with the metal half of the shaker and put it in the glass half on mixing area
- grab bottles of tequila and of sour mix from well
  (one in each hand)
- pour tequila and sour mix into shaker at the same time
  (count-pouring to 4 = 1 oz.)
- return tequila and sour mix to well, grab triple sec and Rose’s lime
- pour triple sec and Rose’s lime into shaker at the same time
  (count-pouring to 2 = .5 oz.)
- return triple sec and Rose’s lime to well
- put shaker’s halves together and shake
- take metal half of shaker off
  (BE CAREFUL)
- put strainer on shaker’s glass half
  (which has the drink)
- pour drink through strainer into prepared glass
- wash strainer and shaker
- squeeze lime wedge into drink and gently drop in lime
(While mixing this drink, watch the bar to determine if anyone else wants to order and who is first in queue. Also, as the drink is almost ready, recall the price for margaritas.)

STAGE 4 -- Serve the Drink
- pick up the drink from the mixing area and with the other hand pick up a paper napkins or coaster
- set drink on napkin in front of customer and state the price
- take the money and make change
Example 2. Multiple Drink Order

Order = 2 Margaritas
1 Martini
1 Gibson
1 Cuba Libre
1 Scotch and Soda
1 Red Wine
3 Draft Beers

STAGE 1 -- Cognitively Process the Order

- repeat the customer’s order with internal speech
- assimilate the drinks to their basic recipe templates, i.e., 2 “sours”, 2 “martinis”, 2 “highballs”, 1 “room-temperature wine”, and 3 “draft beers”
- recall the standard presentation for each drink: margaritas in stemmed glasses with salt on rim, martini and gibson in stemmed cocktail glasses (up), highballs in highball glasses, red wine in globular wine glass, draft beers in mugs or pint glasses
- contemplate how each drink will be served and, from that, determine the best sequencing of production tasks, i.e., red wine first, margaritas second, then martini and gibson, then highballs, and draft beers last

(General Principle: serve drinks as cold as possible, i.e., try not to let drinks stand in glasses long before they are served.)

STAGE 2 -- Prepare the Glassware

- get the appropriate glasses, except beer mugs, from rack and line them up, left to right, according to their best production sequence
- put glasses for martini and gibson in ice trough so they’ll be chilled
- rim the margarita glasses with lime wedges
  (then put limes aside for the moment)
- twirl rim of glasses in salt dish until the rims are coated

(While getting the glasses in order, recall the exact recipes that will go into each drink, then associate each glass with its drink.)

STAGE 3 -- Mix the Drinks

- grab bottle of house red wine and pour into wine glass until its two-thirds full
- return wine bottle to its place
- scoop up some ice with the metal half of the shaker and put it in the glass half on mixing area
- scoop up some more ice and put it in the two highball glasses
- rim one of the highball glasses with lime wedge, squeeze wedge into glass, then drop it in on top of ice
- grab bottles of tequila and of sour mix from well
  (one in each hand)
- pour tequila and sour mix into shaker at the same time
  (count-pouring to 8 = 2 oz.)
- return tequila and sour mix to well, grab triple sec and Rose’s lime
• pour triple sec and Rose’s lime into shaker at the same time
  (count-pouring to 4 = 1 oz.)
• return triple sec and Rose’s lime to well
• put shaker’s halves together and shake
• take metal half of shaker off
  (BE CAREFUL)
• put strainer on shaker’s glass half
  (which has the drink)
• pour drink through strainer into prepared glasses, filling up each half way before topping each off
• squeeze lime wedges into drinks and gently drop in lime into drinks
• wash strainer and shaker and put some more ice into the glass half
• grab bottles of gin and of dry vermouth from well
  (one in each hand)
• pour gin and vermouth into shaker
  (begin pouring together, then stop pouring vermouth at the count of 6 while continuing to pour
  gin until count of 12 ... traditional recipe = 1.5 oz. gin to .75 oz. vermouth)
• gently stir shaker’s ingredients with bar spoon
• put strainer on shaker’s glass half
• move (chilled) stemmed cocktail glasses from ice trough and put them on mixing pad
• pour “martini mix” into the martini and gibson glasses, filling up each half way before topping each off
• wash strainer and shaker
• grab bottles of white rum and of scotch from the well
  (one in each hand)
• pour rum into the highball glass that was already rimmed with lime, pour scotch into the other
  (pour at same time; count-pour to 4 = 1 oz. in each glass)
• return rum and scotch to well
• grab soda gun with one hand and get a swizzle stick with the other
• pour club soda into highball glass with scotch while stirring mixture with swizzle stick
• pour cola into highball glass with rum and, while doing this, reach for swizzle stick, then stir the
  emerging cuba libre
• return soda gun to its position
• pick up lime wedges set aside from margaritas, squeeze them into margaritas, and drop them
  gently into drinks
• pick up 2-3 olives, pierce them with toothpick, and place them in one or the other of the two
  “martini mix” glasses
• get 2-3 pickled cocktail onions from jar, pierce them with toothpick, and place them in the other
  “martini mix” glass (now it is a gibson!)
• walk over to beer area and get three mugs from refrigerator
• draw the three draft beers and return to mixing area with them
(While drawing the beers, if not before, look at the drinks in the mixing area, recall their individual
prices, and start tallying them up.)
STAGE 4 -- Serve the Drinks
(Serving depends entirely on where the customers are seated, whether one of their party or a waitress gave the order, and so forth...)

- when the whole order is ready, state the price
- take the money and make change

I suspect it is hard to read my descriptions of drink-making and catch all the little ways an expert’s procedures differ from those of a less skilled bartender. Part of the problem is that the subtleties of actions are difficult to talk about. Bartending is not a verbal art, it is a performance event. Even if I had staged a demonstration, however, using bartenders at differing skill levels, it would be hard for you to see what they do differently unless you already knew what to watch for.

Someone who has gone through the metamorphosis – someone who has gotten beyond the initial understandings and glimpsed the simplifying, “deep structure” level of recipes – can gauge others’ general competence just by watching them work. For those without a trained eye, a simple, global measure of skill is how many drinks per hour the bartender can handle. It is rather like typing speed: how many words per minute can you type? -- how many drinks per hour can you make?

When people first begin as bartenders, they are lucky to manage 50 to 60 drinks per hour, and they feel rather like Charlie Chaplin with his conveyer belt of cakes. After several weeks or a few months, most bartenders can handle 100 to 150 drinks per hour and not feel terribly pressured. If someone else is dealing with the glassware, or if it’s a bar using plastic cups, then good bartenders can handle over 200 drinks per hour, and these would be “classy” mixed drinks, not shots-and-beers.

Let me highlight four of the important ways skilled bartenders increase their speed and reduce their mental turmoil. Skilled bartenders:

1. Understand drinks in terms of basic recipe templates. Thinking of drinks this way –realizing there is a grammar of sorts underlying the superficially disparate products – facilitates recipe recall, speeds up glassware selection and preparation, and is essential to determining the most time-efficient production order. Unfortunately, very little, if any, of this classificatory knowledge is readily available to the would-be bartender. To the extent that it is socially transmitted, it is purely an oral tradition. One acquires this cognitive organization either by talking with accomplished bartenders, e.g., during the official training period, or through reflection on personal experience.

2. Use glassware as mnemonic aids. While the customer’s order is fresh in mind, bartenders get the glasses on the counter. Once the glasses are in place, the bartender can give full attention to the specific tasks associated with individual drinks – temporarily forgetting everything else – and then, just by looking at the glasses, remember what is next. The glassware functions as extra-somatic memory.

3. Use BOTH hands. Beginning bartenders generally have to watch everything their hands are doing, rather like beginning pianists or guitarists. So long as they yield to this tendency, they are functionally one-handed. Even if they grab two bottles at once, one with each hand, they will pour one, then pour
the other. Likewise, the ability to pour booze with one hand while reaching for garnishes or a swizzle stick with the other is simply beyond them. Eventually, however, persistent efforts to achieve bilateral independence will bear fruit, and the two hands take on lives of their own. Visual monitoring is no longer necessary, except at certain key junctures, because the bartender becomes kinesthetically aware of the immediate environment. Without looking, he or she can reach down and grab scotch, gin, vodka, or sour mix from its position in the well. The motor routines become so familiar one could make many drinks blind-folded.

4. Know when to mix drinks concurrently instead of sequentially. This is the essence of time-compression. For example, if one were to make three highballs sequentially, there would be six round-trip motions (counting each hand separately) from the well to the mixing counter: one for each of the booze ingredients and one for each of the soda or water mixers. If, however, the three highballs mass-produced, there are only four round-trip motions: one for each of the booze ingredients, but only one for the soda gun. Mass production, thus, is more efficient.

**Lessons from the Bartending Example for Technology-Transfer**

As I hope to have made clear by now, there is more to bartending than most people realize. So long as you are in the role of customer, it is unimportant whether you understand drinks and drink-making the way a bartender does. But what if you were responsible for training bartenders? Suppose it was your brother or sister who was opening a bar and asked you to train the new bartenders. Are there any lessons from the foregoing that might guide you in these efforts?

There are four basic approaches one might take to technology-transfer, for that is a more general name for the problem.

1. **INDEPENDENT INVENTION:** Provide the raw materials (stocks of booze, wine, and beer), then walk away. That is, let the trainees invent mixology and drink-making procedures *de novo*.

2. **STIMULUS DIFFUSION:** Provide the raw materials, mix up a batch of different drinks, let the trainees taste them, then walk away. That is, let the trainees try to copy, through trial-and-error, the drinks they have tasted.

3. **SHARING OF PRODUCT MANUALS:** Give the trainees the raw materials and a copy of Mr. Boston’s guide, then walk away. That is, supply them with drink-by-drink recipe knowledge, but no organizing conceptual framework for all these details.

4. **APPRENTICESHIP:** Give the trainees the raw materials, a copy of Mr. Boston’s guide, and then conduct training sessions on the recipe templates underlying families of mixed drinks as well as step-by-step demonstrations of how to use these to fill multiple-drink orders most efficiently. Finally, when the lecturing and demonstrating are done, coach and critique the apprentices as they fill drink orders themselves, because developing new and coordinated motor skills are critical for successful bartending.
I think we would all pretty much agree that the fourth approach has a greater chance succeeding, at least it is the sort of training program I would do if it were my brother’s bar.

But should we agree on this? Just because the fourth training program includes processual knowledge as part of the “technology” to be transferred does not, necessarily, imply it is better than the other three approaches. Why is the cognitive organization of a skilled bartender in one region of the country relevant to training new bartenders in another region? If the trainees can make the drinks their customers order, or if they make a whole bunch of new ones their customers like, then hasn’t the technology, in all important senses, been transferred successfully?

I would think questions such as these must plague anthropologists involved in more serious technology-transfer projects in foreign countries. How much knowledge needs to accompany a particular item of technology? Who decides what knowledge is relevant? And, at the theoretical level, how integrated is a culture? ... Difficult questions! Hmmm...

In Joseph Conrad’s novella, Heart of Darkness, there is a native character who works on the boat carrying Marlowe upriver. This native knows that if he doesn’t keep the engine’s boiler stoked with coal, the boat’s propeller won’t turn, and the boat won’t go upstream. However, the native understands this causal chain rather differently than the European engineer. In the native’s view, the steam engine is an angry god who must be appeased with coal. In return, the god makes the boat go.

Now, the intriguing thing about this story is that, under normal situations, it does not matter whether the native understands how steam engines really work. So long as he stokes the coal, the boat makes headway. The only time a proper conceptual understanding does matter is when the engine breaks down. Should that happen, the native depends on the engineer to overcome the god’s malaise.

I suppose whether or not one includes conceptual and processual knowledge in technology-transfer projects depends on the project’s larger goals. If the goal is simply to transfer the ability to replicate products, then deeper understandings might be imparted only on a “need to know” basis. If, however, the goal is to transfer technology as a means of facilitating the recipient’s autonomy, then full comprehension of the processes of production should be part of the package.

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1. There are very few superordinate-subordinate relations among the generic beverage categories to complicate the otherwise simple, two-tiered mapping of brand names into generic beverage types. The category “cordial” (or “liqueur”), for example, encompasses a few generic sub-types such as anisette, triple sec, creme de menthe, and schnapps, each of which is available under several brand names. “Wine” is perhaps the most heterogeneous and fuzzy category, including blended generic varieties such as chablis, rosé, and red as well as single-grape varietals such as cabernet sauvignon and chenin blanc, but context seems to determine whether “wine” contrasts with or includes categories such as “port,” “sherry,” “Madeira,” and “champagne.”
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Anonymous

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Rosch, Eleanor

Rosch, Eleanor, Carolyn B. Mervis, Wayne D. Gray, David M. Johnson, and Penny Boyes-Braem

Scribner, Sylvia

Spradley, James P. and David W. McCurdy

Spradley, James P. and Brenda J. Mann
Figure 1. A Sample List of “Drink Names”

<table>
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<tr>
<th>Drink Name</th>
<th>Drink Name</th>
<th>Drink Name</th>
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<td>apple cooler</td>
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</tr>
<tr>
<td>daiquiri</td>
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<td>gin and tonic</td>
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<td>Drambuie</td>
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</tr>
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</tr>
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</tr>
<tr>
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</tr>
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<td>MIXED DRINKS</td>
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<td>----------------------</td>
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<tr>
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### Figure 3. Lexemic Analysis of Names for “Mixed Drinks”

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<td><strong>POLYLEXEMES</strong></td>
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<tr>
<td></td>
<td>vodka (and) tonic</td>
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</table>

Notes:

[2] Alternate name for “Tom Collins” is “gin collins,” as opposed to a “vodka collins.” “Gin collins” is a referentially indicative, productive primary lexeme.
[3] A “seven and seven” means a highball composed of Seagram’s 7 whiskey and 7-Up. If one knows these brand name products, then the segregate label would be referentially indicative, otherwise not.
Figure 4. The Five Major Bartending Tasks

Outline of Bartending Tasks and Skills

A. Setting Up
   - getting the ice ready
   - cleaning glassware
   - checking the booze, beer, and wine stocks and loading the well
   - preparing mixers (sour mix, juices, sodas)
   - preparing garnishes (cutting fruit, celery, making lemon twists)
   - twirling paper napkins, preparing bar towel
   - cleaning and checking the mixing/blending tools
   - getting the cash drawer ready
   - miscellaneous (setting up sink for cleaning glasses, tapping beer kegs, changing CO2 tanks)

B. Taking Orders, Making Drinks
   - understanding the domain of drinks in terms of a developed classification scheme
     ("deep structures" rather than merely the "surface structures")
   - hearing and remembering the customers' orders
   - translating drink orders into basic recipe templates and recalling, quickly, the specific recipes for each drink ordered
   - measuring ingredients quickly
   - performing, quickly, the appropriate mixing technique
     (pouring, stirring, shaking, blending, floating)
   - presenting drinks appropriately and quickly
     (glassware, special glassware preparations, garnishes, using ice correctly)

C. Handling Cash and the Cash-Register
   - knowing the price structure for the various product types
   - totaling bills accurately and making change quickly
   - being able to deal with screw-ups on the register
     (cancel mistaken ring-ups, change the receipt roll in the register)
   - balancing the cash drawer when starting or stopping your shift

D. Establishing Rapport
   - judging when to talk and when not to talk
   - carrying on polite conversation with people you may not like
   - making other people feel at ease
   - working with and around other people (managers, waitresses, other bartenders)

E. Cleaning Up
   - washing glassware
   - putting liquor and wine stocks away
   - cleaning the beer taps
   - mopping the floor
   - locking up
Figure 5. Bartending Tools

Bar Tools (continued)

Bar Tools

1. Ice Bucket. To find one with a vacuum seal, and large enough to hold chipped ice or 20 lbs. of ice. A bucket with a snap off bottle top for use on the bar top (or table).
2. Bar Spoon. One long spoon for stirring drinks or pitchers.
3. Cocktail Shaker and Mixing Glass. Mixing glass to be used in conjunction with the shaker. The shaker is a bottle opener that can open cans as well as bottles. Use the first for shaking drinks and the second for making mixed drinks.
5. Blender. Serves to mix drinks quickly.
7. Pitcher of Water. A large pitcher for use on the table.
8. One Box of "Superfine" Sugar.
9. Three Large Bowls. One for cut fruit, two for garnish, olives, Kille and Cutting Board. Use to cut more fruit.
10. Measuring Glass. All drinks should be made with a measuring glass or larger. Drink on the rocks or mixed drinks should not be served.
11. Muddler. To muddle your fruit.
Figure 6. Glassware for Different Kinds of Drinks
Fig. 7. A Bartender's Taxonomy of Drink Types