Illustrative Metaphor

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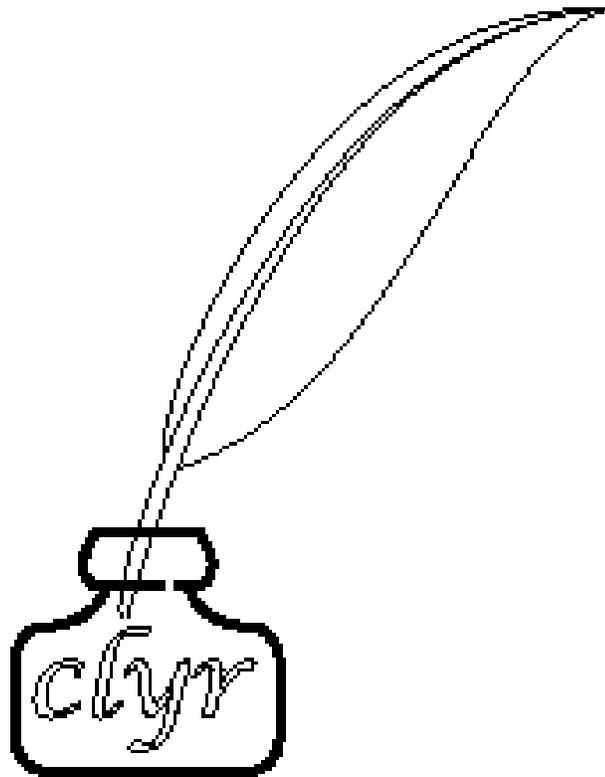
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1   Introduction

Clyr's ymage creation algorithms are all embodied in a process of ***cognitive linguistic ymage refinement*** (Clyr). In short, each word in a phrase is expanded to include every possible meaning that it *could* have, and then all of those meanings are combined with the possible meanings of the other words in the phrase. This explosion of meanings is governed by ymage analyses that rule out unlikely combinations. The best way to describe this process in more detail is through the following illustrative metaphor.

2   The Deal

Clyr works like a card game. Assume that you are dealt these five cards:

- {2♠, 2♣, A♣, 10♦, A♥}

The idea is to make the best hand that you can with the cards that you've been dealt, which is a lot like trying to figure out what a string of words is *most likely* to mean, given all of the meanings that the string *could possibly* have.

3   Preliminary Sorting

The first step in making the best hand is to sort through the cards to get a feel for their relations to one another. For any given card, you already have some idea of which other cards it is allowed to go with, that is to say, you know which ranks and suits can make valuable combinations; for example, these are the legal relations relative to 2♠: {…A+, 2++, 3+, 4−…}; {♠++ {♣+, ♦−, ♥−}}. In other words, 2 fits in between an ace (of which there are two in your hand) and 3 (of which there are none), and while it is useful to match a ♠ with other ♠s, you don't often worry about detailed rules describing suit interaction (e.g. when all else is equal, a ♠ is better than a ♥). Different games (i.e. languages) will have different rules, but they all make use of rank and suit… if a game doesn't do so, then it might still be a *game* (such as tossing cards in a hat), but it is not a *card* game as such (i.e. you could just as easily toss coins, bottle caps, or anything else).

4   Possible Partial Hands

This preliminary sorting gives you a broad idea of some of the possible hands that you could make, so you start to build up some partial hands, using comparison rules based on fundamental cognitive functions (e.g. similarity, difference, and sequence), where "?" stands for a card that you might get later on:

- (2♠/♣) + (A♣/♥) + 10♦
- (A♣ + 2♣ + ?) + (A♥ + 2♠ + ?) + 10♦
- (2♠/♣) + A♣ + (10♦ + ? + A♥)

Different games can use very similar cards, but allow for very different combinations of ranks and suits. Even when card games do use significantly different rules, they will still appeal to the making of patterns, which means that all of these games will rely upon such fundamental cognitive functions as the ability to compare things, and determine whether they are similar to or different from one another, which helps to determine whether or not they can be arranged in sequence, or in some other consistent configuration.

5   Remove Illegal Partials

The next step is to rule out any potential hands that contain parts that break the rules. In the Clyr version of this card game, there could be a rule that disallows the isolation of an ace in a hand that shows a pair of 2s; in this case, then, the third potential hand would be eliminated:

- (2♠/♣) + (A♣/♥) + 10♦
- (A♣ + 2♣ + ?) + (A♥ + 2♠ + ?) + 10♦
- DISALLOWED: (2♠/♣) + A♣ + (10♦ + ? + A♥)

Just as different games *allow* different hands, they will also *dis*allow some combinations. Every language has a few rules like this, and when they are arbitrary, they tend to be ignored. English prohibits the splitting of any infinitive, because *Latin* infinitives are single words, and offer nothing *to* illicitly split. Despite this rule, English speakers have been finding places to boldly go for 600 years.

6   Use Form to Identify Function

Now you take a step beyond the simple *form* patterns made by subsets of the cards, and identify them with the functions that those subsets are supporting. In this sense, the names for these card patterns identify their *function*:

- $(2\spadesuit/\clubsuit) + (A\clubsuit/\heartsuit) + 10\diamondsuit$ = pair-twos + pair-aces + lone-10
- $(A\clubsuit + 2\clubsuit + ?) + (A\heartsuit + 2\spadesuit + ?) + 10\diamondsuit$ = not-straight-flush + not-straight + lone-10

Different games will have different names for their allowed hands, but all of the games make a distinction between a few cards that *could* serve a more important function (given a few more cards down the road), as opposed to a few cards that already serve a complete purpose without needing any other cards.

7   Use Function to Identify Meaning

Once you've gotten this far, you figure out which of these combinations has the best score. That score amounts to its current *meaning*:

- $(2\spadesuit/\clubsuit) + (A\clubsuit/\heartsuit) + 10\diamondsuit$ = pair-twos (1) + pair-aces (1) + lone-10 (0) = two-pair (2)
- $(A\clubsuit + 2\clubsuit + ?) + (A\heartsuit + 2\spadesuit + ?) + 10\diamondsuit$ = not-straight-flush (0) + not-straight (0) + lone-10 (0) = nothing (0)

Individual forms have been analyzed to determine the meaning of the group. The next step is to swap out some old cards for some new ones, perhaps several times as new potential meanings develop. Periodically, you will arrive at a stage of the game where one of the hands is a clear winner compared to the rest, and no more cards are dealt for that round. If the above set of cards were to represent such a stage, then the first set would be the winner, and the value of that hand would be the "meaning" for that round.

8   Summary

You have: 1) started with individual forms (e.g.: A$\clubsuit$ and A$\heartsuit$ separately); 2) identified their patterns (e.g.: A$\clubsuit$ and A$\heartsuit$ as a pair); 3) switched from form to function (e.g.: pair-aces); and finally 4) switched from function to meaning (e.g.: aces are the best pair). Separate cards have been analyzed into winning hands, turning form into meaning.

The principles are the same when analyzing language: forms make patterns; patterns identify functions; and functions are interpreted to derive meaning. In this way, meanings are extracted from forms. The surface rules will change from language to language, but the core rules stay the same. These core rules are ymagistic in nature, so Clyr's technology will create a set of ymages depicting the series of individual stages of a given conversation over time, as if those ymages were a string of animation frames. This ymage sequence records the possible and disallowed combinations of the word forms in a conversation, the relative timing of their introduction, and hypotheses about their functions and meanings.

This says a lot more about the game than just a simple list of the cards.