Does language determine thought?
Visual communication parallels verbal language.

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Summary

Most languages belong in one of two groups: verb-framed and satellite-framed. Verb-framed languages (e.g. Spanish, Japanese) tend to state things in a more implicit manner than satellite-framed (e.g. English, German). We wondered whether there might be a parallel to this in visual depictions. This paper focused on determining whether or not a correlation also exists between the language categories and visual depiction of entrances and exits in television soap operas. Five different shows in each of the four languages mentioned above were scored independently by three raters. The number of explicit events was nearly the same in all of the shows, but the number of implicit events was higher in the verb-framed languages. This parallels the linguists’ findings for language.
Introduction

Language expresses our thoughts and emotions. However, our means of expression is not only limited to that. How do we communicate when we are not using language? One way is through visual depictions. Does that mean there is a connection between how we speak and how we think? Or are the two separate from one another? There are obviously differences in the way feelings and ideas are communicated between various languages. If every language were the same, we would be able to understand one another perfectly, making communication simple and effortless. However, that is clearly not the case. Some languages tend to state things more implicitly than others. Does this characteristic apply only to verbal language? Or does it appear in visual communication as well? In his book on comic books, McCloud (1993) reported an important difference between American and Japanese comic books in the depiction of scene-to-scene transitions. Our study examined television shows--soap operas—but it will help to first understand what McCloud found in comic books.

A series of panels containing drawings and usually dialogue or narration tells a story within a comic book. The subject undergoes six types of panel-to-panel transitions. The subject has undergone very little or no change in a moment-to-moment transition because only so much can happen in such a brief amount of time. It is mainly used to set the scene. Action-to-action transitions show the subject in a sequence of events that are meant to portray the action. In a subject-to-subject transition, the panels move from one subject to another while remaining in the same scene or concept. In scene-to-scene transitions, the reader is taken across different places and even time. Aspect-to-aspect transitions show different features of a place, concept, or mood. Lastly, there is no “logical relationship” between the panels of a non-sequitur transition (McCloud, 1993).
After examining various American comics containing different themes and storylines, McCloud found that the transitions within these comics were dominated by action-to-action panels, followed by subject-to-subject and scene-to-scene respectively. European comics also produced similar results. Japanese comics contained a large number of action-to-action transitions, but there were also almost as many subject-to-subject transitions (McCloud, 1993). In addition, they also contained moment-to-moment and aspect-to-aspect transitions, which requires a reader to link together separate pieces to form a moment. The main purpose of these two types of transitions is to establish a mood and to set the scene. These comics appear to emphasize “being there over getting there” (McCloud, 1993). On the other hand, the three most common types of transitions that appear in American comics indicates that things are happening in succinct ways (McCloud, 1993). Fewer panels are needed to depict action, which results in a more explicit and straightforward portrayal (see Fig. 1). By splitting an action into many parts, a reader is forced to figure out how they are all connected. Moment-to-moment transitions, which appear in Japanese comics, can illustrate an action by separating it into many different pieces (see Fig. 2). Overall, it seems that Japanese comics tend to rely more on inference, while American comics state the story in a more explicit manner.

McCloud offers culture as an explanation for these differences. Traditional Western art tends to be more focused on goals, while traditional Eastern art tends to be more cyclical. In Japan, “elements omitted from a work of art are as much part of that work as those included (McCloud, 1993).” When dealing with comic books, which can be considered a form of art, the intentional exclusion of various elements makes it necessary to use assumptions in order to fill in the missing pieces.
Fig. 1 (Looney Tunes, Frank Strom. Jan. 2001)
The man is shown in the middle of the actual act, which clearly illustrates how the rooster ended up in the net. He accomplished his goal (catching the rooster) in two panels.

Fig. 2 (Lone Wolf and Cub, Kazuo Koike and Goseki Kojima. Number 5)
The action of saving the child from the mallet that was thrown at him is depicted in five panels. The reader never sees the actual sword splitting the mallet. It has to be inferred. The man is shown with his arm outstretched and then the mallet is shown in two pieces in front of the child. The reader has to assume that the man has thrown the sword, which split the mallet, which in turn saves the child. (This comic was translated for English readers, but not redrawn.)

Do the differences that appear in comic books appear in verbal language as well? According to Slobin (1997), most languages fall under two categories: satellite-framed and verb-framed. Germanic and Slavic languages, such as English and German, are satellite-framed, while Romance, Semitic, and Turkic languages, as well as Japanese are verb-framed. When describing movement, satellite-framed languages “provides its speakers with a set of locative particles” or “satellites,” which are used to indicate that something has changed its position. In satellite-framed languages, a change in location can be described by attributing numerous
manner verbs to a single verb (Slobin, 1997). For example, in English, someone could say, “I ran out the kitchen door, past the animal pens, towards Jason’s house (Slobin, 1997).” Verb-framed languages, on the other hand, require a different verb for each location change. When the previous example was translated into Spanish, three verbs had to be used: salir, pasar, and dirigir. The sentence became “Sali por la puerta de la cocina (I exited through the kitchen door), pasé por los corrales (passed by the animal pens), y me dirigi a casa de Jason (and directed myself to Jason’s house).” The only verb in the English sentence was ran. The two sentences essentially convey the same meaning, but more verbs were needed in the verb-framed language than the satellite-framed.

There are three aspects of language that are significant in the description of motion for the two categories of language: path, ground, and manner. The path is essentially the “road” the subject takes in getting from one place (source) to another (goal). The subject gets to its intended location by traveling through some type of medium, such as a crowd, or by passing a landmark, like a monument. Path refers to translational motion, while ground alludes to the source, goal, medium or landmark (Slobin, 1997).

In verb-framed languages, the description of the path requires the use of several verbs, which reduces the number of ground elements per verb. In addition, ground elements or path components may be omitted to prevent the text from becoming too “cluttered,” so that it can adhere to the native style of the language (Slobin, 1997). The pieces of the sentence that are eliminated can usually be inferred. Satellite-framed languages tend to have more ground elements, which leaves less room for assumptions because the information has been stated explicitly. In addition, this type of language tends to use more motion verbs when describing a path, while verb-framed languages lean more towards the use of fewer motion verbs (Slobin,
The frequent use of motion verbs in satellite-framed languages provides a more detailed and elaborate description of the motion. On the other hand, verb-framed languages seem to rely more on assumption based on context because of their tendency to use fewer motion verbs. Focus is placed on descriptions of different parts of a static scene. The reader or speaker derives a concept or picture of the motion from the context given by that description (Slobin, 1997). The smaller ratio of ground elements to verbs, the tendency to use fewer motion verbs, and the preference for scene descriptions results in a greater need for inferences in verb-framed languages than satellite-framed.

Another factor that differentiates satellite-framed languages from verb-framed languages is manner. Manner refers to how a subject gets from Point A to Point B. A verb whose purpose is to describe the manner of a motion can be used to exhibit any meaning as long as its interpretation is consistent with the motion that is being expressed. For instance, a person can do more than go across, he can also dash, fly, or run across (Slobin, 1997). This type of description is not entirely possible for verb-framed languages. For these languages, the main verb can be considered the manner verb if the path it is describing does not cross a boundary. Once it crosses a boundary, additional manner expressions must be used, which can interrupt or slow the pace of the narration, creating bulky speech. Therefore, verb-framed languages depend more on assumptions, which can be derived from context, than on direct statements and descriptions of motion (Slobin, 1997). These circumstances affect the way motion is expressed in verb-framed and satellite-framed languages, leading verb-framed languages to be more implicit than the satellite-framed.

Japanese, a verb-framed language, also relies heavily on inference. At one point in time, a person may be outside a room, and later on, he may be inside. No focus is placed on
the events that have taken place during the transition from outside to inside, because there is no
need to describe how the person arrived at his destination. However, in English, a satellite-
framed language, the change of state or location requires a description of the transition; how
the person got from one place to another is significant (Kita, 1999). The changes in state must
be stated directly for satellite-framed languages whereas verb-framed languages depend on
deductions based on the initial and final moments of the change.

There appears to be a parallel between comic books and language. Japanese comics
stressed scene-setting and a preference for excluding certain aspects of an action or event,
leaving the reader to infer for himself the events that may have occurred between a transition.
American comics, however, portray events in a more concise and direct way. Japanese, a verb-
framed language, tends to be more implicit when describing motion, while English, a satellite-
framed language, is more explicit. Does this correlation exist only between comic books and
language? Or does it also span across to other types of visual media, such as soap operas?

Materials

In order to find a parallel between verbal language and its visual representations, it was
necessary to select a visual medium of communication that is used in both verb-framed and
satellite-framed languages. Television soap operas were used in this experiment. A total of
twenty episodes, five episodes from each of four different languages (English, German, Spanish,
and Japanese), were rated (see Fig. 3). The German and Japanese soaps were obtained from their
respective countries. For English, American soaps were tested and for Spanish, Mexican soaps
were used. All of the soap operas were new broadcasts.

Fig. 3

<table>
<thead>
<tr>
<th>Satellite-Framed Languages</th>
<th>Verb-Framed Languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soap</td>
<td>Soap Name</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Type</th>
<th>(min.)*</th>
<th>Type</th>
<th>(min.)*</th>
</tr>
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<tbody>
<tr>
<td>English Passions</td>
<td>60</td>
<td>Spanish Maria Isabel</td>
<td>30</td>
</tr>
<tr>
<td>English All My Children</td>
<td>60</td>
<td>Spanish Angela</td>
<td>30</td>
</tr>
<tr>
<td>English Days of Our Lives</td>
<td>60</td>
<td>Spanish Esmeralda</td>
<td>60</td>
</tr>
<tr>
<td>English One Life to Live</td>
<td>60</td>
<td>Spanish Maria la del Barrio</td>
<td>30</td>
</tr>
<tr>
<td>English The Young and The Restless</td>
<td>60</td>
<td>Spanish Betty la Fea</td>
<td>60</td>
</tr>
<tr>
<td>German Verbotene Liebe</td>
<td>30</td>
<td>Japanese Henshu Ou</td>
<td>80</td>
</tr>
<tr>
<td>German Gutezeiten Schlechtezeiten</td>
<td>30</td>
<td>Japanese Kamisama no itazura</td>
<td>60</td>
</tr>
<tr>
<td>German Marienhof</td>
<td>30</td>
<td>Japanese Namida wo huite</td>
<td>60</td>
</tr>
<tr>
<td>German Unter Uns</td>
<td>30</td>
<td>Japanese Straight News</td>
<td>60</td>
</tr>
<tr>
<td>German Hinter Gittern</td>
<td>60</td>
<td>Japanese Audrey</td>
<td>15</td>
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*including commercials

**Procedure**

The soap operas were taped and then watched on a color television set. Three different raters assessed the episodes according to a set of devised rules. The number of implicit transitions (an entry or an exit) were counted as well as the number of explicit transitions (an entry or exit) for each show. Afterwards, the implicit transitions and explicit transitions were totaled. An entry or exit was judged to be either explicit or implicit based on the following rules:

1. Only the paths of the main characters are counted. A path follows a character’s trip from one place to another. Pay attention to where the character initially was and how he/she arrives at the next place. Follow the paths of each character individually throughout the storyline.

2. Generally, a path will begin with a character’s exit from a previous scene.

3. If the exit was explicit (the character leaves through a doorway, gate, arch, or is seen walking away and disappears behind a wall or around a corner), the path is counted as one explicit, whether or not the character’s re-entry is explicit or implicit.

4. If the exit is implicit (the scene is cut with the character in one place without showing an exit through a doorway, etc. or is seen walking way, but not through a door or around a corner), then:
   a. if the reappearance of the character is via an explicit entrance, it will count as one explicit.
   b. If the reappearance of the character is via an implicit entrance (character is already found in another scene), it will count as one implicit.

5. First appearances:
   a. are counted as one explicit if the person enters the first scene through a doorway, etc. In this case, the path began with the character’s entry.
   b. are not counted if the opening scene of the storyline begins with the characters already in a place; there is no indication of how he or she got there.
6. Last appearances are counted if the character exits through a door, etc. and it is one explicit.

7. If there is a noise that implies an entry or exit (door slamming), but the character is not shown leaving or coming in through a “doorway,” then it is counted as one implicit.

8. Flashbacks and dreams are not counted.

9. If a group of people enter or leave at the same time, it is counted as one explicit or one implicit. The members of that group are counted as individuals once they become separate entities.

**Results**

The number of implicit and explicit transitions (entries and exits) were counted and graphed. The first graph (see Fig. 4) shows the number of implicit transitions per minute for each show and judge. The total amount of implicit transitions for each soap opera was divided by the length of the show, which included commercials. English had the lowest rate of implicit transitions, ranging from 0 to 0.16 per minute, while the other satellite-framed language, German, had a slightly higher rate, ranging from 0.18 to 0.44 per minute. Most of the points fall below 0.32/minute for German soaps. The rate for one German soap episode overlaps with the Spanish and Japanese rates, which are evidently higher than the rates for the languages in the other category. The Spanish rates range from 0.34 to 0.53 per minute, while the lowest rate for Japanese soaps is 0.26/minute and the highest is 0.50/minute. However, in the case of the Japanese soaps, like the German soaps, the data for one episode overlaps with the data for another type of language. The majority of points for the Japanese soaps are bunched together in the 0.40 to 0.50 per minute range.

*Fig. 4*
The next graph (see Fig. 5) plots the number of explicit transitions per minute for each soap opera episode. The total number of explicit transitions for each show was divided by the total number of minutes the show was on. Commercials were included in that amount of time. The range of rates of explicit transitions to minutes is about the same for English (0.08-0.38), Spanish (0.16-0.40), and Japanese (0.12 to 0.40). German showed a slightly higher range (0.22-
Fig. 6 is a graph of the number of implicit transitions to explicit transitions for each show and rater. The graph indicates that English and German soap operas have lower implicit to explicit ratio than the Spanish and Japanese ones. The ratios for German and English generally fall below 1, while the ratios for Japanese and Spanish are at or above 1.
Discussion

Our results with the visual depiction of entries and exits in soaps parallels the previous discoveries made by linguists in language. Based on Slobin’s findings, that verb-framed languages had a tendency to state things more implicitly than satellite-framed languages, we predicted that the visual depictions of verb-framed languages (Spanish and Japanese soap operas) should be more implicit than the depictions of satellite-framed languages (English and German soap operas).
The number of implicit transitions per minute was computed (see Fig. 4). Nearly all of the points for the satellite-framed languages (27 of 30) fell below the points for the verb-framed languages. Those three distinct points represent three ratings of one show (Hinter Gittern). In addition, there were three points (one show: Straight News) in the Japanese data that overlapped with the German data. Most of the points for the German data were clustered together below the points for the Japanese and Spanish shows, except for one point. In addition, the majority of the points for the Japanese soaps were bunched together above the points for the English and German data. For the most part, the soap operas belonging to satellite-framed languages had a lower ratio of implicit transitions per minute than those of verb-framed languages.

The ratio of implicit to explicit rates for each show within each soap type are plotted in Fig. 6. The ratio is much lower for the English and German soaps than for the Spanish and Japanese soaps. This graph has less scatter than Fig. 4, because the ratio is more stable than the component rates. The ratio is below 1 for every English and German show, and at or above 1 for every Spanish and Japanese show. The averages are English (0.34), German (0.68), Spanish (1.52), and Japanese (1.74). Thus the implicit-to-explicit ratio in verb-framed language soaps is about three times higher than in satellite-framed languages.

Although the ratios for implicit transitions showed a significant difference among the various language types, the ratio of explicit transitions to minutes (see Fig. 5) was basically the same for the two verb-framed languages (Spanish and Japanese) and for one satellite-framed language (English). German was slightly higher than the rest.

Overall, the soap operas within the satellite-framed languages were more implicit than the verb-framed language soap operas. This parallels with Slobin’s discovery of the tendency
of verb-framed languages to state things more implicitly. Verbal language and visual media or art, such as comic books and television shows, are a means of expression. Finding a correlation between the two illustrates that our thoughts are expressed in similar ways even if they are released through different outlets.
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