Introduction & Research Aims

Different interpretations structure: Familiar Metaphors and Unfamiliar Metaphors.

The purpose of this study is to examine the structure of the metaphor comprehension in individuals’ comprehension. Our previous studies (Taira, Nakamoto & Kusumi, 2007) showed that the structure of familiar metaphors is clearly different from the one of unfamiliar metaphors. While familiar metaphors are understood by an individual with many interpretations, unfamiliar metaphors are understood with less interpretations and shows different pattern of interpretations between individuals.

But, these results were only from offline describing data, we don’t know whether we really produce more or less interpretations during metaphor comprehension. This study focused on this online problem of metaphor comprehension by using of text rereading paradigm.

Life is like a Gamble...
- Both include risks.
- Both require us to make decisions.
- In both, it is impossible to know what will happen next...

Marriage is like a Refrigerator.
- Both are filled with various things...
- Both are filled with darkness.
- Both are filled with coldness...

Experiment-Method

Materials
5 Japanese familiar metaphors and 5 Japanese unfamiliar metaphors. They were embedded and presented in the related text. The text was consisted of 14 sentences (see HANDOUT). The fifth sentence was metaphor expression itself. The sixth sentence was the most metaphor-related sentence, and the tenth sentence was moderate metaphor-related sentence.

Procedure: Reading Test
Before the experiment started, the participants were instructed to read the given texts showed on the PC display as self-paced reading, but not to read lukewarmly for the recall test. After the instructions, the participants were required to read two practice texts as practice trials. Each practice text included one nonsense sentence (XXX). This was the hidden sentence which originally applies to the text. The participants were required to read the hidden sentence with imaging how the possible sentence could be embedded.

In the true trials, 10 texts with no metaphorical expression were presented (First Reading Session): We excluded the fifth sentence and alternatively presented nonsense word (XXX). The participants were not informed of second reading session and required to read them through. Immediately after the first reading session, the participants were required to reread the same 10 texts (Rereading Session). In this session, half the participants were presented the texts with no metaphor, and other half the participants were presented with the related metaphorical expression which was hidden fifth sentence in the first reading session.

Participants
47 undergraduates participated.
- 23 were the participants with no-metaphor.
- 24 were the participants with metaphor.

Results & Discussion

The results of rereading effect
The reading time data of the target sentence (the sixth sentence: the most metaphor-related sentence; the tenth sentence: moderately metaphor-related sentences) were collected and divided by the mora of the target sentences. In the basis of this data, we got the differential value between the first reading session and the rereading session (the reading time of first reading session” – “the reading time of rereading session”). This value means the largeness of the rereading effect: the larger the value gets, the participants can reread the same sentence faster.

The difference between familiar metaphor and unfamiliar metaphor can be also examined by text comprehension experiment.
- Familiar metaphor includes many interpretation in a individual.
- Unfamiliar metaphor include on the most metaphor-related interpretation.

What can we discuss???

For the interpretation diversity of metaphor...
Interpretation diversity is also one of the important factors of similarity cognition and metaphor comprehension process (Utsumi & Kuwabara, 2005; Utsumi, 2007). Interpretation diversity in metaphor comprehension reflects the reason why the topic and the vehicle can be combined. That is, the more we can produce the interpretations, the more strongly we feel the topic similar the vehicle. The result of this study can support Taira et al. (2007) and reveal the interpretation diversity for familiar metaphor.

For the strength of metaphorical meaning...
The similarity cognition is related with not only metaphor comprehension but also metaphor evaluation such as metaphor aptness and metaphor familiarity. Blasko & Connins (1993) investigate the correlation between the metaphorical meaning of the vehicle and the metaphor aptness and familiarity. They revealed that the vehicle of high apt and high familiar metaphor (e.g. THE ROCKET IS A BULLET) activates metaphor-related meaning (e.g. SPEED), but that the vehicle of moderate apt and low familiar metaphor (e.g. A GOOD PROFESSOR IS AN OASIS) does not activates metaphor-related meaning (e.g. FULFILLING). Those results suggested the aptness and the familiarity of metaphor reflect the strength of metaphorical meaning. The strength of metaphorical meaning means whether the metaphor is understood or not. In this point, the similarity cognition and metaphor comprehension can be decided by how aptly the topic is expressed by the vehicle and how familiar and conventional the pair of the topic and vehicle is. In short, the aptness and the familiarity affect on the similarity (Chappell & Kennedy, 2001; Gentner, Bowdle, Wolff, & Boronat, 2001; Jones & Estes, 2006). The result of this study shows the efficiency of familiar metaphor for the metaphorical meaning.

Figure: The results of the average and SD of the differential value
(Left: familiar metaphor, Right: unfamiliar metaphor)
A two-way ANOVA was conducted for Familiar metaphor and Unfamiliar metaphor.
- Rereading strategy: with No metaphor vs. with related Metaphor
- The sentence relatedness with metaphor: the Most related sentence vs. the Moderate related sentence

Familiar metaphor
Only the main effect of rereading strategy was marginally significant (F (1, 45) = 3.00, p < 10%). This means that the participants with metaphor tended to reread the texts faster than the participant with no metaphor. This effect could be observed only in the most and moderate metaphor-related sentences, not on the other sentences which appeared after the fifth metaphor sentence.

Unfamiliar metaphor
The interaction was significant (F (1, 45) = 4.48, p < 0.05). Ryan’s multiple comparison procedure revealed that the participants with metaphor activated only the most metaphor-related interpretation more than the participants with no metaphor (F (1, 90) = 3.71, p < 10%), but did not activate the moderate interpretation (F (1, 90) = 0.16, n.s.)
How different are Familiar Metaphors from Unfamiliar Metaphors?
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Materials

* All materials are presented in Japanese for the participants.

■ Familiar metaphors and interpretations

Life is like a gamble. (人生はギャンブルのようにだ)
- In the both, we cannot know what will happens next. (Most metaphor-related interpretation)
- The both depend on lucky. (Moderately metaphor-related interpretation)

Word is like a weapon. (武器は武器のようにだ)
- The both may hurt someone. (Most metaphor-related interpretation)
- The both control someone. (Moderately metaphor-related interpretation)

Sadness is like bottom of sea. (悲しみは海底のようにだ)
- In the both, we cannot see around because of darkness. (Most metaphor-related interpretation)
- We cannot reach the both. (Moderately metaphor-related interpretation)

Love is like sickness. (愛は病気のようにだ)
- In the both, we lose yourself. (Moderately metaphor-related interpretation)
- The both are precious. (Most metaphor-related interpretation)

Marriage is like a refrigerator. (結婚は冷蔵庫のようにだ)
- In the both, various things or events are filled. (Most metaphor-related interpretation)
- In the both, things or events will go colder. (Moderately metaphor-related interpretation)
- The both can comfort us. (Most metaphor-related interpretation)
- We sometimes strongly depend on the both. (Moderately metaphor-related interpretation)

Scholastic ability is like money. (学力は貨幣のようにだ)
- The both are convenient for your life. (Most metaphor-related interpretation)
- The both are tools for your life. (Moderately metaphor-related interpretation)

■ Unfamiliar metaphors

Discussion is like a building. (議論は建築物のようにだ)
- The both will pile up. (Most metaphor-related interpretation)
- The both are constructed by many people. (Moderately metaphor-related interpretation)

Knowledge is like an accessory. (知識はアクセサリのようにだ)
- The both can be very important for us. (Most metaphor-related interpretation)
- The both can be shown off. (Moderately metaphor-related interpretation)

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■ References


Text Example: Text of “marriage is like a refrigerator”

<table>
<thead>
<tr>
<th>No</th>
<th>Sentence</th>
<th>Metaphor expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>After a long love, my old boyfriend and old girlfriend got married. 嫁髪の男性と女房が、長い恋愛の末に一結婚を果たした。</td>
<td></td>
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<tr>
<td>2</td>
<td>I had watched them for a long time, and I had been worried with their hesitant state. 長い間を見ていた私は、いつも一緒に悩んだところと、ずっとヤキモキしていた。</td>
<td></td>
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<tr>
<td>3</td>
<td>I had wanted to introduce my friends as a best couple to my husband. 今年の私に、仲の良い生活を楽しむ人を、早々と紹介したかった。</td>
<td></td>
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<tr>
<td>4</td>
<td>After half a year, I was informed of their marriage, and I was pleased as if it were my own. 何年前に、結婚の報告を聞いた時は、私もがごとのように喜んだものだ。</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Then, she told me that their marriage was like a refrigerator. 彼女と彼の結婚生活は、冷蔵庫のようなものだった。</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Their life was filled with various events. 二人の生活は、色々なものがつまったそうだ。</td>
<td></td>
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<tr>
<td>7</td>
<td>She called me and talked her freshly jealousy, his payday’s extravagance. 彼女が初めて私に叫び、彼の給料日の消費を話した。</td>
<td></td>
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<tr>
<td>8</td>
<td>I was really pleased with her and his good life. 二人の仲の良い生活を、私は心から祝福していた。</td>
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<tr>
<td>9</td>
<td>I hoped that they would be with each other forever. 二人はいつまでもこんな生活だろうか、私は思った。</td>
<td></td>
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<tr>
<td>10</td>
<td>But I have guessed wrong and their life has gone cold. だが私に予想ははずれ、2人の結婚生活は、冷たくなっていたのだ。</td>
<td></td>
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<tr>
<td>11</td>
<td>Now I wonder why their life has gone like this. 半年経った今、2人がそうした状態なのか、私としては意外だった。</td>
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<tr>
<td>12</td>
<td>Is it because their term when they had been with each other is so long? お互いの付き合いが長かったから、それもあるからか、私は思った。</td>
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</tr>
<tr>
<td>13</td>
<td>Their cold life reminds me of their past love and life. 2人のこの生活を見て、2人が結婚する前の生活を、私は思い返していた。</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Referring them, I decide that I gently treat my husband...but it’s not all the time. 2人の生活を参考に、私は夫にたまに良好から、優しくしてあげようと思った。</td>
<td></td>
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