An Experimental Analysis of Children's Misunderstanding of Tautology

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Summary

There have been many experimental studies on children's abilities to understand figurative expressions such as metaphor and irony. However, no one has yet successfully explained the children's performance in comprehending tautology, i.e. *A is A*（≒ Japanese *A wa A* (*da*)）. Using Yamamoto's（2018）experimental data on Japanese schoolchildren, this paper examines children's misunderstanding of tautology. I claim that children fail at all of the three steps proposed in Winner's（1988）scheme, and the lack of the ability to read another's intentions places constraints on tautological comprehension. This leads to the conclusion that the process of interpreting tautology requires higher processing competence.

Keywords: tautology, language acquisition, cognitive competence

1. Introduction

Many researchers have experimentally examined children's（mis）understanding of figurative expressions（e.g. metaphor and irony）and argued that irony is more difficult for children to understand than metaphor. No one has yet discussed children's（mis）understandings of tautology, i.e. *A is A*（≒ Japanese *A wa A* (*da*)[1]）.

Adopting Winner's（1988）scheme, I claim that, using Yamamoto's（2018）experimental data on Japanese children, characteristics of children's misunderstanding of tautology are common to those observed in their misunderstanding of metaphor and irony, and propose that tautology comprehension is a process that requires higher processing competence.

2. Previous Studies

2.1. Experimental Research on Nominal Tautology

Many studies have discussed nominal tautological utterances such as *Business is business*, but few of them are experimental ones. For instance, Gibbs and McCarrell（1990）focus on how adults understand tautological utterances and claim that three elements influence how English colloquial tautologies are understood: context, syntactic form, and lexical content. However, their analysis cannot explain children's

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performance in comprehending tautology. Yamamoto（2018）compares children's abilities to comprehend tautology with simile by conducting an experiment for children aged 6–12 and proposes that（i）schoolchildren can understand simile more easily than tautology and（ii）unlike simile, there is a great disparity between 12-year-old children's and adults' ability to comprehend tautology. The average accuracy percentages of the simile and tautology cases are shown in Table 1.

Table 1 : Average Accuracy Percentages of the Simile and Tautology Passages

Grade （age）	1 （6-7）	2 （7-8）	3 （8-9）	4 （9-10）	5 （10-11）	6 （11-12）	Adults （18-19）
Simile Questions	58%	63%	56%	80%	82%	87%	93%
Tautology Questions	32%	39%	35%	42%	51%	44%	85%

（modified from Yamamoto（2018: 72））

The percentages of correct answers to the simile passages are higher than those to the tautology ones in all grades. Thus, Yamamoto（2018）concludes that simile is easier for children to comprehend than tautology. However, she does not mention how children misunderstand tautology.

2.2. Children's（Mis）understanding of Metaphor and Irony

First, let us focus on metaphor comprehension. Early studies such as Asch and Nerlove（1960）argue that children cannot understand metaphor until they are around eleven or twelve years old. However, later studies point out that these early studies put excessive task demands on participants' abilities to comprehend metaphor, and thus demonstrate that metaphor comprehension emerges later. If task demands are lightened, even infants can follow metaphorical expressions.[2] According to Winner et al.（1976）and Vosniadou（1987）, even pre-school children can comprehend metaphors based on perceptional similarity such as figures and colors, whereas only the ability for children to understand metaphors based on abstract or conceptional similarity develops at ten years old. These findings demonstrate that certain kinds of metaphors seem to prove more difficult to understand than others. It has been proposed that these differences are caused by two deficits: a perceptional or conceptional deficit and an informational deficit（e.g. Winner（1988: 61-62））.

Next, let us move on to studies on children's understanding of irony. Winner（1988: 160）argues that errors in comprehension of irony result from lack of "the abilities to discriminate falsehood from truth, to infer another's beliefs, and to infer another's intentions." Matsui（2013a: 42-47）argues that children become more able to understand irony after beginning elementary school, and that irony is regarded as a social strategy for indirectly showing the speaker's attitude to a given situation and drawing the hearer's attention to the attitude. For now, it is important to note that irony functions as conveying the speaker's negative attitude whereas metaphor does not.

So far, we have individually discussed children's（mis）understanding of metaphor and irony. Some researchers emphasize that irony is more difficult for children to grasp than metaphor. Conversely, Winner

（1988）argues that metaphor and irony are understood in qualitatively different ways and thus their comprehension causes different difficulties. She divides the task of comprehending nonliteral expressions such as metaphor and irony into three steps as shown in（1a）-（1c）:

（1）a. *Detection of nonliteral intent*. At some level, whether consciously or not, the hearer must recognize that the utterance is intended nonliterally: he must realize that the speaker does not mean what he says, and that he means something very different from what he says.［step 1］

b. *Detection of the relation between sentence and speaker meanings*. The hearer must discover the relation between what is said（but not meant）and what is meant（but not said）.［…］As with step 1, this step need not be carried out at the level of conscious awareness.［step 2］

c. *Detection of speaker meaning*. The hearer must infer the message that the speaker intends to convey, and he does this on the basis of the relation that he perceives between what is said and what is meant.［step 3］ （Winner（1988: 10-11））

To understand such a scheme correctly, let us apply it to both cases. In the metaphor case, at step 1, a hearer must identify consciously or unconsciously that the utterance in question is nonliteral. At step 2, she must find that what is said has a relation of similarity to what is meant. Finally, at step 3, she must deduce what the speaker intends based on the similarity relation that she recognizes at step 2 and imagine something similar in the given context. In the irony case, step 1 is conducted in the same way as the metaphor case. At step 2, the hearer must detect that there is a relation of opposition between what is said and what is meant. And at step 3, she must infer what the speaker intends based on the opposite relation. Winner's three step scheme enables us to judge the difficulty in understanding figurative expressions based on the same criterion. Furthermore, Winner（1988: 11）argues that although the parallel steps are required for understanding each of case, "steps 2 and 3 are more difficult for metaphor than irony, and step 1 is more difficult for irony than metaphor. Thus, errors in understanding metaphor occur at steps 2 and 3, whereas errors in understanding irony occur primarily at step 1."

3. Yamamoto（2018）'s Experiment

Using Yamamoto's（2018）experimental results, I will discuss children's misinterpretation of tautology. Before embarking on this discussion, I outline the experiment in section 3.

A total of 193 elementary school students, who are native Japanese speakers, participated in the study. They are classified as shown in Table 2.

Table 2 : Details of the Number Who Took the Survey

Grade (age)	1 (6-7)	2 (7-8)	3 (8-9)	4 (9-10)	5 (10-11)	6 (11-12)	Total
Boys	18	13	18	15	16	19	99
Girls	15	13	17	16	16	17	94
Total	33	26	35	31	32	36	193

(modified from Yamamoto (2018: 68))

Participants were given a booklet with 10 passages (4 tautology, 3 simile, and 3 control passages). Each passage was collected mainly from picture books, children's books, and collections of children's conversations. A target expression in each passage was underlined. Three options were presented as interpretations of the target expression. Participants were instructed to carefully read each passage in the booklet and judge whether each option is an appropriate interpretation of the underlined expression. An additional experiment was conducted with 20 university students in order to examine adults' answers to the same questions. Tautology passages such as (2)-(5), which will be presented in the next section, were used with their own options (a)-(c).

4. Results and Discussion

As mentioned in Table 1, the first–sixth graders have 32%, 39%, 35%, 42%, 51%, and 44% average accuracy percentages of the tautologies, respectively, which are lower than that of the adults, 85%. This shows that schoolchildren have difficulty in understanding tautologies properly. So, how do children misunderstand tautology? In section 4, adopting Winner's (1988) scheme, I examine children's misunderstanding of tautology based on Yamamoto's (2018) data and pin down constraints on tautology comprehension.

First, consider (2).

(2) [A six-year-old girl mutters to herself about her younger sister in a bathroom.][3)]
Imoto wa itsumadetattemo imoto. (word-for-word translation: Little sister is always little sister.)
(*Anone – Kodomo no Tsubuyaki*)

a. My little sister won't change.
b. A little sister is a younger sister who has the same parents.
c. The six-year-old girl treats her sister like a baby.

In this example, the six-year-old girl indicates that her sister's personality is unchangeable, so the right interpretation of her utterance is (2a). The schoolchildren show a tendency to choose (2a) as well as (2b).

The percentages of the children in the first–sixth grades who chose（2a）are 66%, 76%, 71%, 96%, 90%, and 69%, respectively. These figures are relatively high. This seems to prove that children develop the ability to grasp tautology as they grow older. However, that is not the case. A certain proportion of the children chose（2b）which contains a lexical connotation for *imoto* "little sister." The proportions in each grade are 24%, 38%, 42%, 38%, 53%, and 44%, respectively. This finding shows that a large percentage of children have difficulty in distinguishing between tautological and lexical interpretation. That is, children are not able to recognize that the utterance in question is intended to be nonliteral, thus it follows that errors in understanding tautology occur at step 1 of Winner's（1988）three steps, like the irony case.

Next, consider（3）.

（3）[The fish finally decided to go out of the water, and jump onto the bank. However, he couldn't breathe or move. The frog, who happened to pass by, pushed the fish back into the water. Then, the fish freely swam around in the water.]

The sunrays reached down within the weeds and gently shifted patches of luminous color. This world was surely the most beautiful of all worlds. He smiled at his friend the frog, who sat watching him from a lily leaf. "You were right," he said. <u>*Sakana wa sakana sa*</u>.（translation: Fish is fish.）

（*Sakana wa Sakana*）

a. The frog smiled at the fish.
b. The fish can live only in the water.
c. The fish is swimming in the water shining like a jewel.

In this example, the main character, the fish, wants to get out of the water, but strongly feels that he cannot live on land. The right interpretation for（3）is（3b）. The word *sakana* "fish" is also familiar to children, but this does not lead to a clear understanding of the passage's target expression. The participants are more likely to choose（3b）. The proportions of the first–sixth year children who chose（3b）are 93%, 84%, 62%, 61%, 81%, and 72%, respectively. More interestingly, next in frequency among their responses is（3c）.（3c）is a kind of simile, which includes the word *like*. The rates of those who chose（3c）are 54%, 23%, 28%, 29%, 18%, and 19%, respectively. This observation shows that even if the children recognize that the tautological utterance is intended to be nonliteral, they cannot detect the relation between what is said and what is meant. Thus, we can say that the children made mistakes at step 2 of Winner's（1988）three steps. At step 2, a hearer must detect the relation that is intended. However, in the tautology case, children infer a wrong relation. This failure is similar to the metaphor case.

The above observations of（2）and（3）reveal that the children failed at the first and second step in Winner's（1988）scheme. Some might argue that children misunderstood tautologies because they had a lack of knowledge of *imoto* "little sister" and *sakana* "fish." However, this is unlikely because these two terms are ones known to be familiar to schoolchildren. It follows from this that a familiarity with the terms

used in a tautology does not predict understanding of the tautological expression.

Furthermore, consider (4).

(4) [A woman, who is a writer, and her son have lunch with a therapist called Mr. K, who is her friend.]

"First of all, I have depressed people sing like this 'Pinch, Pinch, Chance, Chance, La-la-la'," said Mr. K, who sees patients with mental problems. That song is another version of the same melody as the Japanese children's song 'Pichi, Pichi, Chapu, Chapu, La-la-la.' After hearing the parody song, my son said, "That's weird! *Pinchi wa pinchi, chansu wa chansu desho*." (word-for-word translation: A pinch is a pinch. A chance is a chance.) (*Chiisana Kotoba*)

a. A pinch is one thing, and a chance another.

b. A pinch comes with a chance.

c. The son disagrees that pinch is different from chance.

In this example, the son says *Pinchi wa pinchi, chansu wa chansu desho* after the therapist sings a parody song. The son's tautological utterance is used to object to the doctor's (implicit) opinion that "if you can get out of a crunch, your chance will come, so you enjoy a crunch," and to express his opinion that "crunches are totally different from chances." So the correct interpretations of (4) are both (4a) and (4c). The percentages of the children in the first–sixth grades who chose only (4a) are 75%, 65%, 71%, 74%, 87%, and 97%, respectively. The result seems to show that schoolchildren can comprehend this kind of tautology. However, to give just one correct response to the utterance may not indicate full comprehension of tautology. To offer all correct responses to the question, both (4a) and (4c) can indicate with certainty that the children understand the tautological expression. However, the numbers of those who chose both drop dramatically. The figures are around 40%.[4] This finding reveals that the children have insufficient abilities to infer another's intention[5] and they cannot figure out what is meant. On the scheme presented in Winner (1988), at step 3, a hearer must infer what a speaker intends based on the relation that she perceives between what is said and what is meant. However, the children cannot reach even step 3 of Winner's (1988) three steps.

Finally, consider (5).

(5) [On Sunday afternoon, Takashi wants to play with his father. His father is working in his study.]

Takashi: Daddy, when will you play with me?

Father: I'm busy now. I'll play with you later.

Takashi: When?

Father: *Ato wa ato da*. (word-for-word translation: Future is future.) Play with your brother.

a. Takashi will play with his father after playing with his brother.

b. His father does not want to say when he can play with Takashi.

c. His brother will play video games with Takashi.

This example was presented in order to prove that the children's understanding of the speaker's attitudes was accurate. In this example, the boy called Takashi wanted to play with his father but the father did not want to play with him. The correct response seems to be derived from encyclopedic information about *ato* "future," but it is not suitable for the context. By uttering *Ato wa ato da*, the father communicates his intention of refusing his son's request to play with him, as shown in (5b). In the survey, 90% of the college students chose (5b). This shows that they interpret the tautological utterance as conveying not a definite time the father can play with his son, but a will of rejection. On the other hand, the children are strongly prone to choose (5a).[6] There are a higher proportion of the first and second grade students who chose (5a), which means a definite time the father can play with his son. After that, as year follows year, the number of those who chose (5b) makes a gradual ascent. The choosing rate of the sixth-grade students ends up at just 55%. It can be said from the results that the children find it hard to read the speaker's intention such as rejection.

5. Conclusions

I have examined children's misunderstanding of tautology based on Yamamoto's (2018) data and demonstrated that the characteristics of children's misunderstanding of tautology are common to those found in their misunderstanding of metaphor and irony. Errors in tautology comprehension occur at all three steps in Winner's (1988) scheme, and that the lack of the ability to read another's intentions constrains tautological comprehension. It seems, therefore, that the process of interpreting tautology requires higher processing competence.

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Notes

1) The Japanese language has three kinds of nominal tautologies: *A wa A* (*da*), *A ga A* (*da*), and *A mo A*

(*da*). This paper focuses on cases of *A wa A* (*da*).

2) Iwata (1990: 96-97) lists factors for reducing participants' burdens as follows: (i) how to measure metaphor comprehension, (ii) characteristics and kinds of grounds linking a topic and a vehicle, (iii) contextual effects, (iv) complexity of a linguistic form, and (v) familiarity with concepts.

3) In order to make it easier for non-Japanese speakers to understand the Japanese examples, they are given in English except for the nominal tautologies *A wa A* (*da*).

4) The percentage of the fifth-grade students is 62%.

5) Tautology functions as objecting to a previous utterance and a previous thought. (see Nakamura (2000) and Yamamoto (2014).)

6) It seems that the children chose (5a) based on an association from the term *ato* "later." Such an interpretation reflects a failure at step 2 in Winner's (1988) scheme.

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要　旨

メタファーやアイロニーを理解する能力の発達については実験的手法に基づく先行研究が数多く存在する。だが、A is A や「A は A だ」といったトートロジーを子どもがどのように理解するのか（あるいは、誤るのか）について論じた研究はほとんどない。本稿では、山本（2018）による日本人小学生を対象とした調査結果を用い、子どものトートロジー理解の誤りについて考察する。そして、トートロジーを理解する際、子どもは、Winner（1988）が提案する文字通りではないことばを理解する 3 ステップのすべてにおいてつまずくこと、他者の意図を読み取る能力の欠如がトートロジー理解に制約を課すことを主張する。このような結論は、トートロジーの理解プロセスがより高度な処理能力を要求することを示唆している。

キーワード：トートロジー、言語習得、認知能力