

An Analysis of the Semantics of Connective /ga/ 'but' with the Use of Possible Worlds*

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Abstract in Japanese

要旨

本短稿は接続詞「が」「but」の真偽条件的意味の分析を提案する。ある世界における文 ϕ -が、 ψ (ϕ , but ψ) の真偽値は、その世界におけるふたつの文 ϕ と ψ との真偽値だけでなく、その世界から接近可能なすべての可能世界における文 ϕ と文 ψ との真偽値によって決定されるとし、これは、形式意味論の文献(たとえば、de Swart 1998: 33 - 34頁と54頁)に反し、接続詞「が」「but」が接続する文の真偽値が、可能世界を仮定すれば、「が」の接続するふたつの文の真偽値によって特定できることを示す。

[キーワード] 接続詞「が」、可能世界

Abstract

The current squib proposes an analysis of the truth-condition of sentence connective /ga/ in Japanese 'but'. The truth condition of ϕ -ga, ψ ' ϕ , but ψ ' in a world is determined not only by the truth conditions of ϕ and ψ but also by the truth-conditions of ϕ and ψ in all the possible worlds accessible from the world. This implies that the truth conditions of the sentence connective /ga/ 'but' is specifiable only by the truth conditions of the sentences that the connective /ga/ connects if we assume possible worlds, which is contrary to the view in the literature, e.g., de Swart 1998: 33-34.

[Key Words] sentence connective /ga/, possible worlds

1. Introduction

If an utterance of a sentence schemed as *Clause₁-/ga/, Clause₂-/nai/* ‘*Clause₁*, but it is not the case of *Clause₂*’ is appropriate in some context, as in (1a), then an utterance of the corresponding sentence with the affirmation of *Clause₂* as the consequence clause, *Clause₁-/ga/, Clause₂* ‘*Clause₁*, but *Clause₂*’, is not appropriate in that context, as in (1b). The symbol # means that the sentence sounds odd or illogical.

(1) Context: It rains, and the ground gets wet, in every possible world accessible from the real world and other than the real world.

a. Utterance: ame-ga huru-ga, zimen-ga nure-nai.
rain-Nom fall-Nonperf-Con, ground-Nom get wet-not
‘It rains, but the ground does not get wet.’

b. Utterance: #ame-ga huru-ga, zimen-ga nure-ru.
rain-Nom fall-Nonperf-Con, ground-Nom get wet-Nonperf
#‘It rains, but the ground gets wet.’

The context that makes the first example sound fine and the second example sound odd is, for example, is one such that it rains, and the ground gets wet, in every possible world accessible from the real world and other than the real world.

The oddness of the utterance (1b) is extra-grammatical. The oddness of the utterance (1b) is absent in some other context, and the utterance (1a) sounds odd in that context. The utterance (1a) /ame-ga huru-ga, zimen-ga nure-nai/ ‘It rains, but the ground does not get wet’ is NOT appropriate in such a context as one in which it rains, and the ground does not get wet, in every possible world accessible from the real world and other than the real world, as in (2a). The utterance (1b) /ame-ga huru-ga, zimen-ga nure-ru/ ‘It rains, but the ground gets wet’, on the other hand, is appropriate in such a context as this, as in (2b).

- (2) Context: It rains, and the ground does not get wet, in every possible world accessible from the real world and other than the real world.

Utterance: a. #(1a)

b. (1b)

2. Analysis¹

Suppose the lexicon, the syntax, and the semantics are given as follows:

- (3) **Lexicon:** The sequence of phonemes /ame-ga huru/ ‘It rains’ is a sentence, and the sequence of phonemes /zimen-ga nurer-u/ ‘The ground gets wet’ is a sentence.
- (4) **Syntax:** For any sentences ϕ and ψ , the following are also sentences:
- a. (ϕ -/nai/),
 - b. (ϕ -/to/, ψ), and
 - c. (ϕ -/ga/, ψ).
- (5) **Semantics:** Every sentence is either true or false with respect to a given world.
- a. ‘ ϕ -/nai/’ ‘It is not the case of ϕ .’ is true with respect to a given world if and only if ϕ is not true in the world.
 - b. ‘ ϕ -/to/, ψ ’ ‘if ϕ , then ψ ’ is true with respect to a given world if and only if either $\neg\phi$ is true or ψ is true with respect to the world.

For example, the immediately following truth table clarifies the semantics (5b).

¹ See Blakemore 1989 for an analysis of ‘but’ using relevance. I leave the examination of this previous analysis for another study.

(6) [p] ^{w_r}	[q] ^{w_r}	[p-/to/, q] ^{w_r} ‘if p, then q’
1	1	1
1	0	0
0	1	1
0	0	1

Among all the possible assignments of truth values to the propositions p and q, ‘p-/to/, q’ is true when 1) ‘p’ is true, and ‘q’ is true, 2) ‘p’ is not true, and ‘q’ is true, and 3) ‘p’ is not true, and ‘q’ is not true, and ‘p-/to/, q’ is not true when ‘p’ is true, and ‘q’ is not true.

For example, the syntax plus the lexicon analyze (7) /ame-ga huru-to, zimen-ga nureru/ ‘The ground gets wet if it rains’ as a sentence since it consists of two particular sentences /ame-ga huru/ and /zimen-ga nureru/ with the former sentence immediately followed by the connective /to/.

(7) ame-ga huru-to, zimen-ga nurer-u.
 rain-Nom fall-if, ground-Nom get wet-Nonperf
 ‘The ground gets wet if it rains.’

The sentence (7) is true in a world if and only if either the sentence /ame-ga huru/ ‘it rains’ is not true in the world or /zimen-ga nureru/ ‘the ground gets wet’ is true in the world. That is, the sentence (7) is true when 1) ‘ame-ga huru’ ‘it rains’ is true, and ‘zimen-ga nureru’ ‘the ground gets wet’ is true, 2) ‘ame-ga huru’ ‘it rains’ is not true, and ‘zimen-ga nureru’ ‘the ground gets wet’ is true, and 3) ‘ame-ga huru’ ‘it rains’ is not true, and ‘zimen-ga nureru’ ‘the ground gets wet’ is not true, and the sentence (7) is not true when ‘ame-ga huru’ ‘it rains’ is true, and ‘zimen-ga nureru’ ‘the ground gets wet’ is not true.

Given W_{i-r} is a set of the possible worlds that are accessible from a world w_r , I propose

the semantics of /ga/ ‘but’ as follows:

- (8) ‘ φ -/ga/, ψ ’ ‘ φ , but ψ ’ is true with respect to a world if and only if both ‘ φ ’ and ‘ ψ ’ are true in that world, **and there is some accessible possible world other than that world in which ‘ φ & ($\neg\psi$)’ is true.**

This is added to the semantics of the aforementioned grammar. The truth table makes the analysis clearer, as follows:

(9) $[p]^{w_r}$	$[q]^{w_r}$	$\exists w_i[(w_i \in W_{i-r} \ \& \ w_i \neq w_r) \ \& \ [p \ \& \ \neg q]^{w_i}]$	$[p\text{-}/ga/, q]^{w_r}$
1	1	1	1
1	1	0	0
1	0	1	0
1	0	0	0
0	1	1	0
0	1	0	0
0	0	1	0
0	0	0	0

The combinations of the truth values of ‘p’ and ‘q’ in the accessible possible worlds when ‘p’ and ‘q’ are both true in the given world determine the truth value of the sentence ‘p-/ga/, q’ in a given world in the following way. Suppose the possible worlds that are accessible from the real world are only w_1 , and w_2 , and neither of them is identical to the real world: i.e., $W_{i-r} = \{w_1, w_2\} \ \& \ w_1, w_2 \neq w_r$. In this case, ‘p-/ga/, q’ is true in the real world if and only if the combinations of the truth and the falsity of the propositions p and q in each of the accessible possible worlds are given as the underlined combinations in the

following table.

$(10)[p]^{w_r}$	$[q]^{w_r}$	w_1			w_2			$[p\text{-}/ga/, q]^{w_r}$
where $W_{i-r} = \{w_1, w_2\}$ & $w_1, w_2 \neq w_r$								
		p	q	$\neg q$	p	q	$\neg q$	
1	1	1	1	0	1	1	0	0
1	1	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	1
1	1	1	1	0	0	1	0	0
1	1	1	1	0	0	0	1	0
1	1	<u>1</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>	1
1	1	<u>1</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>	1
1	1	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	1
1	1	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	1
1	1	0	1	0	1	1	0	0
1	1	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	1
1	1	0	1	0	0	1	0	0
1	1	0	1	0	0	0	1	0
1	1	0	0	1	1	1	0	0
1	1	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>	1
1	1	0	0	1	0	1	0	0
1	1	0	0	1	0	0	1	0

That is, ‘p-/ga/, q’ is true in the real world if and only if there is any accessible possible world other than the real world in which ‘p & ($\neg q$)’ is true.

3. Predictions

The grammar with an addition of the semantics of /ga/ ‘but’ makes correct predictions as follows. Suppose ‘p’ is /ame-ga huru/ ‘it rains’, and ‘q’ is /zimen-ga nureru/ ‘the ground gets wet’. Then, given $W_{i-r} = \{w_1, w_2\}$ & $w_1, w_2 \neq w_r$, the sentence ‘p-/ga/, /q/’, /ame-ga huru-ga, zimen-ga nureru/ ‘it rains, but the ground gets wet’ is not true in a world, for example, when /ame-ga huru/ ‘it rains’ and /zimen-ga nureru/ ‘the ground gets wet’ are both true in w_1 , and this holds true in w_2 , too, as given in the first line of the truth table in (10). That is, in the context where it rains and the ground gets wet in every accessible possible world, the utterance of /ame-ga huru-ga, zimen-ga nureru/ ‘it rains, but the ground gets wet’ is not true, i.e., is not appropriate in this case. This is the intuitions given in (1b). In addition, /ame-ga huru-ga, zimen-ga nureru/ ‘it rains, but the ground gets wet’ is true in a world, for example, when /ame-ga huru/ ‘it rains’ is true, and /zimen-ga nureru/ ‘the ground gets wet’ is not true in w_1 , and this holds true in w_2 , too, as given in the sixth line of the truth table in (10). That is, in the context where it rains and the ground does not gets wet in every accessible possible world, the utterance of /ame-ga huru-ga, zimen-ga nureru/ ‘it rains, but the ground gets wet’ is true. This is the intuitions given in (2b).

Notes:

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