Constraint of the Japanese Conjunction “shikashi (but)”

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Abstract

In this paper, we will propose an integrated viewpoint of the constraint of the Japanese conjunction shikashi, which roughly corresponds to the conjunction “but” in English. We regard the conventional implicature of the word shikashi as establishing a contrast relation between two binary tuples, each of which consists of two constituents of one of connected sentences. From the point of view, we will show that many cases of usage of shikashi can be treated uniformly as contrast relations, by classifying these relations into two types, namely, direct contrast, the case that all elements of two binary tuples appear in connected sentences, and indirect contrast, the case that some elements do not appear explicitly and are provided implicitly by some inference.

1 Introduction

According to ?, the function of the conjunction but is classified into conventional implicatures\(^1\). Unlike conversational implicatures,

Conversational implicatures are non-truth conditional inferences that are not derived from superordinate pragmatic principles like the maxims\(^2\), but are simply attached by convention to particular lexical items or expressions(? page 127).

Levinson also pointed out that conventional implicatures have the following natures:

\(^1\)From the viewpoint of the truth condition, both but and and are reduced to same one.

\(^2\)Grice’s maxims of conversation.

The nature “non-cancellable” is one of the most important natures for discourse understanding because of the following point. The nature that conventional implicatures can not be defeated by some other factors means that the content of conventional implicatures may be used in discourse analysis as the context for conversational implicatures and other phenomena which have more context dependency. The property is useful to analyze a discourse, which includes conversational implicatures such as metaphor.

Japanese conjunction shikashi, which roughly corresponds to the English word but, seems to have same property of conventional implicature as but in English. On the other hand, in Japanese discourses, focusing particles, which have conventional implicatures as well, are preferably used. Especially, the Japanese particle wa, which indicates some comparison about a noun phrase prefixed by it, has the similar function as the conjunction shikashi. So, there seems to be some strong interaction between them. But there is no research, as far as we know, which studies such interaction. From the viewpoint described above, this paper will focus on the conjunction shikashi and formulate the pragmatic constraint of shikashi.

2 Preparation—Japanese sentence

Generally speaking, a Japanese sentence has the following structure(?):

\((1) \ [NP_{1 \ldots n}, V]_{PRO \ [Suffixes]}_{MODAL}\)
In this structure, the PRO part expresses a proposition and the MODAL part expresses some modal information attached to the proposition. In the PRO part, PI is a particle, or a postposition, which usually shows the connection between the object designated by the noun phrase NPi and the predicate designated by the verb V, that is, roughly speaking, PI is the case-marker of NPi. The noun phrase NPi and the particle PI make a postpositional phrase NP-PI. In the MODAL part, the information about polarity, tense, and so on is described. Since the relation between one of objects and a predicate is explicitly expressed by a particle, word order of Japanese sentences is relatively free. In this paper, each example is shown as a list which contains an original Japanese sentence, the interpretations of each constituent and the translation to English like the following.

(1) Taro-ga Hanako-ki hanataba-wo watashi-ta.
    Taro NOM Hanako DAT hanataba ACC hand-PAST.
    Taro handed Hanako a bouquet.

3 Shikashi as a contrast relation

According to (?), the Japanese conjunction shikashi is not a conjunction which expresses just a violated expectation, but a conjunction which adds some new opinions or facts to the things described so far, which is admitted to be true by the speaker. Generally speaking, the Japanese conjunction shikashi is used in the following ways:

1. Asserting something which is opposite to either the content of utterances described so far or the view of the other party.

2. Changing the current topic to a certain but different one.

3. Starting a description about something impressed.

About the usage ??, ? said that roughly speaking shikashi has the following conjunctive relations:

1. The assertion of the next sentence is opposite to the inference drawn from the assertion of the previous one.

(2) Taro-ga nihon-ni okon-ta.
    Taro NOM Japan INJ occur-PAST
    Taro went to Japan.

(3) Taro-ga shikashi-ki k Nobody-ACC nihon-ni okon-ta.
    Taro NOM shikashi ACC Japan INJ occur-PAST
    No one went to Japan.

2. The next sentence asserts the failure of achieving the goal which is drawn from the previous sentence.

(4) Onaka-ga suita.
    stomach-NOM be_empty-PAST
    I am hungry

    shikashi, shikaku-ni shokudou-wo nai.
    but around here-LOC restaurant-TOP there js not
    But there is no restaurant around here.

3. A certain relation holds between the previous sentence and the next one in terms of correspondence among cases, predicates and polarities.

(5) Taro-ga Hanako-ki hanataba-wo watashi-ta.
    Taro NOM Hanako DAT hanataba ACC hand-PAST.
    Taro handed Hanako a bouquet.

    shikashi, jiro-wa Hanako-ki tegami-wo watashi-ta.
    but jiro-CNT Hanako-DAT letter-ACC hand-PAST.
    But Jiro handed her a letter.

? treated the English conjunction but in two separated ways, one of which corresponds to the case of ?? and ???, and the other corresponds to the case of ??
4. ? enumerated combinations of several factors and described some properties about the combinations for the case of ??'. They, however, have not mentioned any general properties which explain how some combinations are allowed and other ones are not. Moreover, Japanese has the particle wa which may indicate a contrast with something else according to context, but it has not been clear what interaction exist between shikashi and wa.

In order to explain these cases uniformly, in this paper, we basically stand at the following viewpoint:

Assumption 1 (Meaning of shikashi) Shikashi expresses the attitude of a speaker toward two propositions that the speaker sets a contrast relation between them, one of which was described before shikashi and the other will be described after shikashi.

To concentrate our attention on the basic constraint of shikashi, we will treat the case that two simple sentences are connected by shikashi. We will use the term the previous sentence and the next sentence to

5 As described later, CNT shows the contrastive use of wa, while TOP shows the topical use of wa.
6 While ? treated several subordinating conjunctions in Dutch, conjunctions which correspond to but or shikashi were not treated.
refer to the sentence which appears immediately before shikashi and the sentence which appears immediately after shikashi, respectively. In fact, our standing point is not novel at all and we basically succeed Grice’s viewpoint(?) or Hobbs’s one(?, ?). We, however, should clarify the following points in order to use the constraint of shikashi for the analysis of discourse structure(?, ?, ?, ?) and, moreover, the calculation of some other pragmatic phenomena, for example, resolving anaphora, identification of ellipsis and so on.

1. What kind of structure does the contrast relation of shikashi have?

2. What kind of interaction does shikashi have with the particle wa of Japanese?

3. Is there some integrated framework in which the case that needs some inference also can be treated?

The goal of this paper is to provide an integrated answer to the questions. Summaries of our answers are the followings, respectively:

1. Comparison between two different binary tuples.

2. The particle wa is closely related, especially, in the case that all items in a contrast relation appear explicitly.

3. Yes. We can treat shikashi in an unified manner. (It is pieces of inference that make clear a relation between the assertions expressed explicitly and the contrast relation set implicitly by shikashi.)

Our assumption ?? just accounts for the case that contrasted items are explicitly expressed in two sentences, that is, the case of ?? in Itoh’s analysis. We will call this usage the direct contrast use. On the other hand, the cases which include some inference, such as ?? and ??, are not explained by the assumption alone. We, however, can account for the cases, if we assume that some cognitive process of a hearer is invoked to make sure of the meaning of shikashi in our assumption. That is, in order to establish some contrast relation which should be expressed by shikashi, these cases require some other cognitive effort, such as some inference. We will call this usage the indirect contrast use.

In the following sections, first of all, we will describe the direct contrast use, and then we will consider the indirect contrast use.

4 Direct contrast

4.1 Contrast structures

In order for a contrast relation to hold between two sentences, it should be necessary that there exist both a shared part and a distinct part in each sentence. It seems that a distinct part is a binary tuple, which makes the core of a contrast relation, and it is neither a unary tuple nor a tuple of more than two items. This comes from the fact that the contrast relation is to compare the value for an item with the value for another item from a certain viewpoint, which is emerged from a shared part described above. Therefore, a binary tuple in form of (item, value) is compared with another binary tuple. We call such a comparison binary-tuple contrast. Since the binary tuple (item, value) may mean that the item item has the value value in terms of some viewpoint, which is shown by the shared part, the order of the tuple should have some information. So we call item and value in the tuple the key of contrast and the contrasted value, respectively. For example, the sentence (??) consists of the following parts in our analysis.\(^5\)

- shared part

\[ \begin{array}{l}
(6) \quad \theta_1 \text{ Hanako-ni} \quad \theta_2 \text{ watashi-ta.} \\
\theta_1 \text{ Hanako-bat} \quad \theta_2 \text{ hand-bat.} \\
\theta_1 \text{ handed Hanako } \theta_2.
\end{array} \]

- distinct part

The previous sentence:

\[ \begin{array}{l}
\text{(Tan-ga) hanataba-wo} \\
\text{(Tan-NOM, bouquet-ACC)}
\end{array} \]

The next sentence:

\[ \begin{array}{l}
\text{( Hinowa-ta) tegami-wo} \\
\text{( Hin-CNT, letter-ACC)}
\end{array} \]

We call the shared part and the two distinct parts highlighted by shikashi the contrast structure of the sentences, and denote it as follows:

\(^5\)Where \(\theta_1\) and \(\theta_2\) are variables to abstract the distinct part, which correspond to each element of one of tuples, in the order of appearance. In the case that the appearing orders of items of two sentences are different, as described later, this notation follows the order of items of the next sentence.
\[
\begin{align*}
(7) \quad & (\text{Taro-ga hanataba-wo}) \circ (\text{Jiro-wa tegami-wo}) \\
& \begin{array}{ll}
\text{\begin{tabular}{ll}
$\text{Taro-NOM}$ & $\text{hanataba-wo}$ \\
$\text{Hanako-DAT}$ & $\text{hand-PAST}$ \\
\end{tabular}} \\
\text{\begin{tabular}{ll}
$\text{Taro-NOM}$ & $\text{hanataba-wo}$ \\
$\text{Hanako-DAT}$ & $\text{hand-PAST}$ \\
\end{tabular}} \\
\end{array}
\end{align*}
\]

As the following examples show, if a distinct part consists of only one item or more than two items, shikashi hardly connect the two sentences without some special context.\(^6\)

(8) ?? Taro-ga Hanako-ni hanataba-wo watashi-ta.
Taro-NOM Hanako-DAT hanataba-wo bouqet-ACC hand-PAST
Taro handed Hanako a bouquet.

shikashi Jiro-wa Hanako-ni hanataba-wo watashi-ta.
but Jiro-CNT Hanako-DAT bouqet-ACC hand-PAST
But Jiro handed Hanako a bouquet.

(Each distinct part consists only one item.)\(^7\)

(9) ?? Taro-ga Hanako-ni hanataba-wo watashi-ta.
Taro-NOM Hanako-DAT bouqet-ACC hand-PAST
Taro handed Hanako a bouquet.

Shika shi Jiro-wa Madoka-ni tegami-wo watashi-ta.
but Jiro-CNT Madoka-DAT letter-ACC hand-PAST.
But Jiro handed Madoka a letter.

(Each distinct part consists of three items.)

Based on these observations, we propose the following principle.

**Principle 1 (Binary-tuple contrast)** The contrast relation made by shikashi is a binary-tuple contrast.

**Definition 1 (Direct contrast)** If all items in the distinct parts appear in a previous sentence and a next sentence and a contrast structure can be composed from them, we call the case direct contrast.\(^8\)

4.2 Candidates for binary-tuple contrast

In the case that two single sentences are conjoined by shikashi, the followings can be candidates for elements of a binary-tuple contrast at least.

1. Distinct objects marked by the same case marker, or particle.

2. Distinct predicates.

\(^6\)The case with some special context may be considered as the case which includes some inference, described later.

\(^7\)We will use the symbol ?? at the beginning of example sentences to indicate that they are pragmatically anomalous, while * indicates that the sentences are semantic or syntactic anomaly, and ? is non-committal about the nature of the anomaly.

\(^8\)The definition of indirect contrast will be shown in the section ??.

3. Distinct polarities (positive/negative)

Two items are picked up from candidates described above to make a binary tuple of a contrast structure. There seems to be the following constraints to make a contrast structure:

(10) a. When predicates are different, they should stand in some contrast relation by themselves, that is, each of them should have both a shared part and a distinct part.

b. When a predicate has some special relation with some other constituent in the current context, the predicate part and these constituents behave like one predicate.

c. When a shared part has the negative polarity, we feel a certain peculiar feeling.

The following examples show these constraints.

(11) ?? Taro-ga Hanako-ni hanataba-wo teiwa-sui-ta.
Taro-NOM Hanako-DAT bouqet-ACC hand-PAST
Taro handed Hanako a bouquet.

shikashi Jiro-wa Hanako-ni hanataba-wo yosui-ta.
but Jiro-CNT Hanako-DAT bouqet-ACC send-PAST.
But Jiro sent a bouquet to Hanako.

(cf. (??))

(12) ?? Taro-ga Hanako-ni hanataba-wo teiwa-sui-ta.
Taro-NOM Hanako-DAT bouqet-ACC hand-PAST
Taro handed Hanako a bouquet.

shikashi Jiro-wa Hanako-ni hanataba-wo age-ta.
but Jiro-CNT Hanako-DAT bouqet-ACC give-PAST
But Jiro gave Hanako a bouquet.

(Constraint (??))

(13) ?? Taro-ga Hanako-ni hanataba-wo age-ta.
Taro-NOM Hanako-DAT hanataba-wo give-PAST
Taro did not give Hanako a bouquet.

shikashi Jiro-wa Madoka-ni hanataba-wo age-ta.
but Jiro-CNT Madoka-DAT hanataba-wo give-PAST.
But Jiro did not give Madoka a bouquet.

(Constraint (??))\(^9\)

As for the fact that we feel some strangeness when a shared part has the negative polarity, a sentence with focusing particles and negative polarity implicitly supposes some context in which information with positive polarity holds(?).

\(^9\)The particle we also has the function to mark a topic as described in the next section. In this example, we use not ga which marks a nominal, but we as a topic marker, because the particle ge has other special meaning, when the predicate shows some state like this example. Since this phenomenon is out of scope of this paper, we will not discuss it further more.
4.3 Focusing particle *wa* and direct contrast

Japanese particle *wa* introduces a contrastive implicature. As shown in our examples so far, the particle *wa* always appears in a direct contrast use of *shikashi*. That may be explained as the assumption that because the contrastive nature of *wa* may make a contrast structure explicitly and, on the other hand, *shikashi* cannot make it by itself, a direct contrast holds only if *wa* is properly used. The particle *wa*, however, has also the function to mark a *topic*. It seems to be controlled by context which function becomes dominant. In the following subsections, first of all, we will describe our treatment of the particle *wa*, then we will consider the interaction between the particle *wa* and the conjunction *shikashi* in the direct contrast use.

4.3.1 Focusing particle *wa*

Japanese has some particles which do not represent relations between an object and a predicate but make some implicatures. We call such particles *focusing particles*. The particle *wa* is one of focusing particles, which is used in either ways, by substituting it for an original case-marking particle or by adding it after some appropriate constituent, that is, which is used in the form ‘X-*wa*’ to add some implicature to X. It is said that the particle *wa* has two way of use, namely, the *topical use* and the *contrastive use* according to context. The constituent ‘X-*wa*’ in the topical use shows that X is the current topic. ‘X-*wa*’ in the contrastive use shows that X is contrasted with something else provided by context. While, as for the context dependency of *wa*, there is a standpoint that *wa* has two separated functions, there is another standpoint that one function of *wa* is a special case of the other function. The one of evidences of the latter standpoint is the fact that *wa* which normally represents only the topical meaning in a sentence can have not the topical meaning but the contrastive meaning in some context. For example, the sentence

(14) \( \text{taro-wa ish-da.} \)

Taro- \{ TOP \} doctor-isa.

\begin{align*}
\{ & \text{Taro is a doctor.} \\
& \text{Taro is a doctor.} \\
& \text{(and it is implied that someone else is not a doctor.)} \\
\end{align*}

would have either the topical meaning or the contrastive meaning according to the context in which it placed.

In this paper, we use the two features, ‘CNT’ and ‘TOP’ to express *contrastiveness* and *topicalness*, respectively. The features have either + or − as the value, which express that the feature is in or out, respectively. We also use the following notations:

(17) \( \text{wa/}_{\text{CNT}} \)

The value of the feature CNT of *wa*.

\( \text{wa/}_{\text{TOP}} \) \( \text{wa}_{\text{CNT}} \) such that \( \text{wa/}_{\text{CNT}} = + \)

Our standpoint described above would be expressed in our feature system as follows.

**Assumption 2 (Default feature values of *wa*)**
The default feature value of the focusing particle *wa* is [+TOP, +CNT] and the value can become to be negative so as to satisfy the constraints of *wa* if needed.

As for the constraint of the focusing particle *wa*, various proposals have been offered by many researchers, like ?, ?, and so on. The following constraints are the rewritten versions of those constraints with our feature system.

**Constraint of *wa* 1 (Features of *wa*)** The focusing particle *wa* has *topicalness* or *contrastiveness*.

(18) \( \text{wa/}_{\text{TOP}} = + \lor \text{wa/}_{\text{CNT}} = + \)

**Constraint of *wa* 2 (Condition of topical use)**
If *wa* marks a topic, the topic should be either a *generic noun phrase* or a *referential noun phrase*.

(19) \( \text{at-wa}_{\text{TOP}} \text{ is a Japanese fragment } \land \neg \text{generic-NP}(\alpha) \)

\( \land \neg \text{referential-NP}(\alpha) \Rightarrow \text{wa/}_{\text{TOP}} = - \)

**Constraint of *wa* 3 (Number of *wa* of the topical use)**
*Topical* *wa* appears at most once in one sentence.
Constraint of wa 4 (Tendency to have the contrastive meaning) There is the following order of tendency to have the contrastive meaning according to the original case-marking particle.

\[
\begin{array}{cccccccc}
\text{NOM} & \text{ACC} & \text{DAT} & \text{DST} & \text{SRC} & \text{COND}
\end{array}
\]

4.3.2 Interaction between shikashi and wa

In direct contrast, the next sentence of a shikashi should have some focusing structure, namely, the focusing particle wa of the contrastive use. For example, (??) would be anomalous if the particle ga, which indicates only a nominative case, is substituted for the wa in "jiro-wa" as (??), while the sentence as (??) which has not shikashi but the conjunction soshite, which corresponds to and in English, would be appropriate.

(21) ?? Taro-ga Hanako-ni hanataba-wo age-tea.
Taro-NOM Hanako-DAT hanataba-ACC give-PAST.
Taro gave Hanako a bouquet.
shikashi Jiro-ga Hanako-ni tegami-wo wataishi-ta.
but Jiro-NOM Hanako-DAT letter-ACC give-PAST.
But Jiro gave Hanako a letter.

Moreover, only one of noun phrases which are focused on by wa should be a key of contrast.\(^{10}\) Since the sentence (??) has a contrastive wa but it appears in the shared part, it is anomalous.

(23) Taro-ga Hanako-ni hanataba-wo wataishi-ta
Taro-NOM Hanako-DAT hanataba-ACC wataishi-PAST
Taro handed Hanako a bouquet.
shikashi Jiro-ga Hanako-ni wa
but Jiro-NOM Hanako-DAT-[+TOP,+CNT] wataishi-ta
tegami-ACC wataishi-PAST
But Jiro handed Hanako a letter.

From the observations, the function of shikashi in the direct contrast use is described as follows in our feature system.

\(^{10}\)We do not have the way to explain that wa marks not a value of contrast but a key of contrast. That is just our view based on the fact that it is wa that has contrastive meaning.

Principle 2 (Interaction between shikashi and wa) Shikashi in the direct contrast use picks up one of constituents marked by wa[+[TOP] as the key of contrast and makes it wa[+[TOP].

Now, the sentences (??), (??), (??) and (??) show the property that a next sentence has dominant position in constructing contrast structures. That is, the word order of the next sentence determines the contrast structure, on the other hand, the word order of the previous sentence may have no effects.\(^{11}\)

(24) Taro-ga Hanako-ni hanataba-wo wataishi-ta.
Taro-NOM Hanako-DAT hanataba-ACC wataishi-PAST.

shikashi Taro-wa
but Taro-[+TOP]+[TOP]+[TOP] Madoka-ni wa tegami-wo wataishi-ta.
Madoka-DAT-[+TOP]+[TOP]+[TOP] letter-ACC han-tabu-PAST.

(25) Hanako-ni hanataba-wo hanako-ni wataishi-ta.
Taro-NOM hanataba-ACC Hanako-NOM wataishi-PAST.

shikashi Taro-wa
but Taro-[+TOP]+[TOP]+[TOP] Madoka-ni wa tegami-wo wataishi-ta.
Madoka-DAT-[+TOP]+[TOP]+[TOP] letter-ACC han-tabu-PAST.

\(^{11}\)Since the constraint of wa ??, ?? and ?? are applied to the following examples, the second wa of each example becomes wa[-TOP,+CNT].
While (??) has only one implicature, that is, the contrast (tegami-wa ‘letter-CNT’, o(=POS)) \(\Leftrightarrow\) (something-else-wa ‘something-else-CNT’, NEG), (??) may have one more implicature of the contrast (tegami-wa ‘letter-CNT’, madoka-ni ‘Madoka-DAT’) \(\Leftrightarrow\) (something-else-wa ‘something-else-CNT’, someone-else-ni ‘someone-else-DAT’), which matches the contrast structure of (??). Based on these observations, we propose the following principle:

**Principle 3 (Scope of contrastive wa) A key of contrast is marked by wa[+[C]].. If it has the feature [−TOP,+CNT], the contrasted value for it should appear after wa.**

Employing the principle, we can explain the anomaly of (??), which does not satisfy the principle.

5 Indirect contrast

In the previous section, we dealt with the case in which all items of a contrast structure made by shikashi appear explicitly in two sentences. However, there are many situations in which shikashi is used in non-direct contrast use. For example, the following is an ordinary usage of shikashi, in which some items of the contrast structure do not appear.

(30) jiko-ga natta.
    accident-NOM occur-PAST
    An accident occurred.
    shikashi tegami-wa de-naka-ta
    but injured-person-wa[+[TOP,+CNT]] occur-NEG-PAST
    But there is no injured person.

Moreover, as the following example, there are some cases that the next sentence of shikashi can have each polarity.

(31) kare-wa kawa-de obore-ta.
    he TOP river-LOC is drowning-PAST
    He was drowning in a river.
    shikashi tamatama hito-ga toorikaka-ta.
    but accidentally someone-NOM pass-by-PAST
    But someone happened to pass by.

(32) kare-wa kawa-de obore-ta.
    he TOP river-LOC is drowning-PAST
    He was drowning in a river.
    shikashi desu mo toorikaka-naka-ta.
    but someone-TOP pass-by-NEG-PAST
    But unfortunately no one passed by.

It seems that the examples described above show the general usage of shikashi. While, at a glance, it seems that they are based on some inference such as prediction, it is not clear what connection hold between the contrast function of shikashi and such inference. In this paper, we propose a viewpoint that such cases, which include some inference, are emerged from both the meaning of shikashi that is, the attitude of the speaker that he/she sets a contrast relation, and hearer’s cognitive process as follows.

1. While shikashi should express some contrast relation, any contrast relation does not appeared explicitly. Therefore the hearer would assume some contrast relation based on one sentence and obtain a contrasted proposition from the contrast relation.

2. Then in order to connect coherently between the contrasted proposition and the proposition expressed by the other sentence.

We call such case indirect contrast.

**Definition 2 (Indirect contrast) Indirect contrast is one of usages of shikashi in which direct contrast holds between the proposition expressed by the next sentence (or the previous sentence) of shikashi and the proposition derived from the proposition expressed by the previous sentence (or the next sentence, respectively) with some inference rules which connect among propositions, such as causal relations, predictions, planning, and so on.**

5.1 Analysis as indirect contrast

The reason why shikashi in the indirect contrast use usually expresses some violated expectation is that some contrast relation would hold between some expected situation and the described, usually real situation. That is, it is the point that in the process of retrieving direct contrast we take account of not only items expressed in the considering sentence explicitly but also the condition ‘in that situation’, which the sentence has implicitly, as an optional candidate of items for contrast structures. For example, we will show our account of (??). Since the next sentence of the example may be rewritten with its implicit condition as follows:

(33) (in that situation)
    (in Sa (=that situation) opt)
    tegami-wa de-naka-ta
    injured-person-wa[+[TOP,+CNT]] occur-NEG-PAST
    (in that situation) there is no injured person.
the candidates for direct contrast should be the following contrast structures. Where $\alpha$ and $\beta$ are variables and $\phi$ means the null expression.

\[
(\alpha, \beta) \equiv (in \ S_1, \text{loggin-wa}) \\land \neg \text{injured\_person-wal[+TOP,+CNT]} \\land \neg \text{occur-NEG-PAST} \\land \text{de-4a}.
\]

\[
(\alpha, \beta; \phi(=\text{POS})) \equiv (in \ S_1, \text{NEG}) \\land \text{injured\_person-wal[-TOP,+CNT], NEG} \\land \neg \text{de-4a}.
\]

(34) (35) (36)

First of all, it would be hard for (37) to be constructed because of the constraint (37) of direct contrast. In contrast to that, (37) and (39) can be constructed with no violation of constraints. The followings are the sentences retrieved from the possible contrast structures, which exist implicitly and are contrasted with the next sentence, as we supposed.

(37) $\alpha$

\[
\alpha (\Rightarrow \neg \text{in } S_1)
\]

\[
\text{loggin-wa, de-4a}.
\]

\[
\text{injured\_person-wal[+TOP,+CNT], occur-NEG-PAST}
\]

In some other situations $\alpha$, there were some injured persons.

(38) $\beta$

\[
\beta (\Rightarrow \neg \text{injured\_person-wal[-TOP,+CNT], occur-NEG-PAST})
\]

Something else $\beta$ occurred.

The next stage is finding some inference rules and assigning some contrasted items to the variables $\alpha$ and $\beta$ to make some connection between the proposition expressed by (37) (or (38)) and the proposition expressed by the previous sentence:

(39) Jiko-ga \quad \Rightarrow \text{ata.}

\[
\text{accident-NOM, occur-PAST}
\]

An accident occurred.

Our assumption for this stage is as follows:

**Assumption 3 (Requirement of indirect contrast)** In order for an indirect contrast by shikashi to be held, appropriate values should be assigned consistently by some consistent inference to all variables in the contrast structure retrieved from either the previous sentence or the next sentence.

That is, (37) will be one of interpretations of (39) if some condition which can be contrasted with $in \ S_1$ is assigned to $\alpha$. For instance, “in a typical situation” would be assigned to $\alpha$ if the hearer has some default rule such as follows:

(40) a. “An accident occurs.” $\Rightarrow$ “In a typical situation, there are some injured persons.”

b. $\text{accident}(X) \land \text{situation}(S) \land \text{occur}(X(S)) \Rightarrow \neg \text{typical}(S) \land \text{injured\_person}(Y) \land \text{occur}(Y(S))$

Where (37) is more precise version of the rule (39), which is represented in an intuitive way. In the same way, (38) will be an interpretation of (38) if some candidate which can be contrasted with $\text{injured\_person-}Cnt$ is assigned to $\beta$. If the hearer has the following default inference rule, “other damages” would be assigned to $\beta$.

(41) a. “An accident occurs.” $\Rightarrow$ “In a typical situation, there are some other damages.”

b. $\text{accident}(X) \land \text{situation}(S) \land \text{occur}(X(S)) \Rightarrow \neg \text{typical}(S) \land \text{damages}(Y) \land \text{occur}(Y(S))$

In the case of (37), the condition “in a typical situation” becomes one of necessary information for contrast structure, because the next sentence rejects the result of inference derived from the default rule (38) and the previous sentence. On the other hand, in the case of (39), since the default rule (38) is used actually, the condition does not appear in the contrast structure.

### 5.2 The case in which either positive polarity or negative one is available

In this section, we will consider the case in which either positive polarity or negative one is available in the next sentence of shikashi such as (37). The usage of shikashi such as (37) is called the *pseudo usage of shikashi*, in which there is no causal relation between the previous sentence and the next sentence, and some conjunctions which is said to express a violated expectation, for example, *but* in English, *mais* in French, and so on, have same function(7). This usage would be explained with the following formalization by ?, Ducrot(?), and so on:

(42) Violated Expectation:

In “$S_0$ but $S_1$”, infer $P$ from the assertion of $S_0$ and $\neg P$ from the assertion of $S_1$.

? said that such formalization is over generalization and the pseudo usage of *shikashi* would be explained as the derivation of the sentence “P *shikashi* R” from “P *shikashi* R-monade because of R Q”. However, Sakahara’s account cannot explain the usage of *shikashi* in (37). On the other hand, in the over generalized account (39), it is not clear what propositions $P$ and $\neg P$ should be inferred from the previous sentence and the next sentence of *shikashi*. That is, the following points are problematic. The fact that both (37) and (39) are available means that there are several candidates for such inferences. But
it has not been clear what connection exist between the selection of inference and the assertions of the previous sentence and the next sentence. Our claim in this paper is that pseudo usage of shikashi should be treated not as the matter of a statement of causal relation but as the matter of a statement of some planning. According to whether requirements for the plan are available or not, we would make two types of sentences. That would be explained in our framework as the fact that there are two ways to make a contrast structure in indirect contrast, that is, by using a previous sentence and by using a next sentence. As far as we considered, sentences of this type have the structure in which the statement of the previous sentence generates some goal and the next sentence describes some requirements to achieve the goal. In contrast with it, the example in the previous section is of the causal relation type in which the next sentence describes some result of the event expressed by the previous sentence. In the usage of shikashi of the causal relation type, only one polarity would appear in the next sentence because such a sentence describes the contrast between expectation and some result already happened. For example, the following sentence is anomalous:

\[(43) \quad \text{like-ga a-tta.} \quad \text{accident-NOM occur-PAST} \]
\[
\quad \text{An accident occurred.}
\]
\[
\quad \text{shikashi, kogen-nwa de-ta} \quad \text{but injured_person-NOM TOP cnt occur-PAST}
\]
\[
\quad \text{But there were some injured persons.}
\]

On the other hand, the usage of shikashi in planning type sentence, such as (44), can describe two situations, that is, a situation in which a certain goal would be achieved and a situation in which it would not be achieved according to whether the requirement of the plan to achieve the goal is satisfied, which is described in the next sentence.

- The case that the next sentence states that a certain requirement of the plan is not satisfied:

A contrast relation stands between the situation described the next sentence and the expected situation of the previous sentence in which the requirement is satisfied and therefore goal would be achieved.

- The case that the next sentence states that a certain requirement of the plan is satisfied:

A contrast relation stands between the situation of the previous sentence, in which some goal would be set to resolve the problem of that point but it has not been achieved yet, and the situation in which the problem would be settled by carrying out the plan with the requirement.

Now, we will explain our intuition described above with indirect contrast. The point is that there are two ways to make a contrast structure, that is, making it from the previous sentence and making it from the next sentence. For example, we will explain the case (44):

**The case (44)**

First of all, it may depend on the hearer which goal would be assigned to the initial situation “kare-wa kawa-de oboe-ta, he-top river-LOC is drowning-PAST”, but in the typical case the goal would be the situation in which “he have been rescued”, and the plan would be the one to achieve the goal. The contrast structure retrieved from the previous sentence would be as follows:

\[(44) \quad (\langle \text{in, the Landscape} \rangle \circ \langle \ldots \rangle) \circ \langle \ldots \rangle\]
\[
\quad \text{e1 kare-wa kawa-de oboe-ta, de-ta} \quad \text{he TOP river-LOC is drowning e1 PAST}
\]

This structure shows that the information contrasted with the previous sentence is the information “a kare-wa kawa-de oboe-ta, he TOP river-LOC is drowning NEG-PAST”, which shows the situation after achieving the goal. If there exists a plan to achieve the goal under the condition expressed by the next sentence “tamatama hito-ga toorikaka-ta, unfortunately someone-NOM pass by-PAST”, the state “the plan has done” would be assigned to a. Since such a plan may exist, the indirect contrast should be held because of the assumption (44). The condition expressed by the next sentence would be one of the requirements of the plan.

**The case (45)**

The contrast structure retrieved from the next sentence would be as follows:

\[(45) \quad (\langle \text{in, the Landscape} \rangle \circ \langle \ldots \rangle) \circ \langle \ldots \rangle\]
\[
\quad \text{e2 tamatama hito-ga toorikaka-e, de-ta} \quad \text{he TOP river-LOC is drowning e2 PAST}
\]

Therefore, what is in contrast with the statement of the next sentence would be the statement of the sentence “In the situation e2, someone happened to pass by.” In order for the statement to have some connection with the plan generated from the previous sentence, the condition “in the situation in which
the plan would be tried” should be assigned to the variable $\beta$. Since the condition $\beta$ is in a contrast relation with in that situation, it is not an actual situation. Some imaginary condition, in which the plan would be tried, may be assigned to $\beta$. In such an imaginary situation, it would be successful to make a plan to achieve the goal, with the same manner as (?). Therefore, because of the assumption ?, this indirect contrast may be meaningful.

6 Conclusion

In this paper, we described the function of the conjunction shikashi from the viewpoint of the contrastive function. We showed that various usages of shikashi can be explained uniformly as the contrastive function of shikashi, which includes direct contrast, which corresponds to the normal contrast relation, and indirect contrast, which consists of direct contrast and some inference. However we could not consider the case in which shikashi connects complex sentences like conditionals. It should be discussed in our future works.

References


