

ON THE TWO DISCOURSE CONNECTIVES *FŌUZÉ* AND *BÙRÁN* IN MANDARIN CHINESE: AN SDRT ACCOUNT*

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ABSTRACT

This paper argues that *fōuzé* and *bùrán* have a modal-like semantics and furthermore that their semantics need to be modelled by means of Segmented Discourse Representation Theory, because they involve discourse structure and rhetorical relations. Given a discourse π_1 , *fōuzé/bùrán* π_2 , where π_1 and π_2 are clauses, π_2 is interpreted given $\neg\pi_1$. These two discourse connectives realize the following discourse effects. First, they introduce $\neg\pi_1$ into the discourse, represented as a Segmented Discourse Representation Structure. Second, $\neg\pi_1$ and π_1 , where the latter is present in the discourse but the former is not, show a contrastive relationship. Third, either that π_2 is a result of $\neg\pi_1$ or that π_1 and π_2 are alternatives, depending on whether it is *fōuzé* or *bùrán* and whether $\neg\pi_1$ and π_2 has a (loose) causal relationship. In addition, a few more details are under discussion, e.g. which clause is negated when π_1 consists of two clauses, what role the set of propositions where $\neg\pi_1$ is true play when π_1 is a question or an imperative, how *huòzhě* ‘or’ on the one hand and *dànshì/kěshì* ‘but’ on the other differ from *fōuzé/bùrán*. Finally, the differences between these two connectives are presented.

Keywords: *fouze*, *buran*, discourse connective, SDRT, Chinese

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1. INTRODUCTION

Discourse connectives¹ are lexical items, whose primary function is to connect discourse segments, which are defined in (1), based on Segmented Discourse Representation Theory (for short, SDRT), a theory proposed in Asher and Lascarides (2003):

- (1) $R(\alpha, \beta)$ is a discourse segment if and only if:
 - (a) α and β are two clauses, which are connected by an appropriate rhetorical relation R .
 - (b) α is a clause, but β is a discourse segment, or the other way around. α and β are connected by an appropriate rhetorical relation R .
 - (c) Both α and β are discourse segments. α and β are connected by an appropriate rhetorical relation R .
 - (d) Nothing else is a discourse segment.

(1) is a recursive definition of discourse segment. The smallest discourse segment is composed of two clauses. Then, a clause and a discourse segment or two discourse segments can be combined to form a new discourse segment.

The primary function of a discourse connective is to connect discourse segments and therefore it has a unique syntactic feature: it does not go with a single clause. *Fǒuzé* and *bùrán* are two discourse connectives in Mandarin Chinese (hereafter, Chinese). They have to connect clauses and cannot stand alone with a single clause. See below.

¹ Please note that a discourse connective does not have to be a conjunction, although a conjunction can function as a discourse connective. In Chinese, the syntactic category of a discourse connective might be an adverb. But, we do not discuss this issue because it does not affect our analysis in any way.

- (2) a. Nǐ gǎnkuài huíjiā, fŏuzé/bùrán māma
 2nd.SG² hurry go.home FŌUZÉ/BÙRÁN Mom
 huì dānxīn de.
 EPI worry Prc
 ‘Hurry and go home! Otherwise, Mom will be worried.’
 b. #Fŏuzé/bùrán māma huì dānxīn de.³
 FŌUZÉ/BÙRÁN Mom EPI worry Prc

As shown in (2a), *fŏuzé* and *bùrán* connect two clauses: *nǐ gǎnkuài huíjiā* ‘you hurry and go home’, and *māma huì dānxīn de* ‘Mom will be worried’. However, in (2b), only one clause is there, i.e. *māma huì dānxīn de* ‘Mom will be worried’. As a result, (2b) is at least infelicitous, if grammatical at all.

Fŏuzé and *bùrán* are interchangeable in some cases, but not in others. In *Xiàndài hànyǔ bābǎi cí zēngdìngbǎn* ‘Eight Hundred Words in Modern Chinese: Extended Version’, Lǚ et al. (1999) define these two lexical items in the following way: *fŏuzé* = *rúguŏ bù zhèyàng* ‘if it is not so’; *bùrán* = (i) *rúguŏ bù zhèyàng* ‘if it is not so’ or (ii) *yǐnjìn yǔ shàng wén jiāotì de qíngkuàng* ‘introducing an alternative to the preceding discourse’. Given these two semantic definitions for *fŏuzé* and *bùrán*, two generalizations might be reached. First, *fŏuzé*, *bùrán* and *rúguŏ bù zhèyàng* ‘if it is not so’ seem interchangeable. Second, since *huòzhě* ‘or’ also introduces an alternative, *bùrán* and *huòzhě* ‘or’ should be interchangeable. However, the complete picture is not so simple. See the examples below.

² The abbreviations used in this paper include: 1st.SG for the first-person singular pronoun, 2nd.SG for the second-person singular pronoun, 3rd.SG for the third-person singular pronoun, ASSO for an associative marker, DYN for a dynamic modal, CL for a classifier, EPI for a future epistemic modal, DUR for a durative aspect marker, PRG for a progressive aspect marker, Prc for a sentence-final particle, Q for a question particle.

³ In this paper, # is used to indicate infelicity.

- (3) a. Gāi xiě xìng le, bùrán/fǒuzé/rúguǒ
 should write letter Prc BÙRÁN/FǒUZÉ/if
 bù zhèyàng jiālǐ huì bù fāngxīn de.
 not so family will not at.peace Prc
 ‘We should write home. Otherwise, our family will be
 worried.’
- b. Wǒ zhǐ néng fàngqì, bùrán/*fǒuzé/
 1st.SG only DYN quit BÙRÁN/*FǒUZÉ/
 rúguǒ bù zhèyàng gāi zěnme bàn?
 if not so should how do
 ‘I can only quit. Otherwise, what should I do?’
- (4) a. Kěyǐ dǎ diànhuà qù zhǎo tā,
 can make phone.call go find 3rd.SG
 bùrán/*fǒuzé/ huòzhě jiù zìjǐ pǎo yì tàng.
 BÙRÁN/*FǒUZÉ/HUÒZHĚ JIU self run one trip
 ‘You can call him. Otherwise, you can go see him yourself.’
- b. Wǒ zhǐ néng fàngqì, bùrán/*fǒuzé/
 1st.SG only DYN quit BÙRÁN/*FǒUZÉ/
 *huòzhě gāi zěnme bàn?
 *or should how do
 ‘I can only quit. Otherwise, what should I do?’

(3a) is an example where *fǒuzé/bùrán/rúguǒ bù zhèyàng* ‘if not so’ are interchangeable. The sentences in (3) are abstracted as π_1 *fǒuzé/bùrán* π_2 , where π_1 and π_2 are clauses. (3a) presents π_2 , which results from that the action π_1 is not carried out. *Rúguǒ bù zhèyàng* ‘if not so’ is acceptable in this example because this phrase negates π_1 and the negation of π_1 is required for π_2 to be interpreted. In (3b), *bùrán* is good, but *fǒuzé* is not. Yet, *rúguǒ bù zhèyàng* ‘if not so’ is fine in this example. (3b) suggests that *fǒuzé* and *rúguǒ bù zhèyàng* ‘if not so’ are not paraphrases. Instead, *fǒuzé* expresses something that *rúguǒ bù zhèyàng* ‘if not so’ does not. On the other hand, the examples in (4) show that, while *fǒuzé* is not good, *bùrán* is not always interchangeable with *huòzhě* ‘or’, even though *huòzhě* ‘or’ also introduces an alternative, which is one of the semantic/pragmatic functions of *bùrán* defined in Lü et al. (1999). The two sets of examples

in (3) and (4) suggest that the semantics of *fúǒzé* and *bùrán* are not as simple as the definitions given in Lǚ et al. (1999).

In this paper, I argue that the semantics of *fóuzé* and *bùrán* need to be modelled by means of SDRT. Suppose that we have a discourse: π_1 , *fóuzé/bùrán* π_2 , where π_1 and π_2 are clauses. These two discourse connectives express that π_2 is interpreted, based on $\neg\pi_1$. They perform the following steps to model our understanding of a discourse involving them. First, *fóuzé* and *bùrán* introduce $\neg\pi_1$ into the discourse, represented as a Segmented Discourse Representation Structure (SDRS). Second, π_1 is understood to contrast $\neg\pi_1$. Third, the discourse connectives indicate either that π_2 is a result of $\neg\pi_1$ or that π_1 and π_2 are alternatives, dependent on whether it is *fóuzé* or *bùrán* and whether $\neg\pi_1$ and π_2 have a (loose) causal relationship.

In addition, some details are discussed in this paper. First, when π_1 is composed of two clauses, it is always the negation of the first one, on which π_2 depends for semantic interpretation. Second, if π_2 is a declarative clause, its truth is evaluated in the possible worlds where $\neg\pi_1$ is true. If π_2 is a question, a set of propositions, which serves as answers to the question, minus the proposition expressed by π_1 , is added into the shared knowledge of the participants in a discourse known as a Common Ground (CG). When π_2 is an imperative, the imperative is supplemented into a CG. Third, only when *bùrán* connects two true alternatives can it be interchangeable with *huòzhě* ‘or’. Fourth, *fóuzé/bùrán* cannot be replaced by *dànshì/kěshì* ‘but’ because the former two have two properties that the latter do not have: first, the former indicates that π_1 contrasts $\neg\pi_1$, and, second, π_1 and π_2 do not have equal semantic status because π_1 functions as background, whereas π_2 functions as foreground.

This paper also presents two differences for *fóuzé* and *bùrán*. First, *fóuzé* indicates only that π_2 is a result of $\neg\pi_1$, while *bùrán* specifies either that π_2 is a result of $\neg\pi_1$ or that π_1 and π_2 are alternatives. Second, *fóuzé* has an ‘anti-good consequence’, while *bùrán* does not.

This paper is organized as follows. Section 2 is a critical review of literature on *fóuzé* and/or *bùrán*. In Section 3, these two discourse connectives are scrutinized carefully so that generalizations and SDRT semantics can be provided. Section 4 concludes this paper.

2. LITERATURE REVIEW

There have been many descriptive studies on *fǒuzé* and *bùrán*, e.g. in chronological order, Z. Wang (1995), Meng (1996), Zheng (2001), Liu (2008), C. Wang (2008), Y. Wang (2009), Cao & Zhang (2009), Jin (2009), Lǚ (2010), Ju (2010), Zhu (2011), Zhu & Wu (2012a, b), Deng (2012), Y. Wang (2013), Ye (2014), Y.-F. Wang et al. (2014), Xu (2014), and others.

In terms of the analysis of the semantics of *fǒuzé*, these studies can be categorized into four types. The first type suggests that *fǒuzé* has a contrastive function, e.g. Z. Wang (1995), Zheng (2001), and others. Z. Wang (1995) claims that *fǒuzé* introduces *zhèngfǎn duìzhào de bìngliè guānxī* ‘a contrastive coordinating relationship’ between two clauses. Zheng (2001) observes that the clause following *fǒuzé* is a result of the previous one and that the truth of the previous clause contrasts that of the latter. This “contrast” analysis is on the right track, but overgeneralizes. *Kěshì* ‘but’, *dànshì* ‘but’, and so forth, also introduce a relationship of the type as suggested by Z. Wang (1995). Nevertheless, they cannot substitute for *fǒuzé* in examples such as (3a). In addition, *fǒuzé* can be used as a threat, but *kěshì* ‘but’ and *dànshì* ‘but’ cannot. See the example below.

- (5) Nǐ zuìhǎo tīnghuà, fǒuzé/*kěshì/
 2nd.SG had.better listen.words FǒUZÉ /*but/
 *dànshì....
 *but
 ‘You’d better do what I say. Otherwise,’

Interestingly, Y. Wang (2013) observes the same fact as (5) and states that *fǒuzé* does not describe contrast (*zhuǎnzhé jù*) since clauses connected by contrastive conjunctions such as *kěshì/dànshì* ‘but’ are true, but the ones connected by *fǒuzé* do not have to be so. While Y. Wang does not discuss how *fǒuzé* contributes to the interpretation of discourse, he provides an informative observation and a good first step to distinguish *fǒuzé* on the one hand and *kěshì/dànshì* on the other.

The second type observes that the clause after *fǒuzé* is interpreted given the negation of the clause before, e.g. C. Wang (2008), Y. Yang (2009), Cao and Zhang (2009), M. Lǚ (2010), Zhu (2011), and others. C.

Wang's (2008) main idea can be summarized as: in a discourse S_1 , *fǒuzé* S_2 , *fǒuzé* = $\neg S_1$. Basically, this abstract form can be roughly interpreted as S_2 gets an interpretation under the circumstances of the negation of S_1 . Y. Wang (2009) discusses three lexical items: *fǎnzhī*, *xiāngfǎn* and *fǒuzé*. He suggests that *fǒuzé* leads a clause which expresses a proposition inferred from a negated preceding clause in the same discourse. Cao and Zhang (2009) suggest that, for two clauses to be connected by *fǒuzé*, the previous one serves as a condition or a reason, whereas the other stands for a reversal inference (*nìxiàng tuīdǎo*). M. Lǚ (2010) identifies two roles for *bùrán*. First, *bùrán* leads a clause which is inferred from the negation of the preceding one. Second, *bùrán* leads a clause, functioning as an alternative to the preceding one.

Zhu (2011) examines the construction *rúguǒ A, nàme B, fǒuzé C*. He reaches conclusions as follows. First, A serves as a premise and B a conclusion. Next, if B is inferred, then A undergoes negation and C results from $\neg A$. Moreover, if B is an imperative, a promissive or a necessity, B undertakes negation and C results from $\neg B$. Then, if B expresses ability or volition, then again B undergoes negation and C is a result of $\neg B$. Last, if A describes a hypothetical purpose and B the means to fulfil the purpose, then B experiences negation and C is a result of $\neg B$.

All of the negation analyses suffer from the same problem. In (3b), *gāi zěnmè bàn* 'what should I do?' is interpreted based on *if I do not quit*, that is, the negation of *wǒ zhǐ néng fàngqì* 'I can only quit'. However, *fǒuzé* is not good here. This example suggests that there is more to *fǒuzé* than simply the negation of the clause before *fǒuzé*.

The third type is a dynamic semantic analysis of *fǒuzé*, e.g. Ju (2010). Ju (2010) proposes a dynamic semantics for *fǒuzé*. Based on Veltman's (1996) update semantics, Ju (2010) suggests the following. An information state consists of two stacks, each of which is a set of pairs of possible worlds. *Fǒuzé* updates one of the two stacks. While Ju (2010) is very enlightening, he fails to take discourse structure into consideration, cf. Asher and Lascarides (2003), Mann and Thompson (1998), Taboada and Mann (2006a, 2006b), and so on. In addition, Ju (2010) does not discuss the modal-like property of *fǒuzé* (and *bùrán*), which is elaborated on in the next section.

The last type is a functional perspective on *fǒuzé*, e.g. Y.-F. Wang, et al. (2014). This paper discusses the pragmatic and interpersonal function of *fǒuzé*. Because this study approaches *fǒuzé* in a functional linguistic perspective, it serves as a complement to dynamic semantic studies of *fǒuzé* and *bùrán* such as this paper.

While it does not talk about the semantics of *fǒuzé*, Zhu and Wu (2012a) explore the focused constituent in a discourse with *fǒuzé*. They claim that the proposition preceding *fǒuzé* is focused on. Their discussion of focus, *jiāodiǎn* in Chinese, seems to be very different from Lee and Pan (2001), Rooth (1985, 1992), von Stechow (1981, 1989, 1991), Kadmon (1991: 315-354), and others. See two Chinese examples below.

- (6) a. Tā zhǐ [F kàn] shū.
3rd.SG only [F read] book
'He only [F reads] book.'
b. Tā zhǐ kàn [F shū].
3rd.SG only read [F book]
'He only reads [F book].'

Zhǐ 'only' is a focus device in Chinese. As we can see from (6), the focused elements, i.e. *kàn* 'read' in (6a) and *shū* 'book' in (6b), are actually to the right of the focus device. But, Zhu and Wu (2012a) claim that the focused element is to the left of *fǒuzé*. Therefore, it deserves more careful examination on whether *fǒuzé* has a focus function as discussed in Zhu and Wu (2012a).

There are some studies on *fǒuzé* which do not talk about its semantics, such as Meng (1996), Jin (2009), Zhu and Wu (2012b), Deng (2012), and Xu (2014). These studies are not reviewed in this section.

To sum up, Lǚ et al. (1999) offer semantic definitions for *fǒuzé* and *bùrán*. *Fǒuzé* expresses "if it is not so", whereas *bùrán* denotes either 'if it is not so' or 'introducing an alternative to the preceding discourse.' Expressing 'if it is not so', *fǒuzé* and *bùrán* do not always substitute for each other. Moreover, *fǒuzé* and *bùrán* cannot be substituted for by contrastive conjunctions such as *dànshì/kěshì* 'but', even though the conjunctions express contrast as well. Presenting an alternative, *huòzhě* 'or' and *bùrán* are interchangeable only under certain circumstances.

These linguistic facts regarding *fŏuzé/bùrán* are not discussed in the literature reviewed above.

In terms of the semantics of *fŏuzé*, it is commonly agreed that, provided a discourse $\pi_1, fŏuzé/bùrán \pi_2$, where π_1 and π_2 are clauses, either $\neg\pi_1 \wedge \pi_2$ or $\pi_1 \wedge \neg\pi_2$. In plain English, *fŏuzé* presents contrastive information. Nevertheless, as argued above, specifying contrastive information as well, conjunctions such as *dànshì/kěshì* ‘but’ are not interchangeable with *fŏuzé*. As a result, *fŏuzé* must express something more than just contrastive information, whereas contrastive conjunctions denote only contrast.

Given the above shortcomings of the literature reviewed in this section, a careful and detailed examination of *fŏuzé* and *bùrán* is called for.

3. MODAL-LIKE SEMANTICS, DISCOURSE STRUCTURE AND FŌUZÉ/BÙRÁN

Given the criticisms presented in Section 2, one reasonable question to ask is: exactly what is the semantics of *fŏuzé* and *bùrán*? C. Wang (2008) and Y. Wang (2009) shed some light on this question. C. Wang (2008) suggests that, given a pattern $S_1, fŏuzé S_2, fŏuzé$ means $\neg S_1$. If we use the same pattern to extend Y. Wang’s (2009) idea, Y. Wang (2009) basically says that S_2 is inferred from $\neg S_1$. To put it in a formal way, given a discourse $\pi_1, fŏuzé/bùrán \pi_2$, where π_1 and π_2 are clauses, π_2 is evaluated, provided $\neg\pi_1$. But, this formalization does not equal to propositional logic formulae $\neg\pi_1 \wedge \pi_2$ or $\pi_1 \wedge \neg\pi_2$, because a disjunction indicates equal (syntactic and/or semantic) status between the two propositions on both sides of the disjunction, while, for *fŏuzé* and *bùrán*, it is more like that π_1 provides necessary information so that π_2 can be evaluated. To put it another way, π_1 is more like background information while π_2 is foreground. π_1 and π_2 do not have equal syntactic and/or semantic status.

The semantics of *fŏuzé* and *bùrán* as analysed above is modal-like. In what Portner (2009: 47) refers to as the “standard theory of modality within formal semantics”, Kratzer (1977, 1991, 2012[1981]) analyses a modal in terms of a modal base and an ordering source. Let’s take an epistemic modal as an example.

- (7) John must be working hard for tomorrow's big test.

One of the readings of (7) is that the speaker makes an inference, based on his/her belief that John will work for a test. This sentence is evaluated in the possible worlds of an epistemic modal base ordered by a doxastic (= reasoning about belief) ordering source. An epistemic modal base is a set of propositions representing the facts in the real world. This set of possible worlds are ordered based on the speaker's belief. Because *must* expresses modal necessity, the proposition *John must be working hard for tomorrow's test* is evaluated to be true in all the best worlds in the ordered set of possible worlds.

Fǒuzé and *bùrán* function in a way very similar to the epistemic necessary modal *must* explained above. Regardless of whether *fǒuzé* and *bùrán* are interchangeable or not, a clause led by these two discourse connectives is always evaluated, based on information provided by negating the clause preceding it. (3a) and (4a) are repeated below as (8a, b) for the purpose of illustration.

- (8) a. Gāi xiě xìng le, bùrán/fǒuzé
should write letter Prc BÙRÁN/FǒUZÉ
jiālǐ huì bù fàngxīn de.
family will not at.peace Prc
'We should write home. Otherwise, our family will be worried.'
- b. Kěyǐ dǎ diànhuà qù zhǎo tā,
can make phone.call go find 3rd.SG
bùrán/*fǒuzé jiù zìjǐ pǎo yì tàng.
BÙRÁN/*FǒUZÉ JIÙ self run one trip
'You can call him. Otherwise, you can go see him yourself.'

In (8a), both *fǒuzé* and *bùrán* are fine. The proposition *jiālǐ huì bù fàngxīn de* 'our family will be worried' is interpreted, given the negation of the preceding clause, i.e. *not write home*. In (8b), *bùrán* is fine but *fǒuzé* is not. Yet, the proposition *zìjǐ pǎo yì tàng* 'go see him yourself' is still evaluated, given the negation of the previous clause, that is, *not call him*.

Just like an epistemic modal base is required to evaluate a proposition presented by an epistemic modal, the information provided by negating a preceding clause in examples involving *fōuzé* and *bùrán* is required to interpret a latter clause. This is one reason why *fōuzé* and *bùrán* are argued to have a modal-like semantics.

Another reason that supports a modal-like semantics for *fōuzé* and *bùrán* is that a proposition they present cannot be determined to be true or false in the real world, cf. Y. Wang (2013). For a simple declarative clause, such as *tā dǎ diànhuà huí jiā* ‘3rd.SG make phone.call back home’, it is interpreted in the real world. But, as argued above, a proposition presented by a modal is evaluated in a modal base ordered by an ordering source, and one presented by *fōuzé/bùrán* is interpreted in the worlds where the negation of the previous proposition is true. This is why the real world cannot determine the truth of a proposition presented by *fōuzé/bùrán* and by modals.

Nevertheless, although *fōuzé/bùrán* and modals share two semantic behaviours as discussed above, I would like to point out that *fōuzé/bùrán* are not modals, based on two critical differences. First, *fōuzé/bùrán* have an effect on the discourse-level interpretation, whereas modals have an effect on the sentence-level one. As shown in (2b), standing alone without a previous clause, *fōuzé/bùrán* plus a clause is at least infelicitous, if syntactically well-formed at all, while (7) is fine, standing alone. In addition, this is also one of the reasons why a Kratzer-style semantics of modality does not work for *fōuzé* and *bùrán*: a modal base and an ordering source for a modal do not have to be explicitly realized in the discourse. Moreover, an ordering source is required because of graded modality, e.g. Kratzer (1991, 2012[1981]). However, *fōuzé* and *bùrán* do not involve any degree at all.

The second difference between *fōuzé/bùrán* and modals lies in that modality has various semantic types, e.g. epistemic, deontic, dynamic, among others, whereas *fōuzé/bùrán* do not. As we can see from the previous examples, *fōuzé/bùrán* can present an inference, such as (3a), a suggestion (or order), such as (4a), etc.

Based on these two differences, *fōuzé/bùrán* are argued to have a modal-like semantics in the sense that *fōuzé/bùrán* rely on extra information, along a similar line to that a modal relies on a modal base for

interpretation. But, the extra information required must be explicitly present in the discourse so that a proposition led by *fǒuzé/bùrán* can be interpreted. Yet, *fǒuzé/bùrán* do not express modality because of the two significant properties presented above.

Given the above discussion, I propose a modal-like semantics for *fǒuzé* and *bùrán* as follows. Suppose a discourse $\pi_1, fǒuzé/bùrán \pi_2$, where π_1 and π_2 are labels for clauses, according to SDRT conventions. Then, the truth of $[fǒuzé/bùrán \pi_2]$ can be defined as (9):

$$(9) \quad [fǒuzé/bùrán(\pi_1, \pi_2)] = 1 \text{ if and only if } \forall w \in W, w \in \neg\pi_1 \rightarrow w \in \pi_2.$$

Please note that, while (9) seems to be a simplified version of Kratzer-style semantics for modality or like traditional modal logic, cf. Porter (2009, Chapter Two), yet there are two major differences. First, in the semantics above, π_1 , whose information *fǒuzé/bùrán* depend on is explicitly present in the discourse because it is one of the clauses connected by these two discourse connectives. Second, a proposition presented by *fǒuzé* and *bùrán* is interpreted in the worlds where a former proposition is not true, whereas modals do not behave in this manner.

A reviewer suggests a possibility that *fǒuzé/bùrán* involves grammaticalization and that they are related to a truncated conditional *if it is not the case that*. As far as I am concerned, this suggestion is on the right track, at least, for *bùrán*. This discourse connective is composed of *bù*, a negator, and *rán*, which means to remain in a previous state and can be translated as *so* or *as such* in English. Hence, *bùrán* can be understood as a conditional *if it is not the case that*. As for *fǒuzé*, *fǒu* is also a negator, as in *fǒudìng* ‘negative’. *Zé* is more difficult to decipher. But, regardless, this anonymous reviewer’s suggestion is compatible with the analysis proposed in this paper.

However, (9) is not sufficient because the discourse relations encoded by *fǒuzé/bùrán* are not represented. Y. Wang (2009), Z. Wang (1995), and others suggest that *fǒuzé* involves contrast. Nevertheless, it is clear that, given $\pi_1, fǒuzé/bùrán \pi_2$, π_1 does not contrast π_2 . Rather, π_1 contrasts what π_2 relies on, i.e. $\neg\pi_1$.

In addition, π_1 and π_2 show other relations. Let's look at (8) again. In (8a), both *fōuzé* and *bùrán* are fine, whereas in (8b) only *bùrán* is acceptable. If we examine the clauses connected by *fōuzé* and *bùrán* in (8a, b), we can find that in (8a) the latter clause describes a situation resulting from the situation expressed by negating the former clause, while in (8b) the two clauses are alternatives, one of which the speaker recommends the addressee adopt. In (8a), *the family will be worried* is a result of *not writing home*. On the other hand, in (8b), *dǎ diànhuà qù zhǎo tā* 'call him' and *zìjǐ pǎo yì tàng* 'go find him yourself' are two options available for an addressee to choose, according to the speaker.

SDRT is required to model the discourse relations revealed by *fōuzé/bùrán*. I propose the following. First, *fōuzé/bùrán* introduce $\neg\pi_1$ into an SDRS. $\neg\pi_1$ is not one of the clauses in the discourse, but is introduced because it provides information required by the clause presented by *fōuzé/bùrán*. Second, $\neg\pi_1$ and π_1 are connected by rhetorical relation *Contrast*. Third, either that $\neg\pi_1$ is attached to π_2 by rhetorical relation *Result* or that π_1 and π_2 are connected by *Alternative*, depending on whether $\neg\pi_1$ and π_2 have a CAUSE_D relationship (Asher and Lascarides 2003: 204-207) and whether it is *fōuzé* or *bùrán* in the discourse.

Asher and Lascarides (ibid) state that "[...] CAUSE_D (σ , α , β) ("Discourse Permissible Cause"), which means that the content of the discourse σ (where σ outscopes both α and β) provides evidence that α caused β ." This CAUSE_D relation is a "loose" causal relation because α does not have to actually bring about β . Rather, as long as there is evidence for this causal relation, it is sufficient to induce *Result*(α , β) or *Explanation*(β , α), both of which depend on a CAUSE_D relationship to be specified.

Here, some illustrations for these two rhetorical relations *Result* and *Explanation* are called for. α and β are clauses and are described in this order in the discourse. *Result*(α , β) means that β is a result of α , while *Explanation*(β , α) means that β explains α . For both rhetorical relations, α and β have a loose clausal relationship as described above. The difference is the order of the cause and the result presented in the discourse. Let's look at a pair of examples below.

- (10) a. John fell.
b. Mary pushed him.
= Ex. 6, Asher and Lascarides (2003: 6)

- (11) a. Mary pushed John.
b. He fell.

In both (10) and (11), *Mary pushed John* is the cause and *John fell* is the result. When the result is presented before the cause, as in (10), (10b) explains why (10a) takes place, i.e. *Explanation*(10b, 10a). On the other hand, when the cause is presented before the result, as in (11), a natural causal relationship is described, i.e. *Result*(10a, 10b).

Based on the discussion above, I demonstrate the steps of SDRS construction for π_1 , *fǒuzé/bùrán* π_2 below:

- (12) a. π_1 comes into the discourse, and an SDRS is created. At this stage, only one clause, i.e. π_1 , exists in the SDRS.

b.

π_1 :

- c. *Fǒuzé/bùrán* π_2 comes into the discourse. $\neg\pi_1$ is introduced into the discourse by these two connectives. There are three unresolved rhetorical relations, represented by question marks: between $\neg\pi_1$ and π_1 , between $\neg\pi_1$ and π_2 and between π_1 and π_2 . Only one of the latter two can be formed in the SDRS.

d.

π_1 :
π_2 :
$\neg\pi_1$:
$?(\pi_1, \neg\pi_1)$
$?(\neg\pi_1, \pi_2) \vee ?(\pi_1, \pi_2)$

e. *Föuzé/bûrán* resolve the rhetorical relation connecting π_1 to $\neg\pi_1$ to *Contrast*, and indicate either that *Result* attaches π_2 to $\neg\pi_1$ or that *Alternative* connects π_1 and π_2 , depending on whether $\neg\pi_1$ and π_2 have a CAUSE_D relationship and on the constraint stated in (12g).

f.

π_1 : π_2 : $\neg\pi_1$: <i>Contrast</i> ($\pi_1, \neg\pi_1$) <i>Result</i> ($\neg\pi_1, \pi_2$) \vee <i>Alternative</i> (π_1, π_2)
--

g. Constraint on *föuzé*:
föuzé(π_1, π_2) \rightarrow *Result*(π_1, π_2)

In (12f), *Contrast*($\pi_1, \neg\pi_1$) indicates that π_1 and $\neg\pi_1$ contrast with each other. *Alternative*(π_1, π_2) says that π_1 and π_2 are two alternatives, just like what a disjunction does in a discourse. The constraint in (12g) says that, if *föuzé* connects two clauses π_1 and π_2 , which are presented in this order in the discourse, then the rhetorical relation must be *Result*. To put it another way, it must be the case that π_2 is the result of π_1 .

Here in an interim summary, I argue for a modal-like and SDRT semantics for *föuzé* and *bûrán*. First, for the (mini-)discourse π_1 , *föuzé/bûrán* π_2 , *föuzé/bûrán* specifies that π_2 is evaluated in the worlds where π_1 is not true, i.e. the negation of π_1 is true. Second, these two discourse connectives introduce $\neg\pi_1$ into the SDRS for the (mini-)discourse. Third, they specify that *Contrast* connects $\neg\pi_1$ to π_1 . Fourth, they specify either that *Result* attaches π_2 to $\neg\pi_1$ or that *Alternative* connects π_1 and π_2 , depending on whether it is *föuzé* or *bûrán* and whether $\neg\pi_1$ and π_2 have a CAUSE_D relationship.

Now is a good time to respond to a reviewer’s overall question. This reviewer states that “[t]he result relation is more similar to the modal meaning of *föuzé/bûrán*,” and asks, “[h]ow does the clause preceding *föuzé/bûrán*, whose negation leads to the modified clause, present an alternative to the modified clause?”

My response is as follows. *Result*($\neg\pi_1, \pi_2$) indicates that if $\neg\pi_1$, then π_2 , i.e. $\neg\pi_1 \rightarrow \pi_2$. This conditional is equal to the disjunction $\pi_1 \vee \pi_2$, along the same line where $p \rightarrow q$ equals $\neg p \vee q$. Both the conditional and the disjunction say that these two formulae are true unless both π_1 and π_2 are false. *Alternative*(π_1, π_2) is actually an exclusive *or*, i.e. $\pi_1 \vee_e \pi_2$, in the sense that either π_1 or π_2 can be true, but π_1 and π_2 cannot be true at the same time. In terms of propositional logic, *Alternative*(π_1, π_2) can be considered as a stricter version of *Result*($\neg\pi_1, \pi_2$) and therefore these two proposed rhetorical relations for *fǒuzé/bùrán* are, as a matter of fact, related.

While the modal-like semantics in (9) and the SDRT-based one in (12), together can account for the similarities and differences in the behaviour of *fǒuzé* and *bùrán*, there are two complications. First, π_1 and π_2 themselves can be a (mini-)discourse, composed of two or more clauses. Under this circumstance, which clause is negated when we say $\neg\pi_1$? Second, π_2 does not have to be a declarative clause. Rather, π_2 can be a question or an imperative. So, exactly how is an imperative or question evaluated, provided $\neg\pi_1$, since they do not have a truth condition?

Three types of examples of multi-clause π_1 are found in the online version of Sinica Corpus 4.0. The three types of examples are presented and analysed below.

- (13) a. Dòngzuò dòngcí bìxū dàiyǒu “de”,
 action verb must carry ASSO
 cái kěyǐ xiūshì lìng yì-ge dòngcí,
 so.that DYM modify another one-CL verb
 fǒuzé/bùrán shìwéi liándòngjù.
 FÓUZÉ/BÙRÁN treat.as serial.verb.construction
 ‘An action verb can modify another verb only when it carries *de*. Otherwise, the (verb plus verb) construction is treated as a serial verb construction.’

- b. jiāquán zhǐshù-de zǒnghé wéi fù
 weighted index-ASSO sum be minus
 èr huò fù sān shí, jiànyì shǐyòng
 two or minus three time suggest use
 fānwéi nèi jiào dī-de shùzhí,
 range in relative low-ASSO value
 fóuzé/bùrán xuǎnyòng zhōngjiānzhí.
 FÓUZÉ/BÙRÁN choose medium
 ‘If the sum of weighted indexes is minus two or minus three,
 it is suggested to use the lower value in the range. Otherwise,
 choose the medium.’
- c. Fǎguī shìfǒu kǎolǜ zhōuquán? Rúguǒ
 law whether consider thorough if
 zhōuquán jiù bìxū chèdǐ zhíxíng,
 thorough 且 必须 彻底 执行,
 fóuzé/bùrán gāi fǎ bìxū jiāyǐ
 FÓUZÉ/BÙRÁN that law must take
 jiǎnshì.
 examine
 ‘Is the law thorough? If it is, then it must be executed
 completely. Otherwise, the law must be examined (again).’

As we can see from (13), there are at least two clauses preceding *fóuzé/bùrán*. Let’s examine these examples carefully. First, (13a) is labelled as follows:

- (14) a. [π_1 [π_{11} *dòngzuò dòngcí bìxū dàiyǒu “de”* ‘a verb must take *de*’]
 [π_{12} *cái kěyǐ xiūshì lìng yì-ge dòngcí* ‘so that it can modify another verb’]]
 b. *fóuzé/bùrán* [π_2 *shìwéi liándòngjù* ‘the (verb plus verb) construction is treated as a serial verb construction’]

(14a) shows that π_1 consists of two clauses, labelled as π_{11} and π_{12} . π_{11} and π_{12} are connected by *Result* because there is a CAUSE_D relationship

between these two clauses. It is the negation of π_{11} on which π_2 depends on, because a verb plus verb construction is regarded as a serial verb construction, if the first verb does not take *de* with it. Moreover, it is not possible to negate π_{12} for π_2 because a verb plus verb construction with the first verb taking *de* cannot be treated as a serial verb construction. We formalize this observation as (15).

$$(15) \quad \text{Result}(\pi_{11}, \pi_{12}) \Rightarrow \neg\pi_{11}$$

(14b) and (14c) are labelled the same way and presented in (16) and (17), respectively.

- (16) a. [π_1 [π_{11} *jiāquán zhǐshù-de zǒnghé wéi fù èr huò fù sān shí*
when the sum of the weighted indexes is minus two
or minus three’]
[π_{12} *jiànyì shǐyòng fānwéi nèi jiǎo dī-de shùzhí* ‘it is
suggested to use the lower value in the range’]
b. *fǒuzé/bùrán* [π_2 *xuǎnyòng zhōngjiānzhí* ‘choose the
medium’]
- (17) a. [π_1 [π_{11} *Rúguǒ zhōuquán* ‘if thorough’]
[π_{12} *bìxū chènǐ zhíxíng* ‘it must be executed completely’]
b. *fǒuzé/bùrán* [π_2 *gāi fǎ bìxū jiāyǐ jiǎnshì* ‘that law must be
examined (again)’]

π_{11} and π_{12} in (16a) are connected by *Background* because π_{11} provides a temporal frame for π_{12} to hold. It is the negation of π_{11} , on which π_2 relies on, because the time to choose the medium is when the sum of weighted indexes is not minus two or minus three. This observation is formalized in (18). On the other hand, π_{11} and π_{12} in (17a) are connected by *Consequence* because of the cue phrase *rúguǒ* ‘if’. It is the negation of π_{11} , which π_2 requires in order to receive an appropriate interpretation. This observation is formalized as (19).

(18) Background(π_{12}, π_{11}) $\Rightarrow \neg\pi_{11}$

(19) Consequence(π_{11}, π_{12}) $\Rightarrow \neg\pi_{11}$

Explanations for *Background* and *Consequence* are called for at this point. *Background* indicates that a proposition functions as a temporal background for another proposition. *Background*(π_{12}, π_{11}) says that the background of π_{12} is π_{11} , even though π_{11} and π_{12} are presented in this order. *Consequence* is actually an SDRT way to describe a conditional. *Consequence*(π_{11}, π_{12}) refers to a conditional *if* π_{11}, π_{12} .

The above discussion of the three types of π_1 composed of two clauses shows that it is the negation of the first clause, labelled as π_{11} , which π_2 requires semantic interpretation. This observation, as a matter of fact, follows from the CAUSE_D relationship between $\neg\pi_1$ and π_2 as discussed above. When π_1 is composed of two clauses, these clauses usually have some type of CAUSE_D relationship. Therefore, it is always the negation of the cause, rather than the result, on which π_2 depends for semantic evaluation.

Although not involving multiple clauses, one type of example involving negation worth discussion is π_1 with a modal. Obviously, it is the clause that the modal presents, rather than the whole clause, which is negated. Let's see the example below.

- (20) a. Gāi xiě xìn le, bŭrán/fōuzé
 should write letter Prc BŪRÁN/FŌUZÉ
 jiālǐ huì bù fàngxīn de.
 family will not at.peace Prc
 'We should write home. Otherwise, our family will be worried.'
 b. [π_1 should(π_{11} write home)] [BŪRÁN/FŌUZÉ [π_2 our family will be worried]]

(20a) is repeated from (3a). (20a) includes a modal *gāi* 'should'. π_2 relies on the negation of the clause taken by the modal, instead of the whole clause. This is because a discourse containing *fōuzé/bŭrán* functions like a suggestion. If the previous clause contains a modal, this

clause expresses suggestion, obligation, stipulation, or some type modality. The latter clause requires the negation of the previous clause, but it is not the modality that is negated. Rather, it is the proposition presented by the modal that is negated. To put it another way, it is not *gāi* ‘should’ that is negated. If it were, π_2 would depend on the information expressed by *someone should not do something*. But, in fact, it is *someone does not do something* that π_2 relies on.

The second complication is that π_2 can be a question or an imperative. What does it mean to evaluate a question or an imperative, since they do not have a truth value? To ask this question in another way, while the truth of π_2 representing a declarative clause is determined in the set of possible worlds where $\neg\pi_1$ is true, what role does the set of worlds play for a question or an imperative? Two examples are presented below.

- (21) a. Wǒ zhǐ néng fàngqì. Bùrán/*fǒuzé,
 1st.SG only can quit BÙRÁN/FŌUZÉ
 gāi zěnmē bàn?
 should how do
 ‘I can only quit. Otherwise, what should I do?’
- b. Wàimiàn zài xiàyǔ. Bùrán/*fǒuzé, kàn
 outside PRG rain BÙRÁN/FŌUZÉ look
 yì-xià wàimiàn.
 one-CL outside
 ‘It is raining outside. Otherwise, take a look outside.’

The semantics of question is usually considered as a set of propositions, which essentially functions as (possible) answers to the question, e.g. Farkas and Bruce (2009), Groenendijk and Stokhof (1981, 1984, 1997), Hamblin (1973), Karttunen (1977), Krifka (2001, 2007, 2015), among others.⁴ It is beyond the scope of this paper to give a detailed discussion on the semantics of question. If we accept the set of propositions for semantics of question, then we get the following interaction between $\neg\pi_1$

⁴ Please note that Farkas and Bruce (2009) and Krifka (2001, 2007, 2015) propose dynamic semantics for question. However, essentially, they still rely on the set of propositions semantics of questions, as named in Groenendijk and Stokhof (1997), which are added to a Common Ground or Information State.

and the question in examples such as (21a): suppose S is the set of propositions for *gāi zěnmè bàn* ‘what should I do?’, then the effect of uttering (21a) is $S - \{p_{\pi_1}\}$, that is, uttering (21a) removes the proposition represented by π_1 from the set of propositions S , which serves as answers to the question *what should I do*. This idea can be modelled by the following SDRS, given π_1 , *bùrán* π_2 :

(22)

π_1 $\neg\pi_1$ $\pi_2: \{p_1, p_2, \dots\} - \{p_{\pi_1}\}$ Contrast($\pi_1, \neg\pi_1$) Alternative(π_1, π_2)

In the SDRS (22), π_2 is a question, whose Hamblin-style semantics is a set of propositions functioning as answers to the question. However, given that *bùrán* requires that π_2 is interpreted according to $\neg\pi_1$, the proposition expressed by π_1 , represented as p_{π_1} , cannot be one of the propositions in the semantics of the question. Therefore, a set difference is performed to remove p_{π_1} from the set of propositions denoted by π_2 . That is to say, (9) does not apply here because (9) works only when π_2 is a declarative clause. Instead, since π_2 is a question in examples such as (21a), its semantics is a Hamblin-style semantics of question and *bùrán* performs a set difference to exclude p_{π_1} from this set.

Here, I would like to respond to a reviewer’s comments concerning (21). A reviewer suggests that (21a) can be interpreted as “if it is not the case that I give up, what else can I do?” This suggestion converges with my proposal in this paper, i.e. given π_1 , *fóuzé/bùrán* π_2 , π_2 is interpreted under the circumstances of $\neg\pi_1$. The same reviewer raises a question: regarding (21b), could it be that *bùrán* behaves like a rhetorical question, like English *why not*? In terms of effects on the interpretation of discourse, it is certainly true that rhetorical questions such as English *why not* and *bùrán* in examples such as (21b) have similar effects. Nevertheless, in

terms of forms, a rhetorical question has the form of a question, while the proposition after *bùrán* has the form of a declarative sentence.

Let's turn to examples where π_2 is an imperative. Portner (2004, 2007) proposes that the semantics of imperatives is an addressee's To-Do List, which is part of an ordering source.⁵ The ordering source orders a set of possible worlds. A (modal) proposition is evaluated in the best worlds where the To-Do List is included and this is how the To-Do List affects the truth of the proposition. Moreover, Portner (2007: 373) proposes the pragmatic function of imperatives. With all of the formalisms set aside, Portner (ibid) essentially suggests that an imperative ϕ_{imp} is added into a Common Ground, which functions as shared knowledge for the participants of a discourse. Since a declarative sentence is also added into a Common Ground, an SDRS for examples where π_2 is an imperative just like (12f).

If we look at (21b) again, one might ask why *it is raining outside* and *take a look outside* are alternatives. I argue that these two propositions are alternatives in the following sense. In this discourse, the speaker reports that it is raining outside and says that, if the addressee does not believe his report, he/she is instructed to look outside. So, either *it is raining outside* or *take a look outside* is added into a Common Ground. If the former is added into the Common Ground, then *it is raining outside* becomes part of the knowledge shared by the speaker and the addressee. That is, the addressee accepts the speaker's statement about it being raining outside. If the latter is supplemented into the Common Ground, then the imperative *take a look outside* becomes part of the shared knowledge. In this case, the addressee is instructed to perform this directive, since an imperative is directed toward an addressee, as argued in Portner (2004, 2007).

Here, I would like to address reviewers' concerns regarding the example with an imperative, i.e. (21b). A reviewer asks what kind of alternative contrasting relationship between π_1 and π_2 , when π_2 is an imperative.

My response is as follows. In my proposal, the contrast relation always exists between π_1 and $\neg\pi_1$, as represented in (12f). Between π_1 and π_2 can be either *Result* or *Alternative*, shown in (12f) as well. Moreover, because

⁵ Please refer to Portner (2016) for a thorough review of approaches to the semantics of imperatives.

the discourse connective is *bùrán* and there is no causal relationship between π_1 and π_2 , *Alternative* is identified for (21b).

Concerning the same example, the other reviewer asks whether π_1 and π_2 are simply alternatives to be added into the CG at the same time. The reviewer suggests only one of π_1 and π_2 is added to the CG because “ π_2 becomes part of the To-Do List only if the addressee does not believe π_1 .”

My response to this reviewer’s comment is like this. The alternative $\pi_1 \vee \pi_2$ needs to be added to the CG at the same time because an addressee needs this alternative so that he/she can choose one of them. When (21b) is uttered, the alternative $\pi_1 \vee \pi_2$ is added into the CG. An addressee has two options. First, he/she can choose to accept π_1 , and then π_2 is removed from the CG because π_2 is redundant in this case, or he/she can choose not to accept π_1 and hence perform π_2 . In the latter case, π_1 is removed from the CG because it is not accepted by the addressee.

Finally, *fōuzé* has an “anti-good consequence” property, but *bùrán* does not. This property indicates that *fōuzé* does not present a good consequence (good for the speaker) into the discourse. This is why *fōuzé* is strongly preferred to *bùrán*, if *bùrán* is allowed at all, when used as a threat.⁶ For example,

- (23) Zuihǎo zhào wǒ shuō-de zuò,
had.better as 1st.SG say-ASSO do
fōuzé/??bùrán.....
FŌUZÉ/??BÙRĀN...
‘You’d better do what I say. Otherwise....’

Examples where *bùrán* is good but *fōuzé* is not, appear to all involve a good consequence (good for the speaker). See one below.

⁶ The native speakers I consult basically agree with me on this generalization. Some suggest that *bùrán* expresses a much lower degree of ‘anti-good consequence’, if possible at all.

- (24) Wǒ shì zài liànxí shēngqì. Wǒ yǐhòu
 1st.SG be PRG practice angry 1st.SG after
 jiù zhème xiōng jiāo nǐ.
 JIÙ so mean teach 2nd.SG
 Bùrán/*fǒuzé guāi yìdiǎn, hǎo ma?
 BÙRÁN/*FǒUZÉ behave a.little OK Q
 ‘I am practicing being angry. I will teach in such a mean way,
 later. Otherwise, behave a little bit, OK?’

In (24), *fǒuzé* is not good. This is because *behave a little bit* is a good result, which the speaker expects. When the result is good, *fǒuzé* cannot be used, because of its ‘anti-good consequence’ property.

Another very interesting example that bears out the anti-good consequence analysis of *fǒuzé* is the one below. In (25), *fǒuzé* introduces a neutral (at best) result and as a result both *fǒuzé* and *bùrán* are fine.

- (25) Tā zài xǐzǎo ba. Fǒuzé/bùrán,
 3rd.SG PRG take.a.bath Prc FǒUZÉ/BÙRÁN
 yùshì-de dēng bù huì liàng-zhe, chuānghù
 bathroom-ASSO light not EPI on-DUR window
 yě bù huì yǒu shuǐqì.⁷
 also not EPI have moisture
 ‘He must be taking a shower. Otherwise, the light in the
 bathroom would not be on and the windows would not be
 moist, as well.’

(25) is interesting in the sense that, to continue this discourse, a continuation expressing a bad result prefers *fǒuzé* over *bùrán*. The potential continuation to (25) lends support to our ‘anti-good consequence’ distinction between *fǒuzé* and *bùrán*.

The anti-good consequence property of *fǒuzé* can be captured as a meaning postulate. Recall that *fǒuzé* has another meaning postulate that

⁷ A reviewer indicates a different intuition concerning this example. While my informants and I share the intuition reported in this paper, the reviewer’s intuition might suggest a more fine-grained analysis for *fǒuzé* could be necessary.

identifies *Result* as the rhetorical relation that connects two clauses, as (12g), which is repeated below for the sake of completeness.

- (26) a. Anti-good consequence of *fǒuzé*
 $Fǒuzé(\pi_1, \pi_2) \rightarrow \text{bad}(\pi_2)$
 b. Constraint on *fǒuzé*:
 $fǒuzé(\pi_1, \pi_2) \rightarrow \text{Result}(\pi_1, \pi_2)$

Before summarizing this section, I would like to address two more issues. First, why can't *huòzhě* 'or' always substitute for *bùrán* since the former is a disjunction, which presents an alternative as well? Second, why can't *dànshì/kěshì* 'but' replace *fǒuzé/bùrán*, if they both denote contrast?

To answer the first question, relevant examples are repeated below for the sake of illustration. The three examples below show that sometimes *huòzhě* 'or' and *bùrán* are interchangeable while other times they are not.

- (27) a. Kěyǐ dǎ diànhuà qù zhǎo tā,
 can make phone.call go find 3rd.SG
bùrán/*huòzhě* jiù zìjǐ pǎo yì tàng.
 BÙRÁN/or JIU self un one trip
 'You can call him. Otherwise, you can go see him yourself.'
 b. Wǒ zhǐ néng fàngqì. Bùrán/**huòzhě*,
 1st.SG only can quit BÙRÁN/*or
 gāi zěnmē bàn?
 should how do
 'I can only quit. Otherwise, what should I do?'
 c. Wàimiàn zài xiàyǔ. Bùrán/**huòzhě*, kàn
 outside PRG rain BÙRÁN/ *or look
 yì-xià wáimiàn.
 one-CL outside
 'It is raining outside. Otherwise, take a look outside.'

The three examples in (27) allow only *bùrán*, but not *fǒuzé*, and this fact means that *bùrán* indicates *Alternative* in these three examples. But, only in (27a), *huòzhě* 'or' is fine, but not in the others. Why is this so? If

we examine these three examples more carefully, we can find that only (27a) expresses true alternatives, but (27b) and (27c) do not. In (27a), the two clauses on both sides of *bùrán* are actual suggestions for an addressee. The addressee can choose to perform either one of these two suggestions. However, it is not the case in (27b) and (27c). In (27b), the clause to the left of *bùrán* is, as a matter of fact, the only option. (27c), as explained above, presents alternatives of the following sense for the addressee: either accept the fact that it is raining outside or take a look outside. The clause to the left of *bùrán* is not a suggestion. Instead, it is a proposition, which the addressee can choose to believe or not. As we can see from the three examples in (27), *huòzhě* ‘or’ and *bùrán* are interchangeable only when they present true alternatives, as in (27a). Under the other circumstances, *huòzhě* ‘or’ and *bùrán* are not interchangeable.⁸

The answer to the second question is that, as shown above, for *fǒuzé/bùrán*, π_1 does not contrast π_2 ; instead, π_1 contrasts $\neg\pi_1$. In addition, as stated above, π_1 and π_2 do not have equal semantic status. Rather, π_2 is more like a foreground while $\neg\pi_1$ serves as background. These two properties are what disjunctions such as *dànshì/kěshì* ‘but’ do not share and, therefore, the disjunctions and the two discourse connectives under discussion here cannot substitute for each other.

In sum, in this section, I argue for an SDRT account for *fǒuzé* and *bùrán*. Given a discourse π_1 , *fǒuzé/bùrán* π_2 , where π_1 and π_2 are clauses, these two discourse connectives perform the following actions. First, they introduce $\neg\pi_1$ into an SDRS. Second, *Contrast* is specified to attach $\neg\pi_1$ to π_1 . Third, dependent on whether it is *fǒuzé* or *bùrán* and whether π_1 and π_2 have a CAUSE_D relationship, either *Result* attaches π_2 to $\neg\pi_1$ or *Alternative* connects π_1 and π_2 . It is also demonstrated that, if π_1 consists of two clauses, it is always the first one that is negated, on which π_2 relies on. I also illustrate the semantic function that π_1 plays when π_2 is a question or an imperative, instead of a declarative clause. I also argue that *fǒuzé* has an ‘anti-good consequence’ property. Moreover, only when true alternatives are presented can *bùrán* and *huòzhě* be interchangeable.

⁸ A reviewer raises a question concerning the above point. He/she asks, “How does the idea *bùrán* not only introduce an alternative but also the negation of the conditional-like clause solve the puzzle that it sometimes can be replaced with *huòshì* and sometimes cannot [...]?” This question is answered here.

Finally, *fōuzé/bùrán* cannot be substituted for by contrastive conjunctions *dànshì/kěshì* ‘but’ because of the two discourse connectives have semantic/pragmatic properties that the contrastive conjunctions do not possess.

In addition, the discussion also suggests that *fōuzé* and *bùrán* are different in two aspects. First, *fōuzé* only allows for rhetorical relation *Result* to connect $\neg\pi_1$ and π_2 , whereas *bùrán* permits either *Result* or *Alternative* for $\neg\pi_1$ and π_2 on the one hand and π_1 and π_2 on the other. Second, *fōuzé* has an ‘anti-good consequence’ property, but *bùrán* does not.

4. CONCLUSION

In this paper, I examine two discourse connectives *fōuzé* and *bùrán* in Chinese, and argue for a modal-like and SDRT semantics for them. Suppose a discourse $\pi_1, fōuzé/bùrán \pi_2$, where π_1 and π_2 are clauses. These two discourse connectives have a modal-like semantics because π_2 is interpreted based on $\neg\pi_1$. However, they do not express modality.

Furthermore, I propose that *fōuzé/bùrán* perform the following steps, in order to model their behaviour in discourse. First, they introduce $\neg\pi_1$ into an SDRS. Second, rhetorical relation *Contrast* is specified to attach $\neg\pi_1$ to π_1 . Third, either *Result* connects $\neg\pi_1$ and π_2 or *Alternative* attaches π_1 to π_2 , dependent on whether it is *fōuzé* or *bùrán* and whether $\neg\pi_1$ and π_2 has a CAUSE_D relationship. Fourth, *fōuzé* indicates that π_1 and π_2 are connected only by *Result*.

In addition to the general semantics for *fōuzé/bùrán*, four more details are discussed. First, when π_1 consists of two clauses, it is always the first clause, which is negated, on which π_2 depends for semantic interpretation. Second, when π_2 is a question, the set of propositions, which serves as (possible) answers to the question, minus the proposition represented by π_1 is added into a Common Ground. If π_2 is an imperative, the property represented by the imperative is added into a Common Ground. Third, only when true alternatives are presented can *huòzhě* ‘or’ and *bùrán* substitute for each other. Fourth, *fōuzé/bùrán* cannot be substituted by *dànshì/kěshì* ‘but’ because the former two have two properties the latter

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do not share: first, π_1 contrasts $\neg\pi_1$, but not π_2 , and second, π_1 and π_2 do not have equal semantic status in the sense that π_2 is more like foreground while $\pi_1, \neg\pi_1$ to be precise, functions more like background.

Finally, this paper argues that *fǒuzé* and *bùrán* have two major differences: first, *fǒuzé* allows only *Result* to connect $\neg\pi_1$ and π_2 , while *bùrán* permits either *Result* or *Alternative*; second, *fǒuzé* has an ‘anti-good consequence’ property, but *bùrán* does not.

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論漢語的兩個篇章連詞「否則、否然」
片段篇章表述理論的解釋

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本文論證，「否則、不然」的語意類似情態詞，且需以片段篇章表述理論才能模擬，因為，此二者與篇章結構與修辭關係有關。假設有一個篇章： π_1 ，否則/不然 π_2 ， π_1 、 π_2 是子句， π_2 必須在 $\neg\pi_1$ 的情況下才能得到詮釋。此二篇章連詞實現下面的篇章功效：一、將 $\neg\pi_1$ 引介進入片段篇章表述結構中；二、 $\neg\pi_1$ 、 π_1 以對比關係做連結；三、 π_2 與 $\neg\pi_1$ 以結果關係做連結，或， π_1 、 π_2 以二選一這個修辭關係連結。由哪個修辭關係做連結，視句子中包含「否則」或「不然」及 $\neg\pi_1$ 與 π_2 間是否有寬鬆的因果關係而定。另外，也討論幾個細節：（一）當 π_1 由兩個以上的子句組成時， $\neg\pi_1$ 是哪個子句被否定；（二） $\neg\pi_1$ 為真的可能世界，在 π_2 為問句或祈使用時，扮演角色為何；（三）「或者」、「但是、可是」與「否則、不然」的差異。最後則討論「否則、不然」的差別為何。

關鍵字：否則、不然、篇章連詞、片段篇章表述理論、漢語