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# A COGNITIVE STUDY ON THE DIRECTION OF TRANSFER IN DITRANSITIVE CONSTRUCTIONS ACROSS FOUR LANGUAGES<sup>1</sup>

Abstract: Ditransitive constructions, a linguistic phenomenon universally observed, express the concept of transfer. This study investigates the direction of transfer in ditransitive constructions across Chinese, English, German, and Japanese, aiming to identify both similarities and differences. Our findings reveal that the Chinese ditransitive construction uniquely demonstrates bidirectional transfer, contrasting with the consistent unidirectional transfer observed in the other three examined languages. This difference primarily stems from two factors: firstly, the intrinsic features of the languages, including the rich case system in German and the use of particles in Japanese, clarifying unidirectional transfer, and secondly, the varying conceptualization of transfer activities, leading to different verb usage in Chinese and English. This, in turn, results in distinct meanings and directions of transfer in ditransitive constructions. These insights enhance our typological understanding of ditransitive constructions. Future research should expand to include more languages, further exploring these similarities and differences.

Keywords: ditransitive construction, transfer direction, conceptualization.

# UNE ÉTUDE COGNITIVE SUR LA DIRECTION DU TRANSFERT DANS LES CONSTRUCTIONS DITRANSITIVES DANS QUATRE LANGUES

Résumé: Les constructions ditransitives, phénomène linguistique universellement observé, expriment la notion de transfert. Cette étude examine la direction du transfert dans les constructions ditransitives en chinois, anglais, allemand et japonais, dans le but d'identifier à la fois les similitudes et les différences. Nos résultats révèlent que la construction ditransitive chinoise démontre de manière unique un transfert bidirectionnel, contrastant avec le transfert unidirectionnel cohérent observé dans les trois autres langues examinées. Cette différence provient principalement de deux facteurs: d'une part, les caractéristiques intrinsèques des langues, notamment le riche système de cas en allemand et l'utilisation de particules en japonais, qui clarifient le transfert unidirectionnel, et d'autre part, la conceptualisation variable des activités de transfert, conduisant à différentes utilisations des verbes en chinois et en anglais. Ceci, à son tour, se traduit par des significations et des directions de transfert distinctes dans les constructions ditransitives. Ces informations améliorent notre compréhension typologique des constructions ditransitives. Les recherches futures devraient s'étendre pour inclure davantage de langues, explorant davantage ces similitudes et différences.

Mots-clés: construction ditransitive, sens de transfert, conceptualization.

# 1. Introduction

A ditransitive construction is defined as a construction consisting of a (ditransitive) verb, an agent argument (A), a recipient-like argument (R), and a theme argument (T) (Malchukov et al. 2010). Recognized as a universal linguistic phenomenon, ditransitive constructions have garnered extensive scholarly attention. However, in different languages, ditransitive constructions display varying degrees of differences. One notable difference is the direction

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of transfer. For example, in Chinese1,

(1)	他	偷了	这个	小孩	一条	面包
	tā	tōu-le	zhègè	xiǎohái	yī-tiáo	miànbāo
	He	steal-PFV	this	child	one-CLF	bread

'He stole this child a loaf of bread.' (Chen and Zhang 2017: 68)

In the first example, it is clear the bread is transferred from the child to "he". While translating this sentence into English suggests a different scenario, indicating that the he stole the bread and sent it to the child. Thus, in the English translation, the bread is transferred from "he" to the child. This study refers to the issue as the "direction question" (Chen and Zhang 2017). The present investigation is a comparative study of Chinese, English, German, and Japanese, aiming to uncover the similarities and differences in transfer direction among these four languages and to provide explanations for those differences. This study seeks to answer the following two questions:

- a) What are the directions of transfer in ditransitive constructions among the four languages, and what similarities and differences exist among them?
- b) What are the underlying reasons behind these similarities and differences? After a brief introduction in Section 1, the rest of the article is structured as follows: Section 2 presents an introduction to the theory employed in this study, namely conceptualization and usage-based model, and introduces the typological features of the four languages; Section 3 outlines the methods of data collection and the limitations of these methods; Section 4 discusses the direction of transfer in ditransitive constructions among the four languages to address the first research question. Section 5 provides an explanation of the observed similarities and differences, aiming to answer the second research question. The final section concludes the study.

# 2. Theoretical background

## 2.1 Conceptualization

Cognitive linguistics posits that meaning is conceptualization (Langacker 1987: 5; Evans and Green 2006: 157). Langacker (1987) is a pioneer in equating meaning with conceptualization and interprets it as cognitive processing (Jiang and Yang 2021: 258). Evans (2019: 7) defines it as "the ways in which we construe or 'see' the range of sensations, experiences, reflections and so on, that make up our mental life". Conceptualization, therefore, involves complex cognitive processing and is characterized by varying degrees of subjectivity. When encoding the same transfer activities, people may construe them from different perspectives based on their distinct embodied experiences, thus giving rise to different linguistic usage.

## 2.2 Usage-based model

The Usage-based model asserts that the cognitive representation of language is derived from, and shaped by language use (Langacker 1987, 2000; Hopper 1987; Bybee 2006, 2010, 2013).

<sup>&</sup>lt;sup>1</sup> There is an appendix with a list of abbreviations used throughout the text at the end of the paper. I followed The Leipzig glossing rules (2015).



Bybee's exemplar model (2006, 2010, 2013) posits that the cognitive representation of language essentially comprises numerous exemplars stored in all their details through language use. Accordingly, the usage-based approach to grammar views that "grammar constitutes a vast repository of symbolic conventions, extracted from full-fledged utterances through a gradual process of schematization. This process preserves the syntactic and semantic commonalities across different usage events" (Perek 2015: 6). This model is valuable for explaining where does the meaning of ditransitive constructions come from and shedding light on the complex interplay between verbs and constructions.

# 2.3 The typological features of four languages

The four languages discussed in this study are Chinese, English, German, and Japanese. We chose Chinese, English, German, and Japanese to represent a broad spectrum of linguistic diversity. These languages span distinct language families—Sino-Tibetan, Indo-European, and Japonic—and encompass a variety of linguistic typologies, including analytic, synthetic, and agglutinative structures.

#### 2.3.1 Chinese

Unlike English and German, Chinese does not utilize case marking or verbal agreement with subjects or objects. The prototypical word order for "Double Object Constructions (DOCs)" in Chinese follows the pattern "Subject + Verb +  $O_R$  +  $O_T$ " (Zhu 1982: 117), as illustrated in example (2). "Prepositional Object Constructions (POCs)" often employ the preposition  $g\check{e}i$  meaning 'to give' as demonstrated in example (3) (Liu 2001).

(2)	我	送	李四	一本	书
	wŏ	sòng	lĭsì	yī-běn	shū
	I	send	Lisi	one-CLF	book
	'I	send Lisi a b	ook.' (	Mandarin; pers	onal knowledge)
(3)	我	送	一本 书	给	李四
	wŏ	sòng	yī-běn sl	hū gě:	i lĭsì
	I	send	one-CLF b	book to	Lisi

'I send a book to Lisi.'

# 2.3.2 English

In English, ditransitive constructions are predominantly realized through two kinds: the DOC and the POC. In the DOC, both the theme and the recipient are expressed as unmarked noun phrases (NPs), standing in immediate adjacency to the verb as shown in (4a). The first NP is typically the recipient, and the second NP is the theme. Conversely, in the POC, the recipient is typically introduced by the preposition "to" and the theme is also represented as a noun phrase like (4b). Illustrative examples of each construction are provided below:

(Mandarin; personal knowledge)



(4) a. John sent Mary the book
A R T
b. John sent the book to Mary
A T R

(Gries and Stefanowitsch 2004: 104)

#### 2.3.3 German

Ditransitive constructions in German exhibit distinct characteristics. Unlike in English, where case marking is minimal, German distinctly marks the recipient and theme with dative and accusative cases, respectively, in DOC as shown in (5a) (Zehentner et al. 2023: 3). This explicit case marking ensures that the roles of each noun phrase are readily identifiable, even when the word order varies, as it can in both IOC and POC. Furthermore, German grammar permits the use of different prepositions in the POC, with some verbs requiring "an" in the accusative case like (5b), others "zu" in the dative case, and some accepting both prepositions (Kholodova & Allen 2023). Illustrative examples of these constructions are provided below:

- (5a) Der Mann schickte seinem Bruder ein Buch the.NOM man sent his.DAT brother a book.ACC

  'The man sent his brother a book.' (German; Zehentner et al. 2023: 2)
- (5b) Der Mann schickte ein Buch an seinen Bruder the.NOM man sent a book. ACC to his.ACC brother 'The man sent a book to his brother.' (German; Zehentner et al. 2023: 2)

# 2.3.4 Japanese

Distinct from both Chinese and English, Japanese primarily utilizes a singular structure for ditransitive constructions, in which the recipient is indicated by the dative particle and the theme by the accusative case marker (Miyagawa and Tsujioka 2004). The sequence of recipient followed by theme is considered the canonical order, supported by findings from Hoji (1985), Takano (1998), and Yatsushiro (2003), as shown in (6a). However, an alternative theme-recipient order is also possible, demonstrating a degree of flexibility within the language's syntactic constraints as shown in (6b).

- (6a) Taro-ga Hanako-ni hon-o Ageta Taro-NOM Hanako-DAT book-ACC gave
  - 'Taro gave Hanako a book.' (Japanese; elicited)
- (6b) Taro-ga hon-o Hanako-ni Ageta Taro-NOM book-ACC Hanako-DAT gave

'Taro gave a book to Hanako.' (Japanese; elicited)



## 3. Method

This study focuses on the direction of transfer in ditransitive constructions among four languages. For the sake of comparison, the typical Chinese bidirectional verbs  $ji\grave{e}$  'to borrow'/ 'to lend', and the leftward transfer verb  $f \acute{a}$  'to fine' were translated into the other three languages and compared their usage in ditransitive constructions with that in Chinese. These translated sentences are verified by native speakers. Although this study is limited to these languages, it offers valuable insights into ditransitive constructions. Future study is expected to expand the discussion to include a broader range of languages.

#### 4. Results

Goldberg (1992; 1995) proposes that the prototypical function of the ditransitive construction is to express an agent causing a recipient to receive a theme. Verbs that intrinsically denote acts of transfer such as *give*, *pass*, *hand*, and *serve* exemplify this pattern. Typically, these constructions imply a "unidirectional" or "single-direction" transfer. In Chinese, numerous examples illustrate this "unidirectional" transfer. However, instances of "bi-directional" transfer are also observed within the language. This section aims to discuss the various manifestations of transfer direction in Chinese, setting the stage for a comparative analysis with the other three languages in this study.

#### 4.1 Chinese

(7a)	他	送了	我	一本 书
	tā	sòng-le	wŏ	yī-běn shū
	Не	send-PFV	I	one-CLF book

'He sent me a book.' (Mandarin; personal knowledge)

The example above epitomizes the ditransitive construction, where a unidirectional transfer of the theme from the agent to the recipient is expressed. However, the term unidirectional transfer conventionally refers to a one-way movement, primarily from the agent to the recipient. Conversely, the following example represents a less common scenario in Chinese ditransitive constructions, where the direction of transfer is reversed, moving from the recipient back to the agent.

(7b)	小李	买了	我	一本 书
	xiǎolĭ	măi-le	wŏ	yī-běn shū
	Xiaoli	buv-PFV	Ī	one-CLE book

'Xiaoli bought a book from me.' (Mandarin; personal knowledge)

The second example (7b) maintains the ditransitive pattern but represents a transfer in the opposite direction: the theme moves from the recipient to the agent. The two aforementioned instances illustrate unidirectional transfer within Chinese ditransitive constructions. We now



explore a different type of ditransitive construction in Chinese that allows for bidirectional transfer simultaneously.

Interpretation I: 'I learned a course of English from him.'

Interpretation II: 'I taught him a course of English.'

The second category of ditransitive constructions in Chinese allows for bidirectional interpretations, with each interpretation corresponding to a distinct direction of transfer. The first interpretation supports a recipient-agent transfer, while the second one enables an agent-recipient transfer. Chinese includes verbs that inherently license such dual interpretations, including shang, which can mean both 'to teach' and 'to learn', jie, signifying either 'to borrow' or 'to lend', and nag, meaning 'to take' or 'to bring'. Shi (2020) provides a systematic study of both synchronic and diachronic examples that exhibit this bidirection in Mandarin verbs. While these ditransitive constructions are syntactically correct, they can lead to semantic ambiguity. To avoid confusion, alternative ditransitive patterns are often utilized to clarify the intended meaning.

The aforementioned examples demonstrate that certain verbs within Chinese ditransitive constructions can denote bidirectional transfers. However, to enhance clarity, context-dependent choices of alternative patterns are often preferred. This tendency towards disambiguation acts as a constraining influence on the use of specific ditransitive constructions, while favoring others. A similar phenomenon has been observed in English, as noted by Zehentner (2022). The upcoming analysis will extend this discussion to a comparative context, examining whether bidirectional transfer ditransitive constructions in Chinese is distinctive or shares similarities with the other three languages examined in this study.

# 4.2 English

As indicated by Goldberg (1995: 3), the prototypical trajectory of ditransitive constructions in English is from agent to recipient. This holds true whether it indicates a specific transfer or implies an abstract transfer. Some examples are shown below:

- (8) John gives Peter a kick.
- (9) The sauce **gave** the baked bread some flavor. (adapted from Goldberg 1995: 146)

The two examples shown above both illustrate a unidirectional transfer from agent to recipient. Despite the prevalence of rightward transfer in English ditransitive constructions, instances of leftward transfer do occur, albeit less frequently. The following examples illustrate instances of this leftward transfer direction.

(10) The police **fined** him fifty dollars.



(11) She **asked** Paul a favor. (adapted from Quirk et al. 1985; Shi 2020: 421)

Examples (10) and (11) demonstrate a leftward direction of transfer, where the themes-fifty yuan and a favor-are passed from the recipients-him, Paul, to the agents-the police, she respectively. These examples thus exemplify leftward transfer. However, some scholars argue that verbs such as *charge*, *fine*, and *cost* inherently imply a rightward transfer in ditransitive constructions, as example (10), which is interpreted as 'The police issued him a one-hundred-dollar fine' (Zhang 1999; Xu 2001; Shi 2020). Further corpus analysis is required to support these assertations. What is clear is that ditransitive constructions in English typically denote a unidirectional transfer, whether 'left to right' agent-recipient or 'right to left' recipient-agent.

As for bidirectional transfer, as previously mentioned, translating some typical bidirectional verbs from Chinese to English yields dual interpretations. For instance, *shàng* can mean both 'to teach' and 'to learn' and *jiè* can convey 'to lend' and 'to borrow', therefore giving rise to different types of ditransitive constructions as shown in (12). To date, no evidence has been found to suggest the presence of bidirectional transfer in English as observed in Chinese.

(12)	我	借	李四	一千	块钱	
	wŏ	jiè	lĭsì	yīqiān	kuài-qián	
	I	borrow/lend	Lisi	one-thousand	CLF-money	
	(adapted from Shi 2020: 417)					
Interpretation I: "I lend Lisi one thousand yuan."						

Interpretation I: "I lend List one thousand yuan."

Interpretation II: "I borrow one thousand yuan from List."

# 4.3 German

Unidirectional transfer is a phenomenon commonly observed in German. The language's case-marking system facilitates clear distinctions between different directions of transfer. Presented below are two examples that illustrate the different directions of transfer:

(13a)	Ich I	0	meinem my.DAT			Geld money
		'I gi	ive my friend	the money.'	(German; el	icited)

'The police fined him 200 yuan'. (German; elicited)

(13a) illustrates a leftward transfer, where the money moves from the speaker to a friend. In contrast, (13b) demonstrates the reverse, with 200 yuan moving from an individual to the police. An interesting aspect of the latter example relates to the canonical indirect object construction (IOC) in German, where the recipient is usually marked with the dative case and the theme with the accusative. However, in this example, the roles are reversed: "him" taking the accusative case and "the fine" is the dative. This reversal is due to the use of verb



*verurteilt*, which connotes action directed at the person "he". Certain verbs related to judicial proceedings, such as *verurteilen*, require the person subjected to the action to be in the accusative case.

The aforementioned examples clearly demonstrate that unidirectional transfer is commonplace in German ditransitive constructions or at least it is possible in the language. However, instances of bidirectional transfer, similar to the Mandarin verb *jiè* are not identified. In German, the equivalent term is *leihen*, meaning 'to lend' or 'to borrow'. Unlike Mandarin, where *jiè* in ditransitive patterns can suggest ambiguous transfer directions, German requires context-specific alternatives to ensure clarity.

(13c)	lch I	leihe lend	John John.DAT		Buch book. ACC
		'I lend Jo	hn a book.' (	German; el	icited)
(13d)	lch	leihe	das Buch	von	John
	I	borrow	the book.ACC	from	John. DAT
		'I borrow a	book from John.'	(German;	elicited)

The examples provided show that when *leihen* is used in a double object construction, it yields an unambiguous interpretation. In contrast, the reverse direction of transfer is conveyed through a different ditransitive pattern that employs the preposition *von* to signify the direction of transfer.

# 4.4 Japanese

In Japanese, the sequence of the recipient and theme within ditransitive constructions exhibits flexibility. The employment of grammatical particles facilitates the clear identification of transfer direction. The following examples illustrate instances of unidirectional transfer typical of Japanese ditransitive patterns.

(14a)	watashi-wa I-NOM	kare-ni him-DAT	hon-o book-ACC	agelu give	
		'I give him a	book.' (Japanese; elici	ted)	
(14b)	keisatsu-wa Police-NOM	kare-ni him-DAT	nihyaku gen-no bakk 200 yuan-GEN fine-A		kashita impose.PFV
	ʻTh	e police fined h	im 200 yuan.' (Japanese	e; elicited	d)

The first example demonstrates a transfer from the agent to the recipient, while the second demonstrates the opposite direction, from the recipient to the agent. The use of particles in Japanese, which clearly mark grammatical roles, allows for flexibility in the order of the recipient and theme. Factors such as information structure, conventional usage, and the grammatical weight of theme and recipient may influence the arrangement of the IO and DO. Due to these explicit particle markers, the direction of transfer is unambiguously clear, eliminating any potential for ambiguity.



When translating the typical bidirectional Mandarin verb  $ji\dot{e}$  into Japanese, it results in two possible translations: 借りる, meaning 'to borrow', and 貸す, meaning 'to lend'. These different verbs, along with the use of specific particles, clarify the direction of the transfer, as illustrated in examples (15a) and (15b). In the corpus of Japanese ditransitive patterns studied, no instances of bidirectional transfer have been observed.

(15a)	watashi-wa	John-kara	hon-o	issatsu	kariru
	I- NOM	John-ABL	book-ACC	one	borrow
(16b)	watashi-wa I- NOM	rrow a book fron John-ni John-DAT I lend John a bo	hon-o book-ACC	issatsu	l) kasu lend

#### DIRECTION OF TRANSFER IN FOUR LANGUAGES

Direction	Chinese	English	German	Japanese
Agent-Recipient	✓	✓	✓	✓
Recipient-Agent	✓	✓	✓	✓
Bi-Direction	✓	×	×	×

Table 1: Transfer's direction of ditransitive construction in four languages

#### 5. Discussion

Through the comparison between Chinese and other three languages in terms of the direction of transfer in ditransitive constructions, it makes clear that unidirectional transfer is a prevalent characteristic within ditransitive constructions across the four languages studied. Specifically, the agent-to-recipient transfer direction is commonly observed, making it a widespread linguistic phenomenon. Although the recipient-to-agent direction is less common, it occurs in all four languages. Notably, bidirectional transfer is a unique characteristic of Chinese. The following section will provide the explanation why such differences occur in four languages.

# 5.1 Inherent features of language

One notable difference of four languages discussed here is the case marking. Chinese is well-known as isolating languages lacking case marking and inflectional morphology (Shao 2023). In contrast, German has a robust case-marking system that clearly differentiates grammatical roles. Japanese, unlike German, employs particles to indicate grammatical roles. English sits in the middle of this continuum with limited use of case marking, as seen in pronouns like "him" or "her" (Shao 2023). Therefore, when discussing the direction of transfer in ditransitive constructions among these four languages, there is limited flexibility for German and Japanese due to their rich case making or particles usage, which clarifies direction of transfer without ambiguity. Hence, German and Japanese exhibit unidirectional transfer. The underlying reasons for the differences between Chinese and English will be expounded in the second section.



# 5.2 Language conceptualization

When encoding specific transfer activities, different conceptualizations in different cultures arise from various ways of construal. Individual transfer verbs are used to encode concrete actions of those transfer activities. In Chinese, verbs tend not to specify the direction of transfer (Shi 2004). While in English, the direction of transfer in verbs are clearly denoted (Shi 2004). The reason of different ways of construal of the same activity lies in the different modes of mentality.

Ancient Chinese philosophy regards the space of heaven and earth as a whole, emphasizing the symmetry and reversibility specific to space, as manifested in the six directions (up, down, east, west, south, north) (Liu 2000: 136). Deeply influenced by this Chinese spatial mentality, when encoding the action of transfer, Chinese tends to construe it from an integrative and multi-perspective viewpoint. Following this mentality, Chinese adopts "summary scanning" in encoding transfer activities (Shen 2021). Therefore, verbs in encoding the transfer direction in Chinese can be dual and reversible.

However, English displays a different mentality. In the West, time is viewed as an endlessly progressing continuum, predicated on one-dimensionality, with one part succeeding another in a continuous, irreversible sequence, where no two parts may overlap (Cui and Wang 2019). Under the influence of this linear way of thinking, when encoding the transfer activity, English adopts "sequential scanning" and encodes the specific timing with corresponding states of action in a rigid manner (Cui and Wang 2019; Shen 2021). Therefore, verbs used in encoding transfer activities denote specific direction.

The different construal of transferring activity leads to the different usage. In Chinese, as a result of using verbs conveying bidirectional transfer, to denote the action of "giving", the preposition object construction is preferred. In POC, the use of *gei*, meaning to give, is employed, clearly denoting the direction of transfer. By contrast, in English, DOC can adequately express the action of "giving" without more need to refer to POC. The percentage of usage of DOC and POC in Chinese and English vary greatly, which has been verified in the corpus (Zhang 2020). According to Zhang's finding, in a balanced corpus of Chinese and English, DOC accounts for 57.6% in English, making up the majority use. While in Chinese, POC becomes the majority, up to 72%.

According to Croft (2003: 56), argument structure constructions are better seen as consisting of several generalizations over semantically defined verb classes. The most frequent verb plays a determining role in the semantics of the construction (Perek 2015). According to Sethuraman (2002: 125) and Perek and Lemmens (2010), "give" is the most frequent verb used in DOC in English. The construction meaning of DOC in English is typical "giving". Therefore, the verbs entering in English DOC simultaneously are imbued with the "giving" meaning (Chen and Zhang 2017).

In Chinese, DOC is not the prototype in ditransitive constructions (Zhang 2020). Furthermore, verbs with non-giving meaning, such as "steal", "use", and "buy", constitute 88% of DOC (Zhang 2006). Therefore, the construction meaning of DOC in Chinese does not predominantly convey "giving". Its meaning is more schematic and dependent on the specific verbs used. When the verb implies a rightward direction of transfer, the DOC presents this direction, and similarly for leftward or bidirectional transfers.

In summary, different ways of construal, stemming from cultural mentalities, lead to varied verb usage in encoding transfer activities. This variation in usage frequency consequently give rise to different construction meaning of ditransitive constructions in two languages,



thereby leading to different manifestations of direction of transfer in ditransitive constructions.

## 6. Conclusion

Based on the foregoing discussion, it can be concluded that languages with rich case systems like German and Japanese leaves little room for ambiguity in the direction of transfer in DOCs. English, in spite of its limited use of cases, exhibits linear thinking patterns, thus ensuring a clear direction of transfer in DOCs. In contrast, Chinese, characterized by more spatial ways of thinking, is less likely to denote a specific direction of transfer in giving events. This leads to a lower level of schematic usage in DOCs and opens the possibility for bi-directional transfer. The present study contributes to the understanding of ditransitive constructions. Future study could broaden this exploration by including more languages in a typological study of the direction of transfer in ditransitive constructions.

## **Appendix: List of Standard Abbreviations**

```
Α
                 agent
          ablative
ABL
ACC
                 accusative
CLF
                 classifier
                 dative
DAT
                 direct object
                 double object construction
DOC
GEN
           genitive
                 indirect object
Ю
                 indirect object construction
IOC
                 nominative
NOM
                 noun phrase
NP
PFV
                 perfective
                 prepositional object construction
POC
                 recipient
R
                 theme
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