

Inter Faculty, 11 (2021): 153–177

<https://journal.hass.tsukuba.ac.jp/interfaculty/article/view/172>

Published: March 25, 2022

Article

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To cite this article:

CHAUHAN, A. (2021). A Quantitative Study of Transitive and Intransitive Constructions in Hindi and Japanese.

Inter Faculty, Vol. 11, pp.153–177. <<https://journal.hass.tsukuba.ac.jp/interfaculty/article/view/172>> [Accessed: 2023.6.4]



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A Quantitative Study of Transitive and Intransitive Constructions in Hindi and Japanese

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Abstract

Previous studies have suggested that, like Japanese, Hindi displays a preference for intransitive constructions that describe events as spontaneous occurrences over transitive constructions that give prominence to the agent. This study compares the frequency of transitive and intransitive constructions in the two languages by using a Hindi novel and its Japanese translation as a parallel corpus. The results show that not only was there no significant difference in the number of transitive and intransitive constructions, the frequency of transitivity pairs (causative/non-causative pairs) is also similar with both languages using more non-causative pairs. The implication of this finding for errors observed in Hindi-speaking learners of Japanese is discussed.

Keywords: transitive and intransitive constructions, transitivity pairs, Japanese, Hindi, second language acquisition, L1 influence

要旨

先行研究では、ヒンディー語は日本語と同様に、動作主体を表に出す他動詞構文より物事が自ずからどうなったかを表現する自動詞構文を好む傾向がみられると述べられている。本研究では、日本語とヒンディー語における自動詞構文と他動詞構文の使用傾向を比較する目的で対訳テキストをデータに持ち、調査を行った。その結果、両言語における自動詞構文と他動詞構文の使用頻度に有意差がなく、使役交替に参加する有対動詞（非使役動詞と使役動詞）もほぼ同程度であり、非使役動詞の動詞対が共通して多かったことが明らかになった。このことから、ヒンディー語における傾向がヒンディー語を母語とする日本語学習者に見られる誤用に影響していることが示唆される。

キーワード：自動詞構文・他動詞構文、有対自他動詞、日本語、ヒンディー語、第二言語習得、母語干渉

1. Introduction: motivation for the current study

This study is an attempt to account for the following error type seen in Hindi-speaking learners of Japanese by shedding light on the usage pattern of transitive and intransitive constructions in Hindi in comparison to Japanese.

1. *Onsen-wa* *ōyuki-no* *tokoro-de* *yuki-wo* **tokeru*
hot spring-TOP heavy snow-GEN place-LOC snow-ACC melt [Vi]
tameni yaku-ni tatsu.
for be useful-NONPST
‘Hot springs are useful for *melting [Vi] snow in areas of heavy snowfall.’

The above example uses the non-causative pair *tokeru* instead of its causative equivalent *tokasu* in an otherwise transitive construction.

In a previous study conducted by the author on the acquisition of Japanese transitivity pairs, it was shown that Hindi speaking learners of Japanese tended to overuse intransitive verb pairs in a transitive construction¹ (Chauhan 2018). However, such error types have been reported as infrequent in studies that target Chinese and English-speaking learners (Sugimoto 1997; Sakamoto 2004; Morita 2004). Instead, errors concerning particle selection (Sugimoto 1997; Sakamoto 2004) and overuse of transitive verb pairs (Moriya 1994; Morita 2004; Yao 2004) were reported as prominent error types.² The cause of such errors has been attributed to a lack of morphologically distinct transitivity pairs, greater lexical restrictions on transitivity alternations and an overall preference for transitive structures in the L1 (Morita 2004; Yao 2004).

In contrast to Chinese and English, Hindi possesses numerous morphologically distinct transitivity pairs, along with ‘agent-implicating intransitive constructions’ (Pardeshi 2008). However, no study has attempted to quantitatively analyze the

usage patterns of transitive and intransitive constructions in Hindi or contrast it with Japanese. The current study is an attempt to shed light on the robustness of the claim that error patterns mentioned above can be attributed to the learners' L1.

2. Background

Languages differ in terms of how transitive and intransitive constructions are used. Numerous studies argue that Japanese tends to describe events as if they happen spontaneously, whereas English gives prominence to the human agent. For this reason, intransitive constructions are more frequent in Japanese, while English uses more transitive constructions (Alfonso 1966; Kunihiro 1974; Ikegami 1981, 1991; Hinds 1986; Teramura 1993). Though the phenomenon has been labeled differently by different researchers, Ikegami was the first to conceptualize the difference in the degree of agent prominence between languages as a continuum with Japanese and English forming its two ends. He termed languages like English as 'Do-languages' and languages like Japanese as 'Become-languages'.

Not only does Japanese prefer to use intransitive constructions, its range of what kind of events can be expressed through an intransitive construction is wider. For example, English can only use passive constructions to background agents, whereas Japanese possesses numerous intransitive verbs that denote agentive events such as *mitsukaru* (be found), *kimaru* (be decided), *tsutawaru* (be conveyed), and *tasukaru* (be helped) (Jacobsen 1992).

This preference can also be seen in the morphological markedness of transitivity pairs. Haspelmath et al. (2014) found that frequent verbs are morphologically simple. The fact that Japanese has more causative alternations (the transitive verb pair is morphologically derived from the intransitive) than anti-causative alternations (the intransitive verb pair is morphologically derived from the transitive), whereas English has no causative alternations (The World Atlas of Transitivity Pairs 2014a; 2014c), lends support to the claim that Japanese prefers intransitive expressions.

Further support comes from quantitative studies which demonstrate that Japanese indeed uses more intransitive expressions than English (Ueno and Polinsky 2009; Luk 2014).

With regards to Hindi, Pardeshi (2008) argues that ‘agent-implicating intransitive verbs’ like *mitsukaru* (be found), *kimaru* (be decided) mentioned above are widely found in South Asian languages like Hindi. Furthermore, as reported in The World Atlas of Transitivity Pairs, most pairs in Hindi were causative alternations,³ making the intransitive as the morphologically simple and therefore the more frequent of the transitivity pair. These observations suggest that Hindi is closer to Japanese than English in its preference for encoding events.

3. The study

3.1 Aims

This study aims to investigate whether Hindi and Japanese differ in terms of which construction type is preferred when describing the same semantic content.

3.2 Method

Following Luk (2014), a parallel corpus was created to compare different form-meaning mappings in Hindi and Japanese. The Hindi novel *Usakā Bachapana*, ‘His Childhood’, by Krishna Baldev Vaid and its Japanese translation *Bīrū no Shōnen Jidai*, ‘Biru’s Boyhood’, by Nagasaki Hiroko (2002) was chosen because the original is written in contemporary Hindi and describes the daily life and interactions of a family.

Predicates in both languages were categorized into transitive, unergative, passive, unaccusative, adjectival and other based on their syntactic structure. This categorization is based on Luk (2014) who adapted Croft’s (1990) ‘causative-inchoative-stative continuum’ (Luk 2014: 752) and Ikegami’s (1991) ‘transitive-passive-intransitive’ hierarchy (Luk 2014: 760) to reflect the prominence languages give to the agent in each construction type. The left end of the continuum represents constructions that allow the agent to be linguistically coded (transitive, unergative, passive), whereas the right end of the continuum consists of constructions that do not have an agent (unaccusative, adjectival). The methodology is explained below.

3.2.1 Coding syntactic transitivity in Hindi and Japanese

Hindi and Japanese are SOV languages where postposition morphological markers express syntactic as well as semantic role of nouns. Both languages have a relatively free word order and allow omission of core arguments. Furthermore, verbs in both languages take a number of suffixes to express grammatical meaning (tense, aspect, modality, etc.) and to form causative constructions. Verb endings can also unambiguously categorize verbs as transitive or intransitive even when the core arguments are not formally expressed. For example, the fact that *tokeru* (to melt) in Japanese and *pighalanā* (to melt) in Hindi are the intransitive counterparts of *tokasu* (to melt) and *pighalānā* (to melt) respectively is apparent from the verb morphology. However, the surface case markings can differ between the two languages, as Japanese is an accusative language whereas Hindi is a split-ergative language based on aspect where ergativity is expressed through morphology rather than syntax.

As an accusative language, Japanese marks the subject of a canonical transitive construction with a nominative marker (case particle *ga*) and the object with an accusative marker (case particle *wo*). The subject of a canonical intransitive construction takes the nominative *ga* particle. In other words, the subject of intransitive verbs is treated like the subject of transitive verbs. It should also be noted that the core arguments in both constructions allow the topic marker *wa* to replace nominative/accusative case markings for discourse purposes.

Hindi, on the other hand, is split along the lines of aspect. The subject of a canonical transitive construction takes an ergative marker (postposition *ne*) when the verb is in the perfective aspect; in non-perfective aspects, the subject appears in nominative case which is null marked (\emptyset). The object takes the accusative case marking (postposition *ko*) if the noun is animate. If inanimate, *ko* renders the interpretation that the object is both definite and specific. The object takes the nominative case marking (\emptyset) if it is inanimate and neither definite nor specific. The subject of a canonical intransitive construction is null marked. Hindi therefore exhibits ergative properties in perfective aspect (that is, when the transitive case frame is [subject-*ne* object- \emptyset]), and accusative properties in non-perfective aspect (that is, when the transitive case frame is [subject- \emptyset object-*ko*]).

3.2.2 Survey categories

In the present study, the category ‘transitive’ refers to verbs that have a subject and a direct object. This includes ditransitive and causative constructions as the only difference from a transitive construction is the addition of a third argument – an indirect object in the case of the former and an external causer in the case of the latter.

In Japanese, verbs that license the nominative case on subject and accusative case on object were classified as ‘transitive’.⁴ In Hindi, the case frame was extended to include [ergative – accusative], [ergative – absolutive] and [nominative – nominative] under the following two conditions – firstly, the verb should be able to license ergative case on subjects when expressed in perfective aspect and secondly, the verb should be able to license accusative case on objects to denote definiteness and specificity.

The category, ‘passive’ refers to the use of auxiliary verb *jānā* (to go) with the perfect participle form of the verb in Hindi. In Japanese, verb stems accompanied with the morpheme *-rare* were categorized as passive. This includes inability passives in Hindi and adversity passives in Japanese.

Intransitive verbs refer to verbs that have only one argument marked by nominative case. These were further grouped into ‘unaccusative’ and ‘unergative’ based on the tests proposed by Bhatt (2003) for Hindi⁵ and Kageyama (1993) for Japanese.⁶ However, as Ahmed (2010) points out, the diagnostic tests for Hindi are not always conclusive and semantic features such as intentionality have to be used to make judgements for verbs that cleared tests for both unergative and unaccusative verbs.

It should also be noted that both languages display deviations from the canonical transitive and intransitive structure. The former consists of high-transitivity verbs that do not license accusative marking on the second argument (2a, 3a, 3b) as well as ‘say’ verbs (such as, speak, ask, think) when accompanied with a complement clause (that is, the content of the utterance) (4a, 4b). The latter consists of low-transitivity verbs that allow an additional experiencer argument (5a) or a topic argument (5b).

- 2a. *bīrū=ne tālī-∅/*=ko bajā-ī.*
 Biru=ERG clap-NOM/*=ACC ring-PF
 ‘Biru clapped.’
- 2b. *bīrū-wa hakushu-wo shi-ta.*
 Biru-TOP clap-ACC do-PST
 ‘Biru clapped.’
- 3a. *sarakāra-∅ isa mudde=se/*ko jūjh-ī.*
 government-NOM this issue=with/*ACC grapple-PF
 ‘The government tackled this issue.’
- 3b. *sēfu-ga kono mondai-ni/*wo idon-da.*
 government-NOM this issue-against/*ACC grapple-PST
 ‘The government tackled this issue.’
- 4a. *sau bāra kah-ā he, laka.Dī-∅ lā do.*
 hundred times say-PF be-PRES firewood-NOM bring give-IMP
 ‘I told you a hundred times to get firewood.’
- 4b. *maki-wo kat-te ki-te tte hyappen it-ta*
 firewood-ACC buy-GER come-GER CM hundred-CLF say-PST
noni.
 SFP
 ‘I told you a hundred times to get firewood.’
- 5a. *bacche=ko bhūkha-∅ lag-ī.*
 child=DAT hunger-NOM feel-PF
 ‘The child felt hungry.’
- 5b. *kodomo-wa onaka-ga sui-ta.*
 child-TOP stomach-NOM become empty-PF
 ‘The child was hungry.’

High-transitivity verbs were grouped as ‘transitive’ and low-transitivity verbs were grouped either as ‘unergative’ or ‘unaccusative’.

The category ‘adjectival’ refers to the use of an adjective as the predicate. ‘Other’ consists of copular and prepositional phrases. These were included because sometimes languages use expressions such as adjectives, nouns, adverbs etc. to translate verbs. Predicates not found in the parallel text as well as predicates that could not be expressed using a single lexical item in the parallel text were excluded because this would introduce a statistical bias to the comparison of how the two languages express an event.

4. Result

4.1 Types of constructions

The first 772 tokens that have correspondence in both languages were analyzed. The token frequency of the six construction types in both languages is as follows:

Table 1: Token frequency by construction type (%)

	Transitive	Unergative	Passive	Unaccusative	Adjectival	Other	total
Hindi	318	93	6	291	34	30	772
	(41.2)	(12.1)	(0.8)	(37.7)	(4.4)	(3.8)	(100)
Japanese	354	89	23	292	4	10	772
	(45.9)	(11.5)	(3.0)	(37.8)	(0.5)	(1.3)	(100)

A chi-square test for goodness of fit revealed that the pattern of construction use was different for Japanese and Hindi, $\chi^2(5, N = 1544) = 45.668, p < 0.01$. The adjusted standardized residuals were calculated for each cell to find out which difference(s) contributed to the significant result. The results are reported in Table 2.

Table 2: Adjusted standardized residuals

	Transitive	Unergative	Passive	Unaccusative	Adjectival	Other
Hindi	-1.848	0.316	-3.187*	-0.052	4.928*	3.204*
Japanese	1.848	-0.316	3.187*	0.052	-4.928*	-3.204*

The asterisk indicates that the residual contributed significantly to the chi-square value. As seen from Table 2, the difference between observed frequency and expected frequency was significantly large for the passive, adjectival and other constructions. The negative adjusted residual suggests that Hindi used significantly fewer passive constructions than expected, and the positive adjusted residuals suggest that it uses adjectival and other constructions more often than expected. The frequency of transitive and intransitive (unergative and unaccusative) verbs was not significantly different. The following section takes a closer look at the differences and similarities seen in the two languages.

4.2 Differences/Similarities observed between Hindi and Japanese

The distribution of construction types in comparison to the other language is presented in Table 3 (for a detailed list of mismatches please see Appendices I to VI). The highlighted sections represent frequencies where both languages used the same construction type. Data for Hindi is presented in the columns and that for Japanese is presented in the rows.

Table 3: Correspondence in construction types

(H) (J)	Transitive (H)	Unergative (H)	Passive (H)	Unaccusative (H)	Adjectival (H)	Other (H)	total
Transitive (J)	296	11	2	24	10	11	354
Unergative (J)	3	71	0	11	1	3	89
Passive (J)	7	1	3	10	0	2	23
Unaccusative (J)	7	8	1	239	23	14	292
Adjectival (J)	0	0	0	4	0	0	4
Other (J)	5	2	0	3	0	0	10
total	318	93	6	291	34	30	772

4.2.1 Mismatches concerning transitive and unaccusative constructions

A majority of the mismatches where one language used a transitive construction and the other an unaccusative construction can be attributed to the restriction Hindi places on coding non-volitional events as transitive constructions (eighteen out of twenty-four instances). Not only does Hindi prefer to code non-volitional events as intransitive constructions (6a), predicates that express states like possession (7a) are obligatorily intransitive.

6a. *mā.N=kā pā.Nva-∅ diyāsalāī=para pa.Datā hai.*
mother=GEN foot-NOM match=LOC fall on-IMPF be-PRES
'The mother's foot falls on the match.'

6b. *kāchan-ga ashi-de macchi-wo funduke-ta.*
mother-NOM foot-INST match-ACC step on-PST
'The mother stepped on the match.'

7a. *baGala=me.n sarakārī kāGazo.n=kā pulindā hai.*
underarm=LOC official papers=GEN parcel be-PRES
'Under his arm is a parcel of official documents.'

7b. *waki-ni yakusho-no shorui-no tsutsumi-wo*
armpit-LOC public office-GEN documents-GEN parcel-ACC
kakae-te i-ta.
hold-GER be-PST
'He was holding a parcel of official documents under his arm.'

Volitionality also played a role in instances where Hindi used a transitive construction and Japanese did not. Out of the seven instances four were contexts where Hindi emphasized the conscious nature of an act by the agent through the use of a transitive construction.

8a. *kyū.n apane hāth-∅ to.Da-te ho.*
 why own hand-NOM break (Vt)-IMPF be-PRES
 ‘Why would you break your own hands?’

8b. *omae-no te-ga oreru darō.*
 you-GEN hand-NOM break (Vi) COP.EM
 ‘Your hands will break.’

In 8a, the agent is deliberately doing something that is harmful to them which prompts the speaker of 8a to use the causative pair *to.Danā* (to break) instead of its non-causative pair, *TūTanā* (to break). While Japanese codes the event with an unaccusative verb *oreru* (to break), the transitive construction *te wo oru* (to break one’s hand) does not necessarily imply a volitional act. Other instances involved verbs that lack a corresponding non-causative pair like 9 below.

9a. *dādī=ne bhej-ā thā.*
 grandmother=ERG send-PF be-PST
 ‘Grandma sent me.’

9b. *bāchan-no tsukai-de it-ta-n da-yo.*
 grandmother-GEN errand-INST go-PST-NMCOP-SFP
 ‘I went on grandma’s errand.’

In 9a, the speaker narrates the event from the agent/grandmother’s perspective thereby implying that the act was not initiated of their own volition. 9b, on the other hand, expresses the event from the speaker’s perspective and does not convey a sense of unintentionality.

4.2.2 Mismatches concerning passive constructions

As seen in section 4.1, Japanese used significantly more passive constructions than Hindi. Seven out of eight instances of mismatches where Hindi used a transitive construction were cases like 10b where Japanese used a passive construction to maintain the perspective from the speaker’s viewpoint.⁷ Hindi on the other hand freely switched the narrative perspective from one character to

another and therefore used more transitive construction to present the event from the agent's viewpoint. For example, 10b below is stated from the protagonist's perspective whereas 10a is stated from the protagonist's father's perspective.

- 10a. *māno bābā=ne usake mu.nha=par eka chapata-∅ ja.Dā*
as if father=ERG his face=LOC one slap-NOM place
dī ho.
give-PF be-PRES
'As if his father had slapped him.'

- 10b. *tōchan-ni kao-wo tatak-are-tayō-na ki-ga shi-ta.*
father-by face-ACC hit-PAS-PST like feeling-NOM do-PST
'He felt as if he was slapped by his father.'

Instances where Hindi used an unaccusative construction were often cases where a corresponding non-causative pair did not exist in Japanese. All seven such instances were agentive intransitive verbs in Hindi like 11 below.

- 11a. *khi.ncha-te hue kāno=kī jalana-∅ use*
pull-IMPF PTPL ear.PL=GEN burn-NOM him-DAT
kuCha bhī nahī kaha-ne de-tī.
anything NEG say-INF PERM-IMPF
'The burning sensation in his [pulled] ears did not let him say anything.'

- 11b. *hippar-are-ta mimi-ga itaku-te nanimo i-e-na-katta.*
pull-PAS-PST ear-NOM painful-GER nothing say-POT-NEG-PST
'He was unable to say anything because his [pulled] ear hurt.'

It should be added that two of the mismatches where Hindi used a passive construction and Japanese did not were cases of inability passives. The corresponding Japanese constructions used the potential constructions, *yomitoru koto ga dekiru* (to be able to read) and the intransitive verb *toreru* (to catch) which incorporates the semantic nuance of potential constructions.

4.2.3 Mismatches concerning adjectival constructions

In contrast to passive constructions, Hindi used significantly more adjectival constructions than Japanese. Out of the thirty-four adjectival constructions found in Hindi, twenty-three were unaccusative constructions like 12b below.

12a. *ghara=kā mu.nha-∅ ba.nda hai.*
house=GEN mouth-NOM closed be-PRES
'The entrance to the house is closed.'

12b. *genkan-no tobira-wa shimat-te i-ta.*
entrance-GEN door-TOP close (Vi)-GER PROG-PST
'The entrance door is closed.'

Luk (2014) makes a similar observation with regards to English and Japanese, reporting that English frequently uses adjectival constructions which are commonly coded as intransitive constructions in Japanese. Luk further states that this observation is in line with Kageyama (1996) where English is described as a 'result-focused language' and Japanese as a 'change-focused language'. Though a contrastive analysis of Hindi adjectival constructions and corresponding Japanese intransitive constructions is required, findings of this study suggest that Hindi may be closer to English than Japanese in this respect.

4.2.4 Transitivity pairs

A survey of transitivity pairs revealed that twenty-nine out of the 296 transitive constructions were causative pairs and eighty-one out of the 239 unaccusative constructions were non-causative pairs in both languages. Causative pairs were broadly characterized as events where the subject, either animate or inanimate, performed an action that caused a change in the object. Non-causative pairs were characterized as events where the object of the corresponding pair is expressed as a subject which undergoes a change in state.⁸

Cases where only one language used a transitivity pair were also observed.⁹ Thirty-eight instances of causative pairs and thirty-one instances of non-causative pairs were observed in Hindi. On the other hand, the Japanese data had eleven

instances of causative pairs and thirty-seven instances of non-causative pairs for which Hindi used verbs that lacked a pair. In other words, not only were transitivity pairs frequently used in the parallel corpus, but there was also a clear preference for non-causative pairs over causative pairs.

Table 4: Token frequency of transitivity pairs

	Causative pairs		Non-causative pairs	
	shared	not shared	shared	not shared
Hindi	29	38	81	31
Japanese	29	11	81	37

Though by no means frequent, instances of ‘agent-implicating intransitive expressions’ were also found in the parallel corpus. Cases where both languages used such expressions were limited to *shor honā* (noise exists)/*kansē-ga agaru* (shouts rise) and *bananā* (to be made)/*tatsu* (to be built) in Hindi and Japanese respectively.

13a. *galī=me.n baccho.n=kā shora hai.*
 street=LOC children=GEN noise be-PRES
 ‘There is noise from the children in the street.’

13b. *roji-dewa kodomotachi-no kansē-ga agat-te*
 street-LOC-TOP children-GEN shout-NOM raise (Vi)-GER
i-ta.
 PROG-PST
 ‘The children’s shouts were rising in the street.’

Hindi also used *pitanā* (to get beaten) and *prayoga honā* (to be used) which do not have equivalent intransitive expressions in Japanese.

Though ‘agent-implicating intransitive expressions’ were infrequent, causative pairs of these verbs were used relatively frequently in the parallel corpus. Eleven type frequencies were observed in Hindi out of which six were NV complex verbs that take the light verb *karanā* (to do). Examples include *pheśalā karanā* (to decide), *sewā karanā* (to look after/serve), *bāta karanā* (to talk).¹⁰ Six type frequencies were observed in Japanese.

14a. *kuCha phaisalā karanā chāha-te hai.n.*
a few decision do.INF want-IMPF-PL be-PRES-PL
'A few want to make a decision.'

14b. *hantē-wo kudas-ō-to suru mono-mo i-ta.*
decision-ACC give-try people-too exist-PST
'There were those who tried to make a decision.'

The anti-causative pair for *phaisalā karanā* (to decide) in 14a is *phaisalā honā* (to be decided). Similarly, the pair for *kudasu* (to give) in 14b is *kudaru* (to be given).

The above bias for causative pairs in Hindi may stem from the characteristic of the text used to create a parallel corpus. Pardeshi (2008) reports that South Indian languages use numerous 'agent-implicating intransitive expressions', supporting the claim through data from various news articles. Unlike Pardeshi (2008), the text used in the current study is a subjective narrative which is in part composed of interactions between ordinary people. Though a detailed investigation into various text types is necessary, we may speculate that 'agent-implicating intransitive expressions' tend to be used more in expository text.

5. Conclusion

The present study investigated whether Hindi and Japanese differ in terms of their use of transitive, unergative, passive and unaccusative constructions. To summarize the results, Hindi and Japanese did not differ greatly in the number of intransitive and transitive constructions used in the parallel corpus. Furthermore, both languages used numerous transitivity pairs, including 'agent-implicating intransitive expressions'. This suggests that Hindi shares a preference for intransitive constructions with Japanese, which in turn implies that it prefers to code an event as if it happened spontaneously, making Hindi a 'Become-language'.

Mismatches were observed between most construction types, however, the difference in frequency was significantly larger in passive, adjectival and other constructions. Japanese used more passive constructions than Hindi, and Hindi used more adjectival and other constructions than Japanese. This suggests that Hindi prefers using constructions on the right end of the continuum (intransitive and

adjectival). However, a comprehensive analysis that encompasses not just syntactic and morphological but also semantic features is required to fully shed light on how transitive and intransitive construction types are treated in the two languages.

Though this study cannot demonstrate a direct causal relationship between the preference Hindi exhibits in using intransitive verbs and the errors produced by Hindi-speaking learners of Japanese, it demonstrates that not only does Hindi widely use intransitive verbs, but it also uses non-causative verb pairs significantly more than causative verbs pairs. This may be a contributing factor to the overuse of non-causative pairs reported in Chauhan (2018). The study also underlines the importance of an interdisciplinary approach to language pedagogy by highlighting the need for contrastive research.

¹ The data consisted of 1,592 verbs that form transitivity alternations. Around one-fourth of the errors (49 instances out of 202) were erroneous usages similar to example 1.

² It should be noted that such errors were not absent in Hindi-speakers. In fact, errors related to particle selection were the second highest error type after errors related to predicate selection.

³ Data contributed by Miki Nishioka for Hindi and Heiko Narrog for Japanese in *The World Atlas of Transitivity Pairs* (2014b; 2014c) show that forty-two out of the fifty-three transitivity pairs (approximately 79%) were causative alternations in Hindi as compared to sixteen out of forty-five (approximately 35%) in Japanese. There were no anticausative alternations in the Hindi data, and twenty (approximately 44%) in the Japanese data.

⁴ This not only included ditransitive and the *-sase* causative construction, but also potential constructions when they followed the nominative-accusative pattern.

⁵ Two main diagnostic tests were used based on whether: 1) the verb formed inability passives; and 2) whether the past participle of the predicate could be used with the reduced relative. Only unergatives form inability passives in Hindi as the construction requires a subject. However, only unaccusatives appear with reduced relatives to express states. Besides these, whether the verb could be used with light verbs *le* (take) (for unergative verbs) or *jā* (go) (for unaccusative verbs) was also used as a supplementary test.

⁶ Co-occurrence with the modifier *takusan* (many, much) was used as a diagnostic test for Japanese. *Takusan* modifies the argument within the verb phrase for this reason it modifies the subject of unaccusative verbs but not the subject of unergative verbs.

⁷ For details, please refer to Pardeshi, Li and Horie (2006).

⁸ The list of transitivity pairs provided on *The World Atlas of Transitivity Pairs* website (Narrog et al. 2015) was consulted for Japanese pairs. All judgments concerning Hindi pairs were independently made by the author.

⁹ This includes cases where the equivalent expression in the parallel text was non-verbal (such as adjectives) as well as cases where it could be replaced with a synonym which forms a transitivity alternative.

¹⁰ Corresponding anti-causative pairs use the light verb *honā* (be): *phesalā honā* (be decided), *sewā honā* (be taken care of), *bāta honā* (talk occurs).

Gloss

ACC: accusative; CLF: classifier; CM: complementizer; COP: copular; DAT: dative; EM: epistemic modality; ERG: ergative; GEN: genitive; GER: gerund; IMP: imperative; IMPF: imperfect; INF: indefinite; INST: instrumental; LOC: locative; NEG: negative; NOM: nominative; NONPST: non past; PAS: passive; PERM: permissive; PF: perfective; PL: plural; POT: potential; PRES: present; PROG: progressive; PST: past; PTPL: participle; SFP: sentence final particle; TOP: topic; Vi: intransitive verb; Vt: transitive verb.

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Appendix I: Hindi transitive constructions and their non-correspondences in Japanese

Transitive			Passive (adversity)		
SUB	DO	PRED	SUB	DO	PRED
X [mother]	insult	<i>denā</i> (give)	X	insult	<i>iwareru</i> (say, indirect)
Transitive			Passive (direct)		
SUB	DO	PRED	SUB	PRED	
power	legs	<i>jaka.Danā</i> (bind)	legs	<i>shibarareru</i> (be bound)	
lap	2.M [Biru]	<i>kāTanā</i> (bite)	2 [Biru]	<i>kirareru</i> (be cut)	
child	nest	<i>astvyast karanā</i> (upset)	nest	<i>guchagucha ni sareru</i> (be messed up)	
X	tongue	<i>rokanā</i> (stop)	tongue	<i>sēshi sareru</i> (be stopped)	
Transitive			Unergative		
SUB	DO	PRED	SUB	PRED	
3.F [mother]	relationship	<i>banānā</i> (maintain)	bride	<i>tsukiau</i> (get along)	
children	cavort	<i>machānā</i> (create)	children	<i>hashagimawaru</i> (jump about)	
3.M [Biru]	ability	<i>rakhanā</i> (keep)	situation	<i>suisoku dekiru</i> (can guess)	
Transitive			Unaccusative		
SUB	DO	PRED	SUB	PRED	
grandma	X [Biru]	<i>bhejanā</i> (send)	X [Biru]	<i>iku</i> (go)	
3.M [Biru]	question	<i>bhūlanā</i> (forget)	Biru	<i>wakaru</i> (know)	
3.M [Biru]	COM	<i>bhūlanā</i> (forget)	Biru	<i>wakaru</i> (know)	
2.M [Biru]	X	<i>dekhanā</i> (see)	X [Biru]	<i>wakaru</i> (know)	
X [mother]	grandma	<i>māra dālanā</i> (kill)	grandma	<i>shinu</i> (die)	
X	matches	<i>rakhanā</i> (place)	matches	<i>aru</i> (exist)	
X [father]	hand	<i>to.Danā</i> (break)	hand	<i>oreru</i> (break)	
Transitive			Other		
SUB	DO	PRED			
2.M [Biru]	COM	<i>dekhanā</i> (see)	~ <i>ta noni</i> (CM SFP)		
2.M [Biru]	everything	<i>dekhanā</i> (see)	<i>omitōshi</i> (know all)		
women	drama	<i>dekhanā</i> (see)	<i>kenbutsu</i> (sightsee)		
3.M [Biru]	eyes	<i>kholanā</i> (open)	<i>nebokeme</i> (half asleep)		
love	X (COM)	<i>bolanā</i> (speak)	<i>hyōgen</i> (expression, is)		

Appendix II: Hindi unergative constructions and their non-correspondences in Japanese

Unergative		Transitive		
SUB	PRED	SUB	DO	PRED
mother	<i>bu.Dabu.Dānā</i> (grumble)	mother	complaint	<i>kobosu</i> (spill)
mother	<i>bu.Dabu.Dānā</i> (grumble)	mother	X	<i>tsubuyaku</i> (mutter)
mother	<i>bu.Dabu.Dānā</i> (grumble)	mother	X	<i>tsubuyaku</i> (mutter)
X [Biru]	<i>bu.Dabu.Dānā</i> (grumble)	X [Biru]	X	<i>iu</i> (say)
everyone	<i>khā.sanā</i> (cough)	everyone	cough	<i>suru</i> (do)
X [Biru]	<i>khāNsanā</i> (cough)	X [Biru]	cough	<i>suru</i> (do)
grandma	<i>khāNsanā</i> (cough)	grandma	cough	<i>suru</i> (do)
Jalālpurani	<i>khāNsanā</i> (sashay)	Jalālpurani	lime [shina]	<i>tsukuru</i> (make)
mother	<i>nipatānā</i> (deal with)	mother	dishes	<i>oeru</i> (finish)
priest	<i>ronā</i> (cry)	priest	X	<i>nakikanashimu</i> (wail)
Unergative		Passive (direct)		
SUB	PRED	SUB	PRED	
X [Biru]	<i>beThanā</i> (sit)	X [Biru]	<i>dakkō sareru</i> (cuddle)	
Unergative		Unaccusative		
SUB	PRED	SUB	PRED	
X [Biru]	<i>bhāganā</i> (run)	X [Biru]	<i>deru</i> (leave)	
2.F [wife]	<i>jānā</i> (go)	X [wife]	<i>hairu</i> (go inside)	
smoke	<i>ma.nDarānā</i> (hover)	smoke	<i>tadayou</i> (float)	
mother	<i>uThanā</i> (wake up)	mother	<i>okiru</i> (wake up)	
3.F [mother]	<i>uThanā</i> (wake up)	X [mother]	<i>okiru</i> (wake up)	
3.M [father]	<i>uThanā</i> (get up)	father	<i>tachiagaru</i> (stand up)	
3.M	<i>uThanā</i> (get up)	Biru	<i>okiagaru</i> (get up)	
Unergative		Other		
SUB	PRED			
passerby	<i>chalanā</i> (walk)	<i>tōrisugari no otona</i> (passing adult)		
X [Biru]	<i>milanā</i> (meet)	<i>issho-ni</i> (together)		

Appendix III: Hindi passive constructions and their non-correspondences in Japanese

Passive (ability)		Unaccusative	
SUB	PRED	SUB	PRED
lice	<i>paka.Dā jā sakanā</i> (be able to catch)	lice	<i>toreru</i> (catch, Vi)
language	<i>pa.Dhā jā sakanā</i> (be able to read)	meaning	<i>yomitoru koto-ga dekiru</i> (be able to read)
Passive (direct)		Transitive	
SUB	PRED	SUB	DO PRED
talk	<i>sunāyā jānā</i> (be told)	she	talk <i>suru</i> (do)

Appendix IV: Hindi unaccusative constructions and their non-correspondences in Japanese

Unaccusative		Transitive			
SUB	PRED	SUB	DO	PRED	
senses	<i>Thikāne ānā</i> (come home)	mother	senses	<i>torimodosu</i> (regain)	
3.M [Biru]	<i>bhaTakanā</i> (wander)	Biru	clause	<i>furikiru</i> (shake off)	
wood	<i>chaTakanā</i> (crackle)	firewood	sound	<i>tateru</i> (raise)	
head	<i>ghusanā</i> (enter)	X [mother]	head	<i>tsukkomu</i> (plunge)	
spell	<i>honā</i> (have)	grandma	spell	<i>shiru</i> (know)	
bundle	<i>honā</i> (have)	countryman	cloth	<i>motu</i> (have)	
parcel	<i>honā</i> (have)	X [father]	bag	<i>kakaeru</i> (carry)	
intoxication	<i>honā</i> (have)	scent	him	<i>towaseru</i> (intoxicate)	
whispers	<i>honā</i> (occur)	talk	heat	<i>obiru</i> (take on)	
usage	<i>honā</i> (occur)	X [mother]	proverb	<i>oshiraeru</i> (make)	
X [grandma]	<i>tāka me.n honā</i> (await)	grandma	chance	<i>nerau</i> (await)	
eyes	<i>jamanā</i> (freeze, be fixed)	X [Biru]	floor	<i>mitsumeru</i> (stare)	
scream	<i>nikalanā</i> (come out)	X [Biru]	scream	<i>ageru</i> (raise)	
foot	<i>pa.Danā</i> (fall on)	mother	match	<i>fundukeru</i> (step on)	
passerby	<i>rukanā</i> (stop)	passerby	feel	<i>tomeru</i> (stop)	
words	<i>cha.Danā</i> (climb)	Biru	word	<i>iu</i> (say)	
3.M [Biru]	<i>khusha honā</i> (be happy)	Biru	clause	<i>yorokobu</i> (be delighted)	
Unaccusative			Transitive		
EXP	SUB	PRED	SUB	DO	PRED
X [people]	thought	<i>ānā</i> (come)	people	old age	<i>rensō suru</i> (think)
X [mother]	tear	<i>ānā</i> (come)	mother	tear	<i>kobosu</i> (spill)
X [father]	anger	<i>ānā</i> (come)	X [father]	stomach	<i>tateru</i> (raise)
3.M [Biru]	thought	<i>ānā</i> (come)	Biru	X	<i>omou</i> (think)
3.M [Biru]	hunger	<i>laganā</i> (feel)	3.M [Biru]	empty stomach	<i>oboeru</i> (remember)
3.M [Biru]	X	<i>laganā</i> (feel)	3.M [Biru]	X	<i>omou</i> (think)
3.M [Biru]	dreams	<i>milanā</i> (get)	X [Biru]	dream	<i>sagashiateru</i> (find)
Unaccusative			Passive (adversity)		
SUB	PRED		SUB	DO	PRED
life	<i>nikalanā</i> (come out)		X	life	<i>torareru</i> (be taken away)
Unaccusative			Passive (direct)		
SUB	PRED		SUB	PRED	
cot	<i>honā</i> (be)		cot	<i>okareru</i> (be kept)	
Biru	<i>chi.nīta honā</i> (be worried)		Biru	<i>karareru</i> (be driven)	
3.M [smoke]	<i>mukta honā</i> (be free)		X [smoke]	<i>kaihō sareru</i> (be released)	
doubt	<i>paidā honā</i> (be born)		X	<i>omowareru</i> (be thought of)	
words	<i>prayoga honā</i> (be used)		words	<i>tukawareru</i> (be used)	
3.F [mother]	<i>pitanā</i> (be hit)		X [mother]	<i>tatarareru</i> (be hit)	
2.F [mother]	<i>pitanā</i> (be hit)		2 [mother]	<i>tatarareru</i> (be hit)	
gaze	<i>jamanā</i> (be fixed)		gaze	<i>sosogareru</i> (be poured)	
ears	<i>khi.nchanā</i> (be pulled)		ear	<i>hipparareru</i> (be pulled)	

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Unaccusative		Unergative		
SUB	PRED	SUB	PRED	
Jalalpurani	<i>ba.Dhanā</i> (move forward)	Jalalpurani	<i>aruku</i> (walk)	
edge	<i>chamakanā</i> (shine)	tongue	<i>mawaru</i> (turn, wagger)	
mother	<i>chupa honā</i> (be quiet)	mother	<i>damaru</i> (be quiet)	
father	<i>gussā honā</i> (be angry)	father	<i>okoru</i> (be angry)	
X [Biru]	<i>jhukanā</i> (bend)	X [Biru]	<i>shagamu</i> (crouch)	
grandma	<i>pa.Danā</i> (lie)	grandma	<i>neru</i> (sleep)	
grandma	<i>pa.Danā</i> (lie)	grandma	<i>neru</i> (sleep)	
X [Biru]	<i>pa.Danā</i> (lie)	X [Biru]	<i>neru</i> (sleep)	
X [Biru]	<i>pa.Danā</i> (lie)	X [Biru]	<i>neru</i> (sleep)	
Unaccusative		Unergative		
EXP	SUB	PRED	SUB	PRED
mother	fire	<i>laganā</i> (catch)	mother	<i>okoru</i> (get angry)
Unaccusative		Adjective		
SUB	PRED	SUB	PRED	
fun	<i>ānā</i> (come)	Biru	<i>daisuki da</i> (to love)	
itch	<i>honā</i> (occur)	head	<i>kayui</i> (itchy)	
itch	<i>honā</i> (occur)	head	<i>kayui</i> (itchy)	
shame	<i>honā</i> (have)	2 [mother]	<i>hazukashī</i> (shameful)	
Unaccusative		Other		
SUB	PRED			
3.M [Biru]	<i>niDhāla honā</i> (be weary)	<i>gakutto</i> (sound effect for collapsing)		
time	<i>kaTanā</i> (pass)	<i>shimai</i> (end, be over)		
ant	<i>saTanā</i> (lie flat)	<i>petatto</i> (flat)		

Appendix V: Hindi adjectival constructions and their non-correspondences in Japanese

Adjectival		Transitive		
NP	PRED	SUB	DO	PRED
Biru	<i>bhūkhā</i> (hungry)	X [father]	stomach	<i>sukasu</i> (empty)
door	<i>ba.nda</i> (closed)	X [mother]	mouth	<i>kiku</i> (work, speak)
father	<i>chupa</i> (quiet)	father	anything	<i>iu</i> (speak)
earth	<i>gīlā</i> (wet)	earth	moisture	<i>fukumu</i> (contain)
bread	<i>kacchā</i> (uncooked)	mother	bread	<i>yaku</i> (bake)
moth	<i>khulā</i> (open)	X [Biru]	mouth	<i>akeru</i> (open)
teeth	<i>wālā</i> (person possessing)	witch	long nails	<i>suru</i> (do, have)
3 [Biru]	<i>parichita</i> (knowledgeable)	Biru	words	<i>shiru</i> (know)
grandma	<i>siku.Dā-simaTā</i> (huddled)	grandma	body	<i>chidimeru</i> (be huddled up)
feet	<i>ulaTā</i> (backwards)	toes	backwards	<i>muku</i> (face)
Adjectival		Unergative		
NP	PRED	SUB	PRED	
face	<i>au.ndhā</i> (inverse)	grandma	<i>utsubuseru</i> (lie face-down)	
Adjectival		Unaccusative		
NP	PRED	SUB	PRED	
appeal	<i>bharā</i> (full)	voice	<i>michiru</i> (be full)	
gaze	<i>bhayabhīta</i> (scared)	sight	<i>obieru</i> (be frightened)	
entrance	<i>ba.nda</i> (closed)	door	<i>shimaru</i> (close)	
door	<i>ba.nda</i> (closed)	door	<i>shimaru</i> (close)	
movement	<i>chupā</i> (hidden)	movement	<i>kosokoso suru</i> (sneak)	
wood	<i>gīlā</i> (wet)	firewood	<i>shimeru</i> (get wet)	
wood	<i>gīlā</i> (wet)	firewood	<i>shimeru</i> (be wet)	
wood	<i>gīlā</i> (wet)	firewood	<i>nureru</i> (get wet)	
wood	<i>gīlā</i> (wet)	firewood	<i>nureru</i> (get wet)	
wood	<i>gīlā</i> (wet)	X [firewood]	<i>nureru</i> (get wet)	
wood	<i>gīlā</i> (wet)	firewood	<i>nureru</i> (get wet)	
movement	<i>gilagilā</i> (sticky)	movement	<i>nettori suru</i> (be sticky)	
ink	<i>gā.Dhā</i> (thick)	ink	<i>dorotto suru</i> (be thick)	
smoke	<i>kasēlā</i> (astringent)	smoke	<i>piripiri suru</i> (tingle, smart)	
prisoner	<i>kShubdha</i> (confused)	prisoner	<i>madou</i> (be confused)	
door	<i>khulā</i> (open)	door	<i>aku</i> (open)	
grandma	<i>mēlā-kuchēlā</i> (dirty)	grandma	<i>yororeru</i> (be dirty)	
mouth	<i>popalā</i> (toothless)	teeth	<i>aru</i> (exist)	
ash	<i>sarda</i> (cold)	ash	<i>tsumetaku naru</i> (become cold)	
cough	<i>sūkhā</i> (dry)	cough	<i>kawaku</i> (be dry)	
firewood	<i>sūkhā</i> (dry)	firewood	<i>kawaku</i> (be dry)	
corner	<i>vīrāna</i> (deserted)	place	<i>garan to suru</i> (be empty)	
Biru	<i>vismita</i> (surprised)	Biru	<i>odoruku</i> (be surprised)	

Appendix VI: Hindi other expressions and their non-correspondences in Japanese

Other	Transitive		
	SUB	DO	PRED
<i>chupa-chāpa</i> (quietly)	mother	nothing	<i>iu</i> (say)
<i>Chalāfareb</i> (deceit)	X	people	<i>damasu</i> (cheat)
<i>goda</i> (lap)	mother	X	<i>dakko suru</i> (hug)
<i>jhukāva</i> (tilt)	X [Biru]	head	<i>tareru</i> (lower)
<i>kha.Nsī</i> (cough)	grandma	cough	<i>suru</i> (do)
<i>khama</i> (twist)	grandma	back	<i>mageru</i> (bend)
<i>nindā</i> (criticism)	X [grandma]	criticism	<i>iu</i> (say)
<i>puchakāra</i> (kiss)	grandma	lips	<i>oshitsukeru</i> (press)
<i>ucchāraNa</i> (pronunciation)	2 [Biru]	words	<i>hatsuon suru</i> (pronounce)
<i>zora se</i> (loudly)	family members	voice	<i>ageru</i> (raise)
<i>merā</i> (mine)	1 [mother]	X	<i>iu</i> (say)
<i>isīlīe</i> (for this reason)	X [2, father]	X [1, mother]	<i>me ni awaseru</i> (bring to grief)
Other	Unergative		
	SUB	PRED	
<i>or</i> (towards)	smoke	<i>mukau</i> (head towards)	
<i>or</i> (towards)	X [Biru]	<i>mukau</i> (head towards)	
<i>eka taraḥa</i> (on one side)	Biru	<i>hanareru</i> (move away)	
Other	Passive (direct)		
	SUB	PRED	
<i>goda</i> (lap)	X [Biru]	<i>dakko sareru</i> (be cuddled)	
<i>kā</i> (GEN)	X [words]	<i>mukerareru</i> (be directed)	
Other	Unaccusative		
	SUB	PRED	
<i>ke bajāye</i> (instead of)	X	<i>kawaru</i> (replace)	
<i>bhūkha</i> (hunger)	1 [grandma]	<i>ueru</i> (starve)	
<i>dhu.ne se</i> (due to smoke)	beam	<i>yakeru</i> (be sooted)	
<i>hamdarda</i> (sympathizer)	2 [Biru]	<i>dōkan suru</i> (to sympathize)	
<i>khāka</i> (ash)	nothing	<i>aru</i> (exist)	
<i>lagātāra</i> (continuously)	voice	<i>togireru</i> (break)	
<i>pha.Dakana</i> (throbs)	body	<i>furueru</i> (shake)	
<i>prashan chinha</i> (question mark)	question	<i>ukabu</i> (raise)	
<i>safalatā</i> (success)	quick wit	<i>sēkou suru</i> (succeed)	
<i>tīvaratā</i> (sharpness)	intelligence	<i>sugureru</i> (surpass)	
<i>udāsī</i> (sadness)	feelings	<i>fusagu</i> (be blocked)	
<i>wālā</i> (having X)	cot	<i>aru</i> (exist)	
<i>zarūra</i> (certainly)	X	<i>kimatte</i> (always)	

Gloss

1: 1st person; 2: 2nd person; 3: 3rd person; CM: complementizer; COM: complement clause; DO: direct object argument; EXP: experiencer argument; F: female; M: male; NP: noun phrase; PRED: predicate; SFP: sentence final particle; SUB: subject argument; Vi: intransitive verb; Vt: transitive verb; X: uncoded argument; [XX]: [argument as interpreted from context].