

Competition between Vektored Verbs and Factored Verbs

journal or publication title	NINJAL Project Review
volume	3
number	3
page range	178-189
year	2013-03
URL	http://doi.org/10.15084/00000720

Competition between Vectored Verbs and Factored Verbs

複合動詞における vector 動詞と factor 動詞の競合について

Peter Edwin HOOK (ピーター・フック)

In this paper I will present a comparison of Hindi-Urdu verb-verb sequences with those of Marathi and Gujarati.¹ Although such sequences in Marathi and Gujarati are less frequent than they are in Hindi-Urdu, we have good evidence for their proliferation (at least in Marathi) over the past six or seven centuries (Hook 1991; Hook and Pardeshi, MS). Assuming that expansion in their use and scope continues along a path similar to the path taken by Marathi's and Gujarati's more compound-verb-rich peer Hindi-Urdu, I will make use of the differences between verb-verb sequences in the these three languages as a way to sketch a scenario for the replacement of factored verbs by vectored verbs over time and put forward an explanation for that gradual replacement as being the consequence of the progressive assumption of more abstract semantic and grammatical functions by unmarked vector verbs like *jā-* GO, *de-* GIVE and *le- / ghe-* TAKE.² As shown in many studies such gradual replacements are a typical feature of grammaticalization: More specific lexical phenomena yield over time to encroachment by more general [hence more abstract] grammatical ones (Andersen 2003; Harris & Campbell 1995; Hopper & Traugott 1993).

The verb-verb sequences conflatedly called “compound verbs” by Indo-Aryanists come in [at least] two flavors: Vectored verbs and factored verbs. A “vectored verb” is one in which the main verb [aka, “polar verb”] is followed by one of a short list of semantically bleached [or generalized] “vectors”. Published lists of vectors vary somewhat from language to language but typically include GO, GIVE, TAKE, POUR or THROW, FALL, GET UP, SIT DOWN, KEEP, RELEASE or LET GO. Vectored verbs may alternate with simple verb counterparts (1h)³ with little or no change of meaning easily rendered in English or Sanskrit or other languages lacking them:

¹ This study owes a lot to conversations about the diachrony of verb-verb sequences in Japanese that I have had with Taro Kageyama, Matt Shibatani, Alan Hyun-ok Kim, and Prashant Pardeshi. Although we did not always agree on how to approach the issue of long-term language change, our discussions have helped me both make my conceptions more precise and refine the quantitative methods I have used in what is fundamentally an empirical investigation.

² In this paper I use caps to represent semantically bleached vector verbs and normal case to represent factor verbs.

³ In numbering the examples the letter 'h' refers to Hindi-Urdu; 'm' to Marathi; and 'g' to Gujarati.

- (2m") *hi phula kaši ban.av-l.i-s te sāj nā*
 these flowers how make-Pst-2sg then say no
 'Tell me how you made these flowers, will you?' [www.rainbow-arts.in]

In (2m') there is a peremptory demand for final and decisive action. The addressee is told to spit out whatever it is that he or she has been keeping pent up inside. The imperative *sāj-un tāk* 'speak up' or 'blurt out' can be thought of as expressing a throwing off or tossing away of a burden, one with which the basic lexical sense of *tāk*- 'toss' converges. By contrast the unvectorized imperative *sāj-* in (2m") — followed by the appeasing particle *nā* to express supplication — is milder. However, since many occurrences of *tāk*- with polar verbs [see (3m')] cannot be seen as involving an actual or metaphorical throwing away, we must count *tāk*- as a vector but one that compared to *jā*- GO in Hindi-Urdu is less completely grammaticalized:

- (3m') *āt dzā āṇi dzhop... dzhop-un tāk! sakāli uṭh-lās ki dhā.lās tu māṇus...*
 inside go and sleep sleep-Ger TOSS morning get.up-Pst2sg that became you human
 'Go inside and sleep. Go to sleep! When you wake in the morning you're human again.'
 [haaram.com]

Analysis of V1s [the main or "polar" verbs] and the contexts in which the second elements in verb-verb sequences occur leads to the conclusion that there is a range of degrees of bleaching, a spectrum of "vectorality" if you will, that informs the phenomenon of compound verbs in Indo-Aryan. Not every vector is as fully grammaticalized as every other. Some candidates for the designation "vector" are in fact better regarded as being themselves main verbs that are linked to other main verbs in conventional sequences. It is these that I term "factor verbs" [or just "factors"] and it is to them that we will turn our attention now.

A "factored compound verb" is a verb-verb sequence in which each lexeme refers to a [notionally] discriminable element in the action expressed by the entire verb-verb sequence. In set (4hgm) the first verb indicates the orientation of motion toward a reference point; the second verb, the Achievement of arrival:

- (4h) *haṅgāme-kī xabar sun-kar pulis bhī yahāā ā pahūč.ī*
 riot-Gen news hear-Ger police also here come arrived
 'Hearing word of the riot the police also showed up here.'
 [khabar:ibnlive.in.com/news/54942/3/21]

- (4g) *karm.čārio ane vāyar.men-no kāṅfilo ghaṭnā-sṭhaḷ-e ā-vi pohōč.yo*
 officers and wiremen-Gen convoy accident-scene-Loc come-Ger arrived
 'A convoy of officers and linemen arrived at the scene of the accident ...'
 [www.sandesh.com]

- (4m) *keval 15 miṅt-āt tsunami-či rākšasi lahar phukušimā yethe ye-un pohots.li*
 only 15 minute-in tsunami-Gen monstrous wave Fukushima here come-Ger arrived
 'In just 15 minutes the tsunami's monstrous wave arrived in Fukushima.'
 [envis.maharashtra.gov.in]

In contrast, the two lexemes {arrive + GO} in the VV sequences *pahũč gāi* in (5h), *pōč-i gai* in (5g) and *pohots-un geli* in (5m) are not equipollent. The VV sequences in (5hgm) may refer to the same situation of arrival and be taken as nearly synonymous to those in (4hgm). But the second element [vector GO] lacks the deictic sense of motion away from a reference point that is proper to its basic lexical counterpart:

(5h) *xabar mil-ne-par pulis bhī yahāā pahũč gāi*
 news get-Inf-on police also here arrive WENT
 'On getting the news the police showed up here, too.' [www.amarujala.com]

(5g) *samj-ā-y.čhe ke ā (kāyā) to kāāth-e pōč-i gai*
 understand-Pass-3sgPres that this (body) Top edge-Loc arrive-Ger WENT
 '... you realize that this body has reached the end of the line.' [www.readgujarati.com]

(5m) *gharā-paryant āg pohots-un geli hoti*
 house-up.to fire arrive-Ger GONE had
 'The fire had gotten as far as the house.' [tarunbharat.net/ftp/e-paper]

As with many analytic categories posited by linguists the distinction between factor verbs and vector verbs is not clear-cut. There is a fuzzy boundary between the two in which it is difficult to decide how to characterize some V2s. Nevertheless there are some V2s such as *nikāl-* in Hindi-Urdu and *kādh-* in Marathi and Gujarati meaning 'take out' or 'bring out' that all clearly fall on the factorial side of the factor ⇔ vector continuum, the side that is opposite to Hindi-Urdu's vector *jā-GO*.⁷ Thus, in (6h) *nikāl-* expresses the successful bringing to light or bringing about as result of the action denoted by *khoj-* 'search for' as does *kādh-* in both Gujarati (6g) and in Marathi (6m) with respect to the action of searching denoted by *šodh-*:

(6h) *us-ne vo kitāb khoj nikālī hai jo rāj thākre-ke dādā-ne likhī thī*
 he-Erg that book search taken.out has which Raj Thackeray-Gen grandfather-Erg written had
 'He has found the book which RT's grandfather wrote ...' [uttaranchal.yuku.com]

(6g) *e-ṇe bepāri-ni dukān šodh-i kādhī*
 he-Erg merchant-Gen shop search took.out
 'He found the merchant's shop.' [www.gujaratsamachar.com]

(6m) *kolambasā-na amerikā šodh-un kādhī*
 Columbus-Erg America search-Ger took.out
 'Columbus discovered America.' [sanegurujī.net]

⁷ It should be kept in mind that just as not every vector verb is as bleached as every other, similarly not every factor verb is as "factorial" as every other. If it occurs at all, the evolution from factor verb to vector verb may proceed at different rates for different verbs in different languages, even in those that are as closely related as these three. See Annamalai (1985: 139-140) for discussion of this point with respect to Tamil.

In this paper I use the verb "profile" to indicate that the lexemes in a factored compound verb express some elements of a composite action that may be thought of as having tightly integrated constituent parts. In profiling the components of complex actions, the second element in sequences like *khoj nikāl-* is similar to the second element in verb-verb constructions found in many languages spoken in Asia and elsewhere:

(7j) *haha.no-hi-no purezento-o yatto sagaši-dašita!* [Japanese]
 Mother's-Day-Gen present-Acc finally search-took.out
 'I finally found a gift for Mother's Day!' [twitter.com/makirom]

(7k) *yong tol-i tu.ti.eo "alphi" chaek-ul čhač-a naessta* [Korean]
 Yong Dol-Nom finally Alfie book-Acc search-Ger took.out
 'Yong Dol finally found a book [named] "Alfie".' [windlov2.tistory.com/m/post/...]

However, compared to what is observed in languages like Japanese and Korean [as well as in Gujarati and Marathi], *factor* verb sequences like *khoj nikāl-* are relatively less common in Hindi-Urdu. To a greater or lesser degree they have been eclipsed by *vector* verb sequences like *khoj lī* {search TOOK} in (8h):

(8h) *apne thīsas-ke.liye us-ne bād.mē koī aur kitāb khoj lī*
 self's thesis-for he-Erg later some other book search TOOK
 'Later on for his thesis he found some other book ...' [pratilipi.in]

Evidence for this assertion of "eclipse" can be seen in the more frequent use and wider scope of the factor verb *kāḍh-* in Marathi and Gujarati versus the less important role played by the corresponding factor verb *nikāl-* in Hindi-Urdu. The direction of this difference runs counter to the difference between the three languages in the frequency of use and the breadth of scope of vector verbs. To better illustrate these two opposed differences we first measure the frequency of vector verb compounding in the three languages. For reasons of feasibility this general measure must be carried out by summing a number of individual counts:⁸

⁸ The numbers given here come from Google searches carried out in early October of 2012. To reduce the difficulty encountered in culling *n*-tuples the minimal or near-minimal pairs searched include some additional words to bring down the total number of hits to manageable levels (fewer than 100). [Having or developing a strong short-term memory is very useful in weeding out *n*-tuples.] Since Hindi-Urdu's online presence vastly exceeds Marathi's and Gujarati's, strings have to be longer in Hindi-Urdu searches than they do in Marathi and Gujarati ones. Care was taken to include alternate spellings and to exclude robo-translations into Hindi-Urdu, Marathi, and Gujarati.

(9)

	simple verb		vectored verb	
Hindi-Urdu	<i>ḍūbī hogī</i>	21	<i>ḍūb ga(y)ī hogī</i>	17
	drowned be.Fut		drown GONE be.Fut	
		'... must have drowned (sunk).'		
Gujarati	<i>ḍubi hati</i>	40	<i>ḍubi gai hati</i>	42
	drowned was		drown GONE was	
		'... had drowned (sunk).'		
Marathi	<i>buḍ(ā)li āhe</i>	96	<i>buḍūn geli āhe</i>	19
	drowned is		drown GONE is	
		'... has drowned (sunk).'		

(10)

	simple verb		vectored verb	
Hindi-Urdu	<i>māḅg ačānak barḥī</i>	7	<i>māḅg ačānak barḥ ga(y)ī</i>	51
	demand suddenly grew		demand suddenly grow	
		'Demand suddenly grew.'		
Gujarati	<i>māḅg vadhi</i>	40	<i>māḅg vadhi gai</i>	11
	demand grew		demand grow	
		'Demand grew.'		
Marathi	<i>māḅḅi ačānak(ats) vāḍhli</i>	16	<i>māḅḅi ačānak(ats) vāḍhun geli</i>	1
	demand suddenly grew		demand suddenly grow WENT	
		'Demand suddenly grew.'		

(11)

	simple verb		vectored verb	
Hindi-Urdu	<i>ek sandeš bhejā thā</i>	35	<i>ek sandeš bhej dīyā thā</i>	1
	message sent		message send GIVEN had	
		'... had sent a message.'		
Gujarati	<i>sandeš mokalyo</i>	10	<i>sandeš mokali didho/āpyo</i>	4
	message sent		message send GAVE	
		'... sent a message.'		
Marathi	<i>nirop pāḥava/vilā</i>	47	<i>nirop pāḥvun dilā</i>	1
	message sent		message send GAVE	
		'... sent a message.'		

(12)

	simple verb		vectored verb	
Hindi-Urdu	<i>yah naukarī čhorī</i> this job left	1	<i>yah naukarī čhor dī</i> this job leave GAVE	32
		'...left this job.'		
Gujarati	<i>sarkāri nokari čhoḍi</i> govt. job left	9	<i>sarkāri nokari čhoḍi didhi/āpi</i> govt. job leave GAVE	8
		'...left a government job.'		
Marathi	<i>hi nokari soḍli</i> this job left	27	<i>hi nokari soḍun dili</i> this job leave GAVE	11
		'...left this job.'		

Summing these four datasets [representing the two least marked vectors GO and GIVE] we find that vector compounds are over four times more frequent in Hindi-Urdu than they are in Marathi with CV flux in Gujarati coming somewhere between that found in the other two:

(13)

	simple verb		vectored verb		total	% vectored
Hindi-Urdu	64	(21+7+35+1)	101	(17+51+1+32)	165	61%
Gujarati	99	(40+40+10+9)	65	(42+11+4+8)	164	39%
Marathi	186	(96+16+47+37)	32	(19+1+1+11)	218	14%

This degree of difference in CV flux is in good agreement with that found in other independent studies.⁹

Even when vectored forms of a verb are in the minority in all three languages, the degree to which they are preferred is greater in Hindi-Urdu than it is in Marathi or Gujarati:

⁹ In other counts the CV flux in Hindi-Urdu is approximately four to five times greater than that found in modern Marathi. That in turn is three times greater than in Old Marathi. See Hook 1991, Hook 1993b, Hook and Pardeshi MS.

(14)¹⁰

	simple verb		vectored verb		total	% vectored
Hindi-Urdu	<i>māĩ-ne hindĩ sikhĩ thĩ</i>	20	<i>māĩ-ne hindĩ sikh lĩ thĩ</i>	4	24	16%
	I-Erg Hindi learn was 'I had learned Hindi.'		I-Erg Hindi learn TOOK was			
Gujarati	<i>ghañũ śikhy@ che</i>	52	<i>ghañũ śikhi lidhũ / gay@ che</i>	6	58	10%
	a.lot learn is 'X has learned a lot.'		a.lot learn TAKEN / GONE is			
Marathi	<i>marāthi śikh@</i>	158	<i>marāthi śikhun ghet@</i>	16	174	9%
	Marathi learn '... learned Marathi.'		Marathi learn TOOK			

Against the great abundance of vectored verbs in Hindi-Urdu there is a relative poverty of factored verbs. For instance, the factored verb {search + take.out} in Hindi-Urdu is about as frequently encountered as {search + TAKE} whereas in Marathi {search + take.out} is practically the only choice speakers have. In the meaning of 'find a way / path' I found one single instance in Marathi of the vector sequence {search + TAKE} against dozens and dozens of the factored sequence {search + take.out}:

(15m) *tyā-ne āplā mārg ātā śodh-un ghet-lā āhe ...*
 he-Erg self's path now search-Ger take-Perf is
 'Now he has found his path ...' [sureshdwadashiwar.blogspot.com]

The trilingual numbers (garnered through google searches made during the first week of October 2012):

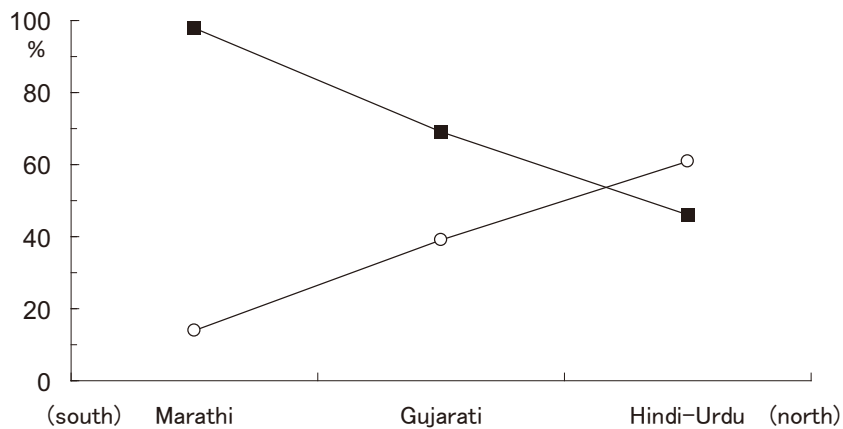
(16)

	simple verb		vectored verb		total	% vectored
Hindi-Urdu	<i>mārg khoj liyā</i>	22	<i>mārg khoj nikālā</i>	19	41	46%
	path search TOOK '... found a way.'		path search took.out			
Gujarati	<i>mārg śodh.i lidho</i>	4	<i>mārg śodh.i kād̥h.yo</i>	9	13	69%
	path search TOOK '... found a way.'		path search took.out			
Marathi	<i>mārg śodh-un ghetlā</i>	1	<i>mārg śodh-un kād̥hlā</i>	69	70	98%
	path search TOOK '... found a way.'		path search took.out			

¹⁰ The symbol "@" is used as a cover symbol for two or more allomorphs.

Thus, in Hindi-Urdu the factor verb {take.out} has a less prominent role than it does in Gujarati, and in Gujarati, a less prominent role than in Marathi. In combination with {search for} the vector verb TAKE has begun to compete with the factor verb {take.out} in Gujarati and has drawn even with it in Hindi-Urdu.¹¹

Incorporating the data in (13) and (16) Graph 1 shows representative trend lines for relative importance of factored versus vectored VV compounds in Marathi, Gujarati and Hindi-Urdu. Geographically these three languages lie on a line running from south to north with Marathi to the south, Hindi-Urdu to the north and Gujarati in between. Since the flux of vectored verbs is increasing in all three of them, we may use the spatially oriented differences between them as substitute for unavailable chronology [aka, 'apparent time']:



Graph 1 Vector verb [○] frequency versus factor verb [■] frequency

In the spirit of Andersen’s conception of innovating “I-variants” moving in on older “O-variants”, I argue for positing a competition between more than one possible way of looking at any given event or situation: 1. Profiling of physical result: An entity is sought out or located in space or time [*khoj nikāl-* {search + take.out}]. 2. Profiling of interest: The speaker is aware that the searcher wants to be sure that his/her own position is maintained or that he/she is benefitted as a result of the action [*khoj le-* {search + TAKE}]. As orientation of action with respect to

¹¹ It is difficult to find comparable datasets across all three languages. Another set, for just Marathi and Hindi-Urdu:

	vectored in GIVE		factored in HIT		total	% factored
Hindi-Urdu	<i>X par čappal phēk dī</i> X-on chappal throw GAVE '... threw a chappal at X.'	15	<i>X par čappal phēk mārī</i> X-on chappal hit	6	21	29%
Marathi	<i>čappal phek-un dili</i> chappal throw GAVE '... threw a chappal.'	0	<i>čappal phek-un mārli</i> chappal hit	19	19	100%

an actor's interests is of more general concern [and less predictable] than orientation of result in space or time, we may speculate that drift in usage toward profiling the former is not unexpected, especially given common assumptions about human motivation. Why might Gujarati speakers lag behind Hindi-Urdu speakers in such a drift? And Marathi speakers lag behind Gujarati speakers? Are these questions for linguists? Or for psychologists and historians of culture?

By contrast, in Japanese [which lacks a vector verb derived from TAKE and in which the expression of self-interest is more guarded] the factor verb *dasu* 'take out' remains in place after at least one thousand years: *modulo* transitivity, homologous sequences such as *sagaši.izu* [modern Japanese *sagaši.dasu* {search + take. out}] are found in the text of *Genji Monogatari* (11th century CE) and remain robust to this day:

- (17j) *kono ori-ni ko.so ha to sagaši ide-tsu.tsu ...*
 this time-Loc Emph Top QM search emerge-while
 '... locating [precious things from the ancestors] because this is the time [for that] ...'
 V.374.5.29¹²

Acknowledgements

This paper was drafted in October 2012 while its author was staying in Tokyo as a Visiting Professor at NINJAL [the National Institute for Japanese Language and Linguistics]. I am grateful for the generous support that I received (both financial and intellectual) during my stay there from its Director, Taro Kageyama, and my host, Prashant Pardeshi.

References

- Akiyama, Ken and Shinsuke Murofushi (eds.) (2011) *Genji monogatari daijiten*. [*Big dictionary of the genji monogatari*]. Tokyo: Kadokawa Gakugei Shuppan.
- Andersen, Henning (2003) Actualization and the (uni)directionality of change. In: Henning Andersen (ed.) *Actualization: Linguistic change in progress*, 227–248. Amsterdam: John Benjamins.
- Annamalai, E. (1985) *Dynamics of verbal extension in Tamil*. Trivandrum: Dravidian Linguistics Association of India.
- Burton-Page, J. (1957) Compound and conjunct verbs in Hindi. *BSOAS* 19: 469–478.
- Hacker, Paul (1958) *Zur Funktion einiger Hilfsverben im Modernen Hindi*. Mainz: Akad Wissenschaften und Literatur.
- Hacker, Paul (1961) On the problem of a method for treating the compound & conjunct verbs in Hindi. *BSOAS* 24: 484–516.
- Harris, Alice and Lyle Campbell (1995) *Historical syntax in cross-linguistic perspective*. Cambridge: Cambridge University Press.
- Hook, Peter E. (1991) The emergence of perfective aspect in Indo-Aryan. In: B. Heine and E. Traugott (eds.) *Approaches to grammaticalization*, 59–89. Amsterdam and Philadelphia: John Benjamins.

¹² This is the textual address in the *genji monogatari* as given in Akiyama and Murofushi (2011: 628).

- Hook, Peter E. (1993a) Seven variables controlling the use of the compound verb in Hindi-Urdu texts. *South Asian Language Review* 3: 59–70.
- Hook, Peter E. (1993b) Aspectogenesis and the compound verb in Indo-Aryan. In: Manindra K. Verma (ed.) *Complex predicates in South Asian languages*, 97–113. New Delhi: Manohar.
- Hook, Peter E. (1996) The compound verb in Gujarati and its use in connected text. In: R.T. Vyas (ed.) *Consciousness manifest: Studies in Jaina art and iconography and allied subjects in honour of Dr. U.P. Shah*, 339–356. Vadodara: Oriental Institute.
- Hook, Peter E. and Prashant Pardeshi. MS. *Inflation in the Marathi compound verb: 1300–2000*.
- Hopper, Paul J. and Elizabeth Closs Traugott (1993) *Grammaticalization*. Cambridge: Cambridge University Press.

Abstract: Quantitative investigation carried out over the past two decades shows that the frequency (or “flux”) of verb-verb compounding (hereafter CVs) in Indo-Aryan languages has been increasing over the past 500 years. As a consequence of that general increase, the functions and relative frequencies of the vector components of CVs have also evolved. In accordance with Paul Hopper’s concept of “specialization”, as the overall frequency of CVs increases some vectors become more frequently used than others. My research this past Fall [as NINJAL Visiting Professor] shows that with increase in flux, the functions of certain vectors become less lexical or semantically conditioned while their functions become more abstract or pragmatically conditioned. This increasing abstractness results in wider applicability to an ever-widening circle of situations. Consequently there is a decrease in the use of less abstract vectors (or “factors”) in rendering the same sets of situations. The research presented here uses the projection of apparent time onto space to delineate the dynamics of that evolution. Specific comparison of a CV-poor language like Marathi to a CV-rich language like Hindi-Urdu shows the factor verb {TAKE OUT} being overtaken by the more abstract vector {TAKE}. That is, {search + TAKE OUT} in the sense of ‘find’ or ‘discover’ in Marathi is almost completely replaced by {search + TAKE} in the same meaning in Hindi-Urdu.

《要旨》 インド・アリア語における動詞+動詞の複合（以下、CV）の使用頻度（あるいは「流量」）が500年以上にわたって増えてきているということを、ここ二十年以上にわたる計量的な調査は証明している。その全般的な増加の結果、CVの中でのvector（語彙的意味の薄れた後部要素）の機能や相対的使用度も拡大してきている。Paul Hopperが提唱する“specialization”（特化）概念にあるように、CVの全体的な使用頻度の増加に伴い、一部のvectorが他のものよりも多く用いられるようになったのである。昨秋の[NINJAL客員教授としての]私の研究では、使用頻度が増加することによって、機能的に見て、あるvectorがより語彙的でなくなり、あるいは意味的に条件づけられるものでなくなり、反

面、より抽象的な、あるいは語用論的に条件づけられるものとなるのだということを証明した。このように抽象度が増加することによって、絶えず範囲を拡げる場面に対しての、より広い適用が可能となるのである。したがって、同じ場面を表現する中では、抽象性の低い vector 動詞（あるいは「factor（語彙的意味を残した後部要素）」）の使用は減少する。ここで示した研究は、時間を空間へと射影することで、その発展のダイナミクスを描き出している。マラーティー語のような CV の乏しい言語と、ヒンディー・ウルドゥー語のような CV の豊富な言語との具体的な対照が、factor 動詞 {TAKE OUT} がより抽象的な vector 動詞 {TAKE} に取って代わられることを示している。すなわち、マラーティー語の「探し出す／発見する」といった意味の「探す + TAKE OUT」は、ヒンディー・ウルドゥー語では同義の「探す + TAKE」に、ほぼ完全に置き換えられるのである。

Peter Edwin HOOK (ピーター・フック)

Invited Professor, Department of Crosslinguistic Studies, NINJAL (September 2012–November 2012).

Professor Emeritus, Department of Asian Languages and Cultures, University of Michigan.

Ph.D. (Linguistics) at the University of Pennsylvania (1973).

Major Publications and Papers:

- 2012 “Semantic neutrality in complex predicates in East and South Asian languages” (with Prashant Pardeshi and Hsin-Hsin Liang). *Linguistics* 50: 605–632.
- 2011 “EAT-expressions in Hindi-Urdu”. *Indian Linguistics* 72: 1–25.
- 2001 “Where do compound verbs come from? And where are they going?” In: P. Bhaskararao and K.V. Subbarao (eds.) *South Asia Yearbook 2001: Papers from the Symposium on South Asian Languages: Contact, Convergence and Typology*, 101–130. Delhi: SAGE.
- 1977 “The distribution of the compound verb in the languages of North India and the question of its origin”. *International Journal of Dravidian Linguistics* 6: 336–351.
- 1974 *The Compound Verb in Hindi*. Ann Arbor: Center for South and Southeast Asian Studies, University of Michigan.