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Splitting the notion of 'agent': case-marking in early child Hindi*

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ABSTRACT

Two construals of agency are evaluated as possible innate biases guiding case-marking in children. A BROAD construal treats agentive arguments of multi-participant and single-participant events as being similar. A NARROWER construal is restricted to agents of multi-participant events. In Hindi, ergative case-marking is associated with agentive participants of multi-participant, *perfective* actions. Children relying on a broad or narrow construal of agent are predicted to overextend ergative case-marking to agentive participants of transitive *im*perfective actions and/or *in*transitive actions. Longitudinal data from three children acquiring Hindi (1;7 to 3;9) reveal no overextension errors, suggesting early sensitivity to distributional patterns in the input.

INTRODUCTION

In this note I investigate the nature and role of meaning in children's acquisition of morphology. More specifically, I investigate the role of AGENCY in children's use of case-marking in Hindi, and the extent to which

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children's construal of agency is influenced by innate semantic biases vs. distributional patterns in the input.[1]

In his discussion of case-marking crosslinguistically, Dixon (1979) distinguishes between three core syntactico–semantic relations. The 'A' role refers to the agentive argument of transitive verbs. The 'O' role is used to talk about the transitive patient. The 'S' role is used for the single argument of intransitive verbs. In NOMINATIVE–ACCUSATIVE languages, the O role is marked differently from the S and A roles (which may be unmarked). In ERGATIVE–ABSOLUTIVE languages, it is the A role which receives distinctive marking from the S and O roles. Languages may group the S with either the A or the O role in terms of their syntactic constraints on clause combination, or contrastive word order or morphology, such as verbal cross-referencing affixes, adpositions, or case-marking (Dixon, 1979; Blake, 1994; Palmer, 1994). In this paper, I deal exclusively with 'surface ergativity': specifically, the use of case morphology to mark the A, S, and O roles.

One influential strand of research suggests that children in the early stages of grammatical development initially rely on a relatively general notion of 'agentive participant', encompassing the 'controlling/initiating' participant of both transitive and intransitive actions (Brown, 1973; Braine, 1976; Pinker, 1984; Slobin, 1985). For instance, the agent relation characterizes the semantic role of 'Bambi' in an intransitive utterance such as *Bambi go* in the same way as the role of 'Mommy' in a transitive utterance such as *Mommy sandwich* (where the context shows that Mommy is having the sandwich) (Schlesinger, 1971). These accounts predict that children might initially treat arguments referring to agentive participants as being similar, only later bifurcating this category into A role and S role arguments on the basis of the number of participants in the event.

The 'agentivity bias' can be tested using data from children acquiring ergative languages (Bowerman, 1985: 1293–98). If children are motivated by an agentivity bias, they will overextend the ergative case-marker from A role arguments to (agentive) S role arguments as well, ignoring input patterns where ergative case-marking is applied only to A role arguments. Prior research in ergative languages including Greenlandic (Fortescue & Olsen, 1992: 216), Samoan (Ochs, 1985: 826–31), Basque (Ezeizabarrena & Larrañaga, 1996: 984), and K'iche Maya (Pye, 1990: 1305–6) provides no evidence that children have an initial bias to extend case-marking on A role arguments to S role arguments.

However, a finer-grained notion of TRANSITIVE AGENT could itself be innate and influence the acquisition of case-marking. For instance, Pinker (1984: 41) proposes linking rules for acquiring case-marking which distinguish

[1] In talking about the input, I include both features of the linguistic utterance and the extralinguistic contexts of use.

between 'agent of transitive action' (which can be marked with ergative or nominative case), and 'actor of intransitive action' (which can receive absolutive or nominative case-marking). If children do indeed rely on a narrower prelinguistic construal of agency, the lack of overextension errors in children acquiring ergative case is predicted, since they have no bias to group agents of transitive actions and actors of intransitive actions together in the first place (for arguments against innate linking rules, see Bowerman, 1990).

Languages with split case-systems provide an interesting test domain to examine whether an even narrower innate concept of agency plays a role in children's acquisition of case-marking in their language. Split case-marking across languages is conditioned by relatively fine-grained semantic factors (Siegel, 2000), requiring an even more constrained definition of agency than the role of transitive agent. In such languages, the A role argument might receive overt marking in some contexts and no marking in others, on the basis of factors such as tense-aspect, person, animacy, pragmatic function, etc. (Van Valin, 1992).

In a split-ergative language such as Hindi (Indo-European, spoken mainly in Northern India), agents of transitive actions do not receive uniform morphological marking (see Pandharipande & Kachru, 1977, and references cited therein).[2] In non-perfective contexts, A role arguments do not receive any overt marking ('nominative case'), whereas in perfective contexts, they are marked with the clitic *ne* ('ergative case') (examples (5), (6)); barring some lexical exceptions, S role arguments are typically null-marked (7):[3]

(5) *wo* *haar* *uThaa-**taa*** *hae.*
'He-NOM necklace-NOM lift-IPFV.SG.M. be.PRS.3SG.'
'He picks up a necklace'

(6) *us=**ne*** *haar* *uThaa-**yaa**.*
'He=ERG necklace-NOM lift-PFV.SG.M.'
'He picked up a necklace.'

(7) *wo* *baeTh-**aa**.*
'he-NOM sit-PFV.SG.M.'
'He sat (down).'

[2] The term 'split-ergative' is somewhat of a misnomer in Hindi since case-alternations on the subject are conditioned by perfectivity, case-alternations on the object are conditioned by animacy, definiteness, and specificity, and the two types of marking alternate (partly) independently of each other (Mohanan, 1994).

[3] Glossing conventions are based on the Leipzig Glossing Rules (http://www.eva.mpg.de/lingua/files/morpheme.html): 1: first person; 2: second person; 3: third person; ACC: accusative; ERG: ergative; F: feminine; FUT: future; GEN: genitive; IMP: imperative; INF: infinitive; INS: instrumental; IPFV: imperfective; M: masculine; NOM: nominative; PFV: perfective; PL: plural; PRS: present; PROG: progressive; PST: past; SG: singular; DM: discourse marker; LV: light verb.

The bifurcation of the notion of transitive agent on the basis of perfectivity in Hindi makes it a good case to test the hypothesis that the notion AGENT OF TRANSITIVE ACTION is innate and used to acquire case-marking.[4] Children acquiring Hindi will be predicted to initially overextend *ne* marking to all A role arguments, eventually converging on a more fine-grained category such as AGENT OF PERFECTIVE TRANSITIVE ACTION on the basis of exposure to the input.

Earlier work on the acquisition of languages with split case-marking on A role arguments is mixed. For instance, although children acquiring Kaluli do not extend the ergative case-marker to S role arguments, they do overgeneralize the ergative to appear on sentence-initial A arguments in the (unfocused) AOV word order (whereas ergative marking is required in adult language only when both A and O role arguments are proper nouns or kinship terms) (Schiefflin, 1985: 557). In contrast, children acquiring Georgian appropriately distinguish between verbs in the present-series and aorist-series, correctly marking subjects of aorist-series verbs with ergative case (Imedadze & Tuite, 1992: 90). In research most relevant to this study, Butt (1991) shows that children acquiring Urdu (split-ergative, closely related to Hindi) underextend the use of ergative marking but respect the contingency of perfectivity and transitive agency whenever they do use the ergative case-marker (*cf.* Saleemi, 1995). In Butt's account, however, the children studied are in the age range of 2;6–4;5, by which time, it could be argued, even the youngest child might have learned the case-marking patterns on the basis of exposure to the language alone. Further, cross-sectional studies do not allow for an examination of development in the use of case-marking over a period of time. If the role of innate semantic predispositions vs. distributional patterns in the input is to be evaluated, we must examine the developmental trajectory of children's utterances, starting from earlier stages of acquisition, when they are just beginning to use case-marking. In the next section, I present a detailed study of the acquisition of Hindi, using longitudinal data from children in the 1;7–3;9 age range.

METHOD

Subjects and data

Longitudinal data from two girls and one boy (1;7–3;9) were investigated. The children were from urban, middle-class families with educated parents based in New Delhi, India. They were audio- and video-taped on a weekly

[4] For the purposes of this discussion, I have presented a greatly simplified picture of *ne* marking in Hindi, which can also be used with some intransitive simplex verbs, intransitive verbs used in complex predicates with transitive light verbs, and infinitival 'desire' constructions, where their use is influenced by additional factors such as volitionality or 'conscious choice' (for further details, see Butt, 1991; Mohanan, 1994; Davison, 1999). Such factors might additionally complicate matters for children acquiring Hindi.

basis for one year, interacting with primary caregivers (family members) and other interlocutors (visitors, domestic helpers) in naturalistic and semi-naturalistic contexts which included play with toys, reading books, spontaneous play outdoors, and mealtimes. The researchers participated in the interaction where it seemed natural and appropriate to do so. Two of the children (one girl 'Ish', and one boy 'Aar') were siblings, hence for these two children, the recorded sessions also included their interactions with each other. At the end of the year-long study, a total of 154 sessions (each lasting 45–55 minutes) was recorded for the three children (51 sessions for two children; 52 sessions for the third child). A total of 24 sessions was selected for the purposes of this study. Digitized video files of the interactions were transcribed and analysed with the annotation tool *Mediatagger* (Brugman & Kita, 1995), using a modified version of the CHAT conventions (MacWhinney, 1995).

Coding

All utterances containing a clearly identifiable verb were selected. These included utterances containing simple verbs, as well as verb participle constructions and verb + (light) verb compounds (consisting of a main verb in combination with a 'light verb' which contributes primarily aspectual information about the event encoded by the main verb, Hook, 1991). Coding levels for the data included (a) (overt) argument realization (b) case-marking (c) transitivity, (d) perfectivity, and (e) contextual information. Utterances involving obligatory contexts for *ne* marking were selected for detailed analysis, where an obligatory context for *ne* marking was defined as one where the A argument was overtly realized, the verb had perfective inflection, and the event referred to was completed. In addition, the data were also examined for any uses of *ne* marking which occurred outside obligatory contexts of use (see Appendix for further details of the coding procedure).

In the sessions analysed, the three children produced a total of 4362 utterances containing a verb, with those of the child 'Man' outnumbering those of the siblings ('Aar' and 'Ish') whose sessions involved joint interactions with each other (Table 1). For the individual children, the number of utterances involving (contexts for) *ne* marking which were included for detailed analysis constituted 1·6% of all utterances containing a verb for 'Aar' (15/940), 1% for 'Man' (23/2391), and 5% for 'Ish' (51/1031).

RESULTS

All three children produced *ne* marked A role arguments only in obligatory contexts of use, for agents of transitive, perfective actions. There are only

TABLE 1. *Summary information for Hindi children*

Child	Gender	Age at onset of taping	Age Range selected for study	No. of Sessions selected for study (total = 24)	No. of utterances containing a verb in selected sessions (total = 4362)	Obligatory contexts for uses of *ne*
Aar	male	2;11	3;4–3;9	5	940	15
Man	female	2;1	2;2–2;8	10	2391	23
Ish	female	1;3	1;7–2;3	9	1031	51

'errors of omission' (i.e. not all agents of transitive, perfective actions receive *ne* marking where they are characteristically required); *ne* marking is never used in ungrammatical contexts, and appears to be relatively productive, at least by age 2;3. I discuss each of these findings in more detail below.

'*Errors of omission*'

There are relatively few obligatory contexts of use owing to massive argument ellipsis and the here-and-now nature of the interactions. Nevertheless, in those uses that we can observe, we find only 'errors of omission', where children omit the use of *ne* in contexts where they are clearly required.

The oldest child 'Aar' is almost at ceiling (87% use overall in obligatory contexts), with only two omissions of *ne* (see column 3, Table 2). This finding corroborates the results for older children presented in Butt (1991). Although there is individual variation in the rates at which *ne* marking is realized in obligatory contexts, the same pattern (where the only errors are those of omission) is observable in the two younger children as well (Table 2). The child 'Man' uses *ne* in 52% of obligatory contexts between the ages of 2;2 to 2;8. The youngest child 'Ish' is relatively precocious, realizing *ne* in about 88% of obligatory contexts. The uses of *ne* do not occur with a few specific verbs, but are found with a range of verbs for all three children (Tables 3, 4 and 5) (see discussion of early productivity below).

One interpretation of 'errors of omission' suggests a semantic motivation: perhaps children are using null marking for A role arguments of less agentive verbs, reserving the use of ergative marking for agents of highly transitive events involving a strongly affected patient (Slobin, 1985). However, a survey of the verbs with which the children use null-marked and *ne* marked agents does not support this view (see Tables 3, 4 and 5). The predicates with which the children use null-marking on A role arguments include those which encode actions with highly affected patients such as *maar* 'hit', *Daal* 'put/drop', *band kar* 'close + do', and *laD|aaii kar* 'fight + do', as well as predicates such as *choD|* 'leave', *sunaa* 'recite/narrate' and *pehen* 'wear' which might be considered less agentive since they do not strongly affect the

TABLE 2. *Case-marking of A role arguments in the three children*

Child	Age	Obligatory contexts	No marking on A arguments	*ne* marking on A arguments (% realization of *ne* on A arguments in perfective contexts)	Ungrammatical uses of *ne* (A args in non-perf. contexts, S args, or O args.)
Aar	3;4	1	1	0 (0%)	0
	3;5	3	0	3 (100%)	0
	3;6	4	1	3 (75%)	0
	3;7	2	0	2 (100%)	0
	3;9	5	0	5 (100%)	0
	Total	15	2	13 (87%)	0
Man	2;2	1	1	0 (0%)	0
	2;3	4	3	1 (25%)	0
	2;4	5	5	0 (0%)	0
	2;6	5	1	4 (80%)	0
	2;7	7	1	6 (85·7%)	0
	2;8	1	0	1 (100%)	0
	Total	23	11	12 (52%)	0
Ish	1;7	1	0	1 (100%)	0
	1;9	2	1	1 (50%)	0
	1;10	12	3	9 (75%)	0
	1;11	5	2	3 (60%)	0
	2;1	7	0	7 (100%)	0
	2;3	24	0	24 (100%)	0
	Total	51	6	45 (88·2%)	0

patient. Further, less strongly agentive verbs such as *dekh* 'see', *puuch* 'ask', and *kah* 'say' are used with *ne* marking on the A role argument as well. Moreover, some verbs appear with both *ne* and null-marking, e.g. *de* 'give', *pehen* 'wear', *khaa* 'eat', *banaa* 'make', *le* 'take', and *maar* 'hit'.

A second possibility is that children are using a dialectal variant of standard Hindi which does allow *ne* omission. The data, at least for 'Ish' and her older sibling 'Aar', suggest that this is unlikely. The child 'Aar' uses *ne* in almost 100% of obligatory contexts. Since he is exposed to input which is similar to that of his younger sibling 'Ish', we might expect a similar pattern of use and non-use of *ne* in obligatory contexts for the two children. However, the fact that his use of *ne* is near ceiling, and that use of *ne* in the speech of 'Ish' gradually increases over time until it reaches ceiling, suggests that the children are not mixing dialects, but start from restricted uses of *ne* which eventually expand, presumably to match the dominant patterns in the input.

'*Errors of commission*'

Overall, there are NO 'errors of commission' in the uses of *ne* in any of the children (rightmost column of Table 2). These findings echo results in the

TABLE 3. *Case-marking of A roles ('Ish'): verbs and arguments**

Age	Verbs (tokens) used in obligatory contexts	No marking on A arguments	*ne* marking on A arguments
1;7	*maar de* 'hit+LV'**		*mAA* 'mother'
1;9	*choD| de* 'leave+LV'	*mAA* 'mother'	
	nikaal de 'remove+LV'		*bhaiyyaa* 'brother'
1;10	*banaa de* 'make+LV'	*ham* 'we'	
	dekh le 'see+LV' (3)		*mAE* 'I'
	le le 'take+LV'		*mAE* 'I'
	le le 'take+LV'	*ye* 'this/it/he/she'	
	pakaD| le 'catch+LV' (4)		*mAE* 'I'
	pehen le 'wear+LV'	*bhaiyyaa* 'brother'	
	pii le 'drink+LV'		*mAE* 'I'
1;11	*banaa le* 'make+LV'		*mAE* 'I'
	de 'give'		*DaakTar* 'doctor'
	dekh 'see'		*mAE* 'I'
	maar de 'hit+LV'	*bhagwaan* 'God'	
	sunaa 'recite/narrate'	*baabuujii* 'father'	
2;1	*dekh* 'see' (2)		*mAE* 'I'
	khariid 'buy'		'*Aar*' brother's name
	lagaa 'attach'		*pardewaalaa* 'curtain man'
	puuch 'ask'		*mAE* 'I'
	uD|aa de 'make.fly+LV' (2)		*TrekTar* 'tractor'
2;3	*banaa* 'make' (2)		*mAE* 'I'
	banaa 'make'		*AATii* 'aunty'
	banaa 'make'		*bhaiyyaa* 'brother'
	chiT(k)aa de 'scatter+LV'		*AATii* 'aunty'
	dekh 'see' (2)		*mAE* 'I'
	dikhaa 'show'		*mAE* 'I'
	kar 'do'		*meDaam* 'madam'
	khaa 'eat'		*ham* 'we'
	khaa 'eat'		*mAA* 'mother'
	khaa 'eat'		*baabuujii* 'father'
	khaa 'eat' (2)		*mAE* 'I'
	khaa 'eat' (2)		*bhaiyyaa* 'brother'
	maar 'hit'		*mAE* 'I'
	maar 'hit'		*meDaam* 'madam'
	maar de 'hit+LV'		*bacce* 'children'
	maar de 'hit+LV' (3)		*mAE* 'I'
	pehen 'wear'		*mAE* 'I'
	pehen le 'wear+LV'		*ye* 'this/it/he/she'

* Child utterances have been normalized in all the tables.
** In Tables 3, 4, 5 and 6, LV stands for 'light verb'.

acquisition of uniformly ergative languages which noted no systematic pattern of overextensions of the ergative marker from A to S role arguments. Additionally, children acquiring Hindi scrupulously observe the tense-aspect based restrictions on the use of the ergative marker, suggesting that they are NOT influenced by a more general notion of TRANSITIVE AGENT in their use of the ergative case-marker.

TABLE 4. *Case-marking of A roles ('Man'): verbs and arguments*

Age	Verbs (tokens) used in obligatory contexts	No marking on A arguments	*ne* marking on A arguments
2;2	*pii le* 'drink + LV'	*mAE* 'I'	
2;3	*naii naii kar le* 'bath + do + LV' (2)	*mAE* 'I'	
	pehen 'wear'		*ye* 'this/it/he/she'
	pehen 'wear'	*guD|iyaa* 'doll'	
2;4	*khaa le* 'eat + LV'	*gaay* 'cow'	
	pouTii kar le 'potty + do + LV'	*gaay* 'cow'	
	pakaD| le 'catch + LV'	*mAE* 'I'	
	band kar le 'close + do + LV' (2)	*ye* 'this/it/he/she'	
2;6	*laD|aaii kar de* 'fight + do + LV'	*donO* 'both'	
	khaa de 'eat + LV'		*makkhii* 'fly'
	khol de 'open + LV'		*mAE* 'I'
	uchaal 'make.spring + LV'		*bhaiyyaa* 'brother'
	utaar 'take.off'		*ye* 'this/it/he/she'*
2;7	*pii le* 'drink + LV'	*mAE* 'I'	
	banaa de 'make + LV'		*mAE* 'I'
	khilaa de 'feed + LV'		*mAE* 'I'
	*phaTaa ho*** 'torn be' (2)		*koun* 'who'
	*phaTaa ho*** 'torn be'		*mAE* 'I'
	ulTaa kar de 'upside.down + do + LV'		*mAE* 'I'
2;8	*nikaal* 'remove'		*ye* 'this/it/he/she'*

* The child erroneously attaches *ne* marking to the pronominal form *ye* 'this/it/he/she' rather than the oblique form *is*, which is used when it precedes a case-marker in the adult language.
** The verb *phaT* 'tear' is intransitive but its use is transitive here; it occurs with two arguments in two out of three utterances used in the same context: flipping through the pages of a picture book and asking who had torn it.

One possible alternative explanation for these findings is that ergative case-marker omissions are 'errors of commission' involving the over-extension of a zero morpheme ('nominative case' in Hindi) to both S and A role arguments. If so, children do operate with an agentivity bias. However, prior studies of children acquiring Russian and Serbo-Croatian suggest that when overextensions occur, they are characterized by the use of overt phonological forms in null-marking contexts rather than *vice versa* (see Slobin, 1973, and references cited therein). Further, if indeed children start with a nominative–accusative pattern for Hindi, we might expect the O role argument to be systematically distinguished from the S/A roles with the accusative marker *ko*. Early case-marking uses in the youngest child show that she does not consistently mark all O role arguments with *ko*. Rather, she alternates between null-marking and *ko* marking on the O argument for a range of verbs (Table 6).

Even if children do alternate between null and *ko* marking on the O role argument, it might be argued that they may nevertheless conform to the classic nominative-accusative pattern in using *ko* marking on O role arguments more frequently where null-marking ('nominative case') is also

TABLE 5. *Case-marking of A roles ('Aar'): verbs and arguments*

Age	Verbs (tokens) used in obligatory contexts	No marking on A arguments	*ne* marking on A arguments
3;4	*de de* 'give+LV'	*wo* 'that/it/he/she'	
3;5	*banaa de* 'make+LV'		*mAE* 'I'
	lagaa 'attach'		*mAE* 'I'
	louTaa de 'return+LV'		*mAE* 'I'
3;6	*Daal* 'put/drop'	*mAE* 'I'	
	pakaD| le 'catch+LV'		*mAE* 'I'
	Thiik kar 'correct+do'		*DaakTar* 'doctor'
	uThaa le 'lift+LV'		*jiraaf* 'giraffe'
3;7	*maar* 'hit'		*mAE* 'I'
	pehen le 'wear+LV'		*Safaariijii* proper name
3;9	*de* 'give'		*mAA* 'mother'
	dekh 'see'		*mAE* 'I'
	kah 'say'		*kouwwaa* 'crow'
	khIIc le 'pull+LV'		*baadal* 'cloud'
	toD| 'break'		*ye* 'this/it/he/she'

'overextended' to A role arguments in obligatory contexts of use for *ne* marking. However, across the three children, we find the opposite pattern. Where *ko* marking occurs, it does so in contexts where the A role argument receives *ne* marking. For the youngest child ('Ish'), 7 out of 34 overt O role arguments receive overt *ko* marking, all of which also co-occur with *ne* marked A role arguments. For the next oldest child ('Man'), only one out of 20 overt O role arguments receives *ko* marking, also in the context of a *ne* marked A role argument. The oldest child ('Aar') produces *ko* marking on 5 out of 14 overtly realized O role arguments, all co-occurring with *ne* marked A role arguments. Thus, although children's sensitivity to systematic constraints on *ko* marking in Hindi (based on factors such as animacy and specificity, Mohanan, 1994) requires further empirical investigation, the data clearly support the argument that case-marking on the O role argument does not link up with null-marking on the A role argument.

Early productivity

It is possible that, despite the lack of overextensions in the uses of *ne*, children do not have a precocious understanding of the role of factors such as agency, transitivity, and perfectivity which condition split-ergative case-marking in Hindi. Rather, they might start with lexically-specific uses of *ne* whose use is slowly expanded item by item (Tomasello, 1992). In order to determine whether this is the case, I focus on the patterns in the youngest child. The child starts with very few uses of *ne*. However, from this limited starting point, if we look at the range of verbs with which *ne*

TABLE 6. *Verbs with null and* ko *marking on O arguments in* '*Ish*' (1;7–2;3 years)

Verb	*ko* marking on O argument	No marking on O argument
khaa 'eat'	*ye gaay=**ko** khaa-egaa* 'he-NOM cow=ACC eat-FUT.3SG.M.' 'He will eat the cow'	*mAE=**ne** naa anDaa khaa-yaa thaa kal* 'I=ERG DM egg-NOM eat-PFV.SG.M. be.PST.SG.M. yesterday' 'As for me, I had eaten an egg yesterday'
dekh 'see'	*ye ghoD|e=**ko** dekh rah-aa hae* 'He-NOM horse=ACC see PROG-SG.M be.PRS.3SG.' 'He is looking at the horse'	*mAE=**ne** kutub minaar dekh-aa thaa* 'I=ERG kutub minar-NOM see-PFV.SG.M. be.PST.SG.M.' 'I had seen Kutub Minaar'
nikaal 'remove'	*baabuu, is=**ko** nikaal* 'brother, this=ACC remove' 'Brother, remove this'	*candaa maamaa jiib nikaal rah-e hAE* 'moon-NOM tongue-NOM remove PROG-PL.M be.PRS.3PL.' 'the moon is taking out its tongue'
pakaD| 'catch'	*mAE=**ne** ghaD|iyaal=**ko** pakaD| li-ye* 'I=ERG crocodile=ACC catch LV-PFV.PL.M.' 'I caught the crocodile'	*ye kuttaa pakaD| rah-aa hae* 'he-NOM dog-NOM catch PROG-SG.M. be.PRS.3SG.' 'He is catching a dog'
pehen 'wear'	*is=**ko** pehen* 'this=ACC wear' Wear this'	*mAE sharT pehen-aa hu-aa hUU* 'I-NOM shirt-NOM wear-PFV.SG.M. be-PFV.SG.M. be.PRS.1SG.' 'I am wearing a shirt'
kar 'do'	*our is=**ko** gaayab kar d-o* 'and this=ACC disappear do LV-IMP.' 'And make this disappear'	*bhaiyyaa, ye donO kar-o* 'brother, these both-NOM do-IMP.' 'Brother, do these two' (attach puzzle pieces)

occurs in the period of time till 'Ish' reaches the age of 2;3, we find considerable variety in the verbs which elicit ergative case-marking on the A argument (Table 3). For a number of verbs, the same verb appears with *ne* marking on the A role argument, as well as null marking on A arguments (in non-perfective contexts) (Table 7). The nominals with which both types of marking appear include personal pronouns as well as lexical NPs.

While the increase in the number of uses of *ne* marking is relatively gradual, it is not (only) due to an increase in the frequency with which *ne* marking is used with a small set of frequent verbs, but corresponds to an increase in the variety of verbs and types of A role arguments. These facts suggest that 'Ish' has gone well beyond frozen uses of the ergative case-marker, limited to specific verbs or referential forms. While further research is required to examine how fully productive the child's system is, it is clear that at least by 2;3, the youngest child in our study already resembles (or exceeds) the older children in the diversity of her patterns of use (compare Tables 3, 4 and 5). Although the dataset for the child 'Man' is smaller than that of 'Ish' (Table 4), some evidence that the ergative case-marker *ne* is analysed as a separate morpheme is provided by two instances where *ne* is (over)generalized to the default form of the pronoun *ye* '(this)/she/he/it' instead of the suppletive form *is* which is used in case-marking contexts in adult language (marked with a single asterisk in Table 4):

Example 1 (CHI: child 'Man', age 2;6; MOT: mother)
(The child is indicating a picture in book, and mother explains the reason for child's comment to the researcher)

CHI:	***ye**=ne*	*kapD|e*	*nahII*	*utaar-e.*
	*'s/he/it=ERG	clothes-NOM	not	remove-PFV.PL.M.'
	'She/he/it hasn't not taken off (the) clothes.'			
MOT:	*is=ne*	*kapD|e*	*nahII*	*utaar-e*,
	's/he/it=ERG	clothes-NOM	not	remove-PFV.PL.M.'
	'She/he/it has not taken off (the) clothes,'			
MOT:	*nahaa*	*rah-aa*	*hae*	*naa*,
	'bathe	PROG-SG.M.	be.PRS.3SG.	DM'
	'(He) is bathing you see.'			

Example 2 (CHI: child 'Man', age 2;8; MOT: mother)
(Commenting to mother about picture of bear in picture book)

CHI:	***ye**=ne*	*jiib*	*nikaal-ii*	*hae.*
	*'s/he/it=ERG	tongue-NOM	remove-PFV.SG.F.	be.PRS.3SG.'
	'She/he/it has stuck out (his/her) tongue.'			

TABLE 7. *Verbs with null and* ne *marking on A arguments in 'Ish'* (1;7–2;3 years)

Verb	*ne* marking on A args. (perfective contexts)	No marking on A args. (non-perfective contexts)
banaa 'make'	*AATii* 'aunty'	*aap* 'you (polite)'
	bhaiyyaa 'brother'	*bhaiyyaa* 'brother'
	mAE '*I*'	*mAE* '*I*'
dekh 'see'	*mAE* '*I*'	*ye* 'this/it/he/she'
khaa 'eat'	*mAE* '*I*'	*mAE* '*I*'
	ham 'we'	*aap* '*you* (polite)'
	mAA 'mother'	*ye* 'this/it/he/she'
	bhaiyyaa 'brother'	
	baabuujii 'father'	
maar 'hit'	*mAE* '*I*'	*mAE* '*I*'
	meDaam 'madam'	*maccilii* 'fish'
	baccaa 'child'	*aap* 'you (polite)'
nikaal 'remove'	*bhaiyyaa* 'brother'	*candaa maamaa* 'moon'
pehen 'wear'	*mAE* '*I*'	*mAE* '*I*'
kar 'do'	*meDaam* 'madam'	*ye* 'this/it/he/she'
pakaD|'wear'	*mAE* '*I*'	*ye* 'this/it/he/she'

CONCLUSIONS

The present study evaluated two construals of the semantic role of AGENT as possible candidates for innate semantic predispositions influencing children's early patterns of case-marking. A broad construal treats A and S arguments alike, as being 'agentive'. Prior research in ergative languages suggests that children do not operate with an agentive bias, which treats A and S roles alike for the purposes of acquiring case-marking patterns. The findings from children acquiring Hindi provide additional evidence in support of this finding: children never extend *ne* marking from A to S role arguments.

An alternative possibility, proposed in Pinker (1984), suggests that children might be relying on a narrower innate notion of agency which is restricted to agents of multi-participant events. This account predicts that children will initially case-mark all agents of transitive actions in a similar way, even in a split-ergative language such as Hindi, where agents of transitive actions do not receive uniform marking. Early uses of case-marking in Hindi show that children scrupulously restrict *ne* marking to agents of transitive actions only in PERFECTIVE contexts, implying early sensitivity to patterns of split case-marking in the input.

The empirical findings from Hindi, a language with relatively unusual case-marking patterns, suggest that further investigation of the nature and role of the concept of agency in early language acquisition is required. One could posit an even narrower innate notion of agency which is universally

salient or high on the hierarchy of accessible notions for encoding case distinctions (AGENT OF PERFECTIVE, TRANSITIVE ACTION). For instance, Butt (1991) proposes that the ease with which the child acquires ergative case-marking in (Hindi-)Urdu is not surprising if 'agency involving conscious choice as well as completive aspect' is universally very salient (p. 35), and 'linguistic transitivity is basically something that the child gets at through the notion of conscious agency' (p. 36). However, this scenario is unlikely given the rarity of tense-aspect based case-marking splits, and the role that factors such as the grammatical dimension of person also play in split case-marking on the subject (Blake, 1994).

The present study hence provides evidence against the notions of 'agent' proposed in the literature as a prelinguistic (and/or innate) bias in language acquisition. Rather, the data are most compatible with the possibility that the appropriate construal of agency relevant for case-marking in Hindi is shaped by distributional patterns in the input. The research reported here adds to the growing literature on children's early sensitivity to properties of the input language (Bowerman, 1985; Choi & Bowerman, 1991; Lieven, Pine & Baldwin, 1997; Tomasello, 2000; Brown, 2001, among others).

Further investigation is however required to determine the EXTENT to which children's early construal of agency is influenced by patterns in the input. Input patterns might play an important early role in shaping initial semantic biases consisting of relatively abstract notions of causation, control, perfectivity, volitionality, etc., which guide children's construction of the semantic roles specific to (the case-marking system of) their language but do not play a strong, determining role (for discussions of semantic features associated with 'agent' in adult grammar, see Hopper & Thompson, 1980; Van Valin & Wilkins, 1996, among others). The relatively productive and accurate uses of *ne* marking in the youngest child in the study is compatible with the role of prelinguistic attunement to finer-grained dimensions of agency. Such a notion is also plausible given prior research on patterns of argument ellipsis in Hindi showing that three-to-four-year-old children acquiring Hindi rarely hear overtly realized A role arguments with ergative case-marking: only 5 out of 680 tokens of transitive verbs had overtly realized A role arguments with *ne* marking in the input (0·74%) (Narasimhan, Budwig & Murty, 2005). Input to younger children has not been investigated for argument ellipsis patterns; however, even if we multiply by a factor of ten, the rate at which ergatively marked A role arguments are overtly realized in the input to older children, the rate of use of ergative case-marking would still not exceed 7·4% in the input (see also Rispoli, 1991, for similar observations regarding Japanese caregivers' input language).

It could, however, be argued that if the total amount of input that children receive is vast, then even a figure of 7·4% could constitute a respectably high

number of *ne* marked utterances that the child hears over the course of development. A more radical alternative hypothesis would hence assume that children start with no semantic notions of any generality, but construct them gradually by abstracting over considerable numbers of collocations of particular verbs with particular case-marked arguments (*cf.* Tomasello, 2000). Children's putative sophistication with split case-marking systems simply reflects their knowledge of the case-marking possibilities of many individual verbs from which they induce the relevant generalization about the semantic role of agent in their language. The fact that ergative case in Hindi is associated with a single form rather than multiple allomorphs might play a role in the ease with which children are able to determine function of this case form.[5] The relatively gradual increase in the use of *ne* marking in the youngest child, and the individual variation in the uses of *ne* in obligatory contexts in the two younger children is compatible with this view of item-based learning. The present study, while ruling out two strong versions of the 'innate agent' hypothesis, does not allow us to decide between the two alternatives regarding the role of input frequency outlined above. Further research on case-marking languages with argument ellipsis is required to determine the extent to which children's construction of semantic roles is guided by input frequency alone.

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[5] I am grateful to an anonymous reviewer for suggesting this possibility.

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APPENDIX

A number of utterances were excluded from analysis:

(a) Imitations of the child's own prior utterances or those of other participants in the interaction if they were immediate (i.e. they were not preceded by a pause).
(b) Responses to questions which contained an A argument marked with *ne* but did not include a verb.
(c) Utterances where the subject was separated from the rest of the sentence by a pause (e.g. the child saying *guD|iyaa … phaukii pehen-ii* 'doll-NOM … frock-NOM wear-PFV.SG.F.' 'the doll … wore a dress' where 'doll' is separated from 'wore a dress' by a pause).
(d) Unclear or obscure utterances.
(e) Utterances with perfective endings on the verb, but which did not clearly describe events concluded in the past (as implied by the context) or which were recently completed. For instance, utterances such as *mAE baeT=se maar-ii* 'I-NOM bat=INS hit-PFV.SG.F.' 'I hit with the bat' were excluded, because the context showed that the child was describing what she wanted to do ('I shall hit with the bat') rather than a completed event.
(f) Utterances where it is not clear from context whether the null-marked nominal is an A or O role argument (e.g. *cuuar maar-aa* 'pig-NOM hit–PFV.SG.M' 'pig hit' where it is not clear from the context whether the pig is the agent or the patient).
(g) Instances where the child repeats the A role argument, alternating between marking it with null-marking or *ne* marking, in the same utterance.

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