INFLECTION IN SPECIFIC LANGUAGE AND SECOND LANGUAGE ACQUISITION*

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I

A difficulty in learning to read, traditionally known as *dyslexia*, has now been shown to belong with a language-specific disorder that manifests in oral language difficulties predating reading (Specific Language Impairment: Leonard, 1998), and may develop into Specific Reading Disability (Bishop and Snowling, 2004). This presentation is about identifying populations at risk for SLI or SRD in a second language situation, specifically, English in India. We report the results of a series of tasks designed to elicit inflectional morphology – in particular, the regular and irregular past tense markings on verbs – in English and Malayalam. Our subjects are 17 children between 8 and 9 years of age (mean age 8;5) in an "English-medium" school, who have been schooled in English for about 5 years (since their enrolment at around 3 years). Their home language is Malayalam, of which they are fluent speakers but in which they are literate only to the extent of alphabet and word recognition.

The problem of identifying poor readers in a second language is compounded by the fact that they are still in the process of acquiring that language (unlike first language readers). Indeed, normal Second Language Acquisition (SLA) populations have been shown to manifest difficulties similar to SLI populations; we briefly discuss this in sec. II. To avoid problems of "missed identity" (when a L2 learner with a language impairment goes unnoticed because his poor performance is attributed to lack of sufficient exposure to the language) and "mistaken identity" (when a slow L2 learner is identified as language disabled) in reading or language difficulties in a second language, we here assess the children simultaneously in a series of parallel L1 and L2 tasks. (In this we anticipate a suggestion recently made in Paradis (2005). Our hypothesis is that language impairment is not language specific. Our data strongly support this hypothesis that impairment in the second language context is typically characterized by manifesting in first language as well. The "outliers," i.e., children who perform significantly below the "lower fence" in the second language (we statistically define the lower fence below) also perform significantly below the lower fence in the first language.

The subjects in the study discussed here were assessed on a battery of tasks that included noun plural production and judgment in English and Malayalam. "Outliers" were identified based on their performance on nouns as well as verbs in English and Malayalam. In this paper,

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we restrict our data report to the tasks on verbs. However, our discussion of the outliers takes into account their performance on the tasks on nouns as well as verbs.

Inflectional Morphology in SLI and SLA

Inflectional morphology is known to be problematic for children with Specific Language Impairment (SLI) in English (Leonard, 1998), German (Clahsen, 1989), Greek, Japanese, Hebrew, and Italian (Ullman & Gopnik, 1999). Rice et al (1995) and Rice and Wexler (1996) have shown that children with SLI tend to omit tense morphemes (third person singular, regular and irregular past tense) more than non-tense morphemes (progressive, prepositions and plurals). This has led them to suggest that tense morphology could serve as a clinical marker of SLI in English.

Second language learners of English have difficulties that are similar to those of children with SLI. Longitudinal case studies have shown that tense morphemes are more difficult than non-tense morphemes, especially 3rd person singular and past tense (Paradis 2005). Ionin and Wexler (2002) examine the omission of verbal inflection in child L2 acquisition of English. They argue that omission of inflection is due to problems with the realization of surface morphology, rather than to feature impairment, in accordance with the Missing Surface Inflection Hypothesis (MSIH) of Prévost and White (2000). Research comparing monolingual children with SLI and their L2 age-mates in Swedish (Håkansson and Nettelbladt, 1993) and French (Paradis & Crago, 2000) has shown that both groups show strikingly similar patterns of error.

The insights into the parallels between SLA and SLI populations have so far come to us from studies typically comparing second language populations with unimpaired and impaired first language populations. The tests that have been given to the second language population are those that are norm-referenced for monolingual speakers of that language. Such comparisons may result in the identification of a large number of second language children as language impaired and/or learning disabled, rather than as typically-developing second language learners. Indeed, Paradis (2005:184) notes that "the vast majority of the ESL children performed within the clinical range" on the Test of Grammatical Impairment (TEGI), standardized on monolingual speakers of standard American English, "even though they are not language impaired." She therefore stresses the need to simultaneously assess second language populations in their own first language; and to compare the L2 performance of children at risk for SLI with that of their own unimpaired peers in the second language. The work presented, which antedates this recent suggestion of Paradis, has been an exploratory attempt in this direction.

Task Types and Rationale

The tasks that we describe here were originally developed for English by Dr. Michael T. Ullman and his team at the Department of Neuroscience, Georgetown University, Washington DC, USA. Their Malayalam counterparts were developed by the first author. The tasks elicit

production and grammaticality judgments of regular and irregular past tense verbs, further subdivided into real (occurring) and novel (non-occurring) forms.

In the production task, a verb was read out, along with a sentence containing a present-tense occurrence of the verb.

(1) a. *call*: Every day I *call* our uncle.

Next, a sentence was read out that provided a past tense context, which had the verb missing. The subject had to supply the missing verb.

(1) b. Yesterday I ____ our uncle.

The task was presented in one of four modes allowing for variation in the amount of context provided in the sentences:

Mode 1: Every day I see a rainbow.
Yesterday I ____ a rainbow.
Mode 2: Every day I see a rainbow.
Just like everyday, yesterday I ____ a rainbow.
Mode 3: Every day I see a rainbow.
Just like everyday, yesterday also I ____ a rainbow.
Mode 4: This mode consists of only real verbs.

In the judgment task, sentences were read out and subjects had to say whether these sentences were good English sentences or not, i.e., whether they sounded right or wrong to them. The verbs used in this task were presented as:

(2) a. past tense forms: Yesterday I *pulled* a wagon/Yesterday I *shrelt* a napkin.
b. stem forms: Yesterday I *ring* our bell/ Yesterday I *poy* an eagle.
c. double-marked forms: Yesterday I *slippeded* on ice
d. regularized irregulars: Yesterday I *telled* a story

The task was presented in two modes:

Mode 1 contained both real and novel verbs
Mode 2 contained only real verbs.

We now briefly discuss the reasons for presenting verbs in the categories of regular and irregular past tenses, and real and novel verbs.

Pinker and Ullman (2002: 456) tell us that "(f)or fifteen years the English past tense has been a subject of debate on the nature of language processing" between the connectionist and the dual-mechanism theories (Rumelhart and McClelland 1986; Pinker and Prince 1988). There are about 180 irregular verbs in English that do not take a regular past *-ed* suffix.

Connectionism holds that a single mechanism represents and processes both kinds of past tense verbs. The Words and Rules (WR) theory claims that irregular forms are *words* with the grammatical feature 'past tense' incorporated into their lexical entries, whereas regular forms are productively generated by rule, presupposing an analysis into stem and affix.

Ullman et al (1997) link the WR theory to a hypothesis about the neurocognitive substrate of declarative and procedural memory, i.e. lexicon and grammar. They show that anomic patients do worse with irregulars than regulars on past-tense production tasks, but patients with agrammatism show more difficulty inflecting regular than irregular verbs.
Tasks on regular and irregular morphology serve as a probe for language impairment under the dual-mechanism model of inflection. Children with SLI are hypothesized to have problems with rule-governed suffixation. Normally developing children (on the other hand) "should be better at producing regular past tense forms, which are rule-produced, than irregulars, which are retrieved from memory" (van der Lely and Ullman, 2001: 185). In the absence of intact suffixation rules, children with SLI may memorize both regular and irregular forms. Regular and irregular forms may be stored and therefore for such children we expect performance on regular and irregular forms to be comparable (Ullman and Gopnik, 1999: 56).

With regard to real versus novel forms, normal children are predicted to regularize novel forms that resemble an existing irregular form. I.e., a novel form *crive* is likely to produce a regularized past form *crived*, rather than an irregular form *crove* (compare *strive-strove*). Novel forms by definition have no representations in the mental lexicon. The only option is for a default rule to apply and this results in a regularized form (van der Lely and Ullman, 2001: 203). SLI children who may lack a rule may show a lack of overregularization. Indeed they might produce an irregular form on analogy with existing irregular forms.

So far, we have focused on the morphological representation and processing of inflections, whether regular or irregulars in normal and non-normal populations. However, children with SLI also have other problems with inflectional morphology, such as the outright omission of such morphology or the acceptance of inflection-less forms. SLI children may produce and accept unmarked verb forms in past tense contexts. As van der Lely and Ullman (1996) note, this suggests that their impairment may extend beyond morphological computation, to the syntactic representation of tense.

II

Developing the tasks in Malayalam

We had to develop tasks in Malayalam that were parallel to the English tasks: verbs in the Malayalam task had to represent the categories regular and irregular, and real (occurring) and novel (non-occurring) forms. In contrast to English, Malayalam has no readily recognizable distinction between "regular" and "irregular" past tense forms, corresponding to the difference between a "rule" and the listing of lexically associated pairs.

Past tense is marked in two ways in Malayalam: (i) by adding *-i* to the verb root or derived stem, or (ii) by adding *-u* to it, preceded by one or another of a range of consonants or consonant sequences. The selection of the appropriate past tense suffix depends on a combination of morphological and phonological factors (Asher and Kumari, 1997: 286). The *-i* suffixing and *-u* suffixing verbs correspond respectively to the traditional verb classes 13-16 and 1-12 listed in the appendix to Vol. 1 of Kunjan Pillai's *Malayalam Lexicon* (Pillai, 1965).

Table 1.2 Malayalam verb classes: present- and past-tense forms

Classes 1-12 ***(- u suffixing)***		
	Present tense form	Past tense form
Class 1	ceyy-unnu 'do(es)'	ceytu 'did'
Class 2	kaaN-unnu 'see(s)'	kaNDu 'saw'
Class 3	toD-unnu 'touch(es)'	toTTu 'touched'
Class 4	paRay-unnu 'say(s)'	paRaññu 'said'
Class 5	koLL-unnu 'get(s)'	koNDu 'got'
Class 6	viizh-unnu 'fall(s)'	viiNu 'fell'
Class 7	tinn-unnu 'eat(s)'	tinnu 'ate'
Class 8	koDukk-unnu 'give(s)'	koDuttu 'gave'
Class 9	kakk-unnu 'steal(s)'	kaTTu 'stole'
Class 10	kaDikky-unnu 'bite(s)'	kaDiccu 'bit'
Class 11	paDhikk-unnu 'stud(ies)'	paDhiccu 'studied'
Class 12	tuRakk-unnu 'open(s)'	tuRannu 'opened'
Classes 13-16 ***(- i suffixing)***		
Class 13	kayaR-unnu 'climb(s)'	kayaRi 'climbed'
Class 14	iRaŋŋ-unnu 'get(s)down'	iRaŋŋi 'got down'
Class 15	pokk-unnu 'lift(s)'	pokki 'lifted'
Class 16	uNaRtt-unnu 'wake(s)up'	uNaRtti 'woke up'

The use of both *-i* and *-u* is morphologically conditioned in terms of verb classes. The *-i* suffix attaches to comparatively fewer verb classes but the classes differ among themselves in size: classes 1 and 6 are small, while 4, 7, 8, and 10 are comparatively large. Many of the more frequently used verbs belong to classes 11 and 13, straddling the *-i* and *-u* divide. Thus frequency or productivity does not allow us to readily distinguish the two suffixes.

The Words and Rules theory nevertheless posits a "default rule" for morphologically rich languages like Malayalam and German. Consider German. There are 8 plural suffixes in German. One of them acts as the default plural suffix, as it attaches to unusual-sounding nouns (*Plaupfs*), to names that are homophonous with irregular nouns (*die Thomas Manns*), to irregular-sounding eponyms (*Batmans*), and foreignisms. Though few nouns in German speech take an *-s* plural, children frequently overregularize the suffix, supporting its status as a default (Pinker, 1998: 24).[1] The idea of a default rule does not necessarily correlate with frequency. The regular (default) past tense rule in German applies to a *minority* of forms such

[1] Page reference to the internet version of the paper.

as rare verbs, unusual-sounding verbs, and onomatopoeic forms (op cit). In addition, children overregularize in the direction of this suffix.

Under the WR theory, we may broadly speak of the *-i* suffixing and *-u* suffixing verbs in Malayalam as "regular" and "irregular" verbs respectively, because the addition of *-i* to the root or derived stem appears to be less constrained than the addition of *-u*; *-i* is less morphologically conditioned and appears to be more productive than *-u.* To the best of our knowledge, it does not induce stem allomorphy in the stem that it attaches to. Consider the two *-u* suffixing verbs *koDukk* 'to give' and *tuRakk* 'to open'. *koDukk* has the past tense form *koDuttu* 'gave' and has a lexical entry *koDukk- ~ koDutt-*. *tuRakk* has the past tense form *tuRannu* 'opened' and is listed as having the stem alternant *tuRakk- ~ tuRann-*. Both these *-u* suffixing forms contrast with the more "regular" *-i* suffixing verb *pokk-* 'to lift' which has a past tense form *pokki* 'lifted' which does not exhibit stem allomorphy. Thus, *-u* suffixing Malayalam past tense verbs must have lexical entries listing the stem and its past tense allomorphic alternant Lieber (1980). These would have to be learnt and stored in the memory in acquisition while *-i* suffixing verbs are not learnt and stored thus. Anticipating a little, our data support this view: novel forms designed to end in *-u* were often overregularized to *-i*.

Keeping in mind such various considerations, verbs were chosen for our tasks according to the following criteria:

(i) Real verbs were chosen from all 16 classes, so that the entire range of stems for the two past tense morphemes was covered. In the case of Classes 1 and 6 one member was chosen (as class sizes were small). 3-4 verbs were chosen from verb classes with a larger membership (Classes 4, 7, 8, 10). Many of the more frequently used verbs belong to the two classes 11 and 13 (as we said earlier). This was reflected in the choice of verbs, in that these two relatively large verb classes were represented more often.

(ii) All the real verbs chosen were those that are judged to be heard and used frequently in speech. They were carefully chosen to ensure that they would be familiar to the subjects. As we are not aware of any frequency counts in Malayalam, we relied on our intuition in this matter.

(iii) The novel verbs were designed as to be phonologically similar to the entire range of real verbs. In order to check that the novel forms belonged to the class that they were thought to represent and to check for naturalness and plausibility, past tense forms for these were elicited from eleven adult native speakers of Malayalam.[2] No discrepancies were found between the forms expected and the actual forms given by adult responses.

Given the exploratory nature of this work, we not able to control the Malayalam tasks for

[2] The eleven adult speakers comprised three post-graduate professionals, three graduate housewives, three doctoral research students and two graduate students.

variables such as equalizing the number of items on each task, item frequency, and syllabic length of items.

Administration

The tasks were administered to 17 Malayalam-English bilinguals (6 girls, and 11 boys) of Class 3 (mean age 8 years 5 months) between March 19 – 24, 2001.

English past tense production[3]

The production task administered consisted of 75 verbs belonging to 4 classes:

(i) 21 real regular verbs (*call-called*),
(ii) 29 real irregular verbs (*dig-dug*),
(iii) 12 novel regular verbs (*prap-prapped*),
(iv) 13 novel irregular verbs (*freep-frept*) whose stems are phonologically similar to the stems of real irregular verbs.

As mentioned earlier the verbs were presented in the following frame:

[see]: Every day I see a rainbow. Yesterday I ____ a rainbow.

Table 1.1 and 1.2 present the real and novel regular and irregular verbs used along with their expected past tense forms.

[3] The original tasks in English had been carefully designed and constructed by Dr. Ullman and his team to include an equal number of real "non-rhyming" regulars and irregulars. The task also included real "rhyming" regulars. Due to the unexpected revoking of the time period initially allotted for testing by the school while testing was in progress however, we were unable to respect these considerations completely.

Table 1.1 Real Regular and Irregular verbs used

Real Regular Verbs (21)		Real Irregular Verbs (29)	
Stem forms	Expected past marked forms	Stem forms	Expected past marked forms
whip	whipped	slide	slid
step	stepped	break	broke
pray	prayed	bind	bound
please	pleased	dig	dug
sigh	sighed	keep	kept
drown	drowned	weep	wept
screen	screened	sell	sold
slow	slowed	lose	lost
stop	stopped	string	strung
owe	owed	swim	swam
sway	swayed	creep	crept
heap	heaped	fling	flung
pass	passed	stride	strode
squeeze	squeezed	teach	taught
scrape	scraped	deal	dealt
dry	dried	lend	lent
glow	glowed	freeze	froze
stray	strayed	hold	held
cry	cried	flee	fled
blind	blinded	catch	caught
call	called	stick	stuck
		sink	sank
		sling	slung
		bleed	bled
		hide	hid
		spend	spent
		seek	sought
		bring	brought
		tell	told

Table 1.2 Novel Regular and Irregular verbs presented

Novel Regular Verbs (12)		Novel Irregular Verbs (13)		
Stem forms	Expected past marked forms	Stem forms	Expected regularized past marked forms	Plausible irregularized past marked forms
ploon	plooned	freep	freeped	frept
loy	loyed	spreel	spreeled	sprelt
plip	plipped	scring	scringed	scrung
cray	crayed	treep	treeped	trept
zole	zoled	shrake	shraked	shroke
noop	nooped	splink	splinked	splunk
wape	waped	cleep	cleeped	clept
chay	chayed	blide	blided	blid
chawl	chawled	tring	tringed	trung
proy	proyed	screep	screeped	scrept
prass	prassed	fring	fringed	frung
prap	prapped	cheel	cheeled	chelt
		strite	strited	strote

We note that for real irregular verbs, only an existing, real irregular past tense form was considered an acceptable response. For novel irregular verbs, either an irregular form, or the regularized form was considered acceptable (following Ullman and Gopnik, 1999). This method of scoring presupposes that real irregular verbs have been encountered in the input and stored in the memory, unlike unencountered novel forms. (We shall see however, that the children's response patterns indicate little difference between real and novel irregular forms, arguing that the distinction is nullified in the relatively input-poor L2 context.)

English past tense judgment

The judgment task administered consisted of 61 verbs drawn from 4 classes:

(i) 19 real regular verbs (*pull-pulled*)
(ii) 21 real irregular verbs (*tell-told*)
(iii) 15 novel regular verbs (*spole-spoled*)
(iv) 6 novel irregular verbs (*shrelt*)

Real verbs were presented as past tense forms (*pulled, bought*), stem forms (*walk, swear*), double-marked forms (*whippeded*), regularized irregular forms (*telled*). Novel verbs were presented as past tense forms (*spoled, shrelt*), and stem forms (*poy*).

All verbs were presented in the following frame: **[pull]:** Yesterday I pull a wagon. Tables 1.3 and 1.4 present the real and novel regular and irregular verb forms used.

Table 1.3 Real Regular and Irregular verbs presented

Real Regular Verbs (19) presented as			Real Irregular Verbs (21) presented as		
Stem forms	Past marked Forms	Double-marked forms	Stem forms	Past marked forms	Regularized forms
walk	pulled	whippeded	eat	bought	telled
stir	scored	drowneded	swear	spun	weeped
weigh	filed	slippeded	feel	stole	binded
pour	crawled	calleded	ring	built	sleeped
beg	scanned	scrapeded	cling	bent	freezed
use	shared	stoppeded	strike	wrung	dealed
	glazed		swing	sent	
			run		

Table 1.4 Novel Regular and Irregular verbs presented

Novel Regular verbs (15) presented as		Novel Irregular Verbs (6) presented as
Stem forms	Past marked forms	Past tense forms
poy	spoled	shrelt
swur	scurred	sprun
yawk	hoiled	snote
plar	vawled	stoze
nace	sazed	fent
slore	clazed	slent
dreck	splanned	
crog		

Malayalam past tense production

The task we administered consisted of 35 verbs belonging to 4 classes:

(i) 14 *-i* suffixing real verbs (*pokkunnu-pokki*)
(ii) 10 *-u* suffixing real verbs (*paRayunnu-paRaññu*)
(iii) 5 *-i* suffixing novel verbs (*saaDunnu-saaDi*).
(iv) 6 *-u* suffixing novel verbs (*rannunnu-rannu*)

As mentioned earlier the verbs were presented in the following frame:

[pokkunnu]: ellaa diwasawum ñaan meeša pokkunnu. innale ñaan meeša _____. (Every day I lift a table. Yesterday I _____ a table.)

Tables 1.5 and 1.6 present the real and novel *-i* suffixing and *-u* suffixing verbs used along with their expected past tense forms.

Table 1.5 Real *-i* suffixing and *-u* suffixing verbs presented

Real *-i* suffixing Verbs (14)			Real *-u* suffixing Verbs (10)	
Stem forms		Expected past marked forms	Stem forms	Expected past marked forms
ooDunnu	'run(s)'	ooDi 'ran'	kaaNunnu 'see(s)'	kaNDu 'saw'
kayaRunnu	'climb(s)'	kayaRi 'climbed'	karayunnu 'cry(s)'	karaññu 'cried'
kiiRunnu	'tear(s)'	kiiRi 'tore'	paRayunnu 'say(s)'	paRaññu 'said'
caaDunnu	'jump(s)'	caaDi 'jumped'	tinnunnu 'eat(s)'	tinnu 'ate'
taTTunnu	'knock(s)'	taTTi 'knocked'	warunnu 'come(s)'	wannu 'came'
paaDunnu	'sing(s)'	paaDi 'sang'	eDukkunnu 'take(s)'	eDuttu 'took'
puuTTunnu	'lock(s)'	puuTTi 'locked'	koDukkunnu 'give(s)'	koDuttu 'gave'
muTTunnu	'knock(s)'	muTTi 'knocked'	paRikkyunnu 'pluck(s)'	paRiccu 'plucked'
iRaŋŋunnu	'get(s) down'	iRaŋŋi 'got down'	kaLikkyunnu 'play(s)'	kaLiccu 'played'
uRaŋŋunnu	'sleep(s)'	uRaŋŋi 'slept'	paDhikkunnu 'stud(ies)'	paDhiccu 'studied'
waaŋŋunnu	'buy(s)'	waaŋŋi 'bought'		
pokkunnu	'lift(s)'	pokki 'lifted'		
uRakkunnu	'put(s) to sleep'	uRakki 'put to sleep'		
UNDakkunnu	'make(s)'	uNDakki 'made'		

Table 1.6 Novel *-i* suffixing and *-u* suffixing verbs presented

Novel -i suffixing Verbs (5)		Novel -u suffixing Verbs (6)	
Stem	Expected past tense form	Stem	Expected past tense form
saaDunnu	saaDi	linunnu	linnu
bhaaDunnu	bhaaDi	rannunnu	rannu
saTTunnu	saTTi	SuDukkunnu	SuDuttu
tapaŋŋunnu	tapaŋŋi	cakkunnu	caTTu
suRakkunnu	suRakki	yanakkyunnu	yanaccu
		tunikkyunnu	tuniccu

Past tense judgment

The Malayalam judgment task consisted of 26 verbs drawn from 4 classes:

(i) 10 *-i* suffixing real verbs (*ooDunnu-ooDi*)
(ii) 8 *-u* suffixing real verbs (*karayunnu- karaññu)* presented as:
(iii) 4 *-i* suffixing novel verbs (*saTTunnu-saTTi*) presented as:
(iv) 4 *-u* suffixing novel verbs (*rannunnu-rannu*) presented as:

Real verbs were presented as present tense verbs (*ooDunnu, karayunnu*) and past tense verbs (*kayaRi, karañña*). Similarly, novel verbs were also presented as present tense verbs (*saTTunnu, rannunnu*) and past tense verbs (*bhaaDi, linnu*)

As before, all verb were presented in the following frame:

[pokki]: innale ñaan meeša pokki.

Tables 1.7 and 1.8 present the list of real and novel forms *-i* suffixing and *-u* suffixing verbs forms used.

Table 1.7 Real *-i* suffixing and *-u* suffixing verbs presented

Real *-i* suffixing Verbs (10) presented as		Real *-u* suffixing Verbs (8) presented as	
Present tense forms	Past marked forms	Present tense forms	Past marked forms
taTTunnu ‘knock(s)’	kayaRi ‘climbed’	paRayunnu ‘say(s)’	karañña ‘cried’
koTTunnu ‘knock(s)’	caaDi ‘jumped’	varunnu ‘come(s)’	tinnu ‘ate’
paaDunnu ‘sing(s)’	puuTi ‘locked’	koDukkunnu ‘give(s)’	eDuttu ‘took’
ooDunnu ‘run(s)’	uRaŋŋi ‘slept’		kaLiccu ‘played’
uRakkunnu ‘put(s) to sleep’	iRaŋŋi ‘got down’		paDhiccu ‘studied’

Table 1.8 Novel *-i* suffixing and *-u* suffixing verbs presented

Real *-i* suffixing Verbs (4) presented as		Real *-u* suffixing Verbs (4) presented as	
Present tense forms	Past marked forms	Present tense forms	Past marked forms
tapaŋŋunnu	bhaaDi	rannunnu	yanaccu
saTTunnu	suRakki	tunikkyunnu	SuDuttu

III

Results and discussion:

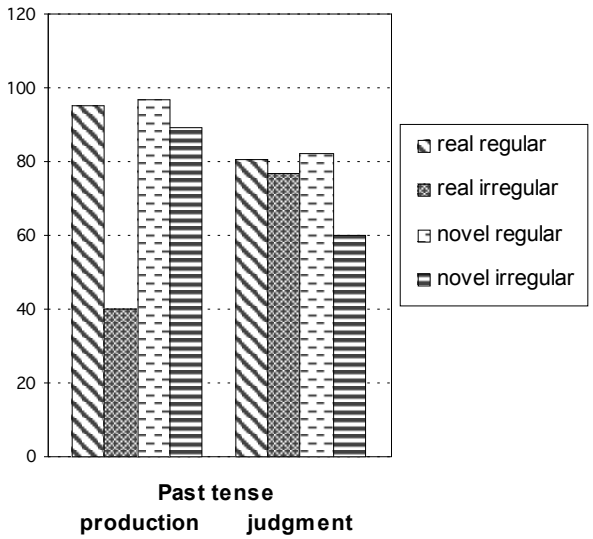
In this section, we analyze group and individual performances on the English and Malayalam tasks.

Group performance: English tasks

Table 1.9 and Figure 1 present the group's scores on tasks in English (in percentages)

	English Verbs	
	Real	Novel
Production	**63.2** r 95.2 ir 39.9	**92.7** r 96.6 ir 89.1
Judgment	**78.3** r 80.5 ir 76.5	**75.9** r 82.4 ir 60

Fig. 1

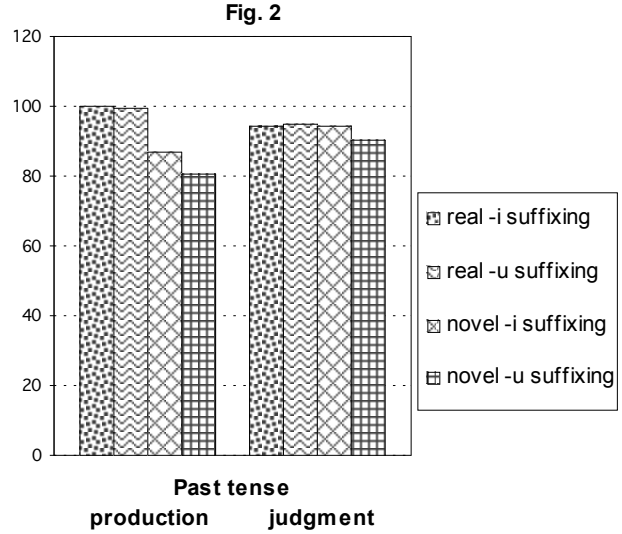


Malayalam tasks

Table 1.10 and Fig. 2 present the group's scores on tasks in Malayalam (in percentages)

	Malayalam Verbs	
	Real	Novel
Production	**99.8** r 100 ir 99.4	**83.4** r 87.1 ir 80.4
Judgment	**94.4** r 94.1 ir 94.8	**91.9** r 94.1 ir 90.5

Fig. 2



Note: the figures in bold indicate the overall score obtained by collapsing across the categories of regular and irregular verbs.

From Table 1.9, we find that past marking on real regular verbs is almost at ceiling showing that the group has acquired the past tense marking rule and is using it productively. However, the group's poor performance on irregular verbs is comparatively poorer, with our

subjects tending to produce regularized past tense forms rather than the irregular past tense forms we expect them to have stored as lexical items in the memory. Not a single child failed to produce an overregularized form. An unpaired t-test revealed a significant difference at the 0.01 level of significance (df = 32, t = 10.77) between regular and irregular past tense production. Past marking on novel regular verbs was almost at ceiling and irregular verbs were regularized at a high rate suggesting that the regular rule had been acquired by all our subjects.

We expect performance on the judgment task to be equal to or better than that on the production task. However, we find that performance in this task is consistently lower in all categories with the exception of real irregulars. A possible reason for this unexpected result could be a response bias (a tendency of the subjects to give a "yes' answer irrespective of whether it is right or wrong (Wenzlaff and Clahsen, 2004)) due to the fact that the items were presented by the researcher who assumes a position of authority vis-à-vis the child.

In keeping with our expectations, performance on the production task in Malayalam (L1) is at ceiling (see Table 1.10). Though judgment appears to be slightly lower than production, the difference is not significant. This is in contrast with the result obtained for English, suggesting that the response bias of accepting incorrect forms is not operative in the stronger language or L1, i.e., Malayalam.

Outliers:

Recall that we also wish to identify potential language impairment in the L2 by norm-referencing the performance of children at risk to that of their unimpaired peers. We therefore proceeded to identify "outliers" on 16 tasks: regular and irregular past tense and plural, production and judgment, in English and Malayalam. Commonly, such individuals are identified by first calculating the Interquartile Range (IQR). Any value that is 1.5 interquartile ranges (1.5 times the distance between the 25th and the 75th percentiles) below the 25th percentile (lower fence), or above the 75th percentile (upper fence) score of the group, is a possible outlier.

Seven subjects (2 girls, 5 boys) were identified whose performance on was below the lower fence on parallel tasks in both languages:

JJ, VF: on verbs only,
JG, JE, RA, LA: on verbs and nouns,
LV: on nouns only.

Our data show that where a subject is below the lower fence in English, (s)he is so in Malayalam as well. This provides strong support for our hypothesis that children who are at risk for SLI will show poor performance on inflections in L1 as well as in L2.

Significantly, similar lexical categories pose problems in English and Malayalam.

The outliers account for more than two-thirds of the errors on all the tasks. Even In tasks where they are not identified as outliers, they account for most of the errors. The errors made by them consist of production of unmarked forms, rejection of past marked and plural marked forms, and acceptance of stem forms. Such errors are typical of the SLI profile.

Errors:

In the past tense production task for English, subjects' errors were coded as:

(i) Unmarked: the unmarked verb form (e.g., *look-look*, *dig-dig*, *plam-plam*, *crive-crive*)
(ii) Alternatively marked: an overtly marked form other than a past-marked or overregularized form of the prompted verb, including *-s* suffixed (e.g., *make-makes*), *-ing* suffixed (*soar-soaring*), or *-en* suffixed (*give-given*).
(iii) Overregularized: *-ed* suffixed irregular stems (*dig-digged*)
(iv) Irregularizations: inappropriately irregularized irregular (e.g., *bring-brang*, *string-strang*)[4]
(v) Phonologically proximate: a real word not conceptually plausible in the sentence context but phonologically similar to the prompted word (e.g., *whip* an egg - *wept*)
(vi) Double marked: a form marked twice (e.g., *owe-oweded*, *sink-sanked*)
(vii) Unclear: an unclear response that could not be classified.
(viii) No response: no response to the prompt or subject responded with "no."

The lower fence value obtained for production of regular verbs task is 88.1. Unmarked responses accounted for errors on this task.

Given the group's poor performance on production of irregular verbs, it was not possible to calculate a lower fence value (as it became a negative value). There were no outliers beyond the upper fence value which was calculated at 93.

In the production of past tense forms of novel irregular verbs, the lower fence value calculated is 61.5. Of the errors, production of an unmarked verb was characteristic of the outliers, who produced 7 out of 8 such errors.

In the judgment task, the errors have been classified according to the following response types:

(i) Past marked form correctly judged
(ii) Past marked form wrongly rejected (e.g., *dug*, *plammed*)
(iii) Stem form wrongly accepted (e.g., *walk*, *poy*)
(iv) Double marked form wrongly accepted (e.g., *stoppeded*)
(v) Overregularization wrongly accepted (e.g., *telled*)

[4] Our data include 2 instances of irregularization of regular verbs: 1 in the real verb category (*heap-hept*) and 1 in the novel verb category (*plip-plept*). Neither of these were made by any of the subjects who manifested problems in Malayalam as well as English.

(vi) No preference indicated
(vii) No response: no response to the prompt or subject responded with "no."

The lower fence value is 28.9 and no outliers were identified on the judgment of real regular verbs. But if we consider the two categories of error "rejection of past marked forms" and "acceptance of stem forms," 14 of the 15 errors, and 13 of the 16 errors respectively were committed by subjects who were identified as outliers on other tasks. This group was also responsible for 21 of the 29 errors in the category of accepting a double-marked form. Overall, the outliers were responsible for 48 of the 63 errors on the judgment of real regular verbs.

The lower fence value obtained on real irregular verbs is 38, and we identified LA (who accounts for 19 % of all the errors on this task) as an outlier on this task The outliers were responsible for 52 out of a total of 84 errors on real irregulars. In the error categories "rejection of past marked forms" and "acceptance of stem forms," the outliers accounted for 14 of the 18 errors, and 10 of the 17 errors respectively. This group also accounted for 28 of the 44 errors in the category of accepting a double-marked form.

The lower fence value obtained on the judgment of novel regular verbs is 60.1. The outliers account for 18 of the 20 errors rejecting past marked forms, and 14 of the 22 errors accepting stem forms.

The lower fence value on novel irregular verbs is 25.1. Once again, we find that the outliers account for 26 of the 39 errors. In the past tense production task for Malayalam, the subjects' errors were coded as:

(i) Present tense marked: the present tense marked verb form (e.g., *pokkunnu-pokkunnu*; *saaDunnu-saaDunnu*)
(ii) Alternatively marked: an overtly marked form that is not the past marked form (*pokkunnu-pokkum*)
(iii) Overregularized: a form suffixed with an *-i* ending instead of an *-u* ending (*tinnunnu-tinni*)
(iv) Wrong stem allomorphy: past marked form with a wrong stem allomorph (S*uDukkunnu-SuDuccu* instead of *SuDuttu*).
(v) Phonologically proximate: a real word not conceptually plausible in the sentence context, but similar to the prompted word (e.g., *cattu* 'died' instead of *caTTu*).
(vi) Unclear: an unclear response that could not be classified by the coder.

The lower fence for the production of real *-i* ending verbs is calculated at 100 and there were no outliers on this task.

The lower fence for real *-u* ending verbs is calculated at 100 and the two errors (unmarked responses) were made by outliers.

In the production of novel *-i* ending verbs, the lower fence value obtained is 80. The

outliers produced all the errors in the category "present tense marked forms". This group was also responsible for all the unclear responses as well.

For novel *-u* ending verbs, the lower fence value is identified at 25.1. 4 subjects identified as outliers account for the 8 errors in the category "present tense marked" forms, 1 alternatively marked form, 1 phonologically proximate form and 2 of the 3 unclear forms.

(i) In the past tense judgment task for Malayalam, subjects' errors were coded as:
(ii) Past marked form correctly accepted
(iii) Past marked form wrongly rejected (tinnu)
(iv) Present tense form wrongly accepted (pokkunnu)
(v) No preference indicated
(vi) No response: no response to the prompt or subject responded with "no."

The lower fence value on the judgment of real *-i* ending verbs is 100 and the outliers make all the errors in the categories "rejection of past marked forms" and "acceptance of stem forms".

The lower fence value on real *-u* ending verbs was calculated at 68.8. There are no outliers on the *-u* ending judgment task. However, all the errors are made by this group.

The lower fence value for novel *-i* ending verbs is at ceiling. Once again, the outliers account for the errors in the categories "past marked form rejected" and "present tense form accepted".

Once again, in the novel *-u* ending task, the outliers make all the errors in the categories "past marked form rejected" and "present tense form accepted".

A brief discussion of three subjects (JG, VF, AG) will show that the results obtained do not seem to be an artefact of our testing tools and procedures. JG's problems in production are confined to Malayalam: novel regular verbs, and real and novel regular nouns are problematic. We find an unusual number of wrong stem allomorphy errors on novel regular verbs and nouns, arguing that they have a listed status in his grammar. He also shows a tendency to irregularize real regular nouns. JG's problems do not show up in the judgment and production of real forms in English. This could be attributed to conscious rule learning. An informal conversation with his mother (also a teacher at the school) during the course of testing revealed that he had been receiving extra help at school and home, as he appeared to have difficulties with reading. Coincidentally with the period of our research, he was identified as a dyslexic by a psychologist attached to the school.[5] It is therefore possible that the extra assistance provided to him has led to his improved performance in the judgment and production of real regulars in English. Support for this assumption comes from a similar finding in Ullman and Gopnik (1999), where a language impaired subject AW, produced

[5] To the best of our knowledge, this was done using an English test norm-referenced for monolingual English populations.

overregularizations but failed to produce novel regular past-marked forms which is attributed to an explicitly learned strategy of suffixing *-ed* to forms retrieved from memory. VF was identified as a probable dyslexic by the class teacher who informed the researcher that he seemed to experience difficulties in class while reading texts aloud, a common classroom activity. AG, who was identified as an outlier in Malayalam but not in English, was repeating the class and this could have had an effect on his performance in English. During testing, his conversations with me were almost entirely in Malayalam ruling out the possibility that the poor performance in Malayalam might be due to insufficient exposure to the L1.

Conclusion:

We began with the hypothesis that language impairment is not language specific. Our data strongly support the possibility that impairment in the second language context typically manifests in first language as well. The "outliers," i.e., children who perform significantly below the lower fence in the second language also perform significantly below the lower fence in the first language. It is particularly striking that the difficulties across first language and second language are matched according to the lexical categories of verb and noun.

One prediction about impairment that follows from the WR theory is that difficulties with rule-governed suffixation will serve to distinguish between impaired and unimpaired populations. This prediction is irrelevant to the L2 situation because the English irregular verbs, like novel verbs, are overwhelmingly overregularized in our data. However, the WR theory is validated to the extent that the rule appears to have been acquired by all the subjects including those identified as at-risk for SLI. The application of the rule to both real and novel irregulars leading to overregularizations may also be a pointer to the role of conscious rule learning in an instructed L2 context.

Thus, it is their error patterns that serve to distinguish between the two groups. The production of unmarked forms, the incorrect acceptance of present tense and plural forms, the rejection of past and plural marked forms differentiated between the two populations. On some English tasks, we were unable to identify the lower fence or outliers. All our subjects made errors, but still we found that the group identified as outliers were responsible for more than two-thirds of the errors. In contrast, all the errors in the Malayalam tasks are attributable to the outliers. Thus, if we see normality and impairment as two ends of a cline, then children prone to errors, outliers and those at risk for SLI would form progressive points on the cline. Not all the subjects identified as outliers would be language impaired. It appears that our tasks are capable of degrees of discrimination, separating out populations who are prone to error from those who are at risk for SLI. SLI appears to manifest as an accumulation of difficulties on many aspects of morphological tasks.

As regards Malayalam, we have suggested that although there is no clear cut distinction between regular and irregular past tense, the *-i* ending verbs being comparatively less subject to stem allomorphy, have the status of "regular" verbs. This conjecture is supported by the fact that novel verbs designed as *-u* ending verbs were "overregularized" by *-i* suffixation.

There were 31 such "errors" on *-u* ending verbs. Thus, our subjects appear to be assigning 'add *-i* to the stem' the status of a default rule very much like the regular rule in English. In this they differ from the adult Malayalam speakers who produced the more restricted *-u* ending on novel verbs designed to end in *-u*. A possible explanation for this could be that adult responses were affected by literacy or conscious learning.

In conclusion, the results we have obtained on the first language and the prominence of their 'fit' with the second language are particularly interesting. We believe that this finding requires validation from more extended testing both within ESL groups, and across L1 and L2.

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