

# Three Grammaticalization Paths for the Development of Person Verbal Agreement in Hebrew

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"The changes of tomorrow are the consequences of our acts of communication today. A theory of language change is thus at one and the same time a theory of the functions and principles of communication" (Keller 1994: 14). This has in fact been the research agenda for some functional discourse analysts (Hopper and Thompson 1980, Du Bois 1987b, inter alia). Macro-level structural linguistic change, argues Keller, is the **unintended** result of multiple, micro-level, natural and motivated individual actions. But since there is no "great planning" involved, one cannot fully predict linguistic change. Moreover, since language change is brought about by individual speakers, they only have their individual local goals in mind. Thus, no teleological change is assumed for the creation of new (communicative) functions (see also Hopper and Traugott 1993, Bybee, Perkins and Pagliuca 1994), and the (historical) end result need not even be directly motivated by the individual synchronic actions adopted. In fact, linguistic change is not at all guaranteed to end up being functional, except that if it turns out to be dysfunctional it will probably disappear through lack of use.

If change is caused by multiple, **locally** motivated factors, it is not surprising that the same linguistic phenomenon may undergo different changes

in different languages, and even within the same language. However, linguistic change can still be argued to follow the same natural, possibly universal, synchronic principles which govern successful communication. The different actual processes (leading to potentially different historical changes) can be argued to result from the specific implementations, which depend on highly local, even ad hoc circumstances. I propose to exemplify these assumptions with the three different person verbal inflectional paradigms in Hebrew.

### 1. The Three Inflectional Paradigms of Hebrew

Table (1) presents the past tense inflectional paradigm for the regular verb 'count' in the 'Kal' paradigm:

Person	'Count'		Person Marker
1st	safar	+	ti
2nd f/m	safar	+	t/ta
3rd m/f	saf(a)r(a)	+	∅
1st pl	safar	+	nu
2nd pl f/m	s(a)far	+	ten/tem
3rd pl f/m	safru	+	∅

**Table 1: Hebrew past verbal person inflections**

This basic person agreement paradigm in Hebrew is the universally unmarked pattern whereby 1st and 2nd persons are overtly marked on the verb, and 3rd person is ∅ marked (see Moscati et al 1969, Benveniste 1971, Givón 1976, Bybee 1985, Haiman 1985, Mithun 1986b, 1988, 1989, 1991, Du Bois 1987a, Huehnergard 1987, Helmbrecht 1995 for arguments and/or findings corroborating this claim). This pattern holds for past and future tenses of all the 7 verbal paradigms in Hebrew. Present tense verbs inflect for number and gender, but not person.

But Hebrew (especially archaic/formal Hebrew) has two other, marginal inflectional paradigms, which pattern differently.<sup>1</sup> First, these paradigms are exceptional in that they show person

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1. Thus, Harel 1992 (Hebrew telephone conversations) contains only one such form (*yeshno* 'exist-3rd-m-sg'), out of 810 verbs. The more formal style of the written *Noga* magazine (short stories and interviews) contains 7 *eynenileyni* 'I am not/don't' and 1 *eynxem* 'you-pl-m are not/don't' (8 out of 500 verbal forms). The Hebrew translation of Chomsky's *Language and mind* contains 4 *svurani* and 1 *xoshvani*, both 'I think'.

agreement in present tense. Second, the inflected forms here are not always obligatory, as the above forms are. In fact, most of them cannot cooccur with overt subjects. They mostly exist as alternatives for the (more) analytic forms, which do not inflect for person. Third and foremost, in these verbal paradigms, 1st and 2nd persons do not cluster together in being both overtly marked on the verb as opposed to no marking for 3rd person.

The first exceptional pattern concerns very few cognition verbs (e.g., 'think', 'be afraid', 'remember'), which inflect only for 1st sg. person. Since this pattern is based on present tense forms, which distinguish for gender, this paradigm is unique in having distinct forms for feminine and masculine in first person:

- |     |    |                              |     |     |            |
|-----|----|------------------------------|-----|-----|------------|
| (1) | a. | Xoshevet/xoshva <sup>2</sup> | ani | --> | xoshvat+ni |
|     |    | Think-fem                    | I   |     |            |
|     | b. | Xoshev                       | ani | --> | xoshva+ni  |
|     |    | Think-msc                    | I   |     |            |

The second exceptional paradigm is restricted to particles turned into verbs: *yesh* 'there is', *eyn* 'there isn't', *hinne* 'here/ behold', *harey* 'hereby/ behold'. The pattern here shows person agreement for **all** persons (but there are some differences between these particle-turned verbs -- see below):<sup>3</sup>

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<sup>2</sup> I thank Randall Garr for drawing my attention to the possibility of deriving the feminine forms from the pattern of *xoshva*.

<sup>3</sup> In modern Hebrew almost all speakers have reduced the geminate *nn* to a single *n*. Also an epenthetic *e* is inserted whenever the person marker begins with *n* (1st persons).

Person	Particle			Person Marker
1st	hinne -->	hinn	+	ni
2nd f/m	hinne -->	hinn	+	ax/xa
3rd f	hinne -->	hinn	+	a / hinne+hi
3rd m	hinne -->	hinn	+	o / hinne+hu
1st pl	hinne -->	hinn	+	nu
2nd pl f/m	hinne -->	hinn	+	xen/xem
3rd pl f/m	hinne -->	hinn	+	an/am

**Table 2: The inflectional paradigm for *hinne* 'here/ behold'<sup>4</sup>**

Why did Hebrew develop 3 different inflectional paradigms, one restricted to 1st person sg., another restricted to/overtly marking only 1st and 2nd persons, and one inflecting for all three persons? I would like to argue that all three historical paths involved here are well-motivated, and the reason that different, potentially conflicting, functional motivations applied in the three cases is that other, independently motivated factors are involved in each case (see Du Bois 1985).

### 2.1 Marking Predicates: Particle-Turned Verbs

Frequent forms are usually the least marked, often even  $\emptyset$  marked (Greenberg 1966, Bybee 1985, 1994, Croft 1990, inter alia). Indeed, most typologists are in agreement that the prototypical verbal person agreement pattern, whereby 3rd person is  $\emptyset$  marked/reduced and 1st/2nd persons are overtly (more) marked, stems from the fact that 3rd person verbal forms are more frequent than 1st/2nd person verbs (see Greenberg 1966, Kuryłowicz 1968, Givón 1976, Moravcsik 1978, 1987, Tiersma 1982, Bybee 1985, 1988, Lapointe 1987, Croft 1990, Mathews 1991, Hopper and Traugott 1993).

1st person verbal forms are usually thought to be less frequent than 3rd person verbal forms, but significantly more frequent than 2nd person verbal forms (see the statistics for Spanish, as quoted by Bybee 1985, and a few of the texts in Ariel to appear). In some contexts, however, it is 1st person which is the most frequent verbal form (see Tiersma 1982), and/or the less marked (see Helmbrecht 1995). Hence, typological markedness predicts that whereas mostly 3rd person verbal forms should be least marked, sometimes 1st, rather than 3rd person may be coded by the least marked form. Indeed, for

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<sup>4</sup> I do not here list forms which are marginal even for these forms, such as *hinneha* for 3rd person fem. sg.

the Hebrew verbs here concerned, when there are markedness differences between the forms, it is 1st, or 3rd, or 1st and 3rd person verbal forms which are least marked. As expected, 2nd person verbal forms are never the most popular forms. Whereas 3rd person forms are more frequently used for *eyn* 'is not'+inflection, 1st person is more frequently used for *hinne* 'here is'+inflection. The data for *yesh* 'there is'+inflection indicates that even in the Bible, it was quite a rare inflection. In fact, in modern Hebrew, only 3rd person *yesh*+inflection forms occur (the Biblical data in Table 3 comes from Mandelkern 1937, the *Old Testament* concordance; The Mishnaic data comes from Kasowsky 1955, the Mishnaic concordance):<sup>5</sup>

	<i>Hinne+</i>	<i>Eyn+</i>	<i>Yesh+</i>	<i>harey+</i>	Total
1	183=75.6%	12=12.2%	Ø	159=100%	354=69.7%
2	18=7.4%	20=20.4%	5=55.5%	Ø	43=8.5%
3	41=16.9%	66=67.3%	4=44.4%	Ø	111=21.8%
T	242=99.9%	98=99.9%	9=99.9%	159=100%	508=100%

**Table 3: The distribution of *hinne* 'here-be', *eyn* 'there-be-not' and *yesh* 'there-be' in the Bible and *harey* 'hereby' in the Mishna according to person**

When we analyze the forms at hand, we see that there is a clear difference between 1st/3rd persons and 2nd persons. 1st person and most of the 3rd person agreement markers derive from independent pronouns, the agreement markers clearly being the reduced counterparts of the independent pronouns: Compare *ani* with *+ni* (1st sg), *hilhu* with *+hilhu* (3rd sg fem./msc.), *anu* with *nu* (1st pl.), *hen/hem* with *anlam* (3rd pl fem./msc.). Second person independent pronouns have a *t* consonant in Hebrew (*at*, *ata*, *aten*, *atem* -- 'you-sg,fem/sg,msc/pl,fem/pl,msc'), but the inflectional markers are of the *x* series (most probably from a cislocative origin), as is the norm for nominal declensions. In fact, an alternative 3rd person sg. marker for the first three roots above (*a/o*, 'fem/msc') is also patterned according to the nominal paradigm (a few particle verbs, such as *eyn* 'there isn't' have alternative verbal and nominal declensions).

I believe that the inflectional paradigms of these particle verbs are best accounted for by typological markedness and its adjunct assumption in explaining verbal marking, namely, predicate marking. Note that one cannot argue that 3rd person verbal forms are the most frequent, and hence least marked, without first motivating a distinction on verbs according to person.

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<sup>5</sup> The Mishna is the edited version of oral Jewish laws (200 a.d).

After all, why make a distinction between verbs at all? A reasonable motivation for marking verbs is that such a marking signals a function-argument relation between the subject and its predicate, the verb.<sup>6</sup> Whereas this may not actually be necessary for verbs (see Du Bois 1987b), it does seem useful when the predicates involved are not at all verbs originally, as is the case with the particles under discussion ('hereby', etc.). The main function of agreement in this exceptional inflectional paradigm, I maintain, is to mark that a predicate has been formed out of the particle.

Now, if these particles are to be analyzed as predicates/ verbs, they require some special verbal marking, since they do not conform to any of the verbal paradigms, which all Hebrew verbs must conform to. This marking is required regardless of the person the verb relates to. Indeed, this is what we find here. All persons are overtly marked on the verb, and there is no  $\emptyset$  marking (if a verb is to be formed at all). Moreover, whereas independent nominative pronouns are a good source for deriving person agreement markers, they are by no means the only reasonable source for turning a particle into a verb. Hence the variation in the inflectional paradigm of particles between the regular verbal pattern (agreement derives from independent nominative pronouns) and the nominal pattern (agreement derives from cislocatives or from more drastically reduced, possibly nonnominative pronouns, e.g., *ani* -> *i* for 1st person sg. -- *ni* in the regular paradigm, *hu* -> *o* for 3rd person msc. sg.,  $\emptyset$  in the regular paradigm).

Last, note that whereas the common overtly inflected verbal forms (1st/2nd person in past/future tenses) quite freely allow  $\emptyset$  subjects (because this agreement is a development of the clearly referential independent pronouns), the 3rd person inflected forms here concerned (e.g., *hinna/o*, *yeshna/o*, *ey(ne)na/o*) do not allow  $\emptyset$  subjects. In other words, they are not taken as containing a referential expression. These features, which distinguish the particle-verb inflectional paradigm from the basic verbal paradigm, all stem from the function agreement serves in this case. Whereas the basic agreement markers serve a referential function (at least initially), I propose that the function which brought about the creation of these agreement markers is predicate creation. Then, once the particle-verb is formed, frequency

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<sup>6</sup> An alternative hypothesis is that agreement arises in left and right dislocated sentences, in which case the origin of agreement in pronouns is accounted for. However, it is not clear why it is mostly 1st/2nd person verbs that are inflected for person, when dislocated NPs are for the most part 3rd person. See Ariel to appear on this issue.

considerations may dictate that highly frequent verbal forms be less formally marked than infrequent ones. This accounts for the relative markedness of 2nd person forms.

## 2.2 Frequency-Driven Morphologization: Cognition Verbs and the Gaps in the Inflectional Paradigms of Particle Verbs

A different mechanism is responsible for the second exceptional inflectional paradigm, as well as for some paradigmatic gaps in the particle-verb inflections above. Recall that a few cognition verbs inflect only for 1st sg. person in present tense, which is remarkable for present tense verbs, since they do not inflect for person at all. Now, unlike the particle-verbs, where some marking may have actually been sought for in order to convert the particles into verbs, cognition verbs, like all other present tense verbs, are recognized as such without the person agreement, because they are lexically marked as verbs.<sup>7</sup>

But then, fusion often occurs mainly due to the frequent adjacency of two forms (Givón 1971, Bybee 1985, Bybee et al 1990, Croft 1990, Keller 1994). No wonder inflection did not necessarily develop for all persons, but rather for the one person which most commonly cooccurs with cognition verbs, namely 1st person sg.<sup>8</sup> A 1st versus 2nd/3rd person split is to be expected when verbs of perception and emotion are concerned according to Tiersma 1982. Helmbrecht 1995 proceeded to exemplify such systems in many Caucasian and Indian languages, offering various hierarchies of tenses (future versus present), modes (irrealis versus realis) etc., where a 1st versus 2nd/3rd person split is expected, because the 1st person is a self-conscious person. Indeed, see Thompson and Mulac 1991a,b for a high cooccurrence rate of 1st person pronouns with *think* and *guess* in English, Weber and Bentivoglio 1991 for the same in Venezuelan spoken Spanish, Bybee et al 1994 for the high cooccurrences of *I* with *shall* and *will*, originally verbs of obligation and desire, and Tao 1996 for a high frequency of 1st person pronouns with

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<sup>7</sup> Historically, so-called present tense is a nominal form, and hence the inflection for number and gender only. But by Mishnaic times such participles are routinely used as verbs.

<sup>8</sup> Interestingly enough, Aramaic, from which Late Mishnaic Hebrew borrowed this grammatical option, is less restrictive, although it is not fully productive there either (see Nöldeke 1904, Segal 1958, Kadari 1971 and Tal 1974).

cognition and speech act verbs in Chinese).<sup>9</sup> Japanese and Hua show a similar pattern, in that they lack (direct) forms for expressing 'you/ s/he want(s)' (Wierzbicka 1987: 15). So the special Hebrew agreement pattern above no doubt results from the fact that it is mostly 1st sg. person pronouns which cooccur with such verbs of cognition. The fusion of the verbal form with a reduced 1st person pronoun then results from the very frequent adjacent cooccurrence of these two (in a VS order).<sup>10</sup> Indeed, Mishnaic Hebrew, where this inflection first appears, mostly placed pronouns following such verbal forms (Weiss 1867), thus explaining the suffixing agreement system.

The inconsistency between the person frequencies of the different particle verbs (see Table 3 above) can also be motivated when we take into consideration the plausibility of their use with each person. In this respect, these particle verbs differ from each other quite drastically. Whereas they all form part of very formal Hebrew, *yesh* 'there is'+3rd person inflections can also be used colloquially. *Yesh*+1st/2nd persons are quite unacceptable in all registers. *Eyn* 'there isn't'+ inflections is unrestricted re person. *Harey* 'behold' is mostly restricted to 1st person in the Mishna, but it does occur with a 3rd person inflection in Modern Hebrew (see Ariel 1985: 297). It never even developed for 2nd person. *Hinne* 'here'-inflected forms are today distinctly rarer than the other particle verbs.

The nonoccurrence of 1st and 2nd person *yesh* 'exist/is nearby located' forms (even in the Bible) stems from the plausible assumption that the speaker and addressee are assumed to exist/be present, so there is no need to predicate their 'being here' in present tense (the 5 occurrences of 2nd person

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<sup>9</sup> For example, Thompson and Mulac 1991b find that 83% of the subjects of epistemic main verbs taking complements are *I* and 5% are *you*. All other subjects constitute only 12%. Weber and Bentivoglio show that 79% of the subjects of 'believe' and 'think' are 1st person (7% are 2nd person, and 14% are 3rd person). In a small sample where I checked singular forms only (Lotan 1990: 1-4), 1st persons constitute 63% of the subjects of cognition verbs, although they only constitute 32.5% of the subjects of action verbs. 3rd persons, on the other hand, constitute 50% of the subjects of action verbs, but only 11.1% of cognition verb subjects.

<sup>10</sup> *Kimduma+ni* 'it-seems-to-me', however, is probably created by analogy to the cognition verbs mentioned above, because its pre-inflectional source would have been *kimdume alay*, where 1st person is an indirect object.



*yesh* in the Bible have a different meaning).<sup>11</sup> The high frequency of the 1st person sg. *hinneni* in the Bible and of *hareyni*, mainly in the Mishna, but also (infrequently) in modern Hebrew (both 'here+1st'), stems from their usage as performative markers ('hereby'), which are common with 1st person, since speech act verbs naturally take 1st person subjects (see Tao 1996 again).

As argued by Bybee 1985, mere high frequencies of adjacency do not guarantee fusion. Some semantic cohesion is often required for fusion to take place. Indeed, it is mostly cognition verbs used epistemically which allow this special inflection (see Thompson and Mulac 1991a,b). *Xosheshani* is acceptable, but *\*poxdani* is not, even though both mean 'I'm afraid-msc'. Only the former is an epistemic marker. Moreover, when the literal meaning is intended, as in 'I'm afraid of the lion', the special inflected form may not be used, even with the "legitimate" *xoshesh*, and speakers must use the uninflected verb accompanied by an overt pronoun. The same semantic constraint applies to the inflectional paradigms of particle verbs (2.1). An examination of the cooccurrence of 3rd person independent personal and demonstrative pronouns with *harey* 'hereby' in the Mishna reveals that these two cooccur with *harey* significantly more often than 1st person pronoun or agreement (the two 3rd person pronouns are, however, often hyphenated to *harey* in the Mishna). Table 4 lists independent as well as agreement person markers cooccurring with *harey* in the Mishna (data again based on Kasowski 1955):

1st	2nd	3rd Pers	3rd Demons	Total
172=16.7%	19=1.8%	413=40.1%	427=41.4%	1031=100%

Table 4: *Harey* frequency of cooccurrence with various pronouns

Yet, it is 1st, rather than 3rd person personal or demonstrative pronouns which had fused with *harey* by Mishnaic times. This can be motivated by noting that 3rd person inflected *harey* forms are often no more than the combination of their parts. 1st person *harey* forms create a semantic concept of performativity.

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<sup>11</sup> A rare modern spoken example I overheard was:

E.L:    ata    **yeshnexa**    maxar?  
           You are-located-here    tomorrow?  
 E.S:    ken,   ani    **yeshneni**.  
           Yes, I       am-located-here.

Note that both speakers did not use the normative forms, but rather, created new forms, on analogy with the *eyn* paradigm. In fact, they both laughed, as they felt the strangeness of the forms.

No wonder 1st person inflected *harey* grammaticalized earlier than 3rd person (as is attested to by the non-occurrence of the latter in the Mishna), despite the former's relative lower frequency. Thus, frequency-driven **semantically coherent** morphologization processes can motivate the creation of 1st but not 2nd/3rd person agreement for cognition verbs, they can motivate the nonoccurrence of 1st/2nd person *yesh* 'exist here' forms and the earlier creation of 1st person *harey* and *hinne* 'here, behold' forms for expressing performativity.

### 2.3 Accessibility Theory: The Prototypical Inflectional Pattern

In Ariel (to appear) I argue that a third type of process is responsible for the predominant verbal agreement pattern, whereby 1st and 2nd persons are overtly marked on the verb, whereas 3rd persons are not overtly marked. I have argued that straight frequency-driven morphologization or typological markedness cannot be assumed to solely account for this pattern. First, regarding typological marking, which relies on frequency, natural data do not consistently reveal a 3rd person verbal predominance. This is especially true in conversational data, the source most reliable for detecting linguistic change (see Greenberg 1966, Croft 1990, Milroy 1992). Thus, in Lotan 1990 (Hebrew face to face conversations), there are no significant differences in the frequency of 1st, 2nd and 3rd person verbs:

1st person	2nd person	3rd person	Total
47=32.4%	45=31.0%	53=36.5%	145=99.9%

**Table 5: Verb frequency according to person in Lotan 1990**

Children's face to face conversations I analyzed (children's age 5:7-7:5, Feb. 1996) show 1st person to be the most frequent, followed by 3rd person (Only future tense verbs are here considered):

1st person	2nd person	3rd person	Total
51=56.7%	11=12.2%	28=31.1%	90=100%

**Table 6: Verb frequency according to person in children's Hebrew conversations**

Finally, in Harel 1992 (long telephone conversations between acquaintances) 1st person verbal forms are the most frequent ones, followed by 2nd person verbs. 3rd person verbs are least frequent:

1st person	2nd person	3rd person	Total
370=45.7%	255=31.5%	185=22.8%	810=100%

**Table 7: Verb frequency according to person in Harel 1992**

I have further argued that a frequency-driven morphologization process, strictly applied, cannot explain this pattern either. If it is pronouns adjacent to verbs which reduce and fuse with them, thus becoming agreement markers, we should consider the relative frequencies of 1st, 2nd and 3rd person subject pronouns. Now, since 3rd person references are frequently made using lexical NPs, whereas 1st and 2nd person references are made by pronouns in an overwhelming majority of the cases, it might be assumed that 1st/2nd person pronouns occur adjacent to their verbs much more often than 3rd person pronouns. While this is true in **some** texts for **some** 3rd person pronouns (feminine forms mainly), it is not invariably so. Consider the frequencies of  $\emptyset$ 's and overt personal pronouns (these would have been the source for creating agreement in a non- $\emptyset$ -subject language – see Ariel to appear) in Harel 1992 and in Levy 1995 (a Hebrew narrative). Table 8 presents the frequency of the various persons according to the gender and number of the subject as well, for each of the Hebrew agreement markers show a direct affinity with the corresponding independent pronoun (in other words, fem. and/or pl. forms are not derived from the corresponding msc./sg. forms by adding some fem. and/or pl. morpheme):

Levy 1995	Harel 1992	
	Least frequent	
<b>Y-fm-sg/Y-fm-pl/Y-ms-pl</b>	0	<b>Y-fm-sg/Y-fm-pl/They-fm</b> 0
She/They-fm	2	She 9
Y-ms-sg/They-ms	11	Y-pl-ms 21
I	15	We 26
We	24	<b>They-ms</b> 27
<b>He</b>	45	<b>He</b> 67
		Y-ms-sg 234
		I 341
	Most frequent	

**Table 8 : Frequency of  $\emptyset$ /pronouns in Levy 1995 and Harel 1992** Persons in bold= "improper" place in the frequency hierarchy.

Given the frequency-driven morphologization model, according to Levy 1995, agreement should have developed for 3rd person sg. ms. primarily (which it does not), for 1st person sg. and pl. (which it does), and possibly also for 2nd

person sg. ms. (it does) and 3rd person pl. ms. (it does not). It should certainly have not developed for 2nd person fm. (sg. or pl.) and 2nd person ms. pl. (but of course it does). Similar problems are posed by Harel 1992 (see Table 8).

I have therefore proposed that it is the prototypical difference between 1st/2nd referents and 3rd person referents, which is responsible for the different agreement patterns for 1st/2nd versus 3rd person verbs. To see the working of this mechanism we need to look at the correlation between referring expressions and the mental representations (or referents) they are used to retrieve. In effect in line with Sanford and Garrod 1981, Givón 1983 and Chafe 1987 (inter alia), I have proposed (Ariel 1985, 1990, 1991) that referring expressions are accessibility markers. They each encode the degree of accessibility with which the mental representation intended as referent is entertained by the addressee (as assessed by the speaker). Other things being equal, (the mental representations of) the speaker and the addressee are much more accessible than that of (the mental representation of) an entity which is neither the speaker nor the addressee (3rd person).

Accessibility theory claims that there is a coding principle whereby the more accessible the mental representation intended, the more reduced (and the less informative and more general/ambiguous) the referring expression is. Indeed, pronouns are routinely reduced when they refer to highly accessible entities. In (2), after the speaker has referred to the press as *they* many times, he utters the following (see Ariel 1990 for sources and analysis):

- (2)
- |       |                  |              |            |        |              |
|-------|------------------|--------------|------------|--------|--------------|
| i ... | <b>h</b> [=hem]+ | mociim       | et         | ze     | kaxa...      |
|       | They             | publish      | acc.       | this   | like-this... |
| ii    | aval <b>hem</b>  | madgishim... | <b>h</b>   | notnim | kama...      |
|       | But they         | emphasize... | they       | give   | some...      |
| iii   | od               | davar she+   | <b>hem</b> | asu... |              |
|       | Another          | thing that   | they       | did... |              |

Note that the speaker consistently switches to a full pronoun whenever he judges that the addressee may have considered a change of topic, due to the break markers ('but', 'another thing...'). In (3) the speaker starts by referring to the established discourse topic (Cameron) by a pronoun, whereas the non discourse topic is referred to by a lower accessibility marker, a name (Nubar). However, when Nubar becomes highly accessible, the coding difference is maintained by using a pronoun for the less accessible antecedent and a reduced pronoun for the more accessible discourse topic:

- (3) Preceding discourse -- translated: Cameron<sub>i</sub>... HE<sub>i</sub>... he<sub>i</sub> talked to Nubar<sub>j</sub>... Nubar<sub>j</sub> said... Nubar<sub>j</sub> was still...
- |                            |        |        |                      |                       |            |
|----------------------------|--------|--------|----------------------|-----------------------|------------|
| <b>h<sub>i</sub></b> [=hu] | pashut | diber  | ito <sub>j</sub> ... | <b>hu<sub>j</sub></b> | xashav...  |
| He                         | simply | talked | with-him             | He                    | thought... |

(4) shows the same point with respect to the use of an overt pronoun versus Ø subject for a 1st person referent. Note that (a) and (b) below form a minimal pair, where the local sentence topic preceding the crucial last reference to the speaker is 'the mother'. But an overt pronoun is used only in (b). The reason is that the high accessibility of the speaker-narrator is reduced because of the reference to the mother's death, which constitutes a major break in the story line, unlike the reference to the mother not knowing about the rape:

- (4) a. ze haya davar shel ma bexax bishvil yalda  
 It was nothing for (a) girl  
 o isha le+heanes. ani acmi neenasti,  
 or (a) woman to get raped. I myself was  
 kshe+Ø hayiti bat-shtem-esre. **ima** af paam  
 raped, when [I] was twelve-ys.-old. **Mama** never  
 lo yada, u- Ø meolam lo siparti le-ish.  
 knew, and [I] never told (to) anybody.  
 (Noga 1985).
- b. Hu pashut himshix le-nasot le-alec oti la-  
 He just kept trying to make me to  
 cet ito, ve-lifamim, mi-tox hergel,  
 go-out with-him, and sometimes, out of habit,  
 ani xoshevet, Ø halaxti ito. gufi  
 I guess, [I] went with-him. My-body  
 asa ma she+shulam she-Ø-yaase. ve-  
 did what (that it) was-being-paid to do. And  
**ima** meta. ve-**ani** haragti et bubba (Same).  
 Mother died. And I killed acc. Bubba.

Now, when we compare the usage of those markers which were prone to have undergone reduction originally (current Hebrew Øs and pronouns), we see a clear distinction between the 3 persons. Whereas 1st/2nd person references are consistently made by using these very high accessibility markers, 3rd person references are often made by low accessibility markers (lexical NPs) rather

than pronouns or  $\emptyset$ s:

	1st	2nd	3rd
Harel:	367=99.2%	255=100%	93=50.3%
Levy:	39=100%	11=100%	55=25.7%

**Table 9: Pronoun/ $\emptyset$  in Harel 1992 and Levy 1995**

Even the one repeated discourse topic in Levy 1995 was not consistently referred to by  $\emptyset$ s or pronouns. A lexical NP was used in almost half of the cases (45.6%). According to accessibility theory, verbal agreement is a marker of a very high degree of accessibility. It is, moreover, a grammaticalized accessibility marker. Hence, it requires that the mental representations commonly retrieved by it are **consistently** highly accessible. The lower proportions of highly accessible referents for 3rd persons vs. 1st/2nd persons, I claim, motivates the creation of agreement for 1st/2nd persons, but not 3rd persons. 1st/2nd person referents are consistently highly accessible, whereas 3rd person referents are only inconsistently so.

### 3. Accessibility, Frequency-Driven Morphologization and Typological Markedness

Accessibility theory, frequency-driven morphologization and typological markedness are in principle compatible with each other. They may even converge on producing the same effects, since they complement each other. Note that whereas typological markedness considers the markedness and frequency of **verbal** forms, accessibility theory considers the markedness and frequency of **referential** forms, and frequency-driven morphologization considers the same for **pronoun-verb** cooccurrences. The crucial difference between the latter two is that frequency-driven morphologization relies on **absolute** numbers for person frequencies, whereas accessibility theory relies on **proportional** numbers. I calculate the **intra-person** percentages of reduced pronouns (the source for agreement) and then compare these percentages across the three persons. Hence, even if 3rd person references turn out to be the most frequent, the proportion in which they are made by using reduced pronouns is still lower than that of the possibly less frequent 1st/2nd person reduced pronouns (see Ariel to appear for a more extensive discussion).

It seems that all three processes are at work, but in different verbal paradigms: Typological marking in many of the high Hebrew particle-verb formations (2.1); absolute-number-frequency morphologization in high Hebrew cognition verb inflection (2.2); and accessibility-related processes in

the basic prevalent verbal inflectional pattern, where pronouns are reduced to agreement markers (2.3).

Note, however, that there are potential conflicts between the three theories. Consider again cognition verbs. If these are predominantly used with 1st person sg. subjects, then typological markedness predicts incorrectly that 1st person verbs should be  $\emptyset$  or least marked, and 2nd/3rd person verbal forms be marked. In other words, we expect the opposite pattern: Verbs should inflect for 2nd/3rd and not 1st person. Accessibility theory incorrectly predicts that agreement should develop for both 1st and 2nd persons, since these are the more salient persons (although arguably 1st person is more so, especially given that the verb is a cognition verb). Frequency-driven morphologization, on the other hand, correctly predicts that only 1st person inflection develops, due to the high frequency of the cooccurrence of 1st person pronouns with cognition verbs. Similarly, for the particle-verbs, typological markedness correctly predicts  $\emptyset$  marking for the most frequent person of each of the verbs (see the discussion above), but frequency-driven morphologization predicts incorrectly that precisely the frequent verbal forms are the ones that should develop overt agreement marking (for the relevant persons). Accessibility theory predicts incorrectly 1st/2nd person overt versus 3rd person  $\emptyset$  marking.

In addition, although we explained the non-development of certain cognition verbs and certain particle-verbs with specific persons -- 3rd person *harey* 'hereby' -- by reference to Bybee's 1985 semantic constraint on fusing elements, 3rd person pronouns are nowadays attachable to one specific type of *harey* (Dominance *harey*). This *harey* signals the beginning of a dominant clause (see Kouzar 1980, Ariel 1988). There is thus no inherent connection between this *harey* and the following subject pronoun. This development, which goes against Bybee's 1985 semantic restriction on fusing elements, seems to have taken place simply because of the high frequency with which this *harey* and 3rd person pronouns cooccur adjacently (both this *harey* and grammatical subjects are sentence-initial in Hebrew). Such a change testifies to the working of automatic processes due to mere high frequencies, disregarding the coherence restriction. In fact, the very creation of verbal person agreement is somewhat surprising, as Bybee notes, since agreeing verbs conflate two categories (initially, at least): noun+verb, which do not necessarily create a complete new category. There are, then, conflicting motivations in language change (see Du Bois 1985).

I cannot at this stage offer anything near a full-fledged explanation for the resolutions of these conflicts. The objective of this paper is more to point to a research question than to solve it. In order to understand how these apparent conflicting forces work, I think we should follow Keller 1994 in

assuming that speakers act with small-scale synchronic functional goals in mind, and Du Bois 1985 in noting that competing motivations have predictable and far from arbitrary linguistic implications. Croft's 1990: 158/9 point about no marking versus  $\emptyset$  marking is also highly relevant here: "if a grammatical semantic category is very infrequent, it simply will not be expressed as a distinct grammatical category in many languages". Perhaps this can motivate the nondevelopment of 2nd/3rd person inflection for cognition verbs, as well as 2nd person *harey* 'behold' and 1st/2nd person *yesh* 'be-here'. The necessity for marking verbs as such (the particle-verbs) motivates inflection for all 3 persons. This in turn paves the way for frequency considerations to operate, encouraging less marking for the most frequent verbal forms, rather than for accessibility theory to apply (since ALL persons need to be marked). Thus, highly local circumstances determine which of the functionally motivated, potentially conflicting mechanisms should apply in each case. I therefore conclude that a language can have three very different inflectional paradigms, yet each of them is functionally well motivated, where functionally motivated is understood in a non-teleological manner, as representing micro-level synchronic tendencies, which when cumulative, are recognized as a structural, macro-level historical change. In this respect, my conclusion is very similar to that of Du Bois 1987b re split ergative systems.

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