Valeria A. Belloro
(Universidad Autónoma de Querétaro, México)
Lilián Guerrero
(Universidad Nacional Autónoma de México, México)

The preferred argument structure of motion constructions[1]

ABSTRACT: This article discusses the syntactic realization and discourse status of LOCATIVE expressions in intransitive motion constructions from the standpoint of the Preferred Argument Structure model (PAS; Du Bois 1987, Du Bois et al. 2003). PAS posits two grammatical constraints on direct core arguments: (1) avoid more than one direct core lexical argument per clause, and (2) avoid lexical As. Our study examines whether intransitive motion clauses containing an oblique locative also abide by the universal tendencies unveiled by PAS. The results show that, in terms of PAS, the discourse behavior of intransitive motion constructions is analogous to that of transitive constructions, and that the co-occurrence effects predicted by PAS to apply only to A and O arguments do affect S and LOCATIVE expressions as well. This suggests that PAS tendencies may be sensitive to semantic argument status, independently of the arguments' syntactic role and its morphological marking as direct vs. oblique. The data comes from three Uto-Aztecan languages (Yaqui, Guarijio and Nahuatl) and Spanish.
KEYWORDS: Preferred argument structure; Motion constructions; Syntax-Pragmatics Interface, Uto-Aztecan languages; Spanish.

RESUMEN: Este artículo se analiza, desde la perspectiva de la Estructura Argumental Preferida (EAP, Du Bois 1987, Du Bois et al. 2003), la realización sintáctica y el estatus discursivo de las expresiones locativas asociadas con predicados intransitivos de movimiento. La EAP revela dos restricciones gramaticales sobre los argumentos centrales directos: (1) evita más de un argumento central directo por cláusula, y (2) evita A léxicos. Nuestro estudio explora en qué medida las cláusulas intransitivas de movimiento con oblicuos locativos responden, también, a estas tendencias universales. Los resultados muestran que, en términos de la EAP, el comportamiento discursivo de las construcciones intransitivas de movimiento es análogo al de las construcciones transitivas, y que los efectos de co-ocurrencia que se predicen exclusivamente de los argumentos A y O afectan también a las construcciones con S y locativo. Esto sugiere que las tendencias de la EAP pueden ser sensibles al estatus argumental de los participantes, independientemente de su función sintáctica específica y de su marcación morfológica como directo u oblicuo. Los datos analizados provienen de tres lenguas yuto-aztecas (yaqui, guarijío y náhuatl), así como del español.
PALABRAS CLAVE: Estructura Argumental Preferida; Construcciones de movimiento; Interfaz Sintaxis-Pragmática; Lenguas yuto-aztecas; Español.

---

1. Introduction

Within the domain of studies focusing on the relationship between Syntax and Pragmatics, the Preferred Argument Structure model (PAS; Du Bois 1987, 2003a, b; Du Bois et al. 2003) *"represents a hypothesis that in spontaneous discourse, certain configurations of arguments are systematically preferred over other grammatically possible alternatives"* (Du Bois 2003b: 33). The preferences for argument configurations can be described as "soft constraints," and are summarized in Table 1.

Table 1: Preferred Argument Structure Constraints (Du Bois 2003b: 34)

	Grammar	**Pragmatics**
Role	*Avoid lexical A.*	*Avoid new A.*
Quantity	*Avoid more than one lexical argument.*	*Avoid more than one new argument.*

These constraints show that, whereas objects (O) and intransitive subjects (S) freely accept being realized as lexical phrases and denoting new discourse participants, these two characteristics tend to be avoided in the transitive subject (A) role. Furthermore, and more crucially for the perspective taken in our study, PAS predicts that transitive clauses will tend to have at most one of their argument slots realized lexically and/or used to denote new discourse referents. Thus, to present some illustrative examples from Spanish, sentences like those in (1) or (2), which show zero or one lexical/new argument in the S or O role, are expected to be significantly more frequent than those in (3) and (4), which have either one lexical/new argument serving as A, or more than one new/lexical argument (examples from Bentivoglio 1993, save the constructed one in (4b).

(1) Zero new / lexical arguments
　　a. *Empecé a trabajar en Mersifrica.*
　　　'I started working at Mersifrica.'

　　b. *Entonces me trajeron aquí.*
　　　'Then they brought me here.'

(2) One new / lexical argument, in S or O role
　　a. *Ese día **mi abuela** está cumpliendo años.*
　　　'That day my grandmother is celebrating her birthday.'

　　b. *Nos recorríamos **todo eso**.*
　　　'We would go through all that.'

(3) One new / lexical argument, in A role
　　a. ***Los adecos** hicieron esto…*
　　　'The *adecos* did this…'

(4) More than one new / lexical argument
　　a. ***Esta plaza** tenía en la parte central **una cúpula**.*
　　　'This plaza had a dome in the middle.'

　　b. ***Una plaza** tenía en la parte central **una cúpula**.*
　　　'A plaza had a dome in the middle.'

There are cognitive and pragmatic principles motivating these tendencies:

> the grammatical realization of arguments in a clause does not take place in a functional vacuum. It is tied to cognitive and pragmatic factors like information management, which influence the realization of arguments (…) From the perspective of grammar in use, argument structures are resources for speakers to exploit, for cognitive-pragmatic as well as semantic functions. [Thus, from this perspective] it becomes useful to extend the notion of co-argument effects (…) to include pragmatic factors, as well as semantic. The presence of new information in one argument slot of a predicator affects other co-argument slots of that predicator by precluding their use for realizing new information (Du Bois 2003b: 37ff).

These tendencies unveil a pattern of "discourse ergativity" which has consistently emerged in a variety of languages both typologically and areally diverse, such as Hebrew, Sakapultek, Papago, English, Spanish, French, Portuguese and Japanese (cf. studies in Du Bois et al. 2003, among others). Interestingly, these co-presence effects are predicted to apply only to A, S and O arguments and to exclude obliques.

1.1. What does PAS make of obliques?

In its current formulation, PAS is predicted to be relevant only to A, O and S arguments, a domain within which the notions of "argument," "direct" and "core (element)" are treated as equivalent. In Du Bois' words, *"I will use the term 'argument' to refer to just these 'core' or 'direct' grammatical relations to the verb- A, S, and O- but not to obliques"* (1987:808). *"I distinguish 'core' or 'direct' arguments (i.e. A, S, and O) from <u>non-arguments (primarily obliques</u> and possessors, but also various minor roles)"* (1987: 815, our emphasis).

Hence, the label "oblique" encompasses both semantic arguments realized in roles other than A, S or O, as well as peripheral adjuncts. Both types of obliques are excluded from the generalizations of PAS:

> …obliques raise a question about the best statement of the scope of the quantity constraints. Up to now I have framed these constraints so that they apply, apparently, to the clause: I speak of one lexical argument, or one new argument, per clause. But of course, the restriction to arguments means that these constraints cover only part of the clause, as indicated by the more precise term 'clause core'.
> They are silent regarding the mentions in the rest of the clause, i.e. principally obliques. <u>The quantity and role constraints as formulated so far have nothing to say about what appears in oblique positions, one way or the other</u> (Du Bois 1987: 832, our emphasis).

Nonetheless, there is one possible pragmatic function the model attributes to obliques: *"...it may be possible to show that obliques can act as a sort of <u>safety valve</u> for extra information in the clause, given the strict limitations on information in the small set of available argument positions"* (Du Bois 1987: 833). More concretely, Du Bois suggests that *"Adpositions may on occasion be selected because they invoke a new dependency group -and perhaps concomitantly, as I suggest, a new unit for purposes of information processing -which allows an additional item of new information to be introduced"* (Du Bois 1987: 833), hence the "safety valve" metaphor. It is stated that *"<u>the oblique full noun phrases may occur freely</u>, without heed of the limit that core arguments are held to (…) It is not uncommon to see multiple oblique roles, each non-core and each bearing a full lexical noun, without any violation of the Preferred Argument Structure constraints"* (Du Bois 2003a: 74, our emphasis).

In the collective volume on PAS (Du Bois et al. 2003), only a few authors include a discussion on obliques, and do so considering them as a class that may conflate indirect objects as well as locative, temporal, manner and a few other peripheral expressions. Overall, these studies advance two points: obliques are rare in narrative texts, and there is a rather wide language variation in terms of the relevance of obliques in the encoding of new / lexical participants. England and Martin's data (2003: 150), for instance, show that there is an uneven distribution (and function) of obliques in texts from four Mayan languages. Kumpf (2003: 121), in turn, finds that indirect objects, locatives, temporals and other obliques are rare in American classroom discourse and are not used as a conduit for new information. In Finnish, on the other hand, both O and obliques are found to show a high percentage of new mentions (Helasvuo 2003: 259-60).

Considering these antecedents, our aim is to focus this study on the PAS of motion constructions with respect to one particular oblique role: LOCATIVE. Motion events have been a fruitful area of typological research (cf. Talmy 1985, 1991, 2000; Slobin 1994, 2008; Beavers, Levin & Tham 2009, 2010; see also Guerrero 2014). The motion events included in our corpus are syntactically intransitive, although the LOCATIVES associated with them (encoding place, via, source or goal) can be considered a semantic component of its argument structure (Talmy 1985, 1991, 2000).[2] We seek to explore here whether these locatives trigger the kind of argument co-occurrence patterns PAS expects only from transitive clauses, to provide further evidence for the status of locatives as semantic components of motion predicates -now from the standpoint of their discourse behavior- and to suggest the extension of PAS effects beyond A, S and O roles.

Specifically, with respect to intransitive motion clauses, one expects that if the current formulation is correct, they will tend to follow an "intransitive discourse pattern" (S/X). On the other hand, if the coding of an oblique locative expression has some effect on PAS, one would expect something similar to a "transitive discourse pattern" to emerge, with intransitive subjects showing a discourse behavior similar to As and obliques behaving like Os. These two predictions are summarized in Table 2.

Table 2: Intransitive vs. Transitive Discourse Patterns

	SUBJECT	OBLIQUE
Intransitive discourse pattern	S	X
Transitive discourse pattern	A	O

Furthermore, if these obliques function as "safety valves" where extra information can be introduced, then they would tend to appear in contexts where direct argument slots are being maximally exploited; that is, in the context of *lexical* (vs. zero or pronominal) intransitive subjects.

---

[2] We would like to stress that PAS is argued to apply exclusively to direct core arguments A, S, O to the exclusion of any other participant, regardless of their syntactic or semantic status. In this connection, it is insensitive to whether these locatives should be considered as arguments or adjuncts in the syntax. It would be interesting to analyze in future works if the discourse behavior of these locatives varies depending on specific motion event subtypes (for a first take, see Guerrero 2012). We thank an anonymous reviewer for helping us clarify this point.

[3] A preliminary study of Yaqui motion constructions from this perspective appeared as Belloro y Guerrero (2012). To further examine the findings from that study, here we are including additional Yaqui texts, as well as data from three other languages.

In the present study, we examine motion constructions in Yaqui, Guarijio and Huasteca Nahuatl (Southern Uto-Aztecan languages spoken in Mexico), as well as Spanish.[3] These languages make use of specific adpositions and (deictics) adverbs to introduce locative roles. Except for Nahuatl, they are dependent-marking languages. In our analysis, we distinguish intransitive motion verbs (e.g., *walk, run, arrive*) from transitive motion verbs (e.g., *move, push, put*) and analyze only the former. The type of intransitive motion verbs considered includes predicates of manner of motion (e.g., *walk, jump, fly*), directed motion (e.g., *arrive, leave, enter, exit*), and static change of position (e.g., *stand, sit, lie down*).

2. The Preferred Argument Structure of motion constructions

2.1. Yaqui

Yaqui (Guerrero 2006, 2012) is a fixed-SOV, head-final, dependent-marking language with accusative alignment. The language formally distinguishes between direct core arguments and oblique core arguments in nominals and pronouns. Lexical nominatives are unmarked (5a); lexical accusatives are marked by the suffix *-ta* (5b), and lexical obliques are marked by postpositions, such as the directional *-u/-meu* (SG/PL) in (5c).[4]

(5) a. *U-Ø*   *kaba'i*   *buki-Ø*   *kora-po*   *weyek.*
      DET-NOM   horse   kid-NOM   corral-LOC   be.stand.SG
      'The calf is standing in the corral.'

   b. *Seenu*   *ili*   *uusi-Ø*   *birio-ta*   *jamta-k.*
      one   little   boy-NOM   window-ACC   break-PFV
      'A little boy broke the window.'

   c. *Nim*   *jaboi*   *jamuchim-me-u*   *omti-ne.*
      1SG.GEN   granpa   woman-PL-OBL   get.mad-POT
      'My grandpa will get mad at the women.'

The language has two sets of pronouns: strong pronominals behave like lexical phrases and weak pronominals like clitics; obliques have their own set of pronouns (Table 3). Locatives are marked by postpositions (Table 4) or realized as adverbs (Table 5).

---

[4] Abbreviations: ABS: absolutive, ACC: accusative, ADV: adverb, APL: applicative, CAUS: causative, CIT: citative; COMP: completive, DEM: demonstrative, D.D: distal demonstrative, DESID: desiderative, DET: determiner, DIR: directional, ENF: emphatic, EST: estative, GEN: genitive, LOC: locative, DM: discourse marker, ICOMP: incomplete, IMP: imperative, IMPFV: imperfective, INST: instrument, NEG: negation, NOM: nominative, NS: no subject, OBJ/O: object, PAS: past, PASC: past continuous, PFV: perfective, PL: plural, POT: potential, POS: possessive, PRES: present, SG: singular, suj/S: subject.

Table 3: Pronominal Forms in Yaqui

	Nominative		Accusative		Oblique
1 Sg	*inepo*	= *ne*	*nee*		*ne-*
2 Sg	*empo*	= *'e*	*enchi*		*e-*
3 Sg	*aapo*	= Ø	*apo'ik*	*a* =	*a(e)-*
1 Pl	*itepo*	= *te*	*itom*		*ito-*
2 Pl	*eme'e*	= *'em*	*enchim*		*emo-, eme-*
3 Pl	*bempo*	= *mme*	*apo'im*	*am* =	*ame-*

Table 4: Locative Postpositions in Yaqui

-(u) bicha	'toward'	*-po*	'in, from'
-u,-wi /-meu,-mewi	'to (sg/pl)'	*-t, -chi/-met*	'in, over (sg/pl)'
tajti	'to'	*betana*	'in, from'
luula	'through'	*beas*	'in front of'
naapo	'near'	*bepa*	'over'
nasuk	'between'	*betuk*	'under'

Table 5: Locative Adverbs in Yaqui

yeu	'toward, outside'	*ama*	'there'
kom	'down'	*inim, im*	'here'
jika	'up'	*ini'i*	'here, on this side'
a'abo	'toward here, here'	*hunama*	'over there'

The data we analyze here was obtained from oral narratives from the Sonoran variant (Johnson 1962; Buitimea 2007) amounting to a total of 981 clauses: 361 transitive and 620 intransitive (Table 6). Transitive clauses include examples like (5b), where O is marked accusative. Clauses with oblique arguments, as in (5c), are considered intransitive.

The analysis shows that this corpus is consistent with the general patterns expected by PAS. Lexical arguments avoid the A role (although lexical As are relatively more frequent than expected, accounting for 22% of lexical arguments (Table 7)), and transitive clauses with more than one lexical argument, as depicted in (5b), are a minority (Table 8).

Table 6: Clause Types in the Yaqui Corpus

Transitive	361	37%
Intransitive	620	63%
TOTAL	981	100%

Table 7: "Avoid Lexical A" in the Yaqui Corpus

S/O	436	78%
A	123	22%
TOTAL	559	100%

Table 8: "Avoid More Than One Lexical Argument" in the Yaqui Corpus

Zero or one lexical argument	314	87%
More than one lexical argument	47	13%
TOTAL TRANSITIVES	361	100%

From the 981 clauses in the Yaqui narratives, 425 contain a motion predicate. As expected for semantic arguments, locative expressions are much more common in the context of motion predicates than with other types of predicates (66% vs. 20%, Table 9). Within motion clauses, 84 are transitive and 341 are intransitive. The frequency of locative expressions for each subtype is presented in Table 10.

Table 9: Locative Expressions per Clause-type in the Yaqui Corpus

	# of Clauses	Locatives
Motion Predicates	425	282 (66%)
Other Predicates	556	112 (20%)
Total	981	394

Table 10: Motion Constructions and Locative Coding in the Yaqui Corpus

	Motion constructions	Locatives
Transitive	84	54 (64%)
Intransitive	341	228 (67%)
Total	425	282

As mentioned above, for the purposes of this study, we are interested in potential co-occurrence effects involving the type of coding of subjects and locatives. We are using the label "strong" instead of "lexical" in order to include clausal arguments. Thus, in the context of intransitive motion clauses we categorized locatives as strong if realized by adpositional phrases, nominal phrases or clauses. The label "weak" encompasses free and bound pronouns, as well as deictic adverbials (e.g. *here, there*), since their interpretation depends on the discourse or situational context and represents the most semantically bleached form of spatial reference. The four possible co-occurrence patterns involving the codification of intransitive subjects (S) and locatives (LOC) are illustrated in (6).[5]

---

[5] The tags reflect the feature value for each function, not the order in which the function appears in the clause. This is apparent in examples such as (6b) -and (8a) or (13c) below, in which the subject occurs *after* the locative. Note that in (6b) the lexical locative is further accompanied by a deictic adverbial. These cases of "double" coding are included in the "strong" class (cf. also (8b) below).

(6) Weak S / Weak LOC

    a. *Nepo*   *aman*   *noiti-bae-Ø.*
      1SG.NOM   there   go.back-want-PRES
      'I want to go back there.'   (Muchachito: 404)

Weak S / Strong LOC

    b. *Wana*   *bo'o-t*   *= ne*   *bea*   *weama-n.*
      there   road-LOC   =1SG.NOM   DM   walk.SG-PASC
      'I was wandering there in the road.'   (Burro y coyote: 46)

Strong S / Weak LOC

    c. *Chirindo-Ø*   *aman*   *yepsa-k.*
      Chirindo-NOM   there   arrive.SG-PFV
      'Chirindo arrived there.'   (Muchachito: 393)

Strong S / Strong LOC

    d. *A*   *achai-wa*   *siuda-u siika.*
      3SG   father-POSS   city-DIR go.SG.PFV
      'His father went to the city.'   (Osito: 44)

Returning to the goal of this study, if locatives occurring in connection to motion predicates function as a "safety valve" for the inclusion of extra lexical phrases (as currently predicted for all obliques), structures such as that in (6d), with a strong locative expression co-occurring with a strong S, should be the **most frequent**.[6] If, on the contrary, PAS restrictions apply not only to A, S and O but also to locatives in the context of intransitive motion constructions, then we should expect structures like (6d) to be the **least frequent**, since they would violate both the "avoid lexical A" (reinterpreted so as to include S) and the "avoid more than one (direct) lexical argument" constraints (reinterpreted so as to include S + LOC structures). This is exactly what the data shows. The relevant numbers are presented in Table 11.

Table 11: Correlation between Subject and Locative coding in
Yaqui intransitive motion constructions

	Weak S	Strong S	Total
Weak LOC	67	34	101
Strong LOC	106	21	127
	173	55	228

In the Yaqui narratives we found that, whereas weak subjects are more common than strong subjects in all cases (something expected given the relatively low "informative pressure" of these texts), in the context of a strong locative there is a particularly low

---

[6] Or at least, they shouldn't be sanctioned. In contexts of particularly low "information pressure" (i.e. a low ratio of new entities to clauses, cf. Du Bois 1987 §3.5) strong S are expected to be disfavored, but this should happen *independently of the type of coding of the locative expressions*.

proportion of strong subjects (21/127=17%) as compared with the context of a weak locative, where the proportion of strong subjects is relatively higher (40/136=29%). In our sample, the most frequent structure is that which has a weak subject and a strong locative, representing 46% of the data (106/228). Most crucially, structures such as that in (6d), with strong subjects and strong locatives, are the **least frequent**, representing only 9% of the data (21/228); a result that would not be expected unless locatives function in this respect just like direct objects. In fact, the percentage of clauses with a strong subject and a strong locative (9%) is even lower than the percentage of clauses with a strong A and a strong O (13%, Table 8).

This suggests that, far from functioning as safety valves for the inclusion of additional lexical information in the context of maximally exploited direct argument slots, locatives associated with intransitive motion predicates in Yaqui create the same kind of co-occurrence restrictions over their S subjects as do direct objects over A subjects.

In what follows we present similar results arising from the analysis of Guarijio and Huasteca Nahuatl.

2.2. Guarijio

Guarijio (Félix 2005) is a free word-order language, with no marking either in heads or dependents. It shows accusative alignment, which is apparent only in the pronominal system (Table 12). Adjuncts and oblique arguments (such as locatives) are marked by postpositions or realized as deictic adverbs (Table 13). Some illustrative sentences are presented in (7).

(7) a. *Nawesa-ta = pu   kihchi =a   eikao.*
        talk-CIT = D.D   iguana = ENF   then
        'Then, they say the iguana talked.'   (Félix 2005; Nunca jamás; 13)

   b. *Tamo   teko   ki = tamo   kiya-nari = a   sunu.*
        1PL.NS   foreman   NEG = 1PL.NS   give-DESID = ENF   corn
        'The foreman didn't want to give us corn.'   (Félix 2005; HVA: 66)

   c. *Kahtí = ne   amo   sira-chi.*
        be.seated =1SG.S   2SG.NS   chair-LOC
        'I am sitting in your chair.'   (Félix 2005: 44)

Table 12: Pronominal Forms in Guarijio

	Nominative		Non-nominative	
1 Sg	*nee*	= *ne*	*no'o*	*no'=*
2 Sg	*muu*	= *mu*	*amo*	
3 Sg	*apoe*	= Ø	*ahpó, Ø*	
1 Pl	*teme*	= -*teme*	*tamo*	
2 Pl	*eme*	= -*eme*	*amo*	
3 Pl	*a'poe*	= Ø	*ahpó, Ø*	

Table 13: Locative Postpositions and Adverbs in Guarijio

Postpositions		Adverbials	
-chi	'in, on, toward, from'	*pote*	'up'
-tere	'through, in the middle, below'	*potepa*	'down'
-hampa	'above, on the top'	*i'wa*	'here'
-pukamína	'behind'	*wa'a*	'there'
-yoremina	'inside'	*mehka*	'there, far away'
-pewana	'in front'	*owetuka*	'from one place to another'

The Guarijio data is taken from oral narratives from the River Guarijio variant (Félix 2005), and the corpus consists of 422 clauses. Table 14 shows the distribution of transitive and intransitive clauses, and Table 15 and Table 16 show that these narratives conform to the general grammatical predictions of PAS: most lexical arguments align with S/O to the exclusion of A, and transitive clauses with two lexical arguments are a minority (note that the numbers are similar to those from Yaqui).

Table 14: Clause Types in the Guarijio Corpus

Transitive	158	37%
Intransitive	264	63%
Total	422	100%

Table 15: "Avoid Lexical A" in the Guarijio Corpus

S/O	139	83%
A	28	17%
Total	167	100%

Table 16: "Avoid More Than One Lexical Argument" in the Guarijio Corpus

Zero or one lexical argument	139	88%
More than one lexical argument	19	12%
Total Transitives	158	100%

In the Guarijio narratives there are 189 motion clauses. Locative expressions are once again more common in the context of motion predicates than with all other predicates combined (76% vs. 16%, Table 17). Out of the 189 motion clauses in the Guarijio narratives, 37 are transitive and 152 are intransitive. Within this group, 120 (79%) contain a locative expression (Table 18).

Table 17: Locative Expressions per Clause-type in the Guarijio Corpus

	#of Clauses	Locatives
Motion Predicates	189	144 (76%)
Other Predicates	233	37 (16%)
	422	181

Table 18: Motion Constructions and Locative Coding in the Guarijio Corpus

	Motion Constructions	Locatives
Transitive	37	24 (65%)
Intransitive	152	120 (79%)
	189	144

As was the case for Yaqui, in Guarijio intransitive motion constructions, "strong" arguments include lexical NPs and locative clauses, whereas "weak" arguments include free and bound pronouns, as well as locative adverbial elements. The co-occurrence patterns are illustrated in (8).

(8) Weak S / Weak Loc
   a. *Owetuka*   *weikao*   *simi-yai = ne.*
      from.one.place.to.another   then   go-IMPFV = 1SG.S
      'I would go from one place to another.'   (HVA: 78)

Weak S / Strong Loc
   b. *Weikaoba*   *wa'a-tepa*   *ena =teme*   *undisioni.*
      then   here-over   come = 1SG.S   Fundición
      'Then we came up here, to Fundición.'   (HVA: 19)

Strong S / Weak Loc
   c. *Wa'a   oi-yai = pu*   *no'o*   *poni = a.*
      there   walk-IMPFV = D.D   1SG.NS   brother =ENF
      'My brother was walking over there.' (HVA: 201)

Strong S / Strong Loc
   d. *Poe-chi*   *simi-re karetera-chi   ichikuame   o'owitiame.*
      road-LOC   go-PFV road-LOC   thief   woman
      'The woman's thief was going along the road.'   (HVA: 250)

Table 19 presents the distribution of each pattern in the Guarijio narratives.

Table 19: Correlation between Subject and Locative Coding in the Guarijio Corpus

	Weak S	Strong S	Total
Weak Loc	26	20	46
Strong Loc	62	12	74
	88	32	120

We find a distribution that is very similar to the one in Yaqui: even if weak subjects are more common than strong subjects overall (73% vs. 27%), in the context of a strong locative, the frequency of strong subjects is particularly low (12/74=16%) as compared to the frequency of strong subjects in the context of a weak locative (20/46=43%). As in the Yaqui data, the most frequent structure is that of a weak subject and a strong locative (62/120=52%). More importantly, structures with a strong subject and a strong locative are the **least frequent**, representing in this case 10% of the data (12/120). Once again, this is slightly lower than the percentage of transitive clauses with both a strong A and a strong O (12%, Table 16). Therefore, as it was the case for Yaqui, Guarijio data motion constructions display the same co-occurrence patterns expected exclusively from transitive clauses and challenge the view of obliques as "safety valves" for the inclusion of extra information.

2.3. Huasteca Nahuatl

Nahuatl languages are characterized as SVO and head-marking (Launey 1992). The verbal head contains pronominals that cross-reference the S, A and O roles, as well as a set of optional locative affixes. This study is based on the Huasteca Nahuatl variant (Beller & Beller 1979). The pronominal paradigm is presented in Table 20. Some illustrative sentences are presented in (9).

Table 20: Pronominal Forms in Huasteca Nahuatl

	Nominative		Accusative	Genitive
1 Sg	*naya, naha, na*	*ni-*	*neč-*	*no-*
2 Sg	*taya, taha, ta*	*ti-*	*mic-*	*mo-*
3 Sg	*yaya, ya*	*Ø-*	*ki-, k-, h-*	*i-*
1 Pl	*towanti*	*ti-*	*teč-*	*to-*
2 Pl	*imowanti*	*in-~ an-*	*inmeč-,meč- ~ anmeč-*	*imo- ~ amo-*
3 Pl	*yawanti*	*Ø-*	*kin-, kinin-*	*in-,inin-, ini-*

(9) a. Ø-pano-yaya   *nopa*   *tlaca-tl.*
     3sg.s-go.through-IMPFV   DET   man-ABS
     'The man was passing through.'   (Zorra: 7)

    b. *Wa*   *nopa*   *tlen*   *okich-pil*   *Ø-ki-mij-ti-k*   *koa-tl.*
     and   DET   that   male-son   3sg.s-3sg.o-kill-CAUSE-PFV   snake-ABS
     'And that boy killed the snake.' (Sirena y pescador: 189)

Free and bound locatives elements are presented in Table 21. The set of locative adpositions is presented in Table 22.

Table 21: Locative Deictics in Huasteca Nahuatl (Beller & Beller 1979: 210-211)

Free Deictic Locatives		Bound Deictic/Directional	
nepa	'there'	*on-*	'place, there'
neka	'over there'	*wal-*	'towards here'
nika(ni)	'here'	*pan-*	'on top of'
nopano	'beyond'	*-ki/-ko*	'toward/came (ICOMP/COMP)'
		-ti/-to	'away from/go (ICOMP/COMP)'

Table 22: Locative Adpositions in Huasteca Nahuatl (Beller & Beller 1979: 243-245)

Bound Forms		Relational Noun Forms		Free Forms	
(-)pa, -pan	'in, over'	*-inti-k*	'inside of'	*asta*	'to'
-tla	'at, place'	*-con-pak*	'above'	*kanke*	'where'
-teč	'corner of'	*-cin-tla*	'below'	*tlacintla*	'below'
-ko	'place'	*-tek-pak*	'above'	*yawaltik*	'around'
-ka	'place'	*-iš-ko*	'top of'	*wehka*	'far from'
-kala	'underneath'	*-iš-pa*	'front of'	*(-)kampa*	'where'
-ika	'behind'	*-neč-ka*	'near, close to'		
-teno	'outside'				

Bound deictics and directionals are attached to the verb, as illustrated in (10a) with the preverbal locative *on*. There are simple and complex postpositions, as well some relational nouns, e.g. *-inti-k* 'inside of (lit. stomach-place)'. Some of these postpositions can take a third person genitive pronoun *i-* and then precede the lexical locative phrase; compare the use of *-pa* in (10b) to *i-pan* in (10c). In texts, we found a widespread use of the general postposition *pa ~ -pan*.

(10) a. *Tle   kema   ti-on-asi   pa   mo-cha.*
    that   when   2SG.S-there-arrive   LOC   2SG.POSS-house
    'When you arrive at your house.'   (Sirena: 24)

  b. *Ši-ya-kah   a-pa.*
    IMP-GO-IMP.PL   water-LOC
    'You all go to the water hole!'   (Beller & Beller 1979: 281)

  c. *Ni-h-kah-teh-ki   i-pan   ne   tlapeč-tli.*
    1SG.S-3SG.O-put-leave-PAS   3SG.POSS-LOC   that   bed-ABS
    'I left it on that bed.'   (Beller & Beller 1979: 244)

The data used for this study consists of 996 clauses (Table 23) taken from several oral narratives from the Huasteca variety (Sandstrom 1990, as they appeared in Peregrina 2005; Beller & Beller 1979). The major difference between the Yaqui and Guarijio data, on one hand, and the Nahuatl data, on the other, is that in the latter there is a prevalence of transitive clauses (64%).

Table 23: Clause Types in the Huasteca Nahuatl Corpus

Transitive	640	64%
Intransitive	356	36%
Total	996	100%

These narratives also conform to the general predictions of PAS: lexical arguments prefer the S/O role to the exclusion of A in 81% of the sample (Table 24), with proportions similar to those from Guarijio, and transitive clauses with lexical A and lexical O are strongly avoided (Table 25).

Table 24: "Avoid Lexical A" in the Huasteca Nahuatl Corpus

S/O	423	81%
A	99	19%
Total	522	100%

Table 25: "Avoid More Than One Lexical Argument" in the Huasteca Nahuatl Corpus

Zero or one lexical argument	584	91%
More than one lexical argument	56	9%
total transitives	640	100%

Of the 996 clauses in this corpus, 257 contain a motion predicate. Of these, 109 (42%) have an explicit locative. Even if the frequency of locative encoding is relatively lower than in the other corpora, locatives still appear more frequently in relation to motion predicates than in relation to all other predicate types combined (Table 26). Of the 257 motion clauses in the corpus, 174 are intransitive. 74 (43%) of these contain a locative (Table 27).

Table 26: Locative Expressions per Clause-type in the Nahuatl Corpus

	# of Clauses	Locatives
Motion Predicates	257	109 (42%)
Other Predicates	738	76 (10%)
	955	185

Table 27: Motion Constructions and Locative Coding in the Huasteca Nahuatl Corpus

	Motion Constructions	Locatives
Transitive	83	35 (42%)
Intransitive	174	74 (43%)
	257	109

In intransitive motion constructions in Nahuatl, "strong" arguments include lexical NPs and locative clauses, whereas "weak" arguments include free and bound pronouns, free deictic adverbials and locative and directional bound verbal particles. The co-occurrence patterns are illustrated in (12).

(12) Weak S / Weak LOC

    a. *Wan*   *teipa*   *sampa*   *ni-mo-kwep-ki.*
      and   afterward   again   1SG.SUJ-REFL-return-PAS
      'And afterward, I returned again.'   (Beller & Beller; Horse-Trown: 25)

Weak S / Strong LOC

    b. *Ihkiio*   *ni-wala-ko*   *para*   *no-mila.*
      then   1SG.SUJ-come-COMP   para   3SG.POSS-field
      'So, I came towards my field.'   (Beller & Beller; Horse-Trown: 52)

Strong S / Weak LOC

    c. *Nopa chichi*   *Ø-yaj-ki*   *i-teposco.*
      DET   dog   3SG.SUJ-go-PFV   3SG.POSS-back
      'This dog went behind him.'   (Monos: 4)

Strong S / Strong LOC

    d. *I-chaj*   *Ø-asi-to*   *nopa*   *tlaca-tl.*
      3SG.POSS-home   3SG.SUJ-arrive-DIR   DET   man-ABS
      'The man arrived at his home.'   (Zorra: 65)

We mentioned in relation to Table 26 that there is a relative avoidance of locative expressions in the Nahuatl data (barely 43% of motion constructions contain an explicit locative), as compared to Yaqui (72%, Table 9) and Guarijio (72%, Table 17). Interestingly, this is not an epiphenomenon of a more general tendency for these narratives to avoid lexical arguments. To test for this, we measured what we are defining as the "lexical exploitation" of argument slots, as resulting from the proportion of direct argument positions realized by lexical phrases. Thus, note that in Yaqui there are 559 direct lexical arguments for a total of 1342 argumental slots (2 for each of the 361 transitive clauses, one for each of the 620 intransitives), which results in a lexical exploitation of 41%. In Guarijio, there are 167 lexical arguments distributed among 580 argumental slots, resulting in a lexical exploitation ratio of 29%. In Nahuatl, there are 522 lexical arguments for 1,639 slots, which results in a ratio of 31% of lexical exploitation, lower than in the Yaqui texts, but still slightly higher than in the Guarijio texts (Table 28).

Table 28: Frequency of Lexical Coding of Argumental Slots

	# Transitives (x 2 slots)	# Intransitives (x 1 slot)	# Argumental Slots	# Slots Coded by Lexical Arguments
Yaqui	361 = 722	620	1342	559 (41%)
Guarijio	158 = 316	264	580	167 (29%)
Nahuatl	640 = 1280	356	1636	522 (31%)

Thus, the scarcity of locatives in the Nahuatl corpus seems to be due to the particular type of narratives analyzed. In these folktale stories, lexical arguments are often used to reintroduce, in S, A and O roles, the main characters whose actions carry forward the narrative line. Locations do not play any major role in these narratives and therefore are mainly absent. Still, with the limited set of data available at the moment from this language, the same tendencies observed in the other corpora emerge (Table 29).

Table 29: Correlation between Subject and Locative Coding in the Huasteca Nahuatl Corpus

	Weak S	Strong S	Total
Weak LOC	14	9	23
Strong LOC	39	10	49
Total	53	19	74

The Table shows that, once again, the most common structure is that of a weak subject and a strong locative (39/74=53%). The structure corresponding to the "safety valve" hypothesis (strong subject-strong locative), even if not the most infrequent, is still much more unusual (10/74=14%).

2.4. Spanish

In order to complement the analysis of the three indigenous languages with one where more extensive data is available, we incorporated the study of intransitive motion constructions in Spanish, as occurring in a corpus of oral interviews (Martín Butragueño & Lastra 2011). Similarly, as it was the case for the other corpora, pronouns and deictic adverbials are considered weak, whereas clauses and nominal or prepositional phrases are considered strong. Illustrative examples of the alternative codings are presented in (13).

(13) Weak S / Weak LOC
    a. Ø me llegó a mí.
       'It came to me.'

Weak S / Strong LOC
    b. Ø salíamos de la escuela primaria.
       'We came out of elementary school.'

Strong S / Weak LOC
    c. *Se me empezaba a subir un poquito la emoción.*
       'Excitement was starting to build up inside of me.'

Strong S / Strong LOC
    d. *El tren venía de Cuernavaca.*
       'The train was coming from Cuernavaca.'

Since the Spanish corpus was too large to apply the same methodology used for the indigenous language narratives, instead of coding all the clauses in the corpus, we extracted all the motion constructions from a subset of eight samples and, for each one, we also extracted an equal number of transitive clauses. This resulted in 457 intransitive motion clauses and 457 transitive clauses.

With respect to transitive clauses, they abide by the relevant PAS tendency, as shown in the following Table.

Table 30: "Avoid More Than One Lexical Argument" in the Spanish Corpus

Zero or one lexical argument	430	94%
More than one lexical argument	27	6%
TOTAL TRANSITIVES	457	100%

Table 30 shows that, from the total of 457 transitive clauses, 430 (94%) have either none or at most one of their argument slots realized lexically; transitive clauses with strong A and strong O are marginal (6%), as expected by PAS. The distribution of argument coding in intransitive motion constructions is presented in Table 31.

Table 31: Correlation between Subject and Locative Coding in the Spanish Corpus

	Weak S	Strong S	Total
Weak LOC	44	15	59
Strong LOC	122	11	133
	166	26	192

The result is once again that in the context of intransitive motion predicates, the "preferred argument structure" emerging from the data is the same as in the other corpora: a weak subject and a strong locative (122/192=64%). The strong subject-strong locative coding expected under the "safety valve" hypothesis is shown again to be clearly dispreferred (11/192=6%). In fact, the frequency of the strong subject-strong locative among intransitive motion constructions (6%, Table 31) is the same as the frequency of strong subject-strong object among transitive clauses (6%, Table 30).

3. Final comments

The goal of this study was to examine the validity of limiting PAS predictions regarding the avoidance of co-occurrent lexical arguments exclusively to transitive clauses. Recall that, under the present formulation, it is expected that oblique full phrases of any sort may occur freely, acting in fact as a sort of a safety valve where extra information in the clause can be placed without the restrictions placed on direct arguments. In this study, we focused on one particular type of oblique: locatives occurring in the context of intransitive motion predicates. The results of the analysis of intransitive motion constructions as appearing in natural discourse from four different languages show, consistently, that the co-occurrence effects predicted by PAS do extend to intransitive motion predicates. In fact, in all languages, the frequency of intransitive motion clauses with "more than one lexical argument" is very similar to that of transitive clauses with lexical A and O arguments (Table 32).

Table 32:. Percentage of Clauses with Strong A, O and Strong S, LOC in the Four Languages Analyzed

	Transitive clauses with more than one lexical argument	Intransitive Motion clauses with more than one lexical argument
Yaqui	13%	9%
Guarijio	12%	10%
Nahuatl	9%	8%
Spanish	6%	6%

This discourse behavior not only provides indirect support to the analysis of these locatives as semantic components of motion events (Jackendoff 1990; Beavers, Levin & Tham 2009, 2010), but also suggests that PAS restrictions extend beyond direct argument roles.

Corpora

Guarijio   Félix, R. 2005. Annex: *Don Alejandro Ruelas. Historia de Vida*.

Nahuatl   Sandstrom, Alan. 1990. *Cuentos nahuas de la Huasteca Veracruzana*. Ms. in Peregrina (2005).
Texts in Beller, R. and P. Beller. 1979. "Huasteca Nahuatl" in Langacker (1979).

Spanish   Martín Butragueño, P. & Lastra, Y. 2011. *Corpus Sociolingüístico de la Ciudad de México*, México, El Colegio de México (Interviews 1, 15, 30, 45, 61, 75, 90, and 105).

Yaqui   Johnson, J. B. 1962. *El idioma yaqui*. Mexico: INAH.
Buitimea, C. 2007. *Peesio betana nottiwame, Regreso de Hermosillo*. Hermosillo: Unison.

References

Beavers, John; Levin, Beth.; Tham, Shiao Wei (2010). A morphosyntactic basis for variation in the encoding of motion events. *Journal of Linguistics* 46(3): 331-377. doi:10.1017/S0022226709990272

Beavers, John; Levin, Beth; Tham, Shiao Wei (2009). The typology of motion events revisited. http://www.stanford.edu/~bclevin/pubs.html

Beller, Richard; Beller, Patrcia (1979). Huasteca Nahuatl. In Ronald W. Langacker (ed.). *Studies in Uto-Aztecan Grammar Volume 2 Modern Aztec Grammatical Sketches*, pp.199-306.Texas: Summer Institute of Linguistics & University of Texas at Arlington.

Belloro, Valeria A.; Guerrero, Lilián (2012). La interfaz gramática-discurso en las construcciones de movimiento en yaqui. *Lingüística* 27: 1-24. Accesible en: http://www.scielo.edu.uy/pdf/ling/v27n1/v27n1a09.pdf

Bentivoglio, Paola (1993). La estructura argumental preferida del español moderno. In María Vaquero; Amparo Morales (eds.). *Homenaje a Humberto López Morales*, pp. 107-120. Madrid: Arco Libros.

Du Bois, John W. (1987). The discourse basis of ergativity. *Language* 63(4): 805-855.

Du Bois, John W. (2003a). Discourse and grammar. In Michael Tomasello (ed.). *The new psychology of language. Cognitive and functional approaches to language structure*, pp. 47-87. New Jersey: Lawrence Erlbaum.

Du Bois, J. W. (2003b). Argument structure. Grammar in use. In John W. Du Bois; Lorraine E. Kumpf; William J. Ashby (eds.). *Preferred argument structure. Grammar as architecture for function*, pp. 11-60. Amsterdam: John Benjamins.

Du Bois, John W; Kumpf, Lorraine E.; Ashby, William J. (2003). *Preferred argument structure. Grammar as architecture for function*. Amsterdam: John Benjamins.

England, Nora; Martin, L. (2003). Issues in the comparative argument structure analysis in Mayan narratives. In John W. Du Bois; Lorraine E. Kumpf; William J. Ashby (eds.). *Preferred argument structure. Grammar as architecture for function*, pp. 131-158. Amsterdam: John Benjamins.

Félix Armendariz, Rolando (2005). *A grammar of River Guarijío* (Ph. D. dissertations). Houston: Rice University.

Guerrero, Lilián (2006). *The structure and function of Yaqui complementation*. Munich: LINCOM.

Guerrero, Lilián (2012)*. La naturaleza de las frases locativas en construcciones de movimiento en yaqui. LIAMES. Línguas Indígenas Americanas* 12: 81-99*. https://periodicos.sbu.unicamp.br/ojs/index.php/liames/article/view/1483

Guerrero, Lilián (2014)*. Movimiento y espacio en lenguas de América.* México: UNAM

Helasvuo, Marja-Liisa (2003). Argument splits in Finnish grammar and discourse. In John W. Du Bois; Lorraine E. Kumpf; William J. Ashby (eds.). *Preferred Argument Structure. Grammar as architecture for function*, pp. 247-272. Amsterdam: John Benjamins. doi: 10.1075/sidag.14.12hel

Jackendoff, Ray S. (1990). *Semantic structures*. Cambridge, MA : MIT Press.

Kumpf, Lorraine E. (2003). Genre and preferred argument structure: Sources of argument structure in classroom discourse. In John Du Bois; Lorraine E. Kumpf; William J. Ashby (eds.). *Preferred argument structure. Grammar as architecture for function*, pp. 109-130. Amsterdam: John Benjamins.

Launey, Michel (1992). *Introducción a la lengua y a la literatura náhuatl*. México: Universidad Nacional Autónoma de México.

Peregrina, M. (2005). *Caracterización de la transitividad en la narrativa náhuatl de la Huasteca Veracruzana desde una propuesta tipológica* (M.A thesis). Hermosillo: Universidad de Sonora. Available at: http://www.maestriaenlinguistica.uson.mx/wp-content/uploads/2011/02/8Tmpl.pdf

Slobin, Dan I. (1996). Two ways to travel: Verbs of motion in English and Spanish. In Sandra Thompson; Masayoshi Shabatani (eds.). *Grammatical constructions: their form and meaning,* pp. 195-217. Oxford: Oxford University Press.

Slobin, Dan I. (2008). Relations between paths of motion and paths of vision: A crosslinguistic and developmental exploration. In Virginia C. Mueller Gathercole (ed.). *Routes to language: Studies in honor of Melissa Bowerman*, pp. 197-221. Mahwah, NJ: Lawrence Erlbaum Associates.

Talmy, Leonard (1985). Lexicalization patterns: semantic structure in lexical forms. In Timothy Shopen (ed.). *Language typology and syntactic description, vol. 3: Grammatical Categories and the Lexicon*, pp. 57-149. Cambridge: Cambridge University Press.

Talmy, Leonard (1991). Path to realization: a typology of event conflation. *Papers of the 17th Annual Meeting of the Berkeley Linguistics Society*, pp. 480-520. Berkeley: Berkeley Linguistics Society.

Talmy, Leonard (2000). *Toward a cognitive semantics*. Cambridge: MIT Press.