

GLOTTOTHÈQUE MAYAN LANGUAGES, FEBRUARY 12, 2024

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# ANIMACY AND TOPICALITY IN YUCATEC SENTENCE PRODUCTION



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# SYNOPSIS

- ▶ Animacy and topicality in European languages
- ▶ Animacy and topicality in Yucatec: Background
- ▶ The experiments
- ▶ Discussion

## ANIMACY AND TOPICALITY IN EUROPEAN LANGUAGES

- ▶ Prat-Sala & Branigan (2000) [PSB]: how do animacy and topicality affect sentence production in English and Spanish?
  - ▶ **topicality effect:** prompts treating patients as topical boosted passive use in both populations

(1.1) [Agent topic: *What about the swing?*]  
*It hit the scooter.*

(Figure 1.1. Sample target picture stimulus of Experiment 1: a swing hitting a scooter (Prat-Sala & Branigan 2000: 172))

(1.2) [Patient topic: *What about the scooter?*]  
*It was hit by the swing.*

Givón (1979): Grammatical subjects express topics.

Voice constructions serve to select the agent (active) or patient (passive) as topic.

- ▶ [PSB] (cont.)
  - ▶ **animacy effect:** inanimate agents acting on human patients boosted passive use in both populations

(1.3) [General topic: *What happened?*]

*The man **was hit** by the swing*

>

*The swing **hit** the man*

(**Figure 1.2.** *Sample target picture stimulus of Experiment 2: a swing hitting a man (Prat-Sala & Branigan 2000: 176)*)

Humans are more frequently topical in discourse than inanimates are.

"Humans tend to talk more about *humans-agents* than about *nonhumans-patients*."

(Givón 1979: 58)

- ▶ [PSB] (cont.)
  - ▶ **language effect:** patient left-dislocations were frequently used instead of passivization by the Spanish speakers
    - ▶ but not by the English speakers
    - ▶ due to nominal case marking and greater word order freedom in Spanish

(1.4) [General topic: *What happened?*]

a. *The man **was hit** by the swing*

b. *Al hombre **le golpeó** el columpio*

lit. 'To the man, him hit the swing'

(**Figure 1.2.** *Sample target picture stimulus of Experiment 2: a swing hitting a man (Prat-Sala & Branigan 2000: 176)*)

- ▶ we set out to replicate [PSB]  
with speakers of Yucatec and Yucatecan Spanish
  - ▶ why Yucatec? Because Yucatec is exclusively head-marking, verb-initial, and topic-prominent
    - ▶ and has obviative constraints on argument linking
  - ▶ next up: a quick look at those features!

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## TOPICALITY AND GRAMMAR IN YUCATEC: QUESTIONS

- ▶ exclusive head-marking: all arguments are cross-referenced on their heads by two series of bound person markers

**Table 2.1.** *Distribution and functions of the two paradigms of cross-reference markers*

Environment	Set A	Set B
Transitive V	A	P
Intransitive and passivized V	S / incomplete status	S / all other status
Other	Possessor	S of nonverbal pred

(2.1) Sii **in=iiho-ech**, **in=pàal-ech**, ko'x!

yes **A1SG=son-B2SG** **A1SG=child-B2SG** HORT

'You ARE my son alright, you ARE my child; let's go!' (Lehmann ms.a)

(2.2) T-**inw=il-ah-ech**      te=ha'ts+kab+k'in=a'

PRV-**A1SG=see-CMP-B2SG** PREP:DEF=divide:PASS+earth+sun=D1

'I saw you this morning.'



- ▶ basic verb-patient-agent (VPA) order

(2.3) a. T-u=nes<sub>i</sub>-ah-∅<sub>j</sub>                    [hun-túul pàal]<sub>j</sub> [le=xoh]<sub>i</sub>=o'

PRV-A3=gnaw-CMP(B3SG) one-CL.AN child      DEF=cockroach=D2

'The cockroach bit a child' [elicited]

b. T-u=nes-ah-∅

PRV-A3=gnaw-CMP(B3SG)

'It bit it' [constructed]

- ▶ subject/pivot *and* topic prominence:  
the more topical of two lexical arguments will be left-dislocated
- ▶ this position is marked by an **intonation break**  
and a set of **clause-boundary particles**

(2.4) **Hun-túul xib=e',**  
**one-CL.AN male=TOP**

h-ts'o'k      u=bèel y=éetel hun-túul x-ch'úupal  
PRV-end(B3SG) A3=way A3=COM one-CL.AN F-female:child

ma'      t-uy=ohel-t-ah      wáah x-wáay=i'.  
NEG(B3SG) PRV-A3=knowledge-APP-CMP(B3SG) ALT F-sorcerer(B3SG)=D4

'A man, he married (lit. his road ended with) a girl  
not knowing that she was a witch' (Romero Castillo 1964: 305)

- ▶ due to head-marking, there is no overt structural difference between left-dislocation and topicalization

(2.5) *Left-dislocation/topicalization of an argument*

**Juan=e'**, túun lúub-s-ik le=che'=o'

**Juan=TOP** PROG:A3 fall-CAUS-INC(B3.SG) DEF=tree=D2

'Juan, he's felling the tree.'

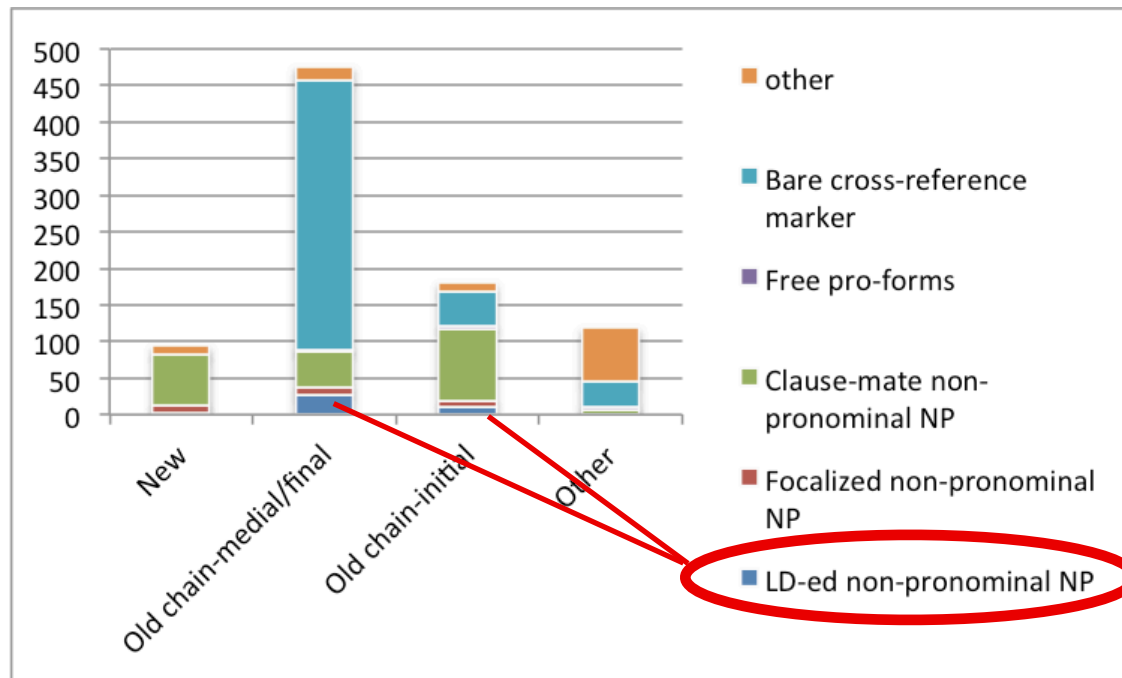
(2.6) *Left-dislocation/topicalization of non-argument*

**U=nah-il Pedro=e'**, nohol yàan u=ho'l

**A3=house-REL Pedro=TOP** south EXIST(B3SG) A3=hole

'As for Pedro's house, its door is (facing) south.'

- ▶ Bohnemeyer & Tilbe (2021): less than 10% of sentences in narratives contain left-dislocations
- ▶ put differently, 90% of sentences are unambiguously verb-initial



**Figure 3.1.** Realization strategies by givenness/activation levels in a corpus of four Yucatec folk tales (569 sentences, of which 660 clauses were included in the analysis - direct character speech was excluded)

- ▶ obviative linking constraints

(Bohnemeyer 2009; cf. Aissen (1997, 1999) on Tsotsil and Zavala (2017: 247-255) on Mayan in general)

- (2.7) *Clash: bare active clause, P outranking A in animacy*

??T-u=chi'-ah                      Pedro le=kàan=o'

PFV-A3=mouth-CMP(B3SG) Pedro    DEF=snake=D2

Intended: 'The snake bit Pedro'

Actual interpretation: 'Pedro bit the snake'

- (2.8) *Avoiding the clash: P outranking A in animacy, but A outranking P in definiteness*

T-u=kins-ah                      hun-túul nohoch máak

PFV-A3=die:CAUS-CMP(B3SG) one-CL.AN    big                      person

le=x-chìiwol=o'

DEF=F-tarantula=D2

'The tarantula killed an old person'

- ▶ obviative alignment constraints (cont.)
  - ▶ Yucatec lacks a dedicated inverse voice for resolving clashes

(2.9) *Resolving the clash: left-dislocation/topicalization*

**Le=kàan=o'**, t-u=chi'-ah                      Pedro

DEF=**snake=D2** PFV-A3=mouth-CMP(B3SG) Pedro

'The snake, it bit Pedro'

(2.10) *Resolving the clash: passivization*

H-chi'-**b**                                      Pedro tuméen hun-túul kàan

PFV-A3=mouth-CMP.**PASS**(B3SG) Pedro CAUSE      one-CL.AN snake

'Pedro was bitten by a snake'

(2.11) *Resolving the clash: agent focus construction*

Pedro=e', h-kim-ih.                      **Kàan chi'-eh.**

Pedro=top PFV-A3=die-CMP(B3SG) **snake mouth-SUBJ(B3SG)**

'Pedro, he died. (It was) (a) SNAKE (that) bit him.'

- ▶ we replicated Prat-Sala & Branigan (with new stimuli)) with speakers of Yucatec and Yucatecan Spanish
- ▶ questions
  - ▶ what is the role of animacy and topicality in production in a language with
    - ▶ pure head-marking
    - ▶ V-initial syntax and mixed topic/pivot prominence
    - ▶ obviative linking constraints?

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## THE EXPERIMENTS

- ▶ as in Prat-Sala & Branigan (2000) [PSB]
  - ▶ two populations: L1 Yucatec vs. L1 Spanish
    - ▶ students at Universidad de Oriente in Valladolid, Yucatán
      - ▶ where they were tested
- ▶ two conditions:
  - ▶ manipulating animacy only
    - through stimulus videos (E1-E2)
  - ▶ manipulating animacy and topicality
    - the latter through prompts (E3, E4)

- ▶ manipulating animacy in E1 and E2
  - ▶ 80 animated videos incl. 16 fillers (feat. transfer scenes)
  - ▶ 4 × 16 target items in 4 animacy conditions
    - ▶ human/animal/inanimate A(agent)
    - ▶ human/animal/inanimate P(patient)
    - ▶ distributed across 4 lists
  - ▶ evenly distributed across four action types
    - ▶ chasing, hitting, pulling, attacking

▶ manipulating animacy in E1 and E2 (cont.)

▶ the target scenes: examples



(a) A policeman chasing a farmer (human agent, human patient)



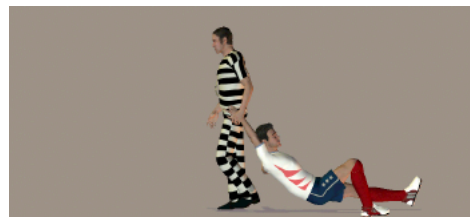
(b) A policeman chasing a horse (human agent, animal patient)



(c) A dog chasing a farmer (animal agent, human patient)



(d) A dog chasing a horse (animal agent, animal patient)



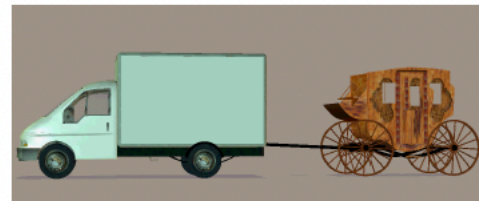
(a) A prisoner pulling a soccer player (human agent, human patient)



(b) A prisoner pulling a carriage (human agent, inanimate patient)



(c) A truck pulling a soccer player (inanimate agent, human patient)







(d) A truck pulling a carriage (inanimate agent, inanimate patient)

**Figure 4.1.** Stills illustrating 8 of the 64 target scenes: chasing actions (top 2 rows) vs. pulling actions (bottom 2 rows); within each group of 4, animacy conditions clockwise from top left (human>human, human>non-human, non-human>non-human, non-human > human)

▶ manipulating topicality in E3 and E4

**Table 4.1.** Agent, patient, and general prompts for human P and inanimate P conditions in Spanish (left) and Yucatec (examples)

Patient	Topic	Topic prompt	Video
Human	Agent	<i>Habláme sobre el carro.</i> “Tell me about the car.”	
	General	<i>Díme que pasó.</i> “Tell me what happened.”	
	Patient	<i>Habláme sobre el vaquero.</i> “Tell me about the cowboy.”	
Inanimate	Agent	<i>Habláme sobre el carro.</i> “Tell me about the car.”	
	General	<i>Díme que pasó.</i> “Tell me what happened.”	
	Patient	<i>Habláme sobre el carrito.</i> “Tell me about the cart.”	

Patient	Topic	Topic prompt	Video
Human	Agent	<i>T'aan-nen yo'olal le kiisbuts-o'.</i> speech-IMP(B3SG) about the car-there “Tell me about the car.”	
	General	<i>A'al teen ba'ax uuch-ij.</i> say.IMP(B3SG) me what happen-PRV “Tell me what happened.”	
	Patient	<i>T'aan-nen yo'olal le kalan-wakax-o'.</i> speech-IMP(B3SG) about the caretaker-cow-there “Tell me about the cowboy.”	
Inanimate	Agent	<i>T'aan-nen yo'olal le kiisbuts-o'.</i> speech-IMP(B3SG) about the car-there “Tell me about the car.”	
	General	<i>A'al teen ba'ax uuch-ij.</i> say.IMP(B3SG) me what happen-PRV “Tell me what happened.”	
	Patient	<i>T'aan-nen yo'olal le seesta-o'.</i> speech-IMP(B3SG) about the basket-there “Tell me about the basket.”	

▶ overall design

**Table 4.2.** *Overview of the four experiments*

Experiment	Participants	Videos (animacy manipulation)	Task (topic manipulation)
1	34 L1-Spanish speakers	Crossed animacy conditions (4×16 target scenes plus 16 fillers)	Describe the video using one complete sentence (instructions administered in Spanish/Yucatec)
2	24 L1-Yucatec speakers		
3	31 L1-Spanish speakers (after excl.)	Hitting and pulling scenes with non-human A (non-human > human and non-human > non-human) and only (2×8 target scenes plus 32 fillers)	3 topic conditions administered through prompts: ‘Tell me about the [AGENT]/[PATIENT]/WHAT HAPPENED!’
4	20 L1-Yucatec speakers (after excl.)		

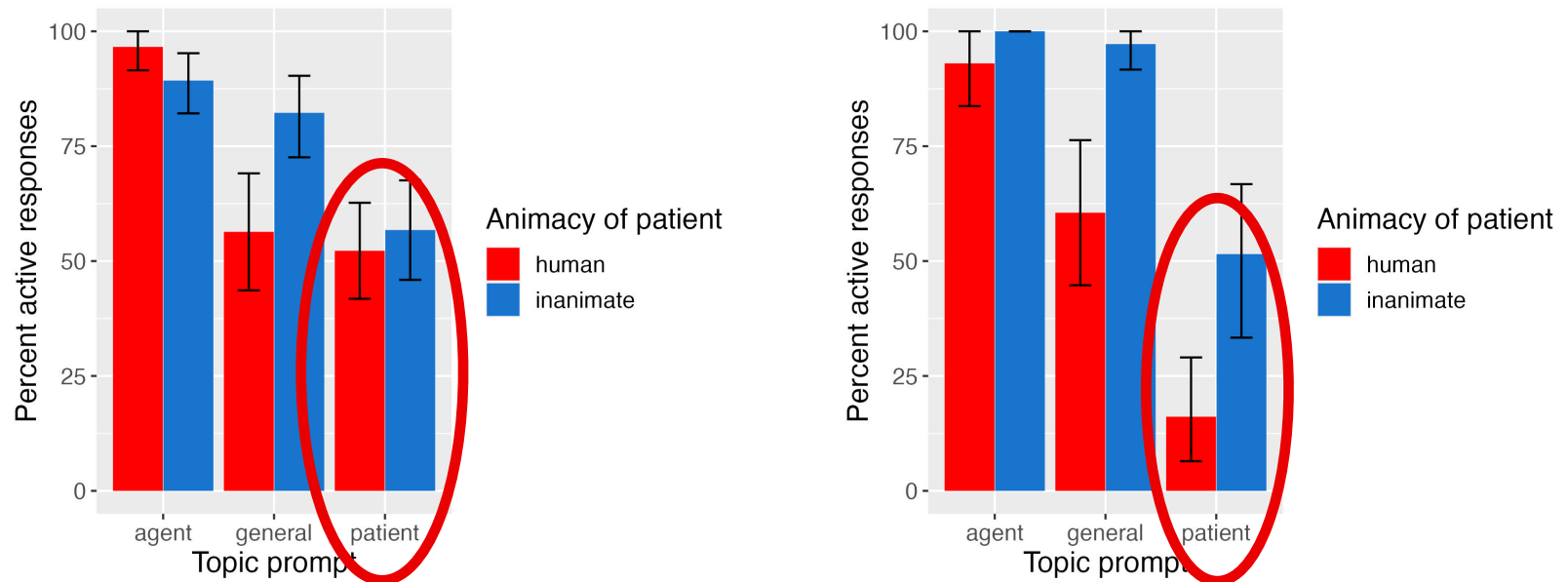
▶ results: summary of significant effects

**Table 4.3.** Significant effects across the four experiments

Manipulation	Population	Effect type	Dependent variable		
			AVP order	Active voice	
Animacy only	Spanish (E1)	Main	A-humanness	P-humanness	
		Interaction			
	Yucatec (E2)	Main	A-humanness	P-humanness	
		Interaction			
Animacy and topic	Spanish (E3)	Main	A-topic	General topic	
		Interaction	P-humanness * A-topic	P-humanness * General topic	
	Yucatec (E4)	Main	<b>P humanness</b>	A topic	General topic
		Interaction		P-humanness * A-topic	

- ▶ when both animacy and topic were manipulated, only the Yucatec speakers showed main effects of both
  - ▶ among the Spanish speakers, the effect of animacy was mediated by topicality

- ▶ results: animacy and topic manipulation (E3, E4)
  - ▶ voice: active voice responses



**Figure 4.2.** Percentage of active voice responses by topic prompt and animacy of patient in Spanish (left) and Yucatec

- ▶ topicality influences production in both languages
  - ▶ A-topic prompts strongly boost active responses in both groups
  - ▶ P-topic prompts strongly depress active responses especially in Yucatec

▶ results: animacy and topic manipulation (E3, E4) (cont.)

- ▶ word order:  
patient left-dislocations  
Spanish

**Table 4.5.** Response type frequencies by condition and population; patient left-dislocations highlighted

Patient Animacy	Topic prompt	Verb form	AV	VA	PV	VP	VAP	VPA	AVP	PVA	Total	
Human	Agent	Transitive-active							57	1	58	
		Passive								2	2	
		Reflexive									0	0
		Unaccusative	3								3	3
	General	Transitive-active			1	1				32		34
		Passive			7						24	31
		Reflexive			1							1
		Unaccusative										0
	Patient	Transitive-active								31	4	35
		Passive		1	1						32	34
		Reflexive										0
		Unaccusative									2	2
Inanimate	Agent	Transitive-active				1	1	1		72	1	75
		Passive			1					9	10	
		Reflexive									1	1
		Unaccusative										0
	General	Transitive-active								50		50
		Passive			1				1		11	13
		Reflexive										0
		Unaccusative										0
	Patient	Transitive-active								37	1	38
		Passive			3						32	35
		Reflexive										0
		Unaccusative	1									1
Total		4	1	15	2	1	1	279	120	423		
Percent		1%	.2%	3.5%	.5%	.2%	.2%	66%	28.4%	100%		

Yucatec

Patient Animacy	Topic prompt	Verb form	AV	VA	PV	VP	VAP	VPA	AVP	PVA	Total	
Human	Agent	Transitive-active									39	
		Passive						1			5	
		Reflexive										1
		Unaccusative								1		1
	General	Transitive-active										24
		Passive	1							23		18
		Reflexive			2						16	18
		Unaccusative										0
	Patient	Transitive-active										4
		Passive							4			33
		Reflexive			3			2	2		26	2
		Unaccusative									2	1
Inanimate	Agent	Transitive-active									46	
		Passive										10
		Reflexive										1
		Unaccusative										0
	General	Transitive-active										35
		Passive	1									5
		Reflexive			3	1			1		1	1
		Unaccusative										0
	Patient	Transitive-active										13
		Passive										16
		Reflexive			4	3						23
		Unaccusative									3	3
Total		2	0	12	4	3	7	157	68	253		
Percent		.8%	0%	4.7%	1.6%	1.2%	2.8%	62.1%	26.9%	100%		

- ▶ **regardless of condition, P left-dislocations were nearly absent from the Spanish responses and entirely absent from the Yucatec responses**
  - ▶ **it appears that there is a categorical constraint against patient left-dislocations with active-voice transitive verb forms in Yucatec**



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## DISCUSSION

- ▶ we found clear effects of both animacy and topicality in sentence production in both Spanish and Yucatec
  - ▶ as did Prat-Sala & Branigan (2000) [PSB] in English and Spanish
- ▶ human A > non-human P  $\Rightarrow$  AVP, active voice
- ▶ topical A  $\Rightarrow$  AVP, active voice
- ▶ non-human A > human P  $\Rightarrow$  PVA, passive voice
- ▶ topical P  $\Rightarrow$  PVA, passive voice

- ▶ we did **not** confirm [PSB]'s evidence for equally frequent use of passivization and patient left-dislocation in Spanish
  - ▶ in both groups, PVA order was mostly associated with passivization
    - ▶ in Yucatec, categorically so, suggesting a hitherto unattested grammatical constraint
      - ▶ possibly a part of the obviative system

- ▶ a possible explanation for the different behavior b/w [PSB]'s and our Spanish-speaking participants
  - ▶ a dialect difference b/w European Spanish and (L1) Yucatecan Spanish
    - ▶ perhaps a result of the long history of contact in the Yucatan peninsula
    - ▶ note also that a large percentage of the Spanish speakers were presumably Yucatec heritage speakers

- ▶ more evidence of language-specificity
  - ▶ we found main effects of both animacy and topicality on order and voice in Yucatec
  - ▶ in contrast, in Spanish, there was only a main effect of topicality and an interaction b/w topicality and animacy
  - ▶ it seems plausible
    - ▶ that the independent effect of animacy on order in Yucatec reflects the language's obviative constraints

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