

# Random Choice from Likelihood: The Case of Chuj (Mayan)

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## Abstract

**Abstract:** Random choice indefinites convey, roughly, that an agent made an indiscriminate choice. There is however no consensus on the exact nature of the modality that these indefinites express (Alonso-Ovalle and Menéndez-Benito, 2018). This paper discusses new data from Chuj, an understudied Mayan language. In this language, random choice indefinite DPs involve a morpheme (*komon*) that can appear either as a nominal or verbal modifier (Royer and Alonso-Ovalle, 2019). We argue that both in DPs and VPs, *komon* conveys information about the likelihood of the event described. The modal component of *komon* is nevertheless tied to its syntactic position. VP-*komon* conveys that the most expected worlds where the described event happens are no more expected than the most expected worlds where it does not. DP-*komon* conveys a similar modal component, but hardwires a comparison between the likelihood of the event described, which involves an individual in the extension of the NP, and that of alternative events determined by considering alternative individuals in the extension of that NP. The characterization of the modal component of *komon* contributes to the characterization of random choice modality and brings into question whether this type of modality should be taken to be a unified category, since none of the previous proposals on the nature of random choice modality tie it to the expression of likelihood.

# 1 Introduction

While the expression of modality cuts across syntactic categories (Kratzer, 1981), most work within formal semantics has traditionally focused on the modal component of verbal auxiliaries. The focus of research on modal expressions has recently broadened beyond the verbal domain, though, unearthing questions about the cross-categorical nature of modality (Arregui et al., 2017), for example:

- (i) What modal flavors can DPs express?
- (ii) To what extent do they mirror those of VP modals?
- (iii) To what extent is the modal component of expressions tied to their syntactic position?

This paper brings new data with relevance to these questions. The data come from Chuj, an understudied Mayan language spoken by approximately 70,000 speakers in Guatemala and Mexico (Piedrasanta, 2009).<sup>1</sup>

One modal flavor that DPs can express crosslinguistically is random choice modality. Random choice indefinites convey, roughly, that an agent made a random choice. For instance, the Spanish sentence in (1), which includes the random choice indefinite *un NP cualquiera*, makes an existential claim—that María bought a gift—just like its counterpart with a standard indefinite. On top of that, the sentence can also make a modal claim, which conveys, roughly, that María could have bought any other gift (Alonso-Ovalle and Menéndez-Benito, 2011, 2013, 2018). This is its random choice component.<sup>2</sup>

- (1) María compró un regalo cualquiera.  
María buy.PFV a gift CUALQUIERA  
≈ ‘María bought a random gift.’ (Spanish)

Several other indefinites that can convey random choice modality have been identified across languages. These include Italian *uno qualsiasi* and *un qualunque* (Chierchia, 2013), Romanian *un oarecare* (Fălăuş, 2014, 2015), German *irgendein* (Kratzer and Shimoyama 2002; Buccola and Haida 2017), and the Korean *na* indeterminates (Choi, 2007; Kim and Kaufmann, 2007; Choi and Romero, 2008a).

<sup>1</sup>All data, unless otherwise attributed, come from original fieldwork conducted with speakers of the Nentón and San Mateo Ixtatán variants of Chuj. Data were collected in Huehuetenango, Guatemala and Chiapas, Mexico, and with a consultant in XXX (left out to preserve anonymity). We thank ...

<sup>2</sup>We will use the following abbreviations in glosses: A: “Set A” (ergative/possessive); AG: agentive suffix; B: “Set B” (absolute); CLF: noun classifier; CUALQUIERA: Spanish *cualquiera*; DEM: demonstrative; DIV: derived intransitive suffix; DTV: derived transitive status suffix; INDF: indefinite; IRGEND: German *irgend-*; KOMON: Chuj *komon*; IV: intransitive status suffix; N’IMPORTE: French *n’importe* WH series; PFV: perfective; TOP: topic. We use *random* and, later on, *unexpectedly* in the translations of sentences with *komon*. This is just a rough approximation. We are not assuming that *komon* and *random* or *unexpectedly* are equivalent.

In this paper, we will see that Chuj provides a vantage point for the study of questions (ii-iii) above with respect to random choice modality. This is so for three reasons. The first is that Chuj is similar enough to other previously studied languages to allow for a direct comparison, extending the small sample of random choice indefinites that have been studied. The language features DPs that can convey random choice modality. For instance, example (2), with the modifier *komon* within an indefinite DP, can convey (i) that Xun bought a book, and (ii) that he could have bought any book, in parallel to its Spanish counterpart in (1) above.

- (2) Ix-s-man [DP jun **komon** libro ] waj Xun.  
 PFV-A3-buy INDF KOMON book CLF Xun  
 ≈ ‘Xun bought a random book.’

The second reason is that Chuj is different enough from other languages for a comparison to have the potential to cast new light on the nature of random choice modality. As (3) illustrates, the modifier *komon* can also be part of the verbal complex:

- (3) Ix-s-**komon**-man-ej jun libro waj Xun.  
 PFV-A3-KOMON-buy-DTV INDF gift CLF Xun  
 ≈ ‘Xun randomly bought a book.’

When *komon* is VP internal, as in (3), it can also convey random choice modality. As we will see, the sentence in (3) could be used, like (2), to convey that the agent (*Xun*) was indifferent about which book to buy. This provides an opportunity to probe into the semantics of random choice modality and into the potential differences between DP and VP-level modality, thus contributing to answering question (iii) above.

Moreover, we will see that VP internal *komon* (‘VP-*komon*’) can also convey a modal component expressing the likelihood of an event. This becomes apparent in sentences without agents, such those with an unaccusative verbs like (4):

- (4) Ix-**komon**-k’och ix Malin.  
 PFV-KOMON-arrive CLF Malin  
 ≈ ‘Malin randomly/unexpectedly arrived.’

In (79), VP-*komon* signals that the event of Malin arriving was not expected. The contrast between cases like (4) and (3) poses two questions: a) How does the likelihood component of (4) relate to the expression of random choice modality in cases like (3), and b) How does it relate to the modal component of DP-internal

*komon* ('DP-*komon*')? Probing into these two questions will contribute to answering question (ii) above, and will ultimately shed light into question (i), too. This is the third reason why Chuj is well positioned to cast light on the expression of random choice modality. There is currently no consensus in the literature about what the precise nature of random choice modality (Alonso-Ovalle and Menéndez-Benito, 2018), and previous proposals offer little insight into why the expression of random choice and low likelihood should be lumped together with VP-*komon*. Chierchia (2013) suggests, mostly in passing, that Italian *uno qualsiasi* and German *irgendein* convey *bouletic* modality. Alonso-Ovalle and Menéndez-Benito (2018) propose that the modality that *un NP cualquiera* contributes is interpreted relative to the *decision* of the agent of the described event. Buccola and Haida (2017) put forth the claim that the interpretation of *irgendein* involves a simplicity-based comparison of alternative possible actions. Choi (2007) and Choi and Romero (2008b) propose, in the spirit of von Stechow 2000, that random choice modality is counterfactual modality. As we will discuss towards the end of the paper, none of these proposals extend in an obvious way to cases like (4).

The paper sets up to explore two particular puzzles about *komon*:

**Puzzle 1:** Why can VP-*komon* lump together the expression of random choice and low likelihood? What is the relation between these two notions?

**Puzzle 2:** How do the modal components of VP- and DP-*komon* relate to each other?

The main claims that the paper makes are the following. With respect to Puzzle 1, we will propose that VP-*komon* and DP-*komon* uniformly convey a likelihood component. Both expressions are analyzed as circumstantial modals. In line with recent research on modal auxiliaries (Hacquard, 2006, 2009), we will assume that these modals project their domain of quantification from a particular: the type of event described by the VP. In projecting their modal domain, the two types of *komon* take into consideration a set of circumstances that obtain around the preparatory stage of the event that the sentence that they are contained in describes, and they convey information about the extent to which this event was expected, given those circumstances. Both VP-*komon* and DP-*komon* compare the likelihood of the event described to a set of events that could have happened, given those circumstances. We will see that this modal component comes out as true in scenarios where an agent made a random choice, but also for all predicates that describe events that, given the circumstances, are not expected. With respect to Puzzle 2, we will propose that the modal component that *komon* expresses depends on its syntactic position: in the case of DP-*komon*, the set

of alternatives events that the expression invokes is crucially determined by accessing the extension of the NP.

The two puzzles that the paper explores do not exhaust those that *komon* poses. While showing differences with other random choice expressions, *komon* also shows some striking commonalities. Like its counterpart with Spanish *un NP cualquiera* (Alonso-Ovalle and Menéndez-Benito, 2018), the sentence in (2) can appropriately describe scenarios like (5), where the random choice component is false.

(5) *‘Unremarkable’ scenario*: Xun went to the bookstore. He wanted to buy *The Unbearable Lightness of Being*, and did so. I don’t think this book is special in any way.

In scenarios last (5), the sentence in (2) is true because it can convey that the book that Xun bought was an ordinary one, one that does not outrank other books in any respect. In this, DP-*komon* contrasts with VP-*komon*: the sentence in (3) is false in the scenario in (5).

The paper shows that the cases where DP-*komon* conveys the scalar meaning described above should be kept apart from the cases where it conveys a likelihood component. This poses the question of why the modal and scalar meanings go together across languages. We will not attempt to answer this question here. We will simply note that the association between the random choice and unremarkable components is not universal. The French *n’importe ‘wh’* DP series, for instance, convey random choice modality. The French counterpart of Spanish (1) and Chuj (2), in (6), is true in the random choice scenario (and false in scenarios where the agent did not make an indiscriminate choice), but cannot describe the ‘unremarkable’ scenario in (5).

(6) J’ai acheté **n’importe quel** livre.  
I.have bought N’IMPORTE which book  
≈ ‘I bought a random book.’ (French)

Understanding why the random choice and ‘unremarkable’ meanings are lumped together in some, but not all languages, requires a closer (re-)examination of the modal component of other random choice DPs, a project that we cannot embark on within the limits of this paper. We see our proposal to answer the two puzzles outlined above as a first step towards this project, which we choose to leave to further research.

The paper is organized as follows. Section 2 provides a description of the distribution and interpretation of *komon* in the verbal domain (‘VP-*komon*’), and a solution to Puzzle 1. As anticipated above, we will

see that *VP-komon* contributes information about the likelihood of the event described by the sentence that contains it and will point out that this meaning component is also satisfied in random choice scenarios. Section 3 will then focus on DP internal *komon* ('DP-*komon*') and address Puzzle 2. We will see that DP-*komon* can also convey a likelihood component, one that differs from that of *VP-komon* in that it hardwires a comparison between the likelihood of alternative events determined with respect to the individuals in the extension of the NP. Section 4 concludes by situating the modal component of *komon* in the landscape of other expressions that convey random choice.

## 2 *VP-komon*

We start by considering *VP-komon*. Section 2.1 discusses its distribution and interpretation. The section starts with some minimal background on the Chuj VP and the distribution of *VP-komon*. It turns next to its interpretation. We will see that *VP-komon* conveys information about the likelihood of the event that its sentence describes and that it is also used in scenarios where an agent made a random choice. This poses a first puzzle: Why can *VP-komon* lump together the expression of random choice modality and that of low likelihood? In section 2.2, we propose a unified semantics for *VP-komon*. We take *VP-komon* to be a low circumstantial modal, which hardwires a comparison of events with respect to a likelihood ranking, and show that the modal condition imposed by *komon* will not only be satisfied in scenarios where an event is perceived as unlikely, but also in scenarios where an agent makes an indiscriminate choice. Our description of the modal condition of *VP-komon* will set the stage for a comparison between *VP-komon* and *DP-komon*, the goal of Section 3.

### 2.1 Distribution and interpretation

Fully inflected verbs in Chuj exhibit the templates in (7-a) and (8-a) below, exemplified in (7-b) and (8-b), respectively.<sup>3</sup> The verbal root is preceded by tense/aspect/mood (TAM) morphemes and case morphology. In Mayanist literature, agreement morphemes are traditionally called 'Set A' and 'Set B', a convention we adopt in this paper. Set A (ergative) morphemes cross-reference transitive subjects (as well as possessors in the nominal domain) and Set B (absolutive) morphemes cross-reference intransitive subjects and transitive

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<sup>3</sup>For descriptive grammars of Chuj, see Hopkins 1967, Maxwell 1981, and García Pablo and Domingo Pascual 2007.

objects, revealing an ergative-absolutive alignment pattern.<sup>4</sup> Finally, a set of so-called ‘status suffixes’, which encode information about transitivity and aspect (Coon 2016, Aissen et al. 2017), appear last in the verb stem.

(7) a. *Intransitive verb template in Chuj*

TAM – Set B (ABS) – ADV – ROOT – SS

- b. Ix - onh - b’at - i.  
 PFV - B1P - go - SS.IV  
 ‘We went.’

(8) a. *Transitive verb template in Chuj*

TAM – Set B (ABS) – Set A (ERG) – ADV – ROOT – SS

- b. Ix - ach - w - il - a’.  
 PFV - B2S - A1S - see - SS.TV  
 ‘I saw you.’

A very limited class of adverbial modifiers can appear internal to the verb stem, immediately before the root in the position indicated by the boxes in (7-a) and (8-a). This includes adverbs such as *wach’* ‘more’ and *te’* ‘a lot/repeatedly’. Intransitive and transitive examples with *te’* are provided in (9) and (10) (see Vázquez Álvarez 2011 for similar stem-internal adverbs in the related Mayan language Ch’ol).

- (9) Ix-ach-**te’**-way-i.  
 PFV-B2S-INTS-sleep-IV  
 ‘You slept a lot.’

- (10) Ix-ko-**te’**-il-ej jun pelikula.  
 PFV-A1P-INTS-saw-DTV INDF movie  
 ‘We watched a movie a lot (repeatedly).’

The position left-adjacent to the root is also the position occupied by *komon*. This is shown with an intransitive and transitive verb in (11) and (12) below.<sup>5</sup>

- (11) Ix-ach-**komon**-k’och-i.  
 PFV-B2S-KOMON-arrive-IV  
 ≈ ‘You randomly arrived.’

- (12) Ix-ko-**komon**-man-ej jun libro.  
 PFV-A1P-KOMON-buy-DTV INDF book  
 ≈ ‘We randomly bought a book.’

Having provided some basic information on the Chuj verbal complex, we turn now to describing the

<sup>4</sup>Progressive aspect, which we will avoid in this paper, shows a split in the alignment pattern (see e.g. Buenrostro 2013 and Coon and Carolan 2017). As in other Mayan languages, there are no overt Set B markers for third person arguments.

<sup>5</sup>As seen in (10) and (12), the presence of an adverbial modifier within a transitive verb stem triggers a different status suffix than the one observed for the unmodified transitive verb stem in (8-b). The derived transitive status suffix *-ej*, glossed below as “SS.DTV”, appears with all transitive stems that derive from roots of other categories (e.g. nominal roots), or which have been modified by the addition of stem-internal adverbs (see e.g. Hopkins 1967).

intepretation of VP-*komon*. We have seen in the introduction that when VP-*komon* appears internal to the verbal complex in a transitive sentence, it can describe scenarios where the agent made a random choice. For instance, the sentence in (13) can be felicitously used to describe the scenario in (15), where Malin grabbed a book at random, much like its counterpart with DP-*komon* does in (14).

(13) Ix-s-**komon**-yam-ej jun regalo ix Malin.  
 PFV-A3-KOMON-grab-DTV INDF gift CLF Malin  
 ≈ ‘Malin randomly grabbed a gift.’

(14) Ix-s-yam [jun **komon** regalo] ix Malin.  
 PFV-A3-grab INDF KOMON regalo CLF Malin  
 ≈ ‘Malin grabbed a random gift.’

(15) *Random choice scenario.* Malin is at a gift exchange. She knows there’s a jackpot of \$1,000 and that the other gifts are cheap. There are four gifts left, one must be the jackpot. It’s Malin’s turn to choose. All of the gifts are wrapped the same, *so Malin just picks one at random.* It’s the jackpot!

At the same time, we saw that with non-agentive predicates, VP-*komon* conveys that the described event was not expected. Consider, for instance, (16), where *komon* combines with an unaccusative verb. This sentence can felicitously describe the scenario in (17-a), where Xun was not expected to arrive, but not the scenario in (17-b), where his arrival was expected.

(16) Ix-**komon**-k’och ix Malin.  
 PFV-KOMON-arrive CLF Malin  
 ≈ ‘Malin unexpectedly arrived.’

- (17) a. Malin lives far away and she didn’t tell us she’d visit, but she just arrived. ✓  
 b. Malin told me she’d come visit at 2:00pm. It’s 2:00pm and she just arrived. ✗

Other non-agentive predicates, such as verbs of perception, also naturally combine with *komon* to describe events that are not expected. For instance, consider the sentence in (18), which can felicitously describe the scenario in (19-a), but not the scenario in (19-b):

(18) Ix-s-**komon**-ab’-ej s-ya’il waj Kixtup.  
 PFV-A3-KOMON-feel-DTV A3-pain CLF Kixtup  
 ≈ ‘Kixtup unexpectedly felt pain.’

- (19) a. Kixtup never complains and very rarely feels pain. He's sitting calmly, when all of the sudden he feels a harsh pain. ✓  
 b. Kixtup is a daredevil. While trying to pull a stunt, he fell and hurt himself. ✗

We also find this interpretation with predicates overtly marked as statives through the (past) stative suffix *-nak*. To illustrate, the sentence in (20), which conveys that Xuwan was not expected to be asleep, can felicitously describe the scenario in (21-a), but not the one in (21-b).

- (20) **Komon** way-nak uch Xuwan.  
 KOMON sleep-STAT CLF Xuwan  
 ≈ 'Xuwan was unexpectedly asleep.'

- (21) a. 5 year-old Xuwan is usually very excited in the morning, but this morning she was asleep. ✓  
 b. 5 year-old Xuwan has been running around all day. ✗

In sum, with non-agentive predicates, the presence of *komon* in the verbal complex unambiguously adds to the denotation of the predicate the information that, given the set of circumstances surrounding the event described by the predicate, this event was not expected.

Though the random choice interpretation appears to be contingent on the presence of agents, as already pointed out in previous literature (e.g. Alonso-Ovalle and Menéndez-Benito 2018, Buccola and Haida 2017), the mere presence of an agent is not enough. When unergative verbs—which do feature agents—are modified with *komon*, the result is an interpretation similar to the ones described for the non-agentive predicates above: that the described event was not expected. An example is provided below. While the unergative sentence in (22) is compatible with the scenario in (23-a), where Xun was not expected to dance, it is not compatible with the scenario in (23-b), where Xun's dancing was expected.

- (22) Ix-**komon**-chanhal-w-i waj Xun.  
 PFV-KOMON-dance-SUF-IV CLF Xun  
 ≈ 'Xun unexpectedly danced.'

- (23) a. Xun is waiting for the bus with other people seriously. He starts dancing. ✓  
 b. Xun is at a venue where everyone is expected to perform the same dance, and so he dances it.  
 ✗

Though unergative sentences have agents, their agents do not act upon themes or patients, rendering a

random choice interpretation impossible. Therefore, we conclude that random choice interpretations can only arise if the event described by the predicate involves (i) an agent and (ii) a theme or patient.<sup>6</sup> This is the case with volitional transitive sentences like (13), repeated below, which we now return to.

- (24) Ix-s-**komon**-yam-ej jun regalo ix Malin.  
 PFV-A3-KOMON-grab-DTV INDF gift CLF Malin  
 ≈ ‘Malin randomly/unexpectedly grabbed a gift.’

As was the case with the other predicate types discussed above (those which are not volitional transitive predicates), the presence of *komon* in (24) can convey that the described event was not expected. For instance, (24) is judged felicitous in the scenario in (25), where the event of Malin grabbing a gift was not expected, because it was not her turn to choose. Notice that in this scenario, Malin did not grab a gift at random, since she wanted the blue gift.

- (25) *Unexpected event scenario.* Malin is at a gift exchange. She knows there’s a jackpot of \$1,000 and that the other gifts are cheap. There are four gifts left, one must be the jackpot. *It’s not Malin’s turn to choose*, when she notices that one of the gifts is wrapped in blue, while the other three in red. Even though it’s not her turn, she runs to the blue gift and unwraps it. It’s the jackpot! (13) = ✓

As we have seen in (15) above, repeated in (26), the sentence in (24) can also felicitously describe a scenario where Malin did grab a gift at random. In this scenario, also notice that her grabbing a gift was expected, because it was her turn to choose.

- (26) *Random choice scenario.* Malin is at a gift exchange. She knows there’s a jackpot of \$1,000 and that the other gifts are cheap. There are four gifts left, one must be the jackpot. It’s Malin’s turn to choose. All of the gifts are wrapped the same, *so Malin just picks one at random.* It’s the jackpot!  
 = ✓

In sum, it seems that while *komon* can uniformly convey that the event described was not expected (across all predicate types), it can only convey random choice interpretations with a specific type of predicate, volitional transitive predicates. We are thus left with the following question: Why is the expression of random choice lumped together with the expression of low likelihood?

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<sup>6</sup>The agent or theme could be implicit, as corroborated by the fact that random choice interpretations are retrievable in passive and antipassive constructions. For relevant data, see Royer and Alonso-Ovalle 2019.

The answer that we will provide is based on the following observations. In the unexpected event scenario in (25), the event of Malin grabbing a gift is *less* expected than any of the most expected events. Given the facts, the most expected events would not be events of grabbing a gift at all, but events where Malin waits for her turn. In the random choice scenario in (15), Malin was expected to grab a gift, but the grabbing of the actual gift that she grabbed was no more expected than the grabbing of any of the other gifts that she could have grabbed. We therefore propose that what unifies the felicity conditions on *VP-komon* is a modal component that conveys that, given the circumstances, the most expected worlds where the described event happens are no more expected than the most expected worlds where that event does not happen. As we will see, this meaning component is satisfied in the scenarios discussed above in connection with the sentences with intransitive verbs and statives, but also with volitional transitive verbs that describe random choice scenarios. The next subsection presents an analysis along these lines.

## 2.2 Analysis: *VP-komon* as a low circumstantial modal

We start by making some background assumptions. We will assume that transitive and unaccusative verbs express relations between individuals, events, and worlds, as in (27).

$$(27) \quad \text{a. } \llbracket \text{grab} \rrbracket = \lambda x. \lambda e. \lambda w. \text{GRAB}_w(x)(e) \qquad \text{b. } \llbracket \text{arrive} \rrbracket = \lambda x. \lambda e. \lambda w. \text{ARRIVE}_w(x)(e)$$

We further assume that agents get added via Event Identification (Kratzer, 1996) and that *vPs* express relations between eventualities and worlds:

$$(28) \quad \text{a. } \llbracket [\text{vP Xun grab that book}] \rrbracket = \lambda e. \lambda w. \text{GRAB}_w(\text{B})(e) \ \& \ \text{AGENT}(e)(\text{XUN}) \qquad \text{b. } \llbracket [\text{vP Xun sleep-STAT}] \rrbracket = \lambda s. \lambda w. \text{SLEEP}_w(s) \ \& \ \text{HOLDER}(s)(\text{XUN})$$

For convenience, we ignore the contribution of temporal and aspectual markers and assume external existential closure of properties of eventualities:

$$(29) \quad \text{a. } \llbracket [\exists_e [\text{vP Xun grab that book}]] \rrbracket = \lambda w. \exists_e [\text{GRAB}_w(\text{B})(e) \ \& \ \text{AGENT}(e)(\text{XUN})] \qquad \text{b. } \llbracket [\exists_s [\text{vP Xun sleep-STAT}]] \rrbracket = \lambda w. \exists_s [\text{SLEEP}_w(s) \ \& \ \text{HOLDER}(s)(\text{XUN})]$$

With these assumptions in place, we will treat *VP-komon* as a *vP* modifier that adds a modal condition to the event description that the *vP* denotes. This modal condition conveys that among the worlds that share the relevant circumstances with the actual world, the most expected ones where (a counterpart of) the described

event happens are no more expected than the most expected worlds where (a counterpart of) the described event does not happen.

The modal condition of VP-*komon* is given in symbols in (30):

$$(30) \quad \llbracket \text{komon}_{vP} f_{\text{circ}_{\langle i, st \rangle}} \rrbracket^v = \lambda R_{\langle i, st \rangle} . \lambda e . \lambda w . R_w(e) \& \underbrace{\left( \begin{array}{c} \text{Max}_{\leq_{g(w)}} (\{w' : \text{HAPPEN}_{w'}(e)\} \cap \mathbf{f}(e)) \\ \leq_{g(w)} \\ \text{Max}_{\leq_{g(w)}} (\{w' : \neg \text{HAPPEN}_{w'}(e)\} \cap \mathbf{f}(e)) \end{array} \right)}_{\text{modal condition}}$$

In (30), we assume a Lewisian ontology (Lewis, 1968), where individuals and events are world-bound:  $\text{HAPPEN}_{w'}(e)$  is true if a counterpart of  $e$  (an event maximally similar to  $e$ ) is part of  $w'$ .

In line with recent work on verbal modals, we also assume that *komon* projects the possibilities that its interpretation invokes from a particular. The possibilities that the modal component of VP-*komon* invokes are projected from the type of events described by the *vP* (Hacquard, 2006). We assume that *komon* takes a covert variable setting up its modal domain:  $f_{\text{circ}_{\langle i, st \rangle}}$  is a variable ranging over functions mapping events to sets of worlds, and  $\mathbf{f}$  is its value ( $v(f)$ , where  $v$  is the variable assignment). Like other low modals, VP-*komon* is a circumstantial modal.  $\mathbf{f}$  provides a certain type of *circumstantial* modal base: it projects from  $e$  the set of worlds  $w'$  where a set of circumstances (true facts) around the preparatory stage of  $e$  are true.

$\text{Max}_{\leq_{g(w)}}$  takes a set of worlds and returns those worlds within the set that are ranked at the top of an ordering ( $\leq_{g(w)}$ ) that ranks worlds with respect to how close they get to what is the most natural course of events in the world of evaluation  $w$  (we assume that there are always worlds ranked higher than any others).  $g$  is the *stereotypical ordering source* determining this ordering:  $g(w)$  is a set of propositions describing the most natural course of events in  $w$ . For any worlds  $w, w', w'', w' >_{g(w)} w''$  if and only if  $w'$  gets closer to what is expected given the normal course of events in  $w$  than  $w''$ . The ordering is defined with respect to  $g(w)$  in the standard way:  $w' \geq_{g(w)} w''$  just in case  $\{p : w' \in p \ \& \ p \in g(w)\}$  is a (possibly improper) superset of  $\{p : w'' \in p \ \& \ p \in g(w)\}$  (Kratzer, 1991). In an abuse of terminology, we write ' $p \geq_{g(w)} q$ ', where  $p, q$  are sets of possible worlds, to convey that any  $p$ -world is at least as close to what is expected given the normal course of events in  $w$  than any  $q$ -world.

To improve readability, we will abbreviate the modal condition in (30) as in (31):

$$(31) \quad \llbracket \text{komon}_{vP} f_{\text{circ}_{\langle i, st \rangle}} \rrbracket^v = \lambda R_{\langle i, st \rangle} . \lambda e . \lambda w . R_w(e) \ \& \ \neg \mathbf{f}\text{-EXPECTED}_w(e)$$

This modal condition covers the basic cases with intransitives and statives where *komon* conveys that the described event was not expected. To illustrate, consider (22) again, repeated below in (32), which as seen above can describe the scenario in (33).

(32) Ix-**komon**-chanhal-w-i waj Xun.  
 PFV-KOMON-dance-SUF-IV CLF Xun  
 ≈ ‘Xun unexpectedly danced.’

(33) Xun is waiting for the bus with other people seriously. He starts dancing. ✓

The sentence in (32) has the LF in (34-a), which is interpreted as in (34-b): the sentence is predicted to be true in a world  $w$  if and only if (i) there is an event  $e$  of Xun dancing in  $w$  and (ii) the most expected worlds in  $w$  where the relevant circumstances at the preparatory stage of  $e$  hold and  $e$  happens are no more expected than the most expected worlds where those circumstances hold and  $e$  does not happen.

Figure 1 represents the main properties of the world corresponding to the scenario in (33). In this case, **f** projects possibilities from Xun’s dancing event. There are two types of possibilities: those where that dancing does not happen (represented by the top box), and those where the dancing happens. The most expected worlds of the first type (represented by the shaded box within the top box) are worlds where Xun waits for the bus. The most expected worlds of the second type (represented by the shaded box within the bottom box) are of course worlds where Xun dances. The arrow indicates that the former type of world is more expected than the second. The modal component is true in the scenario in (33).

(34) a. LF:  $\exists_e$  [ *komon*  $f_{\text{circ}(i, st)}$  [ $_{VP}$  Xun danced]]  
 b.  $\llbracket (34\text{-a}) \rrbracket^v = \lambda w. \exists e [\text{DANCE}_w(e) \ \& \ \text{AGENT}(e)(\text{XUN}) \ \& \ \neg \mathbf{f}\text{-EXPECTED}_w(e)]$

We now turn to transitive sentences such as (13), repeated in (35), for which the modal condition should be satisfied in both the unexpected event scenario in (25) and the random choice scenario in (26).

(35) Ix-s-**komon**-yam-ej jun regalo ix Malin.  
 PFV-A3-KOMON-grab-DTV INDF gift CLF Malin  
 ≈ ‘Malin randomly/unexpectedly grabbed a gift.’

The sentence in (13) has the LF in (36-a), which is interpreted as in (36-b): (36-a) is predicted to be true in a world  $w$  if and only if (i) there is an event  $e$  in  $w$  such that there is a gift  $x$  and  $e$  is an event of Malin grabbing  $x$ , and (ii) given the relevant circumstances around the preparatory stage of  $e$ , the most expected worlds in  $w$

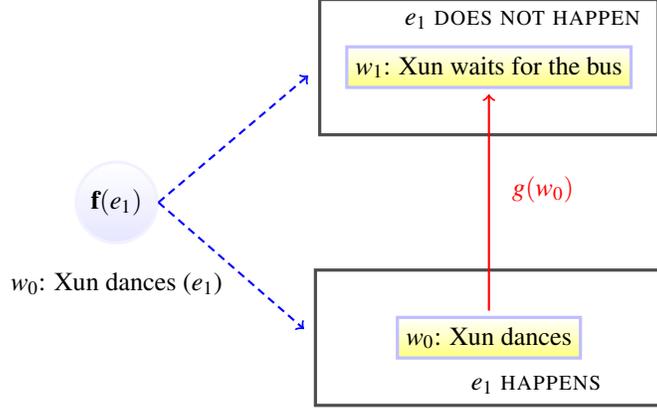


Figure 1: Context: *Xun komon-danced*

where  $e$  happens are no more expected than the most expected worlds in  $w$  where  $e$  does not happen.

- (36) a. LF:  $\exists_e [a \text{ gift}]_{\langle e, \langle i, st \rangle \rangle} \lambda 1 [\text{komon } f_{\text{circ}(i, st)} [\text{Malin grabbed } t_1]]$   
 b.  $\llbracket (36\text{-a}) \rrbracket^v = \lambda w. \exists e \exists x \left[ \begin{array}{l} \text{GIFT}_w(x) \ \& \ \text{AGENT}(e)(M) \ \& \ \text{GRAB}_w(e)(x) \\ \& \ \neg \mathbf{f}\text{-EXPECTED}_w(e) \end{array} \right]$

The modal condition in (36-b) is satisfied in the unexpected event scenario in (25). Figure 2 represents the main properties of the type of world represented by the unexpected event scenario.

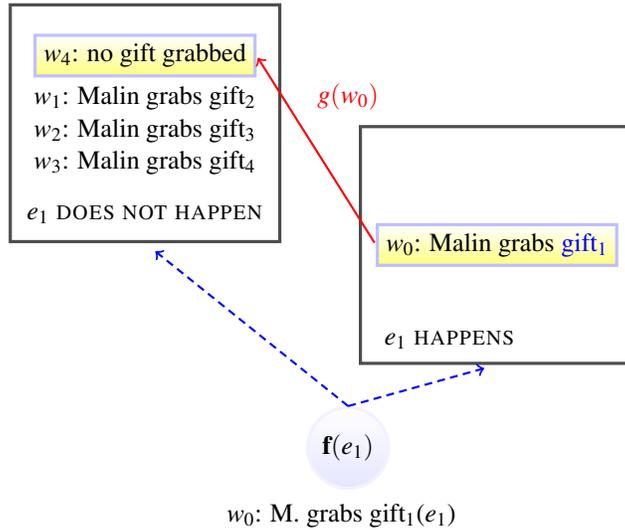


Figure 2: Unexpected event scenario : *Malin komon-grabbed a gift*

In this scenario, the modal base ( $\mathbf{f}(e_1)$ ) contains worlds where it was not Malin's turn to choose. The most expected worlds where Malin does not grab the gift that she grabbed (which we will call 'gift<sub>1</sub>') are

worlds where no gift is grabbed at all, since it is not her turn to choose. Crucially, those worlds are more expected than the most expected worlds where Malin grabs gift<sub>1</sub>.

The modal condition is also true in the random choice scenario in (26). There, the modal base picks up worlds where it was Malin’s turn to choose. As represented in Figure 3, this time the most expected worlds where Malin does not grab the gift that she actually grabbed (‘gift<sub>1</sub>’) and the relevant circumstances obtain are worlds where Malin grabs a different gift, given that she was expected to grab a gift (it was her turn to choose a gift). In the scenario, those worlds are as likely to occur as worlds where Malin grabs the gift that she actually grabbed.

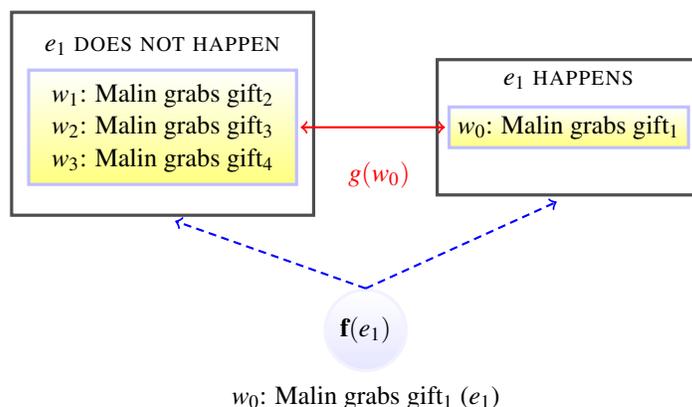


Figure 3: Random choice (right) scenarios : *Malin komon-grabbed a gift*

Let us now consider the scenario in (37), where the modal condition of VP-*komon* is not satisfied (we call this scenario the “*unremarkable scenario*” for reasons that will be made clear in section 3):

(37) *Unremarkable scenario.* Malin is at a gift exchange. She knows there’s a jackpot of \$1,000 and that the other gifts are cheap. There are four gifts left, one must be the jackpot. It’s Malin’s turn to choose, when she notices that one gift is wrapped in blue, while the other three in red. Malin grabs the blue gift. *It’s a cheap gift!*

The target sentence in (13) is correctly predicted to be false in this scenario, since, given the circumstances (Malin wants to grab the jackpot and it is her turn), grabbing the gift wrapped in blue is more expected than not grabbing the gift in blue, as shown in Figure 4.

To summarize: We treat VP-*komon* as a (syntactically) low circumstantial modal that adds to the denotation of the *vP* a modal condition. This modal condition, which hardwires a comparison of events with respect to a likelihood ranking, is predicted to come out as true in both in the unexpected and random choice

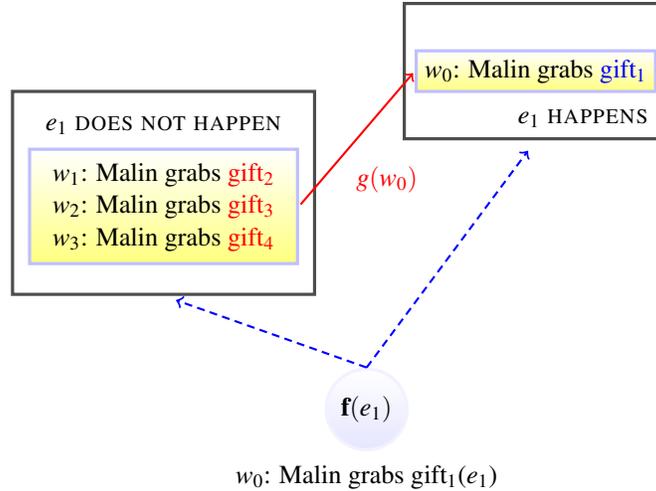


Figure 4: Unremarkable scenario: *Malin komon-grabbed a gift*

scenarios.

With the previous background on the interpretation of *VP-komon*, we will move now to consider the interpretation of *komon* in the nominal domain. Our goal is to provide an answer to the question of how the modal components of *VP-* and *DP-komon* relate to each other—the second puzzle that we set up to explore.

### 3 How does *DP-komon* differ from *VP-komon*?

In this section, we will see that *DP-komon* can convey a modal component, and that, when it does, this modal component also conveys information about the likelihood of the event described, like the modal component of *VP-komon* does. This sets the stage to investigate the extent to which the modal component of *VP-komon* differs from that of *DP-komon*.

The section is organized as follows. We will start with some minimal background on the interpretation of *DP-komon* by providing some minimal background on the structure of DPs in Chuj. We then show that *DP-komon* can have a non-modal and a modal meaning, and that its modal meaning can only be expressed when no material intervenes between the determiner and *komon*. This will lead us to hypothesize that when nominal *komon* expresses a non-modal meaning, it is an NP modifier, and when it expresses a modal meaning, it modifies a determiner to form a complex determiner—along the lines of (some of) the nonlocal modifiers discussed in Larson 1999, Zimmermann 2003, and Morzycki 2016. We will then show that the modal component of *DP-komon* minimally differs from that of *VP-komon* in requiring that the comparison

between the likelihood of alternative events be determined with respect to the individuals in the extension of the NP.

### 3.1 Two interpretations of nominal *komon*.

We start with a minimal discussion of the DP internal distribution of *komon*. Chuj exhibits no case morphology on nominals. Noun classifiers are used as definite determiners and *jun* is used as the singular indefinite determiner (Buenrostro et al. 1989, García Pablo and Domingo Pascual 2007, Royer 2019). An example is provided in (38).

- (38) Ix-y-il [ **jun** tz'i' ] [ **winh** winak ].  
 PFV-A3-see INDF dog CLF man  
 ‘The man saw a dog.’

At the end of this section, we will discuss the use of DP-*komon* in combination with the universal quantifier *junjun* ‘every/each’. Strong quantifiers in Chuj, such as *junjun*, generally require fronting to a preverbal position. An example is provided below:

- (39) [ **Junjun** tz'i' ] ix-y-il  $t_i$  winh winak.  
 ∇ dog PFV-A3-see CLF man  
 ‘The man saw every dog.’

Given the absence of previous work on nominal quantification in Chuj, and more generally the limited work on quantification across Mayan (Henderson 2016), we will only present examples of the co-occurrence of *komon* with *junjun*, and leave for future work its co-occurrence with other types of quantifiers.

A limited set of adjectives appear immediately before nominals, including color terms or adjectives referring to sizes (Maxwell 1976; Coon 2018). This is also the position occupied by DP internal *komon*, as illustrated below:

- (40) Ix-s-man [DP jun **saksak** / **niwan** / **komon** libro ] ix Malin.  
 PFV-A1S-buy INDF white big KOMON book CLF Malin  
 ‘Malin bought a white/big/random book.’

When *komon* co-occurs with another prenominal adjective, it can appear on either side of that adjective, always preceding the noun:

- (41) Ix-s-man [DP jun {**komon**} saksak {**komon**} libro ] ix.  
 PFV-A3-buy INDF KOMON white KOMON book CLF  
 ≈ ‘She bought a {random} white {random} book.’

Hopkins (2012) suggests that *komon* grammaticalized from Spanish *común* (‘common/average’). In fact, when *komon* appears in predicative position with no overt determiner, it conveys that the argument of the NP does not stand out compared to other individuals in the NP extension, as the paraphrase in (42) indicates.

- (42) [ **Komon** estudyante ] waj Xun.  
 KOMON student CLF Xun  
 ≈ ‘Xun is an average/unexceptional student.’

This ‘unremarkable’ interpretation of NP-*komon* is also present with full DPs in object position. Example (43), for instance, can describe the unremarkable scenario in (37), repeated in (44) :

- (43) Ix-s-yam [DP jun **komon** regalo ] ix Malin.  
 PFV-A3-grab INDF KOMON gift CLF Malin  
 ≈ ‘Malin grabbed a random/average/unremarkable gift.’

- (44) *Unremarkable scenario*: Malin is at a gift exchange. She knows there’s a jackpot of \$1,000 and that the other gifts are cheap. There are four gifts left, one must be the jackpot. It’s Malin’s turn to choose, when she notices that one gift is wrapped in blue, while the other three in red. Malin grabs the blue gift. *It’s a cheap gift!*

We will assume that, in cases like this, *komon* is a non-modal NP modifier that conveys information about where its argument stands in a contextually determined ranking of equivalence classes of individuals in the extension of the NP. This ‘NP-*komon*’ conveys that the argument of the NP is ranked around the middle of the contextually relevant scale, and that most individuals in the extension of the NP are in the same equivalence class than the argument of the NP. For instance, the sentence in (42) is naturally interpreted with respect to a ranking of equivalence classes of students that groups together all students that are as good students as others, as determined, for instance, by how good their grades are. *Komon* conveys that the equivalence class that Xun belongs to is at the middle of the ranking, and that it contains most students.

The ranking of sets of individuals that *komon* invokes can vary. For instance, in (45), the ranking seems to be grouping students with respect to the social status of their parents.

- (45) Man **komon** estudyante-ok laj waj Xun, y-unin winh waj Justin Trudeau.  
 NEG KOMON student-IRR NEG CLF Xun, A3-child CLF CLF Justin Trudeau  
 ‘Xun is not just any student, he’s Justin Trudeau’s son.’

In line with these observations, we note that NP-*komon* is deviant with nouns that describe entities that are hard to rank with respect to each other, or with singleton nouns, whose extension do not allow for non-trivial rankings, as shown in (46) and (47).

- (46) ? **Komon** tumin jun k’en tik.  
 KOMON money one CLF DEM  
 ?‘This is average money.’

- (47) # Ix-w-il k’en **komon** uj.  
 PFV-A1S-see CLF KOMON moon  
 #‘I looked at the average moon.’

If NP-*komon* must rank individuals in the extension of the NP with respect to other individuals, than the oddity of the sentences in (47) is expected: it is difficult to imagine how instances of money could be ranked, and since there is only one moon (on Earth), it cannot be ranked with respect to other moons.

Nominal *komon* does not only convey an ‘unremarkable’ interpretation, though. While *komon* can convey an unremarkable interpretation in the first sentence in (48), the second sentence, which can naturally follow the first, blocks this interpretation. With the continuation in (48), we see that DP-*komon* can contribute, like VP-*komon*, a likelihood component conveying that the event described—the appearance of the deer—was not expected.

- (48) Ix-jaw [jun **komon** sakchej]. Te’ niwan nok’, te’-ay y-ib’ nok’.  
 PFV-come INDF KOMON deer INTS big CLF INTS-EXT A3-strength CLF.  
 ≈ ‘A deer unexpectedly appeared. It (the deer) was very big and strong.’

In object position, we can also see that DP-*komon* can convey more than the ‘unremarkable’ interpretation. The volitional transitive sentence in (43), repeated in (49), where *komon* appears in the object of a transitive verb, is perceived as ambiguous in the random choice scenario provided in (26), repeated below. It can be taken to be false, under its unremarkable interpretation, since Malin grabbed an outstanding gift; but also true, under its random choice interpretation, because Malin grabbed a gift at random. This shows that a second interpretation, related to VP-*komon* and appropriate in scenario (26), repeated in (50), is available.

(49) Ix-s-yam [DP jun **komon** regalo ] ix Malin.  
 PFV-A3-grab INDF KOMON gift CLF Malin  
 ≈ ‘Malin grabbed a random gift.’

(50) *Random choice scenario*: Malin is at a gift exchange. She knows there’s a jackpot of \$1,000 and that the other gifts are cheap. There are four gifts left, one must be the jackpot. It’s Malin’s turn to choose. All of the gifts are wrapped the same, so Malin just picks one at random. It’s the jackpot!

Given these facts, we assume that there are two possible contributions of *komon* in the nominal domain. First, *komon* can contribute a non-modal ‘unremarkable’ interpretation, where it requires accessing a set of individuals (the NP extension). Second, like VP-*komon*, it can convey that the event described is not likely; this contribution requires accessing the denotation of the *vP*, an argument of the DP.

We will assume that these different contributions of *komon* in the nominal domain result from an ambiguity, and propose in the next section that *komon* can be either an NP modifier or a D modifier.

A piece of evidence in favour of this ambiguity comes from the following observation: when conveying random choice, *komon* does not tolerate any material intervening between the D and *komon*.<sup>7</sup> For instance, the sentence in (51) is felicitous in the unremarkable scenario (44), but not in the random choice scenario in (50). On the other hand, if *komon* were to appear immediately after the indefinite determiner and before the adjective in (51), the sentence could describe both the unremarkable and random choice scenarios.

(51) Ix-s-yam [DP jun k’ank’an **komon** regalo ] waj Xun.  
 PFV-A3-grab INDF yellow KOMON gift CLF Xun  
 ≈ ‘Xun grabbed a yellow average gift.’

Our interest in this paper is to explore how the likelihood component of DP-*komon* relates to that of VP-*komon*, a question which we will turn next to in the following section. Because of our goal, we will focus on the use of nominal *komon* as a D-modifier (DP-*komon*), and leave the discussion of the NP-modifier (NP-*komon*) for future work, only sketching a possible starting point in the appendix.

### 3.2 Unifying DP-*komon* and VP-*komon*?

We focus now on the second puzzle that we set up to explore:

**Puzzle 2:** How do the modal components of VP- and DP-*komon* relate to each other?

<sup>7</sup>Similar cases of “adjective intervention” are reported for other known cases of nonlocal readings of adjectives, see e.g. Stump 1981, Larson 1999, Zimmermann 2003, Morzycki 2016.

A possible answer to the question that Puzzle 2 poses is that VP- and DP-*komon* convey the same meaning component. Since the denotation of DPs relate that of NPs and *vPs*, we could conceive of DP-*komon* as simply ‘pluggin in’ the semantics of VP-*komon* onto the *vP* argument of the DP, as illustrated in (52) for a case where the DP is headed by the indefinite determiner *jun*.

$$(52) \quad \llbracket \text{jun} [ \text{komon } \mathbf{f}_{\text{circ}\langle i, st \rangle} ] \rrbracket = \\ \lambda P_{\langle e, st \rangle} . \lambda R_{\langle e, \langle i, st \rangle \rangle} . \lambda e . \lambda w . \exists x [ P_w(x) \ \& \ \llbracket \text{komon}_{vP} \rrbracket (\mathbf{f}_{\text{circ}\langle i, st \rangle}) (R(x)) ] (e)(w)$$

In (52), *komon* combines, as we hypothesized for VP-*komon*, with a function projecting a set of possible worlds from an event. The result of combining *komon* with a determiner is essentially a complex determiner that modifies the relation expressed by the VP by adding to it the modal component of VP-*komon*. Under this view, VP-*komon* and DP-*komon* are essentially the same. VP-*komon* is a VP-modifier, and DP-*komon* contains one. We essentially find VP-*komon* in two positions: within the verbal complex, where it can directly modify the relation expressed by the VP; and at the DP level, where it can also modify the relation expressed by the DP, since DPs express a relation between the denotation of NPs and VPs.

This analysis has some advantages. First, it predicts the right interpretation for DP-*komon* in subject position, as in (48) or (53) below. The LF of (53), in (54-a), is predicted to be true in the world of evaluation *w* if and only if there is an event *e* and a deer *x* in *w* such that *e* is an appearing of *x* and, given the circumstances around the preparatory stages of *e*, the most expected worlds where *e* happens are no more expected than the most expected worlds where *e* does not happen. The sentence is predicted to be true in worlds where the appearance of the deer was not expected to happen.

$$(53) \quad \text{Ix-jaw} \quad [ \text{jun } \mathbf{komon} \text{ sakchej} ]. \\ \text{PFV-come} \quad \text{INDF KOMON deer} \\ \approx \text{‘A deer unexpectedly appeared.’}$$

$$(54) \quad \text{a.} \quad \text{LF: } \exists_e \text{ a komon (f) deer } \lambda 1 [ t_1 \text{ appeared} ] \\ \text{b.} \quad \llbracket (54\text{-a}) \rrbracket = \lambda w . \exists e \exists x [ \text{DEER}_w(x) \ \& \ \text{APPEAR}_w(x)(e) \ \& \ \neg \mathbf{f}\text{-EXPECTED}_w(e) ]$$

Second, under this analysis, (49), repeated in (55), with DP-*komon* in object position, also comes out true in the random choice scenario. The sentence has the LF in (56-a), which is predicted to be true in a world *w* if and only if there is an event *e* and a gift *x* in *w* such that *e* is an event of Malin grabbing *x* and, given the circumstances around the preparatory stage of *e*, the most expected worlds where *e* happens are

no more expected than the most expected worlds where  $e$  does not happen. As we saw before, these truth-conditions are satisfied in the random choice scenario, where the most expected worlds where the event does not happen are still worlds where a gift is grabbed.

(55) Ix-s-yam [DP jun **komon** regalo ] ix Malin.  
 PFV-A3-grab INDF KOMON gift CLF Malin  
 ≈ ‘Malin grabbed a random gift.’

(56) a. LF:  $\exists_e$  a komon gift  $\lambda 1$  Malin grabbed  $t_1$   
 b.  $\llbracket (56\text{-a}) \rrbracket = \lambda w. \exists e \exists x \left[ \begin{array}{l} \text{GIFT}_w(x) \ \& \ \text{AGENT}(e)(M) \ \& \ \text{GRAB}_w(e)(x) \\ \& \ \text{-f-EXPECTED}_w(e) \end{array} \right]$

Third, the current analysis also leads us to expect the requirement on the adjacency between *komon* and determiners when DP-*komon* expresses a modal component (see (51) above).

While these results are promising, the current analysis overgenerates. Under the current proposal, we expect sentences containing DP-*komon* to be true, in the unexpected event scenario in (25), repeated in (57), where sentences containing VP-*komon* are true.

(57) *Unexpected event scenario.* Malin is at a gift exchange. She knows there’s a jackpot of \$1,000 and that the other gifts are cheap. There are four gifts left, one must be the jackpot. *It’s not Malin’s turn to choose*, when she notices that one of the gifts is wrapped in blue, while the other three in red. Even though it’s not her turn, she runs to the blue gift and unwraps it. It’s the jackpot!

This prediction is not borne out: the sentence in (55) is judged *false* in (57). DP-*komon* seems to be blind to the fact that the actual grabbing—the fact that Malin grabbed a gift in the first place—was not expected. Rather, it requires that the actual grabbing be no more expected than the potential grabbings of *any of the other gifts*. This is not the case in the unexpected event scenario.

At the same time, the current analysis fails to predict that the likelihood component of DP-*komon* is also not available when the DP is headed by certain types of determiners, including definite determiners and universal quantifiers. In such cases, only the unremarkable interpretation is perceived. For instance, consider the example in (58), where *komon* is used within a DP that is headed by a noun classifier, which recall are used as definite determiners in Chuj. This sentence can only be felicitously uttered if it describes a scenario where the theme that the agent acts upon is unremarkable (59-b), but not one in which the speaker

made a random choice (59-a).<sup>8</sup>

(58) Ix-s-sikl-ej [DP winh **komon** estudyante ] waj Xun.  
 PFV-A3-choose-DTV CLF(=DEF) KOMON student CLF Xun  
 ≈ ‘Xun chose the unremarkable student.’

- (59) a. Only two candidates made it to the final stages of a contest to receive funding. One is a prolific artist, while the other is a prolific student. Since both of them are equally prolific, Xun, who is in charge of choosing the winner, decides to choose the winner at random by drawing one of their names out of a hat. He picks the student. ✗
- b. Only two students applied for an award. While one of the two students is prolific, the other is just an ordinary student with ordinary grades. Xun is the corrupt person who decides which student gets the award. The ordinary student happens to be in his family. He chooses that ordinary student as the recipient of the award. ✓

The random choice interpretation is also impossible when the DP is headed by a universal quantifier, as illustrated in the example (60), felicitous in the unremarkable scenario in (61-b), but not in the random choice scenario in (61-a).

(60) [ Junjun **komon** libro ] ix-in-man-a’.  
 ∇ KOMON book PFV-A1S-buy-TV  
 ≈ ‘I bought every average book.’

- (61) a. The speaker went to a bookstore, and bought a bunch of books at random. Each and one of them turned out to be very special books for her. ✗
- b. The speaker is doing an art project, and she will have to recycle books. To avoid using good books, she goes to a second hand bookstore and buys all of what she judges are the uninteresting, ordinary books. ✓

These examples show that the indefinite determiner plays an important role in deriving the modal component of DP-*komon*. It would be good to understand why.

We will thus abandon the current hypothesis and endorse a different analysis for DP-*komon*.

<sup>8</sup>Our informant notes that the counterpart of (58) with VP-*komon* in (i) below could be used to describe this scenario.

(i) Ix-s-komon-sikl-ej winh estudyante waj Xun  
 PFV-A3-KOMON-choose-DTV CLF(=DEF) student CLF Xun  
 ‘Xun unexpectedly/randomly chose the student.’

### 3.3 DP-komon: event comparison based on the NP

Given the adjacency requirement discussed above, we will still assume that *komon* combines with a D to essentially derive a complex determiner. We will also retain the assumption that DP-*komon* conveys information about the likelihood of the event described. We will nevertheless take the modal component of DP-*komon* to differ with respect to the modal component of VP-*komon*. Rather than comparing a particular event with the most expected worlds where this event does not happen (as VP-*komon* does), we propose that DP-*komon* hardwires a comparison of events that only differ with respect to the event participant that the DP ranges over.

In (62), DP-*komon* takes as its first argument a covert variable ranging over functions from events to sets of worlds, just as it did before. As was the case with VP-*komon*, this function will also set up the modal domain. Then DP-*komon* combines, also as it did before, with a D and an NP to yield a DP denotation (a function from a relation  $R$  between individuals, events, and worlds to a relation between events and worlds). Under our analysis, DP-*komon* essentially creates a complex determiner, along the lines of (some of) the nonlocal modifiers discussed in Larson 1999, Zimmermann 2003, Schwarz 2006 and Morzycki 2016. The resulting DP denotation does two things: first, it conveys what the DP without *komon* would have conveyed; this meaning component is marked as ① in (62). On top of that, a modal condition is added; it looks at all individuals in the NP extension that are not related to the described event  $e$  by  $R$  in the world of evaluation (②), and compares the likelihood of the event  $e$  with the likelihood of other events  $e'$  of the same type involving those individuals (③). The whole condition conveys that the most expected worlds where  $e$  happens are no more expected than the most expected worlds where those alternative events  $e'$  happen.

$$(62) \quad \llbracket [\text{DP} [\text{D } D \text{ [komon } f_{\text{circ}(i, st)}]] \text{ NP}] \rrbracket^v = \lambda R_{\langle e, \langle i, st \rangle \rangle} . \lambda e . \lambda w .$$

$$\textcircled{1} \llbracket [\text{D}] (\llbracket \text{NP} \rrbracket) (R) \rrbracket (e)(w) \ \& \ \forall x \left[ \begin{array}{l} \textcircled{2} \llbracket \llbracket \text{NP} \rrbracket \rrbracket (w)(x) \ \& \ x \notin \{y : R_w(y)(e)\} \\ \rightarrow \\ \textcircled{3} \left( \begin{array}{l} \text{Max}_{\leq g(w)} (\{w' : \text{HAPPEN}_{w'}(e)\} \cap \mathbf{f}(e)) \\ \leq_{g(w)} \\ \text{Max}_{\leq g(w)} (\{w' : \exists e' [R_{w'}(x)(e')]\} \cap \mathbf{f}(e)) \end{array} \right) \end{array} \right]$$

modal condition

Let us illustrate what these truth-conditions predict for the use of DP-*komon* in our familiar volitional transitive sentence, repeated in (63), for the random choice scenario, repeated in (64).

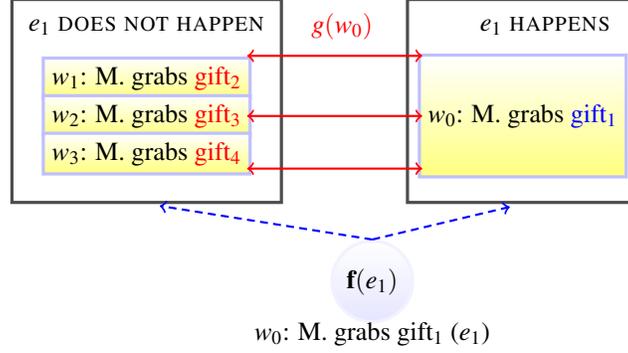


Figure 5: Random choice scenario : *Malin grabbed a komon gift*

(63) Ix-s-yam [DP jun **komon** regalo ] ix Malin.  
 PFV-A3-grab INDF KOMON gift CLF Malin  
 ≈ ‘Malin grabbed a random gift.’

(64) *Random choice scenario.* Malin is at a gift exchange. She knows there’s a jackpot of \$1,000 and that the other gifts are cheap. There are four gifts left, one must be the jackpot. It’s Malin’s turn to choose. All of the gifts are wrapped the same, so Malin just picks one at random. It’s the jackpot!

The interpretation of the LF for (63), in (65-a), is in (65-b): the sentence is predicted to be true in a world  $w$  if and only if (i) there is an event  $e$  such that  $e$  is a grabbing of a gift by Malin, and (ii) for every gift  $x$  in  $w$  that Malin did not grab, it holds that the most expected worlds in  $w$  where  $e$  happens (and the relevant circumstances obtain) are no more expected than the most expected worlds in  $w$  where Malin grabs  $x$ .

(65) a. LF:  $\exists_e [[\text{jun komon}_{\text{DP}} f] \text{gift}] \lambda 1$  Malin grabbed  $t_1$

b.  $[[ (65) ]] = \lambda w. \exists e$

$$\forall y \left[ \begin{array}{c} \exists x [\text{GIFT}_w(x) \ \& \ \text{GRAB}_w(e)(x) \ \& \ \text{AG}(M)(e)] \\ \& \\ [\text{GIFT}_w(y) \ \& \ y \notin \{z : \text{GRAB}_w(z)(e) \ \& \ \text{AG}(M)(e)\}] \\ \rightarrow \\ \left( \begin{array}{c} \text{Max}_{\leq g(w)} (\{w' : \text{HAPPEN}_{w'}(e)\} \cap \mathbf{f}(e)) \\ \leq_{g(w)} \\ \text{Max}_{\leq g(w)} (\{w' : \exists e' [\text{GRAB}_{w'}(y)(e')\}] \cap \mathbf{f}(e)) \end{array} \right) \end{array} \right]$$

modal condition

In the random choice scenario in (64), this modal condition is true. As illustrated in Figure 5 at the top of this page, none of the most expected worlds where Malin grabs an alternative gift are more expected than

the most expected worlds where Malin grabs the gift that she actually grabbed. Because all the gifts are wrapped the same, Malin is as likely to grab the gift that she grabbed as any of the other gifts. Since Malin grabbed a gift in that scenario, the sentence is correctly predicted to be true.

The sentence in (63) is now correctly taken to be false in the unexpected event scenario, since, in this scenario, the grabbing of the blue gift was in fact more expected than any of the potential alternative grabbings, as represented in the diagram in Figure 6.<sup>9</sup>

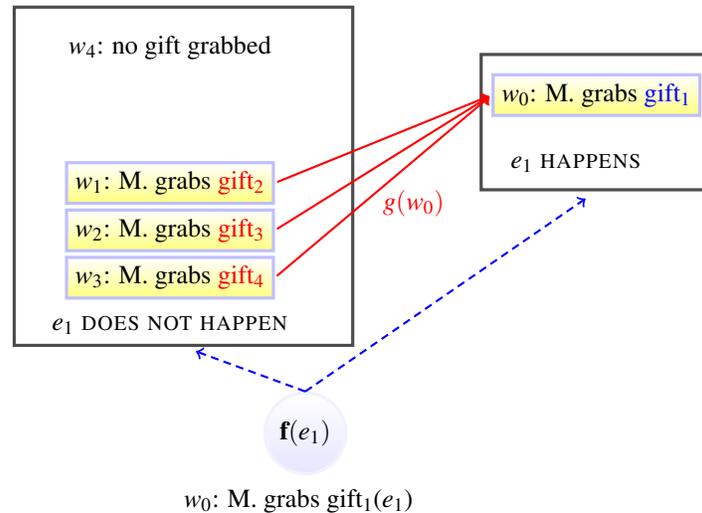


Figure 6: Unexpected scenarios : *Malin grabbed a komon gift*

The predicted truth conditions are thus confirmed.

Finally, we point out two correct predictions of the analysis. First, under the current analysis of DP-*komon*, *komon* combines directly with a determiner. Therefore, the adjacency requirement for DP-*komon* described above follows. In the sentence in (51), repeated below, an adjective intervenes between the determiner and *komon*. This means that *komon* can only be an NP modifier, exclusively contributing the ‘unremarkable’ reading.

- (66) Ix-s-yam [DP jun k’ank’an **komon** regalo ] waj Xun.  
 PFV-A3-grab INDF yellow KOMON gift CLF Xun  
 ≈ ‘Xun grabbed a yellow average gift.’

Second, the current analysis gives us a possible way to account for the determiner restriction imposed on the likelihood interpretation of DP-*komon*. Consider as illustration the sentence in (58), repeated below

<sup>9</sup>Notice that because it was not Malin’s turn to grab a gift, the events that we are comparing are still less expected than any event of Malin not grabbing a gift.

in (67):

- (67) Ix-s-sikl-ej [DP winh **komon** estudyante ] waj Xun.  
 PFV-A3-choose-DTV CLF(=DEF) KOMON student CLF Xun  
 ≈ ‘Xun chose the unremarkable student.’

In the sentence in (58), *komon* combines with a noun classifier, used as a definite determiner (Buenrostro et al., 1989; Royer, 2019). The classifier triggers a uniqueness presupposition, conveying that there is only one student. Let us assume that this uniqueness presupposition is true in the world of evaluation and call that unique student  $s_1$ . The sentence asserts that the agent, Xun, grabbed  $s_1$ . On top of that, it conveys the modal condition in (68). This modal condition makes a claim about any students that were not actually chosen. For any such student, the modal condition conveys that it has to be the case that its choosing is as expected or more expected than the choosing of  $s_1$ . Given the uniqueness presupposition, there is only one entity that can satisfy the first conjunct in the antecedent of the conditional in (68), namely  $s_1$ . Since the speaker chose  $s_1$ , the second conjunct in the antecedent of the conditional will fail to be true, and, so, the whole antecedent will be false. This means that the modal condition will hold vacuously, and *komon* will therefore contribute nothing more than what the DP without *komon* would have contributed.

$$(68) \quad \forall y \left[ \begin{array}{c} \boxed{[\text{STUDENT}_w(y) \ \& \ y \notin \{z : \text{CHOOSE}_w(z)(e) \ \& \ \text{AG}(\text{XUN})(e)\}]} \\ \rightarrow \\ \left( \begin{array}{c} \text{Max}_{\leq g(w)}(\{w' : \text{HAPPEN}_{w'}(e)\} \cap \mathbf{f}(e)) \\ \leq g(w) \\ \text{Max}_{\leq g(w)}(\{w' : \exists e'[\text{CHOOSE}_{w'}(y)(e')]\} \cap \mathbf{f}(e)) \end{array} \right) \end{array} \right]$$

To the extent that adding vacuous material can result in deviancy, we explain why DP-*komon* is deviant in (67). There is, however, the possibility of having NP-*komon*, contributing the non-modal meaning component. This will explain why only the unremarkable interpretation is perceived in (67).

The same line of explanation can be extended to cases where *komon* co-occurs with a universal quantifier, as in (69), repeated from (60) above.

- (69) [ Junjun **komon** libro ] ix-in-man-a'.  
 ∇ KOMON book PFV-A1S-buy-TV  
 ≈ ‘I bought every average book.’

In this case, the non-modal component in the predicted truth-conditions will convey that the speaker grabbed

all books. For an entity to satisfy the antecedent of the conditional in the modal condition, it will have to be a book that was not bought by the speaker. There is then no entity that satisfies the antecedent of the conditional in the modal condition, and as was the case with the example with the definite determiner in (67), the modal condition is trivially satisfied. The appearance of *komon* in a DP headed by a universal quantifier contributes nothing beyond what the DP without *komon* would have contributed.

In sum, our proposal of the modal component expressed by DP-*komon* naturally captures the absence of random choice interpretations when *komon* appears in DPs headed by certain types of determiners, namely definite determiners and the universal quantifier *junjun*. Since there is no work on nominal quantification in Chuj, and given the very limited amount of work on quantification across Mayan languages (Henderson 2016), we leave it to future work to establish the full range of quantifiers compatible, and incompatible, with random choice interpretations of nominal *komon*.

We will conclude, nevertheless, by providing some preliminary evidence for the analysis above based on the behavior of a type of DP that we have not discussed above.

In Chuj, DPs containing a noun classifier or the indefinite *jun* can combine with *tik*, traditionally described as a demonstrative element, as in the examples below:

- |   |   |
|---|---|
| <p>(70) Yam [ <i>ch'anh</i> libro <b>tik</b> ].<br/>         grab CLF book DEM<br/>         'Grab this book.'</p> | <p>(71) Yam [ <i>jun</i> libro <b>tik</b> ].<br/>         grab one libro DEM<br/>         'Grab this (one) book.'</p> |
|---|---|

We will not provide an analysis of *tik* here. We simply note that *tik*-DPs containing a noun classifier behave like definite DPs in that they trigger a uniqueness presupposition and that *tik* DPs containing the indefinite *jun* behave like other indefinite DPs in that they do not trigger a uniqueness presupposition. For instance, (70) is judged felicitous by speakers in a setting like (72-a), where there is only one salient book, but infelicitous in a setting like (72-b), where there is more than one book. The sentence in (71), on the other hand, is felicitous with both the settings in (72-a) and (72-b):

- (72) a. Only one book is placed on a table in front of a person. You ask that person to grab that book.  
 (70) = ✓ | (71) = ✓
- b. Two books are placed on a table in front of a person. You ask that person to grab one of the two books. | (70) = ✗ | (71) = ✓

Strikingly, the presence or absence of uniqueness correlates with the presence or absence of a random choice

interpretation. When nominal *komon* appears in “CLF-N-DEM” DPs, only the unremarkable interpretation is perceived. When it appears in “*jun*-N-DEM” DPs, on the other hand, both the unremarkable and random choice interpretations are possible. This is illustrated in the examples in (73) and (74), with the different scenarios in (75).

(73) Ix-in-man [ ch’anh komon libro tik ].  
 PFV-A1S-buy CLF KOMON libro DEM  
 ≈ ‘I bought this average book.’

(74) Ix-in-man [ jun komon libro tik ].  
 PFV-A1S-buy one KOMON libro DEM  
 ≈ ‘I bought this (average) book (at random).’

- (75) a. I went to the library. Not knowing which book to buy, I chose one at random. It turned out to be an absolutely amazing book. The book is now in front of me and you, and there’s no other book. I tell you (73) / (74). | (73) = ✗ | (74) = ✓
- b. I went to the library, and bought a specific book that was recommended to me. It turned out to be an ordinary book; there is nothing special about it. The book is now in front of me and you, and there’s no other book. I tell you (73) / (74). | (73) = ✓ | (74) = ✓

In sum, though a more thorough understanding of the semantics of the so-called demonstrative particles in Chuj is necessary, these preliminary data corroborate the analysis advanced in this paper.

## 4 Conclusion

We will conclude with a brief summary and a contextualization of our central finding.

We started this paper with three questions: (i) What modal flavors can DPs express? (ii) To what extent do they mirror those of VP modals? (iii) To what extent is the modal component of modal expressions tied to its syntactic position?

For question (i), the paper zoomed in on the expression of random choice modality. We have seen that, in Chuj, random choice modality derives from a modal component that conveys information about the likelihood of the type of event described. With respect to question (ii), we found that the likelihood modal component associated with random choice modality can arise both at the VP and the DP levels, but, with respect to question (iii), we saw that the modal components expressed by VP- and DP-*komon*

were not exactly parallel: VP-*komon* and DP-*komon* differ in that the former conveys information about the likelihood of an event, while the latter compares the likelihood of an event with alternative events that differ with respect to its event participants.

A lesson that we learn from Chuj is that random choice modality might not be a uniform category, since the modal component associated with the expression of random choice in Chuj differs from that of other expressions previously discussed in the literature. Let us briefly discuss why.

First, many of the previous discussions of random choice modality established a connection between this modal flavor and agentivity, a connection that is not attested in Chuj. As we mentioned in the introduction, random choice modality was previously discussed in the literature on modal indefinites. Some of the indefinite DPs discussed in previous work that can express random choice modality include Spanish *un NP cualquiera* (Alonso-Ovalle and Menéndez-Benito, 2011, 2013, 2018), Italian *uno qualsiasi* and *un qualunque* (Chierchia, 2013), Romanian *un oarecare* (Fălăuș, 2015, 2014), German *irgendein* (Kratzer and Shimoyama 2002; Buccola and Haida 2017), and the Korean *-na* indeterminates (Choi, 2007; Kim and Kaufmann, 2007; Choi and Romero, 2008a).

Chierchia (2013) suggests, mostly in passing, that Italian *uno qualsiasi* and German *irgendein* are interpreted under the scope of a covert bouletic modal. Under this proposal, the sentence in (76) is predicted to convey that Hans' desires did not favour buying any specific book.

- (76) Hans hat irgend-ein Buch gekauft.  
 Hans has IRGEND-INDF book bought  
 ≈ 'Hans bought some book / a random book.' (Buccola and Haida 2017) (German)

Alonso-Ovalle and Menéndez-Benito (2018) propose that the modality that *un NP cualquiera* contributes also presupposes agentivity. Under their proposal, the modal component of *un NP cualquiera* is interpreted relative to the decision of the agent of the event described by the sentence containing *un NP cualquiera*. For instance, the sentence in (1), repeated below, conveys that María decided to buy a book and that that decision did not favour any specific book.

- (77) María compró un regalo cualquiera.  
 María buy.PFV a gift CUALQUIERA  
 ≈ 'María bought a random gift.' (Spanish)

The predicted modal component under the decision-based analysis is weaker than that predicted under the

bouletic account. Unlike what the bouletic account predicts, the decision-based modal condition can be true in cases where the agent wanted to pick a particular book, as long as he did not decide to do so.

Buccola and Haida (2017) also assume that random choice modality presupposes agentivity. They put forth the claim that the interpretation of *irgendein* involves a simplicity-based comparison of alternative possible actions. Under their proposal, the random choice interpretation of *irgendein* arises when this indefinite is interpreted under the scope of the adverb *einfach* ('simply'), which they assume can be covert. The basic idea is that *irgendein* contributes two components: (i) the proposition that Hans bought a book in a set  $D$ , and (ii) for any  $D'$  that is a subset of  $D$ , the alternative proposition that Hans bought a book in  $D'$ . *Einfach*, on its turn, conveys the modal component that any alternative action described by the alternative propositions that *irgendein* contributes (buying a book in any of the subset domains) would not have been simpler for Hans. Like the bouletic account, this account excludes situations where Hans wanted to take a particular book, given that picking a book from a subset of books containing the desired book would have been "simpler" for Hans than picking a book from the whole set of books—this is so because, he would have to discard less books in that case.

None of these proposals extend in a straightforward way to *komon*, since, as we saw in the previous sections, the modal component of *komon* does not require agentive events. In the sentences in (78)-(79), for instance, we find VP-*komon* in sentences with non-agentive verbs; and in (80) we find DP-*komon* as the subject of a non-agentive verb.

(78) Ix-**komon**-telw-i jun te' yib'an jun pat.  
 PFV-KOMON-fall-IV INDF tree over INDF house  
 ≈ 'A tree unexpectedly fell on a house.'

(79) Ix-**komon**-k'och ix Malin.  
 PFV-KOMON-arrive CLF Malin  
 ≈ 'Malin unexpectedly arrived.'

(80) Ix-jaw [jun **komon** sakchej].  
 PFV-come INDF KOMON deer  
 ≈ 'A deer unexpectedly appeared.'

Choi (2007) and Choi and Romero (2008b) depart from the proposals discussed above, which link random choice modality to agentivity, and propose, in the spirit of von Stechow 2000 for the English *wh-ever* free relatives, that random choice modality is actually counterfactual modality. Under their analysis, the

sentence (81) conveys that John picked a card and that he would have also picked one if the set of actual cards had been different. This modal component is satisfied in cases where the agent did not care about the identity of the cards, but also in other scenarios, as discussed in Alonso-Ovalle and Menéndez-Benito 2018.

- (81) John-un amwu-khadu-na cip-ess-e.  
John-TOP AMWU-card-OR take-PAST-DEC  
≈ ‘John picked a random card.’ (Choi 2007) (Korean)

This approach does not extend to *komon* in a straightforward manner either. Under the counterfactual approach, the sentence in (78) would be predicted to convey (i) that a tree fell on an actual house, and (ii) that if the set of actual houses would have been different, a tree would fall on a house, too. This interpretation would be satisfied in a situation where the falling of the tree on a house was completely expected, contrary to fact.

In conclusion, the characterization of the modal component of *komon* that we presented in this paper departs from the previous proposals on the nature of random choice modality, casting doubts on whether random choice modality should be taken to be a unified category.

## Appendix: NP-komon

NP-komon requires a ranking of types of individuals in the extension of the NP. One possible way to capture this would be to assume that NP-komon takes a covert free variable  $f$  ranging over a pre-order (a reflexive, transitive, and connected relation) whose field is the NP extension (possible values for this preorder could be ‘getting (at least) as good grades as’, ‘behaving (at least) as well as’, or ‘having parents (at least) as socially important as.’) From this preorder, we can determine an order ( $\leq_{f_{equivalence}}$ ) between *sets* of individuals (Cresswell, 1976; Bale, 2008). For instance, for the preorder  $f$  ‘having as good grades as’, we can consider the equivalence relation ( $f_{equivalence}$ ) (reflexive, transitive, symmetric) ‘having the same grades as,’ and order the equivalence classes determined by this relation (the set of individuals with same grades) by considering the preorder between individuals in those classes (a class of individuals having grade  $x$  is ranked at least as high as a class of individuals having grade  $y$  if the individuals in the former class have at least as good grades as the individuals in the latter). Given a preorder  $f$ ,  $f_{eq}$  is defined as in (82-a). The equivalence classes determined by  $f_{eq}$  can be ordered on the basis of the preorder, as in (82-b):

- (82) a.  $f_{eq}(a, b)$  iff  $\forall x[(f(a, x) \leftrightarrow (b, x)) \& (f(x, a) \leftrightarrow (x, b))]$   
 b.  $[a]_f \geq_{f_{eq}} [b]_{f_{eq}}$  iff  $\exists x, y[x \in [a]_{f_{eq}} \& y \in [b]_{f_{eq}} \& f(a, b)]$

(Cresswell, 1976; Bale, 2008)

NP-komon seems to require a scale of sets of individuals where most individuals (the non-exceptional individuals) fall around the middle range of the ranking and less individuals are ranked at the top or bottom of the ranking ( $\text{NORM}(\geq_{f_{eq}})$ ). It conveys that the equivalence class that its argument is in ( $[x]_{f_{eq}}$ ) is (i) where most individuals rank (around the middle range of the ranking), and (ii) contains more individuals than any other class around the middle of the ranking. In symbols:

- (83)  $[[komon_{NP} f_{(e,e)}]]^v = \lambda P_{\langle e, st \rangle} :$   
 $\text{PREORDER}(\mathbf{f}) \& \text{FIELD}(\mathbf{f}) = P_w \& \text{NORM}(\geq_{f_{eq}}).$   
 $\lambda x. \lambda w. P_w(x) \& \underbrace{\text{MOST-MIDDLE}_{\geq_{f_{eq}}}([x]_{f_{eq}})}_{\text{scalar condition}}$

Consider, as illustration, the example in (84-b):

- (84) a. *Context: Xun is a student with average grades.*

- b. [ **Komon** estudyante ] waj Xun.  
 KOMON student      CLF Xun  
 $\approx$  'Xun is an average/unexceptional student.'

The LF of (84-b), in (85-a), is predicted to be associated with the presupposition in (85-b) and the assertion in (85-c)

- (85) a. LF: [komon  $f_{\langle e,e \rangle}$  student] Xun
- b. Defined iff  $\mathbf{f}$  is a preorder on the set of students in  $w$ , and most individuals are clustered around the middle of the order  $\geq_{\mathbf{f}_{eq}}$ . When  $\mathbf{f}$  is 'has at least as good grades as',  $\geq_{\mathbf{f}_{eq}}$  is a ranking of sets of students with same grades. The cells in the middle range of the ranking are required to contain the most students.
- c. True in  $w$  when  $\mathbf{f}$  is 'has at least as good grades as' iff (i) Xun is a student in  $w$ , and (ii) Xun's grades are in the middle range of the grade scale (and most students in the middle of the range are like him in that respect.)

## References

- Aissen, Judith, Nora C. England, and Roberto Zavala. 2017. Introduction. In *The Mayan Languages*, eds. Judith Aissen, Nora C. England, and Roberto Zavala, 1–12. Routledge.
- Alonso-Ovalle, Luis, and Paula Menéndez-Benito. 2011. Expressing indifference: Spanish *Un NP Cualquiera*. In *Proceedings of the 21st Semantics and Linguistic Theory Conference*, ed. Michael Ashton *et al.*, 333–347. Ithaca, NY: Cornell University.
- Alonso-Ovalle, Luis, and Paula Menéndez-Benito. 2013. Random choice modality: Spanish *Uno Cualquiera*. In *Proceedings of Sinn und Bedeutung 17*, eds. Emmanuel Chemla, Vincent Homer, and Grégoire Winterstein, 27–43. URL <http://semanticsarchive.net/sub2012/>.
- Alonso-Ovalle, Luis, and Paula Menéndez-Benito. 2018. Projecting possibilities in the nominal domain: Spanish *uno cualquiera*. *Journal of Semantics* 35:1–41.
- Arregui, Ana, María Luisa Rivero, and Andrés Salanova. 2017. *Modality across syntactic categories*, volume 63. Oxford University Press.
- Bale, Alan. 2008. A universal scale of comparison. *Linguistics and Philosophy* 1:1–55.
- Buccola, Brian, and Andreas Haida. 2017. Expressing indifference in German. In *Proceedings of the 21st Amsterdam Colloquium*, eds. Alexandre Cremers, Thom van Gessel, and Floris Roelofsen, volume 21, 165–174.
- Buenrostro, Cristina. 2013. La voz en Chuj de San Mateo Ixtatán. Ph.D. dissertation, El Colegio de México, Mexico City.
- Buenrostro, Cristina, José Carmen Díaz, and Roberto Zavala. 1989. Sistema de clasificación nominal del Chuj. In *Memorias del Segundo Coloquio Internacional de Mayistas*, volume II. Mexico City: UNAM.
- Chierchia, Gennaro. 2013. *Logic in Grammar*. Oxford: Oxford University Press.
- Choi, Jinyoung. 2007. Free Choice and Negative Polarity: A Compositional Analysis of Korean Polarity Sensitive Items. Ph.D. dissertation, University of Pennsylvania.

- Choi, Jinyoung, and Maribel Romero. 2008a. Rescuing existential free choice items in episodic sentences. In *Empirical Issues in Syntax and Semantics*, eds. O. Bonami and P. Cabredo Hoffner, volume 7, 77–98.
- Choi, Jinyoung, and Maribel Romero. 2008b. Rescuing existential free choice items in episodic sentences. In *Empirical issues in formal syntax and semantics*, eds. Olivier Bonami and Patricia Cabredo Hoffner.
- Coon, Jessica. 2016. Mayan morphosyntax. *Language and Linguistics Compass* 10:515–550.
- Coon, Jessica. 2018. Distinguishing adjectives from relative clauses in Chuj (with help from Ch’ol). In *Heading in the right direction: Linguistics treats for Lisa Travis*, eds. Laura Kalin, Ileana Paul, and Jozina Vander Klok. McGill Working Papers in Linguistics.
- Coon, Jessica, and Elizabeth Carolan. 2017. Nominalization and the structure of progressives in Chuj Mayan. *Glossa* 2:1–35.
- Cresswell, M. J. 1976. The semantics of degree. In *Montague Grammar*, ed. Barbara H. Partee, 261–292. New York: Academic Press.
- von Stechow, Kai. 2000. Whatever. In *Proceedings of the 10th Semantics and Linguistic Theory Conference*, eds. Brendan Jackson and Tanya Matthews, 27–40. Ithaca, NY: CLC Publications.
- Fălăuș, Anamaria. 2014. (Partially) free choice of alternatives. *Linguistics and Philosophy* 37:121–173.
- Fălăuș, Anamaria. 2015. Romanian epistemic indefinites. In *Epistemic Indefinites*, eds. Luis Alonso-Ovalle and Paula Menéndez Benito, 60–81. Oxford University Press.
- García Pablo, Gaspar, and Pascual Martín Domingo Pascual. 2007. *Stzolalil Sloloni-Spaxtini heb’ Chuj: Gramática Descriptiva Chuj*. Academia de Lenguas Mayas de Guatemala.
- Hacquard, Valentine. 2006. Aspects of modality. Ph.D. dissertation, MIT.
- Hacquard, Valentine. 2009. On the interaction of aspect and modal auxiliaries. *Linguistics and Philosophy* 32:279–315.
- Henderson, Robert. 2016. Mayan semantics. *Language and Linguistic Compass* 10:551–588.
- Hopkins, Nicholas. 1967. The Chuj language. Ph.D. dissertation, University of Chicago, Chicago, IL.

- Hopkins, Nicholas. 2012. *A Dictionary of the Chuj Mayan Language*. Tallahassee, FL: Jaguar Tours.
- Kim, Min-Joo, and Stefan Kaufmann. 2007. Domain restriction in freedom of choice: A view from Korean *indet-na* items. In *Proceedings of Sinn und Bedeutung 11*, ed. Estela Puig-Waldmüller, 375–389. Barcelona: Universitat Pompeu Fabra.
- Kratzer, Angelika. 1981. The notional category of modality. In *Worlds, Words, and Contexts*, eds. H.J. Eikmeyer and H. Rieser, 38–74. Berlin and New York: de Gruyter. Reprinted in Kratzer (2012), chapter 3.
- Kratzer, Angelika. 1991. Modality. In *Semantics: An International Handbook of Contemporary Research*, eds. Arnim von Stechow and Dieter Wunderlich, 639–650. Berlin: Walter de Gruyter.
- Kratzer, Angelika. 1996. Severing the external argument from its verb. In *Phrase Structure and the Lexicon*, eds. J. Rooryck and L. Zaring, 109–137. Dordrecht: Kluwer.
- Kratzer, Angelika, and Junko Shimoyama. 2002. Indeterminate pronouns: The view from Japanese. In *Proceedings of the 3rd Tokyo Conference on Psycholinguistics*, ed. Y. Otsu, 1–25.
- Larson, Richard. 1999. Semantics of adjectival modification. LOT Winter School Class Notes, Amsterdam.
- Lewis, David. 1968. Counterpart theory and quantified modal logic. *Journal of Philosophical Logic* 65:113–126.
- Maxwell, Judith. 1981. How to talk to people who talk *chekel* ‘different’: The chuj (mayan) solution. Ph.D. dissertation, University of Chicago, Chicago, IL.
- Maxwell, Judith M. 1976. Chuj intransitives: Or when can an intransitive verb take an object? *Journal of Mayan Linguistics* 1:128–140.
- Morzycki, Marcin. 2016. Toward a general theory of non-local readings of adjectives. In *Proceedings of Sinn und Bedeutung 20*, eds. Nadine Babe, Polina Berezovskaya, and Anthea Scholler, 512–532.
- Piedrasanta, Ruth. 2009. *Los Chuj, unidad y rupturas en su espacio*. Guatemala City, Guatemala: Amrar Editores.

- Royer, Justin. 2019. Domain restriction and noun classifiers in Chuj. In *NELS 49: Proceedings of the forty-ninth annual meeting of the North-East Linguistics Society*, eds. Maggie Baird and Jonathan Pestesky, volume 3, 87–97.
- Royer, Justin, and Luis Alonso-Ovalle. 2019. Random choice modality in Chuj: the case of ‘komon’. In *Proceedings of Form and Analysis in Mayan Linguistics*, 5.
- Schwarz, Bernhard. 2006. Attributive *wrong*. In *Proceedings of the 25<sup>th</sup> West Coast Conference on Formal Linguistics*, eds. Donald Baumer, David Montero, and Michael Scanlon, 362–370.
- Stump, Gregory. 1981. The interpretation of frequency adjectives. *Linguistics and Philosophy* 5:221–256.
- Vázquez Álvarez, Juan J. 2011. A grammar of Chol, a Mayan language. Ph.D. dissertation, University of Texas Austin, Austin, TX.
- Zimmermann, Malte. 2003. Pluractionality and complex quantifier formation. *Natural Language Semantics* 11:249–287.