Se middle voice and reflexives: Overt marking in Yucatec Spanish

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Abstract

Yucatec Spanish, a contact variety spoken in Yucatan, Mexico, carries many features that have been attributed to years of contact with Yucatec Maya. The current study investigates bilingual and monolingual speakers' differentiation of the middle and reflexive voices in Yucatec Spanish. The Spanish middle voice is introduced with the clitic *se* and has two possible interpretations: the first is similar to a reflexive construction and the second communicates a change of state. In Yucatec Maya, the reflexive is marked with a reflexive suffix, and what was once referred to as a 'middle voice' in Yucatec Maya, is now assumed to be an anticausative construction, which can communicate that an event that has no identifiable agent. Structurally, the anticausative and reflexive constructions have no overlap in meaning or structure. A Multinomial Logistic Regression Analysis highlights statistically significant differences between monolingual and bilingual speakers, animate and inanimate agents, and verb types. I argue that this is due to semantic language contact effects: when Yucatec Spanish speakers use 'a sí mismo' at such high rates, it does not follow middle/reflexive voice distinctions in other varieties in Spanish. Instead, the salient distinction is the self meaning that communicates perceived reflexive meaning and agency.

Keywords: Language contact, Yucatec Spanish, middle voice, reflexive voice, Yucatec Maya.

1. Introduction

Semantic voice is often an understudied topic due to the complexity and the diversity in ways that it is communicated cross-linguistically. According to Hulk (2000), the middle voice is used when the logical subjectival argument is not present syntactically but is present semantically. The reflexive voice, on the other hand, communicates a coreferential subject and object. The current study investigates how speakers differentiate voice in a contact variety, looking specifically at possible language contact effects on Spanish. First, the middle voice in Spanish is introduced with the clitic *se*. According to Maldonado (2008), Spanish contains two possible interpretations of the middle voice: the first is similar to a reflexive construction and the second communicates a change of state. For example:

(1)   (Maldonado 2008:161)
       Se lava la cara.

(2)   (Maldonado 2008:167)
       Ceci se deprimió.

      In (1), there are similarities to the reflexive voice: A true reflexive would have a subject and object that were coreferential, but in (1) the object is *la cara* 'the face' rather than the person that is washing their face. This slight difference in referent in the object position is what distinguishes this kind of middle voice from a true reflexive. The middle voice also communicates a change of state or marks the subject as the experiencer of an action, as seen in (2) where the subject, Ceci, has a change in mental state (Maldonado 2008).
      While there is a comparable reflexive in Yucatec Maya, a 'middle voice' similar to (2) above does not exist. The reflexive voice is communicated through a bound morpheme, -báah, as seen in (3):

(3)   Reflexive (Norcliffe 2009:51)
       Máax   t-uy=il=u=**bah**   ti'   le'né2n-o'
       who   PRV-A3=see=A3=self   LOC   DEF.mirror-D2
       'Who saw himself in the mirror?'

      This reflexive pronoun -báah, which may also appear as *-bah*, is translated as 'self' in the majority of current work on Yucatec Maya. It combines with set A clitics (which mark agents of transitive verbs and subjects of imperfective intransitive verbs in Yucatec Maya) and acts as the direct object. In this example, we see similarities to Spanish reflexives. This is not the case for the 'middle voice' in Yucatec Maya. In the past, researchers identified what they believed was a middle voice that communicates unpredictable behavior, as seen in example (4):

(4)   'Middle Voice' (Martínez Corripio & Maldonado 2010)
       káaj-tal   cháak-é   ka   Ø-túup- Ø- Ø
       start.INCOMP.INTR rain-TOP   then   PET.INTR-go.off.**MID**-COMP.INTRS-b3s
       'It started to rain, so the candle went out.'

Structurally, it was believed that the middle voice in Yucatec Maya was communicated with a bound morpheme -aj (which can appear as a null Ø as seen in example (4) above). Current research now recognizes that this structure is actually an anticausative construction, where there is no agent.

The current study investigates possible language contact or bilingualism effects on differentiation of middle and reflexive voices in Spanish. The research on voice in bilingual populations or language learners is less robust than other areas due to this semantic complexity. There are acquisition studies that suggest that middle voice is difficult to acquire but can be acquired in later phases of acquisition (such as Celce-Murcia 2002 and Bayona 2005). In a study that compared two different groups of Spanish L2 learners (L1 Korean and L1 English), Hwang (2023) found no significant differences between L1 groups, but she found that native speakers were less likely to use *a sí mismo* to overtly mark reflexives than Spanish language learners. Overtime, however, language learners' use became more native-like. Turning to bilingualism and indigenous language contact, there are several cases in which researchers argue that the same marker is used to mark both reflexive and middle voices, including Purepecha, spoken in Michoacán, Mexico (Chamoreau 2023) and South Conchucos Quechua (Hintz 2011). Other research argues for a grammaticalized middle voice that is a result of language contact with Spanish, including in Pima Bajo, an Uto-Aztecan language in Northwest Mexico (Estrada 2005) and in Guaraní (Bittar Prieto 2021). With regard to Spanish, the middle voice *se* has been documented to have unique features due to language contact in northern Belize (Balam 2015) and in Andean Spanish (Muntendam 2006).

In this paper, I focus on Yucatec Spanish, a contact variety spoken in Yucatan, Mexico. Yucatec Spanish is a contact variety of Spanish that carries many features that have been attributed to years of contact with Yucatec Maya. Researchers have noted unique qualities of Yucatec Spanish and differences in monolingual and bilingual speakers' sound system (Michnowicz 2009, 2012; Uth & Gutiérrez Bravo 2020), syntax (Armstrong 2024, Gutiérrez Bravo 2015), semantics (Bove 2020, 2023), and pragmatics (Bove 2019). The current study aims to amplify the work on language contact effects on semantics in this area. Specifically, I ask the question: to what extent do speakers differentiate middle and reflexive voice in Spanish, which are both communicated with the clitic *se*, when in contact with Yucatec Maya, a language that marks voice differently and lacks a "middle" equivalent?

This paper is organized in the following way: The following section (2) reviews previous literature on Yucatec Spanish, discusses both Spanish and Yucatec Maya reflexive voice and middle/ anticausative constructions, and reviews research on voice in both acquisition studies and language contact studies. This section also presents the research questions and hypotheses for the current study. The third section (3) presents the methodology for the current research. In section four (4), I present the findings, focusing on two factors in particular: degree of bilingualism and animacy of the agent. Lastly, I return to answer the research questions and offer additional conclusions of the current study in section five (5).

2. Previous Literature

2.1. Yucatec Spanish

Yucatec Spanish, spoken on the Yucatan peninsula in Mexico, has been identified as "an indigenous contact variety that is rapidly undergoing standardization, as speakers reject regional linguistic forms in favor of pan-Hispanic norms" (Michnowicz 2011:1). Throughout the Yucatan Peninsula, Spanish and Yucatec Maya are in contact daily, and there are high rates of Spanish/Yucatec Maya bilingualism. Early work by Barrera Vásquez (1977), Alvar (1969), and Lope Blanch (1987) argue that many features of Yucatec Spanish can be clearly traced to contact with Yucatec Maya. Klee (2009) and Lipski (2004) point out the high rates of language contact effects in this contact variety. Many linguists and non-linguists alike are quick to note that Yucatec Spanish sounds very different than other Mexican varieties, due to features such as the use of the occlusive [b, d, g] (see Michnowicz 2011), word final [m] (see Michnowicz 2008), and glottal /ʔ/ (see Michnowicz & Kagan 2016). In Yucatec Spanish, there is also evidence of change of prosody (see Uth & Gutiérrez-Bravo 2020), unique syntactic features (see Michnowicz 2010 and Armstrong 2024) and use of the light verb *hacer* (see Sobrino Gomez 2010).

   Some language contact effects in Yucatec Spanish such as phonetics and syntax can be observed by linguistics and non-linguists alike, and such features have become a point of local Yucatec pride (see Michnowicz 2011). Language contact effects on semantics/pragmatics are more subtle and therefore difficult to identify. For example, in her work on evidentials, Aikhenvald (2004:296) states that, in contact varieties, a lack of evidentials results in a "perceived gap" by speakers, who then often "make up for it by using an array of lexical and other means". She also notes that these features are markedly different from other varieties of Spanish, and misunderstandings can arise (Aikhenvald 2004:298). This can be seen in the case of the pluperfect in La Paz Spanish (see Silver and Miller 1997) and the case of the present perfect as non-firsthand evidential in Ecuadorian Highland Spanish (see Olbertz 2003). Bove (2020, 2023) argues that speakers produce unanticipated use of the subjunctive to convey conjecture in belief predicates, which is marked in Yucatec Maya, but not Spanish. For example, Yucatec Spanish consultants preferred the use of the subjunctive in the following context (Bove 2020:8):

(5)   *Tengo que mover el sofá, y le pregunto a mi vecina si su esposo me puede ayudar. Me dice que ahora no porque no está en casa, pero. . .*
      'I have to move the sofa, and I ask my neighbor if her husband can help me. She tells me not now because he's not home, but. . .'
   a. *Ella cree que él está (IND) disponible esta tarde.*
      'She thinks that he is available this afternoon.'
   b. *Ella cree que él esté (SUBJ) disponible esta tarde.*
      'She thinks that he is available this afternoon.'

   In acceptability judgement interviews, participants pointed to the contextual uncertainty as the element that is licensing the subjunctive rather than overt negation, as in other varieties of Spanish. Bove (2020, 2023) argues that this increased use of the subjunctive is evidence of language contact effects on conjecture in Yucatec

Spanish. In a pragmatic study that looked at mood alternation, Bove (2019) investigated structures in Spanish in which both the subjunctive and indicative moods are accepted with slightly different pragmatic interpretations. She tested both production and acceptability, which can be seen in (6) below (Bove 2019:173):

(6)   *Una pareja estaba en el parque cerca del semáforo. Estaban hablando, la mujer con una vista del semáforo y su esposo no. El hombre no sabía nada del carro, pero vio una cara de sorpresa de su esposa. Le dijo a la policía que vio el choque, pero no vio nada antes. Dijo…*
'A couple was in the park near the stop light. They were talking, the woman with sight of the light and her husband without. The man didn't know anything about the car, but he saw a surprised face on his wife. He said to the police that he saw the crash, but he did not see anything after. He said…'
a. *Me di cuenta que el carro pasara con mucha velocidad.*
   'I realized that the car went by really fast.'
b. *Me di cuenta que el carro pasó con mucha velocidad.*
   'I realized that the car went by really fast.'
c. *Las dos me suenan bien y no noto una diferencia entre las dos.*
   'Both sound good to me and I don't see a difference between the two.'
d. *Las dos me suenan bien pero noto una diferencia entre las dos.*
   'Both sound good to me, but I see a difference between the two.'

She finds that, in Yucatec Spanish, pragmatic mood alternation exists, but bilingual speakers rate the subjunctive as more acceptable where indicative would be anticipated as well produce the subjunctive more frequently when the indicative would produced in other varieties of Spanish. She concludes that this supports previous conclusions by Michnowicz (2011, 2015) in his work on the occlusive [b, d, g] and subjunctive pronoun expression: bilingual speakers do not produce unique language features across the board but identify a primary distinction between categories. In other words, bilingual speakers use occlusive [b, d, g] where monolingual speakers would use approximate counterparts, as well as more subject pronoun expression where a monolingual speaker would use a null pronoun. Bove (2019) argues this idea can be applied to the pragmatics of mood selection: monolingual speakers make a clearer distinction between pragmatic alternation than bilingual speakers, who use the subjunctive more frequently. These studies on subjunctive in Yucatec Spanish suggest that the subjunctive has extended to communicate additional semantic information.

2.2. The Middle Voice

The middle voice construction was originally an inflectional category in Classical Greek, but today, the realization of the middle voice is relatively understudied in many of the languages of the world. In modern languages, Kemmer (1993) states that each language has a morphological category that is marked explicitly by a morpheme that has acquired a middle voice function (see discussion of "acquired function" below). The following are examples of the middle voice from Kemmer (1993):

(7)   Icelandic: *bókin fann-**st***   *'The book was found'*

(8)   French: *Le riz **se** cultive en Chine*   *'Rice is cultivated in China'*

(9)   English: *The book sells well.*

In each example, syntactically, the object acts as the subject, but the middle voice can be communicated through a bound morpheme (as seen in 7), a clitic (as seen in 8), or syntactic movement (as seen in 9). Lekakou (2005) states that semantically, the middle voice causes the object of a sentence to be the grammatical subject, and the agent has an arbitrary interpretation. For example, in (9), the person responsible for selling the book is unspecified.

There are many languages, like Spanish, in which there is one single marker that communicates several functions including the passive voice (e.g. *la casa **se** vendió* 'the house was sold'), inchoatives (e.g. *la puerta se abrió* 'the door opened'*)* , ditransitives (e.g. *se la regaló* 'he gave it to her'), the reciprocal (e.g. *se abrazan* 'they hug each other), and the middle voice (e.g. *se quemó* 'it burned') (Kleiman 1991:45, examples mine). Kemmer (1993) notes that many Indoeuropean languages have a middle voice that is similar to the reflexive voice, and many of these languages have seen an extension of the reflexive marker that is now used as the middle voice marker. In her work, Kemmer (1993) notes that very little work has been done cross-linguistically on the middle voice. While there has been a notable increase in the last 30 years, which includes more information on non-Indoeuropean languages, researchers have identified new language universals related to the middle voice. For example, Maldonado (2008:161) concludes that cross-linguistic data now suggest that the middle voice is not used as focus, as previously thought, but instead is used to describe a change in state experienced by an event.

2.3. Spanish *se*: reflexive and middle voice meaning

In Spanish, both the middle voice and the reflexive voice are communicated with the use of the clitic *se*. Mendikoetxea (1999) describes Spanish middle constructions as sentences whose subjects are affected by the verb and contain a reflexive pronoun. In an effort to better understand the middle *se,* Maldonado (2008) argues that the traditional way of talking about the clitic *se* in Spanish has not been sufficient as *se* is usually treated only as a reflexive marker, but this is not always the case. In Spanish, there are a few distinctions between reflexives and the middle voice. When a sentence has a transitive verb and has both a subject and object that are coreferencial, it is reflexive. For example:

(10)   Coreferencial subject/object (Maldonado 2008:156)
        Valeria   se   vio en el   espejo.
        Valeria   REFL.3SG   saw in the mirror
        'Valeria saw herself in the mirror.'

In this example, the subject and the object are coreferencial, referring to Valeria. In a true reflexive clause in Spanish, adding the phrase *a sí mismo* 'to himself' does not render the utterance ungrammatical. For example (Maldonado 2008:160):

(11)   Es cierto, lo respetas a él, pero no te respetas *a ti mismo*.
        'It is true, you respect him, but you do not respect yourself *to yourself*.'

       In Spanish, the clitic *se* can also communicate affectedness (as in 12 and 13) and involvement (as in 14 and 15):

(12)   (Maldonado 2008:168)
        Me manché la camisa.
        'I stained my shirt.'

(13)   (Maldonado 2008:168)
        Me olvidé las llaves.
        'I forgot my keys.'

(14)   (Maldonado 2008:172)
        Juan se compadeció de los muchachos.
        'Juan took pitty on the boys.'

(15)   (Maldonado 2008:175)
        Me odio cuando me pongo deprimido.
        'I hate myself when I get depressed.'

       Examples (10) through (15) demonstrate several uses of the clitic *se* that are *not* considered examples of the middle voice. On the other hand, in Spanish, the middle voice construction with the clitic *se* can look very similar to reflexive constructions or can communicate a change of state. For example:

(16)   (Maldonado 2008:161)
        Se lava la cara.
        'She washes her face.'

(17)   (Maldonado 2008:167)
        Ceci se deprimió.
        'Ceci became depressed.'

       Example (16) looks very similar to a reflexive construction, but the subject (third person singular null subject) and object (*la cara* 'the face') are not co-referential while (17) shows a change in state of the subject. In both, adding the reflexive phrase 'a sí mismo' renders the phrase unacceptable (**Se lava la cara a sí mismo,* '*She washes her face to herself' **Ceci se deprimió a sí mismo* '*Ceci became depressed to herself'). However, we should note that there is some variation in acceptability of (17). Most commonly, the middle voice communicates a change in state, position or location, as seen in (18):

(18)   (Maldonado 2008:182)
        Daniel se durmió en clase.

In this example, there is a change in state from awake to asleep, making this interpretation of *se* the middle voice. However, as Maldonado (2008:182) points out, this is limited to the moment of change of state from awake to asleep, making **Daniel se durmió toda la noche* 'Daniel fell asleep all night' ungrammatical. Overall, we see that Spanish, like many Indoeuropean languages, has a middle voice that, similar to the reflexive voice, is marked with the clitic *se.* One key difference between the two is the felicity of including 'a sí mismo', which is only acceptable with a true reflexive.

2.4. Reflexives and the 'middle voice' in Yucatec Maya

In several indigenous language of the Americas, it is believed that middle voice and reflexives are marked using the same morpheme. Chamoreau (2023:14) argues that the suffix *-kuri* in Purepecha, spoken in Michoacán, Mexico, completes both functions:

(19)   Reflexive
        pá-**kuri**-s-ti   thirikwa
        take-REFL-AOR-ASS3S food
        'She took the food for herself / She took her food.'

(20)   Middle
        míkwa   mí-**kuri**-x-ti
        door   open-MID-AOR-ASS3S
        'The door closed.'

In (19), *-kuri* is used to mark the reflexive interpretation of taking food for herself. However, in (20), we see this same marker *-kuri* with a middle voice interpretation, communicating that the door closed without an overt agent. A similar case in which the same morpheme is used to mark both reflexive and middle voices can be seen in South Conchucos Quechua. Hintz (2011:167) observes similar use of the morpheme *-ku*:

(21)   diyablu-pa   wacha-shqa-n,   rupa-ku-ski-:
        devil-GEN   give.birth-NMLZ.R-3   burn-MID-PFV-1
        'Son of the devil, I burned myself.' (rupa-: 'I burn it')

Hintz states that, in a sentence like (21) *rupa-ku-ski-* can be interpreted as a reflexive 'I burned myself' or as a middle 'I burned it for myself' (2011:167). She makes the claim that this is also true for many other varieties of Quechua.
Yucatec Maya, on the other hand, has a reflexive but no 'middle voice'. The reflexive in Yucatec Maya is communicated through a reflexive pronoun, *báah.* According to Lehmann (2020), the reflexive pronoun *báah* has grammaticalized from the relational noun *böh*, meaning *'counterpart, replica'*:

(22)   (Perez 2003 as cited in Lehmann 2020:17)
        in   böh-o
        A1.SG   counterpart-PL
        'my companions.'

Today, it is translated as 'self' and is used to communicate that takes on markings to indicate that the subject and direct object are coreferent. For example:

(23)   (Lehmann 2020:17)
        t=u   ya'l-ah   t=u=**báah**
        PRFV= A3 say-CMPL   LOC=A3=self
        'he said to himself.'

In (23) the reflexive pronoun combines with set A clitics, which mark agents of transitive verbs and subjects of imperfective intransitive verbs in Yucatec Maya. In the case of (23), it has combined with a preposition. It is a direct object that 'behaves syntactically like an NP' (Lehmann 2020:17). Often, it is considered a suffix as it attaches to the verb.

In some of the previous research on Yucatec Maya, investigators identified what was referred to as the middle voice. The 'middle voice' was marked with the suffix -*aj* and communicated unpredictable behavior. For example, Martínez Corripio and Maldonado (2010) argue that only absolute events can be used in the middle voice because of their low animacy level. In their work, they argue that this is a primary difference between middle and reflexive voices: as reflexives in Yucatec Maya codify events as 'energetic' and denote a high level of control on the part of the agent, it is not possible to communicate a middle voice (Martínez Corripio & Maldonado 2010:127). For example, the verb *chal* 'to water' can be reflexive but not a 'middle' construction:

(24)   tuchal(aj) uba
        t-u-chal-(aj)   u-ba
        PERF.TRS-A3S-wet-COMP   P2S-SELF
        'He wet himself.'

(25)   *cháal(aj)i(j)
        Ø-cháal-(aj)-   i(j)
        PERF.INTR-wet.MED-COMP   B3S
        Intended: 'It becomes wet.'

Martínez Corripio and Maldonado (2010) argue that, due to animacy restrictions, verbs such as *wet* can only be used with reflexive voice in Yucatec Maya. In other words, these verbs require an individualized referent as an agent that controls the action and therefore cannot communicate the spontaneous, 'it just happened' interpretation of the 'middle voice'.

However, it is now widely accepted that the structure presented above is not the middle voice, but is an anticausative constructions (Bohnemeyer 2002:144-152, Verhoeven 2007:108-117, Gutiérrez-Bravo 2015:33-43). An anticausative depicts an event as happening without an agent. This is similar to agentless passives, and some research on Yucatec Maya categorizes this structure as agentless passives, but the key difference is that anticausatives lack the covert agent that agentless passives entail. For example, 'the box got wet' focuses on the action of getting wet without mentioning the causer, but an anticausative, such as 'the window broke' lacks a causative agent

entirely. The examples in (24) and (25) above are examples of agentless passives, while (26) is an example of an anticausative construction:

(26)   Anticausative (Bohnemeyer 2009:32)
        Pedro=e',   táantik   u=chúun-ul
        Pedro=TOP   IMM   A3=start-ACAUS.INC
        u=hats'-a'l   tumèen   le=òokol-o'b=o'
        [A3=hit-PASS.INC   CAUS   DET=rob-PL]=D2
        'Pedro, he just started to be hit by the robbers.'
        (lit. his being hit by the robbers just started)

In (26), the anticausative -*ul* communicates that the hitting does not come directly from any agent (it just happened) and it is understood that it was not what we expected. Therefore, Yucatec does not have constructions that are semantically and/or morphosyntactically equivalent to the Spanish middle voice constructions in (1), (2), (7), (8) and (9). Middle voice constructions like the Spanish examples listed above entail the participation of some kind of agent, but the anticausative in (26) implies that the hitting occurred without cause.

The felicity of a verb in a given voice is restricted by several factors, including transitivity, context, and lexical restrictions. In order to demonstrate these lexical restrictions in Yucatec Maya, Martínez Corripio (2008) provides a list of which verbs can appear in the reflexive voice and what he refers to as the middle voice. The first group of verbs, presented in the left column in Table 1, are active transitive verbs that can appear in both voices (Martínez Corripio 2008:136). The second group of verbs, in the right column, allow only for reflexive interpretations (Martínez Corripio 2008:137):

Table 1. Yucatec Maya (YM) verbs and their voice restrictions (Martínez Corripio 2008).

YM Verbs can appear in the reflexive and the "middle voice"		YM Verbs that only allow for reflexive interpretations	
Bak'	'to roll'	*Ts'al*	'to apply pressure'
Ch'ot	'to twist'	*Ts'ik*	'to shave'
Je'	'to open'	*Bax*	'to hit'
K'al	'to close'	*Hi'*	'to bite'
Tup	'to turn off'	*Laj*	'to slap'
Xup	'to spend'	*Chal*	'to water'
Buj	'to slice'	*Cho'*	'to clear'
Ch'ul	'to wet'	*Lox*	'to punch'
Jol	'to make holes'	*P'el*	'to peel'
Sats'	'to stretch'	*P'o'*	'to wash'
Xik	'to break'		
Yach'	'to wrinkle'		

The distinction between these two groups of verbs highlights the role of animacy and the kind of agent involved in the action, which is true in both Spanish and Yucatec Maya.

2.5. Bilingualism and the middle and reflexive voices

The middle voice in multilingual settings has not been studied as frequently as other grammar topics. First, second language acquisition studies of middle and reflexive voices provide a wide range of results. According to Kemmer (1993), universally, middle voice systems are typically so different that there should be no changes in the acquisition of the middle voice in an L2 (or Ln). However, Celce-Murcia (2002) discusses the difficulty that many non-native students have with the use of the middle voice in English academic writing. Several language acquisition studies suggest that there is possible transfer from L1 to L2. For example, Balcom (2003) studied both production and evaluation of middle voice and found that learners of French were able to acquire the middle voice based on production data but showed some influence from English in their grammaticality judgment scores. Ben Jilali (2023) studies learners of English that speak Moroccan Arabic as their L1 and finds that students struggle more with verbs that are marked only in the L1 when compared to verbs that are marked similarly in both languages. He concludes that this suggests that speakers are transferring grammatical relations from their L1 to their L2.

Another conclusion of middle voice acquisition studies points to the semantic complexity of the middle voice, which makes it difficult for language learners. Bayona (2005) investigates the acquisition of the middle voice by English speaking adult learners of Spanish. Her results suggest advanced learners are able to acquire the middle voice, but she concludes that the semantics of the middle voice are harder for all learners. Building on this study of middle voice acquisition in L2 Spanish, Hwang (2021) studies the acquisition of the Spanish *se* by L1 English and L1 Korean learners. While she found no significant differences between the two L1 language groups, she found that as proficiency increased, native-like use of the non-reflexive *se* also increased. In the results of a cloze task, she found that native speakers were less likely to use *a sí mismo* to overtly mark reflexives than Spanish language learners. She also makes a distinction in interpretation: Hwang (2021:224) argues that non-native speakers base judgements more on explicitly provided context (just the text given) while native speakers base judgements on their own interpretations of events (outside knowledge beyond the given text). In other words, the non-native speakers looked for agents within the provided text while native speakers reflected on their own understanding of the semantics of a given verb.

Moving from acquisition studies toward documentation work, some indigenous language researchers that mention grammaticalization or Spanish language contact effects in their discussions of reflexives and middle voice. For example, Estrada (2005) describes the marker *a-* in Pima Bajo, an Uto-Aztecan language in Northwest Mexico. She argues that *a-* is used in several types of expressions, including grooming and body care situations related to verbs taken as loanwords from Spanish. For example:

(27)   aan   **a**-pintar-t-va.
        1SG.SBJ   3.NUMNTR.NSBJ-paint-VBLZ-COMPL
        'I painted myself.'

While the middle and reflexive voices are described in depth in her work, there is limited discussion of the effects of language contact beyond this example. A more in-depth description of possible grammaticalization effects of language contact come from Bittar Prieto's (2021) work on Paraguayan Guaraní in contact with Spanish. While her project expands beyond voice in this contact situation, she studies language contact effects on the middle voice in Paraguayan Guaraní, looking at the grammaticalization and extension of the reflexive marker. Her work investigates the function of the Guaraní reflexive marker *je* to find if it has become linked to the Spanish *se* by comparing *je* in both Spanish loan words and Guaraní verbs. Based on her interviews with Guaraní speakers, she finds that, the middle voice marker *je* now has several functions including reflexive, passive, impersonal, and nominalizer. Bittar Prieto hypothesizes that, while it is possible that *je* could develop middle voice interpretation on its own, as seen in several Romance languages, it is more likely that this language contact effect is due to the fact that middle markers are used more with loan words. Bittar Prieto (2021:168) also notes that more frequent Guaraní verbs resist the use of *je* as a middle marker, suggesting this change is recent. She concludes that there is evidence of uses of *je* in Guaraní that suggest that this has replicated middle uses of Spanish, but she points to ideas such as frequency to explain discrepancies between native and loan words. She highlights the importance of what she calls 'semantic tightness of verb networks' (Bittar Prieto 2021:170), or a comparison of semantically similar verb pairs. She points to her examples (2021:126) of *get lost*:

(28)   A-je-perde
        1-MID-lose
        'I get lost.' (Gregores and Suárez 1967:114)

(29)   A-kañy
        1-get.lost
        'I get lost.' (ED)

(30)   *A-ñe-kañy
          1-MID-lose

In (28), the speaker uses the middle marker *je-* with the loanword *perder* to communicate a middle interpretation. In (29), she shows the acceptable way to communicate a similar meaning in Guaraní, and in (30) she shows the unacceptability of the use of the middle voice *je-* with the Guaraní verb *kañy*. This supports the claim stated above that loanwords accept middle voice *je-* more than their Guaraní counterparts. However, Bittar Prieto points out the challenges of collecting these kinds of pairs in naturally occurring data.

The previous sections discuss contact effects on indigenous language in contact with Spanish, but we know that language contact effects go both ways. Therefore, we now turn to the effects of contact on Spanish in contact with other languages. First, Balam (2015) work describes the light verb *hacer* in bilingual Spanish in northern

Belize. Based on oral production data of bilingual/trilingual speakers, Balam (2015:97) shows that speakers 'skillfully encode' pronouns in *hacer* phrases, especially in younger age groups, as seen in the following examples:

(31)   Me hice   pass out en el carro
          CL do-1SG.PRET   pass out in the car
          'I fainted in the car.'

(32)   Mis parents se hicieron   disappoint
          My parents   CL do-3PL.PRET   disappoint
          'My parents became disappointed.'

In these examples, we see the use of the clitic *me/se* and structure from Spanish with the second part of the verb borrowed from English. Both (31) and (32) are cases of the middle voice, in which there is a change of state. In (31) change of physical state while there is a change of emotional state in (32), and Balam points out that this use of the middle voice is common in monolingual Spanish (as described in Maldonado 2008). This demonstrates that bilinguals recognize the need to mark the middle voice with the clitic *se,* even in verbal predicates that contain two languages. Similarly, Muntendam (2006) investigates novel uses of the clitic *se* in Andean Spanish. In this variety of Spanish, which is in contact with Quechua, *se* can be observed with intransitive verbs of movement and verbs of change in all grammatical persons (Muntendam 2006, Zavala 1999). For example:

(33)   *Se* in Andean Spanish Muntendam (2005:175-176)

a.   Benefactor: Ahí yo me estudiaba, después acá he venido en la ciudad
b.   Emotive: Me trabajaré en mi chacra si no hay empleo
c.   Causative: Cuando ella también se hace casar sus hijos
d.   Habitual: Con los dos (quechua y castellano) lo que yo me bromeo, me hablo

Here, we see innovative uses of the clitic *se* that demonstrate an important idea in semantics of language contact: a speaker of a contact variety may transfer a semantic concept from one language to another and may represent this concept with a previously unrelated grammatical feature. This is similar to previous claims made by Bove (2020, 2023) with subjunctive in Yucatec Spanish.

In this study, I look at *se* phrases with possible middle interpretations in Spanish or order to better understand to what extent and why speakers aim to differentiate these interpretations. Specifically, this study aims to answer the following questions:

RQ1: When presented with a *se* construction in Spanish, to what degree do Yucatec Spanish speakers clarify the interpretation of the reflexive and middle voices?

RQ2: To what extent does degree of bilingualism (Spanish/Yucatec Maya bilingual, those who speak Spanish with some Yucatec Maya knowledge, Spanish monolingual) affect this selection?

RQ3: To what extent does animacy play a role in this differentiation?

Based on previous accounts of semantics of language contact and Yucatec Spanish, I propose the following hypotheses:

H1: Since *se* constructions can be ambiguous in Spanish but not in Yucatec Maya, speakers will use of the full reflexive "a sí mismo" to clarify intended reflexive constructions or middle voice interpretations.

H2: The distinction between marked and unmarked answers will be based on degree of bilingualism: the greater the proficiency of Yucatec Maya, the more participants will use the full reflexive "a sí mismo" to differentiate between reflexive constructions and middle voice interpretations.

H3: Based on the animacy restrictions of the middle construction in Yucatec Maya, there will be a correlation between the use of the full reflexive form and the animacy of the agent: participants will clarify true reflexive interpretation by selecting marked responses for animate agents more than inanimate agents.

3. Methodology

This study used a forced choice task delivered through Google Forms, which was selected due to accessibility. This task was tested as a pilot study in 2016 with 15 participants of a variety of ages and education backgrounds. After taking the survey, I met with two of the participants to review the content together to improve the language and content. In 2018, the second survey was distributed to 69 participants at the *Universidad de Oriente* in Valladolid, Yucatan. The students ranged in age from 19 to 48, and participation was requested but not required. Students self-identified language background, which included 21 monolingual Spanish speakers, 28 participants who state they have some knowledge of Yucatec Maya but would not consider themselves 'Yucatec speakers' (examples given in instructions), and 20 participants that identified as bilingual Spanish/Yucatec Maya speakers.

In order to encourage participation, this survey was kept short. It contained four biographical questions (gender, age, Yucatec Maya proficiency, Yucatec Maya in the home), 13 fillers, and 20 target items, three of which were removed from analysis due to participant feedback, leaving 27 items for the analysis. The fillers contained verbs not on either list, and the 20 target items were based on verb lists by Martínez Corripio (2008). The survey used Spanish translations of the Yucatec Maya verbs that allow (28) and do *not* allow (29) what he refers to as the middle voice:

(34)   Group 1: Allows the middle voice (Martínez Corripio 2008:136)

Mojar	to wet	Abrir	to open
Cerrar	to close	Estirar	to stretch
Apagar	to turn off		

(35)   Group 2: Does not allow middle (Martínez Corripio 2008:137)

Pegar	to hit	Enjuagar	to water
Morder	to bite	Lavar	to wash
Abofetear	to slap		

To manipulate the level of control of the agent, each verb was used twice: once with a [+human] agent and once with an [-human] agent both introduced by a context. The [+human] cases were true reflexives while the [-human] encourage a middle voice interpretation despite being personified in each context. In all cases, the responses that participants selected included only *se*, the verb, and 'a sí mismo' to differentiate middle and reflexive voices. An example can be seen below:

(36)   **(-Human)** *Hay una bandera grande en el parque principal. Es chistoso- cuando sopla un viento fuerte, parece que ...*
'There is a big flag in the main park. It is funny- when a big wind blows, it seems like…'

(+Human) *Hay un payaso que siempre llega a las fiestas para hacer su show. Es muy bobo, y como parte de su show…*
'There is a clown that always comes to parties to do his show. He is very silly, and as part of his show…'

○ *Se abofetea.* 'He smacks himelf' **(Unmarked)**
○ *Se abofetea a sí mismo.* 'He smacks himself' **(Marked)**
○ *Los dos me suenan igual.* 'Both sound the same to me.'

The order of the answers remained constant and were not counterbalanced. Participants indicated which form sounded the most natural to them and were able to leave comments.

Multinomial logistic regression models were performed using the *multinom* function (*nnet* package, Venables & Ripley 2002) in R (R Core Team 2024). A model with speaker group as the predictor with response (marked, unmarked, no difference) as the dependent variable was performed to evaluate the influence of degree of bilingualism on response (*response ~ degree of bilingualism*). Next, a model with animacy as the predictor with response (marked or unmarked) as the dependent variable was performed to evaluate the influence of animacy of the agent on response (*response ~ animacy*). Lastly, an interactive model was constructed with degree of bilingualism and animacy as predictors and response as the dependent variable (*response ~ degree of bilingualism * animacy*) to determine if knowledge of Yucatec Maya and animacy of the verb had an effect of participant selection of marked/unmarked responses. For the models, the baseline (*i.e.*, intercept) for response was set as no response, monolingual. The significance of resulting coefficients was calculated and displayed in table form using the *stargazer* package (Hlavac 2022). Results were visualized in graphical form using the *ggplot2* package in R (R Core Team 2024).

4. Results

Overall, participants preferred the marked 'a sí mismo' over the unmarked form, and participants rarely selected 'no difference'. Of the 1,723 total responses, 1,259 (73%) responses preferred the marked 'a sí mismo', 351 (20.5%) responses preferred the unmarked form, and 113 responses (6.5%) indicated no perceived difference between marked and unmarked answers. In Hwang (2021), the native speaker group preferred the unmarked form, but we see that this group of native speakers of a contact variety prefer the opposite. The current findings support the hypothesis in H1, which states that, due to Yucatec Maya contact, there will be higher rates of differentiation between true reflexive and middle voice within *se* constructions. At this point, it is unclear if this is due to language contact or other factors. To better understand why there is a strong preference to distinguish the two voices with the marked form, I present a discussion on the role of the degree of bilingualism (section 4.1.) and animacy (section 4.2.).
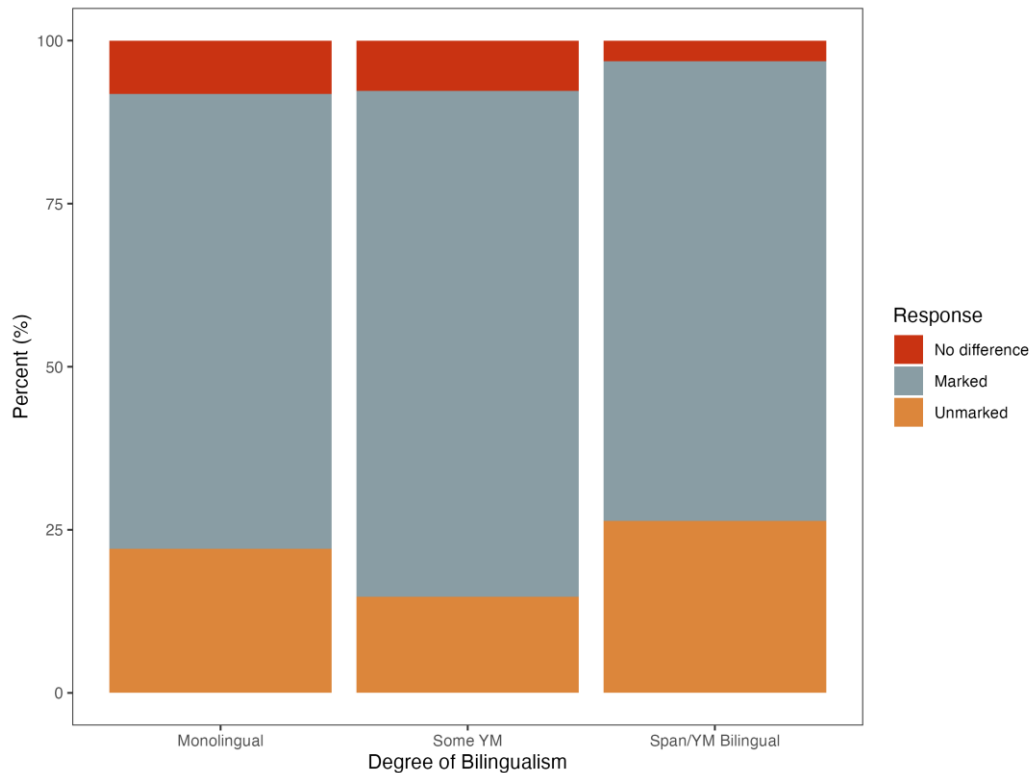
4.1. Degree of bilingualism

This study included three groups based on degree of bilingualism: those that identified as monolingual, bilingual, or those that know some Yucatec Spanish. Each speaker group indicated a preference for the marked 'a sí mismo' form, and 'no difference' was selected least for every group. The number of responses for each group is presented in Table 2:

Table 2. Responses by Degree of bilingualism.

	Monolingual	Some YM	Bilingual
Marked 'a sí mismo'	n= 366 70%	n= 541 77.5%	n= 352 70.5%
Unmarked	n= 116 22%	n= 103 14.5%	n= 132 26.5%
No difference	n= 43 8%	n= 54 7%	n= 16 3%
TOTAL	n= 525	n= 698	n= 500

All participants selected 'a sí mismo' at most frequently at similar rates, and the unmarked form was not as frequent as the marked form for every group. Monolingual participants selected the marked form 366 times (70%) and the unmarked response 116 times (22%). Participants who speak some Yucatec Maya selected the marked form 541 times (77.5%) and the unmarked form 103 times (14.5%). Lastly the bilingual speakers selecting the marked form 352 times (70.5%) and the unmarked response 132 times (26.5%). Importantly, there was a low number of "no difference" responses, but bilingual speakers indicated no difference the least frequently (n=16, 3%) while monolinguals and those that speak some Yucatec Maya selected 'no difference' more frequently (n=43, 8% and n=54, 7% respectively). This suggests that bilingual speakers perceive a distinction between the two forms more frequently than monolingual speakers. Figure 1 shows the percentages of responses by degree of bilingualism:

Figure 1. Overall Responses (marked vs unmarked) divided by level of bilingualism.

In the first multinomial linear regression model, degree of bilingualism is the predictor/independent variable and response (marked or unmarked) is the dependent variable was performed to evaluate the influence of degree of bilingualism on response. For this model, the constants are 'no difference between marked and unmarked' and 'monolingual Spanish participants. The results of the model are in Table 3:

Table 3. Multinomial logistic regression: Degree of bilingualism.

	Marked (1)	**Unmarked (2)**
Some YM	0.163 (0.215)	-0.347 (0.245)
Span/ YM Bilingual	0.950*** (0.302)	1.118*** (0.319)
Constant	2.141*** (0.161)	0.992*** (0.179)
Akaike Inf. Crit.	2,496.643	
NOTE: *p<0.1; **p<0.05; ***p<0.01		

Table 3 presents the results of the multinomial logistic regression analysis. There were no statistically significant results when comparing the monolingual Spanish group with individuals who speak some Yucatec Maya. However, when a speaker is Spanish-Yucatec Maya bilingual, the speaker is 0.95 times more likely to indicate marked responses ($p < 0.01$) and 1.118 times more likely to indicate unmarked ($p < 0.01$) when compared a monolingual participant.

Overall, this initial data show a preference for the marked 'a sí mismo' form, especially highlighting a difference in monolingual and bilingual speakers.

Monolingual speakers indicated that there was no difference between unmarked and marked forms more than bilingual speakers, which suggests that bilingual speakers are more sensitive to the difference between the marked and unmarked forms. Hwang (2021) also found a difference between speaker groups, but she concluded that these Spanish language learners were more likely to use *a sí mismo* to overtly mark reflexives than native speakers. They key difference between these two studies is that all speakers in the current study are native speakers of Yucatec Spanish, but one speaker group has knowledge of an additional language. These differences in groups of speakers may suggest that, in both studies, the change in evaluation is an effect of bilingualism on the semantics of voice. This will be explored more in the follow section in a discussion of animacy.

Those that speak some Yucatec Maya select the marked form most frequently, which is an interesting result. This may be a form of hypercorrection (i.e. Labov 1969). In sociolinguistics, this term is frequently used to describe speakers overcorrecting speak to use the most prestigious variation, or as Wolfram (1991:155) states, 'the source of hypercorrection is linguistic insecurity'. However, hypercorrection in this sense does not completely describe this situation as bilingual speech is usually not the most prestigious form. In his work on language change, Dols (2022) argues that hypercorrection can indicate a mismatch between form and semantic/pragmatic use, which may be what we see here. In other words, those who speak some Yucatec Maya may be sensitive that there is *some* semantic difference between the marked/unmarked form, but they may not understand this distinction entirely.

4.2. Animacy

Next, the verbs were separated according to animacy. As stated in H3, we would expect that speakers mark inanimate agents less due to middle voice interpretations that would make the inclusion of 'a sí mismo' infelicitous. As such, animacy and degree in bilingualism are expected to be coordinating, not contrasting factors. There were 895 tokens with animate agents and 828 tokens with inanimate agents. Overall, we found the opposite to be true. With animate agents, participants selected the marked 'a sí mismo' response 65% and with inanimate agents, participants indicated a preference for marked 'a sí mismo' answers (81.5%). Therefore we see that participants were selecting marked answers more frequently more inanimate agents. With animate agents, participants selected the unmarked 27% of the time and with inanimate agents, participants selected the unmarked answers 13.5%. Participants also indicated no perceived difference 8% of the time for animate agents and 5% of the time for inanimate agents. A second multinomial logistic regression model was run on animacy and response (without degree of bilingualism as a factor), as seen in Table 4:

Table 4. Animacy.

	Marked (1)	**Unmarked (2)**
Inanimate	0.629*** (0.202)	-0.284 (0.225)
Constant	2.123*** (0.126)	1.232*** (0.136)
Akaike Inf. Crit.	2,471.905	
NOTE: *p<0.1; **p<0.05; ***p<0.01		

The results of the multinomial logistic regression model show that when participants were presented with inanimate agents were 0.629 times more likely to select the marked response than when presented with animate agents, which was statistically significant ($p<0.01$). Here, we see the role of animacy overall: participants are more likely to select a marked response for inanimate agents when compared to animate agents.

To better understand the role of knowledge of Yucatec Maya, the responses are divided by participant degree of bilingualism. Based on the initial responses, the degree of familiarity with Yucatec Maya appears to affect the way animacy is attended to. This is presented in Table 5:

Table 5. Animacy and Degree of bilingualism.

	Animate			Inanimate		
	Monolingual	*Some YM*	*Bilingual*	*Monolingual*	*Some YM*	*Bilingual*
Marked	n=169 62%	n=253 70%	n=163 62.5%	n=197 78%	n=288 86%	n=189 79%
Unmarked	n=83 30.5%	n=74 20.5%	n=83 32%	n=33 13%	n=29 8.5%	n=49 20.2%
No difference	n=21 7.5%	n=35 9.5%	n=14 5.5%	n=22 9%	n=19 5.5%	n=2 0.8%
TOTAL	273	362	260	252	336	240

When we compare animacy between degree of bilingualism, inanimate agents are marked more frequently than animate agents for every group. Once again, we see the 'no difference' response highlights a difference in groups based on degree of bilingualism: Bilinguals select this option least frequently overall, and 'no difference' was only selected twice (0.8%) by bilingual participants with inanimate agents. This indicates that bilingual speakers perceive a strong difference in marked/unmarked responses when comparing animacy.

Those that speak some Yucatec Maya and the bilingual group both indicated 'no difference' more for animate agents than inanimate agents. Conversely, monolingual speakers selected 'no difference' more for inanimate agents. This suggests that some knowledge of at least some Yucatec Maya may increase a speaker's perception of animacy restrictions to marking with 'a sí mismo'. A visual presentation of the percentages can be seen in Figure 2:

Figure 2. Animacy Effects.
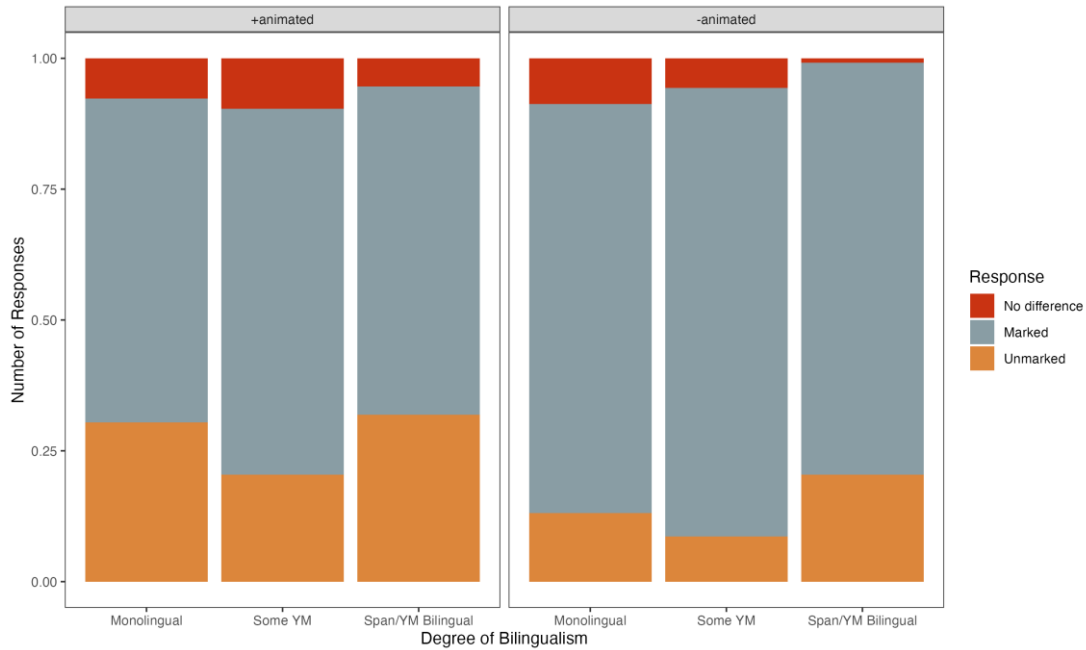
In this final multinomial logistic regression model, degree of bilingualism and animacy are predictors and marked vs unmarked response is the dependent variable to determine if knowledge of Yucatec Maya and animacy of the verb had an effect of participant selection of marked/unmarked responses. The results are presented in Table 6:

Table 6. Multinomial logistic regression: Animacy and Degree of bilingualism.

	Marked (1)	**Unmarked (2)**
Some YM	-0.107 (0.293)	-0.626* (0.319)
Span/ YM Bilingual	0.369 (0.362)	0.405 (0.378)
- Animacy	0.107 (0.323)	-0.969*** (0.368)
Some YM: - Animacy	0.634 (0.439)	0.643 (0.514)
SPan/YM Bilingual: - Animacy	1.987** (0.829)	2.388*** (0.860)
Constant	2.085*** (0.231)	1.374*** (0.244)
Akaike Inf. Crit.	2,438.490	
NOTE: *p<0.1; **p<0.05; ***p<0.01		

When looking at the interaction between degree of bilingualism and animacy, the only statistically significant difference is found when comparing monolingual Spanish and Spanish/Yucatec Maya bilingual speakers with animacy as a factor. If a participant is bilingual, they are 1.987 times more likely to select a marked response for inanimate agents ($p < 0.05$) and 2.388 times more likely ($p < 0.01$) to select an unmarked response when compared to monolingual speakers. This is similar to the

findings of our first model. Overall, we see that speakers are sensitive to animacy, selecting marked responses more frequently with inanimate agents than with animate agents, contradicting what was anticipated in H3. If selecting a marked response reinforces reflexive interpretations (as opposed to middle voice interpretations), we would expect to see higher rates of marked responses for animate agents.

One possible explanation could be the semantics of the verb itself: the verb groups from Martínez Corripio (2008) presented in Table 1 above distinguish verbs that can use reflexive and 'middle' voice in Yucatec Maya (group 1) and verbs that can only use the reflexive voice in Yucatec Maya (group 2). An additional linear regression compares four groups: group 1 verbs that have an animate agent, group 2 verbs that have an animate agent, group 1 verbs that have an inanimate agent, and group 2 verbs that have an inanimate agent. In the data collection, the survey presented each verb twice: once with an animate and one with an inanimate agent, and there was an equal number of verbs in each group. Table 7 presents this model that uses group 2 (reflexive only) and marked responses as a reference:

Table 7. Verb Group and Animacy (Reference: Reflex only, Animate agent).

	No difference (1)	Unmarked (2)
Reflex only group-Inanimate	-1.030*** (0.389)	-1.195*** (0.225)
Reflex/Middle-INAnimate	-1.779*** (0.212)	-2.028*** (0.219)
Reflex/Middle-Animate	-0.571** (0.276)	-1.028*** (0.179)
Constant	-1.779*** (0.212)	-0.483*** (0.130)
Akaike Inf. Crit.	1,841.084	
NOTE: *p<0.1; **p<0.05; ***p<0.01		

First, when comparing animate and inanimate agents within group two (reflexive only), participants are 1.030 times less likely to select no difference and 1.195 times less likely to select unmarked than marked, both of which are statistically significant (p<0.01). By comparing animate vs inanimate agents within group two (reflexive only) verbs, the preference for marked responses for inanimate agents can be seen, similar to previous models. Second, by comparing animate agents in group two (reflexive only) with group one (allows reflexive and middle voice), participants are 0.571 times less likely to select no difference than marked and 1.028 times less likely to select unmarked than marked when compared to group 2 verbs. Both are statistically significant (p<0.05 and p<0.01 respectively). As the animacy is constant, this highlights a difference between the two groups of verbs: participants are more likely to select the marked option for group 1 verbs (that allow for middle and reflexive).

This section has provided many unexpected results: (1) inanimate agents are more likely to be marked than animate agents (2) there is only a significant interaction between animacy and degree of bilingualism when comparing monolinguals and bilinguals and (3) verbs that allow both 'middle voice' and reflexive in Yucatec Maya are more likely to be marked than verbs that only allow reflexive. First, it is important to remember that there is no comparable middle voice in Yucatec Maya, but there is an anticausative. With an anticausative, there is no agent, and manipulating an

utterance to include or suggest an agent would make it unacceptable, as seen in (24) above. This is not the case in Spanish, where the line between reflexive and middle voice is not as defined. By marking these *se* structures overtly with 'a sí mismo' participants in this study are, in a way, emphasizing the agency of these actions. Returning to the example in (36) the *flag* is what is doing the folding to itself. In a way, this reiterates that there is an agent and distinguishes the interpretation from an anticausative one. The distinction between (lack of) agency may be more semantically salient than the true reflexive/middle voice interpretations of Spanish. Also, when comparing group 1 verb (allows reflexive and middle voice) with group 2 verbs (only reflexive), participants mark group 1 verbs more, which suggests that are clarifying interpretation. Group 1 verbs include verbs such as *twist, roll, slice,* and *wet* whereas group 2 verbs include verbs such as *wet, wash,* and *peel*. It is possible that participants are sensitive to the agency required to complete these actions: group 2 verbs like *wash* can easily be understood to be reflexive while *twist* may require more context to understand. As such, participants may mark group 1 verbs more frequently with 'a sí mismo' to clarify this interpretation.

In many varieties of Spanish, 'a sí mismo' is only felicitous with a true reflexive, and other cases, such as (1), washing your face is an example of the middle voice instead of a true reflexive. In these cases, Yucatec Spanish speakers are not as sensitive to the (in)felicity of Spanish *se* middle interpretations, which may be because this very specific distinction does not exist in Yucatec Maya. In Yucatec Maya, reflexive voice is marked with self, which is an NP that has grammaticalized from a broader meaning. It is possible that Yucatec Spanish speakers are clarifying the ambiguous *se* with a marker self, or in this case 'a sí mismo' to clarify intended meaning that the agent was both the subject and the object or patient. Rather than focusing on true reflexive/middle voice distinctions, Yucatec Spanish speakers are communicating this self interpretation in contexts where agency (as opposed to an anticausative interpretation) needs to be reinforced. This would explain the high use of marked responses with inanimate agents as well as the high rate of marked responses with group 1 verbs (middle and reflexive) over group 2 verbs (just reflexive), both of which are cases where we would anticipate *less* use of the marked 'a sí mismo'.

5. Conclusions

Adding to the limited literature of voice in bilingual/language contact/acquisition situations, this study aimed to highlight differences that speakers perceive in voice in bilingual Yucatec Spanish. Based on previous work in language acquisition, we would expect there to be some interference/transfer and that voice is something that requires higher proficiency in a language to fully acquire. Also, based on Bittar Prieto's (2021) work, it is possible that there is less differentiation between the voices overall due to language contact. To summarize the results of the current study, I revisit the research questions:

RQ1: *When presented with a se construction in Spanish, to what degree do Yucatec Spanish speakers clarify the interpretation of the reflexive and middle voices?*

In Spanish, both middle and reflexive voices are marked with the clitic *se*, but only the true reflexive voice can be overtly marked with 'a sí mismo'. Participants in the current study were presented with both animate and inanimate agents, which allowed us to determine to what extent the selection was determined by the semantics of the verb (as suggested by Martínez Corripio 2008). This study showed that most participants marked the verb with 'a sí mismo', with 1,259 (73%) responses preferred the marked 'a sí mismo', and 351 (20.5%) responses preferred the unmarked form. Also, 113 responses (6.5%) indicated no difference between marked and unmarked answers. Therefore, the current data support the first hypothesis, repeated below:

H1: Since *se* constructions can be ambiguous in Spanish but not in Yucatec Maya, speakers will use of the full reflexive "a sí mismo" to clarify intended reflexive constructions or middle voice interpretations.

Based on this data, the preference for the marked 'a sí mismo' forms overall suggest that this is a feature of Yucatec Spanish. In her study, Hwang (2021) shows that native speakers preferred the unmarked form, but this study shows that this contact variety is unique. Based on this data, I suggest that this unanticipated result is due to the high contact between the two languages, it is possible that the semantic idea of overtly marking voice is something that speakers perceive as necessary, regardless of degree of bilingualism. In their work with heritage language speakers, Wiese et al (2022) find that non-canonical features are not just in bilingual populations studied but can also appear in monolingual populations in areas of contact. Therefore, the current data support H1.

RQ2: To what extent does degree of bilingualism affect this selection?

Separating the degree of bilingualism gives insight into the effects of bilingualism/language contact on middle/reflexive voice interpretation. In the current study, there were three groups based on degree of bilingualism: one monolingual Spanish group, one that self-reported knowing some Yucatec Maya, and those that self-identified as bilingual Spanish/Yucatec Maya speakers. First, there were statistically significant differences between monolingual and bilingual speakers of Yucatec Spanish is in line with findings from previous work on Yucatec Spanish (as seen in Michnowicz 2015, Bove 2019, and Uth and Gutiérrez-Bravo 2020 to name a few). The low rates of 'no difference' by bilingual speakers suggests that bilingual speakers are more sensitive to the semantics of voice in the contextualized items.

Second, the fact that there was no statistically significant difference between monolingual speakers and those that know some Yucatec Maya. These findings suggest that knowing some Yucatec Maya does not affect the perceived need to mark the reflexive voice with 'a sí mismo'. Instead, it appears that only more advanced bilinguals recognize this difference. Previous work on voice (i.e. Kemmer 1993) suggests that this is a deep structure concept within semantics. Previous studies on language acquisition of voice in Spanish (such as Bayona 2005 and Hwang 2021) suggest that structures like the middle and reflexive voices, and their semantic meaning, are acquired later as learners become more proficient and are able to perceive these deep structure interpretations. Therefore, the second hypothesis (repeated below) is partially accurate.

H2: The distinction between marked and unmarked answers will be based on degree of bilingualism: the greater the proficiency of Yucatec Maya, the more

participants will use the full reflexive "a sí mismo" to differentiate between reflexive constructions and middle voice interpretations.

This hypothesis suggests that there will be an incremental change where monolingual speakers select marked responses least frequently, those that know some Yucatec Maya select marked responses more, and the bilinguals select the marked responses most frequently. However, this was not entirely the case. The fact that there is no different at lower levels of bilingualism shows that there is no incremental relationship between response and proficiency. Instead, it appears that this distinction is achieved at high levels of proficiency, which is common for semantically complex topics such as voice.

RQ3: To what extent does animacy play a role in this differentiation?

Based on the discussion of animacy in Maldonado's (2008) work on Yucatec Maya and voice, I anticipated higher rates of 'a sí mismo' marking with animate agents as speakers indicate true reflexives. We found the opposite to be true: Participants in the current study selected the marked answer 65% of the time with animate agents and 81.5% of the time with inanimate agents. When animacy and degree of bilingualism were both included in the model, participants were more likely to select marked answers for inanimate agents than animate agents, and the interaction between animacy and degree of bilingualism highlighted the difference between monolingual and bilingual speakers similar to what was seen in previous model. In both models, bilingual speakers indicated that there was 'no difference' between the marked and unmarked form the least, suggesting that they most often recognized a need to differentiate between the two forms. Lastly, a significant difference between group 1 and group 2 verbs indicated that participants marked group 1 (both reflexive and middle voice) verbs more frequently. The third hypothesis (repeated below) cannot be supported by the current data entirely:

H3: Based on the animacy restrictions of the middle construction in Yucatec Maya, there will be a correlation between the use of the full reflexive form and the animacy of the agent: participants will clarify true reflexive interpretation by selecting marked responses for animate agents more than inanimate agents.

Overall, we see that this hypothesis is partially correct: animacy is a factor in participant selection, but the second part of the hypothesis is not supported. Participants are more likely to select the marked response when there is an inanimate agent as well as for verbs that can occur in both middle and reflexive voices (group 1).

In previous literature such as Maldonado (2008), Spanish middle and reflexive *se* constructions are differentiated by a 'true reflexive' meaning that allows for 'a sí mismo'. Therefore, the distinction between these two voices is the felicity of the overtly marked form. This would be supported if participants preferred the unmarked form overall, marked animate agents more than inanimate agents, and marked for group 2 (reflexive only) verbs more than group 1 verbs (reflexive and middle voices). However, this is not what we saw. I propose that, in Yucatec Spanish, the 'true reflexive vs middle voice' distinction is not as semantically salient as other factors. Hwang (2021) argues that non-native speakers use text and context to determine appropriate voice while native speakers use the semantics of the verbs themselves. I argue that Yucatec Spanish speakers focus on the semantics of the verb, but they focus on reiterating the reflexive interpretation and the agency of the subject over any voice distinctions.

I propose that speakers of Yucatec Spanish perceive a semantic void that is unique from other varieties of Spanish. Rather than focusing on the felicity of *se* constructions that contain 'a sí mismo' (such as **se lava la cara a sí mismo*, which would be infelicitous in other varieties of Spanish), speakers mark with 'a sí mismo' to reiterate the agency of the subject. Because participants marked inanimate agents and group 2 (middle and reflexive voices) more, I argue the inclusion of the 'a sí mismo' reiterates that there is an agent and distinguishes the interpretation from an anticausative one. This distinction, which I refer to as the self meaning, is more semantically salient than the true reflexive/middle voice interpretations of Spanish. If speakers do not believe that the self meaning is clear enough through semantics (middle voice or an inanimate agent), speakers reiterate the self meaning by marking 'a sí mismo'. This idea that a speaker would recognize the semantic self meaning and overuse the 'a sí mismo' is in line with Bove (2023)'s finding that subjunctive use is extended to communicate conjecture. In other words, participants, recognize a perceived gap and therefore a need to add additional information to communicate a specific meaning.

In conclusion, the current study aimed to identify possible language contact effects on voice in Yucatec Spanish, a contact variety spoken in Mexico. There were several factors included in this study which varied from semantics (animacy, voice) to language contact effects (degree of bilingualism). Previous experimental work on voice in situations of multilingualism (from a variety of theoretical frameworks such as bilingualism, language contact, language acquisition, etc.) is minimal, but the conclusion is the same: there is evidence of transfer/interference/contact effects at higher levels of proficiency due to the semantics of voice. The current study suggests that language contact varieties may show evidence of perceived semantic voids that can result in unanticipated judgements, and these may pattern with a semantic feature of the contact language. The current data is just a starting point. As Bittar Prieto (2021) states, finding naturally occurring data to support claims of semantic language contact effects is difficult. Production data would strengthen these claims, and data reporting frequency of marking 'a sí mismo' in a corpus would also be an interesting addition to this discussion. For now, I leave that for a future project.

Acknowledgments

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