Second and first position in Tohono O'odham auxiliaries

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1.1 Introduction

Word order and second position patterns in the Uto-Aztecan language Tohono O'odham have been discussed by numerous scholars.These discussions have taken place in different theoretical frameworks in order to better analyze and understand O'odham morphosyntax, as well as within the larger context of understanding auxiliaries cross-linguistically and for this language family (Steele 1977; Steele et al. 1981). The arguments and supporting evidence vary widely, with early approaches drawing on intonation contours as a window into the syntax-phonology interface and Tohono O'odham word order (Hale 1975, 2001, 2002; Hale and Selkirk 1987) contrasting with pragmatically-driven analysis of syntactic patterns relying on information structure (Payne 1987, 1992). The basic generalization for Tohono O'odham[1] is stated easily. The auxiliary appears in second position and follows the first constituent, which at times is also the first word. This is illustrated by the sentences in (1), with a pair of intransitive sentences that have the same meaning. This pair also illustrates some of the flexibility of O'odham word order; in both examples, the auxiliary *'o* follows the first constituent:

(1) a. 'Áli **'o** ṣóak.[2] (Hale 2002: 304)
child 3.AUX to.cry
'The child is crying.'

b. Ṣóak **'o** g 'áli
to.cry 3.AUX DET child
(same translation as (1a))

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[1] Tohono O'odham is an endangered Native American language, spoken mainly in Southern Arizona, as well as in Sonora, Mexico. This material is based upon work supported by while serving at the National Science Foundation. Any opinion, findings, and conclusions expressed in this material are those of the author, and do not necessarily reflect the views of the National Science Foundation. Data in this paper comes from sources ranging from Mathiot (1973), Saxton (1982), Hale and Selkirk (1987), Hale (1975, 2001, 2002), Zepeda (1988) and Alvarez and Hale (n.d.). Auxiliaries are bolded in examples to highlight their distribution.The paper uses the official O'odham orthography where: glottal stop is (‘); (c, j) represent affricates; (ñ) the palatal nasal; (ḍ, ṣ) denotes retroflexes; (l) represents a palatal lateral flap; and e (phonetically, [ɨ]) is a high central unrounded vowel. All words are marked with their primary stresses and vowels with a breve diacritic (as in ŭ) are voiceless. My thanks for comments on earlier versions to Joey Sabbagh and Rebecca Woods. Any errors of data or analysis are my own.

[2] Imperfective verbs can be translated ‘is/was verb-ing’; for ease of translations, this paper adopts the former. Perfective auxiliaries are marked by /-t(-)/ and are accompanied by a lexical verb that is perfective, which most often is marked by truncation (Fitzgerald and Fountain 2005, Fitzgerald 1997), as illustrated below in (8), with the perfective form, *cípk* appropriately used instead of the imperfective, *cípkan*, ‘to work.’

The intransitive verb (1a) and the noun phrase subject (1b) are each permissible as the first constituent in these utterances.[3]

While the data in (1) present a straightforward generalization (and one much cited in the literature on the language), in fact, Tohono O'odham also licenses first position auxiliaries, patterns we will examine further below. The nature and behavior of the O'odham auxiliary is much more complex when viewed against the larger backdrop of the language and its morphosyntactic and phonological properties. The auxiliary is rich in the inflectional information it carries, but noun phrases carry little or no indication of their relationship to argument structure. Tohono O'odham has a large set of functional vocabulary with properties not completely understood, but which includes structures like onsetless words, not permitted elsewhere in the language. In examining some of the data when auxiliaries appear as the first constituent, the influence of these onsetless words appears to be playing a role. Given the range of these patterns, demonstrating the complexity of second position and the nuanced phonological generalizations for auxiliaries in first position are the goals of this paper.

The organization of this chapter is as follows. First, I outline the necessary background on the non-configurational properties of Tohono O'odham. Next, I give some detail on what morphological information auxiliaries can carry. In Section 4, I turn to a fuller discussion of the auxiliary when its distribution puts it in second position. In doing so, I outline its behavior with regard to some verb second tendencies as in Holmberg (2015). In the subsequent section, I present several phonological challenges to a purely syntactic account, demonstrating several contexts where the auxiliary unambiguously appears as the first constituent of a sentence. Ultimately, I show that the patterns of word order and auxiliary distribution reflect both syntactic and phonological forces at work.

2.1 Non-configurational properties of Tohono O'odham

Hale (1982) and Jelinek (1984) examine the properties of "non-configurational" languages, which allow relatively free word order. One language that displays these properties is Tohono O'odham, which permits a number of possible surface structures. The sentences in (2) show different word orders for the same transitive sentence. The varying and free order permitted in these different O'odham sentences does not correspond to a change in meaning or a difference in focus, with the apparent subject (2b-c) and object (2d, 2f) each able to serve as the first constituent. The auxiliary, *'o*, occurs in second position and is bolded below and throughout the paper.

(2) Free word order, with second position auxiliary (Zepeda 1988: 31)

a. Húhu'id **'o** g bán g cú:wĭ.
to.chase 3.AUX DET coyote DET jackrabbit
'The coyote is chasing the jackrabbit.'

b. Bán **'o** húhu'id g cú:wĭ.
coyote 3.AUX to.chase DET jackrabbit

[3] The examples in (1) also show restrictions on the distribution of the *g* determiner, which is restricted from appearing in sentence-initial noun phrases.Note that the determiner does not convey definiteness.

c.	Bán	**'o**	g	cú:wĭ	húhu'id.	
	coyote	3.AUX	DET	jackrabbit	to.chase	
d.	Cú:wĭ **'o**	húhu'id		g	ban.	
	jackrabbit	3.AUX	to.chase	DET	coyote	
e.	Húhu'id	**'o**	g	cú:wĭ	g	bán.
	to.chase	3.AUX	DET	jackrabbit	DET	coyote
f.	Cú:wĭ	**'o**	g	bán	húhu'id.	
	jackrabbit	3.AUX	DET	coyote	to.chase	

As these sentences also illustrate, free word order does not co-occur with overt case on nominals. In (2), the transitive sentences express the agent and patient of the action in singular noun phrases. Examples like this, with singular nominals for both the subject and object, will thus lack the inflection to signal which noun phrase fulfills each of these grammatical roles in the sentence. However, while nominals are not themselves case-marked, grammatical relations are expressed overtly in other ways. Some strategies used to convey that information are non-syntactic. Consider that in (2), the pragmatic information of how coyotes and jackrabbits act in nature would likely be sufficient for O'odham speakers to understand that the coyote is the agent of *chase*. It is important to note that the intonation patterns associated with these kinds of varied word orders were analyzed by Miyashita et al. (2003) in an acoustic study, finding little evidence that distinct intonation patterns resolve the ambiguity of these sentences.

In other contexts, strategies conveying grammatical relations are morphosyntactic, as in (3a-c), where the patient is a plural noun. The verb is marked with an object clitic, *ha,* which expresses third person plural; the plural noun has its number marked by reduplication.[4] The auxiliary marks third person but does not distinguish number. In a sentence with two noun phrases, the only overt marking to differentiate subject and object is if the object noun phrase is pluralized. In (3d), the object noun phrase has been dropped from the sentence; this example shows that this is a licit construction, so long as the object clitic surfaces.

(3) Third person object marking in transitive sentences

a.	Ha-húhu'id	**'o**	g	mímstol	g	gógs. (Zepeda 1988: 33)	
	3OBJ.PL-to.chase	3.AUX	DET	PL-cat	DET	dog	
	'The dog is chasing the cats.'						
b.	Mímstol	**'o**	ha-húhu'id	g	gógs. (Zepeda 1988: 33)		
	PL-cat	3.AUX	3OBJ.PL-to.chase	DET	dog		
c.	Gógs	**'o**	g	mímstol	ha-húhu'id. (Zepeda 1988: 33)		
	dog	3.AUX	DET	PL-cat	3OBJ.PL-to.chase		
d.	Gógs **'o**	ha-húhu'id.			(Zepeda 1988: 36)		
	dog 3.AUX	3OBJ.PL-to.chase					
	'The dog is chasing them (those).'						

Sentences do not need an overt noun or pronoun to be grammatical, as further exemplified below in (4) for first and second person objects; the sentences in these examples are

[4] See Fitzgerald (2012) for more details about reduplication, which is quite complex in what it indicates grammatically, which word classes reduplicate, and the phonological shapes of reduplicated words.

all singular nouns. This particular property is also argued to be associated with languages that are non-configurational (Hale 1982, Jelinek 1984). The example in (3) gives a preliminary indication of the inflection used to indicate subjects and objects. Tohono O'odham subjects agree with the auxiliary in person and number for first and second persons, and for third person, auxiliaries do not distinguish number (seen further below in (5)). In intransitive sentences, where there is only one argument, the subject inflection is carried by the auxiliary. First and second person auxiliaries carry person and number information for the subject, as exemplified in (4). Notably, these examples are grammatical without independent pronouns also occurring. Although such pronouns are permissible for both subject and object, they are not obligatory. Person and number information for first and second person appears on the auxiliary, with lexical verbs carrying additional number and person information, depending on the verb's argument structure. The examples in (4) use intransitive sentences.

(4) First and second person object marking in transitive sentences (Zepeda 1988: 20)

a. S-hottam **'añ** cipkan.
STAT-quick 1S.AUX to.work
'I am/was working quickly.'

b. S-ba:bigĭ **'ap** him.
STAT-slow 2S.AUX to.walk
'You are/were walking slowly.'

c. Ganhu **'ac** wo:po'ŏ
over.there 1PL.AUX PL-to.run
'We are/were walking over there.'

d. Si **'am** s-kaidam ñeñok.
VERY 2PL.AUX STAT-loud PL-to.speak
'You (pl.) are/were speaking loudly.'

The full set of imperfective auxiliaries is given in Table 1, along with the short forms. The imperfective long forms for first and second person form the base for carrying information like perfective aspect, mood, modality, evidentiality and more, discussed in the following section. Third person auxiliaries have a different shape, using *'a-* as their base. Short auxiliary forms are the utterance-initial forms that can occur, discussed later in the paper (§4.4).

Table 1. Imperfective auxiliaries (Zepeda 1988: 160)

	Singular		*Plural*	
1st person	*LONG*	*SHORT*	*LONG*	*SHORT*
1st person	'añ	ñ	'ac	c
2nd person	'ap	p	'am	m
3rd person	'o	'o	'o	'o

In transitive sentences, auxiliaries carry subject inflection and the object marking appears on the left periphery of the lexical verb, as in (5). These examples have third person singular subjects, reflected in the present imperfective auxiliary *'o*.

(5) First and second person object marking in transitive sentences (Zepeda 1988: 36)

a. Ceoj **'o** ñ-céggia.
boy 3AUX 1OBJ.SG-to.chase
'The boy is fighting me.'

b. Klístina **'o** m-céndad.
Christina 3.AUX 2OBJ.SG-to.kiss
'Christina is kissing you.'

c. Hégai 'áli **'o** t-kúḍut.
DEM child 3.AUX 1OBJ.PL-to.bother
'That child is bothering us.'

d. Hégai 'úwĭ **'o** 'em-ñú:kud.
DEM woman 3.AUX 2OBJ.PL-to.take.care.of
'That woman is taking care of you.'

Table 2 gives the full set of object pronominals; note that the third person singular object has no overt marking, as was demonstrated in (2) above.

Table 2. Direct Object[5] Clitics (Zepeda 1988: 159)

	Singular	*Plural*
1st person	ñ-	t-
2nd person	m-	'em-
3rd person	∅	ha-

Recall that the transitive sentences in (2) with overt objects show no change in the surface shape of the nouns regardless of whether they serve as subjects or objects. Nouns are not case-marked in Tohono O'odham, nor are they required. It is worth discussing these patterns a bit more in the context of earlier work on pronominal arguments and non-configurational languages (Jelinek 1984's Pronominal Argument Hypothesis). Jelinek (1984) analyzes Tohono O'odham as a pronominal argument language, meaning that the pronominals – not nominals – serve as arguments, adjoined to the flat syntax outside of the verb phrase. Jelinek (1984: 66) observes that "nominals (including free pronouns) co-occur with the obligatory clitics and are therefore optional." The nominals are optional, not case-marked, and do not display case agreement with the pronominals. Those properties, together with free word order, lead Jelinek to argue for the optional nominals to be adjuncts while analyzing the pronominals as the arguments. The examples in (6) show the invariant forms of the independent pronouns, regardless of whether they might reflect the agent or patient of the action, *look at*. The optionality of the independent pronoun leads to the conclusion that the subject is expressed by the auxiliary, while the object is expressed by the direct object clitic marked on the lexical verb. All other nominals or pronouns are optional adjuncts.

(6) Independent pronoun distribution in transitive sentences

a. 'A:ñi **'añ** m-ñéid 'a:pi. (Zepeda, p.c. as cited in Jelinek 1984: 66)
1SG 1SG.AUX 2OBJ.SG-to.see 2SG
I am/was looking at you.'

[5] These can also mark indirect objects of the corresponding person and number.

b. 'A:pi '**ap** ñ-ñéid 'a:ñi. (Zepeda, p.c. as cited in Jelinek 1984: 66)
2SG 2SG.AUX 1OBJ.SG-to.see 1SG
You are/were looking at me.'

It is important to note that the pronouns themselves not only lack case, but also indicate emphasis and an acoustic study of word order demonstrates that the prosody does not disambiguate these optional elements (Miyashita et al. 2003).

In addition to the free word order, and the satisfaction of argument positions by pronominals, there is a third property that supports the analysis of Tohono O'odham as a non-configurational language, namely its tolerance of discontinuous constituents, which Smith (2004a) argues is seen most prominently in postpositional phrases. The examples in (7) illustrate the contrast, showing that the object of a postposition can be moved into the first position of a sentence, without the postposition.[6]

(7) Postpositional phrases and their arguments
a. 'A:ñi **'añ** S-ki'ikig wui hi:. (Smith 2004a: 4)
1S 1S.AUX Phoenix to to.go
'I went to Phoenix.'
b. S-ki'ikig **'añ** wui hi:.
Phoenix 1S.AUX to to.go
(same translation as (7a))

The examples in this section have essentially only had one constant: the placement of the auxiliary after the first constituent. In addition, the auxiliary is carrying significant information regarding the subject of a clause in terms of person and number. Although brief, the presentation of these non-configurational properties in Tohono O'odham highlights how the regulation of lexical items is much less strict than in other languages, and even less strict than the distribution of the functional items in this language.

3.1 Properties of the Tohono O'odham auxiliary

Discussions of O'odham as a verb second language are rooted in the distributional patterns of the auxiliary. Steele et al. (1981) and Hale and Selkirk (1987), among others, describe the auxiliary in Wackernagel's position owing to its affinity to second position. In Table 2, I presented the imperfective forms of O'odham auxiliaries, which serve as the base for other grammatical verbal suffixes. These are used in tandem with a perfective lexical verb to express past or present perfective actions, as well as to express the future when the irrealis marker is also present. Perfective forms of these auxiliaries are suffixed with a *–t* after the person and number elements (discussed for Table 1), seen in (8). Perfective auxiliaries can occur with past actions, as in (8a-c), or as a future unrealized action as in (8d-e). Note that all the lexical verbs have been truncated, which is the most common form of indicating perfective aspect.

[6] Smith's examples come from the closely related dialect of Tohono O'odham, Pima, which is also known as 'Akimel O'odham. I have converted them into the official Tohono O'odham orthography for consistency.

(8) Perfective auxiliaries

a. 'Uwĭ **'at** ñei g ceoj. (Zepeda 1988: 62)
woman 3.AUX-PFV to.see-PFV DET boy
'The woman saw the boy.'

b. 'A:cim **'att** cicpk 'am ki: webig. (Zepeda 1988: 62)
1PL 1PL.AUX to.work-PFV LOC house behind
'We worked behind the house.'

c. Mea **'at** g Huan 'i:da juḍumĭ. (Hale 2001a: 6)
to.kill-PFV 3.AUX-PFV DET John DEM bear
'John killed this bear.'

d. S-'o:gĭ ma:gina **'apt** o wako. (Zepeda 1988: 82)
1S.POSS-father car 2S.AUX-PFV IRR to.wash-PFV
'You will wash my father's car.'

e. Ceoj **'at** o ñeokad. (Zepeda 1988: 72)
boy 3.AUX-PFV IRR to.speak- FUT.IMP
'The boy will be speaking.'

The possessed noun phrase in (8d) is also of interest, demonstrating a clear constituent occupying first position, as opposed to the nouns of (8a,e) and pronoun of (8b).

In addition to aspect marking, auxiliaries can be suffixed for mood, modality and evidentiality. Choi (2011) analyzes modality and evidentiality in Tohono O'odham, classifying two suffixes as evidentials (*-kĭ*, a direct evidential and *-ṣ*, a reportative) and two as epistemic modals (*-p*, an assumptive and *–s*, a dubitative). The latter occur primarily in subordinate clauses, which are further described below in §4.2, where I examine auxiliaries prefixed by one of several possible complementizers. In (9), a partial set of examples exhibiting canonical second position distribution of modal auxiliaries. These also illustrate some of the additional categories that serve as a first constituent. More functional items, like specifiers (9c, d, e), can fill the first position, although it is worth noting that this is not true of all items in these classes.

(9) a. S-tóñ **'aṣ** c s-ha-pádmac. (Mathiot 1.194)
STAT-hot 3.AUX-REP CONJ STAT-3P.OBJ-to.get.lazy-CAUS-PFV
'They say that it is hot and that it makes them lazy.'

b. Gé'eda **'atkĭ** g 'í:nkĭ (Mathiot 1.103)
to.become.larger 3.AUX-PFV-EVD DET soot
'There is too much soot (it has become too much).'

c. 'An **'atṣ** o héma 'e-wó:g-t. (Mathiot 1.12)
LOC 3.AUX-PFV-REP IRR one REF-to.build.a.road
'A road is going (hearsay) to be built there.'

d. Ṣélma **'atp** hu 'i mélw-him. (Mathiot 1.151)
almost 3.AUX-PFV-ASSUMP REM INCEP to.arrive-PROG
'He might be on the verge of arriving.'

e. Has **'antp** hi uḍ wa 'i júñij. (Mathiot 1.11)

in.some.way AUX-1s-PFV-ASSUMP CNTR[7] EQ shared.knowledge INCEP to.be.a.relative.to.someone
'I don't know whether/how I am related to him.'

Example (9a) shows an adjective phrase (akin to a stative verb). In (9c), the locative *'an* surfaces in one of its possible uses; it also can display somewhat fluid distribution in terms of where in exactly in a clause it occurs. In summary, the structure of the auxiliary, at least as we have seen so far in matrix clauses, suggest auxiliaries order aspect before both the evidential suffix and the epistemic modal:

(10) Preliminary Structure of Tohono O'odham Auxiliaries
AuxiliaryBase-Person.Number-Perfective-Evidential/Epistemic.modal

The auxiliary carries significant information relating to verbal categories of aspect, the speaker's attitude on a proposition, and more, and the next section further refines the properties of this element.

4.1 Second position auxiliaries in Tohono O'odham

Second position characteristics have been ascribed to several Uto-Aztecan languages (Steele 1977), including Tohono O'odham. Holmberg (2015: 346) lays out some tendencies associated with verb second languages in terms of what syntactic elements can occur (or are dispreferred) as the first constituent in the sentence, with the caveat that "*all* the V2 languages allow certain deviations." Typical first constituents represent a diverse set of categories, including noun phrases like subjects and objects, adverbs, prepositional phrases, predicative adjective phrases, adverbials, as well as polarity, modal and conjunctive particles. He also notes that the first constituent should only involve a single category, that wh-phrases are permissible as first constituents, and notes the possibility of clusters of adverbs of time and place, while excluding adverbial clusters that consist of sentential or aspectual adverbs (i.e., 'often'). In this section, I go through and illustrate the properties of verb second in Tohono O'odham, both in terms of the range of first constituent elements and in terms of the inflectional properties of the second position auxiliary. To preview what I will show in this section, a diverse set of categories can appear as the first constituent, including temporals, locatives, and adverbials, in addition to nouns and various kinds of verbs. Auxiliaries mark a variety of categories, and we will see this discussion expand upon those categories beyond what appeared in §3.

Constituents such as a noun phrases have relatively flexible distribution, so long as the auxiliary follows the first constituent. Lexical verbs, as we will see further below, operate with more restrictions on their distribution with regard to the auxiliary and also with regard to particles. The example in (11) makes clear that the first constituent is phrasal and not just a word by using a possessive phrase to reinforces that it is indeed a constituent, and not the first word, that determines auxiliary location. In utterance-initial position, the *g* determiner is not present, but elsewhere in utterances, the *g* is retained (cf. Fitzgerald 1994).

[7] The marker *hi* is a particle that seems to function as a contrastive referent or topicalizer within sentences.

(11) a. 'Áli jé'e **'at** o cípk sí'alim. (Zepeda 1988: 75)
child mother 3.AUX-PFV IRR to.work-PFV tomorrow
'The child's mother will work tomorrow.'

b. Sí'alim **'at** o cípk g 'áli jé'e.
tomorrow 3.AUX-PFV IRR to.work-PFV DET child mother

The examples in (12) further expand upon the range of constituents that can appear as the first constituent, including stative verbs (12a), postpositional phrases (12b), specifiers (12c-d), and locatives (12e), filling out some of the kinds of constituents we would expect of a verb second language, per Holmberg (2015).

(12) a. S-ná:k **'añ** g s-'ónk hídoḍ. (Mathiot 1.107)[8]
STAT-to.like.the.taste.of 1S.AUX DET STAT-salt.weed cooked.food
'I like salty food.'

b. Ñ-'ó:g we:m **'añ** kí:. (Mathiot 1.77)
1POSS-father with 1S.AUX to.be.living
'I live with my father.'

c. 'Am **'ac** wa s-wáipiñ. (Mathiot 1.163)
LOC 1P.AUX shared.knowledge STAT-to.get.sated
'We are sated.'

d. 'An **'ap** ñ-tá:gio ké:k. (Mathiot 1.158)
LOC 2S.AUX 1S.OBJ-in.front.of to.stand
'You are standing in front of me.'

e. 'I:ya **'am** cícwi. (Zepeda 1988: 19)
right.here 2P.AUX to.play
'You are playing right here.'

The examples in (12) also flesh out the details of some types of predicates in Tohono O'odham, where the stative marker *s-* marks so-called stative verbs, which can correspond with experiencers, seen in (12a,c), or other characteristics, such as inherent qualities like colors or temperature.[9] Intransitive verbs reduplicate to mark number of the agent or experiencer, while transitive verbs reduplicate to indicate number of the object, as well as carry prefixes that indicate the number and person of the object.

The grammatical elements appearing as the first constituent in the examples in (13) range considerably, including adverbial expressions (13b-c), particles (13a, d), and the negative particle[10] *pi* (12e). Tohono O'odham particles have received some attention in the literature (Hale 1969, 2001; Mathiot 1973; Alvarez and Hale n.d.; Copley 2005; Smith 2012). However, like many underdocumented indigenous languages of the Americas, there is at best a partial

[8] Examples from Mathiot (1973) are marked *M #.#*, where the # indicates an entry number that corresponds to an electronic FLEx database of Mathiot's lexicon and example sentences. The latter are partially analyzed and have been entered in the texts component, enabling easier searches and concordances. The number of an example marks where it occurs in this database.

[9] See Jackson (2002) for more on statives.

[10] The negative particle can occur in various locations in the sentence, based on what is being negated. See Smith (2012) for more detail.

understanding of their properties and distribution. Particles like *cum* and *'alo* can occur independently without each other and in positions other than as the first constituent, or as particle clusters can occur, as in (13e), which is one of several particle clusters that can occur in Tohono O'odham (cf. Alvarez and Hale n.d.; Mathiot 1973).

(13) a. Táko **'ant** 'ab ha-ñéi. (Mathiot 1.224)
Yesterday 1S.AUX-PFV on 1PL.OBJ-to.see
'Yesterday I saw them.'

b. Cúhug 'óidam **'att** cíkp. (Mathiot 1.200)
last.night during 1P.AUX-PFV to.work-PFV
We worked all night long.

c. 'I **'apt** 'e-ṣél. (Mathiot 1.228)
INCEP 2S.AUX-PFV REFL-to.straighten-PFV
'Now (here) you are straightened out (you've been put in the right direction).'

d. Pi **'amt** o kúkuiṣa. (Mathiot 1.12)
NEG 2S.AUX-PFV IRR PL-to.cry.out.from.surprise-PFV
'You (pl) should not cry out.'

e. Cúm 'álo **'ant** 'i géi.[11] (Mathiot 1.72)
try.in.vain.to almost 1S.AUX-PFV INCEP to.fall-PFV
'I almost fell down.'

In the examples from this section, the range of first constituent elements that can occur have been further illustrated, looking more at different particle and adverbial constructions. The section has also further connected O'odham properties to the characteristics outlined by Holmberg (2015). In tandem with these elements, more attention was given to the details of the O'odham auxiliary, which can carry aspect, mood, modality and evidential markers, and which is quite rich in terms of its morphological structure.

4.2 Prefixed auxiliaries in Tohono O'odham

The interrogative prefix, *n-*, illustrates how yes-no questions occur as the auxiliary clitic merges leftward with the utterance-initial question marker. The pair of declarative sentences from (1) are repeated below as (14), with the addition of negative counterparts in (14c-d).

(14) a. 'Áli **'o** ṣóak. (Hale 2002: 304)
child 3.AUX to.cry
'The child is crying.'

b. Ṣóak **'o** g 'áli
to.cry 3.AUX DET child

c. 'Áli **'o** pi ṣóak. (Hale 2002: 303)
child 3.AUX NEG to.cry

[11] Note that (13a) exhibits perfective truncation; the lexical verb is formed from the imperfective verb base, *ge:s*, which is one of a small set of verbs with both truncation and a suffix *–i* to mark perfective.

'The child is not crying.'

d. Pi **'o** ṣóak g 'áli
NEG 3.AUX to.cry DET child
(translation the same as 14c)

In (15), the yes-no counterparts to these are given, showing that the question-marked auxiliary begins the utterance, showing positive (15a) and (15b) negative questions.

(15) a. **No** g 'áli ṣóak? (Hale 2002: 304)
INT-3.AUX DET child to.cry
'Is the child crying?'

b. **No** g 'áli pi ṣóak? (Hale 2002: 304)
INT-3.AUX DET child NEG to.cry
'Is the child not crying?'

Holmberg (2015) notes that yes-no questions can be apparent exceptions where the verb is first rather than second. At least some of the cases he presents, which might be plausibly treated as "being covertly V2, the initial position occupied by an abstract question operator (as originally proposed by Katz and Postal 1964)," could be extended to Tohono O'odham, except that the initial position is occupied by an overt operator that cannot stand alone. There are three cases where auxiliaries can fall utterance-initially. In all three cases, the auxiliary clitic has a complementizer operator prefixed onto it. These auxiliary prefixes consist of yes-no question markers, conjunctions, and subordinate complementizers. These are typically analyzed as satisfying second position with the prefixal-type element itself as the first constituent, and the auxiliary phonologically dependent on that first constituent, but analyzed as a second position constituent syntactically (i.e., Hale 2002). In the following sets of data, I describe these patterns.

To look a bit more at interrogative constructions, especially those with more morphology in the auxiliary, the questions in (16a-b) are straightforward, given the syntactic word order shown above in the previous sections. The evidentiality marker *– kĭ* is part of the interrogative auxiliary in (16c), with the rest of the sentence consisting of a future marker and a weather verb, where the weather verb has an object prefix. The last example, (16d), uses a copula verb, as well as marking modality on the auxiliary. (the copula form, *wuḍ~uḍ*, surfaced earlier in (9e).)

(16) Interrogatives /n-/

a. **No** héma jé:ñ? (Mathiot 1.126)
INT-3.AUX one to.smoke
'Does anybody smoke?'

b. **Nap** 'e-wácwihim? (Mathiot 1.100)
INT-2S.AUX REFL-swim- PROG
'Have you been swimming?'

c. **Natkĭ** o t-júkṣ? (Mathiot 1.101)
INT-3.AUX-PFV-EVD IRR 1P.OBJ-to.rain-INSTR-PFV
'Are we going to have rain (is it going to rain on us)?'

d. **Naptp** héba'i uḍ 'i ṣóndal? (Mathiot 1.119)
INT-2S.AUX-PFV-ASSUM somewhere EQ INCEP soldier
'Were you ever a soldier?'

With parallel distribution to (16), the complementizer, *ku-* works on a discourse level as a connective or conjunctive marker. Hale (2001b and elsewhere) describes this as an obviative. In (17), the conjunction auxiliary begins all the utterances, which include a range of person, number, aspect and modality combinations.

(17) Conjunction complementizer /ku-/

a. **Kut** uḍ o m-we:m-kí:kamk. (Mathiot 1.121)
CONJ-3.AUX COP IRR 2P.POSS-with house-ACTOR-PN
'She will live with you (be your spouse).'

b. **Kuc** 'an béhekc sísto'olt. (Mathiot 1.215)
CONJ-2P.AUX LOC to.get.obj-CONJ DIST-syrup-CAUS
'We gather it (saguaro pulp) and make syrup out of it.'

c. **Kutp** hems o má:si. (Mathiot 1.117)
CONJ-3.AUX-PFV-ASSUMP hypothetical.condition IRR to.become.visible
'Maybe it will have gotten light (by that time).'

d. **Kuṣp** **'am** jú:k. (Saxton 1982: 129)
CONJ-3.AUX-REP-ASSUM LOC to.rain
'Presumably it's reportedly raining there.'

e. **Kutkĭs** hab 'e-júk hab múmku.
CONJ-3.AUX-PFV-EVID-DUB thus REFL-to.behave.in.a.certain.way thus to.get.sick
'He died from an illness.' (Mathiot 1.253)

e. **Kutkĭs** 'am jú:k. (Saxton 1982: 129)
CONJ-3.AUX-PFV-EVID-DUB LOC to.rain
'Oh, so it might be raining there.'

These examples also further elaborate on affix ordering within the auxiliary. Example (17d) shows that the reportative precedes the assumptive, while the sentences in (17e-f) give ordering between the evidential and the dubitative suffixes. The full set in (17) also shows the same kinds of post-auxiliary elements that occurred in Section 2, such as locatives or lexical verbs.

A third set of prefixed complementizers that surface on auxiliaries indicate subordinated clauses. Auxiliaries are prefixed with *m-*, shown in (18) where the non-matrix clauses are bracketed. The examples in (18a-c) show how the subordinate-marked auxiliary is left-aligned with the clause boundary, with some other element filling the initial spot. In (18d-e), the subordinate begins the complex sentence, with the matrix clause following.

(18) a. Heg **'ant** o 'ñ-wépogĭ [**mas** uḍ hóhogimel.] (Mathiot 1.4)
PART 1S.AUX-PFV IRR 1S.OBJ-to.turn.into [SUB-3.AUX-MDL COP butterfly
'I will turn into what is called (hearsay) a butterfly.'

b. Héma **'at** 'am o 'a: [**mat** o si s-má:ck.] (Mathiot 1. 142)
one 3.AUX-PFV LOC IRR to.tell.obj. -PFV SUB-3.AUX-PFV IRR very STAT-to.know-CORREL-PFV
'One who really knows it will tell it (the story).'

c. Pi **'añ** má:c [**matp** ha'i ha-nólot g háiwañ.]
NEG 1S.AUX to.find.out.about SUB-3.AUX-PFV-ASSUMP some 3PL. OBJ-to.buy.obj DET cow
'I don't know whether he bought any cows.' (Mathiot 1. 113)

d. [**Mant** hékid o ñ-dóajhid] **nt** o 'i wú:ṣ. (Mathiot 1. 90)
SUB-1S.AUX-PFV whenever IRR 1S.OBJ-to.cure-APPLIC 1S.AUX-PFV IRR INCEP to.get.out
'When I am getting better, I'll get up and go out.'

e. [**Mat** ṣa pi o jú:], **nt** 'am o hí:. (AH p. 18)
SUB-3.AUX-PFV somewhat NEG IRR to.rain-PFV, 1S. AUX-PFV LOC IRR to.walk-PFV
'If it doesn't rain, I will go there.'

Subordinate clauses can be the first constituent, just as long as the matrix auxiliary verb immediate follows the subordinate clause. This expands on the kinds of first constituent elements, in allowing a clause to fill that role. Thus we have seen that an individual single word, a phrase, and now a clause all are permissible first elements in sentences where the auxiliary is in second position. In examining the subordinate clauses, the subordinate-prefixed auxiliary is always left-aligned. Treating the subordinate clause cases in (18) in parallel with (16) and (17), the complementizer elements (here *m-*) fill the first constituent and then the auxiliary cliticizes leftward onto it. This is how Hale (2002: 306) analyzes these as being consistent with an auxiliary second position analysis, despite the apparent "first" position effects on the surface. In (15-18), the complementizer is the first constituent, and the cliticized auxiliary is in second position. Thus these forms have been argued to be better analyzed as filling the first constituent with a complementizer (i.e., Hale and Selkirk 1987; Hale 2001b, 2002). Unlike the abstract question operators referred to in Holmberg (2015), Tohono O'odham has overt operators that are syntactically separate, but phonologically dependent.

In this section, the morphological elements of the auxiliary have been further fleshed out, such that the order in (19) characterizes the distribution of the elements that act as prefixes and as suffixes to the root auxiliary.

(19) Information Structure of Tohono O'odham Auxiliaries
Complementizer/interrogative=AuxiliaryBase-Person.number-Perfective-Evidential-EpistemicModal

4.3 Summary

The dimensions and range of second position auxiliaries in Tohono O'odham is in many ways consistent with the typological findings cross-linguistically. In examining the auxiliary-second patterns, the first constituent represents a diverse set of categories, as Holmberg's (2015) overview would lead us to expect. First constituents range from noun phrases (both subjects and objects), adverbs, prepositional phrases, predicative adjective phrases, adverbials, and subordinate clauses to polarity, modal and conjunctive particles. Holmberg also notes that the first constituent should only involve a single category, that wh-phrases are permissible as first constituents, and notes the possibility of clusters of adverbs of time and place, while excluding adverbial clusters that consist of sentential or aspectual adverbs (i.e., 'often'). Tohono O'odham exhibits these features. Other patterns are unattested or rarely attested. For example, consistent with the flat syntax of a non-configurational language, the lexical verb plus the object noun phrase are rarely, if ever attested, in first position. If the language is understood as non-configurational, as in Hale (1983) and Jelinek (1984), attention to the pronominal elements is critical, and even more important is signaling the auxiliary in a string of unstressed function

words. A strategy that bootstraps off Tohono O'odham's trochaic (stressed syllable, unstressed syllable) patterning in other domains can help in understanding the first and second position effects for the language. The next section looks at several sets of data that illustrate this patterning.

5.1 First position auxiliaries and phonological effects

In this section, I will turn to an examination of non-syntactic factors that interact with word order. Contextual data shows numerous examples of auxiliaries (without prefixed complementizers) in the first position, as shown by this example, where the irrealis marker occurs:

(20) **'Ant** o wako g ñ-kotoñ c ñ-li:wa.
1S.AUX IRR to.wash-PFV DET 1S.POSS-shirt CNJ 1S.POSS-jacket
"I will wash my shirt and my jacket." (Zepeda 1988: 77)

Factors influencing this first position distribution at least to some degree originate in phonological restrictions, as well as pragmatic and semantic conditions. In particular, particles play an integral but not yet fully understood role in Tohono O'odham syntax, pragmatics and discourse.[12] Mathiot (1973) and Alvarez and Hale (n.d.) include numerous examples of the grammatical distribution of these particles, and more probing research on at least some particles and their distribution and function includes Hale (2001a), Copley (2005) and Smith (2015). Function vocabulary frequently displays asymmetries with content vocabulary. For example, many languages have phonological requirements on word minima, requiring that words consist of a foot or two moras, or some other minimal prosodic unit (McCarthy and Prince 1986). Fitzgerald (1997) notes that for Tohono O'odham, content words consist of a minimum of two moras; they also always have an onset, an initial consonant. In contrast, function words may be onsetless, monomoraic, or both, and they are not stressed (Fitzgerald 1997). In the sections that follow, these phonologically smaller elements occur at the nexus in sentences that begin with auxiliaries.

5.2 Vowel-initial particles and first position auxiliaries

While Tohono O'odham word order and constituency has received quite a bit of attention in the literature, much less discussed in the literature are the semantics, pragmatics and syntax of O'odham particles. Some of these particles, however, are highly relevant to the topic at hand because they can block the auxiliary from appearing in second position (Alvarez and Hale n.d.; Fitzgerald 1994; Hale 2001a).

Particles are an essential part of O'odham grammar, but are not fully understood in terms of their distribution and function. Hale (2001a: 1) notes that "Sentences without particles are perfectly grammatical, but in actual fact, ordinary speech virtually brims with them." Illustrating some of this is the triplet of sentences in (21), which illustrate some restrictions on the *a* particle, which is vowel-initial and described as an *event referential* in Hale (2001a). In (21a), the

[12] In this section, I put the glosses of particles in small caps; I follow Mathiot (1973) and Alvarez and Hale (n.d.) in their identification of particles.

utterance occurs with this particle and is perfectly grammatical. In this example, the first constituent is the agent, and the particle occurs after the auxiliary with the lexical verb, *mea*, further to the right of the particle. In (21b), with the lexical verb as the first constitutent, the sentence is grammatical but only without the particle. Hale (2001a) attributes the ungrammaticality of (21c), which occurs with the particle, comes in the lexical verb being in the first constituent position and thus not falling in the particle's scope. It is permissible for subjects (or objects, not shown here) to precede the particle as shown in (21a), but if the verb appears in the first position, it cannot co-occur with the particle (21c). Smith (2001b) notes that "verbs do not seem to be allowed before the auxiliary [as the first constituent] if there are" certain kinds of particles, adverbs and clitics which themselves are impermissible after the verb.[13] The particle itself is preceded by the auxiliary, or preceded by the auxiliary and the irrealis particle, but cannot occur utterance-initially.

(21) a. Huan **'at** **a** 'i:d mea juḍumĭ. (Hale 2001)
John 3.AUX-PFV REF DEM to.kill-PFV bear
'John killed this bear (as you know).'
b. Mea **'at** g Huan 'i:da juḍumĭ. (Hale 2001a: 6)
to.kill-PFV 3.AUX-PFV DET John DEM bear
'John killed this bear.'
c. *Mea **'at** **a** g Huan 'i:da juḍumĭ. (Hale 2001a: 6)
to.kill-PFV 3.AUX-PFV REF DET John DEM bear
(same gloss as (21a))

While Hale (2001) attributes (21c)'s ungrammaticality to its inability to have scope over the proposition's event structure (due to the verb's position), he notes that its inability to occur in the utterance-initial position reflects similar restrictions on other vowel-initial particles. Fitzgerald (1994) points to the irrealis marker *o* as providing a context where the auxiliary appears utterance-initially. The auxiliary *'o* is distinguished from it phonologically in that as compared to the irrealis marker *o*, the auxiliary is consonant-initial, beginning with a glottal stop. The auxiliary can appear in first position in constructions with the irrealis. The example below shows this using the perfective third person auxiliary *'at* as well as alternate word orders that are ungrammatical. Depending on what other particles and constituents are in the sentence, the auxiliary may occur in initial position (22a,e), or it will appear in its customary second position (22f).[14] The latter example also includes a second and consonant-initial particle, *'i*, illustrating that the language does have glottal-initial particles in addition to vowel-initial particles like *o* and others. The irrealis is one of the elements noted above which do not permit the verb to appear in the initial constituent, illustrated by the contrast between (22c), which is ungrammatical with the verb coming first, and (22f), which is grammatical and instead has a specifier occurring initially.

[13] This includes the irrealis, discussed further below, and similar elements that are restricted from preceding the auxiliary, and another group, like the negative marker *pi*, which can precede the auxiliary.

[14] Zepeda (1988) observes the irrealis marker must precede the lexical verb, but other less understood factors can prevent this, but still produce a grammatical utterance.

(22) a. **'At** o cípkanad. (Fitzgerald 1994: 175)
3.AUX-PFV IRR to.work-FUT.IMP
'He will be working.'
b. *o **' at** cípkanad.
c. *Cípkanad **'at** o.
d. *O cípkanad **'at**.
e. **'At** o 'at-k. (Mathiot 1.84)
3.AUX-PFV IRR to.be.the.end.of.the.story-PART
'It will be the end of the story.'
f. 'Ab **'ant** o 'i wai. (Mathiot 1.166)
SPEC 1s.AUX-PFV IRR INCEP to.invite-PFV
'I'll ask him to come.'

While Fitzgerald (1994) does not examine other particles that can produce a similar effect, Hale (2001a) observes that the only word class that permits words to be vowel-initial are particles, and the irrealis constitutes just one of a set of particles that are vowel-initial. Making a larger claim about particles, Hale (2001a: 1) observes:

> Since no sentence can be vowel initial, various strategies are employed to avoid this in the interaction between a vowel-initial particle and those forms of the auxiliary which avoid initial position, giving rise to the aux-second order which prevails in O'odham finite clauses.

In (23), we see this in auxiliary-initial sentences, with *aṣkia* 'still' and *aṣ* 'just' occurring to the right of the auxiliary. In fact, (23d, f) further illustrate that multiple particles can occur in sentences (Mathiot 1973, Alvarez and Hale n.d., Hale 2001a).

(23) a. **'O** aṣkia ko:ṣ g 'ali. (Hale 2001a: 2)
3.AUX STILL to.sleep DET child
'The child is still sleeping.'
b. **'Ac** abṣ kia s-ñennaṣañ. (Mathiot 1.92[15])
1P.AUX STILL STAT-DIST-to.be.alert
'I am thinking.'
c. **'O** aṣ mu'idahim g ñe'okĭ. (Alvarez and Hale n.d.: 4)
3.AUX JUST to.become.numerous-PROG DET words
'The words are just piling up (referring to my notes).'
d. **'Añ** aṣ si mamce. (Alvarez and Hale n.d.: 5)
1S.AUX JUST VERY RED-to.find.out
'I am thinking.'

[15] Mathiot's *abṣ kia* and *abṣ* functions the same as Hale's *aṣkia* and *aṣ*: no initial glottal stop, can block the auxiliary in second position, and has the same meaning.

e. **'O-kĭ** aṣ ñ-'iattogid. (Alvarez and Hale n.d.: 5[16])
3.AUX-EVD JUST 1S.OBJ-to.become.numerous DET words
'He was just lying to me apparently.'

f. **'O** wabṣ[17] si tonoḍ. (Mathiot 1.98)
3.AUX JUST VERY to.shine
'It shines very brightly.'

These examples are substantively different from the prefixed auxiliaries that carry a subordinator, interrogative, or conjunction (15-18 above). The auxiliaries in (20-23) are bare first constituents. That is, none are marked with a complementizer-like element, reinforced by the observation that each example consists of a single clause. While both sets of data have the first word of the utterance as an auxiliary, a distinction has been made for the complementizer forms in (15-18). Although all are sentences where the first word of the sentence is an auxiliary, the analysis of these forms has argued that the complementizer functions as the first constituent, and the auxiliary is syntactically in second position, even as it cliticizes onto the complementizer phonologically (i.e., Hale 2001b, 2002). As noted in the previous section, the auxiliary is analyzed syntactically as second position when it is in this configuration.

Tohono O'odham's particle inventory includes vowel-initial like *a* or others of a larger syllable shape, as well as particle clusters where the vowel-initial particle can be the first or second member of that cluster. Some of these examples are given in Table 3 to illustrate the range.

Table 3. Some vowel-initial particles/particle clusters in Tohono O'odham

Particle	**Gloss**	**Source**
a. a	'y'know, recall'	(Alvarez and Hale, n.d.: 1)
b. ahawa~hahawa[18]	'now, then, after that, subsequently'	(Alvarez and Hale, n.d.: 2)
c. a 'i	'only, solely, exactly'	(Alvarez and Hale, n.d.: 3)
d. aṣ (cf. abṣ in Mathiot 1973)	'just, merely'	(Alvarez and Hale, n.d.: 4)
e. aṣkia (cf. abṣ kia in Mathiot 1973)	'still, yet'	(Alvarez and Hale, n.d.: 5)
f. hab a'ap	'also, in the same manner'	(Alvarez and Hale, n.d.: 9)

Examples with perfective auxiliaries in first position, cases that include the irrealis marker, demonstrate that the irrealis need not be immediately to the right of the auxiliary when other particles are present. The auxiliary is separated from the irrealis by *hig* (a modal particle, *hems* (hypothetical condition), and *'ep* ('again') in (24a-c). This string of auxiliaries and particles creates a string of unstressed syllables, still keeps the irrealis marker as a post-auxiliary element,

[16] The original document uses a singleton *t*, rather than a geminate, which I have corrected so that it is consistent with dictionary entries of this word.

[17] Both Mathiot (1973) and Hale (2001a) note alternants for the vowel-initial particles, as seen by *wabṣ* in (18f).

[18] Hale (2001a: 2) notes that O'odham "employs the h-initial alternant in its (rare) pre-aux occurrences."

and there is no intervening constituent or a constituent head. Note that these three particles also exemplify consonant-initial particles,

(24) a. **'Att** hig o t-gins. (Mathiot 1.113)
1PL.AUX-PERF MODL IRR 1PL-to.play.*gins*.against
'We should play *gins* against each other.'

b. **'Antp** hems o dadge hega'i. (Mathiot 1.220)
1S.AUX-PERF-DUB HYPOTHETICAL IRR to.wrestle.with. that.one
'I may wrestle with him. '

c. **'Att** 'ep o ṣo:ṣonc g t- ñe'i. (Mathiot 1.225)
1PL.AUX-PER AGAIN IRR RED-to.start DET 1PL.POSS-song
'We'll resume our singing.'

In other words, the left edges of (24) constitute sequences of function word after function word (after function word), all unstressed. The lexical verb and the noun phrase representing the object are adjacent to each other. It is important to keep in mind that if O'odham is a non-configurational pronominal argument language, as argued by Jelinek (1984), the verb's object does not fill an argument role. Hale (2002) also notes that the verb and a noun phrase object are not a constituent; the verb's complement is not the noun phrase, but rather the pronominal marked on the verb overtly (24a) or zero-marked in the case of (24c). It is worth further noting that these kinds of structures means that every grammatical sentence in this section begins with a sequence of at least two unstressed syllables. In other work, I have argued that the stressed syllable is the locus of phonological (Fitzgerald 1997, 2012) and word order effects (Fitzgerald 1994, 2003), and that strings of unstressed syllables are relatively unregulated in the grammar (Fitzgerald 1998).

To summarize this section, I have demonstrated that the auxiliary can appear unambiguously as the first constituent, as opposed to the prefixed auxiliaries from earlier which offer a plausible analysis of the complementizer as the first constituent. In the set of examples shown, the auxiliary appears as the first constituent when one of several vowel-initial particles is used. Vowel-initial particles never begin an utterance, which suggests that there is a sentence-level requirement that Tohono O'odham sentences begin with a consonant. These vowel-initial particles can have other pre-auxiliary particles intervene, in conditions which are not fully understood.

5.3 Utterance-initial *g* determiner deletion

The previous section explored the phonological restriction on vowel-initial particles from the first position of the sentence, resulting in the auxiliary surfacing in the initial position. In addition to that prohibition of a vowel-initial element utterance-initially, there is also a prohibition on a particular consonantal element in the same position. While particles fulfil a variety of functions in the grammar, the prohibited consonantal element is the determiner, *g*, which has its sole function as marking an upcoming noun phrase. In this section, I turn in more detail to the behavior of this determiner, which has been mentioned at several points earlier in this paper, as in (1).

Tohono O'odham marks noun phrases with a determiner *g* to its left. Aside from the prohibition on *g* utterance-initially, there are several other comments to make regarding its

distribution at the phrasal level, each illustrated by a representative example in (25). First, this determiner is a stressless element and is described as "semantically neutral" by Hale and Selkirk (1987), meaning it does not signal definiteness and, in fact, it can co-occur with possessive pronouns marked on nouns which are stressless syllables (see 20 above), as well as on proper nouns (25b). Second, the determiner does not surface when a noun phrase co-occurs with a demonstrative, which is a stressed element and is not semantically neutral (25a). Third, a possessive noun phrase permits either order of the possessor and possessed nouns, but the *g* determiner for each of those nouns only surfaces in one of the two constructions (25b-c).

(25) a. 'I:da 'ali **'o** s-'eastk (Hale and Selkirk 1987: 170)
DEM child 3.AUX STAT- brave
'This child is brave.'

b. g ki:-j g Husi (Hale and Selkirk 1987: 155)
DET house-3SG.poss DET Joe
"Joe's house"

c. g Husi ki: (Hale and Selkirk 1987: 155)
DET Joe house
(same gloss as c)

Turning to its distribution in sentences, the triplet of sentences in (26) shows that the *g* determiner is ungrammatical in sentence-initial noun phrases. While in the previous section, the vowel-initial particles forced the auxiliary into first position, this results in a string of unstressed (weak) syllables. However, given that the *g* determiner's presence most often precedes a noun, a sentence that begins with it (such as the ungrammatical (26c)) would start with an unstressed syllable followed by a stressed syllable. Tohono O'odham's lexical prosody revolves around the opposite pattern, a stressed syllable followed by an unstressed syllable. In earlier work (Fitzgerald 1994), I argue that the deletion of the determiner in this context occurs for phonological purposes, blocking the stress-initial syllable of its noun from creating a left edge sequence that is unstressed then stressed. This kind of lexical pattern is precisely what we see in the grammatical sentence (26b), where the determiner does not appear before the noun.

(26) a. Ñéok **'o** g 'ó'odham. (Zepeda 1988: 13)
to.speak 3.AUX DET person
'The person is speaking.'

b. 'Ó'odham **'o** ñéok.
person 3.AUX speaking

c. *G ó'odham **'o** ñéok. (Zepeda 1988: 13)
DET person 3.AUX speaking

To summarize, the deletion of the *g* determiner utterance initially preserves a stress profile that mimics the lexical prosody of Tohono O'odham, which is trochaic: a stressed syllable followed by an unstressed syllable. Evidence from the poetic meter of the language (Fitzgerald 1998) shows a rigid pattern of trochees, but it also shows that strings of two or more unstressed syllables are relatively unregulated. Lines of meter ideally begin with a stressed syllable followed by an unstressed one, but equally acceptable is a line beginning with two unstressed

syllables. However, lines never start with an unstressed syllable followed by a stressed one, which is the situation presented by (26c).

5.4 Auxiliary reduction

Briefly, a final pattern that also bears on the phonological permissibility of sequences shaping the left edge of the sentence originates in the occurrence of reduced auxiliaries in first position. The language has numerous doublets of long and short forms, much like English has longer, unreduced forms like *is* and *have* that get reduced to shorter forms like *'s* and and *'ve* and encliticize onto the preceding element. In Tohono O'odham, this happens where the auxiliaries have short forms, reduced even further to lose the vowel. This provides a set of evidence that auxiliary-first distribution is not syntactically driven, but is driven by the behavior of auxiliaries that are reduced.

In (27), sentences with reduced auxiliaries appear. In examining a fairly large corpus of these through Mathiot (1973), as well as field data collected by Ken Hale (Hale 1961), the reduction of auxiliaries is prevalent when auxiliaries appear as a (true) first constituent in the sentence. These kind of examples are shown in (27), with the non-reduced auxiliary in parentheses at the end of the O'odham sentence in the interlinear gloss.

(27) a. **P** abṣ kia s-'alidag. (Mathiot 1.42) (vs. **'ap**)
2S.AUX still STAT-child-POSS
'You are still childish.'

b. **Pt** haha 'ep o s-iad. (Mathiot 1.76) (vs. **'apt**)
2S.AUX-PERF AGAIN IRR STAT-to.have.good.sight
'You will recover your vision (lit. be good sighted again).'

c. **Tt** o t-waillam. (Mathiot 1.220) (vs. **'att**)
1PL.AUX IRR REFL-to.dance-DESID
'We'll go to the dance.'

Overwhelmingly, these kinds of examples are followed by particles of all shapes and other function words. The non-reduced auxiliary itself is a function word that can be further weakened in terms of its phonological presence. The short auxiliary reduces where its neighbors are also weak and stressless. It also provides a contrast with the vowel-initial function words which are blocked from starting sentences. The sequences of unstressed syllables illustrate the permissiveness of the left edge, just as long as it a) is consonant-initial and b) avoids a stressless syllable followed by a stressed one. Sentences like (27) illustrate how particle strings create a number of restrictions for the flexibility of word order: the utterance-initial phonological restrictions against a stressed syllable following an unstressed and also against vowel-initial words in this position; the internal ordering amongst particles themselves; and finally, the less well-understood restrictions against a verb preceding certain particles (cf. Hale 2001a).

5.5 Summary

Tohono O'odham's features as a trochaic language are well-established, and within the word constituent, the left edge does not begin with unstressed syllables, nor can more than two unstressed syllables occur. These kinds of lapses or troughs, as they are termed in metrical

phonology, do get restricted in some languages or in certain contexts in languages. In (28), I schematize stressed syllables as *x* and unstressed as . to represent the possible and impossible stress profiles occurring at the word level.

(28) a. Trochaic: # x .
(stressed-unstressed)
b. Iambic: * #. x
(unstressed-stressed – not permitted at the lexical level)
c. Stress clash: *# x x
(stressed-stressed – not permitted at the lexical level anywhere in the word)
d. Stress lapse: *# . .
(unstressed-unstressed – however, permitted at the lexical level if not at a left edge)

Content words never have an internal structure with a sequence of two stressed syllables, nor of an iambic sequence. Stress clashes are not permitted anywhere within the boundaries of a content word, while stress lapses can occur, just so long as they do not begin content words (Fitzgerald 1997, 2002). The phonological patterns shown in word order throughout this section are ones permissible word-internally, (28d). Lapses like this are often tolerated in meter while the distribution of stressed syllables are heavily regulated.

Contrast the lexical level with the properties of prosodic phrasing in other genres looking at larger units. Certainly it has been the case in this paper that numerous sequences of unstressed syllables (function words) are permitted at the left edges and in all other sentential contexts. Fitzgerald (1994, 1998, 2003) argues that Tohono O'odham permits strings of unstressed syllables at the edges or within the boundaries of utterances. The regulation of the distribution of these sequences differs based on what context is being examined. For example, the left edges of a lexical constituent is stricter than the left edge of a sentence, since the latter permits multiple unstressed syllables. Tohono O'odham song meter more strongly regulates the kinds of sequences permissible in syntax since it has a blanket prohibition on a line beginning with an unstressed syllable followed by a stressed one (Fitzgerald 1998). That kind of pattern is dispreferred in the syntax based on the behavior of particles and the determiners. But the sequences are not prohibited completely, since the sentence-level prosody does show such surface patterns are possible.

Function words like particles, as in the irrealis marker *o*, illuminate the phonological dimensions of the patterns illustrated in throughout §5. Pronominals and other functional words like particles have a different phonological shape than lexical or content words. These words are subminimal, sometimes consisting only of a vowel or a consonant-vowel sequence. They do not receive stress. They surface with a low tone in the intonation tunes (Hale and Selkirk 1987) unless a content word precedes them. On their own, in sentences like those throughout §4, the left edges of these utterances would be low tone spread rightward until the stress of the first content word it hits, which projects a high tone. If they are vowel-initial, they cannot be the first element in a sentence. They can block the auxiliary from appearing in second position.

Cues like stress and intonation do not differentiate between the auxiliary and other function words, and reduction can make these elements even shorter in sentences and spoken contexts. The auxiliary plays an essential role in the grammar of the sentence, but if stress and intonation are unavailable to highlight it, other cues must emerge. Hale and Selkirk (1987) find the less strict ordering of lexical items in their analysis of the intonation patterns of O'odham utterances.

Pause duration also seems to differentiate auxiliaries from other elements in Tohono O'odham. Fitzgerald and Pierce (2012) analyzed pause duration before auxiliaries. Measuring data from a spoken narrative, they found that pauses play a role both as cues for Intonational Units (IU) and to mark salience of auxiliaries. When looking at pauses that occur IU-medial, pauses are longer before auxiliaries than before elements that are not auxiliaries.[19]

6.1 Conclusion

First position effects surface in phonologically identifiable contexts, in orders that are sometimes optionally permitted alongside second position auxiliaries. Tohono O'odham content words begin with a consonant and so do its sentences. Tohono O'odham content words begin with trochaic stress patterns, and word-internal sequences find lapses permissible. Both the syntax (Fitzgerald 1994, 2002, this paper) and poetic meter (Fitzgerald 1998) favor trochaic stress patterns and lapses at the left edges. Interestingly, these sentences with first position word orders highlight the parallels between permissible and impermissible phonological structures at the lexical and at the utterance level. Sequences of multiple function words are highly regulated in terms of their distribution and ordering with regard to auxiliaries, perhaps much more so than content words, as noted in Hale and Selkirk (2004), Smith (2004a,b) and others.

Here I have described the patternings for both first and second position, suggesting that some of the ordering effects are phonological, not simply syntactic or semantic. Tohono O'odham's highly flexible word order and attendant non-configurational properties, such as agreement, have made it highly intriguing to linguists. While the distribution of auxiliary location in second position has received considerable attention, much less attention has been given to the first position distribution. This paper thus advances a better understanding of first and second position for the Tohono O'odham auxiliaries, which in some ways nicely resonates with what might be expected given Holmberg (2015), but in other ways echoes phonological and prosodic properties found elsewhere, in lexical and metrical domains.

Important, unresolved questions suggest that some aspects of the language are ripe for further investigation, especially discourse particles. In a recent paper on the contributions to semantics from indigenous languages of the Americas, Matthewson (2017) notes that discourse particles are one key area where these languages have provided important data. Her comments are particularly important in considering how much particles and their restrictions and conditions have played a role in the word order facts laid out in this paper. She writes:

> American languages are genetically and typologically very different from the standard European languages overwhelmingly studied by semanticists. Their study in recent decades has brought to light new insights both about properties that recur across languages, and about the extent of cross-linguistic diversity. (Matthewson 2017: 160)

Tohono O'odham word order, specifically the position of the auxiliary, has revealed itself to emerge through the interplay of constraints on the phonology, syntax and semantics. This paper has laid out a rich set of facts where phonology and semantics are influential factors in

[19] Pauses before non-auxiliary elements are longer at IU-initial boundaries than IU-medial boundaries.

word order in the language, while also serving as a reminder of O'odham's interest and relevance to linguistics and to syntactic theory, points made early in the generative history by work such as Hale (1969, 1975, 2001a) and Jelinek (1984).

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