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Anti-uniqueness without articles*

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Abstract We report on the expression of singular nominals in Burmese, an article-less language, from original elicitation work. Bare nouns are interpreted as singular definites, to which the numeral 'one' is added to form indefinites. We propose that 'one' restricts the domain of the nominal to a singleton, and that its addition is subject to a Non-Vacuity constraint; this is the source of the anti-uniqueness inference of indefinites. We furthermore investigate the availability of 'one' in anaphoric definites. Such behavior forms an argument that the compositional semantics of anaphoric definites does not involve contextual restriction via a situation variable, unlike unique definites.

Keywords: Burmese, anti-uniqueness, 'one,' articulated definiteness, choice function, Non-Vacuity, Maximize Presupposition

1 Introduction

Consider the two variants of the English sentence in (1), as part of a report on what the speaker saw at the park today. Both assert that some individual who has the property of being a dog was digging a hole. The definite article *the* requires that there be a unique referent for *dog* in the context, whereas the indefinite article *a* signals that it is not unique (Hawkins 1978 a.o.):

(1) **The / A** dog was digging a hole.
   a. *the* ⇝ there's exactly one dog (at the park) *contextual uniqueness*
   b. *a* ⇝ there's more than one dog (at the park) *contextual anti-uniqueness*

The anti-uniqueness inference in (1b) is commonly thought to come about due to competition between the two articles *the* and *a* (Heim 1991; Percus 2006; Sauerland

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2008; Singh 2011 a.o.). A natural question, then, is whether and how such anti-uniqueness inferences come about in languages without articles.

In this paper we report on the expression of definite and indefinite singular noun phrases in Burmese. Results from contextual felicity judgment tasks will show that bare nominals (without plural marking, numerals, demonstratives, or quantifiers) such as 'dog' in (2a) require a contextually unique referent, whereas nominals with the numeral 'one' and an appropriate classifier as in (2b) require contextual anti-uniqueness — much like the contrast between English singular definites and indefinites in (1). But unlike in English, the pattern of (anti-)uniqueness inferences cannot be due to competition between the use of distinct articles.[1]

(2) **Expressing (in)definiteness without articles in Burmese:**

a.	k'wè	b.	k'wè tă-kaun
	dog		dog one-CL.animal
	'the dog'		'a dog'
	⇝ contextual uniqueness		⇝ contextual anti-uniqueness

For presentational purposes, we refer to singular noun phrases which require a contextually unique referent as in (2a) as *definite* and those which introduce a contextual anti-uniqueness inference as in (2b) as *indefinite*.

In brief, we propose that (a) all non-quantificational noun phrases — including both of (2a,b) — are formally definite descriptions and (b) 'one' here serves as an intersective modifier that reduces the nominal domain to a singleton set. The addition of 'one' is thus necessary in contexts where multiple individuals satisfy the nominal description, but will be vacuous if there is already a unique referent for the description. A Non-Vacuity constraint on the adjunction of functional material will block the addition of 'one' when vacuous, deriving the anti-uniqueness inference of indefinites with 'one.'

We also describe the behavior of anaphoric definites in Burmese, which can appear with the demosntrative *èhdi*. Singular anaphoric definites also allow for the addition of 'one,' which in such cases introduces a requirement that the NP description not be *globally* unique. We will show how our analysis in terms of Non-Vacuity will be able to derive this global anti-uniqueness requirement, given a particular assumption regarding the compositional semantics of anaphoric definites. Such data will also allow us to tease apart the predictions of our Non-Vacuity theory from an alternative proposal based on Maximize Presupposition.

1 Our Burmese data is presented using the conventions of Okell 1994, 2002. The numeral 'one' is *tiq* (with final glottal stop) in isolation but reduces to *tă* (with schwa) when with a classifier. Abbreviations: ACC accusative, ASP aspect, CL classifier, CONJ conjunction, DEM demonstrative, FUT future, NOM nominative, PL plural, POSS possessive, PROG progressive, NFUT non-future.

2 Definiteness and indefiniteness in Burmese

We begin with a basic description of Burmese noun phrase structure and the expression of (in)definiteness in the language. Here we will only discuss nominals in subject position, as the distinction between definite and indefinite nominals is clear there. In particular, the facts are more complicated in object position, due to the availability of pseudo-incorporation, as we describe in Lim & Erlewine to appear.

The basic structure of noun phrases in Burmese follows the schema in (3), based in part on descriptions in Soe 1999: ch. 3 and Simpson 2005. Here we will refer to the maximal noun phrase projections as DPs, although our discussion and analysis below are orthogonal to the question of this precise syntactic label. Accordingly, we use "NP" here to refer to the head noun and any modifiers, such as attributive adjectives and relative clauses:

(3) **Burmese noun phrase schema:**
(Dem) (RC) N (Adj) (PL) (Num-CL)

Case-marking enclitics follow the entire noun phrase, as seen in (4) below. Burmese allows for case-marker drop (see e.g. Jenny & Hnin Tun 2013), but none of the facts that we describe below are affected by the presence or absence of case markers.

In contexts where the nominal describes a unique referent, the bare NP is used, as in (4). In this context, the interlocutors share the knowledge that there is a unique dog in the immediate context, but the dog has not appeared in the prior discourse. We refer to such definites as *unique definites*.

(4) **Situationally unique singular definite:**
You and Maung Maung are at Hla Hla's house. She has one dog, who is playing with MM. Neither of you can see them right now. You tell her:

[(*Èhdi) **k'wè**(*-dwe) (*tă-kaun)]	=gá	MM=go	caiq-ne-deh.
DEM dog -PL one-CL.animal	=NOM	MM=ACC	like-PROG-NFUT

'The dog likes Maung Maung.'

Both the numeral 'one' and demonstratives such as the medial *èhdi* are infelicitous in this context. As the referent is singular, a plural marker also cannot be used.

Next we turn to a context where there is not a unique referent for the nominal. Here the bare NP cannot be used. Consider the example in (5) where the speaker refers to one of the multiple dogs in the immediate context. The context provided in (5) has two variants: one where the speaker has a particular referent in mind — supporting an "epistemically specific" use (Farkas 1994) — and one where the speaker cannot identify the specific referent. In either case, the numeral 'one' with the appropriate classifier must be used.

(5) **Singular indefinite (specific and nonspecific):**
You work in a doggy day care. {Specific: *There are multiple dogs in the room with you and you are on the phone with Hla Hla (HH). You see one of the dogs scratching on the door. HH asks you what the noise is.* / Nonspecific: *There are multiple dogs outside and you and HH are in the back room. You hear a dog scratching on the door, but don't know which dog it is.*} *You say:*

K'wè *(**tă-kaun**)=gá dăgà=go c'iq-ne-deh.
dog one-CL.animal=NOM door=ACC scratch-PROG-NFUT
'A dog is scratching the door.'

In a context with multiple dogs such as in (5), if the speaker instead intended to refer to the plurality of all dogs in the context, an expression such as *k'wè twe* with the plural marker *twe* must be used. We refer the reader to New 2020 for detailed discussion of the semantics of plural marking in Burmese. For our purposes, it suffices to note that NPs without a plural marker or quantifier as in (4) necessarily describe singular referents.

Next, we consider the behavior of *anaphoric definites*, which refer back to an individual that has been mentioned in the preceding discourse. Singular anaphoric definites may be introduced by the medial demonstrative *èhdi* or be bare. In example (6), the speaker first uses an indefinite (italicized) to refer to some dog, and the anaphoric definite (bold) in the second sentence refers back to that mentioned dog. The use of the bare noun *k'wè* would not be accepted in the second sentence without the prior discourse referent, as there are multiple dogs in the context; cf (5).

(6) **Anaphoric definite with indefinite antecedent:**
You go to an adoption drive with Maung Maung (MM). There's an open area for the animals to hang out and people to mingle about. Up for adoption are a few dogs and cats. When MM causes trouble, you tell an organiser:

Maun Maun=gá *k'wè tă-kaun*=néh caun tă-kaun=go
Maung Maung=NOM dog one-CL.animal=CONJ cat one-CL.animal=ACC
hnaúnsheq-ne-deh. (**Èhdi**) **k'wè**=gá MM=go laiq-ne-deh.
bother-PROG-NFUT DEM dog=NOM MM=ACC chase-PROG-NFUT
'MM was bothering a dog_3 and a cat_4. The dog_3 is chasing MM.'

The anaphoric definite may optionally take the medial demonstrative *èhdi*, which is not available for situationally unique definites without prior mention; cf (4) above. The availability of the demonstrative here is reminiscent of the obligatory use of demonstratives for anaphoric definites but not situationally unique definites in Mandarin Chinese non-subject position as described by Jenks (2018). Jenks's work on Mandarin, which is also an article-less language, builds on prior work on

articulated definiteness distinctions first discussed in detail by Schwarz (2009, 2013), which we will also build on here.

The demonstrative is also optionally available for anaphoric definites with a situationally unique definite antecedent, as in (7) below. In the first sentence, we can refer to the unique dog with a bare NP definite (italicized) but not with a demonstrative, as it has not yet been mentioned in the discourse; this italicized form is a unique definite, not an anaphoric definite. We then can refer to this same dog with or without the demonstrative in the second sentence.

(7) **Anaphoric definite with definite antecedent:**
You go to an adoption drive with Maung Maung (MM). Up for adoption is one dog and one cat, among other animals. You leave MM in the room with the animals, and tell an organiser outside:

Maun Maun=gá (**èhdi*) *k'wè*=néh caun tă-kaun=go
Maung Maung=NOM DEM dog=CONJ cat one-CL.animal=ACC
hnaúnsheq-ne-deh. (**Èhdi**) **k'wè**=gá MM=go laiq-ne-deh.
bother-PROG-NFUT DEM dog=NOM MM=ACC chase-PROG-NFUT
'MM was bothering the dog_3 and the cat_4. The dog_3 is chasing MM.'

To summarize, Burmese uses the presence or absence of the numeral 'one' to signal the definiteness or indefiniteness of singular nominals, which respectively require uniqueness or anti-uniqueness in context. In addition, the availability of the non-deictic use of the demonstrative *èhdi* distinguishes anaphoric definites from unique definites, which must be bare. The different forms of singular nominals and their possible uses, presented here, are also summarized schematically in (8) below. Demonstratives can also cooccur with 'one,' which we present in section 4.2.

(8) **Interim summary of Burmese singular noun phrase forms:**

	indefinite	definite	
		unique	anaphoric
NP	×	◯	◯
NP 'one' CL	◯	×	×
Dem NP	×	×	◯

The patterns described above, with nominals in subject position, hold for all four speakers that we have consulted. However, as noted above, the situation is more complicated with nominals in object position, where bare NPs may also be interpreted as indefinite. In Lim & Erlewine to appear, we present a fuller survey of Burmese nominal interpretation in different syntactic contexts. There, we conclude that the pattern shown in this section with subject nominals, summarized in (8),

constitutes the general pattern for DP interpretation, available for all speakers in all syntactic positions. We also show there that, for some speakers, under certain circumstances, bare object nominals also allow for an indefinite interpretation, which we describe as the result of a restricted pseudo-incorporation process. In this paper we will concentrate on understanding the core pattern demonstrated with subjects above and summarized in (8).

3 Analysis

We now present our analysis for the three types of nominals introduced above, beginning with the contrast between unique and anaphoric definites in section 3.1, and then turning to indefinites with 'one' in section 3.2. We propose that all nominals in Burmese without quantifiers are formally definite descriptions, *including* nominals with 'one' which we have described as indefinite. In particular, we propose that 'one' is a modifier that restricts the nominal using a choice function, which is in turn existentially bound above, resulting in a nominal that is formally definite but which functions as an indefinite. We then discuss the derivation of the anti-uniqueness inference of nominals with 'one' in section 4.

3.1 Articulated definiteness in Burmese

We begin with the analysis of the two types of singular definites in Burmese: unique definites which refer to a contextually unique referent and anaphoric definites which refer to a previously mentioned referent. In section 2, we showed that Burmese morphologically distinguishes these two types of definites: anaphoric definites allow for an optional medial demonstrative *èhdi* whereas unique definites must be bare. Many other languages similarly morphologically distinguish unique and anaphoric definites, through the use of distinct articles or in other ways (Schwarz 2009, 2013). Our analysis here follows and builds on the proposals in Schwarz 2009 and also Jenks 2018 on Mandarin Chinese, another article-less language that uses demonstratives for anaphoric definites.

We propose that all nominals without demonstratives or quantificational phrases involve the null definite determiner ι, defined in (9). Here we will treat ι as a syntactically projected null D head, although again our analysis does not crucially rely on the proposal of a DP category projection for Burmese noun phrases.

(9) **ι takes a situation argument (s):**
$[\![\iota]\!] = \lambda s_s \,.\, \lambda P_{\langle e,\langle s,t\rangle\rangle} : \exists! x\,[P(x)(s)] \,.\, \iota x\,[P(x)(s)]$

ι takes two arguments: a situation argument s and the nominal property P. The situation argument operationalizes the contextual restriction on nominal domains

(Elbourne 2005, 2013; Schwarz 2009, 2012; a.o.). Situations (type s) may be thought of as sub-parts of possible worlds, for example restricted to a particular time and place (see Kratzer 2020). For example, a property 'dog' may hold of numerous individuals within a possible world w, but when evaluated in a salient situation $s \leq w$, such as the current room, the extension of 'dog' may be a singleton set. This allows for the felicitous use of ι for a situationally unique definite, as in (10), which reflects the structure of the "bare NP" definite *k'wè* 'dog' in example (4) above.

(10) **A situationally unique, "bare NP" definite using ι:**
$[\![[_{\text{DP}}\ [\iota\ s]\ \text{dog}]]\!] = \iota x\,[x \text{ dog in } s]$
presupposition: there is a unique dog in s

Here we take the nominal property P denoted by NP to only hold of atomic individuals, and we will only discuss singular nominals here. Recall that Burmese has marked plural morphology, whose semantics is described in New 2020.

Next we turn to the case of anaphoric definites. Anaphoric definites involve a distinct determiner ι^x, which may be null or realized as the demonstrative *èhdi*. In contrast to ι (9), ι^x takes an index argument which refers to the prior discourse referent.[2] This index argument (type e) is represented syntactically as a null pronoun, as in (12) below. ι^x presupposes that there is a unique individual that satisfies the NP property in the evaluation world w^* and which is equal to the index individual, and then returns that individual if defined. This is equivalent to requiring that the index individual satisfy the property and then return that individual:

(11) **ι^x takes an index argument (y):**
$$[\![\iota^x\ (\text{èhdi})]\!] = \lambda y_e\,.\,\lambda P_{\langle e,\langle s,t\rangle\rangle} : \exists! x[P(x)(w^*) \wedge x = y]\,.\,\iota x[P(x)(w^*) \wedge x = y]$$
$$= \lambda y_e\,.\,\lambda P_{\langle e,\langle s,t\rangle\rangle} : P(y)(w^*)\,.\,y$$

(12) reflects the structure of the anaphoric *èhdi k'wè* 'DEM dog' in the second sentence of example (6) or (7) above, referring back to the discourse referent with index 3. As $g(3)$ is indeed a dog in these contexts, the presupposition is satisfied and the DP then simply denotes $g(3)$.

(12) **Anaphoric definite with optional demonstrative, using ι^x:**
$[\![[_{\text{DP}}\ [\iota^x(\text{èhdi})\ pro_3]\ \text{dog}]]\!] = \iota x[x \text{ dog in } w^* \wedge x = g(3)] = g(3)$
presupposition: there is a unique [dog in w^* that is $g(3)$], i.e. $g(3)$ is a dog

2 Demonstratives are also used deictically, with pointing or another identifying gesture. As discussed in Schwarz 2013, many languages distinguish anaphoric definites through the use of demonstratives or otherwise use morphemes ('strong articles') related to demonstratives. This overlap is easily understood if ostension itself supplies another type of index argument. (See also Jenks 2018: §4.4 for related discussion.) The proximal *di* and distal *ho* demonstratives may be thought of as more specific relaizations of ι^x where the index argument supplies marked proximity information, leaving the medial *èhdi* as the default form of ι^x.

Here we highlight one important aspect of our proposal for ι^x. Our semantics for ι^x in (11) importantly differs from its predecessors in Schwarz 2009 and Jenks 2018 in not taking a situation argument.[3] For Schwarz and Jenks, ι^x takes a situation variable as well as an index argument, as in (13):

(13) **ι^x with index (y) *and* situation (s) arguments:**
$[\![\iota^x]\!] = \lambda s_s \,.\, \lambda y_e \,.\, \lambda P_{\langle e,\langle s,t\rangle\rangle} : \exists!x[P(x)(s) \wedge x = y] \,.\, \iota x[P(x)(s) \wedge x = y]$
$= \lambda s_s \,.\, \lambda y_e \,.\, \lambda P_{\langle e,\langle s,t\rangle\rangle} : P(y)(s) \,.\, y$
as in Schwarz 2009: 260 #295a, Jenks 2018: 513 #22b (with modification)

Choosing to conceptualize ι^x as taking or not taking a situation argument — as in (13) versus (11), respectively — is in practice indistinguishable. In fact, Schwarz (2009) observes (p. 264 note 16) that the situation argument of his ι^x (as in (13)) may be unnecessary:

> "Angelika Kratzer (p.c.) points out that the situation argument, s_r, may be superfluous in the meaning of the strong article [ι^x] and suggests an alternative analysis on which the strong article takes the extra individual argument in place of the situation pronoun."

Schwarz and Jenks opt for the simplifying assumptions that (a) both ι and ι^x are parallel in taking situation arguments and (b) ι^x as in (13) need not refer to the evaluation world as a parameter. In section 4 below, we present an empirical argument from the behavior of anaphoric definites in Burmese which shows the situation-less formulation of ι^x in (11) to be superior to (13).

3.2 Indefinites with 'one'

In section 2 above, we saw that singular indefinites are expressed in Burmese using the numeral 'one' with an appropriate numeral classifier (CL). This may suggest at first glance that the numeral 'one' now serves as an indefinite article in the language, or is on its way, as is attested cross-linguistically (see e.g. Givón 1981). We argue against this view from the availability of 'one' in certain anaphoric definites, in section 4.2, which shows that 'one' does not itself force an indefinite interpretation.

We instead propose that 'one'-CL is a modifier that restricts the nominal property's extension to a singleton set based on a choice function f_{cf}, which is then existentially bound from above, resulting in a choice function indefinite. Here we assume that the numeral classifier CL denotes a measure function μ_{CL} (14a) which

3 Schwarz (2009) refers to this item as the strong article the_{strong}. ι^x is Jenks's term, which we adopt.

takes a possibly plural individual and returns the number of CL-atoms in that individual (Krifka 1995; Bale & Coon 2014; a.o.). We then propose the denotation for 'one' in (14b), referring to choice function f_{cf}, which takes the classifier as an argument to yield the denotation in (14c).[4,5]

(14) a. $[\![\text{CL}]\!] = \mu_{\text{CL}}$ (type $\langle e,d\rangle$)

b. $[\![\text{'one'}_f]\!] = \lambda m_{\langle e,d\rangle} . \lambda P_{\langle e,\langle s,t\rangle\rangle} . \lambda x_e . \lambda s_s . x = f_{\text{cf}}(\lambda y . P(y)(s) \wedge m(y) = 1)$

c. $[\![[\text{'one'}_f\ \text{CL}]]\!] = \lambda P_{\langle e,\langle s,t\rangle\rangle} . \lambda x_e . \lambda s_s . x = f_{\text{cf}}(\lambda y . P(y)(s) \wedge \mu_{\text{CL}}(y) = 1)$

Consider the interpretation of *k'wè tă-kaun* (literally "dog one-CL") in example (5) above, 'A dog is scratching the door.' We propose that the structure of the DP is as in (15) below. Notice that this "indefinite" nominal is in fact headed by the null determiner ι (9). Unpacking and simplifying its interpretation on the second line, we see that this DP simply denotes whichever individual the choice function f returns from the set of atomic dogs in s. Assuming that the set of atomic dogs in s is non-empty, the uniqueness and existence requirements of ι will necessarily be satisfied, regardless of the choice of choice function f.

(15) $[\![[_{\text{DP}}\ [\iota\ s]\ [\text{dog}\ [\text{'one'}_f\ \text{CL}]]]]\!] = \iota x[x = f_{\text{cf}}(\lambda y . y \text{ is an atomic dog in } s)]$
$= f_{\text{cf}}(\lambda y . y \text{ is an atomic dog in } s)$

presupposition: there is an atomic dog in s

Suppose for concreteness that there are three dogs in the relevant situation s; we refer to this set as A: $A = \{y : y \text{ is an atomic dog in } s\} = \{y : [\![\text{dog}]\!](y)(s)\}$.[6] Given a non-empty set, a choice function will return one of the set's members. Based on its effect on the set A with three memberes, there are three distinct choice functions:

4 We assume here that the numeral and classifier form a constituent, but this is not crucial for our analysis. Simpson 2005 suggests from a comparative Southeast Asian perspective that numerals (Num) and classifiers (CL) are best analyzed as separate heads in the DP extended projection, but also shows that Burmese nominals can strand Num-CL, apparently as a constituent.

5 The denotation which we attribute to 'one' in (14b) is likely the combination of multiple compositional ingredients. For one, we observe that *tiq* 'one' can also be used as an abstract numeral in mathematical statements as in (i); in such cases, no classifier is used. (We thank Marcin Wągiel for asking about such uses.) We leave the precise decomposition for the meaning in (14b) — as well as the correct division of labor with the classifier in (14a) — for future work.

(i) Tiq=néh thoùn paùn-yin lè yá-deh.
one=CONJ three add-if four get-NFUT
'One plus three is four.' (literally: 'If you add 1 and 3, you get 4.')

6 Recall that we take properties such as $[\![\text{dog}]\!]$ to be true of atomic individuals, so restriction to individuals with μ_{CL}-measure 1 will not affect this extension.

(16) **Three possible choice functions over A:**
$A = \{$🐄, 🐐, 🐑$\}$
a. $f_1(A) =$ 🐄 b. $f_2(A) =$ 🐐 c. $f_3(A) =$ 🐑

Returning now to (15), we see that the DP *k'wè tă-kaun* — which is formally a definite description, headed by ι — will return either of the three dogs in the context, depending on the choice of choice function f. We propose that the choice function is then existentially bound from above, resulting in a choice function indefinite (Reinhart 1997; Winter 1997; a.o.). A full structure for example (5) 'A dog is scratching the door' is thus as in (17):

(17) **Interpreting 'A dog is scratching the door' (5):**
$\exists \boldsymbol{f}_{\text{cf}}$ [[$_{\text{DP}}$ [ι s] [dog ['one'$_{\boldsymbol{f}}$ CL]]] is scratching the door in w^*]
$= \exists \boldsymbol{f}_{\text{cf}}$ [$\boldsymbol{f}(\lambda y\,.\,y$ atomic dog in $s)$ is scratching the door in w^*]
$\rightsquigarrow$ 1 iff a dog in s is scratching the door in w^*

In Lim & Erlewine to appear, we show that 'one'-indefinites take variable scope with respect to other scope-taking operators. This is explained by allowing the binder $\exists f_{\text{cf}}$ to be adjoined at different heights.

We have proposed here to treat Burmese singular indefinites, which involve the numeral 'one,' as choice function indefinites. However, we again emphasize that DPs of the form "NP one-CL" are definite descriptions under our proposal. A choice function is used to restrict the nominal domain of the definite description to a singleton set, rather than taking the nominal property and directly returning the chosen individual of type e. Evidence to support this view of 'one' as a choice-function-based restrictor, and not an indefinite article, is presented in section 4.2.

4 Deriving anti-uniqueness

With our proposal for the syntax/semantics of Burmese definite and indefinite DPs in place, we now turn to the derivation of anti-uniqueness inferences in Burmese. We propose here that the anti-uniqueness inferences introduced by the use of 'one' in Burmese are due to a general Non-Vacuity condition on adjunction, evaluated at the DP level. We present this account for the contextual anti-uniqueness inference of 'one'-indefinites in section 4.1. We then further support this approach in section 4.2 with data on the use of anaphoric definites with 'one,' which introduce *global* anti-uniqueness inferences. This behavior is explained by our Non-Vacuity analysis and, as we show in section 4.3, presents a challenge for an alternative account for the attested anti-uniqueness inferences in Burmese based on Maximize Presupposition.

4.1 Contextual anti-uniqueness of 'one'-indefinites

Our proposal for Burmese DP interpretation from section 3, as presented, predicts that bare NPs are singular definites which require a situationally unique antecedent, whereas "NP one-CL" can be used when there are multiple individuals in the situation that satisfy the NP property. However, we currently also predict "NP one-CL" to be felicitous when referring to an individual that uniquely satisfies the NP property in context, contrary to fact. As we saw in section 2 above (see example (4)), the use of a 'one'-indefinite is infelicitous in contexts that support the bare NP singular definite. In this section, we present our analysis for this contextual anti-uniqueness inference of 'one'-indefinites.

First, we demonstrate how our current proposal predicts the availability of 'one' with situationally unique referents. Let us suppose that in the relevant situation s, there is exactly one dog. The structure of DPs of the form "NP one-CL" is in (18a), repeated from (15) above. 'One' uses a choice function f_{cf} to choose one dog from the set of individuals satisfying $(\lambda y\,.\,y \text{ atomic dog in } s)$. But since this set is a singleton set, $f(\lambda y\,.\,y \text{ atomic dog in } s)$ will necessarily return that single dog in s. As a general result, in a situation where only one individual satisfies the NP property, "NP one-CL" and the bare NP definite as in (18b) will thus necessarily refer to the same individual. This is true regardless of the choice of the choice function f_{cf}: A choice function, when applied to a singleton set, is guaranteed to return that one member of the set.

(18) **In situation s with exactly one dog (4):**
$\{y : [\![\text{dog}]\!](y)(s)\} = \{$🦙$\}$

a. $[\![[_{\text{DP}}\ [\iota\ s]\ [\text{dog}\ [\text{`one'}_f\ \text{CL}]]]]\!] = \iota x[x = f_{\text{cf}}(\lambda y\,.\,y \text{ is an atomic dog in } s)]$
$= f_{\text{cf}}(\lambda y\,.\,y \text{ is an atomic dog in } s)$
$=$ 🦙 (for any choice function f_{cf})

b. $[\![[_{\text{DP}}\ [\iota\ s]\ \text{dog}]]\!] = \iota x[x \text{ dog in } s] =$ 🦙 =(10)

The relationship between the "indefinite" structure in (18a) and the definite in (18b) is parallel to the relationship between the English indefinite *a dog* versus definite *the dog*: In contexts where there are multiple dogs, the indefinite must be used, but in contexts with a unique dog, both structures are in principle felicitous and refer to the same individual. Just as the use of *a* is blocked in contexts where *the* may be felicitously used (Heim 1991), we intuitively wish to block the use of the structure with 'one' in (18a) when the bare NP in (18b) is felicitous. Here we present our analysis which capitalizes on the difference between these two structures being whether or not some additional functional material — 'one'-CL — was adjoined or not. We also discuss and argue against an alternative analysis of this effect based on Heim's principle of Maximize Presupposition in section 4.3 below.

We propose that the adjunction of 'one' and its classifier is subject to the Non-Vacuity constraint in (19). The effect of this requirement will be that DPs of the form "NP one-CL" can only be used in situations where multiple individuals satisfy the NP property; in other words, this Non-Vacuity requirement leads to the contextual anti-uniqueness inference of 'one'-indefinites.

(19) **Adjunct Non-Vacuity:**
Adjunction of β to α is ungrammatical if $[\![[\alpha\ \beta]]\!] = [\![\alpha]\!]$, for any choice of variable assignment.

More specifically, we propose that Adjunct Non-Vacuity is evaluated at the DP level,[7] after the relevant situation argument is supplied by the determiner. Considering the DP structures in (18), the structure with 'one' (18a) includes a free variable f_{cf} which is not in (18b). The statement of (19) "for any choice of variable assignment" thus rules out the adjunction of 'one'-CL when equality holds regardless of the choice of choice function f_{cf}, as we showed to be the case in (18a) vs (18b) above. In the following section, we will see the importance of evaluating Non-Vacuity at this level, with consideration of the situation argument supplied by the determiner.

Finally, we address one complication for this proposal. Our proposed Non-Vacuity constraint in (19) applied at each DP level predicts other forms of non-restrictive nominal modification to also be ruled out.[8] Example (20) shows that this prediction is incorrect, as the definite 'dog' can be further modified by 'black' in a context where the property 'dog' is already unique.

(20) **Grammatical non-restrictive nominal modification:**
You and Maung Maung are in a petshop. Everyone knows that this petshop has only one dog, which is black. The dog is currently in the back so no one can see it. Hla Hla sees you at the shop and asks what you are doing there. You tell her:

Maun Maun=gá **k'wè ănеq** (=ko) weh-ne-deh.
Maung Maung=NOM dog black =ACC buy-PROG-NFUT

'Maung Maung is buying the black dog.'

We tentatively describe two refinements to our theory which could serve to reconcile this data point with our analysis above. The first possibility is to suggest that the Non-Vacuity constraint in (19) only applies to functional material. Such selective enforcement may be thought of as in line with the requirement that the

7 See also Erlewine & New 2020 for an independent argument for the cyclic evaluation of a Non-Vacuity constraint: there, evaluated by clause. There, Non-Vacuity serves to explain the distribution of a scalar focus particle, incidentally also in Burmese.

8 We thank Liz Coppock for raising this issue.

functional material of a sentence must not result in a trivial meaning (Gajewski 2002, 2009). The second possibility is that modifiers such as 'black' in (20) are modified so that they only contribute to a not-at-issue dimension of meaning — for example, using an operator akin to the COMMA of Potts 2005 — but that this possibility is not available for 'one'-CL.

4.2 Global anti-uniqueness of anaphoric definites with 'one'

We have thus far considered the structure and interpretation of singular indefinites with 'one' in Burmese, which we have analyzed as formally unique definite descriptions headed by ι, with 'one' restricting its domain to a singleton set according to a choice function. In this section, we consider the use of 'one' in anaphoric definites, which provides further support for various aspects of our proposal.

Consider the examples in (21) below. (21) gives two variants of the speaker's first sentence — (21a) in a context with a unique dog and (21b) in a context with multiple dogs — and a second sentence below which refers to the dog mentioned in the first sentence. In either case, the anaphoric definite *èhdi k'wè* "that dog" in the second sentence (in bold) can be optionally modified by *tă-kaun* "one-CL," with apparently no change in meaning.

(21) **Anaphoric definites can take 'one':**

a. *You go to an adoption drive with Maung Maung (MM). There's an open area for the animals to hang out and people to mingle about. One dog and one cat are up for adoption, among other animals. When MM causes trouble, you tell an organizer:*

MM=gá *k'wè*=néh caun=go hnaúnsheq-ne-deh.
MM=NOM dog=CONJ cat=ACC bother-PROG-NFUT
'Maung Maung was bothering *the dog*$_3$ and the cat$_4$.'

b. *... Multiple dogs and one cat are up for adoption...*

MM=gá *k'wè tă-kaun*=néh caun=go hnaúnsheq-ne-deh.
MM=NOM dog one-CL.animal=CONJ cat=ACC bother-PROG-NFUT
'Maung Maung was bothering *a dog*$_3$ and the cat$_4$.'

Èhdi k'wè (tă-kaun)=gá Maun Maun=go laiq-ne-deh.
DEM dog one-CL=NOM Maung Maung=ACC chase-PROG-NFUT
'The/that (one) dog$_3$ is chasing Maung Maung.'
('one'-CL on anaphoric definite $\not\rightsquigarrow$ contextual anti-uniqueness)

This availability of 'one'-CL in the singular anaphoric definites in (21) is notable for a few reasons. First, the availability of 'one' even in a context with a unique

referent satisfying the NP property 'dog' (21a) argues against analyzing 'one' as an indefinite article (cf Givón 1981). Second, given the apparent competition between bare definite NPs and corresponding indefinite "NP one-CL" structures, presented in section 2, we might have expected the addition of 'one'-CL in the second sentence in (21) to introduce a similar contextual anti-uniqueness inference. But instead, the use of 'one'-CL in the anaphoric definite in (21) is optional in both contexts, with apparently no change in meaning.

We first demonstrate that the lack of a contextual anti-uniqueness requirement by 'one' in (21) is in fact predicted by our analysis above. The key here is our denotation for the anaphoric definite determiner ι^x (*èhdi*), which we repeat in (22) below. Recall that we chose to conceptualize the anaphoric definite ι^x as not taking its own situation argument, unlike ι, with the nominal property P then evaluated according to the entire evaluation world w^*.

(22) **ι^x does not take a situation argument:** =(11)
$[\![\iota^x \text{ (èhdi)}]\!] = \lambda y_e \,.\, \lambda P_{\langle e,\langle s,t\rangle\rangle} : P(y)(w^*) \,.\, y$

Let's see how this evaluation of P in the entire evaluation world w^*, rather than in the immediate situation $s \lneq w^*$, affects the evaluation of Non-Vacuity. Suppose for concreteness that there are exactly three dogs in the evaluation world, and one particular dog has been mentioned in the prior discourse, which we can then refer to with the index pronoun pro_3. Notice that this much is shared between the contexts in (23a,b). Now we consider the interpretation of the anaphoric definite with and without 'one' in the second sentence of (23).

(23) **Anaphoric definite with and without 'one':**
$\{y : [\![\text{dog}]\!](y)(w^*)\} = \{$🐕‍🦺, 🐕, 🦙$\}$ $\qquad [\![pro_3]\!] = g(3) =$ 🐕
a. $[\![[_{\text{DP}}\ [\iota^x\ pro_3]\ [\text{dog}\ [\text{'one'}_f\ \text{CL}]]]]\!] = g(3)$
presupposition: $f_{\text{cf}}(\lambda y \,.\, y \text{ atomic dog in } w^*) = g(3)$
b. $[\![[_{\text{DP}}\ [\iota^x\ pro_3]\ \text{dog}]]\!] = g(3)$
presupposition: $g(3)$ is a dog in w^*

Following the denotation for ι^x in (22), these two DPs in (23a,b) differ in the presuppositions that they introduce. But despite this difference, we predict that the two variants of the second sentence in (21), with or without 'one'-CL, will be identical in both referent and presupposition. Following our analysis for 'one' above in section 3.2, a sentence containing the anaphoric definite with 'one' in (23a) will have a choice function binder $\exists f_{\text{cf}}$ adjoined above. As long as $g(3)$ is an atomic dog in w^*, there will be a choice function f_{cf} which maps the set of atomic worlds in w^* to $g(3)$. Thus the presupposition of (23) will be satisfied as long as $g(3)$ is an atomic dog in w^*, which makes this requirement equivalent to the presupposition of

(23b). When this presupposition is met, the two DPs in (23) both refer to the same individual, $g(3)$. Thus the presence or absence of 'one'-CL on a singular anaphoric definite should lead to no difference in the overall interpretation of the sentence.

Now let us consider the effect of Adjunct Non-Vacuity evaluated at the DP level. As seen in (23) above, the presuppositions of the two DP structures are different. The anaphoric definite without 'one' in (23b) requires that the referent $g(3)$ be a dog in the evaluation world w^*, which is true here. In contrast, the anaphoric definite with 'one' in (23a) presupposes that the choice function f_{cf} will return $g(3)$ from the set of atomic dogs in w^*. As there are multiple dogs in w^*, (23a) will be undefined for some choices of f_{cf} (see (16)), whereas (23b) is not subject to this restriction. As their interpretations at the DP level are not guaranteed to be equivalent, we predict there to be no blocking due to Adjunct Non-Vacuity between these two DP structures in (23). Our analysis thus explains both the availability of 'one'-CL in (21) and the fact that it leads to no change in meaning.

Notice, however, that Non-Vacuity led to no competition between the DPs in (23) because of the existence of multiple dogs in the entire world of evaluation, w^*. If, hypothetically, there was exactly one dog in the evaluation world w^*, the denotations of the anaphoric definites with and without 'one' in (23) *would* be guaranteed to be equivalent at the DP level for any choice of f_{cf}, just as we demonstrated to be the case with unique definites with ι taking situationally unique properties in section 4.1. In that case, we would then predict the effects of Non-Vacuity to reemerge, blocking the adjunction of 'one'-CL.

This prediction is borne out, as evidenced by the behavior of anaphoric definites referring to globally unique individuals. Consider example (24) below. In the first sentence, the bare noun *ne* 'sun' refers to the sun. In the second sentence, we refer to the aforementioned sun using the anaphoric definite *èhdi ne*. In this case, our speakers judge the addition of 'one' with an appropriate classifier to be unnatural. One speaker commented that the addition of 'one' could be acceptable if we consider that there are other suns in the universe.

(24) **'One' infelicitous in globally unique anaphoric definite:**

Ne t'weq-ne-bi. Aun=gá **èhdi ne** (??**tă-loùn**) =go
sun rise-PROG-ASP Aung=NOM DEM sun one-CL.round =ACC
sha-ne-deh.
look-PROG-NFUT

'The sun_5 is rising. Aung is looking for that (#one) sun_5.'
Speaker comment with *tă-lòun*: It sounds like there are other suns.

We take such reactions to examples with globally unique referents as in (24) to reflect that the addition of 'one'-CL to an anaphoric definite introduces a *global*

anti-uniqueness requirement. The *contextual* anti-uniqueness inference introduced by 'one' in unique definites headed by ι (null) and the *global* anti-uniqueness inferences introduced in anaphoric definites headed by ι^x (*èhdi*) together form a novel empirical argument for the view that the anaphoric definite determiner ι^x does *not* take a situation argument (11/22), rather than in the formulation assumed by authors such as Schwarz (2009) and Jenks (2018) as in (13). Precisely this pattern of anti-uniqueness inferences is predicted by our Adjunct Non-Vacuity condition (19).

4.3 Against a Maximize Presupposition alternative

We have argued thus far that the pattern of anti-uniqueness inferences introduced by 'one' in Burmese singular nominals can be explained by the adoption of a general Non-Vacuity condition on adjunction. In this section, we consider whether these inferences could also be successfully derived by the principle of Maximize Presupposition (MP), proposed by Heim 1991 for explaining the anti-uniqueness inferences of indefinites in languages with articles.

We first give a concrete characterization of MP in (25). Following Rouillard & Schwarz 2017, we use $p(\varphi)$ to refer to the presupposition of φ.

(25) **Maximize Presupposition!** (based on Rouillard & Schwarz 2017: 51)
Do not use S if there is an S' such that:

a. Formal condition: S' is a formal alternative to S (discussed below)

b. Strength condition: (i) $p(S')$ asymmetrically entails $p(S)$ and (ii) when $p(S')$ is true, $[\![S']\!] = [\![S]\!]$

c. Pragmatic condition: $p(S')$ is a common belief[9]

In prose: Do not utter S if there is an another form S' which is (a) a formal alternative to S, (b) is presuppositionally stronger than S but otherwise equivalent, and (c) whose presuppositions are believed by the conversational participants to be true.

Let's consider the formal condition in (25a) in more detail. What counts as a relevant formal alternative for the purposes of MP? Traditional discussions of MP consider alternatives that vary only in the substitution of certain lexically determined competitors, such as *the* vs *a*. If we limit our attention to such lexical substitutions, the competition between Burmese DPs with and without 'one'-CL will not be within its purview. However, following Katzir's (2007) work on the characterization of alternatives considered in implicature calculation, Rouillard & Schwarz 2017 has recently argued that structural alternatives derived by deletion of subconstituents are also relevant competitors for MP.[10]

9 Rouillard & Schwarz 2017 explicitly discuss the pragmatic condition (25c) and propose to refine it, but the formulation here will suffice for our purposes.

10 Singh 2011 also suggests this possibility on page 152, note 4, but without argumentation.

Adopting Rouillard & Schwarz's proposal that MP considers formal alternatives derived by deletion operations, we can now evaluate the application of MP to the Burmese DPs discussed here. We first consider LF structures with a bare definite versus a 'one'-indefinite as in (26). Notice that the sentence with the bare NP in (26b) is a deletion alternative of the 'one'-indefinite sentence in (26a), via deletion of the adjoined 'one'-CL and corresponding choice function binder.

(26) **The bare NP is a deletion alternative for a 'one'-indefinite:**

a. $\exists f_{\text{cf}}$ [[$_{\text{DP}}$ [ι s] [dog ['one'$_f$ CL]]] is scratching the door in w^*] for (5)

b. [[$_{\text{DP}}$ [ι s] [dog]] is scratching the door in w^*] for (4)

We notice furthermore that the full structure with a bare NP definite in (26b) is presuppositionally stronger than (26a), in that (26b) but not (26a) requires there to be a unique individual with property 'dog' in s. When (26b)'s presupposition of situational uniqueness is satisfied, however, the two sentences are truth-conditionally equivalent. Thus, MP with consideration of deletion alternatives will successfully derive the contextual anti-uniqueness inference of 'one'-indefinites.

Next we consider whether MP can derive the global anti-uniqueness inference introduced by 'one' in anaphoric definites, presented in section 4.2. Consider the two structures with anaphoric definites in (27), which again shows that the variant without 'one'-CL is a deletion alternative of the corresponding structure with 'one'-CL. The attested behavior which we hope to explain is that the structure of the form in (27a) is infelicitous in cases where the NP property is *globally* unique, as is the case with the NP 'sun' (24).

(27) **Anaphoric definites with and without 'one'-CL:** for (21)

a. $\exists f_{\text{cf}}$ [[$_{\text{DP}}$ [ι^x pro_3] [dog ['one'$_f$ CL]]] is chasing Maung Maung in w^*]

b. [[$_{\text{DP}}$ [ι^x pro_3] [dog]] is chasing Maung Maung in w^*]

Considering the structures in (27a,b) as potential competitors, we predict there to be no effect of MP, whether the NP property is globally unique or not. As discussed in the previous section (see discussion following (23), the full structures in (27) and similar pairs will systematically result in identical meanings, both in their presuppositions and truth-conditions.

However, recall that in our own analysis above, it was crucial that Adjunct Non-Vacuity is evaluated at the DP level to derive the global anti-uniqueness inference of anaphoric definites with 'one.' In previous work, MP has been argued to apply to local contexts, although only at the level of embedded clauses (Singh 2011). Let's consider whether evaluation of MP at the DP level would allow us to successfully derive the global anti-uniqueness inference. The denotations for the DPs in (27a,b) are in (28a,b), respectively, repeated from (23a,b) above.

(28) **Anaphoric definite DPs in (27):** =(23)

a. $[\![[_{\text{DP}}\ [\iota^x\ pro_3]\ [\text{dog}\ [\text{`one'}_f\ \text{CL}]]]]\!] = g(3)$
presupposition: $f_{\text{cf}}(\lambda y\,.\,y \text{ atomic dog in } w^*) = g(3)$

b. $[\![[_{\text{DP}}\ [\iota^x\ pro_3]\ [\text{dog}\quad\quad\quad\quad]]]\!] = g(3)$
presupposition: $g(3)$ is a dog in w^*

Comparing these two structures, we see that (28b) is a deletion alternative of (28a) and that when their presuppositions are satisfied, they both necessarily denote the same referent, $g(3)$. However, MP again fails to block the use of (28a) by (28b) as the strength condition of (25b) does not hold: the presupposition of (28b) is not stronger than the presupposition of (28a), as p(28a) entails p(28b).[11]

We conclude that MP is unable to account for the full pattern of anti-uniqueness inferences attested by Burmese DPs with 'one.' Allowing MP to consider structural alternatives derived by deletion (Rouillard & Schwarz 2017), MP may derive the contextual anti-uniqueness inferences of 'one'-indefinites (26). However, MP fails to derive the global anti-uniqueness inferences introduced by anaphoric definites with 'one,' both with MP evaluated at the clause level (Singh 2011) in (27) and with MP evaluated at the DP level in (28).

5 Conclusion

Our description and analysis of definite and indefinite singular nominals in Burmese, an article-less language, has led to multiple analytic advances and findings which we believe to be of broader interest. First, we developed a novel approach to indefinites with a numeral 'one' as formally definite descriptions (with a null definite determiner) with a choice-function-based restrictor. This approach allows us to also model the behavior of anaphoric definites with 'one,' which form an argument against analyzing 'one' as grammaticalized into an indefinite article. The latter introduces *global* anti-uniqueness inferences, in contrast to indefinites (formally, definites with 'one') which introduce contextual anti-uniqueness inferences. The difference in the content of these anti-uniqueness inferences provides a novel argument for anaphoric definites to not employ situation variables, in contrast to unique definites. In addition, we showed that this full pattern of anti-uniqueness inferences is successfully derived by the adoption of a Non-Vacuity constraint on the adjunction of functional material, but fails to be explained by Maximize Presupposition.

11 This is true regardless of exactly how free variables — such as the choice function variable f_{cf} — are treated during MP evaluation.

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