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Existential sentences in Tagalog: commentary on the paper by Joseph Sabbagh

Edward L. Keenan

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Abstract In his article in this volume, Joseph Sabbagh treats existential *there* sentences (henceforth, ET sentences) as a type of structure whose expression in different languages may vary. Taking the first step in constructing a typology of ET sentences, he claims that ET sentences in the Western Austronesian language Tagalog are built from an unaccusative predicate, whereas ET sentences in English, according to the proposals he cites, are constructed from small clauses. Both analyses have also been proposed for ET sentences in other Western Austronesian languages. For instance, in Malagasy, a Western Austronesian language spoken in Madagascar, Pearson (1996) and Paul (2000) defend a small clause analysis of ET sentences, whereas Polinsky (2008) argues persuasively for an analysis involving an unaccusative predicate. At various points in this commentary, I try to push the typology of ET further by suggesting possible typological correlates of their form.

Keywords Existential · Pivot · Small clause · Unaccusative predicate · Tagalog · Malagasy

Sabbagh shows that ET sentences in Tagalog consist of an existential predicate followed by the *pivot* nominal, and then by a *coda*, which is realized as a locative phrase or a relative clause. The pivot denotes the objects whose existence is asserted or denied by the existential predicate. The coda determines a property that holds of the objects denoted by the pivot. In the Tagalog example (1a),[1] *may* is the existential

[1]The Tagalog examples not attributed to any source are from Sabbagh's article; those marked ND are from my consultant work with Nenita Domingo.

Many thanks to Nenita Domingo for judgments and sophisticated discussion.

E.L. Keenan (✉)
Department of Linguistics, UCLA, 3125 Campbell Hall, Box 951543, Los Angeles, CA 90095-1543, USA
e-mail: edward.keenan1@gmail.com

predicate, *aso* 'dog' (or *tatlong aso* 'three dogs') is the pivot, and *sa bahay*, the locative form of 'house', is the coda:

(1) a. May aso / tatlo-ng aso sa bahay. ND
exist dog / three-L dog LOC house
'There is a dog / are three dogs in the house.'

b. Wala-ng (tatlo-ng) aso sa bahay. ND
not.exist-L (three-L) dog LOC house
'There isn't a dog / aren't three dogs in the house.'

c. Mayroo-ng mga bata-ng hindi n-agaaral.
exist-L plural child-L not AGR.ASP-study
'There are children who don't study.'

The morpheme glossed 'L' in these examples is the Tagalog linker, which joins modifiers (adjectives, adverbs, and relative clauses) to what they modify; it is realized as *-ng* following a vowel, glottal stop or nasal, and as *na* otherwise. The existential verb *may* is not constructed with a linker, but *wala* and *mayroon* are. The *roon* in *mayroon* is a locative deictic meaning 'there, in it' which is also used to build other predicates, including the existential verb in (2).

(2) Magkaka-roon ng isa-ng rebisyon ng libron-ng
ASP.exist-there NON-SUBJ one-L revision NON-SUBJ book-L
iyan.
this
'There will be a revision of this book.'

Sabbagh provides several diagnostics which identify *magkaroon* as a verb: it is marked for aspect and it assigns a non-subject case *ng* (pronounced *nang*). *May* and *mayroon* lack these properties. Sabbagh offers a decompositional analysis in which both *may* and *magka* are verbal (V or *v*) and *roon* is a predicate. An alternative would be to treat *may* simply as a syncategorematic morpheme used to introduce ET sentences.

These data suggest one (perhaps shallow) typological parameter of ET sentences. Namely, some languages form positive and negative ET sentences with distinct root forms of existential predicates. Such languages include Tagalog as well as Hebrew, which is exemplified in (3).

(3) Yesh / Ein yeladim ba bait.
exist / not.exist children in.the house
'There are / There aren't children in the house.'

Other languages, such as English and Malagasy (4), negate ET sentences with the same negative morpheme they use in ordinary predicate-argument sentences.

(4) a. Natory / Tsy natory tsara halina aho.
slept / not slept well last.night I.NOM
'I slept / didn't sleep well last night.'

b. Misy / Tsy misy zazakely mitomany ao an-trano.
exist / not exist children crying there in-house
'There are / aren't children crying there in the house.'

Assuming that the form of negative ET sentences is strongly correlated with whether or not the ET predicate is a verb, we arrive at the following conjecture.

(5) **Conjecture**: ET sentences in a language are negated with the same morpheme as predicate-argument sentences if and only if the existence predicate is a verb.

In support of (5), we note that *misy* is a verb in Malagasy: it takes ordinary verbal tense marking (*nisy* 'there was', *hisy* 'there will be'); it has some of the inflectional forms of ordinary verbs, including a circumstantial form and an imperative; and it occurs sentence-initially, in the normal surface position of verbs. Further support for (5) is that the fact that in Tagalog, ET sentences which are formed from the verbal existence predicate *magkaroon* are negated with an ordinary negative morpheme, as Sabbagh notes. Compare the negative in the predicate-argument relative clause in (1c) with the negative in the ET sentence in (6):

(6) Hindi nagka-roon ng tao sa bahay.
not ASP.exist-there NON-SUBJ person LOC house
'There was no one in the house.'

Some more extensive typological questions are listed below:

(7) a. Do all natural languages present a syntactically distinctive ET construction? Do they always have a Definiteness Effect?
b. If a language has a distinctive ET construction, can we predict the type of existential predicate it will choose, such as a verb as opposed to an invariant particle?
c. Can we predict whether a language will express ET sentences with unaccusative predicates, small clauses, or some other structure?

Regarding the other structures alluded to in (7c), Landman (2004) argues that pivots in ET sentences in Dutch are adjuncts, not arguments, contra both the small clause analysis and the unaccusative predicate analysis. Regarding (7b), the Tagalog evidence discussed by Sabbagh shows that it is possible for a language to choose more than one option for existential predicates (see (1–2)). And in (7a), the term *syntactically distinctive* is intended to cover morphosyntactic items peculiar to ET sentences, like Tagalog *may*/*wala* and Hebrew *yesh*/*ein*, as well as restrictions on which nominals can function as pivots—so-called *definiteness effect*s.

Sabbagh shows that ET sentences in Tagalog present definiteness effects similar to those found in English. Thus in (1a, b), determinerless nominals occur as pivots with an indefinite interpretation; these nominals may also be modified by a plural marker, as in (1c), or by cardinal numerals (see (1a, b)). Sabbagh illustrates this last case with *isa* 'one', which *a priori* could be just an 'indefinite article'. But additional sources confirm the naturalness of cardinal numerals in general modifying pivots in ET sentences; see (32–34) below. This point will be important later. Sabbagh notes a few other types of indefinite DPs that can serve as pivot nominals, including *ilang mga (dahilan)* 'a few [plural] (reasons)' and *maraming (ilaw)* 'many (lamps)', and concludes that pivots are DPs, not mere NPs. Lastly, he shows that DPs built from *bawat* 'every', *bawat isa* 'each one', *karamihan ng mga* 'most of [plural]' and *lahat* 'all' are excluded as pivots.

(8) *Mayroo-ng lahat ng manok sa bahay.
exist-L all of chicken LOC house
'There are all of the chickens in the house.'

Drawing on much Tagalog-specific material, Sabbagh argues convincingly that ET sentences in this language are not formed from small clauses in which the locative phrase is the small clause predicate. For example, locative predicates in Tagalog, in general, take *na-* (see (9a)), whereas locative adjuncts do not (9b).

(9) a. *(Na)sa kati sila nang dumaan ang bagyo.
PRED.LOC shore they.SUBJ when AGR.ASP.hit SUBJ storm
'They were on shore when the storm hit.'

b. Kumakain siya (*na)sa iskwela.
AGR.ASP.eat he.SUBJ LOC school
'He eats at school.'

On a small clause analysis, the locative coda in ET sentences like (1) should take *na-*; but instead, it behaves like an adjunct, not a predicate. Similarly, a small clause analysis which takes the small clause predicate to be the VP material following the pivot yields incorrect predictions concerning the possibility of adjunct extraction and the location of second position clitics. These arguments need not be repeated here. We merely add that the unmarked predicate-initial word order in Tagalog would be violated in the putative small clauses, which present the subject first. Subject-initial word orders do arise in predicate-argument sentences, but in such cases of contrastive inversion, the subject is separated from the predicate by particles such as *ay*, *na/-ng*, or *ang*, which are not found in the supposed small clauses. Contrastive inversion without particles does exist, but requires a separate intonational phrase with a pause after the fronted constituent (Schachter and Otanes (henceforth S&O) 1972: 493). Again, this distinctive marking is not part of the ET structure.

We turn now to Sabbagh's own analysis of ET sentences as built from unaccusative predicates, illustrated in (10).

(10) [$_{TP}$ expl [$_{T'}$[$_{T}$ e] [$_{vP}$ [$_{vP}$ may(roon) [$_{DP}$ [$_{D}$ tatlo-ng [$_{NP}$ aso]]]]
exist three-L dog
[$_{PPloc}$sa bahay]]]]
LOC house

This structure comes as something of a surprise. Tense is not overtly marked on predicates in Tagalog, which leaves the reader wondering why a T node is generated if it can never be filled. In contrast, although the specifier of T is filled with a null expletive in (10), that position can also be filled by a lexical expression, which is interpreted as a possessor of the denotation of the erstwhile pivot.

(11) a. Mayroo-ng malaki-ng aso si Maria.
exist-L big-L dog SUBJ Maria
'Maria has a big dog.'

b. Wala siya ni lapis. (S&O 1972: 393;
not.have 3.SUBJ even pencil *ni* trumps the linker which
'He doesn't have even a pencil.' *wala* usually takes)

c. May lima-ng kuwarto ang bahay na ‘to. ND
exist five-L room SUBJ house L this
‘This house has five rooms.’

So the semantic interpretation of *may(roon)* is conditioned by whether or not it has a lexical expression in the specifier of T—a lexical subject. Consider now the crucial (in)definiteness paradigm instantiated in (12).

(12) a. Nakakita ako ng babae. ND
saw.AF 1sg.SUBJ NON-SUBJ woman
‘I saw a woman.’

b. Nakita ko ang babae. ND
saw.TF 1sg.GEN SUBJ woman
‘The woman was seen by me.’

In (12a), ‘woman’ is the theme of an Actor-Focus verb and is obligatorily interpreted as indefinite. It cannot be replaced by a personal pronoun (including the reflexive *sarili*), a proper noun, or a demonstrative. If a definite theme is intended, it is presented as the *ang*-marked DP—the subject, according to Sabbagh—using a Theme-Focus verb, as in (12b). It is this paradigm that prompts S&O (1972: 278–279) to claim that “the topic [the *ang* phrase, ELK] of a Tagalog sentence always expresses a meaning of definiteness”. Similarly, Shibatani (1988: 125) states that properties of the subject prototype of Philippine languages include referentiality/definiteness; Foley and van Valin (1984) agree. S&O (1972: 279) illustrate the definiteness of determinerless *ang* phrases with pairs such as:

(13) a. May istudyante-ng dumating.
exist student-L come.AF
‘A student came.’

b. Dumating ang istudyante.
come.AF SUBJ student
‘The student came.’

Sabbagh notes that ET sentences in Tagalog differ from predicate-argument sentences in two other ways: (1) They are impersonal, lacking a lexical subject, and (2) the predicate *may(roon)* does not assign case to the pivot DP.

Sabbagh accounts for the definiteness effect by assuming that *may(roon)* subcategorizes an argument of semantic type ⟨e, t⟩, the type of ordinary one-place predicates; this argument is the pivot. (In *Jo is an author*, the predicate *is an author* is of type ⟨e, t⟩. Semantically, it maps entities, denotations of expressions of type e, like *Jo*, to truth values.) He blocks raising of the pivot to the specifier of T on the grounds that noun phrase subjects in Tagalog cannot be property-denoting. (See Guilfoyle et al. 1992 for the raising analysis of subjects in Western Austronesian.) Equally, proper nouns and pronouns, which are semantically of type e, predictably do not occur as pivots. This part of Sabbagh’s analysis is rather elegant—it is fairly simple and entails many correct predictions. The specific stipulation he needs is (14).

(14) A X is an acceptable argument of *may(roon)* if and only if X has type ⟨e, t⟩.

Sabbagh’s proposal is semantically-based and does predict the definiteness effect, assuming (as he does) that DPs such as *bawat babae* ‘every woman’ are generalized

quantifiers, of type ⟨⟨e, t⟩, t⟩, not ⟨e, t⟩. They map properties to truth values. Further, ordinary unaccusative predicates can present a definite subject (i.e., *ang* phrase), as in the second conjunct in (15). So there is no general prohibition against raising internal arguments of unaccusative predicates to subject; they just must be definite.

(15) …tinamaan ng kidlat ang gusali ng eskwelahan at
…strike.TF of lightning SUBJ building of school and
sumabog ito. ND
exploded.AF this
'…the school building was struck by lightning and it exploded.'

Lastly, Sabbagh suggests two reasons why the object of *may(roon)* is not case-marked. First, in an earlier version of his article, he claim that *may(roon)* is an adjective and that in languages in general, adjectives fail to be case assigners. To be sure, complements of adjectives in English require a preposition, which presumably is their case assigner (though *worth* in *It's worth your time/a second look* may be an exception). But in languages with extensive overt case marking, adpositions are not always hired as case-assigning mercenaries. In Latin, for instance, the dative is selected by adjectives expressing "fitness, nearness, likeness, service, inclination and their opposites" (Greenough et al. 1981: 238); see (16). All the examples below are from texts:

(16) a. Nihil difficile amanti puto.
nothing hard lover.DAT think.1sg
'I think nothing hard for a lover.'
b. Nihil est tam naturae aptum.
nothing is so nature.DAT apt
'Nothing is so fitted to nature.'
c. Tribuni nobis sunt amici.
tribunes we.DAT are friendly
'The tribunes are friendly to us.'

The genitive is selected by adjectives denoting desire, knowledge, memory, fullness, power, sharing guilt and their opposites (Greenough et al. 1981: 216).

(17) a. avidi laudis
greedy praise.GEN
'greedy of praise'
b. memorem vestri, oblitum sui
mindful you.GEN forgetful self.GEN
'mindful of you, forgetful of himself'
c. plenus fidei
full faith.GEN
'full of good faith'

In German also, the dative and genitive may be selected by adjectives (Daniel Büring, personal communication).

(18) a. Das wäre eines Professors würdig.
that would.be a.GEN professor.GEN worthy
'That would be worthy of a professor.'

b. Die Libanesen sollen der Hizbullah überdrüssig werden.
the Lebanese should the.GEN Hezbollah weary become
'The Lebanese should become weary of the Hezbollah.'

c. Wir sind den Helfern dankbar.
we are the.DAT helpers.DAT grateful
'We are grateful to the helpers.'

d. Wir sind dem Bezirk Los Angeles untergeordnet.
we are the.DAT district Los Angeles subordinated
'We are subordinate to the district of Los Angeles.'

And even in Malagasy, a few adjectives select the accusative.

(19) a. Antonina azy io satroka io
suitable 3sg.ACC that hat that
'That hat is suitable for him.'

b. Feno azy ny siny.
full it.acc the jug
'The jug is full of it (milk).'

Finally, there are several candidates for case-assigning adjectives in Tagalog (though an extensive study is needed to circumscribe 'adjective' in this language).

(20) a. Bagay sa iyo ang sombrerong ito.
suit LOC you SUBJ hat this
'This hat suits you.'

b. Galit siya sa guro.
angry 3.SUBJ LOC teacher
'He is angry at the teacher.'

Sabbagh's second reason for thinking it rational that the object of *may(roon)* is not case-marked is that DP predicates in Tagalog are not case-marked. This is correct:

(21) Anak ng mayamang tao siya.
child of rich man 3sg.SUBJ
'He is the son of a rich man.'

But for Sabbagh, the pivot of an ET sentence is not a DP predicate, but rather the non-subject argument of an unaccusative predicate. Why *should* it behave like a predicate nominal? (Note that with the verbal existential predicate *magkaroon*, the pivot *is* case-marked; see (2) and Sabbagh's footnote 28.) So at the moment, the absence of case marking on the pivot of *may(roon)* is a stipulation (but true, to be sure).

Empirical adequacy of Sabbagh's analysis. Overall, Sabbagh's analysis is well grounded, both in general linguistic theory and in Tagalog-specific properties. But there are some empirical issues which lead me to suggest a friendly modification of his approach (keeping it semantic).

First, the similarity with Malagasy existentials leads me to find a Tagalog equivalent of a common use of the existential predicate in Malagasy, shown in the Malagasy examples in (22).

(22) a. Nisy nitady anao.
PST.exist PST.seek you.ACC
'Someone was looking for you.'
b. Misy mandihy ao am-piangonana.
PRES.exist PRES.dance there in-church
'People are dancing in the church.'

In Malagasy, the existential predicate can govern a finite verb in any voice. And Tagalog presents similar expressions (perhaps less freely?), as (23) shows.

(23) a. Naghahanap si Juan ng doktor. ND
seek.AF SUBJ Juan NON-SUBJ doctor
'Juan was looking for a doctor'
b. May naghahanap ng doktor.
exist seek.AF NON-SUBJ doctor
'Someone was looking for a doctor.'

(24) a. May dumating kahapon. (S&O 1972: 276)
exist come.AF yesterday
'Someone came yesterday.'
b. May dumarating araw-araw.
exist come.AF every.day
'Someone comes every day.'
c. May natutulog na tao sa silid. (Aspillera 1969: 36)
exist sleep L person LOC room
'There is someone sleeping in the room.'

The examples in (24) support Sabbagh's semantic claim that *may(roon)* governs an expression of type $\langle e, t \rangle$, but are less obviously consistent with the syntactic claim that expression is a DP. This is a case where a tensed verb is understood to denote an object or objects in the set satisfying its subject's selection restrictions. In Malagasy it is usual to combine the definite article *ny* or a demonstrative *ity*. . .*ity* with a tensed verb to denote the performers of the activity expressed by the verb, as in (25). And we find cases in Tagalog, shown in (26) and (27).

(25) ny nanatrika ny fety
the PST.AF.attend the celebration
'the one(s) who attended the celebration'

(26) a. lalaki-ng maysakit
man-L is.sick
'a man who is sick'
b. Ayaw kumain ang maysakit. (Aspillera 1969: 157)
not.like eat SUBJ patient
'The patient (sick one) doesn't like to eat.'

(27) a. Dumalo ang mga estudyante sa pulong. ND
attend SUBJ PL student LOC meeting
'The students attended the meeting.'
b. Nabagot ang mga dumalo sa pulong.
bored SUBJ PL attend LOC meeting
'The ones who attended the meeting were bored.'

English does not allow such nominalizations: It is ungrammatical to omit *ones who* from (25), yielding **the who attended*... Further, in contrast to Tagalog and Malagasy, English does not allow bare verbs as existential pivots: *There is *(someone) looking for you*. Again, we call a **typological alert.**

Q1. What properties (if any) of a language predict that pivots of ET sentences can be filled with finite active verbs, as in Tagalog and Malagasy but not English?
Q2. What properties predict that ET sentences can take a subject understood to possess the pivot, as in Tagalog and Malagasy (see (28)), but not in English?

The answer to **Q1** is likely linked to the failure of verbs in Tagalog and Malagasy to agree with the subject in person-number, and likely relates to the possibility of null arguments more generally. But pivots of ET sentences have not been among the major environments studied in this regard.

Concerning **Q2**, in Malagasy inherent possession is normally expressed with the existence verb, as shown in (28a). Alienable possession is usually expressed with the overt transitive verb *manana* (Pearson 1996; Polinsky 2008). Interchanging *misy* and *manana* in (28) results in a nonsense in each case.

(28) a. Misy efi-trano dimy io trano io.
exist room five that house that
'That house has five rooms.'
b. Manana trano betsaka Rabe.
has house many Rabe
'Rabe has/owns many houses.'

Further, Malagasy supports a (weaker) version of the Tagalog (in)definiteness paradigm in (12). Namely, bare nominals function naturally as objects of transitive verbs (see (29a)), but cannot stand alone as subjects. To express a transitive activity with an indefinite agent, it is most natural to use an ET sentence (29c) or, where appropriate, a cardinal predicate (29d):

(29) a. Mamaky boky Rabe.
PRES.read.AF book Rabe
'Rabe is reading books.'
b. *Vakin-dRabe boky.
PRES.read.TF-Rabe book
'Books are being read by Rabe.'

c. Misy boky vakin-dRabe.
PRES.exist book PRES.read.TF-Rabe
'There are books that Rabe is reading.'

d. Betsaka ny boky vakin-dRabe.
many the book PRES.read.TF-Rabe
'The books being read by Rabe are many.'

But Malagasy differs from Tagalog in that it does allow definite objects—pronouns, proper nouns, demonstratives, and reflexives—often marked with *an-* (which is otherwise a locative; as with Spanish *a* and Rumanian *pe*).

(30) Nikapoka an-dRabe / azy aho.
PST.beat ACC-Rabe / him I
'I beat Rabe / him.'

English *there is/are*, French *il y a*, and German *es gibt* cannot be used as transitive verbs of possession, not even inherent possession. So we have a pattern separating ET sentences in Tagalog/Malagasy from what one might loosely call common European. And as well, English, French and German do not exhibit the definiteness paradigm in (29), as all these languages allow overtly indefinite subjects and overtly definite objects. So again, we have a paradigm distinguishing Western Austronesian from common European—a paradigm that requires explanation.

Semantic issues. The crux of Sabbagh's analysis is his *semantic* claim that DP objects of existence predicates are of type $\langle e, t\rangle$. The syntactic property of "occurring as a predicate" does not correctly pick out the DPs which occur as pivots, since *John* and *the man I saw* function as predicates, in the intended sense, in *That isn't John* and *He is the man I saw*. But proper nouns are excluded as they have type e, not $\langle e, t\rangle$. Definite descriptions such as *the man I saw* are not excluded, as Sabbagh excludes them by appealing to a felicity condition that requires the pivot to introduce a novel discourse referent. (If the latter condition is the crucial one, then Sabbagh's analysis is in part pragmatic, contra his claims for a purely semantic analysis.)

I feel that the semantic requirement that *may(roon)* take objects of type $\langle e, t\rangle$ is too strong. To see why, let us review the semantic basis for assigning types to expressions. We cannot do so freely—the type makes a commitment as to the kind of object the expression denotes.

To say that an expression X has type t is to say that X is interpreted as True or False; to say that X has type e is to say that X denotes a (possibly abstract) entity in the domain of the model in which we are interpreting expressions. And, in general, to say that X has type $\langle a, b\rangle$ is to say that X denotes a function from the denotations of type a to those of type b. So in a model M with domain E, an expression of type $\langle e, t\rangle$ denotes a function from E into the set {T,F} of truth values. We call such functions (extensional) *properties* (of individuals). We often represent such a function by the set of objects it maps to T. If E has just n elements, $|E| = n$, then there are 2^n properties in such a model, since that is the number of maps from E into a 2-element set (equivalently, the number of subsets of an n-element set).

So in a model with just 3 individuals, there are $2^3 = 8$ extensional properties. Treating (standardly) nominals such as *doctor*, *lawyer*, *wealthy doctor*, *student who*

John knows, etc. as of type ⟨e, t⟩, we see that given 9 or more distinct such expressions, at least two must have the same denotation (extension) in this model. In contrast, full DPs are of type ⟨⟨e, t⟩, t⟩: They map properties to truth values. So in our 3-element model, there will be $2^8 = 256$ extensionally distinct functions (called *generalized quantifiers*) of this type, so we could have 256 distinct DP expressions with different extensions. These numbers grow rapidly. In a 4-element model, for example, there are $2^4 = 16$ extensional properties and $2^{16} = 65{,}536$ generalized quantifiers. And in general, over a set E of size n, there are $k = 2^n$ denotations of type ⟨e, t⟩, and 2^k ones of type ⟨⟨e, t⟩, t⟩. So the number of possible DP denotations is 2 raised to the power of the number of ⟨e, t⟩ denotations, so the former is massively greater than the latter. (Moreover, Keenan and Moss (1984) show that over a finite domain, for each generalized quantifier Q we can find an expression—often a colossal one—that can be interpreted as Q.)

Sabbagh is right that we need DPs as objects of *may(roon)*, not just NPs. But how, then, can their denotations be limited to the size of ⟨e, t⟩ ones, rather than ⟨⟨e, t⟩, t⟩ ones? If DPs could occur freely as objects of *may(roon)*, then Sabbagh's claim would clearly fail. But they can't. DPs with Dets translating *every*, *each one*, and *most*, for example, are not allowed. But are these constraints strong enough to rule out all but ⟨e, t⟩ many of the ⟨⟨e, t⟩, t⟩ denotations? For instance, over a domain of 4 objects, do the constraints rule out all but 16 of the 65,536 possible ⟨⟨e, t⟩, t⟩ denotations?

To answer this question, we must first state just what conditions must be satisfied by DP objects of *may(roon)*. So far, we just have some examples of DPs allowed and DPs disallowed. I propose here that the DPs allowed are just those interpreted as the value of a cardinal Det at a property. Cardinal Dets will be defined shortly, but let us see first what empirical phenomena we intend to cover. To say that a Det is cardinal is to say that we decide the truth of the claim that Det p's are q's just by verifying |p∩q|, the number of p's that are q's. So knowing how many p's are q's is all that is relevant to determining whether Det p's are q's or not. And we have already seen that basic cardinal numerals occur as Dets in DPs satisfying the subcategorization requirement of *may(roon)*—(1a), for example. Here are a few further examples with different cardinal Dets. (Note that the "plural" marker *mga* immediately preceding a numeral in (31a) and (32b) has an approximative interpretation.)

(31) a. May mga dalawampung tao doon noong Biyernes.
exist PL twenty people there last Friday
'There were approximately twenty people there last Friday.'
(S&O 1972: 201)

b. May humigit-kumulang na dalawampung tao doon
exist exceed-fall.short L twenty people there
noong Biyernes.
last Friday
'There were more or less twenty people there last Friday.'

(32) a. May labindalawang buwan sa isang taon. (Aspillera 1969: 39)
exist twelve months loc one year
'There are twelve months in a year.'

b. May mga isang daang bata ang nag-aaral dito.
exist PL one hundred child SUBJ studying here
'There are about a hundred children (who are) studying here.'

(33) May mga lima hanggang sampung mga estudyante sa klase.
exist PL five up.to ten PL student LOC class
'There are between five and ten students in the class.' ND

Now, to define *cardinal determiners*, note that Dets in general are of the type $\langle\langle e, t\rangle\langle\langle e, t\rangle, t\rangle\rangle$. They map a property—the restriction—to a generalized quantifier, a function that itself maps a property—denoted by a VP, for example—to a truth value.

Def A determiner D of type $\langle\langle e, t\rangle\langle\langle e, t\rangle, t\rangle\rangle$ is *cardinal* iff for all subsets A,B,X,Y of the domain, if $|A \cap B| = |X \cap Y|$, then $D(A)(B) = D(X)(Y)$.

And cardinal Dets are ones that denote cardinal functions in every model. Giving the definition as an invariance condition makes it easy to see that vague Dets, such as *nearly fifty*, *about fifty*, etc., are cardinal. If the number of sparrows on my clothesline is the same as the number of socks in my drawer, then *About fifty sparrows are on my clothesline* and *About fifty socks are in my drawer* have the same truth value—both true or both false (even if we can't decide which). Also, a vague Det like *several* might denote AT LEAST 3 in some models, AT LEAST 4 in others. It is cardinal as long as all its denotations are cardinal functions.

Now, how many DP denotations of the form D(A) are there, where A is any subset of the domain E, and D is a cardinal function? The answer, from Keenan and Moss (1984:110),[2] is: $2 \times ([3^{|E|} - 2^{|E|}] + 1)$. So in a four-element domain, just $2 \times ([3^4 - 2^4] + 1) = 2 \times 66 = 132$ of the 65,536 possible DP denotations are of the form D(A), for D cardinal. So restricting the argument of an existence predicate to cardinal DPs is a very strong restriction. But still, 132 is larger than 16, and over any domain E, the number of cardinal DP denotations is larger than the number of $\langle e, t\rangle$ denotations.

Consider an example to see why this has to be true. Let $E = \{a, b, c\}$. So there are $2^3 = 8$ subsets of E: The empty set $\varnothing$, three unit sets, {a}, {b}, etc., 3 doubleton sets, {a,b}, etc. and one 3-element set, E itself. Now consider the cardinal function Ex1 (Exactly One). It yields a different generalized quantifier at each set. For example, Ex1({b}) is true of just the subsets of E whose intersection with {b} has exactly one member. That is not the same class of sets that Ex1({a}) is true of, since for example Ex1({a})({b}) = False, and Ex1({b})({b}) = True. By trying cases, we see that Ex1 takes different values at all 8 subsets of E. And this is just one subset of the D(A)'s with D cardinal. If we add in the set of NO(A), that is, Ex0(A) (the function Exactly Zero applied to A), we find that we add 8 more functions to our list, yielding 16, already twice the number of subsets of E, that is, of functions of type $\langle e, t\rangle$. Proceeding thus, we find that there are 40 D(A)s with D cardinal, per Keenan and Moss's formula.

Now, how successfully can we restate Sabbagh's analysis to require that *may(roon)* subcategorize a DP interpreted as D(A), for D a cardinal function and A any property (so that *may(roon)* selects D but not A)? In favor of this is the fact that we allow DPs

[2]The proof, due to Moss, is available on request.

like those in (31–33), which Sabbagh's semantics seems not to, as these DPs are not of type $\langle e, t \rangle$. Also, our approach correctly rules out DPs headed by *every, each one,* and *most*, since they are not cardinal. (If you just know that the number of As that are Bs is five, you can't infer that all, or even most, As are Bs.) But our approach still leaves open many questions which Sabbagh addressed:

Q1. How do we interpret pivots that are just bare nouns, such as *aso* 'dog' in (1)?
Q2. How do we interpret pivots that are just finite VPs, as in (23) and (24)?
Q3. How do we block proper nouns and pronouns from being pivots?
Q4. How do we account for the lack of case on the pivot?
Q5. How do we account for the impersonal form of ET sentences (no *ang* phrase)?

Concerning **Q1**, we allow, as is usual, the semantic interpreting function to be sensitive to the category of expression it is interpreting. So $[_N$ *honor*$]$ and $[_V$ *honor*$]$ may be interpreted differently; similarly *Ma's home cooking* can be an S or a DP, with its interpretation varying with the category. And we must allow bare Ns in Tagalog to function as full DPs, as was illustrated in very many of our examples (e.g. *kati* 'shore' and *bagyo* 'storm' in (9a)). So in defining the interpreting function $[[\cdot]]^M$ in a model M, we require that $[_{DP}\ [_{NP}$ dog$]]$ be interpreted as a function mapping a property B to True iff $[[[_{NP}\text{dog}]]]^M \cap B \neq \varnothing$. So the bare DP *dog* is interpreted as SOME(DOG), despite there being no *some* in the syntax. (Those who don't mind positing empty Dets can just say there is an empty Det present, always interpreted as SOME (= AT LEAST ONE).) A similar solution works for our finite VP cases in **Q2**, as long as the syntax allows us to insert a finite VP in the DP node of an ET sentence, which it must, since they occur there, as in (23) and (24).

Concerning **Q3**, our cardinality approach rules out pivots that are proper nouns on the grounds that there is no cardinal Det whose value at each A is a proper noun denotation, an individual. **Q4** is handled via a lexical stipulation: *may(roon)* does not assign case.

Lastly, **Q5** is somewhat problematic, as now not all DP objects of *may(roon)* fail the definiteness requirement imposed by *ang*. A bare NP governed by *ang* is interpreted as definite, as in (12b), but overtly numerical DPs of the sort we see as objects of *may(roon)* may also occur as *ang* phrases with the indefinite meaning they have in ET sentences. This was first shown in generative studies by Bell (1978) for Cebuano (a Philippine language closely related to Tagalog). Adams and Manaster-Ramer (1988) challenged the definiteness requirement in Tagalog, citing (34). Bloomfield had noted (35) earlier. (36) gives an example of an indefinite with a numeral other than 'one', which might always have a special status.

(34) Tumugtog ng gitara ang isang binata.
AF.played NON-SUBJ guitar SUBJ one bachelor
'A bachelor started playing the guitar.' [my translation, ELK]

(35) Kinuha niya ang isang aklat. (Bloomfield 1917: 154, cited from Kroeger 1991: 19)
PERF.take.PF 3.NON-SUBJ SUBJ one book
He took a (certain) book.'

(36) Dumalo ang limang estudyante sa pulong. ND
attend SUBJ five student LOC meeting
'Five students attended the meeting.'

This use of cardinal indefinite "subjects" is also widespread in Malagasy, another language in which subjects have been cited as definite (Keenan 1976).

(37) Nanatrika ny fety ny olona maromaro/vitsi-vitsy.
attended the party the person many-many/few-few
'Rather few / fairly many people attended the party.'
(Not: *The people previously mentioned who were fairly many attended.)
(Keenan 2008)

Now, concerning why the object of *may(roon)* can't be an *ang* phrase, I suggest a change in perspective. Namely, it is not true that ET sentences lack *ang* phrases; they have them, but when they do they are interpreted as possessors, or more generally as *encompassing* the denotation of the pivot. If the pivot could raise to *ang*, it would then be interpreted as a possessor or container (of itself?), which isn't the meaning we want. So the first question to ask is how we suppress the possessor *ang* phrase. And I'm suggesting that suppression is what triggers the existence-affirming or existence-denying interpretation of what is left, a kind of default. Consider (38), from Malagasy.

(38) a. Misy olom-potsy ny Malagasy. (Malagasy)
exist people-white the Malagasy
'The Malagasy have white folks (among them).'
b. Misy olom-potsy.
exist people-white
'There exist white people.'

(38a) entails (38b). If we think of (38b) as having a generic possessor, say 'the world' as the default interpretation when not overtly expressed, then the only meaning that is left is the assertion of the existence of white people.

Further pursuit of this question would require serious consideration of just how *ang* phrases are derived in general, a topic far too vast to undertake here.

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