

Malayalam property concept sentences and the locus of variation*

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1. Introduction

In Francez & Koontz-Garboden (2015), we call attention to an intra- and crosslinguistic generalization about the form of what we call (in the spirit of Dixon 1982, Thompson 1989) PROPERTY CONCEPT SENTENCES, translational paraphrases of sentences whose main predicate is an adjective in some language, such as (1).

(1) Krishna is wise.

We observe that both internal to a single language and crosslinguistically, such sentences can be either **predicative** or **possessive**. For example, internal to English, the canonical predicative adjective sentence in (1) can be paraphrased with (2), which takes the form of an English predicative possessive sentence.¹

(2) Krishna has wisdom.

The possessive pattern is restricted in English; relatively few property concept propositions can be encoded with such sentences. In other languages, however, it is much more robust and sometimes practically exclusive, as is the case in Ulwa, a Misumalpan language spoken in Nicaragua, the focus of Francez & Koontz-Garboden (2015). The general question we are concerned with there is what the source of variation in the morphosyntactic form of property concept sentences is. What determines whether a property concept sentence is morphosyntactically possessive or predicative? Two kinds of answers suggest themselves.

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¹By *canonical predication* we mean the morphosyntactic form used in ordinary non-verbal predication, as with predicative nominals and predicative adjectives. See Francez & Koontz-Garboden (2015) for further discussion.

One kind of answer links the differences in morphosyntax to **semantic variation**, specifically to variation in the lexical semantics of what we term the *property concept lexeme*—the lexical item in a property concept sentence responsible for introducing the ‘adjectival’ descriptive content (*wise* in (1), *wisdom* in (2)). On this view, the distribution of possessive and predicative form reflects a contrast between possessive and predicative semantics. The semantic choice (between possession and predication) is governed by what is required, semantically, to express the truth conditions of a property concept sentence. This line of explanation, linking form directly to meaning, is similar to that pursued by Talmy (1985) in relation to the motion typology, and by Chierchia (1998) in relation to variation in the distribution of numeral classifier morphosyntax.

An alternative line of analysis is to assume that the semantic components are uniform across property concept sentences, viewing the variation in their morphosyntactic form as reflecting **syntactic variation**, specifically variation in how the semantic components are linked to syntactic elements in particular languages. That semantic components are universal and uniform within and across languages is the null hypothesis according to the strong view argued for by Matthewson (2001) and those following her. In particular, on this view, the distribution of surface possessive and predicative forms is an artifact of language specific facts about the inventory and phonology of functional material.

In this paper, we examine the consequences of choosing between these two alternatives, drawing on the expression of property concept sentences in Malayalam, as described and analyzed by Menon and Pancheva (2014). In Francez & Koontz-Garboden (2015) we argue for a semantic variationist explanation for the distribution of possessive and predicational forms, linking it to the lexical semantics of property concept lexemes. In contrast, Menon and Pancheva argue, based on Malayalam, for a syntactic variationist explanation. Specifically, they argue that property concept sentences are universally possessive. Whether they are possessive or predicational on the surface depends on the inventory and phonological realization of functional morphemes. Our goal is to reexamine Menon and Pancheva’s data, arguing that they are compatible with the semantic variationist explanation, and in fact lend more support for it. We show that the syntactic variationist position leads to missed generalizations and to crosslinguistic expectations that do not seem to be met. Our conclusion is therefore that overall the observed data are best explained by semantic variation, and, more broadly, that at least some morphosyntactic variation in the form of translationally equivalent sentences² in some is ultimately due to semantic distinctions (viz., Chierchia 1998; Matthewson 2001 for discussion).

We begin with discussion of the semantic variationist analysis of the phenomenon in Francez & Koontz-Garboden (2015), and then turn to the Malayalam data that Menon and Pancheva bring to bear on the discussion. After laying out the facts as described by Menon and Pancheva, we describe their analysis, and point out the problems it faces. We then show how a semantic variationist analysis can capture the facts without running into any of these problems. We conclude with some broader observations.

²Translational equivalence is a problematic concept at best (see e.g., Keenan 1973 for some discussion). However, for current purposes, we follow standard practice in the field and assume, perhaps somewhat optimistically, that this intuitive concept corresponds to some theoretically viable notion. See Francez & Koontz-Garboden (In prep, Chapter 1) for further justification.

2. The (lexical) semantic variationist view

The simple intuition underpinning our analysis of variation in the form of property concept sentences in Francez & Koontz-Garboden (2015) is that possessive morphosyntax reflects possessive semantics and predicative morphosyntax reflects predicative semantics. What underlies the choice of strategy is the semantics of **property concept lexemes**, i.e. the simplest lexemes contributing the “adjectival” content in a sentence expressing property concept predication. Property concept lexemes come in two semantic varieties. There are those which are **individual characterizing**, like *wise*, which characterizes the set of wise individuals, and those which are **substance characterizing**, like *wisdom*, which characterizes the set of portions of the substance wisdom. In informal terms, the proposal in Francez & Koontz-Garboden (2015) is that substance characterizing lexemes require a semantics of possession to express the truth conditions of property concept predication. This is because predicating a predicate of substances of an individual does not yield the relevant meaning. For example, (3a) simply does not have the truth conditions of (3b).

- (3) a. Kim is wisdom. \neq
b. Kim is wise.

It is a basic empirical observation, illustrated by (3), that direct predication with substance characterizing lexemes does not generate translational equivalents of property concept sentences. However, possessively relating individuals to substances *does* yield a proposition that is true whenever the relevant property concept proposition is true:³

- (4) Kim is wise. \Rightarrow Kim has wisdom.

The main point in Francez & Koontz-Garboden (2015) is that whether possession or canonical predication is used for expressing a property concept proposition is entirely predictable from the denotation of the basic property concept lexeme involved, a denotation that, at least in most cases, can be independently diagnosed, for example by investigating what kind of truth conditions are generated with the lexeme in direct predication.

The formal details of this theory are developed in Francez and Koontz-Garboden (2015, 2016, In prep), building on the observation that, in familiar languages, substance characterizing property concept lexemes behave in many ways like mass nouns. In Francez & Koontz-Garboden (2015), they are given denotations similar in key respects to those of other mass nouns, building on Link’s (1983) foundational work. The idea is that individual and substance characterizing property concept lexemes denote in different domains. Individual-characterizing lexemes denote in the domain of ordinary individuals (in some way or another, depending on the theory of gradability assumed), whereas substance-characterizing lexemes denote in a separate domain, the domain of portions. This domain is totally pre-ordered by a relation called ‘size’. Substance-characterizing property concept

³The reverse direction does not always hold, at least for English, which is one of the reasons why it is not obvious how to formulate a notion of translational equivalence in truth conditional terms.

lexemes denote *substances*, which are mutually disjoint, partially ordered subsets of the domain of portions. A theory of substance possession is then outlined in which saying that an individual “has” a substance is true if and only if it bears a possessive relation to some portion of that substance.

With this as background, we now turn to Menon and Pancheva’s challenge to this picture from Malayalam.

3. Malayalam: The descriptive facts

Menon and Pancheva (2014) lay out a detailed description of the facts of property concept sentences in Malayalam, which we summarize in this section. According to them, there are two classes of property concept lexeme in the language, which they call Class 1 and Class 2. At a purely descriptive level, the first of these is canonically predicating while the other is possessively predicating. Both classes are robustly attested in the language.

3.1 Class 1

Class 1 roots are those which become free words when suffixed with *-a*, as shown by the data in (5).

- (5) Malayalam property concepts words in *-a* (Menon & Pancheva 2014, 290)
valiya ‘big’; *čeriya* ‘small’; *puthiya* ‘new’; *nalla* ‘good’; *pačča* ‘green’; *niila* ‘blue’

As discussed by Menon and Pancheva, the suffix *-a* is, diachronically, a relativizer. Whether it should be taken to be a relativizer synchronically or not is a matter of debate: Asher & Kumari (1997, 116–117, 350) reject this idea, while others, including Menon & Pancheva (2014, 290) argue that it is indeed synchronically productive. We are not in a position to contribute to a resolution of this issue, but nothing we say here hinges on it.

For reasons that seem to be mysterious to everyone, and will remain so here, these relativized forms, in order to be used as predicates, must be turned into light-headed relatives, using suffixes which Menon and Pancheva claim are bound pronouns (Menon & Pancheva 2014, 292). Examples are given in (6) (the glosses throughout are Menon and Pancheva’s).

- (6) a. *nalla-val*
 good-F.SG
 ‘she who is good’
 b. *nalla-van*
 good-M.SG
 ‘he who is good’ (Menon & Pancheva 2014, 292)

These light-headed relatives serve as the main predicates in property concept sentences in which these Class 1 roots feature, as illustrated by the data in (7).

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- (7) a. *ava|nalla-val aana*
she good-F.SG EQ-COP
'She is good.'
- b. *avan nalla-van aana*
he good-M.SG EQ-COP
'He is good.'
- (Menon & Pancheva 2014, 292)

Such sentences feature what Menon and Pancheva call the "equative copula" *aana*, the copular element generally used for non-verbal predication in Malayalam, as shown by the data in (8).

- (8) a. *avan kolayali aana*
he murderer EQ-COP
'He is a murderer.'
- b. *ava|ke|kkun-a-val aana*
she hear-REL-F.SG EQ-COP
'She is one who can hear.'
- (Menon & Pancheva 2014, 293)

3.2 Class 2

Class 2 roots are those that combine with the suffix *-am* to form nouns. Some property concept words in this class are given in (9):

- (9) *santosham* 'happiness'; *sankaṭam* 'sadness'; *madhuram* 'sweetness'; *prayasam* 'difficulty'; *santam* 'quietness'; *pokkam* 'tallness' (Menon & Pancheva 2014, 290)

The suffix *-am* is "a productive nominal marker in Malayalam" (Menon & Pancheva 2014, 293), as evidenced by the fact that it forms nouns not only from property concept roots, but also from roots that form verbs, as in (10), and other ordinary nouns, as in (11).

- (10) a. *chaat-uka* 'to jump'; *oot-uka* 'to run'; *snek-ikk-uka* 'to love'
- b. *chaat-am* 'a jump'; *oot-am* 'a run'; *sneh-am* 'love'
- (Menon & Pancheva 2014, 293)

- (11) *paz-am* 'banana'; *vell-am* 'water'; *kall-am* 'theft' (Mythili Menon, p.c.)

In contrast with Class 1 roots, Class 2 roots combining with *-am* form property concept sentences with possessive morphosyntax. Ordinary possessives in Malayalam are created with an existential construction, using a special copula (which Menon and Pancheva call the "existential copula") and with a dative marked possessor, as shown in (12).

- (12) *ava|kkə mookutthi unṭə*
she.DAT nose.pin EX.COP
'She has a nose pin.'
- (Menon & Pancheva 2014, 294)

Precisely the same construction is used to create property concept sentences with Class 2 property concept roots suffixed by *-am*, as shown by the data in (13).⁴

- (13) *ava[kkə pokkam un̩tə*
 she.DAT tallness EX.COP
 ‘She is tall.’ (Menon & Pancheva 2014, 294)

3.3 Summary of the descriptive facts in Malayalam

To summarize, descriptively speaking, there are two classes of property concept lexemes in Malayalam. Property concept lexemes in what Menon and Pancheva call Class 1 appear in property concept sentences suffixed with relative clause forming morphology and with morphosyntax otherwise used for canonical non-verbal predication in the language. Class 2 lexemes appear in property concept sentences suffixed with nominalizing morphology and with possessive morphosyntax.

Notwithstanding this contrast in morphosyntactic behavior, Menon and Pancheva argue for an analysis which, at a deeper level, treats the two classes as a single, semantically uniform class of roots, with property concept sentences based on them also having an identical semantics, but involving different functional heads. We turn next to the details of this analysis.

4. Menon and Pancheva’s analysis of Malayalam

Menon and Pancheva (2014) analyze the Malayalam facts within a Distributed Morphology framework, with the goal of maintaining a uniform lexical semantics for property concept lexemes, and for property concept sentences generally. Their analysis locates the variation in the morphosyntactic form of property concept sentences, in Malayalam and, by hypothesis, crosslinguistically, in syntax and morphophonology. The key assumption of the analysis is that property concept lexemes are universally precategory roots, and universally denote *properties* (in the property-theoretic sense of Chierchia & Turner 1988, following Koontz-Garboden & Francez 2010). Property concept sentences built on these roots always

⁴Comparatives based on Class 2 are also built on a possessive morphosyntax, by contrast with those in Class 1, as shown by the data in (i) and (ii). Menon and Pancheva make the interesting observation that comparatives based on class 1 property concept roots, disallow *kūṭuttal* ‘more’, whereas those based on class 2 roots optionally allow it, as (i) shows.

- (i) a. *Anil-inə Komalan-e kaa[-um (kūṭuttal) pokkam un̩tə*
 Anil-DAT Komalan-ACC than-UM more tallness EX.COP
 ‘Anil is taller than Komalan.’ (Menon & Pancheva 2014, 299)
- b. *Anil Komalen-e kaa[-um nalla vidhyar̩thi aaṇə*
 Anil Komalan-ACC than-UM good student EQ-COP
 ‘Anil is a better student than Komalan.’ (Menon & Pancheva 2014, 299) Why this is the case is unclear to us.

express the proposition that an individual possesses an “instance” of the property denoted by the root. In cases where there is canonical predication on the surface, as with Malayalam Class 1 roots, possession is introduced covertly by a phonologically null categorizing head. In the case of Malayalam Class 1 roots, the null categorizing head is a *v* head, assumed to have possessive semantics. When possessive morphosyntax *is* seen on the surface, this is because possessive semantics has not been introduced by the head categorizing the root. This is the case with Malayalam Class 2 roots, which are categorized by a *n* head, spelled out as *-am*, which does not introduce possessive semantics. With such words, possessive semantics is instead introduced overtly by a possessive construction. In what follows, we detail how this analysis works with the two classes of Malayalam property concept roots, following this by consideration of how they intend their analysis to be seen in a crosslinguistic context. We then consider the plausibility of the predictions that this analysis gives rise to.

4.1 Class 1 roots

Class 1 roots are turned into possessive predicates by a functional verbalizer *v* with possessive semantics, which also introduces a degree argument. Formally speaking, as shown in (14), this phonologically null *v* head takes a property denoting root and creates a degree predicate from it— a function from degrees to a function from ordinary individuals to truth values which when predicated of an individual *a* and a degree *d*₁ is true just in case there is some instance of the root property⁵ that *a* has and the measure of the instance of the root property that *a* has is greater than or equal to *d*₁.

$$(14) \quad \llbracket \emptyset_{v-poss} \rrbracket = \lambda \Pi \lambda d \lambda x \exists y [y \text{ is an instance of } \Pi \ \& \ x \text{ has } y \ \& \ \mu(y) \geq d]$$

As elsewhere in the degree-based literature on property concept sentences, a key question concerns the source of the degree argument in any particular sentence with a gradable predicate in it. In comparatives, for example, the degree argument is saturated by comparative degree morphology. In ordinary predicative contexts like (15), the assumption is that there is a “positive” degree which is responsible for the vagueness of such sentences and which is often phonologically null.

$$(15) \quad \begin{array}{l} \textit{avan nalla-van} \quad \textit{aanə} \\ \text{he} \quad \text{good-M.SG EQ-COP} \\ \text{‘He is good.’} \end{array} \qquad \text{(Menon \& Pancheva 2014, 292)}$$

Menon and Pancheva avail themselves of such an analysis, proposing that in such contexts, the degree argument of the verbalized property concept root is saturated by the positive degree morphology with the denotation in (16).

⁵Menon and Pancheva are not explicit about what an instance of a property is, but it is clear that they do not intend by this an individual instantiating the property. Rather, the notion of an instance of a property they intend seems to us to be something like the instantiation of a property in an individual, a notion similar to Moltmann’s *trope* (e.g. Moltmann 2009)

$$(16) \quad \llbracket \text{POS} \rrbracket = \lambda g_{\langle d, \langle e, t \rangle \rangle} \lambda x \exists d [g(d)(x) \ \& \ d > d_s]$$

This null morpheme takes a degree predicate (the denotation of e.g., the verbalized property concept root), and creates a predicate of individuals, true of an individual *a* iff the degree above which *a*'s instance of the root property measures is higher than some contextually given standard (d_s in (16)).

In schematic fashion, then, their treatment of a property concept word like *nalla* ‘good’ in the context of a sentence like that in (15) is as in (17). It is first verbalized by the phonologically null verbalizer, which introduces the possessive semantics required in order to relate a property to individuals. The null POS saturates the degree argument, and introduces a context-sensitive degree of comparison, as described above. Finally, relativizing morphology is affixed, for reasons which, as described above, are not well understood, but are assumed (by all) to be morphosyntactic in nature, and have no impact on the lexical semantics relevant for our considerations. This gives to *nallavan* ‘good-M.SG’, a denotation like that in (17b).

$$(17) \quad \begin{array}{l} \text{a.} \quad \llbracket [\sqrt{nall} + \emptyset_{v-poss}]_v + POS \rrbracket_{v-a-van}]_{rel} \\ \text{b.} \quad \lambda x \exists d \exists y [y \text{ is an instance of goodness} \ \& \ x \text{ has } y \ \& \ \mu(y) \geq d \ \& \ d > d_s] \end{array}$$

4.2 Class 2 roots

Class 2 roots are turned into nouns by a nominalizing functional head realized as the *-am* suffix appearing on such roots. On Menon and Pancheva’s analysis, this categorizing *n* can have different meanings, one of which is a function that takes a property and returns a relation between degrees and “instances” of the property, as in (18).

$$(18) \quad \llbracket -am \rrbracket = \lambda \Pi \lambda d \lambda x [x \text{ is an instance of } \Pi \ \& \ \mu(x) \geq d]$$

This suffix, unlike the verbalizing morphology above, does not relate the property denoted by the root to the individuals possessing it; this has to come from some where else (overt possession, as discussed below). This nominalizer *-am* does introduce a degree argument, which as above, needs to be saturated. In comparative constructions, this is done by the comparative morphology, and in positive constructions like (19), it is accomplished in the same manner as with the Class 1 property concept sentences, through composition with phonologically null positive degree morphology.

$$(19) \quad \begin{array}{l} \text{ava} [kkə \text{ pokkam} \text{ un}tə \\ \text{she.DAT tallness EX.COP} \\ \text{‘She is tall.’} \end{array} \quad \text{(Menon \& Pancheva 2014, 294)}$$

Schematically, this gives the structure in (20a) to a property concept word like *pokkam* ‘tall’. Its denotation in a positive context like (19), with a saturated degree argument, is

as in (20b). It denotes a set of instances of tallness whose measure is greater than some contextually given standard.

- (20) a. $[[[\sqrt{pokk} + am_n]_n + POS]$
b. $\lambda x \exists d [x \text{ is an instance of tallness} \ \& \ \mu(x) \geq d \ \& \ d > d_s]$

Crucially, (20b) is not a predicate of ordinary individuals, and therefore cannot compose directly with an ordinary individual in order to express the translational equivalent of a property concept sentence. This is why, on Menon and Pancheva’s analysis, possessive morphosyntax surfaces with such lexemes in property concept sentences. The overt possessive morphosyntax seen in (19) introduces the semantics that was introduced by the verbalizer in the case of class 1 roots.

5. Malayalam and the syntactic variationist view

Descriptively, as discussed in §3, Malayalam shows two strategies of property concept predication. Class 1 roots give rise to canonical predication, as illustrated in (21), while Class 2 roots give rise to possessive property concept sentences, as in (22).

- (21) *ava|nalla-va| aaηə*
she good-F.SG EQ-COP
‘She is good.’

- (22) *ava|kkə pokkam uηtə*
she.DAT tallness EX.COP
‘She is tall.’

On Menon and Pancheva’s analysis, however, this descriptive generalization is an illusion created by morpho-phonological accidents. At a deeper level, there is in fact no difference in the mode of predication observed with the two classes. Rather, all roots give rise to possessive strategies of predication. The possession is simply covert with the Class 1 roots, since the morpheme contributing possessive morphology is phonologically null (i.e., $v - poss$). With Class 2 roots, the possession is observed on the surface, in the form of the existential copula+dative construction. Furthermore, their assumption is that this kind of contrast governs the surface variation between predicative and possessive property concept sentences not only in Malayalam, but universally (Menon and Pancheva, 301). Specifically, they claim that “property concepts universally lexicalize as roots, and they denote substance-like individuals, requiring possessive predication.” Crosslinguistic variation arises as a consequence of (i) morphophonological accidents, such as that observed internal to Malayalam, where a possessive v is phonologically null, and (ii) differences in the inventory of functional heads. Generally, property concept sentences are predicative when possessive semantics is introduced by a null morpheme, and overt when it is introduced by an overt one. Adjectives, in languages that have them, are assumed on this analysis to be “syntactically derived categories that too use a possessive strategy of predication, a

covert one.” The adjectivizing categorizer of roots in languages like English, presumably a phonologically null head *a*, on such an analysis, introduces possessive semantics. In short, on such a theory, as Menon and Pancheva say, the observed variation in the morphosyntactic form of property concept sentences, both language internally and crosslinguistically, is *not* a consequence of the nature of the inventory of roots, but rather a consequence of the nature of the inventory of functional heads and their realization. In the sections that follow, we discuss a range of undesirable consequences that this view has.

6. Problematic predictions of the syntactic analysis

The intuition underlying Menon and Pancheva’s analysis is that there is a universal lexical semantics for property concept lexemes and that the variation in the form of property concept sentences is a consequence of morpho-phonological accidents and variation in the inventory of functional heads. We see two kinds of problems with such an analysis. The first kind has to do specifically with overgeneralization in Malayalam. The second kind is more general, and concerns problems that arise when the crosslinguistic implications of an analysis pinning variation on language specific inventories of functional morphemes are considered in more detail. We treat these in turn.

6.1 Problems specific to Malayalam

Internal to Malayalam, Menon and Pancheva’s syntactic variationist analysis runs into problems which a semantic variationist analysis does not encounter. The problems include at least two kinds of missed generalization.

The first concerns the motivation for the functional morphology appealed to by the analysis. While it is debatable whether the nominal categorizing morphology *-am* should be treated syntactically, as it is in Menon and Pancheva’s analysis, there is no doubt that *-am* is a nominalizer, i.e. a suffix that makes a noun out of a bound root. In the case of the hypothesized *v* head that categorizes Class 1 roots, however, there is reason for serious doubt, since it is never realized phonologically, and Menon and Pancheva offer no other empirical arguments for its existence.⁶ The arguments, rather, are purely theory-internal - the semantically uniform treatment of property concept lexemes, and the broader Distributed Morphology assumptions which entail that all word-formation is syntactic, cannot be maintained without it.⁷ A more plausible analysis, we claim, would treat the Class 1 roots not as bound roots at all, but simply lexically as (individual-characterizing) verbs. Such an analysis makes moot the question why there is no evidence for a phonologically null functional head.⁸

⁶See Menon & Pancheva (To appear), however, for a possible argument from color terms.

⁷A Distributed Morphology adherent might argue that there is independent motivation elsewhere for the view that word formation is always syntactic, and that positing a *v* head is justified on those grounds. See Baker (2003, Chapter 5) for a sound rebuttal of this view.

⁸Both analyses still need to account for the fact that class 1 roots/verbs are restricted in distribution and only occur with the relativizer *-a*. One might conjecture that this is because the relevant verbs are native Dravidian verbs that have become obsolete, and ‘fossilized’ in *-a* forms. But such a view clearly needs to be argued for, and we are not in a position to do so here.

The second problem is that the proposed syntactic view does not in fact make the two classes of roots natural classes. Specifically, nothing in the analysis laid out by Menon and Pancheva blocks any root from occurring with any head, whether *n* or *v*. To state the concern differently, the analysis, as stated, actually predicts that all roots should appear in both canonical and possessive property concept sentences. This is because both functional heads take property denoting bound roots as arguments, and both Class 1 and Class 2 roots are roots of precisely that type on this analysis. In fact, however, the roots are restricted in distribution—Class 1 roots only appear in (overtly) canonical predicating property concept sentences, while Class 2 roots only appear in (overtly) possessive property concept sentences.

A proponent of Distributed Morphology might argue that this deficiency could be overcome by appealing to something like the notion of allosemy elaborated recently in Wood (2015) in the context of DM. The assumption would then be that all roots combine with all heads, but that the combination of Class 2 roots with *n* is not assigned any denotation at LF, and similarly for the combination of Class 1 roots with *v*. This line of argument seems to us to simply recreate the problem elsewhere, as nothing explains why it is that, systematically, whenever the combination of a root with *v* is blocked at LF, the combination of that root with *n* is not, and vice versa. Furthermore, the fact remains that the combination of class 1 roots with e.g. the nominalizer *-am* do not exist in Malayalam. It seems to us that the proponent of Distribute Morphology would have to elaborate a theory that allows discrimination between head-root selection and LF-blocking, with applicable diagnostics to tell the two apart. Finally, there is at least one other reason to believe that the two classes of roots in Malayalam are in fact natural classes, namely the fact that Class 1 roots are native Dravidian roots, whereas Class 2 ones are generally borrowings.

While we believe that these two Malayalam-internal considerations already call the syntactic variationist view into question, they are of relatively minor concern compared to the problems such a view faces when generalized crosslinguistically.

6.2 Crosslinguistic problems

As discussed above, a basic assumption of Menon and Pancheva's syntactic analysis is that property concept lexemes are universally precategorial, property-denoting roots. Variation in the form of property concept sentences across languages is a consequence of differences across languages in (i) the inventory of categorizing functional heads, e.g., whether the particular categorizing heads a language has have a possessive semantics or not, and (ii) whether syntactic material introducing possessive semantics is phonologically realized or not. This theory gives rise to three problematic crosslinguistic predictions.

First, since verbalizing morphology introduces the possessive relation in property concept sentences that are morphosyntactically predicational on the surface, it follows that there should be a general link between categorizing morphology and possessive semantics. For example, Menon and Pancheva's hypothesis about adjectives in languages like English, where property concept sentences are canonically predicating with an adjectivally categorized property concept root, is precisely that the adjectivizer head carries possessive semantics. We should therefore expect to see a crosslinguistically robust coincidence of cat-

egorizing morphology with possessive morphology. Such coincidence arguably occurs for nominalizers in Ulwa. In that language, it is plausibly the case that the morpheme *-ka* that occurs on all property concept roots is at once a nominalizer and a possessive morpheme, as argued in Koontz-Garboden & Francez (2010) and Francez & Koontz-Garboden (2015). So far as we are aware, however, the Ulwa pattern is very much the exception rather than the norm, Huave being the only other language we are aware of in which this pattern of possessive morphosyntax is used, and only marginally at that (see Kim & Koontz-Garboden 2013 for details). The rarity of such a coincidence argues against an association of nominalizers with possessive morphology. For other categorizers, the situation is much worse, and no coincidence is ever observed with possessive morphology. For example, so far as we are aware, no language has adjectivizing morphology on property concept roots that is also possessive, despite the fact that many languages that have adjectives have overt possessive morphemes. Nor are we aware of any language that displays an observable coincidence of verbalizing morphology and possessive morphology. This casts serious doubt on the syntactic view, since, while any syntactic head might well be phonologically null in one language, it is highly implausible for it to be universally null.

Second, if property concept lexemes universally denote properties, and if all categorization is syntactic, then we expect to see categorizing morphology systematically diverge between categorizers of property concept roots and categorizers of other roots in the same syntactic categories. This is on the reasonable assumption that not *all* roots denote properties, i.e. that the roots of many verbs and nouns (like *eat* or *dog*) are not property denoting and do not call for a semantics of possession in combination with arguments. For example, we would expect a crosslinguistically recurring distinction between property concept verbs and other verbs, as well as between property concept nouns and other nouns, in terms of the categorizing morphology used in word formation with them. At the very least, we expect this in languages in which categorizing morphology is overt. While seriously corroborating or disproving this prediction requires a systematic crosslinguistic investigation, which we have not carried out, we are skeptical that it is borne out.

A third false prediction concerns the syntactic categories of property concept words that overt possessive morphosyntax is found with. Absent additional development of the theory, Menon and Pancheva's view has it that categorizers are found in both possessive and non-possessive guises. So, for example, *n* in Malayalam, realized by *-am*, lacks possessive semantics, while in Ulwa, the *n* realized by *-ka* does introduce possessive semantics. While this may be unproblematic in the domain of nominalizers, we are skeptical, and certainly not aware of any evidence, that there is a *v* that combines with property concept roots and does not carry possessive semantics. This would mean that there are verbal property concept words that, in order to form property concept sentences, require combination with external possessive morphosyntax. Worse, as we discuss in Francez & Koontz-Garboden (In prep), it is clear that there are no languages in which adjectival property concept words occur in possessive sentences to express translational equivalents of property concept sentences. What this means in the context of the syntactic view of variation is that the adjectivizing head *always* has possessive semantics. Perhaps there is some explanation, in the context of the syntactic view, for why this might be the case, but it is unclear to us what this explanation might be. What is clear, however, is that the theory as currently stated falsely

predicts that overt possessive morphosyntax should, across languages, be found with all syntactic categories of property concept lexemes.

The conclusion of this discussion is that the semantics of predicative property concept sentences cannot be reduced to that of compositionally constructed, possessive property concept sentences. Property concept lexemes do not have a universal lexical semantics. A theory that maintains that they do leads to overgeneralization in the context of Malayalam, and, more broadly, to a series of crosslinguistic predictions that are not (or, in some cases, at least do not seem to be) borne out.

7. A semantic variationist analysis of Malayalam

If the syntactic approach is undesirable, as we have argued, crosslinguistically and for Malayalam, then we need an alternative analysis of the facts. We believe that the right analysis, both of the crosslinguistic variation and of language internal variation as observed in Malayalam, is the one sketched out above, and laid out in detail in Francez and Koontz-Garboden (2015), namely that variation in the form of property concept sentences is tied to variation in the lexical semantics of property concept lexemes.

Menon and Pancheva's Class 1 and Class 2 differ in exactly the way the semantic variationist approach predicts. The former are individual characterizing, while the latter are substance-characterizing. Morphosyntactically, we assume, by contrast with Menon and Pancheva, that only Class 2 lexemes are bound roots, and must be categorized before being used as words. This is the job of the nominal morphology *-am*. The fact that *-am* appears with nouns of all different kinds, as shown above in §3.2, suggests to us that it is semantically inert, and plays only a morphosyntactic role in word formation, forming nouns from bound roots. Semantically, it is inert, and returns the meaning of the root it combines with. Unlike Menon and Pancheva's analysis, then, the semantic variation analysis does not require multiple denotations for *-am*, and derives the meanings of *-am* nouns simply from their roots. Since property concept roots are substance-characterizing, so too are Class 2 nouns derived from them.⁹ Class 1 lexemes, we argue by contrast, are simply lexical verbs (albeit defective ones, see fn. 6) with an individual-characterizing denotation. Given this kind of approach, we predict that property concept sentences formed with Class 2 lexemes will be possessive, while those formed with Class 1 will be canonical-predicating, as is the case.

This analysis is advantageous because it accounts for Malayalam using the same assumptions that account for other languages. It does not invoke syntactic structure for which there doesn't seem to be structural evidence. Further, it does not overgenerate. Since Class 1 and Class 2 lexemes differ in their semantics as well as in their syntactic categories, the prediction is that there should be no crossover in classes. We should not find Class 1 lexemes in possessive property concept sentences or Class 2 lexemes in canonical predicating

⁹Menon and Pancheva have *-am* introduce a degree semantics with their property-denoting roots. We do not need a degree semantics, since as discussed in Francez and Koontz-Garboden (2015), on this analysis gradability already comes from the pre-order on substances. Menon and Pancheva need the degree-based analysis that they propose because they adopt a property-theoretic approach to the semantics of possessive-predicating property concept lexemes.

property concept sentences. This prediction is borne out, as discussed above, and contrasts with the predictions of the syntactic variationist analysis. Most importantly, the semantic variationist analysis makes the morphosyntactic variation in the form of property concept sentences systematic. According to this view, we find possession if and only if the property concept lexeme has a substance denotation. This contrasts with the arbitrary nature of the variation on the syntactic variationist analysis proposed by Menon and Pancheva, in which the variation is a matter of language specific morphological accident, with possessive sentences arising when there happen to be phonologically null possessive categorizers.

8. Concluding remarks

To conclude, Malayalam presents the same kind of pattern as has been observed within and across other languages. Some property concept sentences are possessive, others are predicative. The question is what is responsible for this pattern—variation in the semantics of property concept lexemes, or variation in the inventory and realization of functional heads. We have argued that the distribution of possessive and predicative form is a consequence of variation in lexical semantics. Possessive sentences arise with substance-characterizing property concept lexemes, and canonical predicative ones arise with individual-characterizing ones.

In contrast, on the syntactic view, at least as articulated in Menon and Pancheva’s analysis of Malayalam, the distribution of forms is an accident of morphophonology. Property concept lexemes are universally property-denoting and the semantics of property concept sentences is always possessive, but this is not always reflected in surface form. Specifically, possessive *v* in Malayalam happens to be null, while *n* is overt, but happens not to introduce the semantics of possession.

We have argued that the semantic variationist view is advantageous for several reasons. First, it aligns the Malayalam facts with a general crosslinguistic pattern. Second, it does not invoke syntactic structure for which there doesn’t seem to be structural evidence, and does not overgenerate, making apparent natural classes natural. Finally, it avoids a range of problematic crosslinguistic predictions. We conclude that this is a clear case where lexical semantics explains variation in morphosyntactic form. Indirectly, we also view these results as evidence that the lexicon is an important component of grammar, in which various grammatically relevant generalizations must be stated.

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