University of Pennsylvania Working Papers in Linguistics

Volume 25
Issue 1 *Proceedings of the 42nd Annual Penn Linguistics Conference*

Article 2

2-27-2019

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Abstract

The goal of this paper is two-fold: First, I present and analyze a restricted set of dimensional nominal property concepts (DNPC) in Levantine Arabic (LA) (e.g., Tuul "tallness", ?arD "width") whose semantics supports the syntactic analysis of property concepts under the uniformitarian view (Menon and Pancheva, 2014) and presents a direct theoretical challenge to the semantic analysis under the transparent view (Francez and Koontz-Garboden, 2015). Second, I propose an explanation to the facts based on uniformitarian assumptions along with other independently motivated standard assumptions.

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On Dimensional Property Concepts in Levantine Arabic: Evidence for Uniformitarianism

Abdel-Rahman Abu Helal*

1 Introduction

Property concept sentences are sentences with main predicates that are consistently lexicalized as adjectives in the type of language that has this lexical category. They may also be categorized as non-adjectives with the translational paraphrase of adjectival predicates in those languages that lack adjectives (Jenks et al. 2017, Francez and Koontz-Garboden 2015, Menon and Pancheva 2014). The Levantine Arabic data in (1a) exemplify the adjectivally-lexicalized property concept sentence along with the translational paraphrase of its non-adjectival realization (1b). In (2) the Ulwa data represent the non-adjectivally lexicalized property concept sentence.[1]

(1) a. ʔamisˤi wisx
shirt-my dirty
'My shirt is dirty.'
b. ʔamisˤi fi wasaxa
shirt-my in dirtiness
'My shirt has dirtiness.'

(2) Yang as-ki-na minisih-ka.
1SG shirt-1SG dirty-3SG.POSS
'My shirt is dirty.'
(Francez and Koontz-Garboden 2015:541)

There has been ongoing debate within compositional semantics over whether the meaning of property concept sentences follows transparently from the lexical semantics of property concept predicates or whether it follows from a uniform semantic structure with a default possessive meaning. On the former view, variation in the lexical semantics of PCs reflects two strategies of predication: while individual-characterizing property concepts require canonical predication, quality-denoting predicates have a possessive mode of predication (Francez and Koontz-Garboden 2015).[2] On the latter view, property concept predicates are universally precategorial roots that denote properties. Such predicates involve a possessive strategy of predication.[3] Accordingly, possessive predication varies morphosyntactically with two main compositional possibilities: in cases where PC sentences appear to have canonical predication, possession is expressed covertly by (null) categorizing morphology. In those cases where PC sentences have specialized morphosyntax for expressing possession on the surface, the meaning of possession is not expressed via categorizing morphology (Menon and Pancheva 2014).

The goal of this paper is two-fold. First, I present and analyze a restricted set of nominal dimensional property concepts (NDPC) in Levantine Arabic (LA) (e.g., *tˤuul* 'tallness', *ʕardˤ* 'width') whose semantics presents a theoretical challenge to the semantic view: NDPCs in LA represent a case of individual-characterizing predicates that compose via possessive predication. Second, I propose a compositional analysis that best explains the facts based on uniformitarian assumptions along with other independently motivated standard assumptions.

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*This work has benefited from comments and criticisms at presentations at the UWM S-Group, the Workshop in General Linguistics 15, University of Wisconsin-Madison, and the 42nd Annual Penn Linguistics Conference at the University of Pennsylvania. I would like to pay special thanks to Caitlin Richter and Ava Creemers, the co-editors of volume 25.1 of Penn Working Papers in Linguistics (PWPL) who have conscientiously dedicated invaluable time to edit this paper. I finally thank Nicholas Fleisher for discussion on an earlier version of the paper. All errors and oversights are entirely mine.

[1]Ulwa is an endangered Misumalpan language of Nicaragua. See Francez and Koontz-Garboden (2015) for an overview of property concepts in this language.

[2]As represented by the Lexical Semantic Variation Hypothesis (Francez and Koontz-Garboden 2015).

[3]As advocated by Menon and Pancheva (2014) based on Malayalam data.

This paper is structured as follows. Section 2 presents the descriptive facts of Nominal Dimensional Property Concepts in Levantine Arabic (NDPCs). Section 3 examines the lexical semantics of NDPCs in LA. Section 4 investigates the syntactic source of predicative possession in NDPC sentences. It also proposes a logical form for these sentences in LA. Section 5 offers a compositional analysis with an interpretation for the specified logical form of the NDPC sentence. The last section concludes the paper.

2 Nominal Dimensional Property Concepts: The Descriptive Facts

Levantine Arabic has a restricted set of nominal dimensional property concepts (NDPCs) which are mainly represented by two PCs: *tˤuul* 'tallness' and *ʕardˤ* 'width' as exemplified in the data in (3), (4) and (5). This type of PCs is characterized by the following structural properties. First, they involve canonical predication on the surface. Second, they require modification by measure phrases or degree operators (e.g., *nafs* 'as').

(3)	a.	Ali	mitren	tˤuul			
		Ali	2 meters	tallness			
		'Ali is two meters tall.'					
	b.	*Ali	(fiih/ ʕindu)		tˤuul		
		Ali	(in/has-it)		tallness		
		'Ali is tall.'					
(4)	Il-ɣurfa	4 miter	tˤuul	wa	xamsa miter	ʕardˤ	
	the room	4 meter	tallness	and	5 meter	width	
	'The room is four meters tall and five meters wide.'						
(5)	a.	Ali	nafs	tˤuul	Aħmad		
		Ali	same	tallness	Aħmad		
		'Ali is as tall as Aħmad.'					
	b.	Ali	atˤwal	min	Aħmad		
		Ali	taller	than	Aħmad		
		'Ali is taller than Ahmad.'					

On the semantic view, what determines the choice of predication strategy is the lexical semantics of PCs: either the NDPC predicate is an individual- characterizing expression so that it composes via canonical predication or it is quality-denoting so that it composes via possessive predication.[4] On the morphosyntactic view, NDPC sentences are all pre-categorially property-denoting roots with a default possessive semantics. As an apparent case of direct canonical predication, the possessive semantics spells out covertly through null categorizing morphology.

3 The Lexical Semantics of Nominal Dimensional Property Concepts

NDPCs in LA exhibit three main semantic properties. First, the NDPC does not denote qualities (see footnote 4). Its portions involve an ordering relation that is total. By total ordering, we mean an asymmetric, transitive and irreflexive relation. That the NDPC has an asymmetric relation on its portions is reflected in the fact that two distinct portions of NDPC cannot occupy the same position in the ordering: if two degrees d_1, d_2 are such that they occupy the same place in the ordering ($d_1 \leq d_2$ and $d_2 \leq d_1$), it should be the case that they are the same. The oddity of the following NDPC sentence follows from this property.

[4]Following Francez and Koontz-Garboden (2015, and subsequent work), we distinguish between individual-characterizing predicates whose extension is in the domain of entities of type and quality-characterizing predicates. Quality-denoting elements involve mutually disjoint, totally preordered domains with a transitive, reflexive, non-asymmetrical relation.

(6)	#Ali	nafs	tˁuul	Aħmad,	bas	atˁwal-hum	mixtalf-a
	Ali	same	tallness	Aħmad	but	tallnesses-their	different-PL

‘Ali is as tall as Aħmad, but they vary in tallness.’

Second, the NDPCs in LA, just as their adjectival counterparts, are individual-characterizing, rather than quality-denoting predicates. The first indicator supporting this claim is the fact that NDPCs consistently agree in number in the context of attributive adnominal modification, meaning that they behave like atomic-denoting expressions. In this way, they never behave as mass nouns which characterize substances (Francez & Koonz-Garboden 2015).[5] In (7), the NDPC reflects number agreement when it occurs as a narrow subject.

(7)	l-wlaad	atˁawl-hum	mixtalf-a
	the boys	tallness-PL-their	different-PL

‘The boys vary in tallness.’

The other indicator supporting the individual-characterizing nature of the NDPC predicate is that it patterns with copular-predicating weak quantifiers in predication as shown in (8). If weak quantifiers are to be analyzed as functions from predicates of individuals to subsets of predicates of individuals with restricted cardinality (Landman 2003, Jenks et al. 2017), it follows that NDPCs should also be the same given that they have the same distribution as weak quantifiers.

(8)	Itˁtˁawlaat	(ya)illi	bi-lɣurfa	shwai/ kteer
	the tables	that	in the room	few/ many

‘The tables that are in the room are few.’

(9)	Itˁtˁawlaat	(ya)illi	bi-lɣurfa	tlat miter	tˁuul	wa mitren	ʕardˁ
	the tables	that	in the room	3 meter	tallness	and 2 meters	width

‘The tables are three meters tall and two meters wide.’

Third, NDPCs are syntactically and semantically transitive. They involve a degree argument.[6] Evidence for the syntactic degree transitivity of NDPCs stems from the fact that they cannot appear without being directly modified by degree heads such as measure phrases in (3a), repeated as (10a), or equatives and comparatives as in (5) repeated as (11). Prima facie, the reason why (10b) is ungrammatical is that the degree argument of the NDPC remains overtly unsaturated. It follows from this property that NDPC sentences in LA are non-vague and context-independent structures since they do not allow modification by the covert POS operator.[7] Modification by the POS operator results in an odd statement.

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[5]Notice that NDPCs never show number agreement in non-attributive predicative contexts. The following sentence is ungrammatical:

(i)	*l-wlaad	mitren	atˁawl
	the boys	2 meters	tallness-PL

‘The boys are two meters tall.’

(ii)	l-wlaad	mitren	tˁuul
	the boys	2 meters	tallness-SL

‘The boys are two meters tall.’

The facts in (i) and (ii) cannot be taken as a supporting case for non-atomic denotations. Generally speaking, nouns in predicative position do not show agreement with their argument (Francez and Koontz-Garboden 2010).

[6]Assume the standard view that syntactic and semantic transitivity pattern together. See Bogal-Allbritten (2013) for a different view based on data from Navajo, a Southern Athabaskan language, which questions the standard view that adjectives are both semantically and syntactically transitive.

[7]In order to give a unified semantics for modified and positive forms of gradable adjectives (e.g., i and ii), the POS operator is proposed as a null morpheme that semantically functions as other degree modifiers: it takes predicates of individuals and degrees denoted by gradable adjectives and returns predicates of individuals (von Stechow 1984).

(i) Bill is tall.

(10) a. Ali mitren tˤuul
Ali 2 meter tallness
'Ali is two meters tall.'
b. *Ali (fiih/ ʕindu)tˤuul
Ali (in/ has-it) tallness
'Ali is tall.'

(11) a. Ali nafs tˤuul Aħmad
Ali same tallness Aħmad
'Ali is as tall as Aħmad.'
b. Ali atˤwal min Aħmad
Ali taller than Aħmad
'Ali is taller than Ahmad.'

In saturating the degree argument in NDPCs by a relevant degree head, three compositional possibilities are in order. First, we may take measure phrases to be degree denoting objects of type <d> which directly saturate the degree argument of NDPCs by function application. Second, just as other degree modifiers that function as degree quantifiers, we may take measure phrases as generalized quantifiers that denote predicates of predicates of degrees of type <dt,t> which undergo Quantifier Raising and degree abstraction in such a way that the degree argument is quantified over (Schwartzschild and Wilkinson 2002). Third, we can take measure phrases and other degree modifiers as relational quantifies of type <<d,et.>,<<dt,et>> that directly apply to the denotations of PCs of type <d,et> and return unsaturated relational generalized quantifiers of type <dt,et> that are to saturate the possessive operator of type <<dt,et>,<et>>. We will motivate the third compositional possibility. We will show that this compositional possibility is desirable for two reasons: First, it makes the correct type to compose further with an external possessive operator. Second, it unifies the semantics of degree modification under one compositional mechanism.

4 Predicative Possession

In this section, I will contend that NDPC sentences in LA have a possessive semantics. More specifically, I will argue that both NDPC sentences and *la-* existential possessive sentences in Palestinian Arabic have the same individuated syntactic structure that denotes part-whole relation.[8] In what follows, I will discuss two structural properties that are unique to *la-* existential possessive sentences. I will show that these facts about *la-*existentials are well attested in NDPC sentences. I will close the section with the conclusion that NDPCs have an existential structure with its pivot comprising a relational DP and a null preposition head that expresses predicative possession.

First, the nominal pivot (= DP predicate) in *la-* existential sentences does not occupy a preverbal position as shown in (12).

(ii) Bill is three inches tall.

This morpheme may have different lexical entries, including the standard existential representation in (iii a). Later on, in Section 5, we will build on the assumption that the POS operator denotes a universal quantifier over degrees of a contextually neutral set g(N)(S_A) that characterizes the scale structure of gradable adjectives (von Stechow 2009).

(iii) a. $[\![\text{POS}]\!] = : \lambda G \lambda x.\ \exists d\ [\text{Standard}(d)(G)(C) \wedge G(d)(x)]$
(Kennedy and McNally 2005:350)
b. $[\![\text{POS}]\!] = : \lambda G \lambda x.\ \forall d \in g(N)(S_A)\ [G(d)(x) \rightarrow G(d)(x)]$
(von Stechow 2009:220)

[8]I assume the part-whole relation in the broader sense including all DPs headed by a noun which lexically names a relation and takes a direct argument including inalienable possession and social and inanimate part-whole relations (Boneh and Sichel 2010).

(12) *tlat ʕruʔ kaan-u la-əʃ-ʃajara [part-whole possession]
three branches were-3PL to-the tree
'Three branches were to the tree.'
(Boneh and Sichel 2010:6)

Similarly, the nominal pivot (= the NDPC) cannot occupy a preverbal position as in (13).

(13) *tlat miter tˤuul (kaan-u) rajul l-talʒ
three meter tallness were-3PL the snowman
'The snowman was three-meter tall.'
(Boneh and Sichel 2010:6)

Second, the part-whole denoting *la-* existential is incompatible with full agreement as shown in (14) and (15).

(14) a. ??kaan-u xams ʕruʔ la-əʃ-ʃajara [part-whole possession]
were-3SG five branches to-the-tree
'The tree had five branches.
b. kaan xams ʕruʔ la-əʃ-ʃajara
were.3SG five branches to-the-tree
'The tree had five branches.'
(Boneh and Sichel 2010:12)

(15) a. ??kaan-u tlat miter tˤuul la- rajul l-talʒ
were.3SG three meter tallness to-the snowman
'The snowman was three meter tall.'
b. kaan tlat miter tˤuul la- rajul l-talʒ
were-3SG three meter tallness to-the snowman
'The snowman was three meter tall.'

Given this similarity between *la*-possessive sentences and DNPC sentences, I will assume that the NDPC sentence is an existential structure with a PC predicate that involves a whole NP. This structure has the definiteness effect: it only accepts weak NPs in its pivot position.[9] I will also assume that the NDPC sentence has a null preposition IN that expresses possessive semantics as represented in (16).[10] The possessive operator is external to the small clause that forms a constituent with the whole DP and the predicate. This operator takes an item of type <dt,et> and returns a predicate of individuals of type <et>.

(16) $[\![\text{IN}]\!] =: \lambda R \in D_{<dt,,et,>}\ [R([\ \lambda d' =: d' = d'\ ])]$

Since in the absence of overt preposition IN the null copular BE involves a composition where the subject is in the matrix clause, I will assume that such a predicate has a small clause origin. Following Hornstein (1995), I will assume the following syntactic structure (17) with a base-generated small clause structure that is immediately dominated by a null preposition head IN that denotes possessiveness. For independent syntactic reasons, the structure undergoes three syntactic operations: (1) The NDPC raises into the specifier of prepositional phrase of the small clause. (2) The prepositional head IN undergoes incorporation into the head BE of the matrix clause. (3) The incorporation allows the DP subject to raise into the matrix clause.

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[9]A complete review of "the definiteness effect" is difficult, and it goes beyond the space and purpose of this paper. What is crucial for our purpose is the working assumption about the definiteness effect that only weak NPs, but not strong NPs, may predicate of an existential structure (Barwise and Cooper 1981, Partee 1999).

[10]This semantics was proposed by Partee (1999) in her treatment of have-existential sentences in English with one minor modification: the possessive operator in (16) takes as its argument a predicate of type <dt,et> and produces another function that takes as its argument the one-place predicate ($\lambda d' =: d' = d'$) which says that every member of the domain of degrees exists in the sense of Barwise and Cooper (1981).

(17)

2

[$\mathbf{S}_{\mathbf{matrix}}$ ali [**TP** BE-IN [$\mathbf{S}_{\mathbf{small\text{-}clause}}$ ~~ali~~ [**PP** 2 meters tallness P ~~IN~~ [PredP ~~2 meters tallness~~]]]]

3 1

In the next section, I will offer a compositional analysis for the syntactic structure in (17) by specifying a semantics that correctly predicts the pattern in (5).

5 A Compositional Analysis

In this section, I will offer a compositional analysis that explains two main facts about NDPCs in LA. First, in contrast to the Lexical Semantic Variation Hypothesis (Francez and Koontz-Garboden 2015), the individual-characterizing NDPC sentence requires a possessive strategy of predication. Second, while NDPCs involve canonical predication on the surface, the meaning of possession does not hold at the morphosyntactic level of PCs, but it is expressed externally relative to the predicate structure of NDPCs. Contrary to this fact, the syntactic view (Menon and Pancheva 2014) predicts that this instance of superficial canonical predication has a covert expression of possession through null categorizing morphology.[11]

Given these two facts about NDPCs in LA, we can see that such a phenomenon represents a puzzle. It manifests itself as an exception to the generalizations about semantic and morphosyntactic variation in Francez and Koontz-Garboden (2015) and Menon and Pancheva (2014), respectively. On one hand, we have an individual-denoting PC predicate with an individual argument that should be saturated via direct composition of individual-denoting objects (i.e., function application) in an instance of canonical predication.[12] On the other hand, the NDPC sentence, which has the underlying logical form of *la*-possessives, involves a covert expression of possessiveness that does not hold at the morphosyntactic level of the word. This paper is an attempt to resolve this puzzle. More specifically, we will address two empirical observations about the pattern in (10) and (11), repeated as (18) and (19). First, the NDPC sentence involves an individual-characterizing PC predicate with possessive semantics. Second, the NDPC sentence is context-independent: it does not allow modification by the positive operator POS and indeed it is not vague as shown by the ungrammaticality of (18). It follows that NDPCs always occur with those degree modifiers that introduce lexically specified standard of comparison as represented by the measure phrase in (19a), the equative operator in (19b), and the comparative in (19c).

(18) *Ali (fiih/ ʕindu) tˤuul
 Ali (in/ has-it) tallness
 'Ali is tall.'

(19) a. Ali mitren tˤuul
 Ali 2 meter tallness
 'Ali is two meters tall.'

 b. Ali nafs tˤuul Aħmad
 Ali same tallness Aħmad
 'Ali is as tall as Aħmad.'

 c. Ali atˤwal min Aħmad
 Ali taller than Aħmad
 'Ali is taller than Ahmad.'

To arrive at an analysis that addresses the facts, I will introduce the following set of assumptions that form the ingredients of the upcoming analysis. First, the precategorial root of the NDPC denotes a relation between individuals and degrees with the inherent function μ(p) from portions to degrees. The precategorial root of the NDPC '*tˤuul*' 'tallness' in (18,19) is represented by the following lexical entry.

[11] On the basis of Malayalam data.

[12] Along with a degree argument.

(20) ⟦√tˤ*wl*⟧=: λdλx. ∃p[TALLNESS(x) &p ∈ TALLNESS & μ(p) ≤ d] ∈ $D_{<d,et>}$

Second, the precategorial root in (20) is nominalized by the addition of the nominalizing head template (CaCC) which is a semantically inert categorizing head. Evidence for its inertness comes from the fact that it can nominalize other non-NDPC roots:

(21) sˤaam 'fast.V' = sˤuum 'fast.N'
naam 'sleep.V' = nuum 'sleep.N'

We will assume that the nominalizing morpheme (CaCC) is an identity function that takes the precategorial root ⟦√tˤ*wl*⟧ of type <d,<et>> and returns the nominalized form ⟦tˤuul⟧ of type <d,<et>> as in (22):

(22) ⟦tˤuul⟧ =: ⟦CaCC⟧ (⟦ √tˤ*wl*⟧)
=: λ$D_{\langle d,\langle et\rangle\rangle}$. D (λdλx. ∃p[TALLNESS(x) &p ∈ TALLNESS & μ(p) ≤ d])
=: λdλx. ∃p[TALLNESS(x) &p ∈ TALLNESS & μ(p) ≤ d]

Third, the DNPC sentences in (18) and (19) have the same underlying LF structure as the relational have-sentence in English which induces the definiteness effect (Hornstein et al. 1995, Partee 1999). I will adopt Barwise and Cooper's (1981) theory that positive strong NPs are not eligible to occupy the predicative position in the NDPCs in (18).[13] Accordingly, if a positive strong NP that consists of determiner D and a restriction NP [D NP] is semantically defined, then [D NP is NP] is a tautology. A weak NP does not have this deductive property.

I will claim that the reason why the unmodified NDPC sentence in (18) is ungrammatical lies in the assumption that the unmodified NDPC represents a positive strong NP: the NDPC modified by a POS degree operator (e.g., *tˤuul* 'tallness'). We will assume that the POS operator is a universal quantifier that quantifies over a contextually-determined set of degrees in a scale which is neither tall nor short (i.e., g(N)(S_A)) (von Stechow 2009:220). This operator is represented as a relational universal quantifier as in the lexical entry (23) (see footnote 6).

(23) ⟦POS⟧ =: λR∈$D_{<d,et>}$λP∈ $D_{<dt>}$λx∈ $D_{<e>}$. ∀d[(P(S_G)(d) & R(x)(d)) →P (d)]

Given these compositional ingredients, I will specify the truth-conditional semantics for (18). Consider the derivation in (24).[14]

(24) a. ⟦ 18 ⟧
b. ⟦ tˤuul POS ⟧ =: ⟦ POS ⟧(⟦ tˤuul ⟧)
=: λR∈ $D_{<d,et>}$λQ∈ $D_{<dt>}$λx∈ $D_{<e>}$. ∀d[(P(S_G)(d) & R(x)(d)) → Q(d)]
([λdλx. ∃p[TALLNESS(x) & p ∈ TALLNESS & μ(p) ≤ d])
=: λQ∈ $D_{<dt>}$λx∈ $D_{<e>}$. ∀d[(P(S_G)(d) & ∃p [TALLNESS(x)
& p ∈ TALLNESS & μ(p) ≤ d])) →Q (d)]
c. ⟦ (IN) tˤuul POS ⟧ =: ⟦ IN ⟧ (⟦ tˤuul POS ⟧)
=: λR∈ $D_{<dt,,et,>}$ [R([λd'=: d' = d'])] ([λQ∈ $D_{<dt>}$λx∈ $D_{<e>}$. ∀d[(P(S_G)(d) & ∃p [TALLNESS(x) & p ∈ TALLNESS & μ(p) ≤ d])) → Q(d)]
=: λQ∈ $D_{<dt>}$ λx∈ $D_{<e>}$. ∀d[(P(S_G)(d) & ∃p [TALLNESS(x) & p ∈ TALLNESS & μ(p) ≤ d])) → Q(d)] ([λd'=: d' = d'])
=: λx ∈ $D_{<e>}$. ∀d[(P(S_G)(d) & ∃p [TALLNESS(x) & p ∈ TALLNESS & μ(p) ≤ d])) → [d = d])
d. ⟦ Ali IN tˤuul POS ⟧ =: ⟦ (fiih/ ʕindu) tˤuul POS ⟧ (⟦ Ali ⟧)
=: λx∈ $D_{<e>}$. ∀d[(P(S_G)(d) & ∃p [TALLNESS(x) & p ∈ TALLNESS & μ(p) ≤ d])) → [λd=: d = d]) (Ali)

[13] As well as negative strong NPs such as neither NPs.
[14] This analysis is inspired by Partee (1999).

$=: 1$ iff $\forall d[\ (P(S_G)(d)\ \&\ \exists p\ [TALLNESS(Ali)\ \&\ p \in TALLNESS\ \&\ \mu(p) \leq d])] \rightarrow [d = d]]$

It is not hard to see that the derivation of the unmodified NDPC sentence of (18) in (23) yields a tautologous statement and hence an uninformative statement.[15,16,17] As for the modified NDPC sentences (19a) and (19b), the NDPC sentences involve weak NPs (i.e., the NDPC that is modified by a measure phrase and a degree operator, respectively). The derivations of these structures yield informative contingencies as represented in (25) and (26) for (19a) and (19b), respectively.

(25) a. ⟦ 19a ⟧

b. ⟦ mitren tˤuul ⟧ =: ⟦ mitren⟧ (⟦tˤuul⟧)

$=: \lambda R \in D_{<d,et>} \lambda Q \in D_{<dt>} \lambda x \in D_{<e>}.\exists d\ [\ d \leq TWO\ \&\ R(x)\ (d)\ \&\ Q\ (d)]\ (\ [\ \lambda d \lambda x.\ \exists p[TALLNESS(x)\ \&\ p \in TALLNESS\ \&\ \mu(p) \leq d])$

$=: \lambda Q \in D_{<dt>} \lambda x \in D_{<e>}.\exists d\ [\ d \leq TWO\ \&\ \exists p[TALLNESS(x)\ \&\ p \in TALLNESS\ \&\ \mu(p) \leq d\ \&\ Q\ (d)]$

c. ⟦ IN mitren tˤuul ⟧=: ⟦ IN ⟧ (⟦ mitren tˤuul ⟧)

$=: \lambda R \in D_{<dt,,et,>}\ [R([\ \lambda d'=: d' = d'\ ])]\ )\ (\ [\lambda Q \in D_{<dt>} \lambda x \in D_{<e>}.\exists d\ [\ d \leq TWO\ \&\ \exists p[TALLNESS(x)\ \&\ p \in TALLNESS\ \&\ \mu(p) \leq d\ \&\ Q\ (d)])$

$=: \lambda Q \in D_{<dt>} \lambda x \in D_{<e>}.\exists d\ [\ d \leq TWO\ \&\ \exists p[TALLNESS(x)\ \&\ p \in TALLNESS\ \&\ \mu(p) \leq d\ \&\ Q\ (d)\ ([\ \lambda d'=: d' = d'\ ])$

$=: \lambda x \in D_{<e>}.\exists d\ [\ d \leq TWO\ \&\ \exists p[TALLNESS(x)\ \&\ p \in TALLNESS\ \&\ \mu(p) \leq d\ \&\ [d = d\ ]$

d. ⟦ Ali mitren tˤuul ⟧ =:

$\lambda x \in D_{<e>}.\exists d\ [\ d \leq TWO\ \&\ \exists p[TALLNESS(x)\ \&\ p \in TALLNESS\ \&\ \mu(p) \leq d\ \&\ [\ \lambda d=: d = d\ ])$ (⟦ Ali ⟧) =:

1 iff $\exists d\ [\ d \leq TWO\ \&\ \exists p[TALLNESS(\ Ali)\ \&\ p \in TALLNESS\ \&\ \mu(p) \leq d\ \&\ [d = d\ ])$

(26) a. ⟦ 19b ⟧

b. ⟦ nafs tˤuul ⟧= ⟦nafs⟧(⟦tˤuul⟧)

$=: \lambda R \in D_{<d,et>} \lambda x \in D_{<e>} \lambda P \in D_{<dt>} \lambda y \in D_{<e>}.max((\ \lambda d.\ G(d)(x)) \geq max\ ((\lambda d.\ G(d)(y))\&\ P(d)]\ (\ [\ \lambda d \lambda x.\ \exists p[TALLNESS(x)\ \&\ p \in TALLNESS\ \&\ \mu(p) \leq d])$

$=: \lambda x \in D_{<e>}.\ \lambda P \in D_{<dt>} \lambda y \in D_{<e>}.max((\lambda d.\ TALLNESS\ (d)\ (x)) \geq max((\lambda d.\ TALLNESS(d)\ (y))\ \&\ P\ (d)]$

c. ⟦ nafs tˤuul Ahmad ⟧=: ⟦ nafs tˤuul ⟧ (⟦Ahmad ⟧)

$=: \lambda x \in D_{<e>}.\ \lambda P \in D_{<dt>} \lambda y \in D_{<e>}.max((\lambda d.\ TALLNESS\ (d)\ (x)) \geq max((\lambda d.$

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[15]Of course, not every tautologous statement is uninformative (see Fargal 1992 and the references therein). Also it is not the case that every contingency is informative. The point here is that modifying the PC by measure phrases and degree operators does not give rise to tautologies in derivation.

[16]We can show, using deductive reasoning, that such a statement is a tautology. Our proof will test models in which the extension of the universal quantifier is empty and models in which it is not. If in both models, the derived quantified statement is a logical truth, then a tautology arises, and hence it is uninformative, ceteris paribus. In what follows, I will present the proofs for the first model in which the derived statement (24) is a logical truth.

Assume that $\forall d\ [(P\ (S_G)\ (d)\ \&\ TALLNESS(ali)(d)] \rightarrow d = d]$, by conservativity, the following quantified statement arises as an equivalent statement:

(i) $\forall d\ [(P(S_G)(d)\ \&TALLNESS(ali)(d)] \rightarrow [(P(S_G)(d)\ \&\ TALLNESS(ali)(d)] \wedge d = d]$

By universal instantiation, (ii) arises:

(ii) $[(P(S_G)(c)\ \&\ TALLNESS\ (ali)\ (c)] \rightarrow [(P(S_G)(c)\ \&\ TALLNESS(ali)(c)] \wedge c = c]$

And by conditional exchange and distribution, we end up with (iii) and (iv), respectively.

(iii) $\neg\ [(P(S_G)(c)\ \&\ TALLNESS\ (ali)\ (c)] \vee ([(P(S_G)(c)\ \&\ TALLNESS(ali)(c)] \wedge c = c)$

$(\ \neg\ [(P(S_G)(c)\ \&\ TALLNESS\ (ali)\ (c)] \vee [(P(S_G)(c)\ \&\ TALLNESS(ali)(c)]) \wedge (\neg\ [(P(S_G)(c)\ \&\ TALLNESS\ (ali)\ (c)] \vee c = c])$ (= a tautology)

[17]The reader should be able to verify that $\forall d\ [\neg\ [(P\ (S_G)\ (d)\ \&\ TALLNESS(ali)(d)] \rightarrow d = d\ ]$ is also a tautology using the same deductive logic.

TALLNESS(d) (y)) & P (d)] (Ahmad)
=: $\lambda P \in D_{<dt>} \lambda y \in D_{<e>}$. max($\lambda$d. TALLNESS(d)(x)) ≥ max((λd.TALLNESS(d) (Ahmad)) & P(d)]

d. ⟦ IN nafs tˤuul Ahmad ⟧=: ⟦ IN⟧ (⟦ nafs tˤuul Ahmad ⟧)
=: λR[R(λd'. d'= d')] ($\lambda P \in D_{<dt>} \lambda y \in D_{<e>}$. max($\lambda$d. TALLNESS(d)(x))≥ max((λd. TALLNESS(d) (Ahmad)) & P(d)]
=: $\lambda P \in D_{<dt>} \lambda y \in D_{<e>}$. max($\lambda$d. TALLNESS(d)(x)) ≥ max((λd. TALLNESS(d) (Ahmad)) & P(d)] ([λd'. d'= d'])
=: $\lambda y \in D_{<e>}$. max (λd. TALLNESS(d)(x)) ≥ max (λd. TALLNESS(d) (Ahmad)) & [d=d]]

e. ⟦ Ali IN nafs tˤuul Ahmad ⟧
=: $\lambda y \in D_{<e>}$. max (λd. TALLNESS(d)(x)) ≥ max (λd. TALLNESS(d) (Ahmad)) & [d=d]] (⟦ Ali ⟧)
=: max (λd. TALLNESS(d)(Ali)) ≥ max (λd. TALLNESS(d) (Ahmad)) & [d=d]

6 Conclusion

In this paper, I presented and analyzed a special case of PCs that seems to falsify the Lexical Semantic Variation Hypothesis (Francez and Koontz-Garboden 2015): NDPC sentences involve individual-characterizing predicates that compose via possessive predication. This case also incorporates an instance of apparent canonical predication with a predicative possessive. This fact casts doubt on the universality of the word-level morphosyntactic expression of possessiveness in terms of Menon and Pancheva (2014). We proposed an analysis that captures the facts in which the NDPC is an existential structure that triggers the definiteness effect. Our analysis offers a derivation in which a NDPC sentence composes with an individual-characterizing predicate that involves predicative possessive semantics. The analysis correctly generates the context-independent, non-vague and degree transitive predication of NDPCs in LA.

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