The Structure of Spatial Relators in Malayalam

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Abstract

This paper is an enquiry into the syntax and semantics of the putative spatial post-position/relator nouns in Malayalam. Following the work of Svenonius (2004, 2006b), Amirtavalli (2007), I would like to argue that the spatial P in Malayalam has a layered functional structure above the DP. I would also demonstrate using the principle of head to head movement and fusion analysis by Siddiqui (2009) that the putative post-positions in Malayalam like *munn-il* 'front',*thaazhe*'down', *veLiyil* 'out' etc., are derived in the syntactic structure via the incorporation of the locative case -*il*into category- neutral roots like -*mun*, -*pin* etc., that denote axial parts. I would also like to explain the ambiguity between the part and projective sense of these axial "post-positions" is caused by the homonymy of locative case –*il* that can head the functional projection PLACE$_{loc}$ P or PlaceP, which can only be differentiated via secondary exponent. That is, on the basis of what case the complement DP is assigned.

Key words: Malayalam, Post-position, Spatial Relators, Axial-Parts, Functional Structure, Distributed Morphology, Cartography

Overview

In Malayalam, the basic locative construction is of the format '*X Y-(loc) Copula*'- X being the 'figure'[1] or the entity whose location is in question; Y being the stable 'ground' that anchors the existence of the figure and 'loc' being the locative marker relating the figure X to the ground Y.

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[1]Talmy (1978:627): "The Figure is a moving or conceptually movable entity whose path, site, or orientation is conceived as a variable, the particular value of which is the relevant issue. "The Ground is a reference entity, one that has a stationary setting relative to a reference frame, with respect to which the Figure's path, site, or orientation is characterized."

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The relationship between the figure and the ground can either be

A. Topologically specified- when there is a spatial coincidence or near-coincidence between the figure and ground. It includes sub-relations such as proximity, contact and containment etc. See examples 1a and 1b.

Or B. Angularly specified- where the axial geometry of the ground is accessed and the figure is located along that axis. In Malayalam the secondary tier of axial information is conveyed via functional class that have been called relator/auxiliary nouns or post-positions. See example 1c. Let us call them Spatial Relators. (Henceforth SR.)

Example

1.a   Kuppi meshe-mel   uNDə (contact)

        Bottle table-top   cop

        'The bottle is on the table'

b.   Kuppi   fRiDj-il   unDə   (containment)

        Bottle   Fridge-loc   cop

        'The bottle is in the fridge.

c.   Kuppi   fRiDj-inthe   mugaLil/kiizhil/munpil/pinnil   unDə

        Bottle   fridge-gen   top/bottom/front/back   copula

        'The bottle is on top/under/in front/behind the fridge'

The following is the complete list of Malayalam axial relator nouns/ postpositions[2]. See Table-1.

Superior	Inferior	Anterior	Posterior	Interior	Exterior	Lateral
MugaLil	ATiyil	Munnil	Pinnil	Akathə	VeLiyil	Vaśathə
Meele	Kiizhil			uLLil	PuRathə	eDathə
Meel	ChoTil					valathə

Miithe	Kiizhe					
Uchiil	Thaazhe					

Table- 1

The grammatical category of these spatial relators is quite confusing as they seem to exhibit noun- like and post-position like properties.

The operative question is whether to analyse the spatial relators such as *mugaLil*, *munpil*, *aDiyil* as single locative words or whether they can be further analysed as *mugaL+il*, *munpə+il*, *aDi+il* etc., and if so what the morphemes '*-mun'* , '*-mugaL'*, '*aDi'*etc are[3]. The presence of the locative morpheme would indicate that '*-mun'* , '*-mugaL'*etcare nominals that refer to specific regions of the ground object and relate to the ground much like how standard parts of an object relate to the whole object, that is by giving a genitive case. See examples:

2.a   kaaka   pLeen-inte   ciRag-il   irikkunnu.

       Crow   plane-gen   wing-loc   sit-PRES

       'The crow is sitting on the wing of the plane'

b.   Kaaka   pLeeninte   munn-il   irikkunnu

       Crow   plane-gen   front   sit-PRES

       'The crow is sitting on the front of the plane'

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[3] We can see that 4 of these spatial PPs -*meele*, *miithe*, *kiizhe*, *thaazhe* do not take the inflection marker –*il*. I assume that there is a null locative case in all these spatial relators. The –*e* according to Lehmann (1989) is merely a euphonic extension. The -*thə* marker in certain SR. Like *akathə, vaśathə*is an oblique stem attached to roots ending in –*am* to which case markers are added (see examples below).The locative marker here is also null inflection.

Eg.   koLam: Pond
        KoLa-th-ine = Pond+ acc
        KoLa+th+inu= Pond+dat
        kola+th+il= Pond + loc

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In 2.a 'ciRagə', 'wing' is the standard part of the ground object 'plane'. It inflects for the locative and assigns genitive case to its ground DP. Similarly, in 2.b, -*mun* also seemingly inflects for a locative case and assigns a genitive case to the ground DP. The relationship between an object and its axial region is modelled in the same possessor/possessee or a part/whole kind of affiliation that is used to code the relationship between an object and its standard part.

However, unlike nouns, *mugaL*, *mun*, *thaazh*etc do not generally occur as free forms In contemporary Tamil and Malayalam, only *aDi* (depth, inferior part), *uLLə/akam* (inside) puRam can occur sans a locative marker, albeit restrictively. See examples in 3 below.

3.a   avan-tepuRam veLuthi-ttəaaNə,   paksheuLLə/ akamkaruthiTtəaanu
        He-gen outside   white-PST   PCPL is, but inside black-PST PCPL is
 'He is fair on the outside but dark on the inside'

b   Paathrath-inte aDi   vriththiaayi
       Vessel-gen   bottom   clean   be-PERF
       'The bottom of the vessel is clean'

 c.   *Paathrath-inte   munnə/pinnə/mugaLə/ki:zhə vriththiaayi
         Vessel-gen   front/back/tob/bottom   clean   be-PERF
         'The front/back/tob/bottom of the vessel is clean'

The early Dravidian Grammarians recognize them as of type nominal albeit defective. Gundert (1851) refers to them as auxiliary nouns, Caldwell (1875) calls them "auxiliary nouns", Krishnamurti (2003) calls them nominal adverbs etc. Later grammar books like Asher and Kumari (1994) refer to them as post-positions taking into account their ad-positional syntax. It could well be that at a point in diachronic history, the *mun*, *pin* etc., were proper nominals denoting abstract spatial property. However they cannot occur in a free form anymore. To occur as nominal forms, they need to be compounded with a noun like 'bhaagam' Eg. *Mun+ bhaagam= munbhaagam-* 'front-part'; *Mun+ panthi= Munpanthi-* 'front row'. They can also be incorporated into verbs Eg: *Mun+ eRuka = MunneRuka-* 'move forward'; *pin+ vaanguka= pinvaanguka* 'retreat'. Some can even occur as verbs

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themselves. Eg. *aDiyuka* (settle in the bottom of liquid or under the earth), *kizhiyuka* (slither in a downward motion).

Few other tests further reveal the problems with analysing-*mun*, *pin* as nominals.

I. They only seem to inflect for locative case.

4.a.   *Avan Mesha-yude   mugal-ine   sheri   aakki

     He   Table-gen   top- acc   right   make-PERF

     'He fixed the top of the table.'

  b.   *Mesha-yude   mugal-inte   niRam   paća   aaNə

     Table-gen   top- gen   colour   green   is

      'The colour of the top of the table is green.'

II. They cannot be modified with adjectives or demonstratives.

5. a   * NjanpathramMesha-udechalung-iyamugalilvechu

     I   paper   Table-Gen bent-REL top-LOC keep-PERF

 'I kept the paper on the bent top-part of the table.'

III. And they do not pluralize

6.a   *Mesha-gal-udemugal-ugal-ilull-a fan-u-gal

     Table-Pl-gen   top-Pl-loc cop-REL fan-Pl

'The fans on the tops of the tables.'

IV. Another reason that discourages the nominal analysis of the spatial relators is that, they also assign dative case to their DP complements.

7. a   Pusthakam   meshayude   mugalil   undu

     Book   table-gen   top-loc   cop

 'The book is on top of the table.'

b. Pusthakam   meshakkyu   mugalil   undu

     Book   table-dat   top-loc cop

     'The book is on top of the table.'

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In the examples 2.a and 2.b, we saw how the relation between an object and its axial part was modelled exactly like the relation between an object and its standard part, (i.e. using a genitive). But while the relation between an object and its axial part can also be coded using a dative case, the relation between an object and its standard part cannot be coded thus. See 8.a.

8.a   *Price tag   kuppi-kkyu   adapp-il   undu.
Price tag   bottle-dat   cap-locis
'The price tag is on the cap of the bottle.'

Hence it is clear that though the particles *mugal- mun- pin-* etc., exhibit marginal noun like properties, they are now grammaticalizing into post-positions.

Fine Structure of Spatial Relators

Svenonius (2003, 2006a, 2006b, 2007) taking a cartographic approach to syntax makes a convincing case for analysing these spatial relators as AxParts, a separate functional class on the ranks of aspect and mood etc., that occurs in the extended functional projection of the P.[4]

"*The "axial parts" of an object—its top, bottom, front, back, sides, and ends—behave grammatically like parts of the object, but, unlike standard parts such as a handle or a leg, they have no distinctive shape. Rather, they are regions of the object (or its boundary) determined by their relation to the object's 3-D axes.*

A. The up-down axis determines top and bottom,

B. The front-back axis determines front and back,

C. And a complex set of criteria distinguishing horizontal axes determines sides and ends."
(Jackendoff 1996:14)

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[4] See Grimshaw (1991), Emonds (1985) for arguments of why P is a functional head that lies in the extended projection of nouns. Its role in the nominal projection is likened to that of complementizers in verbal extended projection.

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The axial geometry of an object can be used not only to locate the figure on the physicality of the ground object but in the space projecting from it. These spaces can be viewed as projected axial-parts of the object.

Example

9.a   The dog is sitting in the front of the house.

b   The dog is sitting 10 metres in-front of the house.

In 9.a, *the front* is a region on the horizontal axis of the ground object *house* where the dog sits , while *in-front* in 9.b is the location in space projected from what is computed as the front part of 'the house' .

According to Svenonius (2006b), an *Ax*Part is a category that is distinct from both a noun and an ad position. It is the head of a functional projection AxP that is a constitutive part of the fine structure of PP[5]. See the structure below for the example 9.b.
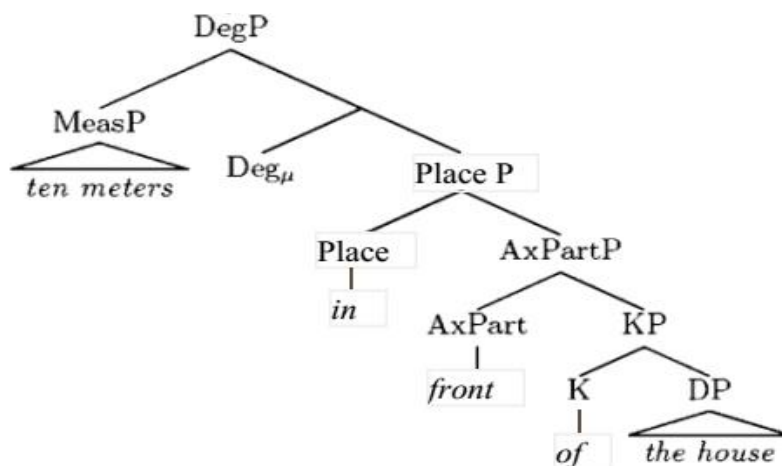
Fig.1

Let us now discuss the semantic role played by each of these functional structures in relating the figure and the ground.

The DP

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The DP is the ground or the reference object conceived of as a 3-D object with orthogonally defined regions, sides and end. In the example 9.b, *house* is the ground entity.

KP

Semantically, K(ase) in a spatial expression, is a function from the ground DP to a region[6]. K returns what Wunderlich (1991) calls an *eigen place*, i.e. the abstract space occupied by the ground.

AxP

Axparts is a function from *eigenplace* occupied by the ground DP to a specific sub-part of it, based on the axial geometry of the ground.

Place P

Place P is headed by a class of syntactic entities which can express locational relations. It is the complement of stative verbs or copula that express location. Place P is the quintessential function that projects vectors[7] of different direction and length from the axial-region of the ground- which is identified by the axpart- to the corresponding space.

DegP

Svenonius (2006b) further divides the PlaceP into at least 2 parts (not including AxPartand K): one part that projects the vectors as we discussed, and another part that identifies the subset of vectors of the specified length/ direction and picks out the exact set of points or region where the figure is located. This is done by DegP, which can be considered the extension of PlaceP. DegP is headed by directionals like *straight, diagonal*etc, and can take a MeasP specifier that takes a distance measurement like km, cm etc. See example below.

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[6]Regions are contiguous set of points in space (Nam 1995). They are unstructured in nature, unlike vector space. See below.

[7]Vectors are one-dimensional objects with length and direction projected from the *eigenspace*. A vector space is a set of vectors, normally a set projected from a single region. Place is thus the region or rather the set of points which are at the ends of the vectors in a vector space. (Svenonius 2007: 3-4)

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10.a   The dog stands fifty feet diagonally in front of the car.

Fine Structure of Malayalam Spatial Relators

The structure works very well for Malayalam. Fig.2 below is the fine structure of projective spatial expression in Malayalam which we will explain with the example in 11.a.

11.a.   paTTi veeD-inə   10 metre   munpilundu

    Dog   house-DAT   10 metre   front   is

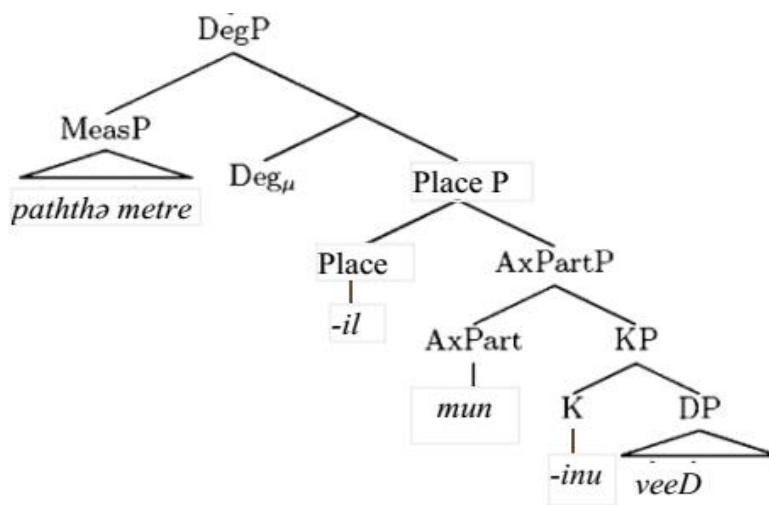   'Dog is 10 metres in front of the house.'

Fig.2.

In the example 11.a, the DP introduces the ground, which is *car*, The K is a function from the object to its eigenspace. Axial part *mun-* is a function from the eigenspace to a sub-part. The function of projecting vectors of differing lengths and direction is attributed to Place *-il*. The extension of Place, which is the projection Deg converges the vectors to a particular region in space where the figure is introduced. The Deg head is either headed by a directional element like *nere* (straight) or by a null element. The Deg P can also have a measure-phrase in its Specifier position. In the example, the DegP is headed by a null element and it has a measureP, *10 metres* in its specifier.

Morphology of the Spatial Relators

The question of the categorial status of spatial relators like *munnil, pinnil,* etc., still needs to be clarified. I would like to use the framework of distributed morphology by

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Marantz 1997 and Siddiqui (2009) to this end. Following Amritavalli (2000), Mythili Menon (2013), I argue towards the position that Malayalam, like other Dravidian languages, does not have the category P or A in the lexicon. The only primitive categories that may exist are Ns and Vs. Adjectives and Post-positions are always derived between the spell out and the PF.

One can even argue from the distributive morphology point-of-view that all lexicon contains is category roots, that basically express 'property concepts' and refer to kinds $<e^K$.The lexicon does not store its contents labelled as a noun or a verb. Rather lexical categories like noun, verb, adjective etc., are epi-phenomenal. That is, a root "becomes" a verb by being immediately c-commanded a verbalizing functional head *v* and a root "becomes" a noun if it is c-commanded by nominalising functional head *n*. Being a syntactic-centric approach to morphology, word formation- just like phrase formation, is considered to be the output of syntactic component.

The morphemes like √meeth- √thaazh- √pin- √mun- etc., can then be considered roots that denote axial property concepts. In the morphological component between the spell-out and PF, they undergo complex derivational processes that enable them to function as post-position.

I am adopting a head to head merger analysis and a subsequent fusion for spatial relators like *munnil, thaazhe* etc., as discussed by Siddiqui (2009). Merger is a process whereby morphemes like affixes get attached/ linearized with the stem. And both the morphemes form one compositional unit. First the axial-part undergoes head movement to adjoin to the functional head Place /Place$_{Loc}$ above it. The result is a complex head. See the structure below in Fig.3.

Fig. 3

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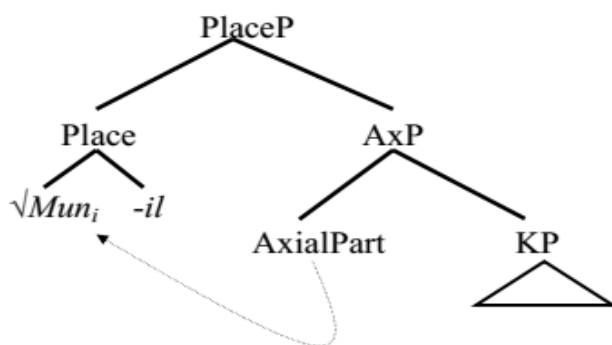
I also argue that later, a process of fusion is applied to the complex heads and thus all the features of the complex head are incorporated into one head. Two zero level morphemes thus come to occupy the same syntactic node. The resulting head is simplex and contains all the features previously present in the complex head. Thus a single node Place now contains the formal feature of the sub-structure: Axialpart+Place and is lexicalised into a single Vocabulary item *munnil, thaazhe* and can at the time of lexical insertion directly target the node the simplex node Place because the features it is specified for are a subset of those appearing in the node. See the structure in Fig.4.
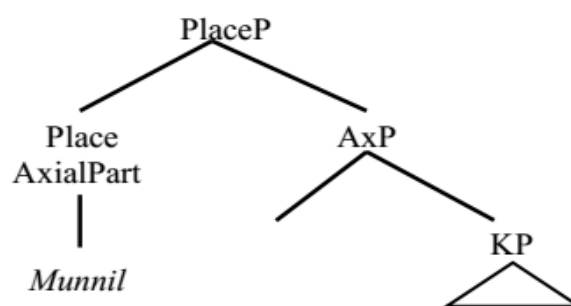

Fig.4

The answer to why a fusion analysis is better than a simple merger analysis is the following. As we discussed earlier axparts like √Munetc are roots that can never be the complement of a null nominalizer *n* anymore and consequently cannot occur as free morphemes in the language.

All the more, spatial relators like *munnil* (mun+il), *thaazhe (taazh+Ø), puRathə (purath+ Ø)*etc are fossilized forms. A fusion analysis of Axpart with Place will help us explain why axial parts do not take other case roles like accusative ➔ *munn-ine* or dative➔ *munn-inu*. The reason is that axial parts unless incorporated into a verb or noun will always merge and fuse with Place.

In English, we see that the axial parts/ regions of the object *top, bottom, front, back*etc are nouns, while the projected axial parts are denoted be prepositions like *above*, *below/ under*, *front*, *behind* etc. Amritavalli (2007) notes that in Kannada, while projective axial parts are expressed via putative post-positions like *munde* (front), *keLage* (below) etc., the

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axial regions of the object are expressed via NP compounds like *mum-bhaaga*etc. Malayalam also adopts the same strategy. See examples in 12. Axpart being a volatile category can be incorporated into a nominal complement via merger under adjacency in the sense of (Bobiljac 1994).See fig. 5. It is evident that *bhaagam* is a DP that represents a region on the surface of the ground object. It can occur in the nominative as in example 12.b. It can also occur in other cases like accusative- *munbhaagath-ine*, or dative- *munbhaagath-inə*.

12.a   Sticker   bag-inte   mun-bhaagathə   oTicci-TTə   uNDə

         Sticker   bag-gen   front-part   stick-PERF   cop

         'The sticker is stuck on the front of the bag'

12.b   Mesha-yuDe   aDi-bhaagam   thurumbi-chu

         Table-gen   bottom-part   rust-PERF

         'The bottom of the table has rusted'
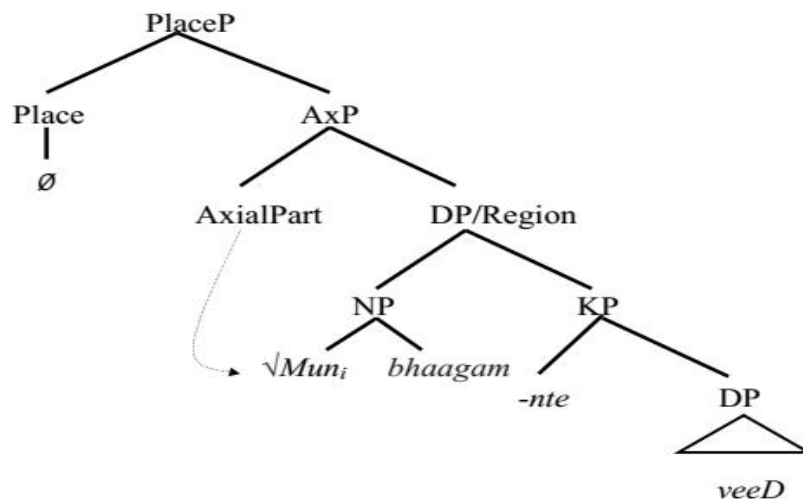
Fig.5

However, a problem with Malayalam axial post-positions like *munnil* 'front', *keezhe* 'bottom/under', etc., can also denote the axial regions of the object, just like the NP forms *munbhaagam, keezhbhaagam,* etc, and is in fact more common in usage. Thus it is evident that these axial post-positions are ambiguous between an object-Axpart reading and a projective-Axpart reading. I.e. *munnil, pinnil, thaazhe*etc can be used not only when the figure is in the projected axial space of the ground, but also when the figure is still in the axial region of the ground. See the English gloss in example 13.

Example

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13.a   Sticker   bag-inte   munnil aaNə

       Sticker   bag-GEN   front-LOC   is

       'The sticker is in front /in the front of the bag'

To explain this, I would like to first argue that there are two types of Place heads- Place and Place $_{loc}$ with differing semantics. As discussed earlier, the semantics of Place is to project vectors of different direction and length from a particular region of the ground- which is identified by the Axpart- to the corresponding space.

I want to argue that this ambiguity is due to the polysemy of the locative case –*il* and the allomorphic Ø. The difference between a projective reading and a part-of-object reading is due to the different heads that can occupy the Place node. When spatial relators have part reading, the Place is headed by Place$_{Loc}$, lexicalised by a homophonous morpheme –il. The Place$_{Loc.}$–il is different from Place -il in that its semantic function is pure location and expression of features like contact, containment etc. Thus while Placehead can be the complement of a degP, Place$_{loc}$ head cannot.

14.a.   *Pena   mesha-yude   nere/10 cm   mugaLil   unDə;

        Pen   table-gen   straight   top-loc cop

     'The table is straight/10cm on the top of the table.'

b   Bulbə   mesha-yude   nere/10 cm   mugaLil   unDə

        Bulb   table-GEN   10 cm   top-LOC   is

     'The table is 10 cm on the top of the table.'

Thus in a simple locative sentence like 15, the –*il* is a Place$_{loc}$ head that expresses topological location. When Place$_{loc}$ head fuses with an AxP head, it gives a part reading and when Placehead fuses with an AxP head it gives a projected reading.

15.   kuTi   skuuL-il   aaNə

      Child   school-loc   is

      'The child is in school.'

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In certain dialects of Tamil, a sister language to Malayalam, the difference between an axial-part of the object and a projective axial part is evident in the case the ground DP is assigned. An axP head fused with Place$_{loc}$ assigns a genitive/oblique case. Eg, while an AxP head fused with a Place$_{proj}$ head assigns a dative case.

Example

16.a kangaroo kaaRooDe   meeleiru-nt-atə
kangaroo car-GEN   above   be-PST-3SG.N
    'Kangaroo was on top of the car.' (Part)

b. kangaroo   kaaR-ukkəmeeleiru-nt-atə
kangaroo car-DAT above be-PST-3SG.N
    'Kangaroo was above the car.' (AxPart)

It is evident why in 16.a, the PP gives a genitive case to the ground DP, while the axP with a projective head licenses a dative head.

When dative-of-possession alternates with genitive in certain possessive sentences we notice that they express a difference in the 'closeness' between the possessor and the possessee. This is evident in English. For example 'She is my sister' vs. 'She is a sister to me'. The same difference is reflected in the Malayalam/Tamil counterparts of the sentence.
17.aAvaL   ente   aniyathiaaNə
      She 1SG-gen sister is
   'She is my sister

b.AvaLeni-kkyə (oru) aniyathiaanu
   'She   I-DAT   (a) sister   is
   'She is a sister to me'

So it could well be that this difference in the degree of 'closeness' between the possessor and the possessed signalled by the genitive and the dative translates to locative sentences too. It is possible that the genitive case shows a more cohesive relation between the

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figure and the ground such as in example 17.a, and that dative shows a sort of distant, yet related association to the ground as in example 17.b.

Since both the head Place and Place$_{Loc}$ are lexicalised by the same morpheme 'il' (and its allomorphic variants- null and '-thu'), the case they license on the ground DP (genitive and dative respectively) was the only disambiguating factor. However in Malayalam this difference is also muted, although it is possible that it existed at some point in its diachronic history. Thus the dative case and genitive case are found to be in alternation. Both the sentences in 18.a and 18.b are equally ambiguous in Malayalam as to whether the dog sits on the back-side of the scooter or behind the scooter. This ambiguity is negotiated in the language through a mix of pragmatics, contextual cues and world knowledge.

18.a   PaTTi SkuuTer-inte piRag-il   irikky-unnu
        Dog   ScooTer-gen   back-loc   sit-PRES
        'The dog sits at the back of/ behind the scooter.'

.b   PaTTi SkuuTer-inə   piRag-il   irikkyunnu
        Dog   ScooTer- dat back-loc   sit-PRES
        'The dog sits at the back of/ behind the scooter.'

Concluding Remarks

Not all languages need have all lexical categories. Malayalam forms a category P by incorporating the locative case into axial part. Axial parts are roots that denote regions based on the 3 dimensions of objects and the basis of object perception and space negotiation. We also discussed how in Malayalam ambiguity exists whether the axialP denotes the axial region of the ground or the projected vector space and explained this as the result of the polysemy of the two heads that can occupy the node Place.

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