1 Data and Issues

■ Dimensional adjectives (nouns) in Korean

- It seems to be of no doubt that “all languages have a certain sample of lexical items to make reference to spatial dimensions such as height, length, width, distance, etc” [Lang (1994, p.1)].

- Korean has a set of expressions to express dimensions of objects:

  (1) a. *killa* (long), *caltta* (short); *kili* (length)
  b. *nelpta* (wide), *copta* (narrow); *nepi/phok* (width)
  c. *nophta* (high), *nacta* (low); *nophi* (height)
  d. *melta* (far), *kakkapta* (near); *keli* (distance)
  e. *kiphta* (deep), *yathta* (shallow); *kiphi* (depth)
  f. *nelpta* (wide), *copta* (narrow); *nelpi* (width)
  g. *twukkepta* (thick), *yalpta* (thin); *twukkey* (thickness)
  h. *khuta* (big), *cakta* (small); *khuki* (size)
  i. *kwulkta* (thick) and *calta* (slender); *kwulkki* (thickness)

  (2) a. *kalo* (side-to-side, crosswise)
  b. *seylo* (front-to-back, lengthwise)

■ Phenomena:

- (3a) implies (3b), but not *vice versa.*
(3) a. ku cangtay-nun nophi-ka 10m i-ta.
   that pole-TOP height-NOM 10m be-DECL
   ‘That pole is 10m high.’

b. ku cangtay-nun kili-ka 10m i-ta.
   that pole-TOP length-NOM 10m be-DECL
   ‘That pole is 10m long.’

• No valid inference between (4a) and (4b)

(4) a. ku sekthap-un nophi-ka 10m i-ta.
   that stone pagoda-TOP height-NOM 10m be-DECL
   ‘That tower is 10m high.’

b. *ku sekthap-un kili-ka 10m i-ta.
   that stone pagoda-TOP length-NOM 10m be-DECL
   *‘That tower is 10m long.’

• (In)valid inferences in English (Lang et al. (1991))

(5) a. The pole is 10m high/tall. ⇒ The pole is 10m long.
   b. The pagoda is 10m high/tall. \(\not\Rightarrow\) The pagoda is 10m long.

(6) a. The pole is 10m long. \(\not\Rightarrow\) The pole is 10m high/tall.
   b. The pagoda is 10m long. \(\not\Rightarrow\) The pagoda is 10m high/tall.

• (7a) implies (7b), and vice versa, whereas no inference between (8a) and (8b) is possible.

(7) a. ku yangtongi-nun nophi-ka 30cm i-ta.
   that bucket-TOP height-NOM 30cm be-DECL
   ‘That bucket is 30cm high.’

b. ku yangtongi-nun kiphi-ka 30cm i-ta.
   that bucket-TOP depth-NOM 30cm be-DECL
   ‘That bucket is 30cm deep.’

(8) a. ku chayksang-un kiphi-ka 1m i-ta.
   that desk-TOP depth-NOM 1m be-DECL
   ‘That desk is 1m deep.’

b. ku chayksang-un nophi-ka 1m i-ta.
   that desk-TOP height-NOM 1m be-DECL
   ‘That desk is 1m high.’

• The same holds in English.

(9) a. That bucket is 30cm deep. ⇔ That bucket is 30cm high.
b. The desk is 1m *deep*. \(\nequiv\) The desk is 1m *high*.

**Issues:**

- What determines the (im)possibility of the inferences of the dimensional terms on spatial objects,
- What is the mechanism to give an account of the (in)valid inference patterns, and
- How do the peculiar dimensional terms *kalo* (side-to-side) and *seylo* (front-to-back) interact with the other ones with respect to the dimensional inferences.

2 Previous Works

2.1 General Remarks

- Previous works in general:

2.2 Some Problems of the Previous Approaches

- Yang (1985) on the semantic structure of dimensional terms in Korean:
  - Yang (1985)’s classification of dimensional terms in Korean:

![Diagram of dimensional terms classification](image_url)

[Figure 1] Classification of dimensional terms (Yang (1985))
• Yang (1985) on the use of dimensional terms in Korean:

(10) a. Only for 1 dimension: kilta (kili), ccalpta; nelpta (nepi/phok), copta; nophta (nophi), nacta; melta, kakkapta; kiphta (kiphi), yathta
b. Only for 2 dimensions: nelpta (nelpi), copta; twukkkepta (twukkey), yalpta
c. Only for 3 dimensions: khuta (khuki), cakta; kwulkta (kwulkki), calta

Some desiderata of the flat semantic feature specification:

• Problem 1: Inadequate restrictions on the use (twukkkepta, thick):
  – The use of twukkkepta (twukkey) is not restricted to 2 dimensional objects.

(11) ku nelppanci-nun kil-ka 3m i-ko phok-i 30cm i-ko
    that board-TOP length-NOM 3m be-CONJ width-NOM 30cm be-CONJ
    twukkey-ka 3cm i-ta.
    thickness-NOM 3cm be-DECL

‘That board is 3m long, 30cm wide, and 3cm thick.’

• Problem 2: Invalid classification (kiphta, deep):

(12) a. ku wumwul-un kiph-ta.
    that well-TOP deep-DECL

   ‘That well is deep.’ = [length ⇝ +directional ⇝ downward ⇝ +]

b. chencang-ey na-n kwumeng-i kiph-ta.
    ceiling-at make-REL hole-NOM deep-DECL

   ‘The hole on the ceiling is deep.’ ≠ [length ⇝ +directional ⇝ downward ⇝ +]

c. pyek-ey na-n kwumeng-i kiph-ta.
    wall-at make-REL hole-NOM deep-DECL

   ‘The hole on the wall is deep.’ ≠ [length ⇝ +directional ⇝ downward ⇝ +]

• Problem 3: Lack of generalizations on dimensional terms and dimensionality:

  – kilta (kili, ‘length’) may refer to a one-, two-, or three-dimensional object. (cf. (13))
  – nophta (nophi, ‘height’) and nelpta (nelpi) require at least a two-dimensional object. (cf. (14))
  – kalo (‘side-to-side’) and seylo (front-to-back) require at least a two-dimensional object. (cf. (15))
  – twukkkepta (twukkey, ‘thickness’) and kiphta (kiphi, ‘depth’) require at least a three-dimensional object. (cf. (16))
• Problem 4: No tools for the explanation of (in)valid inferences:
  – Semantic converses: (17)
  – (18a) implies (18b), but not vice versa (cf. inferences in (3))

(17) a. $x$ is 30cm longer than $y \iff y$ is 30cm shorter than $x$
b. $x$ is 30cm higher than $y$ $\iff y$ is 30cm lower than $x$

(18) ku cangtay-nun *nophi-*ka 10m i-ta.
    that pole-TOP *height-NOM* 10m be-DECL
    ‘That pole is 10m high.’

ku cangtay-nun *kili-*ka 10m i-ta.
    that pole-TOP *length-NOM* 10m be-DECL
    ‘That pole is 10m long.’

- **Motivating Conceptual Structure:**
  - The inferences noted above are not anchored simply in the word meanings of the dimensional terms.
  - Conceptual Structure: A level representing language-independent, inter-modally accessible elements (related to vision, upright walk, perspectivization, and equilibrium, etc.) and complexes of conceptually determined everyday and encyclopedic knowledge about the world

### 3 Analysis

  - The dimensional designation mechanism is a mapping device from the Dimensional Assignment Parameters (DAPs) to Object Schema (OS), in terms of which the conceptual knowledge of an object is represented at Conceptual Structure.
  - Dimension Assignment Values (DAVs) form entries in an OS-section such that DAV is either identified or specified by the DAP in question.
  - Inferences are the relationship between the identified normal situation and the contextually-induced specified situation.

#### 3.1 Semantics of Dimension Assignment: Lang (1989)

- **Inherent Proportion Schema and Primary Perceptual Space:**
  - Dimension Assignment (DA) to spatial objects works by designating certain axis extensions of a given object as spatial dimension by picking out some axis extension $d$ of the object $x$.
  - Dimension Assignment is basically organized not by a single body-schema but by two interacting categorization grids called “Inherent Proportion Schema” (IPS) and “Primary Perceptual Space” (PPS), both being independently traceable to human perceptual endowment.
• Inherent Proportion Schema (IPS): defines the dimensionable gestalt properties of a spatial object.
  
  – MAX(imal) axis: identifies the most extended disintegrated axis of some object $x$, which in turn presupposes that there is exactly one such axis of $x$ available.
    e.g. long pole
  
  – SUBST(ance) axis: identifies either a non-maximal disintegrated third axis or an integrated axis forming the diameter of a circular section.
    e.g. thick board, thick pole
  
  – DIAM(eter) axis: identifies an object axis perceived as inside diameter of a hollow body.
    e.g. wide bucket

• Primary Perceptual Space (PPS): defines a system of axes within which the gestalt properties of objects can be reinterpreted as position properties.

[Figure 2] Axes in Primary Perceptual Space (PPS)

• VERT(ical) axis: selects exactly the disintegrated axis of some spatial object $x$ which coincides with the verticality.
  e.g. high/tall tower

• OBS(erver) axis: OBS selects any disintegrated axis of some spatial object $x$ which coincides with the axis given by the anatomically determined origin of an observer’s line of sight.
  e.g. deep well
• **ACRO(ss) axis**: designates a disintegrated object axis which is left unspecified by any of the other DAPs referring to maximality, substance, diameter, verticality, or alignment to the observer axis.

ACRO is exclusively defined by the orthogonality to the VERT or to the OBS, being derived from, hence dependent on, the two others just to fill the gap determined by the properties of the latter.

* e.g. *wide* board, *wide* mirror

• **Dimension Assignment Parameters**: DA makes use of a limited set of Dimension Assignment Parameters (DAP) which go to make up primary candidates for being lexicalized.

\[
\text{DAP} = \{\text{MAX, SUBST, DIAM, VERT, OBS, ACRO}\}
\]

• **Object Schemata**: An Object Schemata (OS) is an \( n \)-tuple of OS-sections each of which may contain a limited set of entries representing DAP.

\[
\begin{align*}
\text{(19) The structure of OS} & \\
<& 1, (2, 3) > & \text{max subst} \\
& \text{vert} & \text{---------} \\
& \text{vert} & \\
\end{align*}
\]

– in the first row 1, 2, 3 refers to dimensionality;

– ( ) refers to integration of two or three axes; and

– < > refers to boundedness (↔ unbounded *air*)

– the second row represents the primary **identification** of objects in terms of DAP,

– the optional third row represents the property of canonical orientation (e.g. *desk*, *tower*, etc.), and

– the last row below the horizontal line represents the normal identified positional information or the conceptual effects by some contextual **specification**.

\[
\begin{align*}
\text{(20) a. (high) pole} & \quad \text{b. (long) pole} & \\
<& 1, (2, 3) > & < 1, (2, 3) > & \\
& \text{max subst} & \text{max subst} & \\
& \text{---------} & \text{---------} & \\
& \text{vert} & \text{max} & \\
\end{align*}
\]

**Identification and Specification:**
• **Identification** as a function \( f_I(P) = p \), where \( P \in \{ \text{MAX, SUBST, DIAM, VERT, OBS, ACRO} \} \), \( p \in \{ \text{max, subst, diam, vert, obs} \} \) and \( p \) is the last entry in an OS-section.

• **Specification** as a function \( f_S(Q) = q \), where \( Q \in \{ \text{VERT, OBS, ACRO} \} \), \( q \in \{ \text{max, nil, vert} \} \).

(21) Some compatibility conditions
a. \( \text{max, subst, diam, nil} \) are always the first entry in an OS-section.
b. \( \text{subst, acro, obs} \) are always the last entry in an OS-section.
c. If an OS contains an entry \( \text{obs} \), then this OS may not contain an entry \( \text{subst} \), and \text{vice versa}.
d. Each element \( b \) from \( B \), \( b \neq \text{nil} \), occurs at most once in an OS, and \( \text{nil} \) never occurs alone.

(22) admissible combinations (based on compatible axial properties):
\[
\text{max}_{\text{vert}}, \text{acro}_{\text{vert}}, \text{max}_{\text{vert}}, \text{obs}_{\text{vert}} \quad \text{(} \angle 0^\circ \text{)}, \quad \text{obs}_{\text{vert}} \quad \text{(} \angle 180^\circ \text{)}, \quad \text{etc.}
\]

(23) inadmissible combinations (due to incompatible axial properties):
\[
\text{*max}_{\text{subst}}, \text{*diam}_{\text{subst}}, \text{*obs}_{\text{subst}}, \text{etc.}
\]

3.2 Problems Solved: Inferences as De-specification

■ **Inference Rules** (Lang *et al.* (1991, p.68)):

• **Inf. 1**: For any OS for object \( x \) with an OS-section entry \( \frac{p}{q} \), there is an OS’ for \( x \) with an OS-section entry \( \frac{p}{p} \), where \( p \neq q \neq \text{nil} \).

• **Inf. 2**: For any OS for object \( x \) with an OS-section entry \( \frac{\text{nil}}{q} \), there is an OS’ for \( x \) with an OS-section entry \( \frac{\text{nil}}{\text{acro}} \).

(24) **Inf. 1**

a. *ku* cangtae-nun *nophi*-ka 10m i-ta.
   ‘That pole-TOP height-NOM 10m be-DECL’
   ‘That pole is 10m high.’

b. *ku* cangtae-nun *kili*-ka 10m i-ta.
   ‘That pole-TOP length-NOM 10m be-DECL’
   ‘That pole is 10m long.’

9
(25) **Inf. 1**
That pole is 10m *high*. ⇒ That pole is 10m *long.*

\[
\begin{array}{c}
\text{max subst} \\
\text{vert}
\end{array}
\quad
\begin{array}{c}
\text{max subst} \\
\text{vert}
\end{array}
\]  
\[
\frac{\text{max}}{\text{vert}} \rightarrow \text{high}
\quad
\frac{\text{max}}{\text{vert}} \rightarrow \text{long}
\]

(26) a. *ku* sekthap-un *nophi-ka* 10m i-ta.
that stone pagoda-TOP *height*-NOM 10m be-DECL
‘That tower is 10m high.’

b. *ku* sekthap-un *kili-ka* 10m i-ta.
that stone pagoda-TOP *length*-NOM 10m be-DECL
‘*That tower is 10m long.*’

(27) That pagoda is 10m *high*. ⇏ That pagoda is 10m *long.*

\[
\begin{array}{c}
\text{max subst} \\
\text{vert}
\end{array}
\quad
\begin{array}{c}
\text{max subst} \\
\text{vert}
\end{array}
\]  
\[
\frac{\text{max} \text{+ vert}}{\text{vert}} \rightarrow \text{high}
\]

(28) **Inf. 2:** (28a) implies (28a), but not (28c) (∵ not the same axis extension)

a. *ku* chayksang-un *kiphi-ka* 1m i-ta.
that desk-TOP *depth*-NOM 1m be-DECL
‘That desk is 1m deep.’

b. *ku* chayksang-un *nepi-ka* 1m i-ta.
that desk-TOP *width*-NOM 1m be-DECL
‘That desk is 1m wide.’

c. *ku* chayksang-un *nophi-ka* 1m i-ta.
that desk-TOP *height*-NOM 1m be-DECL
‘That desk is 1m high.’

\[
\begin{array}{c}
\text{max nil vert} \\
\text{vert}
\end{array}
\quad
\begin{array}{c}
\text{max nil vert} \\
\text{vert}
\end{array}
\]  
\[
\frac{\text{nil}}{\text{obs}} \rightarrow \text{deep}
\quad
\frac{\text{nil}}{\text{acro}} \rightarrow \text{wide}
\quad
\frac{\text{vert}}{\text{vert}} \rightarrow \text{high}
\]
(29) **Inf. 1 & Inf. 2**

a. ku nelppanci-nun phok-i 2m i-ko, kipi-ka 30cm i-ko

that board-TOP width-NOM 2m be-CONJ depth-NOM 30cm be-CONJ

twukkey-ka 3cm i-ta.

*thickness-NOM 3cm be-DECL*

‘The board is 2m wide, 30cm deep, and 3cm thick.’

b. ku nelppanci-nun kili-ka 2m i-ko, nepi-ka 30cm i-ko

that board-TOP length-NOM 2m be-CONJ width-NOM 30cm be-CONJ

twukkey-ka 3cm i-ta.

*thickness-NOM 3cm be-DECL*

‘The board is 2m long, 30cm wide, and 3cm thick.’

(30) **Inf. 1 & Inf. 2**

The board is 2m *wide*, 30cm *deep*, and 3cm *thick*.

⇒ The board is 2m *long*, 30cm *wide*, and 3cm *thick*.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
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<tbody>
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<td>subst</td>
<td>max</td>
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<tbody>
<tr>
<td>acro</td>
<td>obs</td>
<td>subst</td>
<td>max</td>
</tr>
</tbody>
</table>

max \rightarrow wide

nil \rightarrow deep

subst \rightarrow thick

(31) **Inf. 1 & Inf. 2**

a. ku kewul-nun phok-i 2m i-ko nophi-ka 3cm i-ta.

that mirror-TOP width-NOM 2m be-CONJ height-NOM 1m be-DECL

‘The mirror is 2m wide and 1m high.’

b. ku kewul-nun kili-ka 2m i-ko phok-i 1m i-ta.

that mirror-TOP length-NOM 2m be-CONJ width-NOM 1m be-DECL

‘The mirror is 2m long and 1m wide.’

(32) **Inf. 1 & Inf. 2**

The mirror is 2m *wide* and 1m *high*.

⇒ The mirror is 2m *long* and 1m *wide*.

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<tr>
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<td>nil</td>
<td>subst</td>
<td>max</td>
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<tbody>
<tr>
<td>acro</td>
<td>vert</td>
<td>max</td>
<td>acro</td>
</tr>
</tbody>
</table>

max \rightarrow wide

nil \rightarrow high

max \rightarrow long

nil \rightarrow wide
3.3 Problems Not Solved Yet

**Problem:** ‘pagoda’ (cf. (26) and (27)) vs. ‘bucket’ (cf. (35) and (36))

(35) a. ku yangtongi-nun nophi-ka 40cm i-ta.
    that bucket-TOP height-NOM 40cm be-DECL
    ‘That bucket is 40cm high.’

b. ku yangtongi-nun kiphi-ka 40cm i-ta.
    that bucket-TOP depth-NOM 40cm be-DECL
    ‘That bucket is 40cm deep.’

(36) That bucket is 40cm high. ⇒ That bucket is 40cm deep.

(37) high bucket/pagoda vs. deep bucket vs. *deep pagoda

- Inf. 1: For any OS for object x with an OS-section entry \( \frac{p}{q} \), there is an OS’ for x with an OS-section entry \( \frac{p}{p} \), where \( p \neq q \neq \text{nil} \).

- Inf. 2: For any OS for object x with an OS-section entry \( \frac{\text{nil}}{q} \), there is an OS’ for x with an OS-section entry \( \frac{\text{nil}}{\text{acro}} \).
• Inf. 3: For any OS for surrounded spatial object $x$ with an OS-section entry $\frac{\text{diam}}{r}$ and $\frac{x}{p}$, there is an OS' for $x$ with an OS-section entry $\frac{\text{diam}}{r'}$ and $\frac{x}{p_{\text{obs}}}$ ($p \neq r \neq \text{obs}$), and *vice versa*.

**Surrounded Hollow (diam) Space vs. Open Solid Space (subst):**

![Figure 1] Spatial situations of ‘bucket’

(38) **Inf. 3:** high bucket $\iff$ deep bucket vs. *long* bucket

<table>
<thead>
<tr>
<th>max diam</th>
<th>max diam</th>
<th>max diam</th>
</tr>
</thead>
<tbody>
<tr>
<td>vert</td>
<td>vert</td>
<td>vert</td>
</tr>
<tr>
<td>vert</td>
<td>obs</td>
<td>???</td>
</tr>
</tbody>
</table>

$\frac{\text{max+vert}}{\text{vert}} \rightarrow \text{high}$

$\frac{\text{max+vert}}{\text{obs}} \rightarrow \text{deep}$

![Figure 2] Spatial situations of ‘bucket’ and ‘cave’

(39) *long cave $\iff$ deep cave

<table>
<thead>
<tr>
<th>max diam</th>
<th>max diam</th>
</tr>
</thead>
<tbody>
<tr>
<td>obs</td>
<td>obs</td>
</tr>
</tbody>
</table>

| ???      | obs      |
\[ \frac{\text{max} + \text{obs}}{\text{obs}} \rightarrow \text{deep} \]

(40) **Inf. 3:** *long* pipe with a stopper \( \Leftrightarrow \) *deep* pipe with a stopper

\[
\begin{array}{c c}
\text{max} & \langle 1 \ 2 \ 3 \rangle \\
\text{diam} & \text{max diam} \\
\hline
\text{max} & \text{obs} \\
\text{obs} & \text{max diam} \\
\hline
\text{max} & \text{obs} \\
\end{array}
\]

\[ \frac{\text{max}}{\text{max}} \rightarrow \text{long} \quad \frac{\text{max}}{\text{obs}} \rightarrow \text{deep} \]

[Figure 3] Spatial situations of ‘ditch’ and ‘bank’

(41) **Inf. 3:** *deep/*high* ditch (cf. \( \frac{\text{obs}}{\text{vert}} (\angle 180^\circ) \)) vs. *deep/high* bank (cf. no diam)

\[
\begin{array}{c c}
\text{vert} & \langle 1 \ 2 \ 3 \rangle \\
\text{diam} & \text{max vert acro} \\
\hline
\text{obs} & \text{vert} \\
\text{obs} & \text{vert} \\
\hline
\text{obs} & \text{vert} \\
\text{obs} & \text{vert} \\
\hline
\text{obs} & \text{vert} \\
\text{obs} & \text{vert} \\
\hline
\text{obs} & \text{vert} \\
\end{array}
\]

\[ \frac{\text{vert} + \text{obs}}{\text{obs}} \rightarrow \text{deep} \quad \frac{\text{max} + \text{vert}}{\text{vert}} \rightarrow \text{high} \]

### 3.4 Problems of *kalo* and *seylo*

- **Lexicalization of *kalo* and *seylo*:

  (42) a. ku chayksang-un nepi-ka 2m i-ko kiphi-ka 1m i-ta.
      that desk-TOP width-NOM 2m be-CONJ depth-NOM 1m be-DECL
      ‘That desk is 2m wide and 1m deep.’
  
  b. ku chayksang-un kili-ka 2m i-ko phok-i 1m i-ta.
      that desk-TOP length-NOM 2m be-CONJ width-NOM 1m be-DECL
      ‘That desk is 2m long and 1m wide.’
  
  c. ku chayksang-un phok-i 2m i-ko kiphi-i 1m i-ta.
      that desk-TOP width-NOM 2m be-CONJ depth-NOM 1m be-DECL
      ‘That desk is 2m wide and 1m deep.’
d. ku chayksang-un kalo-ka 2m i-ko seylo-ka 1m i-ta.
that desk- TOP width-NOM 2m be-CONJ depth-NOM 1m be-DECL
‘That desk is 2m side-to-side and 1m front-to-back.’

e. ku chayksang-un kalo-ka 2m i-ko kiphi-i 1m i-ta.
that desk- TOP side-to-side-NOM 2m be-CONJ depth-NOM 1m be-DECL
‘That desk is 2m wide and 1m deep.’

f. *ku chayksang-un phok-i 2m i-ko kalo-ka 1m i-ta.
that desk- TOP width-NOM 2m be-CONJ side-to-side-NOM 1m be-DECL
‘*That desk is 2m wide and 1m side-to-side.’

(43)
\begin{center}
\begin{tabular}{ccc}
max & nil & vert \\
\hline
acro & obs & vert \\
\hline
max & nil & vert \\
\end{tabular}
\end{center}

\begin{align*}
\text{max} & \rightarrow \text{wide}, \text{kalo, *seylo} \\
\text{acro} & \rightarrow \text{wide}, \text{seylo, kalo} \\
\text{obs} & \rightarrow \text{deep}, \text{seylo, kalo} \\
\text{max} & \rightarrow \text{long}, \text{kalo, seylo} \\
\text{nil} & \rightarrow \text{wide}, \text{seylo, kalo}
\end{align*}

\section*{Generalizations about kalo and seylo:}

- \textit{kalo} (side-to-side) and \textit{seylo} (front-to-back) require at least a two-dimensional object. (cf. (15))

- The use of \textit{kalo} (side-to-side) and \textit{seylo} (front-to-back) is a matter of the lexicalization of DAVs.

- The DAVs \texttt{subst} and \texttt{diam} may not be lexicalized as \textit{kalo} or \textit{seylo}.

- If one DAV is lexicalized as \textit{kalo} (side-to-side), (one of) the remaining DAVs can be lexicalized as \textit{seylo}.

- Because of the axial compatibility, the DAV \texttt{obs} can be lexicalized at best as \textit{seylo}, say, not as \textit{kalo}.

\section*{4 Conclusion}

\section*{Summary:}

- What determines the (im)possibility of the inferences of the dimensional terms on spatial objects,

- What is the mechanism to give an account of the (in)valid inference patterns, and

- How do the peculiar dimensional terms \textit{kalo} (side-to-side) and \textit{seylo} (front-to-back) interact with the other ones with respect to the dimensional inferences.
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