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The Pseudopassive in LFG —
Some Preliminary Thoughts

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1   Introduction

1.1   The phenomenon

- Some languages (English, Norwegian, Prince Edward Island French, . . .) allow prepositional verbs (verbs that take a PP complement) to be passivized, promoting the object of the preposition to subject, and leaving the preposition itself stranded:

    (1)   English:
    - a.   John was spoken to (by Paula)
    - b.   This bed was slept in (by Napoleon)

    (2)   Norwegian:
    - a.   De   må   bli passet bedre på
        they must be looked better after

        'They must be better looked after'
    - b.   Sengen ble sovet i
        the.bed was slept in

        'The bed was slept in'   (Lødrup 1991:118,120)

- As we can see from the (b) sentences, prepositional objects in *adjunct* phrases also appear to be valid candidates for promotion, not just those in argument phrases.

- This phenomenon is cross-linguistically rare, even in languages which allow prepositions to be stranded as part of a long-distance dependency (e.g. in a *wh*-question):

(3) French:

a. * Qui as-tu   parlé   de?
   who have-you spoken of
   'Who did you speak about?'

b. * Jean a   été voté pour
   John has been voted for
   'John was voted for'

(4) Danish:

a. Hvem har Peter snakket med?
   who   has Peter talked   with
   'Who has Peter talked with?'

b. * Han blev grinet   af
   he   was laughed at
   'He was laughed at'   (Truswell 2008:135)

- There is lexical variation within languages which permit pseudopassivization:

(5) a.   Fred could be counted on
    b. * Both capital and interest were consisted of (by the repayments)

(6) a.   The neighbour's noise was put up with
    b. * My sister wasn't gotten along with

(7) a.   Our goal was lost sight of
    b. * The secretary was lost patience with
    c. * His motives were cast doubt on   (Kim 2009)

1.2   The problem

- We therefore face two main formal challenges:

1. How best to represent this construction in the languages which permit it (whilst still blocking it from those that do not).

2. How to differentiate, within languages that allow pseudopassivization, those verbs which permit it and those verbs which do not.

2 Earlier work in LFG

2.1 Transformational accounts

- Previous work in the transformational vein (e.g. Hornstein & Weinberg 1981; van Riemsdijk 1978) assumes a rule of *reanalysis* which combines a verb and preposition into a morphologically complex verb, as in (8):

    (8) V P $\Rightarrow$ [V P]$_V$

- After this reanalysis, the object of the preposition is now the object of the complex verb, and so passivization can carry on as usual.

- Issues with this solution:

    - Such a general rule inevitably overgenerates (Hornstein & Weinberg 1981:65):

        (9)   Who did Maria talk to Harry about?

        (10)   * John was talked to Harry about

        (11)   * The table was put the mouse on

    - (Attempts to constrain using the notion 'semantic word'?)
    - Prepositional objects do not behave like regular verbal objects (Alsina 2009:50–52):
    - e.g. They cannot participate in heavy NP shift, unlike regular verbal objects:

        (12)   a.   I discussed ⎯⎯$_1$ with Lorenzo [the problems he was having with deliveries]$_1$

                b.   * I argued with ⎯⎯$_2$ about such problems [the drivers' union leader]$_2$

    - In gapping constructions like (13a), the verb can be deleted in the second conjunct, whereas the putative [V-P] verb cannot be ((13b) is ungrammatical without the preposition):

        (13)   a.   Frank called Sandra and Arthur ⎯⎯ Louise

                b.   Frank talked to Sandra and Arthur ⎯⎯ *(to) Louise

    - In the Norwegian pseudopassive, not only do the verb and preposition not need to be adjacent, in fact they cannot be in many constructions:

        (14)   a.   Hvorfor passes   de   ikke bedre på?
                      *why   look.*PASSIVE *they not better after*
                      'Why are they not looked after better?'

                b. * Hvorfor passes   på   de   ikke bedre?
                      *why   look.*PASSIVE *after they not better*

                                                                    (Lødrup 1991:119)

2.2   Earlier work in LFG

- Some early accounts of the pseudopassive in LFG followed in the transformational tradition of reanalysis (e.g. Bresnan 1982), deriving complex predicates such as (15):

    (15)   'rely-on⟨SUBJ, OBJ⟩'

- Issues:

    – How do we constrain this?

    – Prepositional objects do not behave like regular verbal objects (Alsina 2009:50–52):

    – e.g. They cannot participate in heavy NP shift, unlike regular verbal objects:

    (16)   a.   I discussed ____$_1$ with Lorenzo [the problems he was having with deliveries]$_1$

    b.   * I argued with ____$_2$ about such problems [the drivers' union leader]$_2$

- Later work (Lødrup 1991; Alsina 2009) sees the pseudopassive as a structure-sharing relation, much like raising verbs.

    – Lødrup (1991:123) gives the f-structure in (18) for the sentence in (17):

    (17)   Taket   ble gått   på
    the.roof was walked on
    'The roof was walked on'

    (18) $\begin{bmatrix} \text{PRED} & \text{'gås'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'taket'} \end{bmatrix} \\ \text{OBL}_{\text{LOC}} & \begin{bmatrix} \text{PRED} & \text{'på'} \\ \text{OBJ} & \end{bmatrix} \end{bmatrix}$

    – Passivization: not only suppression of highest argument in a verb's a-structure, but also the insertion of the control equation in (19):

    (19) $(\uparrow \text{SUBJ}) = (\uparrow \text{OBL}_\theta \text{ OBJ})$

- But why should the pseudopassive be so different from the regular passive, involving a structure-sharing relation? Does this not in fact start to look quite transformational (the subject is *really* the object of the preposition, but has simply been displaced . . .)?

3   An embryonic proposal

- I want to propose an analysis more in keeping with both intuition and with the LFG ethos.

- How to represent the subcategorization restrictions of verbs which take OBL arguments in LFG?

  - Camp A (e.g. Falk 2001): verbs subcategorize for the object of the oblique directly, as in (20a).
  - Camp B (e.g. Dalrymple 2001): the verb only subcategorizes for the oblique, as in (20b).

  (20)   Two representations of *rely*:
    a. 'rely$\langle$SUBJ, OBL$_{\text{ON}}$ OBJ$\rangle$'
    b. 'rely$\langle$SUBJ, OBL$_{\text{ON}}\rangle$'

- Rather than taking one side or the other, I propose to make use of both:

  - Verbs which are pseudopassivizable will subcategorize for their oblique's object directly, as in (20a).
  - Verbs which are not will subcategorize only for the oblique itself, as in (20b).

- The syntactic relation between the verb and the object of the preposition is closer in pseudopassive verbs; the object of the preposition is really an argument of the verb, and so it is not surprising it can be promoted to subject in the passive, just like any object.

- It might also go some way to explaining the cross-linguistic rarity of this construction: presumably subcategorizing for an f-structure path of anything greater than length one is more computationally taxing/complex.

- Proposed f-structures:

  (21)   'Anne disposed of the rubbish'

$$\begin{bmatrix} \text{PRED} & \text{'dispose}\langle\text{SUBJ, OBL}_{\text{OF}} \text{ OBJ}\rangle\text{'} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Anne'} \end{bmatrix} \\ \text{OBL}_{\text{OF}} & \begin{bmatrix} \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'rubbish'} \\ \text{DEF} & + \end{bmatrix} \\ \text{PCASE} & \text{OBL}_{\text{OF}} \end{bmatrix} \end{bmatrix}$$

(22) 'The rubbish was disposed of'

$$
\begin{bmatrix}
\text{PRED} & \text{'dispose}\langle\text{SUBJ}\rangle\text{OBL}_{\text{OF}}\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'rubbish'} \\ \text{DEF} & + \end{bmatrix} \\
\text{OBL}_{\text{OF}} & \begin{bmatrix} \text{PCASE} & \text{OBL}_{\text{OF}} \end{bmatrix} \\
\text{VOICE} & \text{PASSIVE}
\end{bmatrix}
$$

(23) 'The loan consisted of capital'

$$
\begin{bmatrix}
\text{PRED} & \text{'consist}\langle\text{SUBJ, OBL}_{\text{OF}}\rangle\text{'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'loan'} \\ \text{DEF} & + \end{bmatrix} \\
\text{OBL}_{\text{OF}} & \begin{bmatrix} \text{PRED} & \text{'of}\langle\text{OBJ}\rangle\text{'} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'capital'} \end{bmatrix} \\ \text{PCASE} & \text{OBL}_{\text{OF}} \end{bmatrix}
\end{bmatrix}
$$

- Assume the following lexical entries:

(24) *dispose* V $(\uparrow \text{PRED})$ = 'dispose$\langle$SUBJ, OBL$_{\text{OF}}$ OBJ$\rangle$'
        $(\uparrow \text{OBL PCASE})$ $=_c$ OBL$_{\text{OF}}$

(25) *disposed* V $(\uparrow \text{PRED})$ = 'dispose$\langle$SUBJ$\rangle$OBL$_{\text{OF}}$'
        $(\uparrow \text{OBL PCASE})$ $=_c$ OBL$_{\text{OF}}$
        $(\uparrow \text{VOICE})$ = PASSIVE

(26) *consist* V $(\uparrow \text{PRED})$ = 'consist$\langle$SUBJ, OBL$_{\text{OF}}\rangle$'
        $(\uparrow \text{OBL PCASE})$ $=_c$ OBL$_{\text{OF}}$

(27) *of* P $((\uparrow \text{PRED})$ = 'of$\langle$OBJ$\rangle$')
        $(\uparrow \text{PCASE})$ = OBL$_{\text{OF}}$

- And the following phrase-structure rule (after Falk 2001), along with the other familiar ones for English:

(28)   V′   →   V $\left(\begin{array}{c} \text{PP} \\ (\uparrow (\downarrow \text{PCASE})) = \downarrow \end{array} \right)$
                    $\uparrow = \downarrow$

- Prepositions have an optional PRED value, which they contribute in non-pseudopassivizable verbs (or adjunct phrases, etc. where they make a clear semantic contribution), but omit in pseudopassivizable ones — in this way, we once again represent the fact that

the prepositional object in the latter case is truly an argument of the verb, not of the preposition.

4   Problems

4.1   Argument structure

- There are three large questions regarding the mapping of arguments to grammatical functions:

  1. Can LMT permit mapping of arguments to f-structure paths with more than one element (i.e., the 'OBL$_{OF}$ OBJ' path)? If so, how?
  2. How do we retain the OBL$_{OF}$ in the passive?
  3. And, relatedly, how do we make it nonthematic?

- Current thoughts:

- The OBL in the pseudopassive is not really a part of the argument of the verb, but is really some kind of lexical constraint. The verb demands that there be an oblique, and this then 'attaches' via some mechanism to a suitable GF if one is available (e.g., the OBJ in the active), or is simply left as an athematic argument otherwise (i.e., the passive).

  – But what is this mechanism? How can we formalise it? We can simply have an existential constraint in the lexical entry ($\uparrow$ OBL), but how do we ensure it is realised in the proper way? (E.g., how do we avoid generating 'dispose$\langle$SUBJ, OBJ$\rangle$OBL$_{OF}$'?)
  – An OT account?

- We can follow Asudeh & Giorgolo (2012) and scrap a-structure as a separate level of representation altogether. This simplifies the formal architecture of LFG, simplifies the meaning constructors of many lexical entries, and gives us a connected semantic structure. (See appendix for the beginnings of an analysis in this vein.)

4.2   Pseudopassive > preposition stranding

- Implicational universal:

  (29)   If a language permits pseudopassives, it also permits preposition stranding in long-distance dependencies (*wh*-questions, relative clauses, etc.).

- There are languages with P-stranding but no pseudopassive, but no languages with pseudopassive but no P-stranding. (And of course there are languages — the majority, in fact — with neither.)

- Alsina (2009:47) presents this information graphically:

(30)

		P-stranding by LDD	
		yes	no
P-stranding by passivization	yes	English, Norwegian	
	no	Icelandic, Swedish	French, other Romance languages

- How do we capture this connection, as well as the fact that both constructions, but especially the pseudopassive, are cross-linguistically very rare?

4.3 Adjuncts vs. arguments

- As noted above, objects of prepositions in adjunct phrases in the active can also be promoted to subject in the passive.

- (Yet another) challenge to the neat distinction between arguments and adjuncts?

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Appendix: A semantic approach

(31) Lexical entries:

a. *dispose* V ($\uparrow$ PRED) = 'dispose'
    ($\uparrow$ OBL PCASE) $=_c$ OBL$_{\text{OF}}$
    @PSEUDOPASSIVE

    ($\uparrow$ SUBJ)$_\sigma$ = ($\uparrow_\sigma$ ARG$_1$)
    ($\uparrow$ OBL OBJ)$_\sigma$ = ($\uparrow_\sigma$ ARG$_2$)

    $\lambda y.\lambda x.\text{disposeOf}(x, y)$:
              ($\uparrow_\sigma$ ARG$_2$) $\multimap$ ($\uparrow_\sigma$ ARG$_1$) $\multimap$ $\uparrow_\sigma$

b. *consist* V ($\uparrow$ PRED) = 'consist'
    ($\uparrow$ OBL PCASE) $=_c$ OBL$_{\text{OF}}$

    ($\uparrow$ SUBJ)$_\sigma$ = ($\uparrow_\sigma$ ARG$_1$)
    ($\uparrow_\sigma$ ARG$_2$)

    $\lambda y.\lambda x.\text{consistOf}(x, y)$:
              ($\uparrow_\sigma$ ARG$_2$) $\multimap$ ($\uparrow_\sigma$ ARG$_1$) $\multimap$ $\uparrow_\sigma$

c. *disposed* V ($\uparrow$ PRED) = 'dispose'
    ($\uparrow$ VOICE) = PASSIVE
    ($\uparrow$ OBL PCASE) $=_c$ OBL$_{\text{OF}}$
    @PSEUDOPASSIVE

    ($\uparrow$ SUBJ)$_\sigma$ = ($\uparrow_\sigma$ ARG$_2$)
    ($\uparrow_\sigma$ ARG$_1$)

    $\lambda y.\lambda x.\text{disposeOf}(x, y)$:
              ($\uparrow_\sigma$ ARG$_2$) $\multimap$ ($\uparrow_\sigma$ ARG$_1$) $\multimap$ $\uparrow_\sigma$
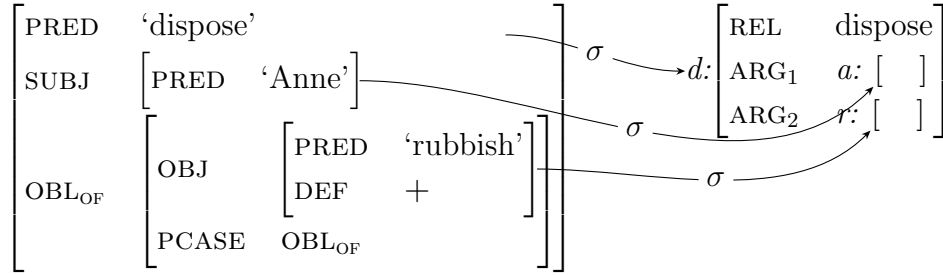
    $(\lambda P.\exists x.[P(x)] : [(\uparrow_\sigma \text{ ARG}_1 \multimap \uparrow_\sigma] \multimap \uparrow_\sigma)])$

d.   *of*   P $((\uparrow \text{PRED}) = \text{'of'})$
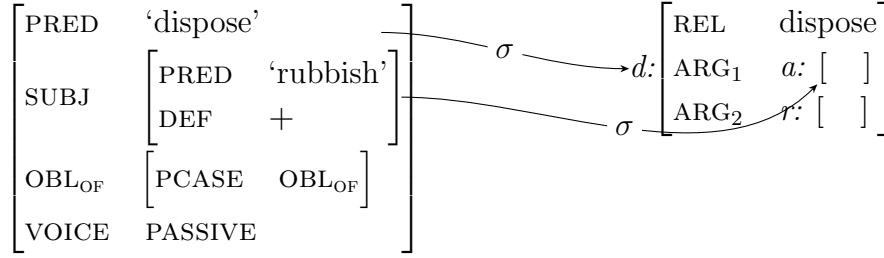$(\uparrow \text{PCASE}) = \text{OBL}_{\text{OF}}$

$(\uparrow \text{OBJ})_\sigma = ((\text{OBL}_{\text{OF}} \uparrow)_\sigma \text{ ARG}_2)$

$(\lambda x.\lambda P.[P(x)] :$
     $(\uparrow \text{OBJ})_\sigma \multimap [(\uparrow \text{OBJ})_\sigma \multimap (\text{OBL} \uparrow)_\sigma] \multimap (\text{OBL} \uparrow)_\sigma)$
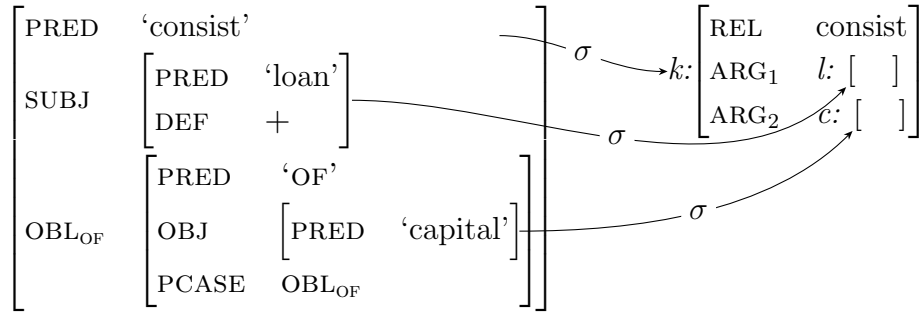
(32)

$$
\begin{bmatrix}
\text{PRED} & \text{'dispose'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'Anne'} \end{bmatrix} \\
\text{OBL}_{\text{OF}} & \begin{bmatrix} \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'rubbish'} \\ \text{DEF} & + \end{bmatrix} \\ \text{PCASE} & \text{OBL}_{\text{OF}} \end{bmatrix}
\end{bmatrix}
\quad
\begin{matrix} \sigma \\ \sigma \\ \sigma \end{matrix}
\quad
d{:}\begin{bmatrix}
\text{REL} & \text{dispose} \\
\text{ARG}_1 & a{:} \begin{bmatrix} \ \ \end{bmatrix} \\
\text{ARG}_2 & r{:} \begin{bmatrix} \ \ \end{bmatrix}
\end{bmatrix}
$$

(33)

$$
\begin{bmatrix}
\text{PRED} & \text{'dispose'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'rubbish'} \\ \text{DEF} & + \end{bmatrix} \\
\text{OBL}_{\text{OF}} & \begin{bmatrix} \text{PCASE} & \text{OBL}_{\text{OF}} \end{bmatrix} \\
\text{VOICE} & \text{PASSIVE}
\end{bmatrix}
\quad
\begin{matrix} \sigma \\ \sigma \end{matrix}
\quad
d{:}\begin{bmatrix}
\text{REL} & \text{dispose} \\
\text{ARG}_1 & a{:} \begin{bmatrix} \ \ \end{bmatrix} \\
\text{ARG}_2 & r{:} \begin{bmatrix} \ \ \end{bmatrix}
\end{bmatrix}
$$

(34)

$$
\begin{bmatrix}
\text{PRED} & \text{'consist'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'loan'} \\ \text{DEF} & + \end{bmatrix} \\
\text{OBL}_{\text{OF}} & \begin{bmatrix} \text{PRED} & \text{'OF'} \\ \text{OBJ} & \begin{bmatrix} \text{PRED} & \text{'capital'} \end{bmatrix} \\ \text{PCASE} & \text{OBL}_{\text{OF}} \end{bmatrix}
\end{bmatrix}
\quad
\begin{matrix} \sigma \\ \sigma \\ \sigma \end{matrix}
\quad
k{:}\begin{bmatrix}
\text{REL} & \text{consist} \\
\text{ARG}_1 & l{:} \begin{bmatrix} \ \ \end{bmatrix} \\
\text{ARG}_2 & c{:} \begin{bmatrix} \ \ \end{bmatrix}
\end{bmatrix}
$$

$$\cfrac{\cfrac{[\textbf{dispose}]\ \lambda y.\lambda x.disposeOf(x,y) : r \multimap a \multimap d \qquad [\textbf{the-rubbish}]\ rubbish : r}{\lambda x.disposeOf(x,rubbish) : a \multimap d} \qquad [\textbf{Anne}]\ anne : a}{disposeOf(anne,rubbish) : d}$$

Figure 1: Proof for *Anne disposed of the rubbish*

$$\cfrac{\cfrac{[\textbf{dispose}]\ \lambda y.\lambda x.disposeOf(x,y) : r \multimap a \multimap d \qquad [\textbf{the-rubbish}]\ rubbish : r}{\lambda x.disposeOf(x,rubbish) : a \multimap d} \qquad \lambda P.\exists x.[P(x)] : (a \multimap d) \multimap d}{\exists x.disposeOf(x,rubbish) : d}$$

Figure 2: Proof for *The rubbish was disposed of*

$$\cfrac{\cfrac{[\textbf{consist}]\ \lambda x.\lambda y.consistOf(x,y) : l \multimap c \multimap k \quad [\textbf{the-loan}]\ loan : l}{\lambda y.consistOf(loan,y) : c \multimap k} \quad \cfrac{[\textbf{of}]\ \lambda x.\lambda P.[P(x)] : c \multimap [(c \multimap k) \multimap k] \quad [\textbf{capital}]\ capital : c}{\lambda P.P(capital) : (c \multimap k) \multimap k}}{consistOf(loan,capital) : k}$$

Figure 3: Proof for *The loan consists of capital*