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THE LICENSING OF ADNOMINAL PPS: THE CASE OF BASQUE *-ko*[1]

Topic of the talk

(1) *the tree in front of the house*

    a. * [$_{DP}$ etxe aurre-an zuhaitz-a]
           house front-LOC.SG tree-DET

    b. [$_{DP}$ etxe aurre***ko*** zuhaitza]

(2) Etxe aurre-an zuhaitz-a dago.
    house front-LOC.SG tree-DET is

    "In front of the house is the tree."

Hypothesis

A *functional head* at the top of the extended projection of PPs in Basque mediates the attributive relation of modifier and modifiee. This head is spelt out by the morpheme *-ko*, which belongs to the group of *attributive linkers* noted to indicate attributive relations across a variety of languages.

1 The phenomenon

"Relational" -ko in Basque

- used in adnominals (i.e. for attribution)

- located on the right edge of its complement

- classically analyzed as a "locative genitive" case ending

- Eguzkitza (1993) treats *-ko*-phrases as PP adjuncts to $\overline{\text{N}}$

- de Rijk (1993:149) characterizes *-ko* as "linking to a following NP any syntactic phrase enjoying PP status, including even complementizer-bearing clauses"

Adnominal uses of *-ko*-phrases

a wide range of complements (cf. Hualde & Ortiz de Urbina 2003:144-148):

adverb	lexical adverbs
	adverbs made by suffix *-la(n)*
	morphologically complex adverbs
	adverbs constructed from NPs by *-ka*
non-finite clause	adverbial participles with *-ta/-(r)ik*
finite clause	finite adverbial clauses
	finite complement clauses
PP	*"ordinary" PPs*
	NPs marked for comitative case
	NPs marked for instrumental case
	NPs marked for any local case
bare NP (??)	

Assumption

Adverbial case markers in Basque, i.e. the cases apart from ergative, absolutive and dative (and possibly genitive), *are (reflexes of) postpositions* (cf. Eguzkitza 1993; also Asbury 2008 for Hungarian).

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with "ordinary" PP

(3) Muga-rik   Gabe-ko   Sendagile-a-k
     border-PART without-KO doctor-DET-PL
     "Doctors Without Borders"

Commitative and Instrumental

(4) *commitative case*

     emakume-eki-ko diskriminazio-a
     woman-COM-KO discrimination-DET

     "discrimination against women"

(5) *instrumental case*

     euskara-z-ko   hitzaldi-a
     Basque-INSTR-KO lecture-DET

     "a lecture (given) in Basque"   Hualde & Ortiz de Urbina (2003:146)

with NP marked for any local case

(6) mendi-etan *in the mountains*

     a. mendi-eta-ko   haitzulo-a-k
         mountain-LOC.PL-KO cave-DET-PL
         "the caves in the mountains"

                                                             Hualde & Ortiz de Urbina (2003:145)

(7) Thessaloniki-ra *to Thessaloniki*

     a. Thessaloniki-ra-ko   hegaldi-a
         Thessaloniki-ALL-KO flight-DET
         "the flight to Thessaloniki"

Missing -ko is fatal to attribution

(8) *Doctors Without Borders*

     a. * [_{DP} Muga-rik   Gabe   Sendagile-a-k]
              border-PART without doctor-DET-PL
     b. Mugarik Gabe*ko* Sendagileak

(9) *a lecture (given) in Basque*

     a. * [_{DP} euskara-z   hitzaldi-a]
              Basque-INSTR lecture-DET
     b. euskaraz*ko* hitzaldia

(10) *the flight to Thessaloniki*

     a. * [_{DP} Thessaloniki-ra   hegaldi-a]
              Thessaloniki-ALL flight-DET
     b. Thessalonikira*ko* hegaldia

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2   Theoretical Basis

Extended Projections for PPs

- usually a rich functional structure is assumed in the sentential and nominal domains, e.g. something like (11) and (12)

(11)   *sketch of the sentential projection:* CP $\succ$ MoodP $\succ$ NegP $\succ$ TP $\succ$ AspP $\succ$ vP/VoiceP $\succ$ V/$\sqrt{\text{ROOT}}$

<div align="right">after Alexiadou et al. (2007:30)</div>

(12)   *sketch of the nominal projection:* DP $\succ$ #P $\succ$ ClP $\succ$ N/$\sqrt{\text{ROOT}}$ after Borer (2005)

- PP structure similarly complex

- several proposals for extended projection of (locative) PPs, e.g. den Dikken (2006)

(13)   den Dikken (2006)
   [$_{CP(Path)}$ *C(Path)* [$_{DegP(Path)}$ Deg(Path) [$_{PathP}$ Path [$_{CP(Place)}$ *C(Place)* [$_{DegP(Place)}$ Deg(Place) [$_{PlaceP}$ Place [$_{AgrP}$ Agr [$_{PP}$ P$_{Loc}$ DP]]]]]]]]]

Analyses for attributive linkers

Predicate Inversion (den Dikken & Singhapreecha 2004)

- linker marks PI around subject

- key properties/indications for PI:

   - quantificational contexts (*wh-* or indefinite pronoun or focus)

   - marked information structure (contrastive reading, AP represents old information)

(14)   a. I consider John (to be) my best friend.
       b. I consider my best friend *(to be) John.

(15)   French   (den Dikken & Singhapreecha 2004:4, (5ac))

   a. Qui *(de) sérieux as-tu   recontré?
      who DE   serious have-you met

   b. Je n'ai   mangé que DEUX pizzas ?(de) chaudes.
      I not-have eaten but two   pizzas DE   hot

(16)   [chaude$_i$[de[$_{SC}$ [pizza][i]]]]   (*ibid.*: 12, (21b))

Functional head

- a functional head mediates (needs to mediate) the relation between attribute and head noun (or coindexed variable)

- categorial identity of functional head:

   - new category Mod, marking pair-Merge $\rightarrow$ adjunction; includes adverbial modification (Rubin 2002)

   - extension of traditional C to include attributive linkers (Struckmeier 2007; von Prince 2008)

(17)   *Mandarin Chinese:*

   năi lǐ de dànbáizhǐ
   milk in AL protein

   "the protein (contained) in milk"   (von Prince 2008:7,(14))

(18)   die sich$_i$ treu-**e**   Frau$_i$
       the REFL.DAT true-**KGN** woman
       "the woman who is true to herself"

Figure 1: Referential systems

	indices	individuals		sentential	nominal
independent	C_{main}/R1	D/R3	argument	C	D
restrictive	C_{subord}/R2	CGN,AL/R4	modifier	Mod	
	(a) C-approach			**(b)** Mod-approach	

3　Application and open ends

The syntactic role of -ko

-ko allows various kinds of phrases to appear adnominally

$\Rightarrow$ (important here:) licenses adnominal/attributive use of PPs in Basque

Predicate Inversion (den Dikken & Singhapreecha 2004)

- key properties/indications for PI:
    - ✗ quantificational contexts
    - ✗ marked information structure (contrastive reading, AP represents old information)

Functional head

- ✓ closed lexical class, clitic, inseparable from complement, ´´second-order semantic contribution", but: ✗normally only one complement (Abney 1987)

- ✓ obligatory presence of linker, i.e. no information structurally "unmarked" version

Hypothesis

- functional head closing off the extended projection of P

- resulting phrase adjoins to the NP that is to be modfied

- agnostic regarding categorial identity: C or Modpossibly more decisive dataset C_{compl} (*that, if*) vs. C_{adv} (*when* etc.)
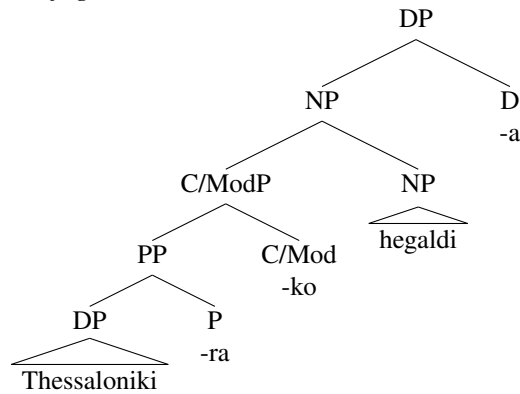
Extended PP

Remember:

(19)　den Dikken (2006)

[*CP(Path)* **C(Path)** [$_{DegP(Path)}$ Deg(Path) [$_{PathP}$ Path [*CP(Place)* **C(Place)** [$_{DegP(Place)}$ Deg(Place) [$_{PlaceP}$ Place [$_{AgrP}$ Agr [$_{PP}$ P$_{Loc}$ DP]]]]]]]]]]

Note

- den Dikken (2006) proposes C for reasons of movement facts in Dutch

- unclear (at this point), whether the very same head is involved

(20)   *the flight to Thessaloniki*

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                        DP
                      /    \
                    NP      D
                   /  \     -a
              C/ModP   NP
              /    \    |
            PP   C/Mod  hegaldi
           /  \   -ko
         DP    P
          |    -ra
      Thessaloniki
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Semantic considerations

Question
What is the semantic contribution of (the head realized by) *-ko*?

Hypothesis

1. restricts reference of a head noun (cf. Struckmeier's (2007) R4 heads)

2. maps the semantic type of its complement onto a higher type

To illustrate, assuming the relevant PP complements are of type $\langle e,t \rangle$,

A) the relevant head is an operator of type $\langle\, \langle e,t \rangle, \langle e,t \rangle\, \rangle$

    or, alternatively:

B) …of type $\langle\, \langle e,t \rangle, \langle\, \langle e,t \rangle\, , \langle e,t \rangle\, \rangle\, \rangle$

Type A semantics

$\langle\, \langle \mathbf{e,t} \rangle, \langle \mathbf{e,t} \rangle\, \rangle$

- identity function
  $FA([_{\mathrm{PP},\langle et \rangle}$ Thessaloniki-ra $], [_{\mathrm{C},\langle et,et \rangle}$ -ko $]) \rightarrow [_{\mathrm{CP},\langle et \rangle}$ Thessaloniki-ra-ko]

- Predicate Modification unifies the open variable of the modifier and the modifiee
  $PM([_{\mathrm{CP},\langle et \rangle}$ Thessaloniki-ra-ko], $[_{\mathrm{NP},\langle et \rangle}$ hegaldi]) $\rightarrow [_{\mathrm{NP},\langle et \rangle}$ Thessaloniki-ra-ko hegaldi][2ex]
  $\lambda x.\mathrm{flight}(x) \wedge \mathrm{direction\_towards}(x,t)$

⇒ *-ko* possibly just flagging (triggering?) Predicate Modification

Type B semantics

$\langle\, \langle \mathbf{e,t} \rangle, \langle\, \langle \mathbf{e,t} \rangle\, , \langle \mathbf{e,t} \rangle\, \rangle\, \rangle$

- FA yields higher type: $\langle et \rangle \rightarrow \langle et,et \rangle$
  $FA([_{\mathrm{PP},\langle et \rangle}$ Thessaloniki-ra $], [_{\mathrm{C},\langle et,\langle et,et \rangle \rangle}$ -ko $]) \rightarrow [_{\mathrm{CP},\langle et,et \rangle}$ Thessaloniki-ra-ko]

- Functional application cobinds the open variable of the modifier and the modifiee
  $FA([_{\mathrm{CP},\langle et,et \rangle}$ Thessaloniki-ra-ko], $[_{\mathrm{NP},\langle et \rangle}$ hegaldi]) $\rightarrow [_{\mathrm{NP},\langle et \rangle}$ Thessaloniki-ra-ko hegaldi][2ex]
  $\lambda x.\mathrm{flight}(x) \wedge \mathrm{direction\_towards}(x,t)$

⇒ mapping to a higher semantic type
⇒ allows us to get by with Functional Application only, no need for Predicate Modification (at least here)

Composition with the head noun

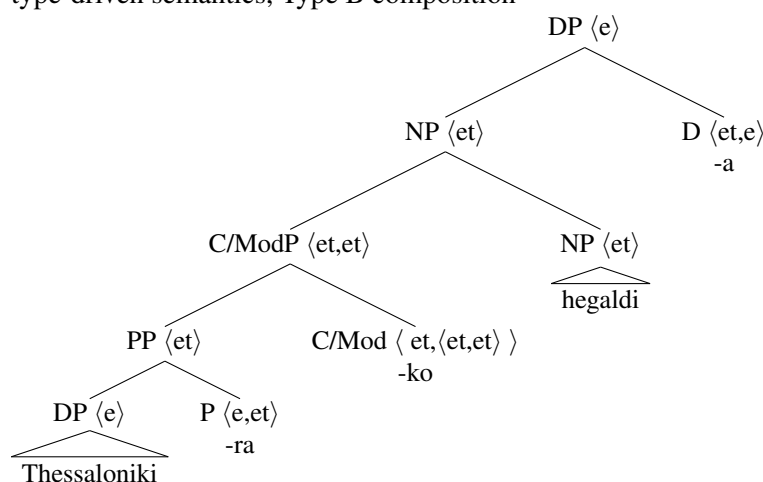**Type A** ...by means of Predicate Modification
  -ko as a flag for PM

Type B ...by means of Functional Application
  ⟦*-ko*⟧∼ λPλQλx.P(x)∧Q(x), cf. Rubin (2002)

Proposal
Adopt a Type B analysis in order to simplify the semantic component.

(21) type-driven semantics, Type B composition

Type B explains obligatority

Question
Why is the presence of *-ko* obligatory with attributive PPs?

Answer
If there is no PM-operation available in the interpretational component, the absence of the *-ko*-operator leads to type incompatibility at LF:

(22) *FA*([$_{PP,⟨\mathbf{et}⟩}$ Thessaloniki-ra], [$_{NP,⟨\mathbf{et}⟩}$ hegaldi]) → *???*

-ko yields proper type → composition by FA becomes possible:

(23) FA([$_{CP,⟨et,et⟩}$ Thessaloniki-ra-ko], [$_{NP,⟨et⟩}$ hegaldi]) → [$_{NP,⟨et⟩}$ Thessaloniki-ra-ko hegaldi]

Conclusion

- Basque *-ko* is/realizes a functional head at the top of attributive PP

- phrase adjoins to NP

- allows semantic composition by means of FA only

Gains

- tacks in with proposed typology of functional heads

- simplification of semantic component (reduction to FA)

Costs

- adjectives in Basque do not combine with *-ko*
  → basically of type ⟨et,et⟩ with mapping to ⟨et⟩ in predicative uses?
  cf. obligatority of *-a* for predicative adjectives

Open questions

- categorial identity: Mod or C?

- exact structural position of the operator (SplitCP á la Rizzi?)

- relation to other uses of *-ko* in Basque ("bare NP", finite and non-finite clauses); further semantic contribution of *-ko* for non-predicative attributes (24) – or a matter of pragmatics?

(24)   atzo-ko   egunkaria
       yesterday-KO newspaper.DET
       "yesterday's newspaper"   Hualde & Ortiz de Urbina (2003:144)

Some further questions

- relation to Basque relative clauses, headed by *-n*

- crosslinguistic relevance of structural differentiation of adverbial vs. adnominal PPs
    1. in other languages with obligatory overt linking strategies for PP attribution, e.g. Amharic, Farsi...
    2. in languages without ambiguously adverbial/adnominal PPs *viz.* in English, Greek, German... (empty heads, parametrization of semantic operations: PM vs. attributive linkers?)

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A   Relation between different instances of -ko

bare NP

(25) a. bihotz on
          heart   good

      b. bihotz on-eko   neska bat
          heart   good-AL girl   INDEF
          "a good hearted girl"

with an adverbial participle in *-ta* or *-(r)ik*

(26) a. erosi-ta
          buy-PART
          "having (been) bought"

      b. atzo   ni-k   erosi-ta-ko   luburu-a
          yesterday 1SG-ERG buy-PART-KO book-DET
          "the book I bought yesterday"

with (mostly temporal) finite adverbial clause

(27) a. izarr-a   agertu zitzaiene-an
          star-DET appear AUX.($COMP_{en}$)-LOC
          "when the star appeared to them"

      b. izarra agertu zitzaiene-ko   garai-an
                       AUX.($COMP_{en}$)-KO time-LOC
          "at the time when the star appeared to them"

with finite complement clause

- only before certain head nouns meaning "story, report, rumor" etc.

(28) a. hil dute-la
          kill AUX-$COMP_{la}$
          "that he has been killed"

      b. hil dute-la-ko   kontun-a
              AUX-$COMP_{la}$-AL report-DET
          "the report that he has been killed"

- *-ko* realizes a head (a class of heads) restricting reference to individuals (i.e. Struckmeier's R_4)

- *-ko* does not take [finite] complements

	[+case]	[-case]
EPP	participles	?
no EPP	bare NP	AdvP, PP; CP

Figure 2: Instances of -ko

R_4	[+case]	[-case]
[+ finite]	∅	*-an*
[- finite]	*-ko*	*-ko*

R_4	EPP	no EPP
[+ finite]	*-an*	∅
[- finite]	*-ko*	*-ko*

Figure 3: Relation of -ko to the relative marker - finiteness and case

Figure 4: Relation of -ko to the relative marker - finiteness and EPP