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Question 1: Are EAs equivalent to nouns?
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Semantic factors in the choice between ethnic adjectives and PP counterparts: Quantitative evidence

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A contrast and two questions

Two strategies for expressing participant roles with event nominalizations:

(1)   **French** agreement to participate in the negotiations

(2)   agreement **by France** to participate in the negotiations

Question 1: Are these two structures really interchangeable?
$\rightarrow$ This is what is expected according to the prevalent view that EAs are "nouns in disguise".

Question 2: Under what conditions are *French* and similar adjectives used?

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More on the data
Previous work and challenges

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Delimiting the data

The adjective variant generally involves so-called **relational** adjectives (Bally, 1944; Levi, 1978; Bosque and Picallo, 1996):

(3)   presidential, molecular, solar, cerebral, . . .

Our study is limited to a subclass of these, the so-called **ethnic** adjectives, or **EA**s (Alexiadou and Stavrou, to appear):

(4)   French, Spanish, American, South Korean, . . .

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Two basic uses for EAs

Thematic use:

(5)   **French** agreement to participate in the negotiations

Classificatory use:

(6)   **French** bread

See e.g. Bosque and Picallo (1996), though most theoretical work deals with the thematic use only.

- Previous work suggests a separate treatment of these two uses, whereas a unified solution might be preferrable.

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The theoretical issues these adjectives raise

- We must account for the apparent synonymy between French agreement and agreement by France . . .
  - . . . but it would be desirable to give a single semantic analysis of the EA in its two basic uses.

- The adjective has been claimed to saturate an argument of the nominalization . . .
  - . . . but adjectives generally *modify*, they don't *saturate*.

We provide quantitative evidence and theoretical discussion to shed light on these issues.

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Previous proposals

- Ethnic adjectives are nominal in nature (Levi, 1978; Fábregas, 2007; Alexiadou and Stavrou, to appear)
- For illustration: Alexiadou and Stavrou (A&S)
  - EAs "start out" as nouns in the syntax – the semantics "sees" the EA as a noun
  - They are true syntactic arguments, assigned the **agent** role by the nominalization they modify
    - EAs are syntactically base-generated in the position where agents are base-generated (Kayne, 1984)

$\rightarrow$ EAs are morphologically deficient nouns that become adjectives in the course of the syntactic derivation

Prediction: If EAs are covert nouns, we might expect them to behave like their PP counterparts

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Challenges

In A&S and other work on EAs and relational adjectives more generally,

- Claim 1: EAs are semantically equivalent to their nominal (PP) counterparts
    - → We will show that EAs modify different types of head nouns than their PP counterparts
- Claim 2: EAs are syntactic arguments of nominalizations
    - → We will show that EAs avoid modifying relational nouns
- We will address these claims to answer Question 1

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Data

- British National Corpus
- 49 country names: adjective/noun
  - list from Wikipedia
  - adjective (*French*) and proper noun (*France*) frequencies 1,000–30,000
- EA vs. PP examples, filtered as follows:
  - infrequent head nouns (< 25 occurrences)
  - country-specific head nouns (e.g., *reunification* for *German*), using entropy
- for some purposes 45 manually selected nominalizations were used

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Top concept ontology (TCO)

Source for noun types: Top Concept Ontology (Álvez et al., 2008)

- WordNet based resource
- Ontological category of nouns:

Concept	Descr.	Example
1stOrderEntity	object	*French wine* / *wine from France*
2ndOrderEntity	event	*French agreement* / *agreement by France*
3rdOrderEntity	abstract	*French idea* / *idea in France*

Table: Main categories in the TCO

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Type of head noun: general trends

Ratio Distribution over Concepts

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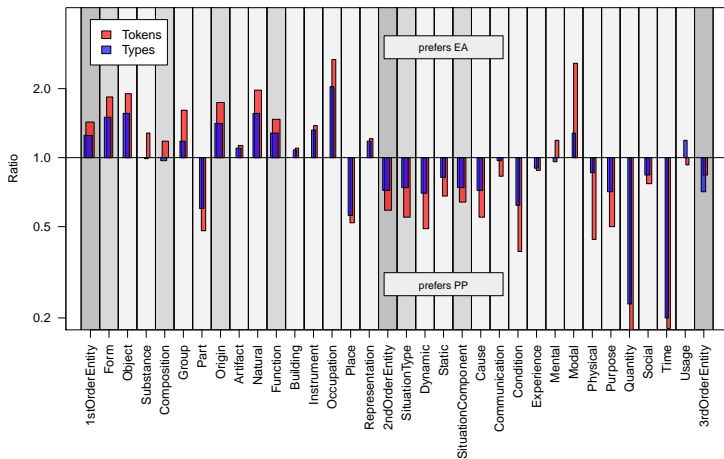
Type of head noun: exceptions to PP preference

Event-denoting nouns prefer PP

- exception:
  - **Modal**: *force*, *authority*, *power*, *influence*, *control*, *proposal*, *intelligence*, *passport*
- apart from *proposal*, these are not eventive words, though they are certainly abstract (except for *passport*)
- (inclusion in) category *Modal* is questionable

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Type of head noun: exceptions to EA preference

Object-denoting nouns prefer EA

- exceptions:
    - **Part**: *border*, *part*, *city*, *province*, *north*, . . .
    - **Place**: *territory*, *country*, *coast*, *region*, *side*, . . .
- relational nouns (part-whole, spatial)
    (7)   border with France, north of Italy, city near Germany

- nouns that function as appositions
    (8)   country of Spain

- EA version ok in some cases (9), not in others (10):
    (9)   Spanish border, Italian city
    (10)   #Italian north, #French part

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Type of head noun: nominalizations

- Pooled data for main categories (tokens):

Concept	EA	PP	Total	%EA	%PP
1stOrderEntity	13296	7752	21048	63.2	36.8
2ndOrderEntity	5667	8048	13716	41.3	58.7
3rdOrderEntity	1539	1528	3067	50.2	49.8

- effect even stronger if only nominalizations are considered:

	EA	PP	Total	% EA	%PP
nominalizations	482	1135	1617	29.8	70.2

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Discussion: EAs are not equivalent to nouns

- Ethnic adjectives and PP counterparts modify different types of nouns
  - EAs prefer object-denoting $>>$ event- or abstract-denoting head nouns
  - Classificatory $>>$ thematic use
- If the two constructions were interchangeable, we would not expect this difference
- $\rightarrow$ Therefore, EAs are **not** semantically equivalent to their nominal (PP) counterparts (against Claim 1)

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Discussion: EAs are not arguments

- EAs strongly avoid modifying relational nouns
  - Nominalizations
  - Other (Part, Place)
- If EAs were arguments, why shouldn't they freely combine with relational nouns?
- → EAs are **not** syntactic arguments of nominalizations (against Claim 2)
  - Adjectives cannot introduce referents, cannot saturate argument positions
  - EAs do not license anaphora (Postal, 1969):

    (11)   *The French$_i$ agreement to . . . They/It$_i$ . . .

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EAs are used for "stable relations"

- EAs are less explicit than their PP counterparts wrt. the semantic relation between head and modifier
- **Hypothesis**: The EA is licensed when the relation is clear either from background knowledge or the discourse context

  (12)   Background knowledge:
           A war has started in Spain . . .
           → *The war in Spain* . . .
           → *The Spanish war* . . .

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EAs are used for "stable relations"

(13)   Discourse context:
        . . . the prime minister added: "I can certainly confirm
        that **the decision in Denmark** is for the Danes and I
        see no external pressure being put on them; but it is a
        matter **for the Danes and for their Government to
        decide**." The problem was that in reality it was not so
        much the Danes who had to decide –they had already
        made up their minds– as the remainder of the EEC
        partners who had to face the consequences of **the
        Danish decision**. (BNC; McNally (2010))

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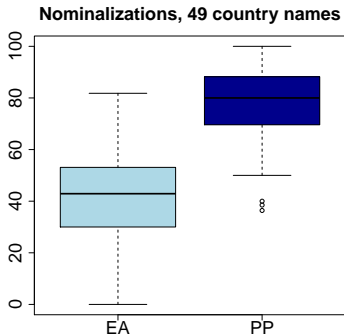## EAs are used for "stable relations"

Discourse context:

(14)   Yeltsin met the prospective Democratic presidential candidate Bill Clinton on June 18. His itinerary also included ??**an official Canadian visit**

(15)   Yeltsin met the prospective Democratic presidential candidate Bill Clinton on June 18. His itinerary also included **an official visit to Canada** (BNC; Arsenijević et al. (to appear))

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Explaining the data

- The hypothesis predicts that EAs appear with a narrower range of nominalizations than PP counterparts:

Country	EA	PP	Union	% EA	%PP
France	15	30	34	44.1	88.2
Germany	17	26	32	53.1	81.3
Japan	12	23	28	42.9	82.1
. . .					

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EAs appear with a limited set of nominalizations

Nominalizations, 49 country names

Paired *t*-test, *p*-value $< 10^{-8}$

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EAs appear with a limited set of nouns

- What if we look at **all** head nouns?
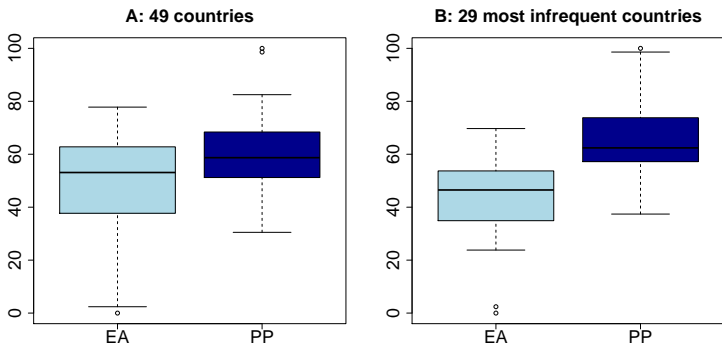
Paired *t*-test, *p*-value: A < 0.05, B < 0.001

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Frequent vs. infrequent countries

- Frequent countries: more relation with UK, more established relations $\rightarrow$ higher use of EA

Position	Country	EA	PP	log(EA/PP)
2	Germany	3400	2104	0.48
3	Ireland	3367	1827	0.61
	. . .			
28	Mexico	406	382	0.06
29	Romania	396	368	0.07
	. . .			
48	Jordan	140	249	-0.58
49	Thailand	107	206	-0.66

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Use of EAs and PPs vs. frequency of the country
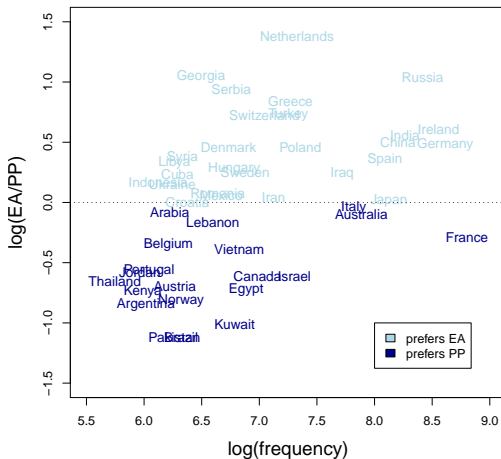
Correlation test (Spearman): ρ=0.46, *p*-value=0.001

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Discussion: EAs for stable semantic relations

- Our data supports the hypothesis that EAs are used for "stable semantic relations", that is, relations that are established
  - in the background knowledge of the speaker and the hearer; or,
  - in the discourse context previous to the mention of the EA.
- Two factors:
  - Less lexical material to indicate the relation.
  - Ethnic adjectives denote *individual*-level properties, thus stable properties.

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One or two lexical entries?

- Claims 1 and 2 above lead
  - Fábregas (2007) to posit that EAs are defective nouns (both thematic and classificatory uses)
  - Alexiadou and Stavrou (to appear) to posit that thematic EAs and classificatory EAs are merely homophonous
- Challenging them, and examining further the conditions for EA licensing, leads us to posit that EAs are adjectives
  - $\rightarrow$ Uniform analysis for thematic and classificatory uses (Arsenijević et al., to appear)

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Unified semantic representation

- Semantic analysis based on McNally and Boleda (2004)
- EAs are intersective modifiers of kinds

(16) 〚French wine〛:
$\lambda x_k \lambda y [\mathbf{R}(y, x_k) \wedge \mathbf{wine}(x_k) \wedge R(x_k, \mathbf{France})]$

(17) 〚French discovery〛:
$\lambda x_k \lambda y [\mathbf{R}(y, x_k) \wedge \mathbf{discovery}(x_k) \wedge R(x_k, \mathbf{France})]$

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The *R* relation: **Origin**

- In classificatory uses of EAs, a head noun is subclassified according to the **Origin** of the head noun in one country

  (18)   *French bread*, *Italian style*, *German student*

$\rightarrow$ For EAs the *R* relation is **Origin**:

  (19)   **Origin**(x, y) iff x comes into existence within the spatial domain of y.

- Consistent with use as predicates of individuals:

  (20)   Guillaume is French

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Origin for thematic use

- Event nouns modified by EAs generally describe types of eventualities (Grimshaw, 1990; Van de Velde, 2004).

- Eventualities have as their origins the individuals who cause, initiate, or control them.

- Correct prediction: not only agents (Kayne, 1984; Alexiadou and Stavrou, to appear) (21), but also certain nonagents (22)

  (21)   the Italian attack on Ethiopia

  (22)   the British arrival on the American continent in the 17th century (THEME; UNACCUSATIVE)

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Origin for thematic use

- Analysis further explains:

(23)   the French disappearance from Upper Louisiana
         (THEME; CONTROL)

(24)   ??the French disappearance from the list of nations that
         haven't approved the treaty (THEME; NO CONTROL)

(25)   the Italian love for opera (EXPERIENCER; PSYCH.
         PREDICATE)

- Analysis does not explain:

(26)   the Italian table
         *=table such that the majority of people sitting at it are
         Italian* (L. McNally, p.c.)

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Discussion: Semantic analysis

Semantic analysis explains

- thematic and classificatory uses of EA
- similarities between EA and PP:

(27)   〚French〛: $\lambda P_k \lambda x_k \lambda y[\mathbf{R}(y, x_k) \wedge P_k(x_k) \wedge R(x_k, \mathbf{France})]$

- many of the phenomena that lead to the nominal account
  - predominant agentive interpretation for nominalization modifiers
- EAs' "allergy" to nominalizations (not arguments)

It does not explain

- non-**Origin** uses of EAs (*Italian table*)
- use of EA > PP for established relations

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Conclusions

- We have shown that EAs
  - modify different types of head nouns than their PP counterparts
  - avoid modifying nominalizations
  - appear with a narrow set of head nouns, compared to their PP counterparts
  - are used more for established semantic relations
- Explanatory hypothesis: EAs are licensed by background knowledge or discourse anaphora

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Conclusions

- Our research
    - suggests that an analysis of EAs as "nouns in disguise" is not adequate
    - supports a unified semantic analysis of the classificatory and thematic uses of EAs which treats them as proper adjectives
- We propose one such account, in which EAs
    - are properties of kinds involving the **Origin** relation
    - are not proper arguments,
        - but the argument-like interpretation arises when EAs modify event nominals as a result of the interaction between the semantics of the adjective and that of the noun

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Future work

- EAs likely to occur in collocations / multi-word expressions
  - analyze the relation between EA constructions and collocations
  - use a collocation index to assess "establishedness of relations"

- Explore relation between attributive and predicative uses

  (28)   Guillaume is French

  (29)   This chair is Italian

  (30)   #This kind of chair is Italian

  (31)   #The agreement was French

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Van de Velde, Danièle. 2004. A linguistic answer to a philosophical question: Are events generic and repeatable, or irreducibly particular? Ms. University of Lille 3.

Details of A&S's analysis

(32) germaniki epithesi
      German   attack
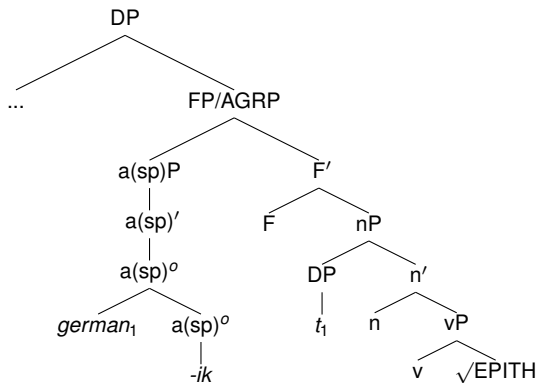
A&S's predictions

- The adjective must denote an agent (Kayne, 1984).
    - $\rightarrow$ It is syntactically base-generated in the position where agents are base-generated.
- EAs are not gradable and cannot be coordinated with 'normal' adjectives, but only with other EAs.

    (33)   *French and strong agreement.

    - $\rightarrow$ EAs are not proper adjectives but rather nouns underlyingly.
- EAs do not license anaphora (Postal, 1969).

    (34)   *The French$_i$ agreement to … They/It$_i$ …

    - $\rightarrow$ The underlying noun is morphologically deficient and is spelled out as an adjective.

Problems with A&S's analysis I: EAs as agents

- Our corpus study shows that EAs do not necessarily relate to agents.
    - Examples: *the Vietnamese arrivals*, *our French investment*, *the Indian debate*
- A&S themselves claim that the nominalizations combining with EAs in Greek lack argument structure (Grimshaw, 1990).
- → Therefore, (1) cannot be a **real** argument saturating use.

Problems with A&S's analysis II: coordination, gradability, and anaphora

- There are other adjectives that do not coordinate freely, and many are not gradable (McNally and Boleda, 2004; Gehrke and McNally, to appear, and references therein)
- Lack of anaphora to EAs is expected without assuming that they are underlying nouns.
- → Therefore, the gradability, coordination, and anaphora facts are independent factors