



The Causative Continuum Revisited: A multifactorial analysis of causative constructions in European languages

Natalia Levshina
F.R.S. – FNRS
Université catholique de Louvain

Outline

1. The Causative Continuum and iconicity
2. Testing iconicity: a probabilistic space of causatives in 12 European languages
3. Frequency vs. iconicity: a case study of causatives in British English
4. Conclusions

Causative situations

The strong wind caused the tree to fall.



Causing event



Caused (effected) event

Some Causative Constructions

Complex
clauses

Analytic
causatives

Morphological
causatives

Lexical
causatives



Syntactic integration of causing and caused events

Some Causative Constructions

- *His parents made it so that he went to the concert.*

Causing event

Caused event

Complex
clauses

Analytic
causatives

Morphological
causatives

Lexical
causatives



Syntactic integration of causing and caused events

Some Causative Constructions

- *His parents **made** him **go** to the concert.*

Complex
clauses

Analytic
causatives

Morphological
causatives

Lexical
causatives



Syntactic integration of causing and caused events

Some Causative Constructions

- Japanese:

ik-ase-ta

go-CAUSE-PAST

“made go”

Complex
clauses

Analytic
causatives

Morphological
causatives

Lexical
causatives



Syntactic integration of causing and caused events

Some Causative Constructions

- *His parents **sent** him to the concert.*

Complex
clauses

Analytic
causatives

Morphological
causatives

Lexical
causatives



Syntactic integration of causing and caused events

Iconicity

Study	Less integrated/compact causative	More integrated/compact causative
Givón (1980)	Lower degree of semantic binding between 2 events	Higher degree of semantic binding between 2 events
Comrie (1981; 1989)	Indirect causation Higher control of Causee	Direct causation Lower control of Causee
Haiman (1983; 1985)	Greater conceptual distance between Cause and Result	Smaller conceptual distance between Cause and Result
Givón (1990)	Human-Agentive Manipulee	Inanimate Manipulee

Some problems

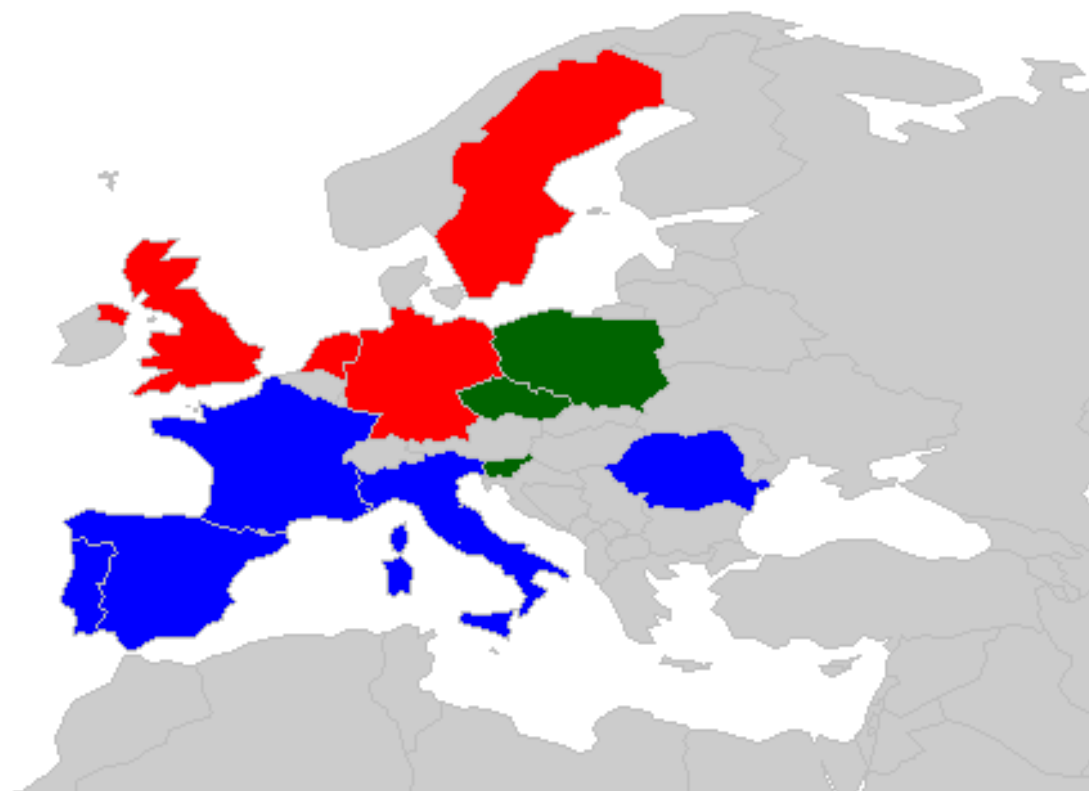
- Based on selected examples, not supported statistically
- Conceptual cohesion (directness, binding, etc.) is a very evasive semantic notion, which is difficult to operationalize with the help of objective criteria.

A methodological proposal

- Create a probabilistic semantic map based on tokens of causative constructions in different languages (cf. Wälchli & Cysouw 2012)
- Plot the language-specific causative constructions onto this map and explore the form-meaning mappings in the languages.

PROBABILISTIC SPACE OF EUROPEAN CAUSATIVES

Languages



.srt format

...

646

00:51:27,880 --> 00:51:32,920

*For always evil will look to
find a foothold in this world.*

647

00:51:39,440 --> 00:51:42,603

Not good. Not good at all.

648

00:51:50,040 --> 00:51:51,326

Eww.

649

00:52:06,760 --> 00:52:09,081

Oh, no. Sebastian.

650

00:52:12,800 --> 00:52:13,847

Good gracious.

651

00:52:34,720 --> 00:52:35,767

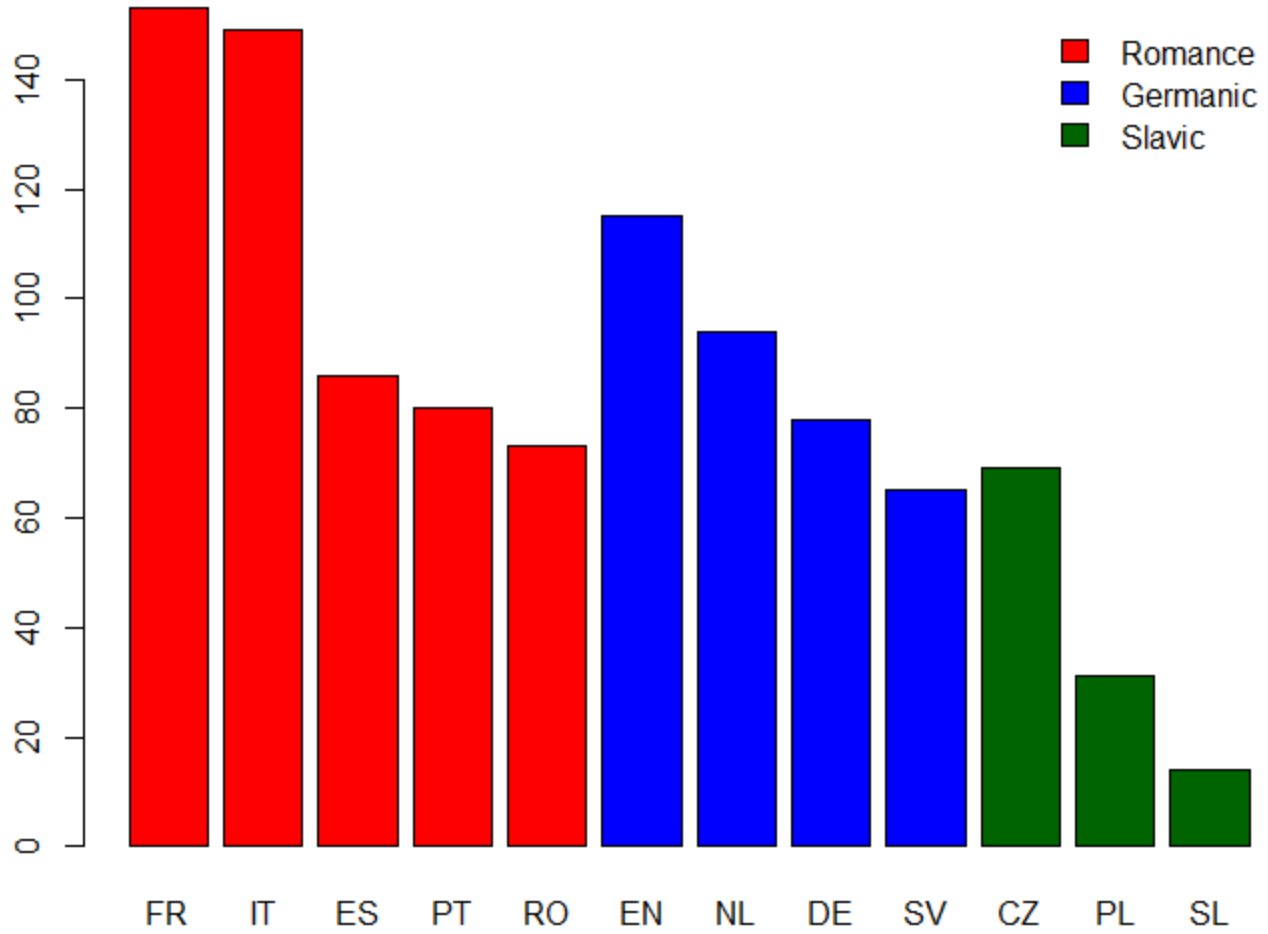
Come on.

...

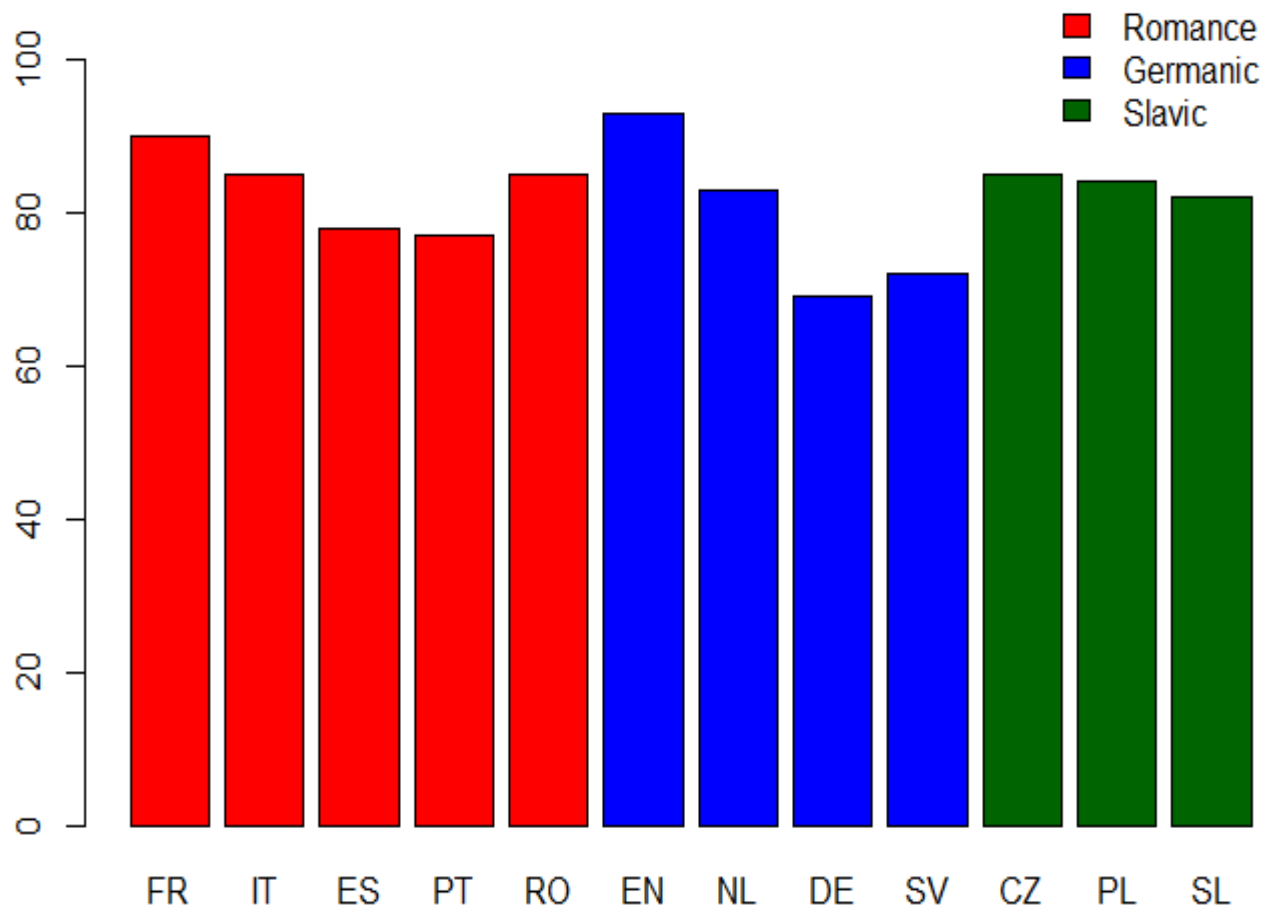
Data set (1)

- all contexts with analytic causatives in every language from the set
- random samples of equal size to extract lexical causatives from each film

Frequencies of periphrastic causatives



Frequencies of lexical causatives



Data set (2)

- 508 parallel multilingual contexts (Jörg Tiedemann's alignment software subalign)
- Every context is coded for fine-grained Cx types

Fine-grained constructional types

- ACs with various auxiliaries (e.g. *lassen* + V, *fazer* + V)
- Lexical causatives (transitives and ditransitives)
- Causative verb + Clause (e.g. *dejar* + *que*)
- Causal prepositions (*because of*)
- Causal and resultative subordinate clauses
- Resultative cxs, e.g. *make* + Adj
- Modals
- Particles (*niech* in Polish)
- Reflexives
- Insubordination (*que* + Subj)
- ...

Matrix

	FR	EN	DE	ES	NL	SV	IT
1	faire_V	Trans	Trans	Trans	Trans	Trans	fare_V
2	faire_V	Trans	NA	Trans	Trans	Trans	fare_V
3	faire_V	have_Ved	lassen_V	Trans	Trans_Pass	Trans	fare_V
4	faire_V	Trans	lassen_V	hacer_V	Trans	Trans	fare_V
5	laisser_V	let_V	lassen_V	dejar_V	laten_V	lata_V	fare_V
6	faire_V	ResClause	NA	CausClause	ResClause	ResClause	fare_V
7	faire_V	NA	NA	NA	NA	NA	fare_V
8	faire_V	Trans_Pass	NA	Trans	Trans_Pass	Trans_Pass	fare_V
9	empêcher_de_V	make_V	lassen_V	NA	doen_V	fa_att_V	NA
10	faire_V	have_Ved	lassen_V	Refl	laten_V	NA	NA
11	faire_V	NA	Trans_Pass	TransPass	NA	NA	fare_V
12	NA	Trans	lassen_V	hacer_V	Trans	Trans	fare_V
13	faire_V	NA	Trans	Trans	NA	Trans	fare_V
14	NA	Trans	NA	NA	Trans	fa_att_V	NA
15	faire_V	Trans_Pass	Trans_Pass	NA	Trans_Pass	NA	fare_V
16	laisser_V	Trans	NA	dejar_V	Intrans	Intrans	fare_V
17	faire_V	NA	lassen_V	NA	NA	NA	fare_V
18	faire_V	Trans_Pass	lassen_V	TransPass	Trans_Pass	Refl	fare_V
19	laisser_V	let_V	lassen_V	dejar_V	laten_V	lata_V	lasciare_V
20	laisser_V	let_V	lassen_V	dejar_V	laten_V	lata_V	lasciare_V
21	Trans	Trans	lassen_V	Trans	laten_V	NA	Trans
22	Trans	Trans	lassen_V	Trans	laten_V	NA	Trans

Gower's Distances

Situation (row) A

EN: And we make them do it... ..or we kill them. **make_V**

IT: E glielo facciamo fare ... o lo uccidiamo. **fare_V**

CZ: Donutíme je to udělat, nebo je zabijeme. **donutit_V**

Situation (row) B

EN: Pick up someone my height and build and make them believe it is me. **make_V**

IT: Individua una della mia corporatura e fa credere loro che sia io. **fare_V**

CZ: Vyber někoho, kdo je mi podobný a přesvědč je, že jsem to já. **Trans**

$$\text{Distance (A, B)} = 1 - 2/3 \approx 0.33$$

Statistical analysis

- Multidimensional Scaling of the distance matrix.

Statistical analysis

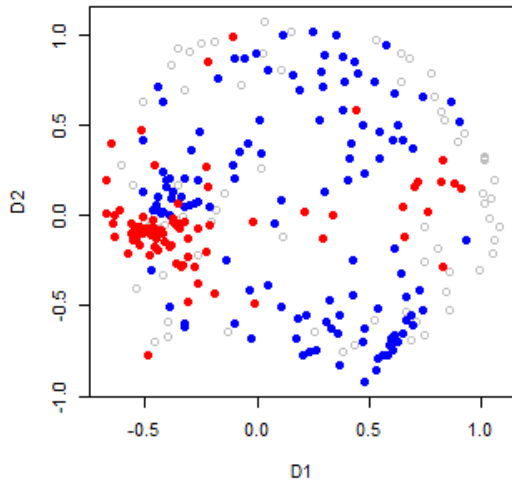
- Multidimensional Scaling of the distance matrix.
- The main principle: the closer two points on the map, the more overlapping constructions they share across the languages. From the isomorphism principle it follows that the corresponding situations are more semantically similar (on average), since more authors of the doculects chose identical constructions to represent these causative situations.

Statistical analysis

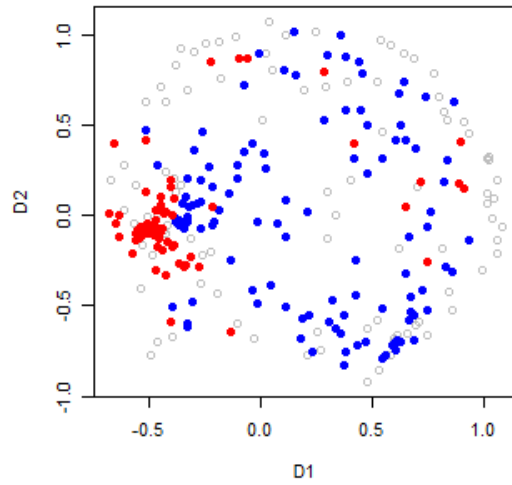
- Multidimensional Scaling of the distance matrix.
- The main principle: the closer two points on the map, the more overlapping constructions they share across the languages. From the isomorphism principle it follows that the corresponding situations are more semantically similar (on average), since more authors of the doculects chose identical constructions to represent these causative situations.
- The result is a **probabilistic semantic map** (Wälchli & Cysouw 2012).

Romance

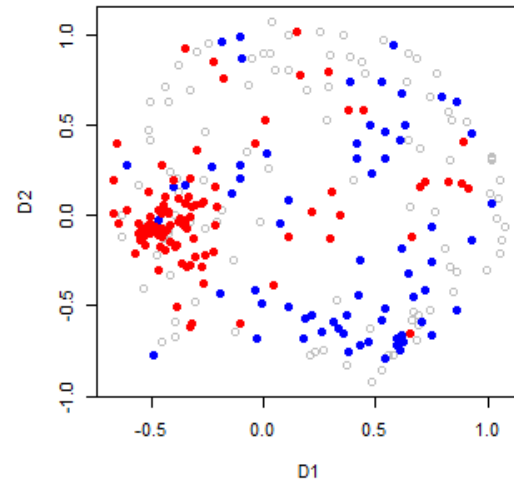
French



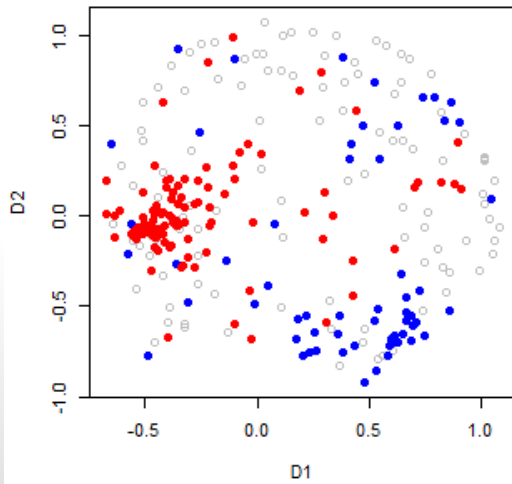
Italian



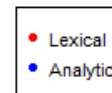
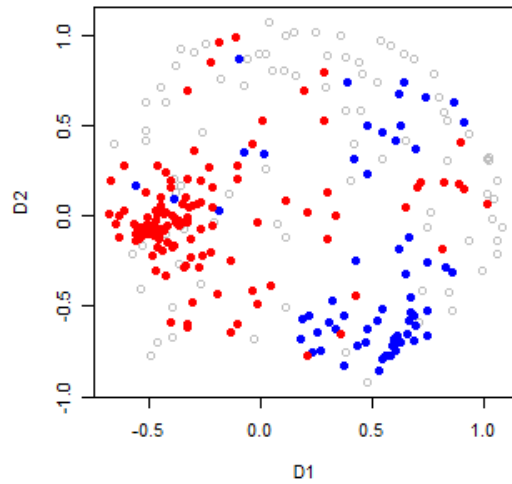
Spanish



Portuguese

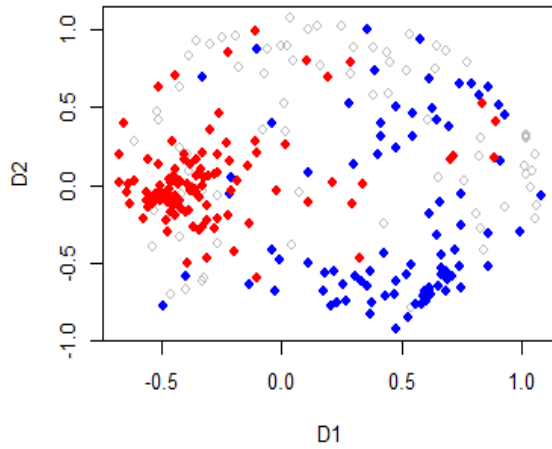


Romanian

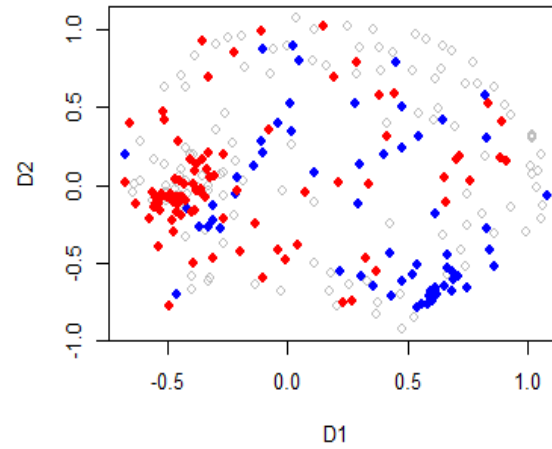


Germanic

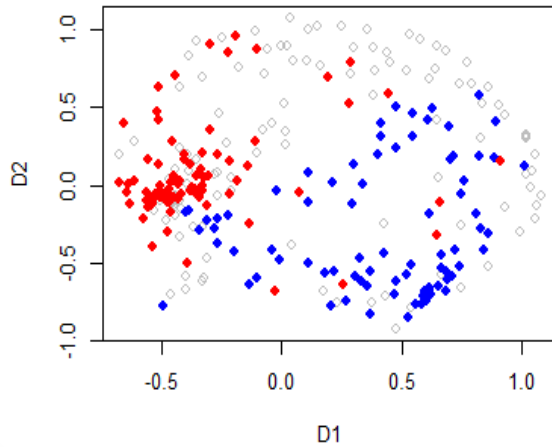
English



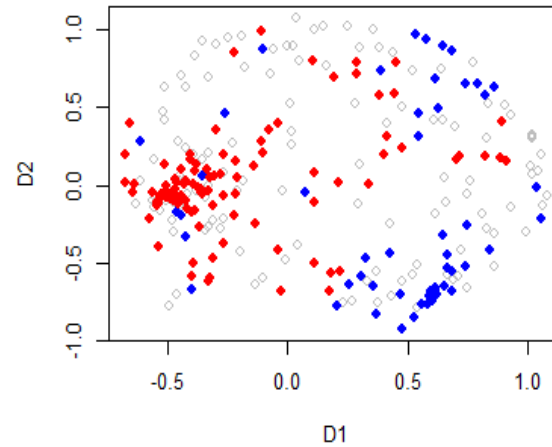
German



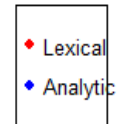
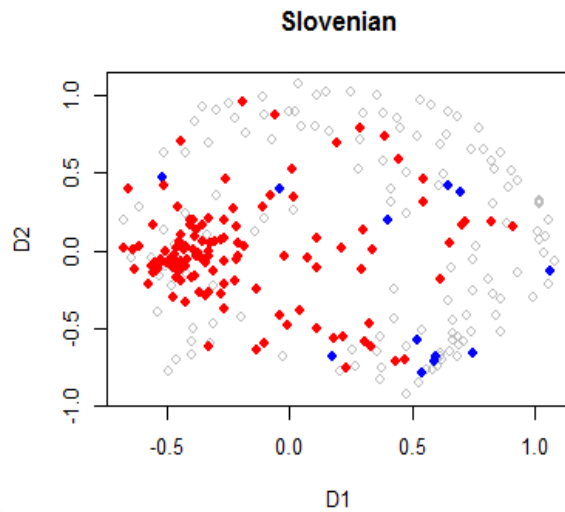
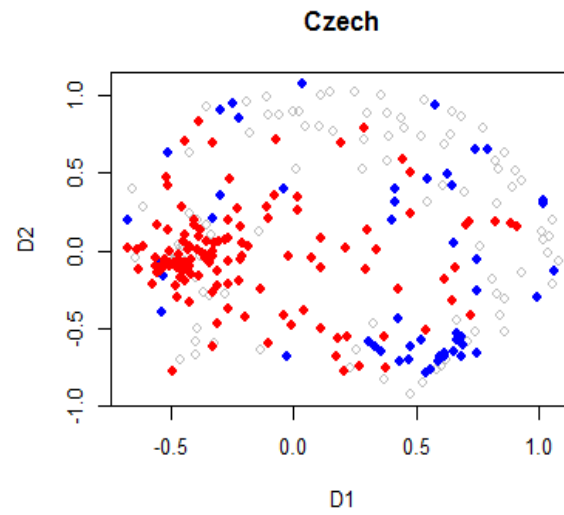
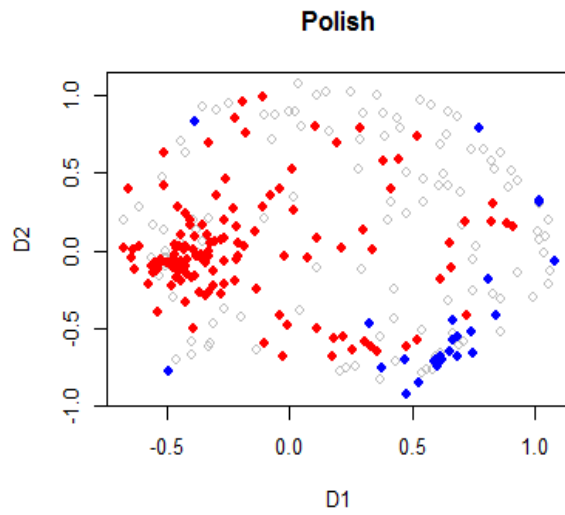
Dutch



Swedish



Slavic



Interim conclusions

- Across the languages, **lexical** causatives typically express direct (volitional) causation, which involves an active Causer and a passive Causee.

Interim conclusions

- Across the languages, **lexical** causatives typically express direct (volitional) causation, which involves an active Causer and a passive Causee.
- **Analytic** causatives typically express letting (especially permission and non-impingement), which involves a high degree of Causee's autonomy and a relatively passive Causer.

Interim conclusions

- Across the languages, **lexical** causatives typically express direct (volitional) causation, which involves an active Causer and a passive Causee.
- **Analytic** causatives typically express letting (especially permission and non-impingement), which involves a high degree of Causee's autonomy and a relatively passive Causer.
- In spite of much variation, the most typical uses of lexical and analytic causatives correspond to the uses that one could predict on the basis of the iconicity hypothesis, although the making/letting distinction is a special “shade” of (in)directness.

FREQUENCY VS. ICONICITY

Frequency vs. iconicity

- Haspelmath (2008) suggests an alternative explanation: causatives representing indirect causation are longer than causatives that denote direct causation because the former are less frequent than the latter (Economy principle). No resort to iconicity is necessary.

Frequency and economy

Kanzler (m) – Kanzlerⁱⁿ (f)



widow (f) – widow^{er} (m)



Data

- BNC XML edition
- Parsed by Stanford Parser
- 264 analytic causatives with auxiliaries MAKE, HAVE, CAUSE and almost 130K lexical causatives (transitives) that represent the following pairs:

Alternating pairs

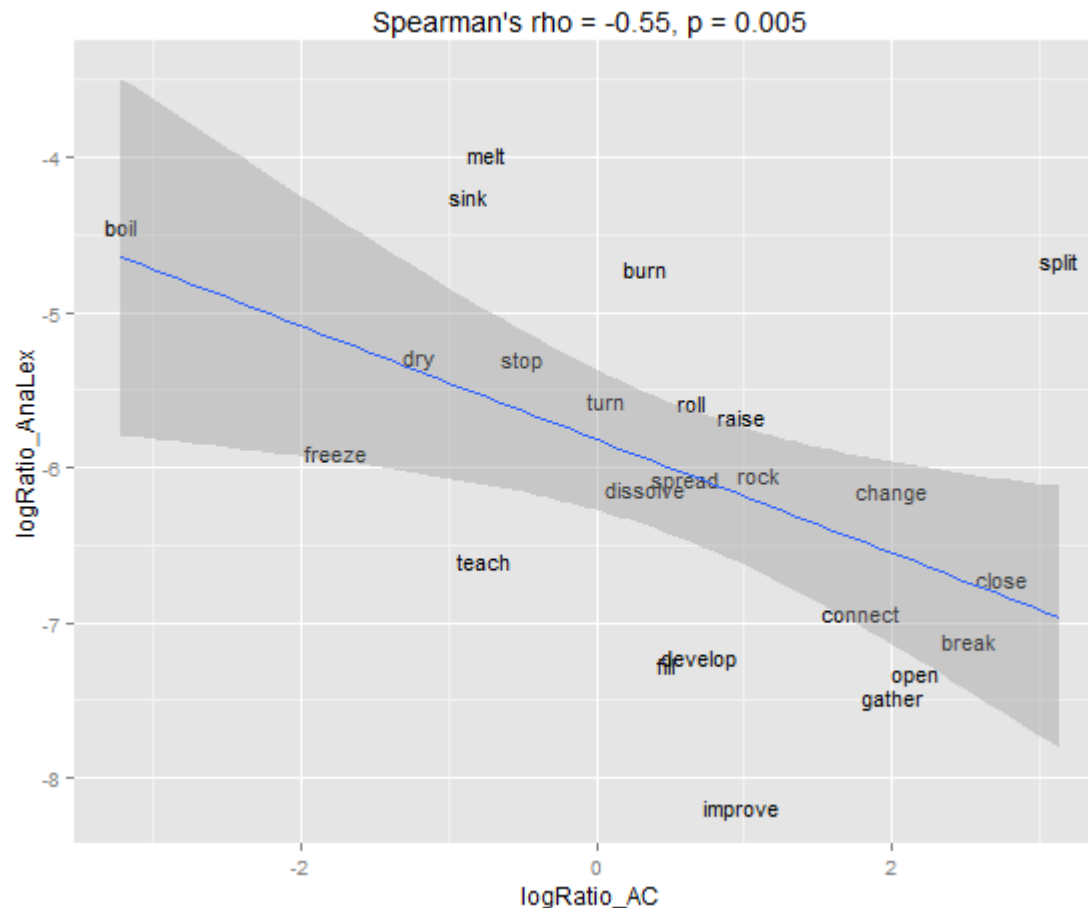
- CAUSE + boil (intr.)/boil (tr.)
- CAUSE + break (intr.)/break (tr.)
- CAUSE + burn (intr.)/ burn (tr.)
- CAUSE + change (intr.)/change (tr.)
- CAUSE + close (intr.)/ close (tr.)
- CAUSE + connect (intr.)/ connect (tr.)
- CAUSE + develop (intr.)/develop (tr.)
- CAUSE + dissolve (intr.)/dissolve (tr.)
- CAUSE + dry (intr.)/dry (tr.)
- CAUSE + fill (intr.)/fill (tr.)
- CAUSE + freeze (intr.)/freeze (tr.)
- CAUSE + gather (intr.)/gather (tr.)
- CAUSE + improve (intr.)/improve (tr.)
- CAUSE + die (intr.)/kill (tr.)
- CAUSE + melt (intr.)/melt (tr.)
- CAUSE + open (intr.)/open (tr.)
- CAUSE + rise (intr.)/raise (tr.)
- CAUSE + rock (intr.)/rock (tr.)
- CAUSE + roll (intr.)/roll (tr.)
- CAUSE + sink (intr.)/sink (tr.)
- CAUSE + split (intr.)/split (tr.)
- CAUSE + spread (intr.)/spread (tr.)
- CAUSE + stop (intr.)/stop (tr.)
- CAUSE + learn (intr.)/teach (tr.)
- CAUSE + turn (intr.)/turn (tr.)

Based on pairs of verbs from Haspelmath (1993)

Analytic/Lexical ratio in BNC

PAIR	ANALYTIC	LEXICAL	RATIO
CAUSE melt (intr.) /melt (tr.)	6	321	0.019
CAUSE sink (intr.) /sink (tr.)	7	488	0.014
CAUSE boil (intr.) /boil(tr.)	4	339	0.012
...
CAUSE open (intr.) /open (tr.)	7	10568	0.0007
CAUSE gather(intr.) /gather (tr.)	1	1754	0.0006
CAUSE improve (intr.) /improve (tr.)	2	7221	0.0003

Correlation with AC ratio (Haspelmath 1993)



Interpretation

- The frequency differences in Analytical/Lexical ratios between the pairs correspond to the degree of spontaneity and autonomy of the caused event and of the direct intervention on the part of the Causer.

Interpretation

- The frequency differences in Analytical/Lexical ratios between the pairs correspond to the degree of spontaneity and autonomy of the caused event and of the direct intervention on the part of the Causer.
- This correlation seems to support the iconicity account.

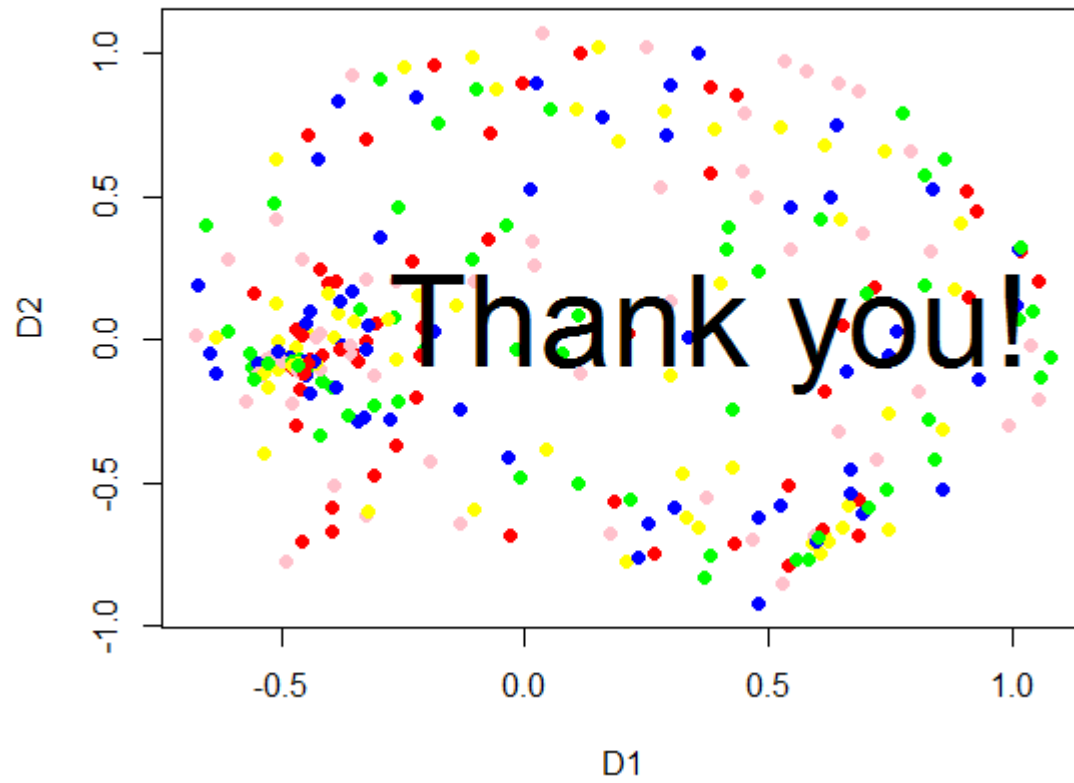
CONCLUSIONS

Conclusions

- The iconicity factor constrains the use of causative constructions in 12 European languages in terms of directness and indirectness of causation expressed most prominently as ‘making’ and ‘letting’.

Conclusions

- The iconicity factor constrains the use of causative constructions in 12 European languages in terms of directness and indirectness of causation expressed most prominently as 'making' and 'letting'.
- The relative frequencies of analytic vs. lexical causatives in the BNC correlate with the degree of the autonomy of the caused event. Although further research is needed to disentangle economy factors related to length, on the one hand, and the role of iconicity in terms of conceptual cohesion, on the other hand, it seems that these factors do not exclude each other.





Mixed logistic model

	Estimate	p-value
(Intercept)	-0.4593	0.354
CrSem = Inanim	2.655	< 0.001***
CeSem = Inanim	-1.029	0.027*
CeControl=Yes	1.615	0.012*
Possess = Yes	-2.448	0.003**
Polarity = Neg	-1.386	0.018*

Coref: n.s.
C = 0.903

Discussion

- A supporting argument: the pairs with high Analytical-Lexical ratios reflect more 'spontaneous' events (based on cross-linguistic similarities in causative and anticausative alternations in Haspelmath 1993).

Data set

- All instances of analytic causatives with the intransitive verbs (264 obs.)
- An equal random sample of lexical causatives

Variables

- *CrSem*: semantics of the Causer (animate, inanimate, undef.)
- *CeSem*: semantics of the Causee (animate or inanimate)
- *Coref*: coreferentiality between the Causer and other participants (yes or no)
- *Possess*: marked possession relationships between the Causer and other participants (yes or no)
- *Polarity*: positive or negative
- *CeControl*: whether the Causee acts agentively (yes, no, undef.)
- *Ratio*: the log-transformed Analytic/Lexical ratio for every pair
- *Pair*: random effects

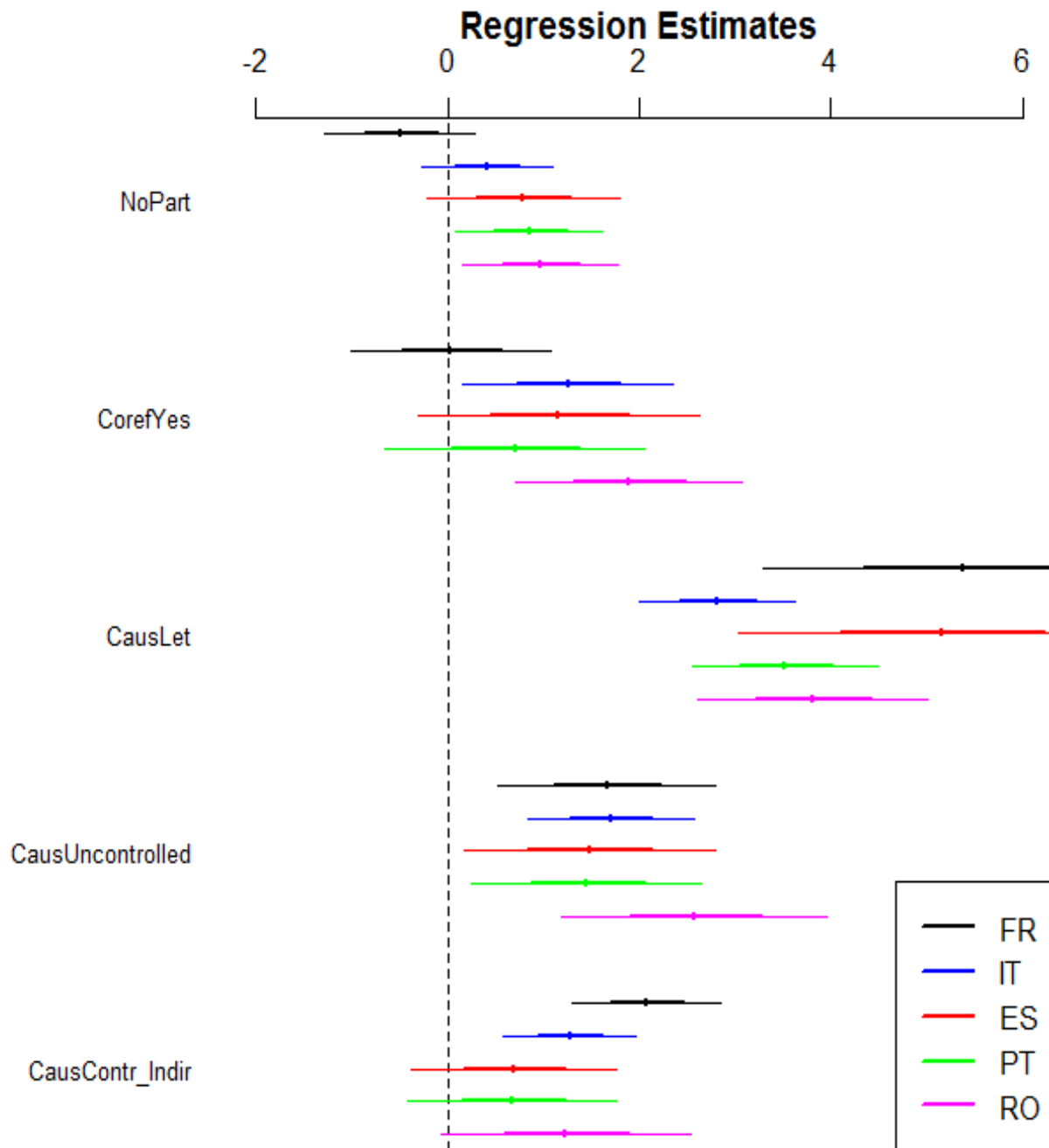
Mixed logistic model: fixed main effects

	Estimate	p-value
(Intercept)	5.53	< 0.001***
Log(<i>Ratio</i>)	1.05	< 0.001***
<i>CrSem</i> = Inanim	1.52	< 0.001***
<i>CrSem</i> = Undef	1.78	0.025*
<i>CeSem</i> = Inanim	-0.49	0.17
<i>CeControl</i> = Yes	1.615	< 0.001***
<i>CeControl</i> = Undef	1.15	0.082.
<i>Possess</i> = Yes	-2.68	0.002**
<i>Polarity</i> = Neg	-1.39	0.016*

Coref: n.s.
C = 0.9

ROMANCE

$C > 0.77$



GERMANIC & CZECH

$C > 0.89$

