

ICLC 11 Xi'an, China

A CORPUS-BASED APPROACH TO ENGLISH DITRANSITIVE CONSTRUCTION: THE CAUSAL RELATION OF TWO EVENTS

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1. Introduction

English ditransitive construction

- (1) a. I cooked Rosie dinner [ICE-GB S1A-048]
- b. You should give us an idea of how you're going to tackle that [ICE-GB S1B-007]

English *to*-dative construction

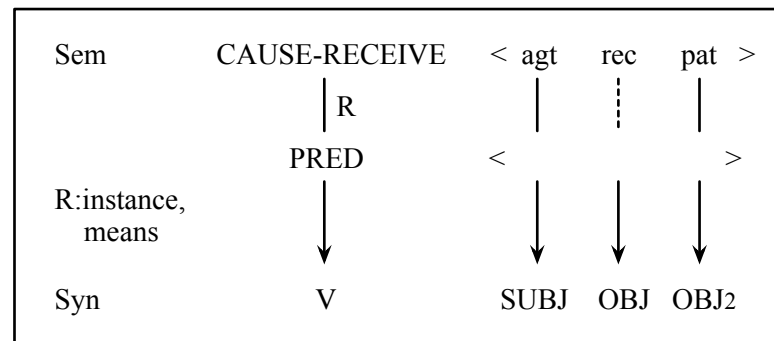
- (2) a. I lent a book to Jill Yeats 's daughter [ICE-GB S1A-013]
- b. the Society is offering continuing membership to undergraduates leaving this summer [ICE-GB W1B-016]

1. Introduction

Theoretical Framework: Construction Grammar

(3) She brought the boarder/*the border a package.

(Goldberg 1995: 142)



[The ditransitive construction's] central sense is argued to involve **transfer** between a volitional agent and a willing recipient.

(Goldberg 1995: 141)

1. Introduction

Main argument of this study

- Central meaning of English ditransitive construction resides in the fact that it represents causal relation of two events.
- Transfer of theme NP referent is rather incidental than essential.

Corpus survey

- Do argument role identification on ICE-GB corpus data and conduct statistical tests on them
- Make observations on linguistic data of young children and their caregivers in CHILDES.



Corpus data can be beneficial not only for eliciting distributional facts but also for providing support to theoretical works.

(cf. Stefanowitsch and Gries 2003; Bresnan et al. 2007; Baayen 2008)

2. Transfer in Ditransitive Construction

Ditransitive construction with “reverse” transfer

“Transfer” implies a movement of object from place A to place B, physically or metaphorically, but there are cases in which the object goes away from B.

- (4) a. These policies will lose him his seat and his government power
[ICE-GB S1B-056]
- b. But uhm anyway I’m uh I’m just about uh seeing the light at the other side at the moment but it’s taken me a hell of a long time.
[ICE-GB S1A-096]
- c. It costs you a lot more than half the amount [ICE-GB S1B-080]

2. Transfer in Ditransitive Construction

Ditransitive construction without a transfer

There are cases in which B is the place where the object first comes into being.

- (5) a. And that now earns Manchester United another corner kick away on that far side their left [ICE-GB S2A-003]
- b. His gentle, unemotional and statesmanlike handling of the conflict has earned him a popularity rating in the opinion polls higher than that of any leader since Churchill [ICE-GB W2E-001]
- c. Well it 's it's going to save us a hell of a lot of time because we can take all the details off the computer [ICE-GB S1B-080]

2. Transfer in Ditransitive Construction

Colleman and De Clerck (2008)

- (7) a. She'd always envied Mandy her wonderful looks and her voluptuous compact figure. [BNC JY6289]
- b. I could forgive her anything when she came to say she was sorry. [BNC GWH292]

[Ditransitive clauses involving *envy* and *forgive*] can be described as combining (i) a metaphorical extension from material to abstract transfers with (ii) a shift in direction from a transfer towards the indirect object to a transfer away from the indirect object and/or (iii) an extension from the actual causation of a possessional transfer to an attitude towards such a transfer.

(Colleman and De Clerck 2008: 202)

2. Transfer in Ditransitive Construction

Goldberg (2002)

- (8) a. Mina refused Mel a book.
(Mina caused Mel not to receive a book)
- b. Mina cost Mel his job.
(Mina causes Mel to lose his job)

...it is clear that both the negation and the antonym of a particular concept are closely associated with that concept. For example, a concept and its antonym typically serve as strong associates for one another in psycholinguistic studies: e.g., *hot*, primes *cold*, *high* primes *low*, and *giving* primes *taking away*.

(Goldberg 2002: 333)

2. Transfer in Ditransitive Construction

A mentalist view of causal relationships

The image schema of causal relationship between events is as fundamental as that of transfer.

⇔ “causal events as transfer” metaphor

“Causality” here does not necessarily implies a second event that is *really* happening or has already happened. It suffices that the latter can get a mental representation as a result of evoking the first event described by the verb.

The ditransitive construction needs not describe two events sequentially taking place in the outside world, rather it is characterized by a first event naturally evoking a mental image of a second event (or any kind of relational image as in the case of *envy*).

2. Transfer in Ditransitive Construction

Varieties of ditransitive theme NPs

- (9) a. I was going to get you an Arabic rug you know
[ICE-GB S1A-048] *physical entity*
- b. you can give everyone a runtime version of it
[ICE-GB S1A-029] *physical entity*
- (10) a. Are they going to pay you lots and lots of money?
[ICE-GB W1B-009 095] *one's property*
- b. A lightweight radio has saved the Norwegians more than twenty pounds [ICE-GB S2B-024] *one's property*
- (11) a. He showed me a great deal of love
[ICE-GB S1B-049] *abstract entity*
- b. Well then you 'll have to give me some sort of topic to talk about
[ICE-GB S1A-038] *abstract entity*

2. Transfer in Ditransitive Construction

Varieties of ditransitive theme NP

Act type theme NP

- (12) a. I haven't given it much thought [ICE-GB S1A-059]
b. So I 'll do you a copy [ICE-GB S1A-099]
c. So I 'm all I 'm I might you know I get uh I give it the
entertainment vote the same as everybody else
[ICE-GB S1B-024]

State type theme NP

- (13) a. it gave us more than, more than a hundred per cent speed
improvement [ICE-GB S1A-029]
b. Coastal shipping gave England an industrial lead
[ICE-GB S2B-022]
c. That will give the panel a chance to expand on what they 've
been saying [ICE-GB S1B-036]

2. Transfer in Ditransitive Construction

Metaphorical extension of transfer in *to*-dative construction

Act type theme NP

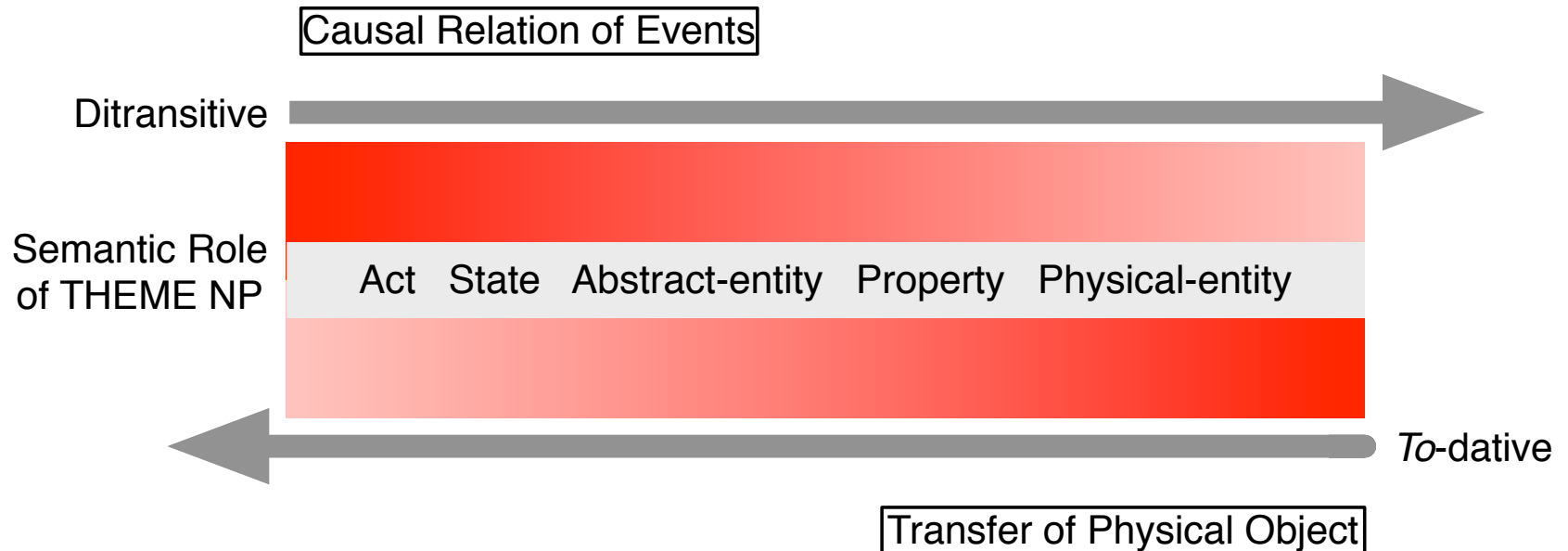
- (14) a. Maybe she did do something to it [ICE-GB S1A-009]
b. Considering the organisation as a political system directs attention (among other areas) to the group based factors which facilitate and hinder change ... [ICE-GB W2A-014]

State type theme NP

- (15) a. As mentioned at the Linguistics Society party last week , the Society is offering continuing membership to undergraduates leaving this summer [ICE-GB W2A-014]
b. This in my opinion lends urgency to the need to improve young people's education and training in as cost-effective a manner as possible [ICE-GB S2A-031]

2. Transfer in Ditransitive Construction

Overlapping distribution of two Constructions



There is a partially overlapping distribution of ditransitive and *to*-dative constructions at any point between the two extremes

3. Corpus-based Analysis of Transfer in Two Constructions

The British component of the International Corpus of English (ICE-GB)

	spoken	written	total
number of words	637,562	423,702	1,061,264
number of syntactic trees	59,460	23,934	83,394

591 ditransitive instances

309 *to*-dative instances

Semantic labels for agent NPs:

animate, inanimate

Semantic labels for theme NPs:

act, state, abstract-entity, one's property,
communication contents, physical entity

Only instances that have all three arguments are realized as nominals

Semantic role identification is made for all argument NPs, using contextual data if necessary.

3. Corpus-based Analysis of Transfer in Two Constructions

Hypothesis #1

Act/state theme NPs are more frequent in ditransitive construction than in *to*-dative construction

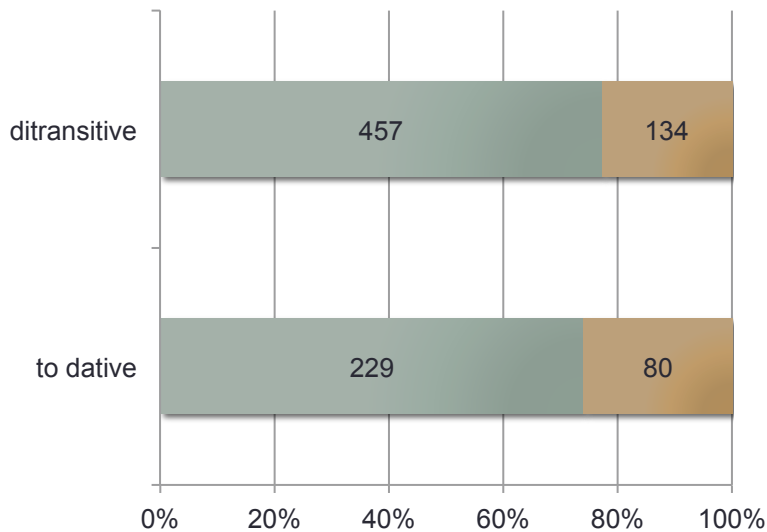
Experiment #1

Extract all the ditransitive and *to*-dative sentences from ICE-GB and investigate the proportion of act/state theme NPs to see if there is a significant difference between the two constructions.

3. Corpus-based Analysis of Transfer in Two Constructions

Result #1-a

	act/state theme NP	others	total
ditransitive	134	457	591
to-dative	80	229	309



Pearson's Chi-squared test with
Yates' continuity correction

X-squared = 0.9876

df = 1

p-value = 0.3203

Not significant

3. Corpus-based Analysis of Transfer in Two Constructions

Theme NP representing “contents of communication”

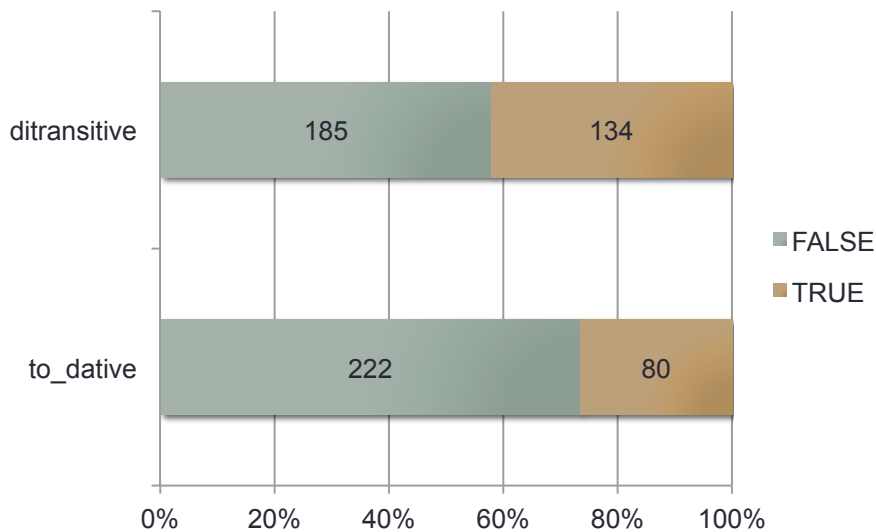
	communication theme NP	total
ditransitive	272	591
<i>to</i> -dative	7	309

- (16) a. Can you tell me how did you both get involved in the Mike
Heafy project [ICE-GB S1A-002]
- b. I 'm telling you that we don't want to be bothered to go further
than Ealing Broadway on Saturday [ICE-GB S1A-030]
- (17) a. I 'd never say it to her face [ICE-GB S1A-023]
- b. I mean she she answers yes to everything [ICE-GB S1B-010]

3. Corpus-based Analysis of Transfer in Two Constructions

Result #1-b

	Act/state theme NP	others	total
ditransitive	134	185	319
to-dative	80	222	309



Pearson's Chi-squared test with
Yates' continuity correction

X-squared = 15.8569

df = 1

p-value = 6.832e-05 (< .01)

significant

3. Corpus-based Analysis of Transfer in Two Constructions

Hypothesis #2

A (physical) transfer of ditransitive construction is unlikely to be one that is initiated by an inanimate agent: Because the transfer meaning is not metaphorically obtained but it just accompanies the event described by the verb, a physical transfer should be a result of an animate agent's volitional action.

Experiment #2

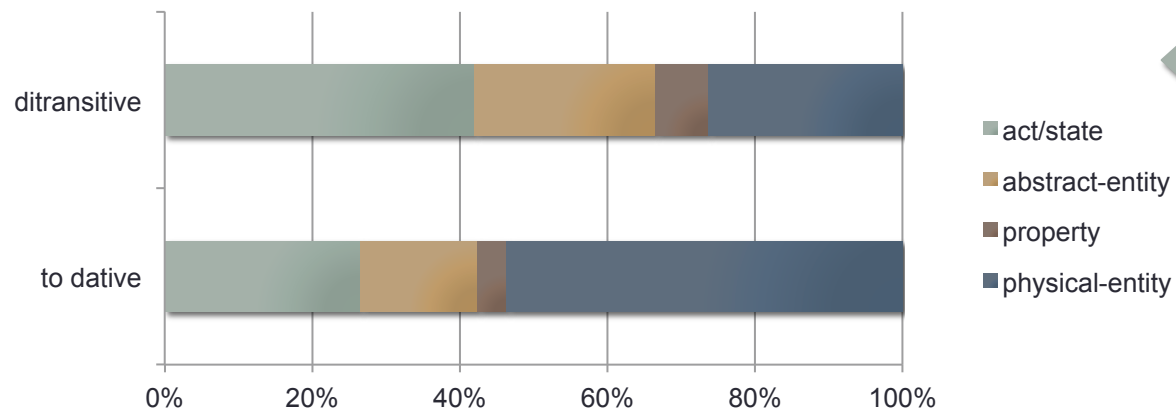
Obtain the proportion of inanimate agents among those ditransitive and *to*-dative instances containing a physical theme NP. See if there is a significant difference between constructions.

4. Corpus-based Analysis of Transfer in Two Constructions

- Distribution of Semantic Roles of Theme NPs

	ditransitive	to-dative	total
act	35	40	75
state	99	40	139
abstract-entity	78	48	126
communication	272	7	279
property	23	12	35
physical-entity	84	162	246
total	591	309	900

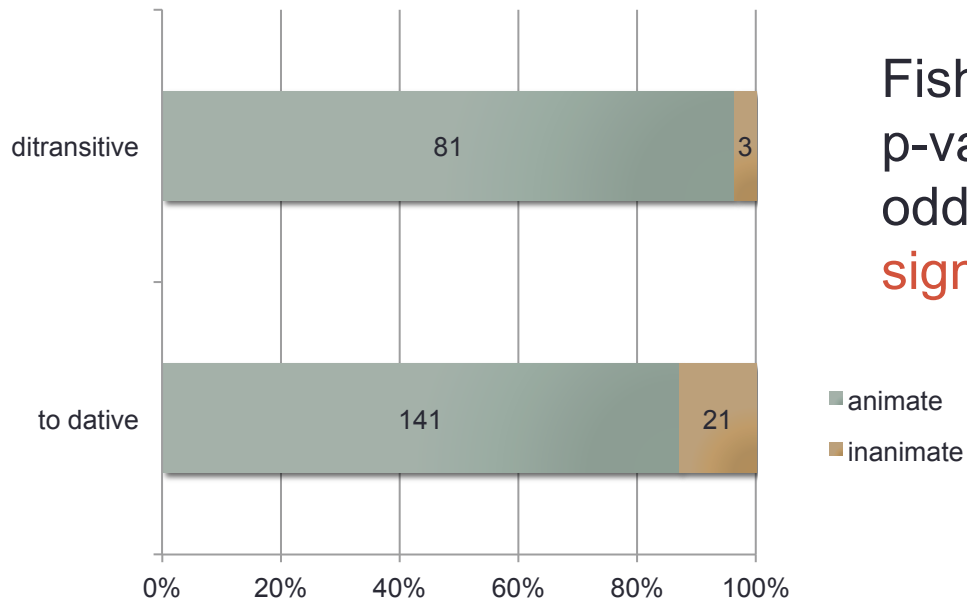
	ditransitive	to-dative	total
act/state	134	80	214
abstract-entity	78	48	126
property	23	12	35
physical-entity	84	162	246
total	319	302	321



4. Corpus-based Analysis of Transfer in Two Constructions

Result #2

	animate agent NP + physical theme NP	agent NP of other roles + physical theme NP	total
ditransitive	81	3	84
to-dative	141	21	162



Fisher's Exact Test for Count Data
p-value = 0.02202 (< .05)
odds ratio 4.003468
significant

3. Corpus-based Analysis of Transfer in Two Constructions

- (16) a. Uhm the esterase plus the water gives you the acid and the alcohol [ICE-GB S2A-034]
b. ... an automatic dispenser may give the cow a ration of concentrated food [ICE-GB W2A-033]
- (17) a. This supplies fuel to the engine [ICE-GB S2A-054]
b. ... and it's given new heart to the Democrats as they ponder their chances of ousting the President from the White House two years from now [ICE-GB S2B-006]

The ditransitive construction attracts act/state theme NPs whereas the *to*-dative construction attracts physical theme NPs.

Though both constructions allow theme NPs of a physical referent, the ditransitive construction significantly prefers animate agent NPs to inanimate ones.

4. Functional Centrality of Causal Relationship

Matsumoto (2009)

The central meaning of lexical item is defined in terms of two factors: conceptual and functional. Conceptually, a meaning is central if it is the meaning from which other meanings are derivationally related. Functionally, a meaning is central if it is most readily evoked.

The same seems to apply to constructions. Does the causal relation of two events in the ditransitive construction is central in its meaning not only conceptually but also functionally?

4. Functional Centrality of Causal Relationship

Hypothesis #3

Young children's experiences of hearing ditransitive construction used in a situation where a categorically causative event is happening are frequent enough for them not to take this construction to be one that just represents transfer.

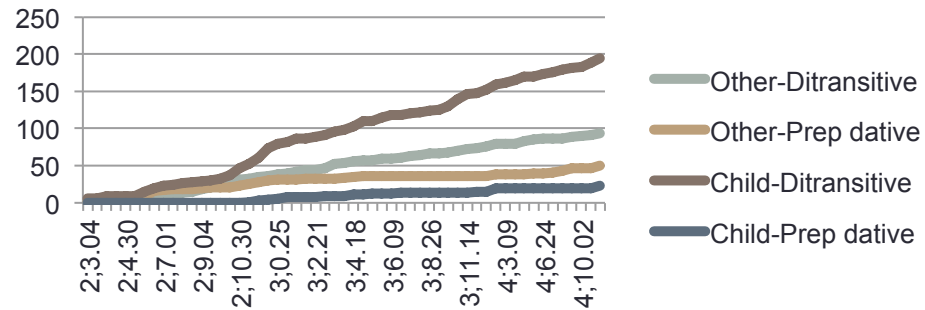
Experiment #3

Compare frequencies of use of ditransitive and *to*-dative constructions in CHILDES data, and see if young children have as many opportunities to find the symbolic relation between the construction and the described event as they do with *to*-dative.

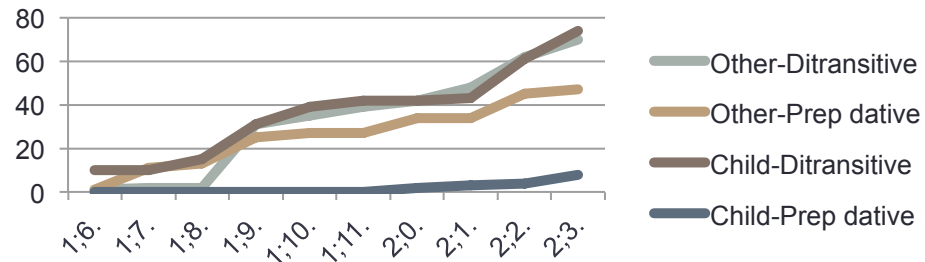
4. Functional Centrality of Causal Relationship

CHILDES Brown Corpus (Brown 1973)

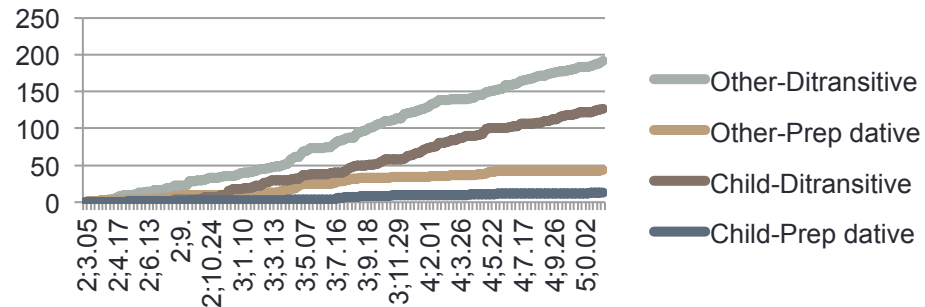
Adam (2;3-5;2)



Eve (1;6-2;3)



Sarah (2;3-5;1)



4. Functional Centrality of Causal Relationship

Supporting evidence from Japanese

ageru = *give* (no causal implication)

verb + *te* + *ageru* (“I do you this / I take the trouble of doing this for you)

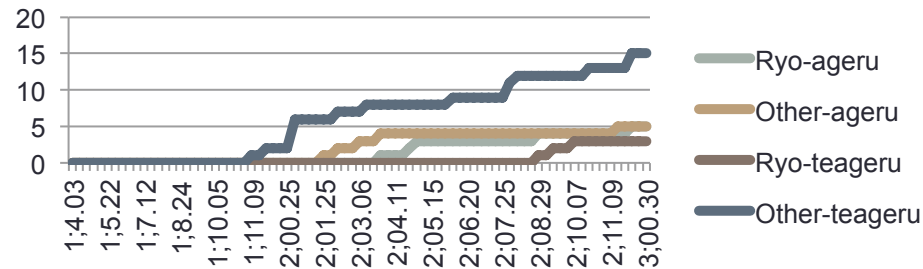
The use of the latter construction in adults’ speech is significantly more frequent than that of the former.

The concept of causality might be no less fundamental than that of transfer and it could be the central meaning of the ditransitive construction both conceptually and functionally, despite the conventional **causal events as transfer** metaphor (cf. Goldberg 1995).

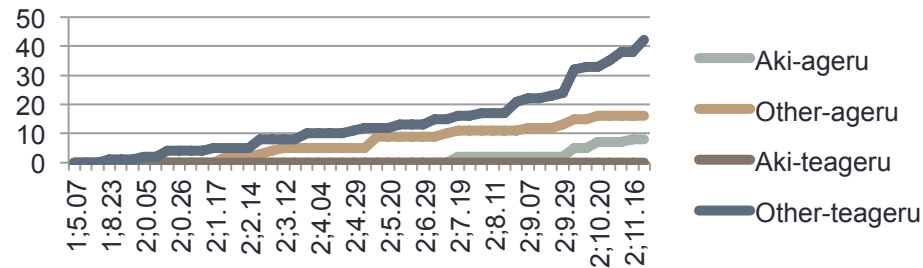
4. Functional Centrality of Causal Relationship

CHILDES Miyata corpus of Japanese (Miyata 1995, 2000)

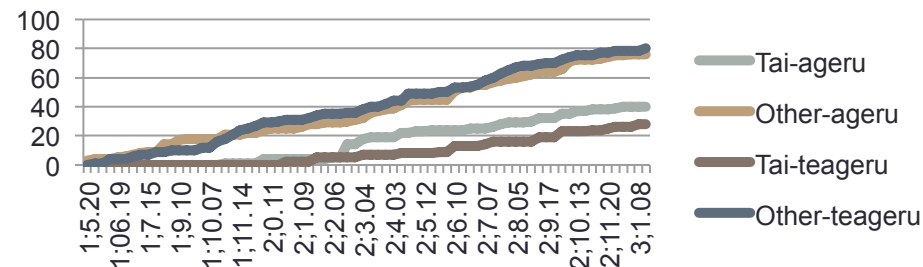
Ryo (1;4-3;0)



Aki (1;5-2;11)



Tai (1;5-3;1)



5. Conclusion

Central meaning of the English ditransitive construction resides in the fact that it represents causal relation of two events.

Transfer of the theme NP referent of the ditransitive construction is rather incidental than essential.

Future tasks

- Improve the accuracy and coherency of corpus annotation
- Justify the treatment of ditransitive sentences with a theme NP representing “communication contents”
- Find more supportive data regarding language development