Semantics and Pragmatics
# of the Dative Alternation
(in the face of new evidence from the WWW)

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The Dative Alternation

Double Object (DO) construction:

Ann gave Beth the box.
NP_0 V NP_1 NP_2

Prespositional Object (PO) construction:

Ann gave the box to Beth.
NP_0 V NP_2 to NP_1

For comparison: German, no alternation, dative and accusative case:

Der Mann gab der Frau den Hut
the.nom man gave the.dat woman the.acc hat

Generalization, Siewierska (1998):
No language with a dative case (distinct from locative, allative)
has a DO construction
(i.e. one in which recipient, theme have the same encoding).

But dative / prepositional alternations do exist:
Der Mann gab der Frau den Hut weiter. (weitergeben: ‘pass on’)
Der Mann gab den Hut an die Frau weiter.

Two views: Monosemy, Polysemy

Cf. discussion in Levin & Rappaport-Hovav (2002),
“What alternates in the dative alternation”

Monosemy view:
The DO construction and the PO construction
have the same (truthconditional) meaning;
they may differ in information structure.

Polysemy view:
The DO construction and the PO construction
have different (but related) meanings.

Three versions of the Monosemy View

Laronson (1988):
PO construction basic, DO construction derived.
$[_{V'}$ give$_1[_{VP}$ the car$[_{V'}$ t$_1[_{PP}$ to Beth]]]]
⇒ $[_{V}$ give$_1[_{VP}$ Beth$_2$ $[_{V'}[_{V'}$ t$_1$ t$_2$] the car]]]]

Aoun & Li (1989):
DO construction basic, PO construction derived.
$[_{VP}$ give $[_{SC}$ Beth $[_{VP}$ e the car]]]
⇒ $[_{VP}$ give $[_{SC}$ the car$_2$ $[_{VP}$ $[_{VP}$ e t$_2$] to Beth]]]

Butt, Dalrymple & Frank (1997):
Non-derivational monosemy accounts, .
Thematic information: give (Agent, Theme, Goal)
Two possible syntactic realizations:
(i) give [Beth]Obj [the car]Obj$_{theme}$,
(ii) give [the car]Obj [to Beth]Obl$_{goal}$

Problems of Monosemy View: Lexical restrictions, Meaning differences

Grteen (1974), Oehrle (1976), Gropen e.a. (1989), Pinker (1989), Levin (1993), Pesetsky (1995), ...

PO, but not DO:
Ann pulled the cart to Beth.
$^{??}$Ann pulled Beth the cart.

DO, but not PO:
Ann denied Beth the ice cream.
$^{?}$ Ann denied the ice cream to Beth.

Meaning differences:
Ann sent a package to London.
#Ann sent London a package.
(only when metonymically referring to person).

Cf. polysemy view: Jackendoff (1990), Speas (1990), Pesetsky (1995), Goldberg (1995), Harley (1997), ...

Lexical-Semantic Accounts for restrictions of the Dative Alternation

Pinker (1989):
DO: $[_{\text{EVENT}}$ give [Ann Beth $[_{\text{STATE}}$ have Beth the car]]]
PO: $[_{\text{EVENT}}$ give [Ann the car $[_{\text{EVENT}}$ go the car $[_{\text{PATH}}$ to $[_{\text{PLACE}}$ Beth]]]]]

Speas (1990)
PO: Ann cause [the car to come to be at (possession) Beth]
DO: Ann cause [Beth to come to be in state (of possession)]
by means of [Ann cause [the car to come to be at (poss) Beth]]

Pesetsky (1994); null preposition G vs. overt preposition to:
DO: [give $[_{\text{NP}}$ Beth]goal $[_{\text{PP}}$ G [the car]theme]
PO: [give $[_{\text{NP}}$ the car]theme $[_{\text{PP}}$ to [Beth]goal]]

Krifka (1999): different lexical semantic patterns for DO vs. PO:
DO: Ann VERBed Beth the box.
$\exists e \exists s[\text{agent}(e, \text{Ann}) \wedge \text{cause}(e, s) \wedge\ s\text{: have}(\text{Beth}, \text{the\_box})]$
PO: Ann VERBed the box to Beth.
$\exists e \exists e'[\text{agent}(e, \text{Ann}) \wedge \text{cause}(e, e') \wedge \text{move}(e') \wedge$
$\text{theme}(e', \text{the\_box}) \wedge \text{goal}(e', \text{Beth})]$

General explanative strategy for meaning differences and lexical restrictions

Meaning differences:
The lexical semantic patterns for DO and PO are different.

Lexical restrictions:
Specification of the semantics of specific verbs
requires certain semantic material
that only the DO or the PO pattern provides.

Explanation of possession restrictions

The DO frame essentially involves possession,
hence DO is dispreferred if a proper possessor is lacking.

Ann sent a package to London.
∃e∃e′[agent(e, Ann) ∧ cause(e, e′) ∧ move(e′) ∧
theme(e′, package) ∧ goal(e′, London)
∧ specifics of send]

?? Ann sent London a package.
# ∃e∃s[agent(e, Ann) ∧ cause(e, s) ∧ s: have(London, package)
∧ specifics of send]

Animacy requirement for possession (in this sense),
cf. ?? London has a package.

Explanation of prevention of possession restrictions

Ann denied Beth the icecream.

$^{?}$Ann denied the icecream to Beth.

Crucial meaning component: negation of possession;
possession available in the DO pattern:

$$\exists e \exists s[\text{agent}(e, \text{Ann}) \wedge \text{theme}(e, \text{icecream}) \wedge \text{cause}(e, s) \wedge$$
$$s{:}\ \underline{\neg\text{have}(\text{Beth}, \text{icecream})}$$
$$\wedge \text{ specifics of deny}]$$

Possession is unavailable in the PO pattern.

Explanation of movement restrictions: give-idioms

The lighting here gives people a headache.

$^{??}$The lighting here gives a headache to people.

$$\exists e \exists s[\text{agent}(e, \text{lighting}) \wedge \text{cause}(e, s) \wedge\ \ s{:}\ \underline{\text{have}(\text{people}, \text{headache})]}$$

$$\#\ \exists e \exists e'[\text{agent}(e, \text{lighting}) \wedge \text{cause}(e, e') \wedge$$
$$\underline{\text{move}(e') \wedge \text{theme}(e', \text{headache}) \wedge \text{goal}(e', \text{people})]}$$

Notice: eadaches don’t move!

Similar explanation for:
His funny behavior gives people ideas.
$^{??}$His funny behavior gives ideas to people.

Explanation of restrictions of imparting of force

Verbs of initial imparting of force:
PO: Ann kicked / threw / the ball to Beth.
DO: Ann kicked / threw Beth the ball.

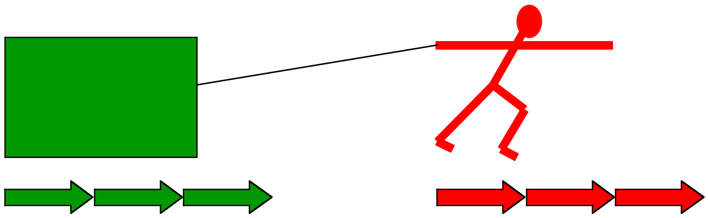
Verbs of continuous imparting of force:
PO: Ann pulled / pushed / hauled / dragged the box to Beth.
DO: $^{??}$Ann pulled / pushed / hauled / dragged Beth the box.

Initial / continuous imparting of force may be tied to specific uses:
Pelé pushed the ball to Maradona.
Pelé pushed Maradona the ball.

Expression of verb-specific manners:
Continuous imparting of force

Explanation (implementation of suggestion in Pinker 1989):
Typical manner of continuous imparting of force: pull
manner(pull)(e, e′):

e:	the causing event (application of force to object, directed towards causer).
e′:	the movement of the object, caused by e, such that there is a homomorphic mapping between e and e′.



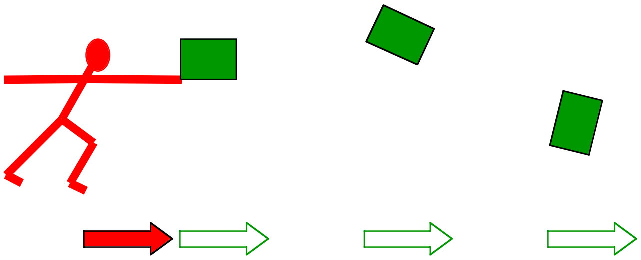
If manner(pull)(e, e′), then for all $x, x' \leq e$ und $y, y' \leq e'$:
a. If manner(pull)(x, y), manner(pull)(x′, y), then $x = x'$
b. If manner(pull)(x, y), manner(pull)(x, y′), then $y = y'$
c. If manner(pull)(x, y), manner(pull)(x′, y′),

Expression of verb-specific manners:
Initial imparting of force

Typical manner of initial imparting of force: throw

manner(throw)(e):

e: an event in which the agent of e
imparts force to the theme of e with his or her hands
and then releases it.



Notice: No reference to movement event necessary
to specify the manner of throw

Expression of verb-specific manners: Imparting of force

Manner of throw can be expressed with DO and PO pattern:

Ann threw the box to Beth.

∃e∃e′[agent(e, Ann) ∧ **manner(**throw**)(e)** ∧
cause(e, e′) ∧ move(e′) ∧ theme(e′, the_box) ∧ goal(e′, Beth)]

Ann threw Beth the box.

∃e∃s[agent(e, Ann) ∧ **manner(**throw**)(e)** ∧ cause(e, s) ∧ s:
have(Beth, the_box))]

Manner of pull can be expressed with PO but not with DO pattern:

Ann pulled the box to Beth.

∃e∃e′[agent(e, Ann) ∧ **manner(**pull**)(e, e′)** ∧
cause(e, e′) ∧ move(e′) ∧ theme(e′, the_box) ∧ goal(e′, Beth)]

?? Ann pulled Beth the box.

No movement event provided for the expression of **manner(**pull**)**

∃e∃s[agent(e, Ann) ∧ **manner(**pull**)(e, e′)** ∧ cause(e, s) ∧ s:
have(Beth, the_box))]

Evidence for Paths in the PO Construction

Distribution of path-related adverbials like halfway, all the way
cf. Tenny 1994.

Ann threw the box halfway / all the way to Beth.

?? Ann threw Beth the box halfway / all the way.

Explanation:
These adverbials require a movement event,
specifically, the path of a movement event.

$$\exists e \exists e' \exists p[\text{agent}(e, \text{Ann}) \wedge \text{manner}(\text{throw})(e) \wedge$$
$$\text{cause}(e, e') \wedge \text{move}(e') \wedge \text{theme}(e', \text{the\_box}) \wedge$$
$$\text{path}(e', p) \wedge \text{end}(p, \text{Beth}) \wedge \text{halfway}(e', p)]$$

where p: a directed path;
path(e′, p): e′ a movement along (parts of) p
end(p): the endpoint of p
halfway(e′, p): e′ covers the first half of p

Verbs of manner of communication

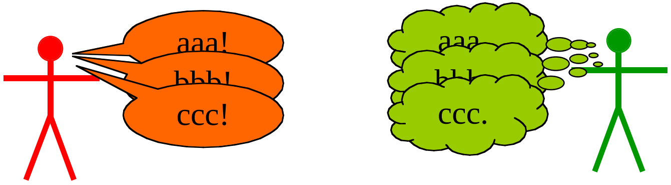
Verbs expressing a manner of voice articulation do not allow for DO:
PO: Ann yelled / whispered / shouted the news to Beth.
DO: ??Ann yelled / whispered / shouted Beth the news.

Manner of transitive yell:

manner(yell)(e, e′):

e: an event in which the agent exerts his articulatory organs
with great intensity

e′: an event in which information (the theme of e′)
moves to the goal of e′,
which is caused by e,
such that there is a homomorphic mapping between e and e′.


aaa!
bbb!
ccc!
aaa
bbb
ccc.

Verbs of manner of communication

Ann yelled the news to Beth.

$\exists e\exists e'[\text{agent}(e, \text{Ann}) \wedge \textbf{manner(}\text{yell}\textbf{)(e, e')} \wedge$
$\text{cause}(e, e') \wedge \text{move}(e') \wedge \text{theme}(e', \text{the\_news}) \wedge \text{goal}(e', \text{Beth})]$

?? Ann yelled Beth the news.

No possibility for expressing manner of yell, as there is no movement event.

Contrast this with verbs like read:

Ann read the news to Beth.
Ann read Beth the news.

$\exists e\exists e'[\text{agent}(e, \text{Ann}), \wedge \text{cause}(e, e') \wedge \text{move}(e') \wedge \text{theme}(e', \text{the\_news}) \wedge$
$\text{goal}(e', \text{Beth}) \wedge \textbf{present\_info(e, the\_news)} \wedge \textbf{written\_text(the\_news)}]$

$\exists e\exists s[\text{agent}(e, \text{Ann}) \wedge \text{cause}(e, s) \wedge s\text{: have}(\text{Beth}, \text{the\_news}) \wedge$
$\textbf{present\_info(e, the\_news)} \wedge \textbf{written\_text(the\_news)}]$

Verbs of release of information

Ann cabled / faxed / e-mailed the news to Beth.

Ann faxed / cabled / e-mailed Beth the news.

manner(fax)(e):

e: an event in which the agent of e puts the theme of e
into a fax machine
and sends it.

Ann faxed the news to Beth.

$\exists e\exists e'[\text{agent}(e, \text{Ann}) \wedge \textbf{manner(}\text{fax}\textbf{)(e)} \wedge$
$\text{cause}(e, e') \wedge \text{move}(e') \wedge \text{theme}(e', \text{the\_news}) \wedge \text{goal}(e', \text{Beth})]$

Ann faxed Beth the news.

$\exists e\exists s[\text{agent}(e, \text{Ann}) \wedge \textbf{manner(}\text{fax}\textbf{)(e)} \wedge \text{cause}(e, s)$
$\wedge\ s\text{: have}(\text{Beth}, \text{the\_news}))]$

These verbs relate to the initial part of information transfer:

Ann faxed Beth the results.
Actually, Beth's secretary got the fax, and he e-mailed them to Beth.

#Ann e-mailed Beth the result.
Actually, she faxed them to Beth's secretary,
and he e-mailed them to Beth.

Information structure and the Dative Alternation

Erteschik-Shir (1979), Hawkins (1994), Collins (1995),
Arnold e.a. (2000).

Motivation for the Dative Alternation:
Information Structure, Weight, Pronominality

A: Who did he give the book (to)?
B: He gave the book to Beth.
B: $^{?}$ He gave Beth the book.

Chris gave Terry a bowl of Mom’s traditional cranberry sauce.
$^{?}$Chris gave a bowl of Mom’s traditional cranberry sauce to Terry.

John gave it to Mary.
*John gave Mary it.

John gave it to her.
% John gave her it.

NP Accessibility and the Dative Alterantion

Discourse status of NPs in the dative alternation (Collins 1995):
Tokens in corpus study.

	Receiver			Received Entity		
	Given	Accessible	New	Given	Accessible	New
DO	**97**	10	1	7	18	**88**
PO	24	19	14	22	15	20

Where:
New: Introduced for the first time or newly identified
Accessible: Recoverable, but less directly than for given
Given: Directly recoverable because mentioned or present in situation

Conclusion:
The DO construction may serve
to mark NP$_1$ as given and / or to mark NP$_2$ as new,
the PP construction is informationally neutral.

But: DO construction is more frequent cf. Bresnan & Nikitina, Switchboard corpus:
517 instances of DO, 104 instances of PO for alternating dative verbs.

Lexical Semantics + Information Structure?

Is information structure marking compatible with lexical restrictions?

Prima facie: No!

  Lexical-semantic differences of DO / PO:

    Constructions have different meanings, different truth conditions.

Information structure differences do not affect basic truth conditions,
    but the way how information is presented,
    how it corresponds to the context in which it is presented.

Empirical Problems

Research on lexical restrictions of dative alternation
  mainly based on the intuition of linguists.

Language acquisition research pointed out
  that children make few “mistakes”;
  the restrictions of the Dative Alternation became a model problem
  of language learning:
  Cf. Braine (1971), Baker (1979), Gropen e.a. (1989),
  Pinker (1989), Snyder & Stromswold (1997).

But what does corpus evidence tell us?

Study by Bresnan & Nikitina (2003), “On the gradience of the Dative
  Alternation”,
  Corpus: Word Wide Web,
  no frequency data are given,
  examples apparently quite rare
  (none in 1-million words switchboard corpus)

Problems: Verbs of continuous imparting of force

Karen spoke with Gretchen about the procedure for registering a complaint, and hand-carried her a form, but Gretchen never completed it.

As player A pushed him the chips, all the hell broke loose at the table.

Therefore, when he got to purgatory, Buddha lowered him the silver thread of a spider as his last chance of salvation.

“I have the tums.” Nick joked. He pulled himself a steaming piece of the pie.

“Well...it started like this...” Shinbo explained while Sumomo dragged him a can of beer and opened it for him, “We are having dinner together.”
[Sumomu is a tiny creature.]

Problems: Verbs of manner of communication

Shooting the Urasian a surprised look, she muttered him a hurried apology as well before skirting down the hall.

“Hi baby.” Wade says as he stretches. You just mumble him an answer. You were comfy on that soft leather couch. Besides...

The sheperd-dogs, guardians of the flocks, barked him a welcome, and the sheep bleated and the lambs pattered round him.

... he went over to Jon Lord during ‘Smoke’ and seemed to be getting Jon to yell him the words!!

Finally a kind few (three to be exact) came foreward and whispered me the answer.

Problems: give NP_1 NP_2 idioms in give NP_2 to NP_1 form

sending a copy to every elector is a nice gesture, but futile, because it is unreadable, guaranteed to give a headache to anyone who looks hard at the small print.

From the heads, offal and the accumulation of fishy, slimy matter, a stench or smell is diffused over the ship that would give a headache to the most athletic constitution.

The spells that protected her identity also gave a headache to anyone trying to determine even her size, ...

Design? Well, unless you take pride in giving a headache to your visitors with a flashing background? No.

All three headed toward Mulan. She droped kicked the first. Next she gave a puch to the second man. ...

She gave a punch to the evil reporter that had asked the dumb ass question.

PUC gives a break to big users of energy.

The silly clowns sometimes give a hard time to the emperor.

Still, I took it back today and gave some grief to the assistant and came out with a better scanner than I had paid for on Tuesday.

Problems: Verbs of prevention of possession

The IRS is unionized, and the union apparently has the fear that outsourcing will cost jobs to their members.

He did so thinking it would cost nothing to the government.

The employer has underpaid, or disciplined, or denied a leave to a teacher; ...

After all, who could deny something to someone so dedicated to the causes of international friendship and collaboration?

But also: Violation of Pronoun constraints

Note: I don't give children peanut butter until they are 3 years old since it is recommended not to give children it to avoid possible allergies.

You should never give out your address or phone number online and you should never send someone them in the mail either.

Please follow these simple rules and teach your children them, however most dogs are friendly.

Second graders finished their underwater scenes and are very proud of these. They could not wait to show their parents them and can't wait to bring them home.

Explanation strategy by Bresnan & Nikita

"Our own linguistic intuitions agree with those of the linguists cited in that we perceive the constructed examples."

"At the same time, we judge the web examples given above to be grammatically possible."

Violations of stated restrictions to Dative Alternation not ungrammatical, but unprobable

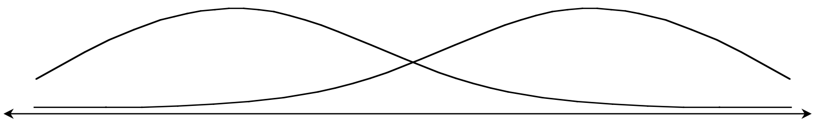
Modelling of constraints in terms of stochastic Optimality Theory, where constraints may be violated with certain probabilities

Explanation strategy by Bresnan & Nikita

Example: NP / Pronoun constraint:

Faith(Rec): Express recipient role with distinct marker (to)
*Struct: Avoid structure

*Struct > FAITH(REC)



	*Struct	Faith(Rec)
☞☞ give them cheques		*
☞ give cheques to them	*	

Bresnan & Nikitina go on to discuss alignment
of 1st, 2nd person, animacy, definiteness with first object of DO construction.

Bresnan & Nikitina’s explanation of lexical restrictions

“We can use both dative NP and dative PP syntax [i.e., DO / PO]
to express transfer of possession,
but the prototypical uses of giving are heavily biased
towards the dative NP [i.e., the DO] construction.”

Question: Why is there this bias?

B&N refer to general likelihood assumptions:
“if a person accompanies or holds, clings to,
or otherwise stays in contact with a possession,
it seems to us less likely that a transfer of possession is going on”

General explanation strategy:
“grammaticality judgements of contrasting pairs of examples
may be systematically biased by the probability of similar descriptions
of the event depicted by the verb”

Example: Ann pulled the box to Beth. / ?? Ann pulled Beth the box.
It is improbable that an event of pulling a box to someone
is described as an event of giving the box to that person.
Ann threw the box to Beth. / Ann threw Beth the box.
It is more probable that an event of throwing a box to someone
is described as an event of giving the box to that person.

General problem of this strategy:
Do speakers really compute such likelihoods of alternative descriptions?

It appears more plausible to assume different lexical representations!

Exceptions in the lexical semantics account: Degenerate paths

DO and PO constructions are also selected
by considerations of information structure
if the truth-conditional semantics of DO and PO are similar enough.

Illustration: give, semantically basic use: DO, expression of possession:

Ann gave Beth the box.

$\exists e \exists s[\text{agent}(e, \text{Ann}) \wedge \text{theme}(e, \text{box}) \wedge \text{cause}(e, s)$

$\wedge\ s\text{: have}(\text{Beth}, \text{box}))]$

Semantically derived use: PO, expression of movement in a space
that conceptualizes possession
(cf. Jackendoff 1990;
perhaps as general metaphor in the sense of Lakoff & Johnson 1986)

Ann gave the box to Beth.

$\exists e \exists e'[\text{agent}(e, \text{Ann}) \wedge \text{cause}(e, e') \wedge \text{move}_{\text{POSS}}(e') \wedge$

$\text{theme}(e', \text{the\_box}) \wedge \text{goal}(e', \text{Beth})]$

The path of the movement event e
is degenerated to two points [non-possession, possession]:

Ann gave the box ??halfway / ??all the way to Beth.

While the semantic representation of give-DO / give-PO is different,
the truth conditions are virtually the same.

This opens the possibility to use the DO/PO-distinction for give

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Explanation of bring and carry: Indexical verbs

Cf. Pinker 1989

Verbs bring and carry may appear to be counterexamples:
-- continuous imparting of force,
-- but occur both in DO and PO forms (with %DO for carry).

But: These verbs can be analyzed as indexical verbs, no reference to movement event necessary.

Ann brought the box to Beth.

$\exists e \exists e'[\text{agent}(e, \text{Ann}) \wedge \text{cause}(e, e') \wedge \text{move}(e') \wedge \text{theme}(e', \text{the\_box}) \wedge$

$\text{goal}(e', \text{Beth}) \wedge$

$\mathbf{move(e)} \wedge \mathbf{\forall e'' \leq e[place(e'')(the\_box) = place(e'')(Ann)]} \wedge$

$\mathbf{place(end(e), Ann) = place(end(e), Beth)}]$

Ann brought Beth the box.

$\exists e \exists s[\text{agent}(e, \text{Ann}) \wedge \text{cause}(e, s) \wedge s\text{: have}(\text{Beth}, \text{the\_box})) \wedge$

$\mathbf{move(e)} \wedge \mathbf{\forall e'' \leq e[place(e'')(the\_box) = place(e'')(Ann)]} \wedge$

$\mathbf{place(end(e), Ann) = place(end(e), Beth)}]$

Exceptions in the lexical account:
Incompletely integrated manners

?? Ann pulled Beth the box.

No movement event provided for the expression of **manner(**pull**)**

$\exists e \exists s[\text{agent}(e, \text{Ann}) \wedge \textbf{manner(}\text{pull}\textbf{)(e, }\underline{\textbf{e}'}\textbf{)} \wedge \text{cause}(e, s) \wedge\ s\text{: have(Beth, the\_box))]}$

Possible strategy: Keep e′ dangling, with existential quantification:

$\exists e \exists s \underline{\boldsymbol{\exists} \textbf{e}'}[\text{agent}(e, \text{Ann}) \wedge \textbf{manner(}\text{pull}\textbf{)(e, }\underline{\textbf{e}'}\textbf{)} \wedge \text{cause}(e, s) \wedge s\text{: have(Beth, the\_box))]}$

This violates a constraint that events stipulated by lexical semantics should be tightly integretated in the lexical representation
– but constraints can be violated if other needs are satisfied,
e.g. information structure, or expression of possession.

Exceptions in the lexical account:
manner of communication

?? Ann yelled Beth the news.

No movement event provided for the expression of manner(yell)

$\exists e \exists s[\text{agent}(e, \text{Ann}) \wedge \text{manner(yell)}(e, \underline{\textbf{e}'}) \wedge \text{cause}(e, s) \wedge\ s\text{: have(Beth, the\_news))]}$

Where: manner(yell)(e, e′):

e: event in which the agent exerts his articulatory organs with intensity
e′: an event in which information (the theme of e′) moves to the goal of e′, which is caused by e, such that there is a homomorphic mapping between e and e′.

But there is a simpler manner of yell, cf. Ann yelled.

manner(yell)(e):
e: an event in which the agent exerts his articulatory organs with great intensity

No movement event is involved, hence:

$\exists e \exists s[\text{agent}(e, \text{Ann}) \wedge \text{manner(yell)}(\underline{e}) \wedge \text{cause}(e, s) \wedge s\text{: have(Beth, the\_news))]}$

But then: Why is this simpler manner dispreferred?

Presumably because it is not made clear
how excerting one’s articulatory organs with great intensity
can lead to a state in which Beth is in possession of the news.

Reconsideration of some examples

As player A pushed him the chips, all the hell broke loose at the table.
"push" as initializing movement?

"I have the tums." Nick joked. He pulled himself a steaming piece of the pie.
A kind of benefactive?

Shooting the Urasian a surprised look, she muttered him a hurried apology as well before skirting down the hall.
"apology" as a non-extended, punctual object – no homomorphism?

The spells that protected her identity also gave a headache to anyone trying to determine even her size, ...
Truth-conditional equivalence of

The IRS is unionized, and the union apparently has the fear that outsourcing will cost jobs to their members.
Truth-conditinal equivalences of "give"+DO / "give"+PO
extended to prevention of possession?