

What futurates and *have* causatives can tell us about meaning

Bridget Copley

Structures Formelles du Langage (Paris 8/CNRS)

Causation and Modality in Logic and Language

Institute for Logic, Language, and Computation

University of Amsterdam

22 May 2023



Introduction

Futurates have future reference in the absence of future-oriented morphology, with a “planned” or “settled” flavor, as in (1). The need for a plan seems to suggest an animacy requirement for an entity that has the authority to make a felicitous plan and/or the ability to control the eventuality.

- (1)
- a. I make the coffee tomorrow.
 - b. The Red Sox play the Yankees tomorrow.

Introduction

Futurates have future reference in the absence of future-oriented morphology, with a “planned” or “settled” flavor, as in (1). The need for a plan seems to suggest an animacy requirement for an entity that has the authority to make a felicitous plan and/or the ability to control the eventuality.

- (1) a. I make the coffee tomorrow.
b. The Red Sox play the Yankees tomorrow.
- (2) a. #I get sick tomorrow.
b. #It rains tomorrow.
c. #The Red Sox beat the Yankees tomorrow.

Introduction

Futurates have future reference in the absence of future-oriented morphology, with a “planned” or “settled” flavor, as in (1). The need for a plan seems to suggest an animacy requirement for an entity that has the authority to make a felicitous plan and/or the ability to control the eventuality.

- (1) a. I make the coffee tomorrow.
b. The Red Sox play the Yankees tomorrow.
- (2) a. #I get sick tomorrow.
b. #It rains tomorrow.
c. #The Red Sox beat the Yankees tomorrow.

But: idiosyncratic inanimate exceptions (“natural futurates”):

- (3) a. The sun rises at 6 tomorrow.

Introduction

A similar case we will look at is *have* causatives, as in (4).

- (4)
- a. Madeleine made me wake up early.
 - b. Madeleine had me wake up early.

Introduction

A similar case we will look at is *have* causatives, as in (4).

- (4) a. Madeleine made me wake up early.
- b. Madeleine had me wake up early.
- (5) #The book had me wake up early.

Introduction

A similar case we will look at is *have* causatives, as in (4).

- (4) a. Madeleine made me wake up early.
b. Madeleine had me wake up early.

(5) #The book had me wake up early.

But: idiosyncratic inanimate exceptions:

- (6) The book had me waking up early/laughing/on the floor/in tears.

Introduction

Copley 2008

$\lambda x \lambda p \lambda w \lambda t$. x is committed to p in w at t presupposed: $\forall w'$
metaphysically accessible from w at t and consistent with d 's
commitments in w at t : [$\forall w''$ metaphysically accessible from w at
 t : [$\exists t' > t$: [$p(w')(t')$] \Leftrightarrow [$\exists t'' > t$: [$p(w'')(t'')$]]]]]

See also Kaufmann 2005, 2022; Karawani & Zeijlstra ms.

Introduction

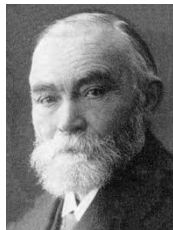
So how do we solve the problem of too much meaning and not enough morphology?

Introduction

So how do we solve the problem of too much meaning and not enough morphology? It's helpful to go back to first principles...

Introduction

So how do we solve the problem of too much meaning and not enough morphology? It's helpful to go back to first principles...

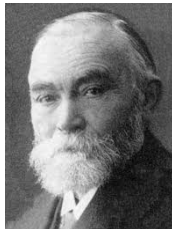


Fregean compositionality:

The meaning of a sentence is made up of the meanings of its parts and how those parts are put together.

Introduction

So how do we solve the problem of too much meaning and not enough morphology? It's helpful to go back to first principles...



Fregean compositionality:

The meaning of a sentence is made up of the meanings of its parts and how those parts are put together.

We can't give this up, even though here there seem to be too few parts for the meaning!

Introduction



Chomskyan impulse:

simple grammar \Rightarrow simple
syntax-semantics interface \Rightarrow
simple denotations \Rightarrow complex
concepts



Humean impulse:

simple concepts \Rightarrow complex
denotations \Rightarrow complex
syntax-semantics interface

Introduction

grammar



conceptual level



Example: *smoke*

narrow syntax
V label

compositional semantics
 $\lambda s \lambda x . x \text{ SMOKE } in s$
interpretation of λ and .

conceptual semantics
interpretation of SMOKE
interpretation of x , *in*, and s

Introduction

grammar

conceptual level



Example: *smoke*

narrow syntax
V label

compositional semantics
 $\lambda s \lambda x . x \text{ SMOKE in } s$
interpretation of λ and .

conceptual semantics
interpretation of SMOKE
interpretation of x , *in*, and s

Introduction

grammar

conceptual level



Example: *smoke*

narrow syntax
V label

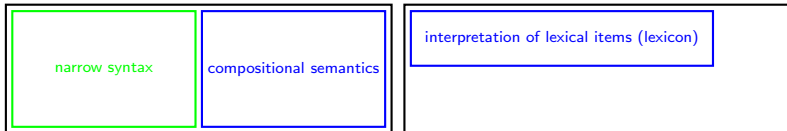
compositional semantics
 $\lambda s \lambda x . x \text{ SMOKE } in s$
interpretation of λ and $.$

conceptual semantics
interpretation of SMOKE
interpretation of x , in , and s

Introduction

grammar

conceptual level



Example: *smoke*

narrow syntax
V label

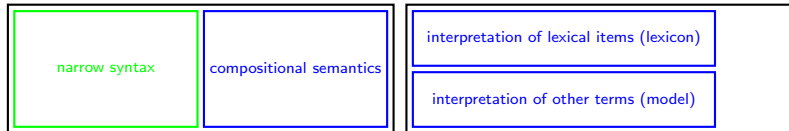
compositional semantics
 $\lambda s \lambda x . x \text{ SMOKE } in s$
interpretation of λ and $.$

conceptual semantics
interpretation of SMOKE
interpretation of x , in , and s

Introduction

grammar

conceptual level



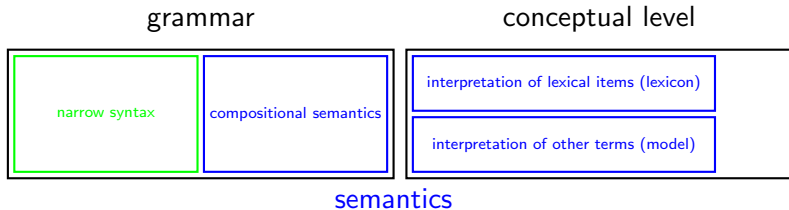
Example: *smoke*

narrow syntax
V label

compositional semantics
 $\lambda s \lambda x . x \text{ SMOKE } in s$
interpretation of λ and $.$

conceptual semantics
interpretation of SMOKE
interpretation of x , *in*, and s

Introduction



Example: *smoke*

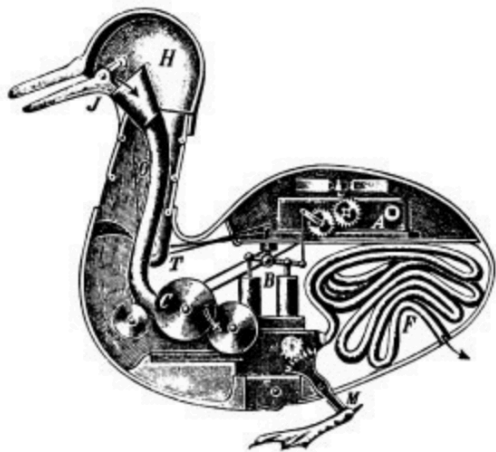
narrow syntax
V label

compositional semantics
 $\lambda s \lambda x . x \text{ SMOKE } in s$
interpretation of λ and $.$

conceptual semantics
interpretation of SMOKE
interpretation of x , in , and s

Introduction

Resolution of the tension between Chomskyan and Humean impulses: more complexity in the interpretation (=conceptual level) of the terms in the denotation, fewer terms in the denotation.



Introduction

Resolution of the tension between Chomskyan and Humean impulses: more complexity in the interpretation (=conceptual level) of the terms in the denotation, fewer terms in the denotation.

simple grammar and simple denotations \Rightarrow simple syntax-semantics interface

Introduction

Resolution of the tension between Chomskyan and Humean impulses: more complexity in the interpretation (=conceptual level) of the terms in the denotation, fewer terms in the denotation.

simple grammar and simple denotations \Rightarrow simple
syntax-semantics interface
and

Introduction

Resolution of the tension between Chomskyan and Humean impulses: more complexity in the interpretation (=conceptual level) of the terms in the denotation, fewer terms in the denotation.

simple grammar and simple denotations \Rightarrow simple
syntax-semantics interface

and simple denotations \Rightarrow complex interpretations which can be
further broken down Humean-style at the conceptual level

Goal today

- ▶ Goal today: propose causal theories of futurates and *have* causatives.

Goal today

- ▶ Goal today: propose causal theories of futures and *have* causatives.
- ▶ To get to that goal, we will need a notion of dispositional causation: a disposition (or a dispositional state) does the causing. Dispositions include but are not limited to intentions.

Goal today

- ▶ Goal today: propose causal theories of futures and *have* causatives.
- ▶ To get to that goal, we will need a notion of dispositional causation: a disposition (or a dispositional state) does the causing. Dispositions include but are not limited to intentions.
- ▶ We still have our apparent problem with the syntax-semantics interface: Dispositions are semantically complex (authority, control, ability, plans, settledness . . .), but futures and *have* causatives are morphosyntactically simple.

Goal today

- ▶ Goal today: propose causal theories of futurates and *have* causatives.
- ▶ To get to that goal, we will need a notion of dispositional causation: a disposition (or a dispositional state) does the causing. Dispositions include but are not limited to intentions.
- ▶ We still have our apparent problem with the syntax-semantics interface: Dispositions are semantically complex (authority, control, ability, plans, settledness . . .), but futurates and *have* causatives are morphosyntactically simple.
- ▶ Solution to this problem (new idea): We get all of the dispositional meaning for free even though only part of the dispositional meaning is represented in the denotation. Simple denotation, complex interpretation.

Properties of futurates

- (7)
- a. I make the coffee tomorrow.
 - b. The Red Sox play the Yankees tomorrow.

Properties of futurates

- (7)
 - a. I make the coffee tomorrow.
 - b. The Red Sox play the Yankees tomorrow.

- (8)
 - a. #I get sick tomorrow.
 - b. #The Red Sox beat the Yankees tomorrow.

Properties of futurates

- (7) a. I make the coffee tomorrow.
b. The Red Sox play the Yankees tomorrow.
- (8) a. #I get sick tomorrow.
b. #The Red Sox beat the Yankees tomorrow.
- (9) a. The sun rises at 6:00 tomorrow.
b. The tide is high at 6:00 tomorrow.

Properties of futurates

- (7) a. I make the coffee tomorrow.
b. The Red Sox play the Yankees tomorrow.
- (8) a. #I get sick tomorrow.
b. #The Red Sox beat the Yankees tomorrow.
- (9) a. The sun rises at 6:00 tomorrow.
b. The tide is high at 6:00 tomorrow.

Two other properties of futurates are worth mentioning here before we move on to an analysis.

Properties of futurates

First, past progressive futurates permit an extra adverbial which modifies the intention or plan of the director.

Properties of futurates

First, past progressive futurates permit an extra adverbial which modifies the intention or plan of the director.

- (10) Yesterday, the Red Sox were playing the Yankees tomorrow (but I don't know if the plan has changed since then).

Properties of futurates

Secondly, in a number of ways futurates behave like present-oriented derived statives.

Properties of futurates

Secondly, in a number of ways futurates behave like present-oriented derived statives.

Statives: *be ready, know French, live in Paris ...*

Eventives: *give a talk, make lunch...*

Properties of futurates

Behavior with aspect

- (13) a. I live in Paris.
b. I'm living in Paris.
- (14) a. The Red Sox play the Yankees tomorrow.
b. The Red Sox are playing the Yankees tomorrow.
- (15) a. The sun rises at 6:00 tomorrow.
b. #The sun is rising at 6:00 tomorrow.

- ▶ Together these generalizations suggest that there are (at least) two eventualities represented in the structure of futurates, and the higher one, which is stative, represents the director's plan or intention.

- ▶ Together these generalizations suggest that there are (at least) two eventualities represented in the structure of futurates, and the higher one, which is stative, represents the director's plan or intention.
- ▶ Crosslinguistically, this means futurate readings should only be possible with aspects that can take statives as their argument. In particular, progressives that disallow statives in general should also disallow futurate readings.

The structure of futurates

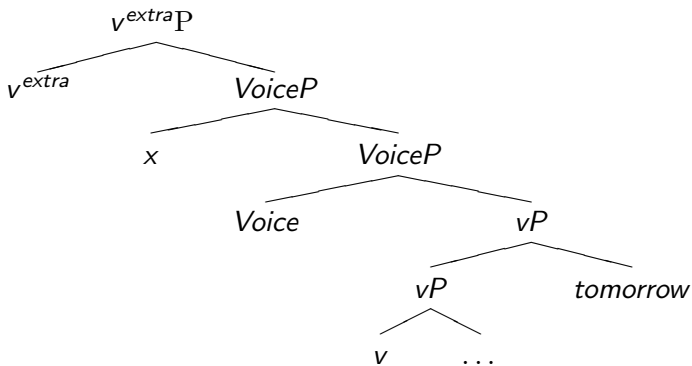
- (16) Basic verbal structure, to be rejected (contradictory temporal constraints on e):

NOW(e)	present tense
AGENT(x, e)	Voice
e CAUSE e'	v
[[<i>tomorrow</i>]](e)	adverbial

For example, *I make the coffee tomorrow* means: there is an eventuality e that takes place now and that takes place tomorrow and in which I am an agent of e and e causes an eventuality e' of the coffee existing

The structure of futurates

(17)



Structure of futurates

NOW(e)	present tense
e CAUSE e'	v^{extra}
AGENT(x, e')	Voice
e' CAUSE e''	v
[[<i>tomorrow</i>]](e')	adverbial
[[...]](e'')	...

I make the coffee tomorrow means: There is an eventuality e today that causes me to be the agent of an eventuality e' tomorrow such that e' causes an eventuality e'' of the coffee existing.

The structure of futurates

What's the extra causal relation?

The structure of futurates

What's the extra causal relation?

- ▶ Intuitively, direct causation.

The structure of futurates

What's the extra causal relation?

- ▶ Intuitively, direct causation.
- ▶ This means that the director's intention *directly* causes the agent's action. Is this ok?

The structure of futurates

What's the extra causal relation?

- ▶ Intuitively, direct causation.
- ▶ This means that the director's intention *directly* causes the agent's action. Is this ok?
- ▶ Yes, as certain events do not “count” as intervening but merely enabling events (Wolff (2003), see also Levin and Rappaport Hovav (1994)): cf. *turn on the TV* with an intervening event of clicking on the remote

The structure of futurates

What's the extra causal relation?

- ▶ Intuitively, direct causation.
- ▶ This means that the director's intention *directly* causes the agent's action. Is this ok?
- ▶ Yes, as certain events do not “count” as intervening but merely enabling events (Wolff (2003), see also Levin and Rappaport Hovav (1994)): cf. *turn on the TV* with an intervening event of clicking on the remote
- ▶ In futurates, the agent's intention, as well as any act of communication between director and agent, can be seen in this way, so they do not pose a problem for the idea that the extra causal relation is direct causation.

The structure of futurates

What's the extra causal relation?

- ▶ Intuitively, direct causation.
- ▶ This means that the director's intention *directly* causes the agent's action. Is this ok?
- ▶ Yes, as certain events do not “count” as intervening but merely enabling events (Wolff (2003), see also Levin and Rappaport Hovav (1994)): cf. *turn on the TV* with an intervening event of clicking on the remote
- ▶ In futurates, the agent's intention, as well as any act of communication between director and agent, can be seen in this way, so they do not pose a problem for the idea that the extra causal relation is direct causation.
- ▶ This suggests that the sense of authority is just what we get when an agent action is directly caused by someone else's intention (as if it were their own). Creepy, but accurate

The structure of futurates

Ok, so it is direct causation. Now what?

The structure of futurates

Ok, so it is direct causation. Now what?

- ▶ If the causal relation must be direct, there must be temporal contiguity (no gap) between cause and effect (Fodor (1970); see Martin (2018) for a more nuanced recent discussion)

The structure of futurates

Ok, so it is direct causation. Now what?

- ▶ If the causal relation must be direct, there must be temporal contiguity (no gap) between cause and effect (Fodor (1970); see Martin (2018) for a more nuanced recent discussion)
- ▶ Our causing eventuality e is stative (an intentional state)

The structure of futurates

Ok, so it is direct causation. Now what?

- ▶ If the causal relation must be direct, there must be temporal contiguity (no gap) between cause and effect (Fodor (1970); see Martin (2018) for a more nuanced recent discussion)
- ▶ Our causing eventuality e is stative (an intentional state)
- ▶ This permits double access (Enç, 1987) for the causing eventuality between the present and future time, which allows temporal contiguity between cause and future effect, satisfying direct causation

The structure of futurates

Ok, so it is direct causation. Now what?

- ▶ If the causal relation must be direct, there must be temporal contiguity (no gap) between cause and effect (Fodor (1970); see Martin (2018) for a more nuanced recent discussion)
- ▶ Our causing eventuality e is stative (an intentional state)
- ▶ This permits double access (Enç, 1987) for the causing eventuality between the present and future time, which allows temporal contiguity between cause and future effect, satisfying direct causation
- ▶ Double access also makes sense because the person in charge does not normally change their intention before the agent's action takes place

The structure of futurates

Ok, so it is direct causation. Now what?

- ▶ If the causal relation must be direct, there must be temporal contiguity (no gap) between cause and effect (Fodor (1970); see Martin (2018) for a more nuanced recent discussion)
- ▶ Our causing eventuality e is stative (an intentional state)
- ▶ This permits double access (Enç, 1987) for the causing eventuality between the present and future time, which allows temporal contiguity between cause and future effect, satisfying direct causation
- ▶ Double access also makes sense because the person in charge does not normally change their intention before the agent's action takes place
- ▶ This dual need for double access explains why futurates are stative

Generalizing from intentions to dispositions

The existence of natural futurates suggests a dispositional rather than a merely preferential analysis of intention for futurates (and see also Condoravdi and Lauer (2016)).

Fara (2001): N is disposed to M when C is true just in case N has some intrinsic property in virtue of which N Ms when C.

Generalizing from intentions to dispositions

The existence of natural futurates suggests a dispositional rather than a merely preferential analysis of intention for futurates (and see also Condoravdi and Lauer (2016)).

Fara (2001): N is disposed to M when C is true just in case N has some intrinsic property in virtue of which N Ms when C.

- (18) Structure of a (dispositional) intention:
- a. an intender y , who is the holder of ...
 - b. an intentional state e , which in certain circumstances directly causes ...
 - c. an eventuality e' ...
 - d. that instantiates the eventuality description p intended by y

Generalizing from intentions to dispositions

The existence of natural futurates suggests a dispositional rather than a merely preferential analysis of intention for futurates (and see also Condoravdi and Lauer (2016)).

Fara (2001): N is disposed to M when C is true just in case N has some intrinsic property in virtue of which N Ms when C.

- (18) Structure of a (dispositional) intention:
- an intender y , who is the holder of ...
 - an intentional state e , which in certain circumstances directly causes ...
 - an eventuality e' ...
 - that instantiates the eventuality description p intended by y

In a very informal sense, and without relativizing it to the intender or the speaker, we can say that the certain circumstances are *ceteris paribus* (“(all) things are equal”) circumstances—nothing unforeseen intervenes.

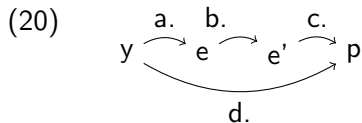
Generalizing from intentions to dispositions

- (19) Dispositional structure
- y is the holder of e
 - e is a state that directly causes e' , *ceteris paribus*
 - e' instantiates p
 - y is disposed toward p

Generalizing from intentions to dispositions

(19) Dispositional structure

- a. y is the holder of e
- b. e is a state that directly causes e' , *ceteris paribus*
- c. e' instantiates p
- d. y is disposed toward p



Generalizing from intentions to dispositions

New idea: “Match” of parts of the denotation with some parts of the dispositional structure gets us the whole dispositional structure
⇒ simple denotation, complex meaning

(21) Futurates:

	from denotation	from dispositional structure
y		is the holder of e , disposed toward p
e	is a state , directly causes e'	is a state held by y , directly causes e' <i>ceteris paribus</i>
e'	is directly caused by e and is an argument of the obligatory temporal adverbial	is directly caused by e <i>ceteris paribus</i> , instantiates p
p	is instantiated by e'	is what y is disposed toward, is instantiated by e'

Futurates

How did we do in capturing the meaning?

- ▶ Single causal chain instead of branching model - can still have different possibilities just no quantification over possible worlds in the denotation (cf. Optimality Theory vs. transformational phonology, or generating possibilities for decisions vs. simulating a plan of action)
- ▶ Authority is *y*'s intention direct causing *x*'s action
- ▶ The notion of disposition allows us to include the inanimate exceptions

Have causatives are similar to futurates

Sense of authority:

- (22) a. Madeleine made me wake up early.
b. Madeleine had me wake up early.

Have causatives are similar to futurates

Sense of authority:

- (22) a. Madeleine made me wake up early.
b. Madeleine had me wake up early.

Idiosyncratic inanimate causer exceptions to the apparent animacy requirement:

- (23) a. #The book had John laugh.
b. The book had John laughing/on the floor/in tears.

Other properties of *have* causatives

Unlike futurates, *have* causatives are not always stative

- (24) Madeleine must have me wake up early tomorrow. (no epistemic reading)

Other properties of *have* causatives

Unlike futurates, *have* causatives are not always stative

- (24) Madeleine must have me wake up early tomorrow. (no epistemic reading)

Unlike futurates, *have* causatives do have some morphology—but we want that morphology to have a simple meaning.

Analysis

(25) Futurates:

	from denotational structure	from dispositional structure
y		is the holder of e , disposed toward p
e	is a state, directly causes e'	is a state held by y , directly causes e' <i>ceteris paribus</i>
e'	is directly caused by e and is an argument of the obligatory temporal adverbial	is directly caused by e <i>ceteris paribus</i> , instantiates p
p	is instantiated by e'	is what y is disposed toward, is instantiated by e'

Analysis

(25)

Futurates:

	from denotational structure	from dispositional structure
<i>y</i>		is the holder of <i>e</i> , disposed toward <i>p</i>
<i>e</i>	is a state, directly causes <i>e'</i>	is a state held by <i>y</i> , directly causes <i>e'</i> <i>ceteris paribus</i>
<i>e'</i>	is directly caused by <i>e</i> and is an argument of the obligatory temporal adverbial	is directly caused by <i>e</i> <i>ceteris paribus</i> , instantiates <i>p</i>
<i>p</i>	is instantiated by <i>e'</i>	is what <i>y</i> is disposed toward, is instantiated by <i>e'</i>

(26)

Have causatives:

	from denotational structure	from dispositional structure
<i>y</i>	bears a relation to <i>p</i>	is the holder of <i>e</i> , disposed toward <i>p</i>
<i>e</i>		is a state held by <i>y</i> , directly causes <i>e'</i> <i>ceteris paribus</i>
<i>e'</i>		is directly caused by <i>e</i> <i>ceteris paribus</i> , instantiates <i>p</i>
<i>p</i>	is what <i>y</i> bears a relation to	is what <i>y</i> is disposed toward , is instantiated by <i>e'</i>

Conclusion

- ▶ We had two phenomena with too much meaning and not enough morphology.

Conclusion

- ▶ We had two phenomena with too much meaning and not enough morphology.
- ▶ We solved them by proposing a dispositional causation analysis

Conclusion

- ▶ We had two phenomena with too much meaning and not enough morphology.
- ▶ We solved them by proposing a dispositional causation analysis
- ▶ This analysis uses these ideas:

Conclusion

- ▶ We had two phenomena with too much meaning and not enough morphology.
- ▶ We solved them by proposing a dispositional causation analysis
- ▶ This analysis uses these ideas:
 - ▶ A notion of disposition

Conclusion

- ▶ We had two phenomena with too much meaning and not enough morphology.
- ▶ We solved them by proposing a dispositional causation analysis
- ▶ This analysis uses these ideas:
 - ▶ A notion of disposition
 - ▶ A causal chain

Conclusion

- ▶ We had two phenomena with too much meaning and not enough morphology.
- ▶ We solved them by proposing a dispositional causation analysis
- ▶ This analysis uses these ideas:
 - ▶ A notion of disposition
 - ▶ A causal chain
 - ▶ The new idea of “matching” part of the dispositional meaning and getting it all for free

Conclusion

- ▶ We had two phenomena with too much meaning and not enough morphology.
- ▶ We solved them by proposing a dispositional causation analysis
- ▶ This analysis uses these ideas:
 - ▶ A notion of disposition
 - ▶ A causal chain
 - ▶ The new idea of “matching” part of the dispositional meaning and getting it all for free
- ▶ Frege – we violate the letter of the law but not the spirit

Conclusion

- ▶ We had two phenomena with too much meaning and not enough morphology.
- ▶ We solved them by proposing a dispositional causation analysis
- ▶ This analysis uses these ideas:
 - ▶ A notion of disposition
 - ▶ A causal chain
 - ▶ The new idea of “matching” part of the dispositional meaning and getting it all for free
- ▶ Frege – we violate the letter of the law but not the spirit
- ▶ Chomsky – ok because denotations simple
- ▶ Hume – ok because we can break interpretations down further however we want

References

- Condoravdi, C. and S. Lauer (2016, November). Anankastic conditionals are just conditionals. *Semantics & Pragmatics* 9(8), 1–69.
- Enç, M. (1987). Anchoring conditions for tense. *Linguistic Inquiry* 18(4), 633–657.
- Fara, M. G. (2001). *Dispositions and their ascriptions*. Ph. D. thesis, Princeton University, Princeton, NJ.
- Fodor, J. A. (1970). Three reasons for not deriving “kill” from “cause to die”. *Linguistic Inquiry* 1(4), 429–438.
- Levin, B. and M. Rappaport Hovav (1994). A preliminary analysis of causative verbs in English. *Lingua* 92, 35–77.

- Martin, F. (2018). Time in probabilistic causation: Direct vs. indirect uses of lexical causative verbs. In U. Sauerland and S. Solt (Eds.), *Proceedings of Sinn und Bedeutung 22*, Volume 2 of *ZASPiL 61*, Berlin, pp. 107–124. Leibniz-Centre General Linguistics.
- Wolff, P. (2003). Direct causation in the linguistic coding and individuation of causal events. *Cognition* 88(1), 1–48.