

Factives & Implicatives

Lauri Karttunen
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Readings

“Fact.” Paul Kiparsky and Carol Kiparsky, pp. 345–369, *Semantics. An Interdisciplinary Reader in Philosophy, Linguistics and Psychology*. D. D. Steinberg and L. A. Jakobovits (eds.), Cambridge, 1971.

“The Logic of English Predicate Complement Constructions.” Lauri Karttunen, IULC, 1971.

“Simple and Phrasal Implicatives.” Lauri Karttunen. pp. 124–131, *SEM: The First Joint Conference on Lexical and Computational Semantics, Montréal, 2012.

Outline

Two of the papers under discussion are from the same period. My paper is mostly about implicative constructions. It is simple, mostly just descriptive. I will augment that with some new observations about phrasal implicatives

The “Fact” paper links **factivity** of verbs and adjectives to **presupposition**. There is a vast literature on presuppositions, 40 years of it. There are fundamental differences on the very nature the phenomenon. It is a topic that cannot be covered in one lecture. For my latest take on it, see

Presupposition: What went wrong?

<http://web.stanford.edu/~laurik/publications/salt26.pdf>

Types of complement clauses

Many papers on factives and implicatives are about the semantics of complement constructions.

Examples of complements:

that he has been found guilty	that-clause
that we are drifting apart	
his being found guilty	gerund
having agreed to the proposal	
to accomplish even more	infinitive
to see Mary with Bill	

Syntactic roles of complements

A 'matrix clause' contains a complement as ...

Subject

His being found guilty is tragic.

That he has been found guilty suffices.

Having agreed to the proposal bothers me.

Object/Complement

I regret having agreed to the proposal.

Bear in mind that he has been found guilty.

Kim was annoyed to see Mary with Bill.

Extraposed subject

It is tragic that he has been found guilty.

It suffices that you let yourself go.

It bothers me that we are drifting apart.

What is the issue?

Given a matrix clause

It bothers me ...

and a complement

that we are drifting apart.

the author is obviously committed to the truth matrix clause. Is he committed to the truth of the complement clause?

In this case the author/speaker is committed to both the matrix and the complement. It would be incoherent/contradictory to say

It bothers me that we are drifting apart # but luckily we are as close as ever.

Committed in what way?

From the hearer's perspective the author/speaker of S may be seen as meaning (= being committed to, intending to convey) or not meaning that P in different ways, for different reasons.

The Cambridge Grammar of the English Language. Rodney Huddleston and Geoffrey K. Pullum (eds.), Cambridge University Press, 2002 distinguishes four different kinds of semantic relations (pp. 33–40, Chapter 1, §5):

entailment	(Aristotle ≈350 BC, necessary consequence)
conventional implicature	(Frege 1892, 1918, Grice 1989)
conversational implicature	(Grice 1989)
presupposition	(Frege 1892, Russell 1905, Strawson, 1950)

There is a broad agreement among linguists that these are the right distinctions but no consensus on how to define the last three.

Semantic Relations

as characterized by Huddleston and Pullum

ENTAILMENT

Kim broke the vase. ⇒ The vase broke.

semantic truth-conditional

CONVENTIONAL IMPLICATURE

Alfred still has not come. ⇒ Alfred's arrival is expected. (Frege 1918)

semantic non-truth-conditional

CONVERSATIONAL IMPLICATURE

Some people left. ⇒ Some people didn't leave.

pragmatic non-truth-conditional

PRESUPPOSITION

Kepler died in misery. ⇒ There was a person named Kepler. (Frege 1892)

pragmatic? non-truth-conditional?

The present King of France is (not) bald. ⇒ There is a king of France. (Russell, Strawson)

She has stopped crying. ⇒ She has been crying. (Huddleston & Pullum)

I regret that we have no tables available. ⇒ We have no tables available. (Kiparsky)

The kinds of 'presupposition triggers' discussed by philosophers 70 years were very limited. When linguists seized upon the idea in the late 1960s, early 1970s there was an explosion.

The Zoo of presupposition triggers

Proper names	Kepler
Definite descriptions, possessives	my bicycle
Aspectual verbs	start, continue, stop
Factive verbs and adjectives	regret, tragic
Implicatives	manage, fail
Repetitive verbs	renew, again
Reason clauses	since, because, as
Temporal adverbs	still, already, yet
Anaphoric particles	too, either, also
Focus particles	only, even
Wh-questions	who, where, why ...
Comparisons	as ... as ...
Non-restrictive adjectives, relative clauses	the N, who VP, ...
Appositives	Lance, a cyclist, ...

What went wrong

In the space of a few years linguists had assembled in the early 1970s a zoo of presupposition-like phenomena, all supposedly of the same species.

That was a fundamental error. Separate cages should have been built for different types of ‘presupposition triggers.’ The quest of an all-encompassing theoretical account of presupposition has been a failure.

Our own suspicion, if we may end on an opinionated note, is that these first attempts to separate presupposition types from each other may turn out to be too cautious. There are several philosophically and linguistically interesting dimensions along which the set of presupposition triggers can be partitioned, such as referentiality, anaphoricity, ease of accommodation, ease of cancellation, and maintenance of truth under presupposition failure. *So perhaps what will eventually emerge is not a straightforward dichotomy, but a more complex taxonomy of different types of trigger. And at that point, perhaps we may re-ask the question of whether the things that the different so-called “presupposition triggers” are triggering are in fact presuppositions, in any of the theoretical senses of the term “presupposition” that we have considered in this article.*

Presupposition, David Beaver and Bart Geurts, Stanford Encyclopedia of Philosophy, 2011

The “Fact” by C. & P. Kiparsky

Written in the late 1960s. My 1971 paper on implicatives dates “Fact” to 1968. At the time the field was advancing very rapidly. Papers were circulated in mimeographed form long before getting in print.

There are many papers from the same period on the topic of presupposition (Jerry Morgan, Laurence Horn, George Lakoff, and others). It is not clear to me who to credit for each particular discovery. The K&K paper on “Fact” stands out. Of all the papers from that period, it is the one to read.

It presents for the first time the idea of [factive vs. non-factive](#) verbs and adjectives. It makes [a link between factivity and presupposition](#). It introduces three [standard tests for distinguishing between presupposition and entailment](#). It recognizes the “[projection problem](#),” the presupposition triggered by an embedded clause may end up as presuppositions of the matrix clause.

factives

significant	counts
odd	makes sense
tragic	suffices
exciting	amuses
relevant	bothers
matters	

nonfactives

likely	appears
sure	happens
possible	chances
true	turns out
false	
seems	

It is odd that John is ill. presupposes that John is ill.

It bothers me that John is ill. presupposes that John is ill.

It is true that John is ill. asserts/entails that John is ill.

It appears that John is ill. no commitment to the proposition that John is ill.

factive

non-factive

regret	ignore
be aware (of)	make clear
grasp	mind
comprehend	forget (about)
take into consideration	deplore
take into account	resent
bear in mind	care (about)

suppose	believe
assert	conclude
allege	conjecture
assume	intimate
claim	deem
charge	fancy
maintain	figure

Tom regrets that John is ill. presupposes that John is ill.

The speaker presupposes that John is ill.

The speaker asserts that Tom regrets John being ill.

Presupposition projection

- (1) Presuppositions are constant under (ordinary) negation.

She doesn't regret that he left. **presupposes** that he left.

- (2) Presuppositions are retained in questions, assertions are not.

Is it odd that John is ill? **presupposes** that John is ill.

Is it true that John is ill? **does not** assert or presuppose that John is ill.

Does it seem that John is ill? carries **no commitment** to whether John is ill.

- (3) Presuppositions of embedded clauses **may** end up as presuppositions of the matrix clause depending on the type of matrix verb.

Bill does not **grasp** that Tom **regrets** that John is ill.

presupposes that John is ill and that Tom regrets it.

Presupposition projection in conditionals

Not mentioned in the “Fact” paper but it became important topic later.

Presuppositions that originate in the antecedent part of a conditional project to the main clause:

If **Kim's** spouse is in town, we will invite both of them.

presupposes that Kim has a spouse.

Presuppositions that originate in the consequent clause are projected upwards unless they are entailed by the antecedent.

If Kim was invited, **Kim's** spouse should **also** have been invited.

presupposes that Kim has a spouse.

If Kim is married, we must **also** invite **Kim's** spouse.

does not presuppose that Kim has a spouse.

“Presuppositions of Compound Sentences.” Lauri Karttunen. *Linguistic Inquiry* 4:2, 169–193, 1973.

What is outdated

The view that K&K have about factivity is neither pragmatic nor truth-conditional as later theories. It is syntactic in the tradition of the then popular trend of generative semantics. The idea was that surface sentence arise by a chain of transformations from underlying syntactic representations that directly encode meaning, through transformations that might, for example, delete the noun fact.

The assumption that factive sentences have more underlying structure than their non-factive counterparts seemed to provide an explanation to some syntactic observations discussed in the paper. Some of the recent work on these lines takes the opposite view: non-factive sentences are seen as syntactically more complex than factive structures.

This has become an esoteric debate. Ignore it.

Are factives all alike?

significant
odd
tragic
exciting
counts
suffices

speaker-oriented

regret
be aware
comprehend
forget
mind
deplore

speaker+protagonist

discover
find out

coming-to-know

Counter-examples

Dream worlds

I dreamed that I was Napoleon and that nobody knew it. (Jerry Morgan)

Mistaken beliefs, false memories

John believes, mistakenly, that he caused an accident. He deeply regrets it.
Sally misremembered not leaving a tip is sorry about it.

Before 1980 everyone 'knew' that ulcers were caused by stress.

Uncertainty of future events (coming to know vs. knowing)

If our company discovers that we have overcharged a client, we will reimburse her immediately.

Not an admission of culpability but a promise to accept the result of the discovery process as a fact. What is the presupposition/conventional implicature here? **Whatever is discovered is in fact the case.** Contrast with

If our company regrets that we have overcharged a client, ...

State-of-the art

Nearly half-a-century after the zoo of presupposition triggers was assembled, we are still trying to understand their similarities and differences. Latest book on the topic:

[Experimental Perspectives on Presuppositions](#). ed. Florian Schwarz, 262pp, Studies in Experimental Psycholinguistic, Springer, 2015.

Draft of a forthcoming Handbook article:

[Presupposition and implicature](#). Christopher Potts. 52pp, Handbook of Contemporary Semantics — second edition ed. Shalom Lappin and Chris Fox, Wiley-Blackwell.

<https://web.stanford.edu/~cgpotts/manuscripts/potts-blackwellsemantics.pdf>

Preview of next topic: implicatives

Basic distinctions between a matrix sentence and its complement:

- no commitment

- presupposition

- entailment

- conversational implicature

An ambiguous example: **not wait to**

Phrasal implicatives

Basic distinctions

Kim said that she had scheduled a meeting. — what about: claimed, told ?
no commitment to the truth of the complement clause

Kim remembered **that** she had scheduled a meeting.
presupposes that Kim had scheduled a meeting

Kim remembered **to** schedule a meeting.
entails that Kim scheduled a meeting

Kim was **not** able **to** schedule a meeting.
entails that Kim did not schedule a meeting.

Kim was able **to** schedule a meeting.
often **con conversationally implicates** that Kim scheduled a meeting.

Presupposition vs. entailment

Kim remembered **that** she had scheduled a meeting.

Kim did not remember **that** she had scheduled a meeting.

Did Kim remember **that** she had scheduled a meeting?

presuppose that Kim had scheduled a meeting

Kim remembered **to** schedule a meeting.

entails that Kim scheduled a meeting

Did Kim remember to schedule a meeting?

no entailment (presupposes intention)

remember that is **factive** (presupposition)

remember to is **implicative** (entailment)

It is not *that* vs. *to*

turn out *that* and turn out *to*

are both implicative — is there another case like that ?

It did not turn out *that* it was what I wanted to do.

It did not turn out *to* be what I wanted to do.

entail It was not what I wanted to do.

be bad *that* and be bad *to*

are both factive

It wasn't bad *that* we had one day of rain on our trip.

It wasn't bad *to* have one day of rain on our trip.

presuppose We had one day of rain on our trip.

Entailment vs. conversational implicature

I managed to read your interesting paper.

entails I read your interesting paper.

It is incoherent to say

*I managed to read your interesting paper but I didn't read it.

I had a chance to read your interesting paper.

suggests/conversationally implicates that I read it.

Conversational implicatures are **cancellable**

I had a chance to read your paper but I didn't read it.

is not incoherent. — more about that later...

Implicative constructions

Implicative constructions yield an entailment about the truth of their complement clause.

Some are simple verbs like forget to and remember to, some are phrasal construction like take the trouble to.

There are six different kinds of implicative constructions. Each of them has one the six possible implicative signatures:

+|- -|+ ++ +- -- -+

to be explained shortly.

Simple two-way implicatives

remember to X $+|-$

Kim remembered to X

$\text{entails } +$ Kim did X

Kim did not remember to X

$\text{entails } -$ Kim did not X

forget to X $-|+$

Kim forgot to X

$\text{entails } -$ Kim did not X

Kim did not forget to X

$\text{entails } +$ Kim did not X

remember to X and forget to X both presuppose that the protagonist intended or was expected to do X

More simple two-way implicatives

+|-

turn out that/to X

manage to X

succeed in Xing

bother to X

happen to X

dare to X

-|+

fail to X

neglect to X

refuse to X

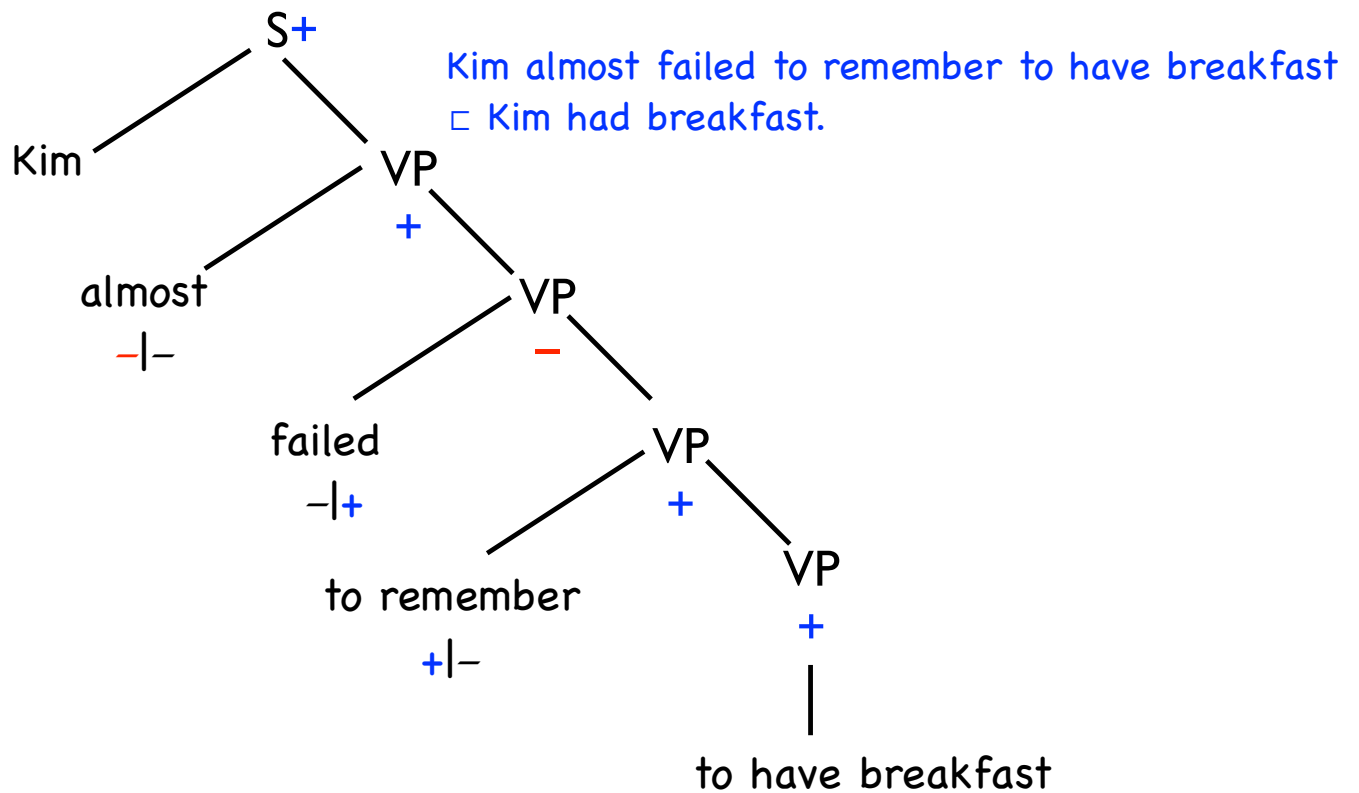
refrain from Xing

avoid Xing

Some Finnish two-way implicatives

Verb	Obstacle	Finnish	English
hennoa	empathy	Hennoitko tappaa kissan?	Did you overcome your pity to kill the cat?
iljetä	disgust	Hän ei iljennyt katsoa.	She did not overcome her disgust to look.
joutaa	commitments	Hän ei jouda tulemaan.	He is too busy to come.
malttaa	impatience	Hän malttoi odottaa.	She overcame her impatience to wait.
kehdata	embarrassment	Hän kehtasi olla alasti.	He overcame his embarrassment to be naked.
ennättää	lack of time	Hän ennätti leipoa kakun.	She managed to have time to bake the cake.
tarjeta	coldness	En tarjennut uida.	I couldn't stand the cold to swim.

Polarity calculation



Polarity calculation stepwise

Kim **almost failed** to remember to have breakfast.

entails (\sqsubset)

Kim did **not fail** to remember to have breakfast.

\sqsubset

Kim **remembered** to have breakfast.

\sqsubset

Kim **had** breakfast

One-way implicatives

+|o

cause NP to
force NP to
make NP to

-|o

refuse to
prevent NP from
keep NP from

o|-

can
be able to

o|+

hesitate to

One-way entailments

Kim forced Mary to speak up. +lo

entails Mary spoke up.

Kim did not force Mary to speak up.

no commitment

Kim prevented Mary from speaking up. -lo

entails Mary did not speak up.

Kim did not prevent Mary from speaking up.

no commitment (may suggest that she did — conversational implicature)

Mary was not able speak up.

ol-

entails Mary did not speak up.

Mary was able to speak up.

no commitment (may suggest that she did – conversational implicature)

Mary did not hesitate to speak up.

ol+

entails Mary spoke up.

Mary hesitated to speak up.

no commitment

Conversational implicatures

In most examples with **be able to X** you find on Google, suggest that X happened:

the company was able to respond but did not do so. (rare)

New Zealand called and Kane Williamson was able to deliver.

→ Kane Williamson delivered.

Similarly for **not prevent NP from Xing**:

Her mother did not prevent her from visiting her father, but she never did.
(rare)

The language barrier did not prevent us from having a few laughs together.

→ We had a few laughs together.

Probabilistic signatures

In our Deep Learning project on implicative constructions we use probabilistic signatures to model the actual usage of one-way implicatives like **be able** and **prevent** that give rise to conversational implicatures:

be able .9|–

prevent –|.7

For example, in generating training data for our neural net for a premise, hypothesis pair like

Premise: the prisoner was able to escape

Relation: —

Hypothesis: the prisoner escaped

We choose **entails** in nine times out of ten and **permits** (= no commitment, neither entails or contradicts) one time out of ten,

Invited inferences

In a neutral context where it has not been already mentioned or otherwise known what actually happened, all of the one-way implicatives are pushed towards being two-way implicatives unless the author explicitly indicates otherwise.

Sally was able to speak up.	→ Sally spoke up.	(+) −
Sally was not forced to speak up.	→ Sally didn't speak up.	+ (−)
Sally did not refuse to speak up.	→ Sally spoke up.	− (+)
Sally hesitated to speak up.	→ Sally didn't speak up.	(−) +

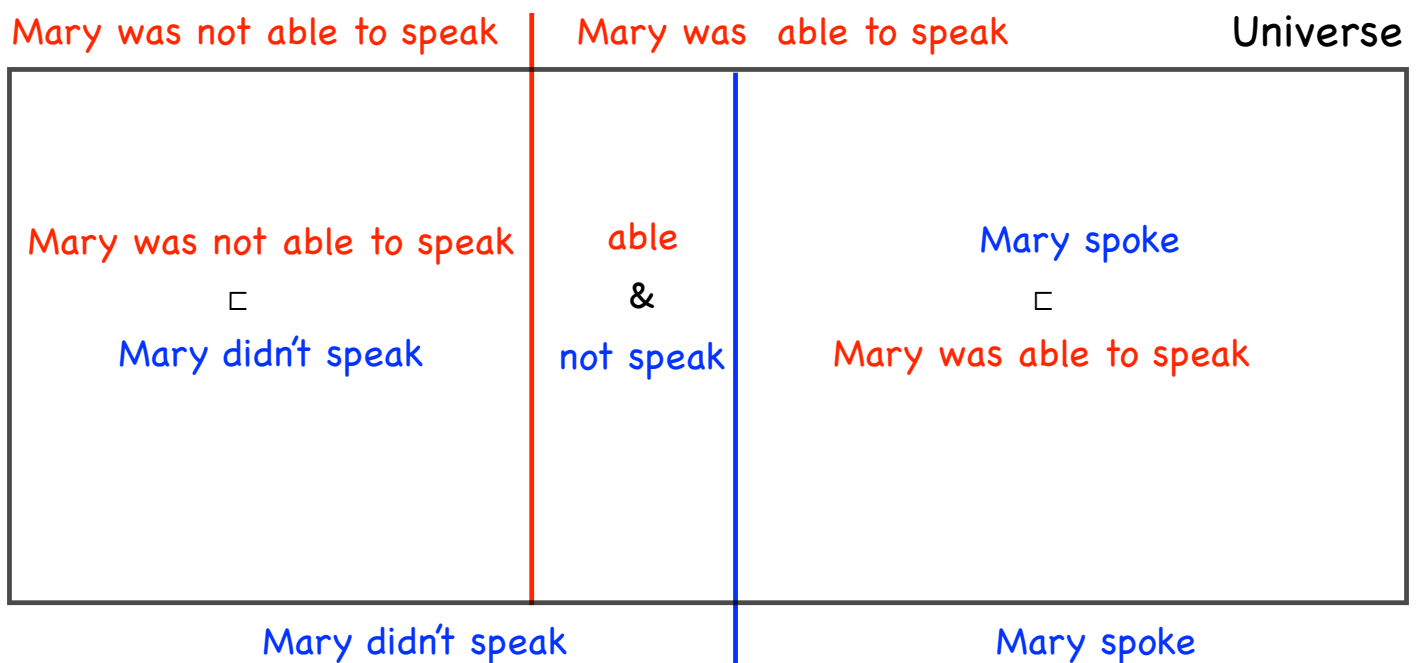
This is a systematic effect although the strength of the invitation varies from one lexical item to another: very strong on **able**, weak on **hesitate**.

This is probably related to the fact that the main sentence of a one-way implicative verb and the complement clause are in MacCartney's COVER relation, \cup , with negation on one member of the pair.

Conversational implicature of **be able**

\sqsubset = MacCartney's cover relation

Mary was able to speak \sqsubset Mary didn't speak



Conversational implicature of not prevent

Mary didn't speak \cup Mary was not prevented from speaking

Mary spoke	Mary didn't speak	Universe
<p>Mary spoke</p> <p>⊆</p> <p>Mary was not prevented from speaking</p>	<p>not speak</p> <p>&</p> <p>not prevent</p>	<p>Mary was prevented from speaking</p> <p>⊆</p> <p>Mary didn't speak</p>
Mary was not prevented from speaking		Mary was prevented from to speaking

Ambiguity of *not wait to*

Ed did not wait to call for help.

... But it was too late. ol+

... Instead he left the scene in a hurry. ol-

Deena did not wait to talk to **anyone**. ol-

entails Deena did not talk to anyone.

It hurt like hell, but I'm glad she didn't wait to tell me. ol+

entails She told me something right away.

A picture disambiguates



This is Neil on his third birthday
– he was so excited to get his
Thomas set that **he didn't wait to
take off** his coat.



My bestest friend Andrea gave me
these for my birthday. I'm a weenie
and **didn't wait to open** the gift.
Heck, I **didn't even wait to wear**
them. They're the softest most comfy
overalls I've ever owned.



...X...Y The protagonist skips X directly to Y.

Source of the ambiguity

"My biggest regret is that I didn't wait [to get married] [to have kids]" says Gerald, a father of three. "If I had to do it over again, I'd wait until I was married to become a father."

entails Gerald did not get married, Gerald had kids.

Ed didn't wait [to ^{ol-}call for help] (...). didn't call at all

wait (to X) (to Y) both complements are optional

Ed didn't wait (...) [to ^{ol+}call for help]. called right away

Simple and Phrasal implicatives

Kim did not **attempt** to hide her feelings.

Kim **made no attempt** to hide her feelings.

Jim did not **dare** to speak to her.

Jim did not **have the guts** to speak to her.

Ed did not **bother** to come.

Ed did not **take the trouble** to come.

Phrasal two-way implicatives

+|-

have the courage, wisdom

Julie had the chutzpah to ask the meter maid for a quarter.

I didn't have the courage to tell her that I loved her.

meet an obligation

We clearly fulfilled the obligation to pass a balanced budget.

Strausser hasn't met his responsibility to make improvements.

take the effort, asset, opportunity

She took the trouble to iron all the clothes.

I just didn't take the time to care for myself.

+|-

use an asset, opportunity

I used the money to buy shoes and food.

Randy didn't use the opportunity to toot his own horn.

waste an asset

I wasted the money to buy a game that I cannot play.

I'm glad I didn't waste 90 minutes to see this film.

-|+

waste an opportunity

Mr. Spitzer wasted the opportunity to drive a harder bargain.

She didn't waste the chance to smile back at him.

fail an obligation

The Avatar failed his duty to bring peace to a broken world.

Orlando didn't neglect his duty to escort the dead.

One-way phrasal implicatives

–|o

lack opportunity

She lost the chance to qualify for the final.

o|–

have ability

The defendant had no ability to pay the fine.

make effort

I have made no effort to check the accuracy of this blog.

o|+

show *hesitation*

She did not have any hesitation to don the role of a seductress.

Fonseka displayed no reluctance to carry out his orders.

VERB FAMILY	NOUN FAMILY	IMPLICATIVE SIGNATURE
FAIL	OBLIGATION	- +
HAVE	ABILITY/OPPORTUNITY	o -
HAVE	COURAGE/WISDOM	+ -
LACK	ABILITY/OPPORTUNITY	- o
MAKE	EFFORT	o -
MEET	OBLIGATION	+ -
FAIL	OBLIGATION	- +
SHOW	HESITATION	o +
TAKE	ASSET/EFFORT	+ -
USE	ASSET/OPPORTUNITY	+ -
WASTE	ASSET	+ -
WASTE	OPPORTUNITY	- +

308 verb-noun collocations

Verb families

FAIL	fail, neglect
HAVE	get, have, possess
LACK	discard, give up, lack, lose, miss, throw away
MAKE	do, make, undertake
MEET	acquit, do, fulfill, meet, perform, keep (OBLIGATION)
SHOW	have, show, display
TAKE	grab, seize, snap, snatch, take
USE	expend, exploit, use, utilize
WASTE	drop, squander, waste

31 transitive verbs

Noun families

ABILITY	ability, means, oomph, power
ASSET	asset, fortune, money, time
COURAGE	audacity,chutzpah, courage, endurance, gall, gumption, guts, impudence, nerve, stamina
EFFORT	attempt, effort, initiative, trouble
HESITATION	hesitation, qualms, reluctance, scruples
OBLIGATION	duty, mission, obligation, responsibility, task, promise
OPPORTUNITY	chance, opportunity, occasion
WISDOM	foresight, sense, wisdom

36 nouns with infinitival complements

Summary

There are two major types of factive constructions, **factive** and **counterfactive**.

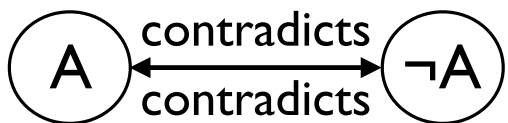
There are six different types of implicative constructions, two classes of **two-way implicatives**: **+|–** and **–|+**, and four classes of one-way implicatives: **+|o**, **–|o**, **o|+**, and **o|–**.

In both categories some items are single verbs like **manage to** and **fail to**, others consist of particular verb-noun collocations like **take the trouble to** and **waste the opportunity**, or copula-adjective pairs like **be bad** and **be strange**.

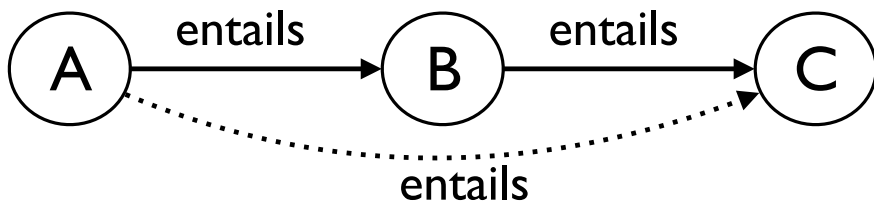
Properties of entailment and contradiction



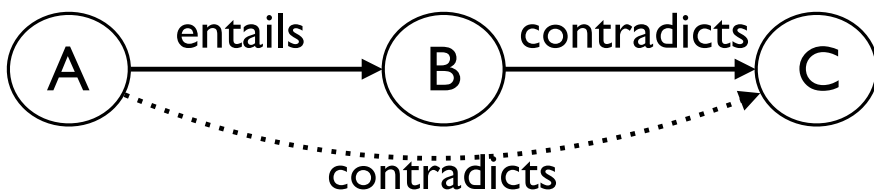
reflexive



symmetric



transitive



Quiz

Classify the following verbs and constructions. Some of them may not belong to any of classes discussed in this presentation.

reveal that S

be afraid to VP

make an attempt to VP

stop short of VPing

claim credit for VPing

shy away from VPing

seize an opportunity to VP

be strange that S

happen to VP

waste no time

Find one or more actual example sentences from Google that support your choice.