

# What is Exceptional?

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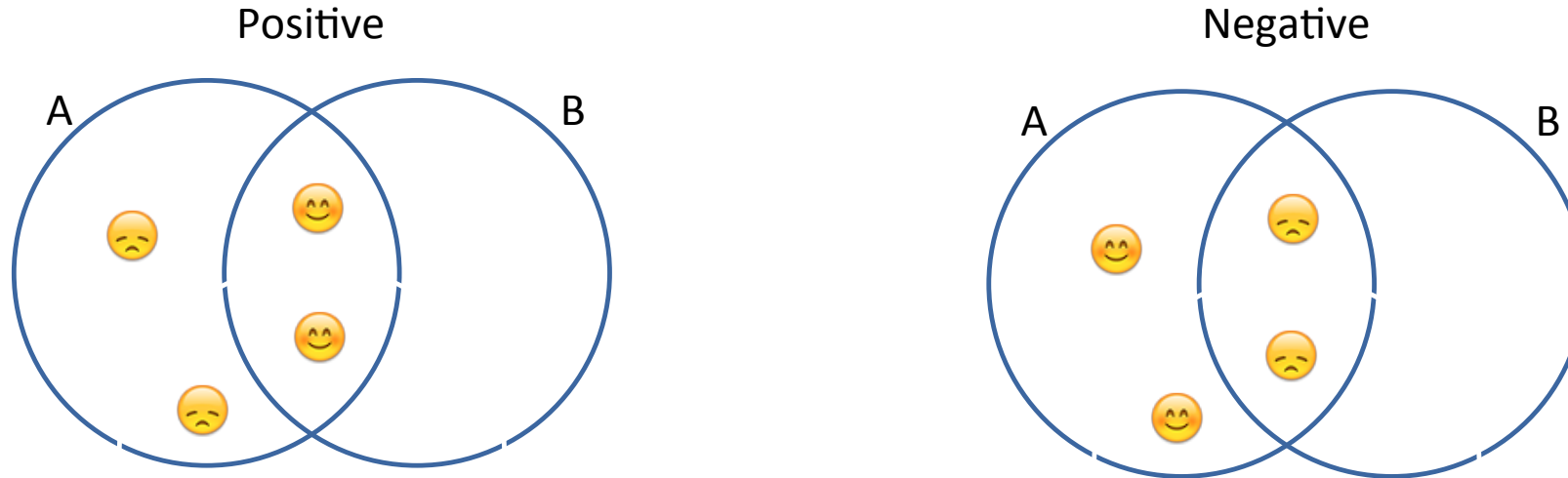
- What would it mean if someone said:

(1) **China is an exception.**

An exception to what?

- Nothing is an exception in its own right. Exceptions exist in connection with generalizations, rules, patterns, etc. Things are exceptions only in relation to such general rules.
- *Generalizations* have a **domain of applicability** and concern an expected **characteristic** with regard to things in that domain.
- Natural language *statements* of generalizations formulate this expectation either *positively* or *negatively*: the characteristic is expected to be present or is expected to be absent. Sentences (2) and (3) are different formulations of the same generalization; (2) is positive and (3) negative.
  - (2) **Every committee member voted in favor of the motion.**
  - (3) **No committee member voted against the motion or abstained.**
- An individual in a generalization's domain of applicability is a **regular** case if it is the way that the generalization says to expect, and is an **exception** if it is not as the generalization says to expect.
  - Members who voted in favor of the motion are regular cases of (2). Members who neither voted against it nor abstained are regular cases of (3).
  - Members who didn't vote in favor of the motion are exceptions to (2). Members who either voted against it or abstained are exceptions to (3).

# Regular cases and exceptions for positive and negative generalizations



😊 regular cases

😞 exceptions

A = the generalization's domain of applicability

B = things with the characteristic that the generalization attributes or excludes

# Generalizations need not be universal

- (4) Birds lay eggs.
- (5) Renters need their landlord's permission to make permanent alterations.
- (6) Almost every nation on earth has agreed to the Paris Accord on climate.
- (7) Usually a bear will retreat if a person approaches it.
- (8) Smokers often find it easier to quit if they haven't been smoking long.
- (9) Alcoholics seldom benefit from psychological counseling.
- (10) Most dishwashers have a water-saving feature.
- (11) The deep shade of ash groves militates against invasion by many species.
- (12) Few people expected the film "It's a Wonderful Life" to become a classic.
- Non-universal generalizations can be true even with a limited number of exceptions.
- Non-universal generalizations are common. True ones are useful and important, in science no less than in daily life. False ones can have pernicious effects if widely believed.
- (13) Women are inferior at mathematics and science.
- (14) Most muslims are terrorists.
- Although a single exception or even a sufficiently limited number need not invalidate a non-universal generalization, a *universal* generalization is falsified by even one exception. Thus the notion of *counterexample* is pertinent to universal generalizations; in fact, what it is for a generalization to be universal is for a single exception to suffice for invalidating it!

# What exactly is a Generalization?

- An exact characterization of the notion *generalization* is still not available. Take the notion as given.
- Generalizations share some characteristics:
  1. Support expectations about a characteristic of things in their domain of applicability
  2. Thereby provide a distinction between regular cases and exceptions
  3. Impose an upper bound on the ratio of exceptions to regular cases
  4. ...?

- Thus (15) and (16) don't seem to express generalizations.

(15) The five Permanent Members of the UN Security Council denounced the use of chemical weapons in Syria.

(16) At least eight films grossed over one billion 2016 US dollars.

- The meaning of words like *all*, *no*, *any*, *most*, *many*, *few*, *always*, *never*, *usually*, *often*, *seldom*, etc. suits them for expressing generalizations.
- However, we do not claim that all uses of these words do so. For example, (17) could just describe the prevalence of rainy days last week, not express a generalization.

(17) It rained most days last week.

# Discussing exceptions

- Words like *except*, *but*, *unless* and some other **exceptive markers** are licensed by generalizations for the purpose of highlighting some exceptions.

(18) No U.S. president except Andrew Johnson and Bill Clinton has been impeached.

(19) Every nation but two third-world ones agreed to the Paris Accord on climate.

- Using them is unacceptable without such a license.

(20) #Some U.S. president except Andrew Johnson and Bill Clinton has been impeached.

(21) #At least eighty nations but two third-world ones agreed to the Paris Accord on climate.

- We analyze exceptive markers as having the following semantic functions.

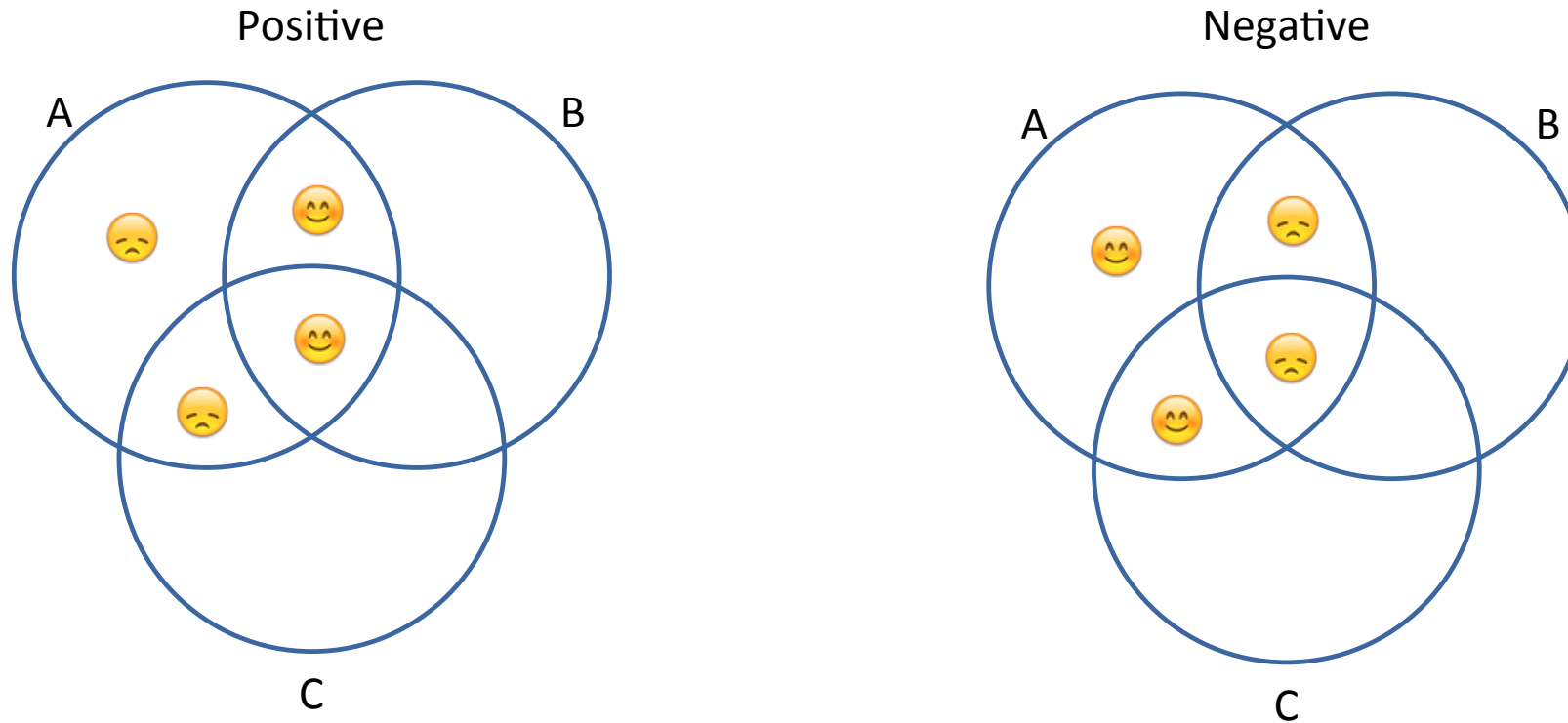
1. **They remove mentioned exceptions from the generalization's domain of applicability.**
2. **They assert the existence of exceptions they mention.**

In this way they limit a generalization's generality and simultaneously highlight some of its exceptions.

- Let's consider previous, contrasting analyses before laying out ours.
- Since Peter of Spain and William of Ockham it has commonly been claimed that exceptives are licensed by universal generalizations and only by these.

- Von Stechow argued that the semantics of exceptives requires the name, plural noun phrase, or definite description following the exceptive marker to denote the smallest set whose exclusion from the generalization's domain of applicability renders the restricted generalization true. Hence only universal generalizations can license exceptives, as such a set may not exist for non-universal generalizations.
  - Moltmann gave a semantics for quantified noun phrases following the exceptive marker, and a different account of the same limitation on possible licensors.
  - Both authors require all exceptions to be included in the pre-restriction domain of applicability, and both of them rely on falsity of the unrestricted generalization for deriving the existence of exceptions to it.
  - Each of these predictions is, alas, empirically false.
1. As García documented extensively, numerous non-universal generalizations – expressed with generics and the quantifiers *most*, *many*, and *few* – license exceptives. He thereby refuted the narrower claim.  
(22) *That's what lies behind the deadly serious boycott of Iranian oil, which most countries except China support by now.*  
(23) *Few people except director Frank Capra expected the 1946 film "It's a Wonderful Life" to become a classic piece of Americana.*
  2. The set associated with the phrase following the exceptive marker does not need to be included in the generalization's domain of applicability, as (24) shows.  
(24) *All stewardesses except redheads worked in first class, and all stewards except redheads worked in economy class.*
  3. The unrestricted generalization can be true just as the restricted one is. Failing to exclude China from (22) would not overturn the majority of countries that support the boycott. Adding Frank Capra to the few other exceptions whom (23) does not name would not falsify the unrestricted generalization.

# A new analysis of exceptives



**Generality Claim:** The generalization holds of As that are not exceptions ☹️ in subset C.

**Exception Claim:** C contains the exceptions ☹️ in A that the exception phrase states.



regular cases



exceptions

A = the generalization's domain of applicability

B = things with the characteristic that the generalization attributes or excludes

C = set brought in by the exceptive expression



# Some examples

(25) Most dishwashers (A) except a few very low-end models (C) have a water saving feature (B).

(26) Few people (A) except director Frank Capra and actor James Stewart (C) expected the 1946 film “It’s a Wonderful Life” to become a classic piece of Americana (B).

(19) Every nation (A) but two third-world ones (C) agreed to the Paris Accord on climate (B).

(27) There’s nobody (A) here (B) except the cleaners (C).

(28) I don’t really know (B) where to look (A) except in McGhee (C).

(29) She asked (B) little (A) except what he was doing (C).

(30) You’ve been (B) everything (A) except president (C).

(31) He’s felt (B) every way (A) except proud of himself (C).

(32) No one (A) except citizens (C) can vote in today’s election (B).

(33) School begins on Sept. 4th for (B) all students (A) except toddlers (C), [who begin Sept. 11th].

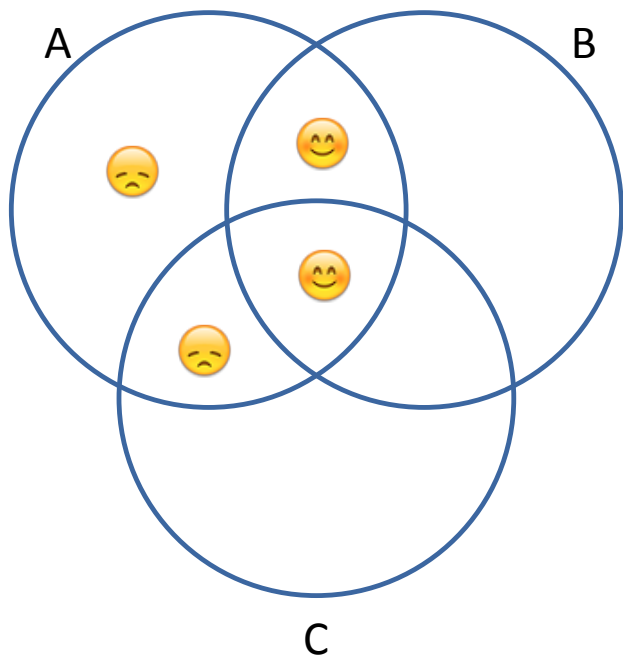
(34) Joseph Hammer-Purgstall declared that no Europeans (A) except physicians (C) had ever entered the Ottoman Court (B).

(35) No Bostonians (A) except Deirdre’s friends (C) were at the party (B).

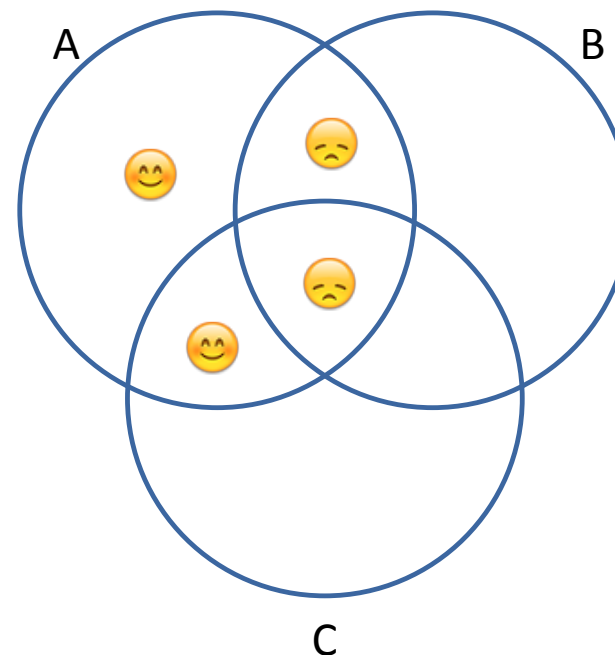
- Note that what follows the exceptive marker in (28) – (31) is not a noun phrase!

# Formal analysis of exceptives

Positive



Negative



$Q_1$  A except  $Q_2$  C are B

$Q_1(A - (C - B), B) \ \& \ Q_2(A \cap C, \bar{B})$

$Q_1(A - (C \cap B), B) \ \& \ Q_2(A \cap C), B)$

**Generality Claim:** The generalization holds of As that are not exceptions 😞 in subset C.

**Exception Claim:** C contains the exceptions 😞 in A that the exception phrase states.

😊 regular cases

😞 exceptions

A = the generalization's domain of applicability

B = things with the characteristic that the generalization attributes or excludes

C = set brought in by the exceptive expression

# Some Advantages of the New Analysis

- This analysis explains the Exception Conservativity of exceptive sentences.

(ECONS)  $Q_1 A \text{ except } Q_2 C \text{ are } B \text{ iff } Q_1 A \text{ except } Q_2 A \cap C \text{ are } B$

That is: the contribution of *except* depends only on the Cs in A.

(24) All stewardesses except redheads worked in first class, and all stewards except redheads worked in economy class.

(36) All stewardesses except stewardesses that are redheads worked in first class, and all stewards except stewards that are redheads worked in economy class.

- ECONS is inconsistent with the Inclusion Condition, which example (24) showed does not hold.
- Attraction to the Inclusion Condition came from inadequate consideration of exceptive NPs besides names.
- The new analysis, which satisfies Exception Conservativity, still requires for (37) that Alice, Bob, and Carol are all donors. It makes  $C = \{\text{Alice, Bob, Carol}\}$  because this Boolean combination depends on all three, and makes the binary quantifier  $Q_2$  a relativization of this unary quantifier which, when applied to C, yields the unary quantifier (see Peters and Westerståhl, to appear).

(37) All donors except Alice and either Bob or Carol will attend the Gala.

- The analysis also explains why *except* requires there to be exceptions even when no Negation Condition would be satisfied.

# Additional Advantages

- It captures the fact that Exceptive phrases do **not** characterize exactly which things in a generalization's domain of applicability are exceptions. They do not necessarily remove all exceptions from this domain, as the lack of contradiction in example (38) illustrates.

(38) Most dishwashers except very low-end models have a water saving feature. Nevertheless, a few high-end models lack this feature.

Example (39) is inconsistent only because being a universal generalization, it is falsified by even one remaining exception.

(39) All dishwashers except very low-end models have a water saving feature. #However, one high-end model lacks this.

- Nor do exceptive phrases in themselves claim that the set C contains only exceptions.

(40) No one except citizens can vote in today's election. Even citizens who haven't yet registered can't vote.

# Future Research Directions

- Many free floating exceptives seem to have the same meaning as those connected to a noun phrase.

(41) *The days where you could be a good doc with a good practice and become a millionaire from that alone are all but gone, except for a few specialties.*

<https://www.whitecoatinvestor.com/how-can-i-become-a-millionaire-as-a-physician-friday-qa-series/>

- The exceptive in (41) does not concern days (doesn't mean except in boom times, for instance). Instead it concerns doctors' specialties. While (41) explicitly generalizes over periods of time, it also generalizes implicitly over medical specialties. The domain of applicability for its exceptive phrase is the latter, not the former. The exceptive phrase says that in a few specialties, and only in those, are current times still the heyday for good medical specialists to become a millionaire through a good practice. Something in the sentence (generic *you* or *a good doc*?) enables the implicit generalization over medical specialties, which licenses the exceptive phrase. Clearly a lot remains to be understood about how this happens!

# Lessons Learned

- Focusing too exclusively on exceptives to universal generalizations proved misleading in several ways.
  - It seemed to indicate that the function of exception phrases was save the truth of a generalization that would be false if exceptions weren't set aside.
  - Consequently it obscured the fact that *except* explicitly makes an exception claim.
  - It invited attempts to explain why exceptives don't occur with non-universal generalizations. (They do!)
  - It tempted some authors to think exception phrases characterize exceptions exactly.
- Not harnessing theorizing tightly enough to empirical investigation allowed erroneous assumptions and predictions to persist longer than they needed to.

# Conclusions

1. All generalizations support expectations about items in their domain of applicability, distinguish regular cases from exceptions, and limit the number of exceptions. (We have not here attempted to define the notion of generalization.)
2. Exceptive expressions are licensed by all generalizations, not just universal ones.
3. The set C introduced by an exception phrase does not mark the boundary separating a generalization's regular cases from its exceptions.
4. Exceptive expressions excuse exceptions to a generalization that lie in C, and only these.
5. Exceptive expressions also claim that some number of actual exceptions are in C.
6. The main reason this simple, elegant and accurate theory of exceptives took so long to emerge was a failure to appreciate the importance of conclusion 2 above. Empirical investigations, including experiments, are very useful in conjunction with theoretical research: for guiding, testing, and keeping it on track.

# Answer to the title question:

Q: What is exceptional?

A: Anything in a generalization's domain of applicability that does not follow the general pattern / is not as the generalization says to expect.



THANK YOU

Questions?