Foundations Seminar: Barriers to Entailment

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Week 2: a survey of counterexamples

Preliminaries

— What *is* a counterexample?

— That depends on exactly how we formulate the barrier

— Suppose Hume's Law says:

> No set of premises, all of which are descriptive, entails a conclusion which is normative.

— Then a counterexample would need to have three features:

1. It is valid (i.e. the premises entail the conclusion.)
2. all the premises are descriptive
3. the conclusion is normative

— We'll use this as our working definition of a counterexample to Hume's Law in what follows, though we might need to adjust it later as we learn more about how to formulate the barriers.

— It suggests parallel criteria for counterexamples to the other barriers, e.g.:

> No set of premises, all of which are Past, entails a conclusion which is Future.

— Then a counterexample would need to have three features:

1. It is valid (i.e. the premises entail the conclusion.)
2. all the premises are Past
3. the conclusion is Future

— Example: Max Black's vivisection argument:[1]

Vivisection causes gratuitous suffering to animals.

If nothing that causes gratuitous suffering ought to be done, then vivisection ought not to be done. (167)

[1] Black, M. (1964). The gap between "is" and "should". *The Philosophical Review*, 73(2):pp. 165–181

— Black's *Vivisection* counterexample is easily transformed into a counterexample to the past/future Barrier:

Hot air ballooning is eco-friendly.

If everything that is eco-friendly is popular *in the future*, then hot air ballooning is popular *in the future*.

— And also against the constant/indexical barrier:

Rudolph Lingens is in Stanford Library.

If *I* am Rudolph Lingens, then *I* am in Stanford Library.

— To the extent that *Vivisection* appears to be a counterexample to the *is/ought* barrier, *Hot Air Ballooning* appears to be one to the past/future barrier, and *Rudolf Lingens* appears to be one to the constant/indexical barrier.

Today's project:

1. look a lot of (proposed) counterexamples to Hume's Law.
2. see whether they can be reformulated to work against the other barriers.

Formal Counterexamples

Trivial case 1: Unsatisfiable Premises

Let the sentence letter D stand in for an arbitrary descriptive sentence, and N for an arbitrary normative sentence, and suppose that contradictory premise sets are unsatisfiable (as they are in classical logic):

$$D, \neg D \vDash N$$

Clearly, however, the same trick can be used to generate counterexamples to the particular/universal barrier, and indeed, any of the others.

$$Ba, \neg Ba \vDash \forall x Cx$$

$$p, \neg p \vDash \Box q$$

$$\mathcal{P}p, \neg \mathcal{P}p \vDash \mathcal{F}q$$

$$Ba, \neg Ba \vDash B\mathfrak{i}$$

Trivial case 2: Logically True Conclusions

$$D \vDash N \vee \neg N$$

And of course for our other barriers:

$$Ba \vDash \forall x(Cx \rightarrow (Cx \vee Dx))$$

$$\mathcal{H}p \vDash \neg(\mathcal{F}p \wedge \neg \mathcal{F}p)$$

Tempting responses in the trivial cases:

— weaken the logic.
  - If we adopt the paraconsistent logic LP instead of classical, the particular arguments from contradictions above are not valid and so not counterexamples.
  - Similarly, if we adopt the Strong Kleene logic, $K3$, we would not regard $\phi \vee \neg\phi$ as a logical truth—indeed we would not think that there were any logic truths at all—and so we would not no longer need to consider counterexamples with logically true conclusions.

This is Graham Priest's *Logic of Paradox*

— This response becomes less attractive once we realise how far we would need to take it.

— It is not sufficient to adopt a logic for which explosion fails, rather we need a logic according to which there are no unsatisfiable sets of premises at all *and* no logical truths.

— A different tempting response: say that these cases are merely *degenerate* consequences of our definition of logical consequence, rather than serious, intuitive challenges to the barriers. (This seems to fit with the Prior response we saw last week.) Because of this we might handle them bluntly by requiring only that the barriers hold *in all non-trivial cases.*
  - One advantage of this blunt approach over weakening logic is that of minimum mutilation; it is only the special cases of unsatisfiability and logical truth that get the chop.
  - A second is fit with the way Hume spoke of the past/future barrier: it is not strictly future claims that Hume said we could not deduce from claims about the past, but rather *future contingents*: claims about the future that do not express mere "relations of ideas". But we will leave the question of the best response to all these counterexamples open for now.

Prior's Dilemma

This is the pair of arguments we looked at last week.

Tea-drinking is common in England.

Tea-drinking is common in England or all New Zealanders ought to be shot.

Tea-drinking is common in England or all New Zealanders ought to be shot.
Tea-drinking is not common in England.

All New Zealanders ought to be shot.

Formalised for concision:

$$D \vDash D \vee N$$

$$D \vee N, \neg D \vDash N$$

Geach and Conditional Proof (also Prior, Kurzman, Black)

— Geach's three-page paper "Murder and Sodomy"[2] argues that the strategy of conditional proof allows the discovery of counterexamples to the *is/ought* barrier.

[2] Geach, P. T. (1976). Murder and sodomy. *Philosophy*, 51(157):346–348

- We begin with a descriptive premise:
  - Anybody who commits murder by poison commits an act of sodomy.
    Or: All Fs are G.
- Then make a normative assumption (to be discharged later on):
  - Anybody who commits an act of sodomy ought to be hanged.
    Or: All Gs ought to K.
- Derive the further step:
  - Anybody who commits murder by poison ought to be hanged.
    Or: All Fs ought to K.
- Finally we conclude with the conditional which has the normative assumption as antecedent and the further step as consequent:
  - If anybody who commits an act of sodomy ought to be hanged,
    then anybody who commits murder by poison ought to be hanged.
    If all Gs ought to K, then all Fs ought to K.
- In taking this step we discharge the normative assumption, so that the conclusion rests only on the descriptive premise:

  Anybody who commits murder by poison commits an act of sodomy.

  If anybody who commits an act of sodomy ought to be hanged, then anybody who commits murder by poison ought to be hanged.

- More concisely but less vividly:

  All Fs are Gs.

  If all Gs ought to K, then all Fs ought to K.

- The conclusion is not a logical truth, yet it seems normative and it follows from the descriptive premise.
- Geach concludes that the *is/ought* barrier thesis is false:

  > I therefore reject the rule forbidding the inference of moral conclusions from non-moral premises; it is logically unsound. (Geach, 1976, 347)

— Despite the differing presentations, Geach's counterexample is structurally analogous to the *vivisection* one in (Black, 1964); they both have a single descriptive premise and a conditional conclusion which is not a logical truth.

— Prior also had a counterexample of this type (Prior, 1960a, 204):

Undertakers are church officers.

Therefore undertakers ought to do whatever all church officers ought to do.

— Geach has helpfully provided us with a recipe for generating similar arguments, and this makes it straightforward to provide analogous counterexamples for the other barriers.

— For example, we saw that *Vivisection* could be transposed into *Hot Air Ballooning*, providing an analogous counterexample for the past/future barrier.

— We can use the following for the particular/universal barrier, and is/must cases:

Ali is a philosopher.

If philosophers annoy everyone, Ali annoys everyone.

$$\frac{Pa}{\forall x(Px \to \forall y Axy) \to \forall y Aay}$$

Parties are events.

If every event must have a cause, every party must have a cause.

(Kurtzman, 1970) presents another variant.

Simple Contraposition Strategies

— Several kinds of counterexample to Hume's Law are generated through contraposition.

— The simplest trades on the fact that some—though not all—barriers seem to be unidirectional, e.g. even if we can't get universals from particulars, we *can* get particular claims from universal ones:

$$\forall x Fx \vDash Fa$$

— Similarly, though the *is/must* barrier thesis denies that sentences which say how things must be follow from sentences which say only how they are, claims about how things are do follow from claims about how things must be. On the formal side, the following is valid in T as well as stronger modal logics like S4, B, and S5:

$$\Box p \vDash p$$

— The principle of contraposition is a staple of mainstream logic. In the form we need here it says:

$$\text{If } \phi \vDash \psi \text{ then } \neg\psi \vDash \neg\phi$$

— If you begin with a valid one-premise argument, the new argument which results from taking the negation of the conclusion as premise, and the negation of the premise as conclusion, is also valid. Applying this to the arguments above gives:

$$\neg Fa \vDash \neg\forall x Fx$$

$$\neg p \vDash \neg\Box p$$

We might think that these contraposed arguments are counterexamples to the barrier theses, since the premises don't contain any of the relevant vocabulary, while the conclusions do.

— Several writers have suggested that the *is/ought* barrier is one of the uni-directional ones. Jackson writes:

> [I]t would be nice if what is claimed of fact versus value were equally plausible of value versus fact. But there are valid inferences from simple ethical statements to simple factual ones; for example, "Joe ought to do A" entails "Joe exists."[3](88)

In the same paper he accepts that *Joe murdered Peter* entails *Joe killed Peter*, with the premise being (in Jackson's terminology) ethical and the conclusion descriptive. He thus suggests a 'simple contraposition' counterexample to the *is/ought* barrier.

[3] Jackson, F. (1974). Defining the autonomy of ethics. *The Philosophical Review*, 83(1):88–96

It is not the case that Joe killed Peter.

It is not the case that Joe murdered Peter.

These simple contraposition counterexamples are unusual in that the do not have an analogue with *every* one of our other barriers. This is because one barrier—the past/future one—is bi-directional; one cannot get future conclusions from past-premises, but neither can one get past conclusions from future-premises. So here we have no past-future argument to contrapose. Since this feature is well-explained by the bi-directionality, I am not inclined to worry that it undermines the similarity between the barriers.

Complex Contraposition Strategies

— There are also complex composition strategies—*complex* because they exploit logical connections that are captured only by logics that go beyond the truth-functors in more than one way, for example, by adding both modal *and* deontic operators, or tense operators *and* first-order quantifiers.

— The most famous such connection is between *ought* and *can*. Mavrodes explained the problem succinctly in *Analysis* in 1964:

> Many ethical philosophers appear to accept the view that 'ought' implies 'can'. This view, which seems quite plausible, can perhaps be formulated more precisely as (1) Statements of the form 'N ought to do X' entail the corresponding statements of the form 'N can (is able to) do X.' But (1) is equivalent to (2) Statements of the form 'N cannot (is unable to) do X' entail the corresponding statements of the form 'It is not the case that N ought to do X'. And (2) appears to say that there is a non-normative statement which entails a normative one.[4] (42)

[4] Mavrodes, G. I. (1964). 'Is' and 'Ought'. *Analysis*, 25(2):42–44

— Suppose that *ought* implies *can*, where this means that sentences of the form *A can* ϕ follow logically from sentences of the form *A ought to* ϕ. Then this argument is valid:

Ali ought to donate blood.

Ali can donate blood.

And if that argument is valid then by contraposition so is this one:

It is not the case that Ali can donate blood.

It is not the case that Ali ought to donate blood.

— This purports to be a valid argument from a descriptive premise to a normative conclusion.
— Arguments like this one suggest that we need to study **complex logics** in order to fully understand the barriers.
— This is something that Gerhard Schurz has long maintained in the *is/ought* case:

> [A]n adequate treatment of the problem requires that the modal language contains the alethic necessary operator $\Box$ as well as the deontic obligation operator O—i.e. we have to work within an alethic and modal predicate language.[5] (37)

[5] Schurz, G. (1991). How far can Hume's is-ought thesis be generalised? : An investigation in alethic-deontic modal predicate logic. *Journal of Philosophical Logic*, 20:37–95

— But the *is/ought* barrier is not unique in its vulnerability to the Complex Contraposition Strategy. A different complex principle is the following: *only possible things will happen in the future*, or as we might abbreviate it: *will* implies *can*. If you think, for example, that teletransporters or FTL travel are impossible, then you will think that the future does not hold any examples of such things. This would make an argument like the following valid:

A spaceship will surpass the speed of light.

A spaceship can surpass the speed of light.

And contraposing gives us:

It is not the case that a spaceship can surpass the speed of light.

It is not the case that a spaceship will surpass the speed of light.

This is a counterexample to the past/future barrier. Similarly, here is a complex principle involving both quantifiers and indexicals:

I am happy.

Someone is happy.

Contraposing gives us:

It is not the case that someone is happy.

It is not the case that I am happy.

This is a counterexample to the indexical barrier, and one that relies on a relationship between quantified sentences and indexical ones. I think this example also makes it clear that while contraposition might be a useful heuristic for finding or presenting complex counterexamples, it isn't really needed, much as Geach's conditional proof strategy can be a useful but not absolutely necessary heuristic. *Everyone is happy* therefore *I am happy* could be used in place of the argument above.

Arguments Using Identity

$$\frac{a = b}{\Box(a = b)} \qquad \frac{a = b}{F(a = b)} \qquad \frac{Fa}{\forall x(x = a \rightarrow Fx)}$$

One *could* defend the barrier theses by claiming that identity-sentences somehow count as universal, necessary, and future. But without further explanation this looks ad hoc.

Formal Counterexamples for Weaker Logics

I'm leaving this section out today for time reasons but check out pages 36–41 of *Barriers to Entailment* if you are interested in the idea of formulating the barriers using a weaker logic. Yale Weiss at CUNY has a nice new paper, "A relevant framework for barriers to entailment," arguing (against me) that we should use relevant logic to formulate the barriers. (It's not published yet so just get back to me if you want this and have trouble finding a copy.)

Informal Counterexamples

Thick Normative Expressions

— Jackson's Simple Contraposition Argument turned on the use of on a so-called *thick* normative expression: *murder*.

— The nature of these expressions is disputed[6] but standard examples include *kind*, *courageous*, *lewd*, *modest*, *tactful*, *selfish*, *rude*, *boorish*, *generous*, and *cruel*.
— The basic idea is that such expressions have both descriptive and normative elements to their meanings.
— If you call someone *generous*, we might think that you say both that they give a notable amount to others (descriptive) and that this is good (normative) (otherwise "imprudent", "simpering", or "extravagant" might have been more accurate.)
— Similarly, if you call someone's action *brave* you convey both that they acted in spite of their fear (descriptive) and that this was good (normative).
— For Joe to have murdered Peter in Jackson's sense requires both that Joe killed Peter (descriptive) and that the killing was wrong (normative).
— By contrast, to call something *good*, *bad*, *right*, *wrong*, *obligatory* or *permissible* is to evaluate it without giving much in the way of descriptive information, and so we might mark that contrast by calling these normative expressions *thin*.
— Some philosophers have suspected that the dual nature of thick normative expressions allows them to support counterexamples to the *is/ought* barrier.
— But different philosophers have held different theories about the meanings of the expressions, sometimes because they held very different theories of meaning *tout court*.
— Here we'll look at three different ways we might think about thick normative expressions if we are seeking counterexamples to the *is/ought* barrier. For ease of reference I'll call them the conjunctive, conditional, and inferential models.

[6] See (Väyrynen, 2013, 2019) for contemporary surveys.

1. *Conjunctive Approaches*

— Thick normative expressions have conjunctive truth-conditions, requiring the satisfaction of both descriptive *and* normative conditions.
— For example, *x is brave* is true iff i) x acts in spite of her fear and ii) x's so-acting is good.
— Then the truth of *Katya is brave* requires that *Katya acts in spite of her fear* and that *Katya's so-acting is good.*
— We can also subsume Jackson's word *murder* under this model: *x* murdered Peter is true of Joe just in case i) Joe killed Peter and ii) his so-acting was wrong.
— It then becomes easy to see why an argument that takes the nega-

tion of one of these conditions as a premise (Joe *didn't* kill Peter) entails the negation of the sentence attributing the thick normative expression: the negation of a conjunct is sufficient for the negation of a conjunction. $\neg P \vDash \neg(P \wedge Q)$

— Similarly, we see why the contraposition strategy is needed in this case: one can't argue from *Joe killed Peter* alone to *Joe murdered Peter* because the latter requires the fulfilment of an additional normative condition. $P \nvDash P \wedge Q$

— our findings as follows: the conjunctive model allows the formulation of counterexamples, but only when combined with contraposition.

2. *Conditional Approaches (Flurging)*

— there are other ways to construct truth-conditions for thick normative expressions

— the descriptive and normative conditions might be combined using conditionals, disjunctions, and other logical expressions.

— In an example due to Gideon Rosen, *to flurg* is to do something that one ought not to do in front of children. (Examples might include swearing, or watching scary movies.) This permits:

Ana is in the presence of children.

Therefore Ana ought not to flurg.

— Rosen's example is most naturally formulated using second-order logic. Here the variable X ranges over actions, the first-order variable y over individuals, and F is a second-order predicate (is flurging). Then we can define flurging:

$$\forall X \forall y(F(X) \text{ iff } Cy \rightarrow O\neg Xy)$$

— Here the righthand side of the definition is a conditional which specifies the descriptive conditions under which the normative condition will hold. The counterexample then proceeds by stating that the descriptive condition is fulfilled in the premises:

$$Ca \vDash \forall X(F(X) \rightarrow O\neg Xa)$$

3. *Inferential Approaches*

— Some hold that rather than specifying truth-conditions, we can give the meanings of expressions by identifying their *inferential role*.

— Following [7], we might think that the meaning of a logical constant ($\wedge$, $\neg$, $\forall$, etc.…) could be identified with its so-called introduction and elimination rules,[8] e.g:

$$\frac{A \quad B}{A \wedge B}\ (\wedge\text{-intro}) \qquad \frac{A \wedge B}{A}\ (\wedge\text{-elim}) \qquad \frac{A \wedge B}{B}\ (\wedge\text{-elim})$$

— Such rules are standard in natural deduction–style proof-systems, where they tell us how to establish a sentence containing a conjunction from other premises as well as how to draw conclusions from a sentence containing one.

— On the inferential role approach to meaning, two expressions have the same meaning just in case they have the same introduction and elimination rules, i.e., the same inferential role.[9]
We can see an example applied to thick normative expressions in Dummett's theory of the meanings of slurs—derogatory, often offensive, expressions for social groups. Dummett illustrates using *Boche*, an old-fashioned slur for German people:[10]

$$\frac{n \text{ is of German nationality.}}{n \text{ is a Boche.}}\ \text{(B-intro)} \qquad \frac{n \text{ is a Boche.}}{n \text{ is barbarous.}}\ \text{(B-elim)}$$

— The idea then, is that any expression that means what *Boche* does will permit all instances of these argument schemata. But this immediately suggests a counterexample to the *is/ought* barrier, one that does not require contraposition:

Smudo is of German nationality.
Smudo is a *Boche*. (B-Intro)
Smudo is barbarous. (B-Elim)

— Similar work can be done with other thick normative expressions, such as those for virtues and vices, e.g.

Katya acted in spite of her fear — Spaghetti straps reveal the shoulders.
Katya did something *brave* — Spaghetti straps are *immodest*.
Katya did something good. — Spaghetti straps ought not to be worn.

— In a well-known objection to the inferential account for the logical constants, [11] points out that if any rules whatsoever could characterise a logical constant, it would trivialise the logic. For suppose we can introduce the connective *tonk* using the introduction-rule for $\vee$ and elimination-rules for $\wedge$:

$$\frac{A}{A \text{ tonk } B}\ \text{(tonk-intro)} \qquad \frac{A \text{ tonk } B}{B}\ \text{(tonk-elim)}$$

[7] Gentzen, G. (1964/1934). Investigations into logical deduction. *American Philosophical Quarterly*, 1(4):288–306

[8] Or, on a variation that Gentzen himself suggested, with just their rules of elimination. See also
Carnap, R. (1937). *The Logical Syntax of Language*. Keagan Paul, London

[9] That might be either because we think the meaning of an expression just *is* its inferential role because we think that whatever the meaning of an expression is determined by its inferential role, though it won't be very important to distinguish between these in what follows.

[10] In what follows I avoid the most offensive slurs and embrace Dummett's suggestion of employing one which is outdated and targets a relatively privileged group. Recent work on slurs has emphasised their conventional use to express contempt (Jeshion, 2013a,b) and their effectiveness in triggering ideologies in audiences. (Swanson, 2021). I'd prefer to see fewer and less intense expressions of contempt in philosophy and I don't wish to trigger harmful ideologies in the minds of my readers. Moreover, given that slurs are not our main focus, we need not be concerned about "missing the full force" or seriousness of slurs by avoiding the worst of them.
Dummett's phrase is "barbarous and more prone to cruelty than other Europeans." I abbreviate for brevity.

[11] Prior, A. N. (1960b). The runabout inference ticket. *Analysis*

— Together these rules allow us to start with a premise p and end up with any conclusion we like, say q. We could even start out with a descriptive sentence D, and end up with a normative one N as follows:

$$\begin{array}{ll} D & \\ D \text{ tonk } N & \text{(tonk-intro)} \\ N & \text{(tonk-elim)} \end{array}$$

— This is surely not a genuine counterexample to Hume's Law. But is the *Boche*-argument any better? In the case of a xenophobic slur, we might be glad to admit that it isn't. *Boche* permits the inference of falsehoods—e.g. that Smudo, and indeed, any arbitrary German, is barbarous—and so we might comfortably regard the presence of such slurs in our language as a flaw or confusion akin to the presence of *tonk*: the rules we associate with these expressions don't *really* license the moves they seem to.

— Along similar lines, [12] points out (citing Hare) that counterexamples like this will not be found compelling when they employ expressions for characteristics that we do not consider to be genuine virtues or vices. Someone who thinks that overt sexual display is not immoral, for example, will either regard the argument below as invalid, or say that there is nothing normative about the conclusion:

His action was an overt sexual display.

His action was lewd.

[12] Väyrynen, P. (2019). Thick Ethical Concepts. In Zalta, E. N., editor, *The Stanford Encyclopedia of Philosophy*. Metaphysics Research Lab, Stanford University, summer 2019 edition

— Rejecting the traditional link between overt sexual display and immorality, they might take *lewd* to apply to overt sexual displays but regard it as having no normative content. So either the argument is not valid, or the conclusion is not normative, and either way it is not a counterexample to the barrier.

— However, there might be expressions for which inferential accounts do better. Consider normative terms that we really do think apply to someone who satisfies a description. (Anscombe, 1958) tells us that the word *bilker* is an expression for someone who makes a bet, loses, and then refuses to pay up. (178) She thinks that the following is a valid argument to a normative conclusion:

Bob took the bet, lost, and then refused to pay.

Bob is a *bilker*.

— (Foot, 1958) gives a different example using *rude* (508):

Action X caused offence by indicating lack of respect.

Action X was *rude*.

— And a further paragraph from Anscombe suggests:

Ali punished someone for something they didn't do.

Ali did something *unjust*.[13]

Thick Expressions for other barriers

— Could there be thick expressions for the other barriers?
— The idea of thick *normative* expressions is well-established in metaethics, but we don't normally think about other kinds of thick expression.
— We can see the basic idea by analogy though.
  - A thick *universal* expression would have a meaning which combined aspects of particularity with aspects of universality.
  - A thick *future* expression would have a meaning which was about both the past and the future.
  - A thick modal expression would have a meaning that concerned both how things are and how they have to be,
  - A thick indexical expression would be partly constant and partly context-sensitive.
— The specifics would depend on our favoured model of thick expressions.
— That gives us a gloss on what these different kinds of thick expressions would be, but do any actually exist in natural languages?
— It is a familiar thought from the practice of translation into formal languages that some natural language sentences express universal quantification covertly.
— Even though there is no explicit *all*, *every*, or *each* in the source sentence, the translation should employ $\forall$.
— Some examples include sentences containing *only*, *the*[14], some uses of the indefinite article *a/an*, numerical expressions like *two* or *at most two*, and superlatives.
  - The only chair is black.
    $\exists x((Cx \wedge \forall y(Cy \rightarrow y = x) \wedge Bx)$
  - The King is Wise
    $\exists x(Kx \wedge \forall y(Ky \rightarrow x = y) \wedge Wx)$
  - A whale is a mammal.
    $\forall x(Wx \rightarrow Mx)$
  - There are at most two Queens.
    $\forall x \forall y \forall z((Qx \wedge Qy \wedge Qz) \rightarrow (z = x \vee z = y))$
  - There are two Gods.
    $\exists x \exists y((Gx \wedge Gy) \wedge \forall z(Gz \rightarrow (z = x \vee z = y)))$

[14] on a Russellian interpretation, anyway.

— Moreover, some such sentences have overtly universal sentences as logical consequences:

The *only* chair is black.	*The* King is wise.
Every chair is black.	Any King is wise.

— And not all such examples have well-trodden paths of translation into, say, the language of first-order logic:

Sally is the *tallest.*	The fridge is *empty*.
Everyone's height $\leq$ Sally's.	Everything is outside the fridge.

Ida is *unloved.*
Everyone doesn't love Ida.

— But there are natural language words which might be thought to be partly, and perhaps covertly, about the future—*mortal* and *inevitable* might be two—or partly about what *has to happen*—e.g. *doomed*, *destiny*.

— Still, whether any of these expressions is thick (thick modal expressions, thick future expressions) and what—if any—kinds of counterexamples they might permit—will, as in the normative case, depend on what the expression means, and so on the correct theory of thick expressions.

— Take *mortal.* Perhaps something is mortal if and only if i) it is alive now, and ii) it is dead at some time in the future.

I know, this might not be quite what we mean by *mortal* when we're talking about immortal elves and vampires who can still be killed on the fantasy battlefield, but just go with this for the example.

Ali is *mortal.*	Ali is *mortal*.
In the future, Ali will die.	Ali is alive.

— As in the normative case, although someone could suggest that the lefthand argument is a counterexample, a defender of the barrier would have a good case that the premise is in fact already about the future, so that the argument is not really a counterexample. Simple contraposition is more promising:

Ali is not alive.
Ali is not *mortal*.

— Similarly, consider a prospective thick *modal* expression: *doomed*. Suppose a project is doomed if i) it has already started and ii) every possible path for the project ends in failure (it's a failure in every possible world!)

Project B is not started.
Project B is not *doomed*.

— We can turn the same trick to generate a counterexample to the particular/universal barrier. Call something a *lighthouse* if i) it is illuminated and ii) it can be seen from everywhere.

Tower C is not illuminated.

Tower C is not a *lighthouse.*

Finally, we have the constant/context-sensitive barrier. For this we might introduce the expression *the flavourite*: for any x, x is the unique denotation of *flavourite* if and only if i) x is a flavour and ii) the utterer prefers it to all other flavours.

Nutmeg is not a flavour

Nutmeg is not my flavourite.

glurging

To glurg is to do something that it is impossible to do in the presence of grownups.

Examples might including acting naturally?

$$\forall X \forall y (G(X) \text{ iff } Ay \rightarrow \Box \neg Xy)$$

— And our accompanying argument is:

$$Aa \vDash \forall X (G(X) \rightarrow \Box \neg Xa)$$

— Perhaps more informally:

Hermione is in the presence of grown ups.

It is impossible for Hermione to glurg.

Inferential

— Suppose instead we thought the meaning of a thick expression was to be identified through its inferential role.
— One might think of *dispositions* as modal analogues of personal virtues and vices.
— Where persons can be generous, thrifty, or kind, objects in general can be fragile, flexible, soluble, and ductile.
— Quine sometimes suggested that to attribute a disposition was to attribute a complex structural (but non-modal) property. (Quine, 1960, 204–7) If one likes this idea, then one might think an argument like this is valid:

The glass has structural property F.

The glass is fragile.

— But calling something fragile is often thought to entail claims with some modal force, for example:

The glass is fragile.

The glass would break, if struck.

— Similarly, being flammable might entail that a thing would catch fire if exposed to a heat source and soluble that it would dissolve if placed in water (or some suitable solvent.) If such introduction and elimination rules hold in virtue of the meanings of the dispositional expressions, then we have valid arguments from non-modal premises to modal conclusions.
— Similarly for the other barriers.
— Suppose (as is the case) that there are different electrical plugs and sockets for different electrical systems in different parts of the world. At the airport you can buy adaptors that let you use your current electrical devices in different electrical sockets around the world.
— Let's call an adaptor *global* if it can be used with every kind of socket.
— Being a global adaptor is a matter of having a certain kind of design, which we will call *style G* and let's suppose that we can describe that design without using words like *all* and *every*.
— But global adaptors also satisfy a condition featuring universal quantification: a global adaptor fits in *every* socket.
— So then consider the following counterexample to the particular/universal barrier, which employs *global* as a thick universal expression:

This adaptor is of style G.

This is a *global* adaptor.

This is a *global* adaptor.

This adaptor works with every socket.

— Finally, we have the case of indexicals. Kaplan noted that context-sensitive expressions must be associated with a linguistic rule or character that allows speakers to determine their meaning relative to the different contexts in which they might be uttered. *I* for example, might be associated with the rule *refers to the agent of the context* and *here (now)* with *refers to the place (time) of the context*. So then consider:

Tim is the only person speaking.

Tim is the agent of this context.

Tim is the agent of this context.

I am Tim.

Speech Acts

— A central idea in the literature on *speech acts* is that the utterance of certain expressions—under the right conditions—can itself be the performance of an action.

  - Saying "I promise to pay you back" can be the making of a promise
  - Saying "you're on" can be the playing of a bet,
  - Signing your name to a letter containing the sentence "I, being of sound mind, hereby bequeath all my worldly possessions to the guinea pig sanctuary" can be the action of bequeathing all you have to the guinea pigs.

See e.g.

Austin, J. L. (1962). *How To Do Things With Words*. Harvard University Press, Cambridge; Langton, R. (1993). Speech acts and unspeakable acts. *Philosophy and Public Affairs*, 22(4):293–330; Soames, S. (2003). *Philosophical analysis in the twentieth century: the age of meaning*, volume 2. Princeton University Press, Princeton, NJ; and Russell, G. K. (2019). Subordinating speech and speaking up. *Oxford Studies in Philosophy of Language*, 1:178–207

— Such actions can have normative consequences: one should keep one's promises, goods ought to go where they are bequeathed, and bets are not supposed to be, in Anscombe's words, "bilked."

— Searle uses the speech acts phenomenon to try to bridge the *is/ought* gap.[15] This argument is based on the one in his paper:

> Pavel uttered the words *I hereby promise to pay you, Yifan, five dollars.*
> Pavel promised to pay Yifan five dollars.
> Pavel placed himself under an obligation to pay Yifan five dollars.
> Pavel ought to pay Yifan five dollars.

[15] Searle, J. R. (1964). How to derive 'ought' from 'is'. *The Philosophical Review*, 73:43–58

— Speech acts usually have *felicity conditions*; background conditions that need to be in place for the act to succeed.

  - For an utterance to constitute a promise, the speaker should not be acting in a play, or merely practicing their English.
  - Persons making bequests need to get their speech act on the public record
  - people who say "you're on!" only undertake bets if they have just been offered one.

— Searle suggests that such conditions—complicated or difficult to uncover and state as they may be—are descriptive conditions and so, where necessary for the argument's validity, we can add sentences saying that they are met to the premises of the argument without jeopardising its status as a counterexample.

— Speech acts performed by those in authority can have particularly powerful effects. Presidents and lawmakers can enact laws that change the rights and responsibilities of citizens, but they can also affect what it is *possible* for people to do—such as be a slave-owner or marry someone of one's own gender. This means that a similar argument can be given as a counterexample to the *is/must* barrier:.

The lawmaker uttered the sentence *Slavery is hereby abolished.*
The lawmaker abolished slavery.
The lawmaker made it impossible to own a slave.
Necessarily, no-one owns a slave.

To clarify: the idea is not that that this law makes it impossible to kidnap someone and force them to work for free. Rather, the speech act makes it the case that any such series of actions (at least by private citizens) constitutes illegal kidnapping and forced labour, rather than coming to own a person and their labour as property.

— It would seem that the performance of speech acts can be described without normative or modal language, and yet they can enact both normative and modal truths. What about truths about the future? Or universal truths?

The president signed a bill into law containing the sentence "from January 1st, LSD will no longer be a class A drug."
From January 1st, LSD will no longer be a class A drug.

The head librarian uttered the sentence "all library fines are hereby cancelled."
The head librarian cancelled all library fines.
All library fines are cancelled.

— As is hopefully becoming clear, making a speech act under the right felicity conditions is often taken to be a way of making a *sentence* true[16] and if the sentence is such that—disquoted—it would belong to the conclusion class for a barrier, then it seems that the description of the performance of speech act (along with a description of the satisfaction of its felicity conditions) can have as a consequence that such a conclusion is true.

[16] Austin himself would have resisted this description, since he held that speech acts did not have truth-values, but there are good reasons to reject that feature of his view. See e.g. (Soames, 2003, 115–134)

— Since the sentence can contain universal, modal, and future-directed expressions, these kinds of counterexamples are as much a threat to the other barriers as they are to the *is/ought* barrier that Searle directs them to.

— The indexical barrier complicates examples involving quotation because one cannot generally disquote an utterance that contains indexicals just because the utterance is true. The following, for example, is not valid:

The chairperson uttered the sentence "I hereby resign from the committee."
I resigned from the committee.

— Relative to a context in which the speaker is me (the author of this book) the first sentence can be true (because the chairperson, who is not me, resigned) while the second is false (because I did not.)

— It would solve the validity problem to change 'the chairperson' in the premise to the indexical 'I', but of course, that would make the premise of the argument context-sensitive.

— This kind of counterexample, then, does not have a counterpart for the indexical barrier, but this anomaly is well-explained by the distinctive behaviour of indexicals around quotation, rather than by a special relationship between speech acts and normativity not shared with the other conclusion classes.

Quotation and embedded sentences

— these counterexamples also make use of quotation.

Bita said, "one ought to be charitable."
Everything Bita says is true.

One ought to be charitable.

I first heard about this kind of counterexample from Daniel Nolan, but there are arguments in print in (Karmo, 1988, 253), where they are attributed to "Monash University student Danny Mond" and said to concisely display features of arguments from both (Geach, 1977) and Prior. There are also similar arguments in is (Nelson, 1995, 555), for example: P1: 'Bertie (morally) ought to marry Madeline' is one of Aunt Dahlia's beliefs. P2: All of Aunt Dahlia's beliefs are true. Therefore C: Bertie (morally) ought to marry Madeline.

— The technique generalises easily to the universal, modal, and temporal barriers as well:

Ade said, "everyone is happy."
What Ade said is true.

Everyone is happy.

We might think of the speech act counterexamples from the previous section as a special case of this type of counterexample. There the presumed effectiveness of the speech act in establishing the truth of the sentence means no second premise is required.

— Key idea: sometimes it is important to insist on assessing sets of premises *as a whole*, since it is possible that premise 1 does not have universal force, and premise two does not have universal force, *but that taken together they do*.

— This point was noticed in the normative case by Philippa Foot, who wrote:

> We cannot possibly say that at least one of the premises must be evaluative if the conclusion is to be so; for there is nothing to tell us that whatever can truly be said of the conclusion of a deductive argument can truly be said of any one of the premises. It is not necessary that the evaluative element should "come in whole" so to speak. If f has to belong to the premises it can only be necessary that it should belong to the premises *together*, and it may be no easy matter to see whether a set of propositions has the property f.[17] (507)

[17] Foot, P. (1958). Moral arguments. *Mind*, 67(268):502–513

— An alternative approach is to use non-factive propositional attitude constructions instead of quotation.

Aristotle believes that there will be a sea-battle tomorrow.
What Aristotle believes is true.

There will be a sea-battle tomorrow.

— Since the attitude verb in the premise is non-factive, one might think that the presence of *will be* in the embedded sentence is not enough to make the sentence which embeds it *future*; someone

could argue that *There will be a sea-battle tomorrow* is about the future, but that *Aristotle believes that there will be a sea-battle tomorrow* is only about the present contents of Aristotle's head.

Maitzen and Moral Nihilism

At least one (non-negative, atomic) moral proposition is true.
No (non-negative, atomic) moral proposition is true or Rothenberg's setting his son on fire was morally wrong.

Rothenberg's setting his son on fire was morally wrong.

— Maitzen argues that the conclusion is normative (*substantively moral*, in his terminology) but that the premises—though they contain normative vocabulary—are not.[18]

— Premise 1 expresses a rejection of moral nihilism and Maitzen maintains that claims that there is at least one truth in a domain need not be claims in that domain.

— Similarly, the claim that there is at least one truth of mathematics is not a truth of mathematics and—especially relevant given our interest in the other barriers—"the assertion that some universal generalisations are true, while true, isn't itself a universal generalisation (although it's equivalent to the negation of one)" (302).

— Regarding Premise 2, Maitzen argues that this disjunction is non-normative because it can be true if moral nihilism is true—suggesting that it doesn't commit us to any substantive moral truths.

— It is straightforward to adapt Maitzen's argument to most of the other barriers, so long as we take some care with a few details, such as the expression 'atomic' and—in the indexical case—the distinction between propositions and sentences.

— Maitzen uses 'atomic' to refer to the simplest kind of natural language attributions of moral properties, such as 'A was morally wrong' or (it becomes clear on page 298) 'R ought not to have done A.'

— To avoid confusion (especially in cases where the obvious formal translation is non-atomic) I'll call these *simple* attributions.

— The important point, I think, is that they don't contain any unnecessary logical complexity (such as negations or conditionals) beyond what is required to attribute the relevant property.

— Comparably simple attributions for the other barriers might be:

a) Everything is black.
b) The sun will rise.
c) Death is necessary.
d) I am walking.

[18] Maitzen, S. (1998). Closing the 'is' - 'ought' gap. *Canadian Journal of Philosophy*, 28(3):349–366

— This gives us:

At least one (non-negative, simple) universal proposition is true.
No (non-negative, simple) universal proposition is true or everything is black.

Everything is black.

At least one (non-negative, simple) future proposition is true.
No (non-negative, simple) future proposition is true or the sun will rise.

The sun will rise.

In the indexical case we can use:

At least one (non-negative, simple) indexical sentence is true.
No (non-negative, simple) indexical sentence is true or I am walking.

I am walking.

— Maitzen's counterexample to the *is/ought* barrier can thus be reformulated to serve as a counterexample to the other barriers.

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