Metaphysics of possible worlds

- What, exactly, is a possible world?

- What is it for something to exist in a possible world?

- There are many different answers.

- We limit our attention to three main conceptions:
  - Concretism
  - Erstazism (one version)
  - Combinatorialism

Concretism

- “The world we live in is a very inclusive thing....There is nothing so far away from us as not to be part of our world. Anything at any distance is to be included. Likewise the world is inclusive in time. No long-gone ancient Romans, no long-gone pterodactyls, no long-gone primordial clouds of plasma are too far in the past, nor are the dead dark stars too far in the future, to be part of this same world....[N]othing is so alien in kind as not to be part of our world, provided only that it does exist at some distance and direction from here, or at some time before or after or simultaneous with now.”

  (David Lewis, OPW)

- The father of **concretism** is **David Lewis** (especially in the book: "*On the plurality of worlds*")

- The basic idea of concretism (also called *modal realism*) is that **possible worlds are concrete worlds, exactly like our actual world** we inhabit.

- According to the modal realist, infinite worlds, the same as ours, exist.

- Some depart from the actual world in only minute details, whereas **some are so different that we cannot even imagine them**.

- There are worlds with only cats. Worlds exactly like ours but in which I have put an extra comma in this sentence, worlds with flying cars, flying with only one galaxy, etc.

- So, for Lewis, in order **to explain** the attribution of **possibilities to our world**, we are left with **infinite additional concrete situations**.

- This (surprising) view, however, must be clarified and specified in many, subtle ways.

- We clarify the view by proceeding in many steps.

Why believe in the existence of many possible worlds?

- The belief in the existence of possible worlds is motivated, mostly, by a kind of **indispensability argument**.

- Talk of “possible worlds” is too useful and theoretically effective to see it as a mere *façon de parler*.

- In the hard sciences, **if an unobservable entity is theoretically useful**, that is often seen as a reason to think **it exists**.

- **Analogously, possible worlds should be posited because they have many theoretical merits**.

- So we should accept that possible worlds **exist**.

- But why should we believe that they are concrete and why should we accept Lewis' view?

- The reason is a version of an **“inference to the best explanation”.**

- The concretist view is the best theory of possible worlds (or so Lewis argues).

  Thus, we should accept it and the entities it poses.

- Lewis' theory delivers **the best philosophical analysis of modality**, that is, a simple and elegant analysis with great explanatory power.

- Lewis discusses at length many of these merits that have to do with semantics, philosophy of mind, philosophy of science, and so on.

- Namely,

  - we know of the existence of other worlds,

  - and we know what worlds are like,

  *- **because** the best philosophical theory we have says that they exist.*

- “Why believe in a plurality of worlds?—Because the hypothesis is serviceable, and that is a reason to think that it is true. The familiar analysis of necessity as truth at all possible worlds was only the beginning. In the last two decades, philosophers have offered a great many more analyses that make reference to possible worlds, or to possible individuals that inhabit possible worlds. I find that record most impressive. I think it is clear that talk of possibilia has clarified questions in many parts of the philosophy of logic, of mind, of language, and of science—not to mention metaphysics itself. Even those who officially scoff often cannot resist the temptation to help themselves abashedly to this useful way of speaking.”

  (Lewis, 1986)

- A precautionary note:

  The metaphysical view of Lewis forces several important modifications of the semantic treatment we offered so far of modal claims and of the interpretation of modal logic using possible worlds.

- Indeed, it is the main alternative to the more standard treatment, championed, for example, by Saul Kripke.

- Some of the differences will emerge in due course.

Worlds

- For the concretist, other possible worlds are no different in kind from the actual world.

- But what are these possible worlds exactly?

- For Lewis worlds are:

  - Maximally connected individuals
  - Spatio-temporally isolated
  - Concrete
  - None is metaphysically privileged

    (They are all actual in a sense)

Maximally connected individuals

- Worlds are **maximally connected individuals**.

- Worlds are **individuals**:

  A world is the **totality composed of its inhabitants**.

  Like a salad is composed of its ingredients, no matter how disparate they are, so a world is composed of its inhabitants.

- A world is nothing over and above its inhabitants,

  in virtue of the (controversial) mereological principle of Composition as Identity, which Lewis accepts,

  and according to which, once you have the inhabitants of a world, you have the world, and vice versa.

- An object is **connected** if *any two of its parts bear some spatiotemporal relation to each other*.

- An object is **maximal** if *none of its parts is spatiotemporally related to anything that is not also one of its parts.*

  (Namely, if all its parts are connected.)

- We can then define a (possible) world:

  A (possible) world is a <u>maximally connected object</u>.

- Concretism claims that there are many of such maximally connected objects.

- Note that **spatiotemporal relations** are important, but not essential.

- For example, Lewis claims that **temporal** relations could be enough, if we admit a world made only of spiritual entities.

  Those entities would exist in time but not in space.

- Note also that nothing special is required about the principles governing space-time.

- There can be world with laws other than the actual world, with a different physics, or with different spatio-temporal dimensions.

- Since there could be worlds determined by different space-time relations than those in our world (with different dimensions, or different features)

  it would be better to define a notion of **external relations** that generalizes space-time relations.

  (A semi formal definitions of such an extension can be found in Borghini.)

- For simplicity, we consider space-temporal relations.

- Note also that a world that does not have spatio-temporal relations at all, would not exist.

- There are **no purely abstract worlds** outside both time and space.

  → This is why the view is *concretist*.

- We can now define what **existence** is in a possible world:

- *An object a exists in a possible world w if a is a part of w*.

- The definition of possible worlds can be specified further:

  *The biggest mereological sum of objects that are **spatio-temporally** related.*

  → Where “mereological” refers to the notion of “being a part of”.

Mereology

- We mentioned mereological notions and some mereological claims (composition as identity)

- **Mereology** is an important ingredient of Lewis' view.

- Since we usually talk of objects and their parts, the notion of part is not particularly mysterious.

  It should be a legitimate notion.

- However, after Lewis the study of mereology boomed, and it is now a rich area of metaphysical inquiry.

  → Lewis was not the first, since mereology was studied, for example, in medieval times and by some Polish logicians at the beginning of the XX century.

Concrete

- Possible worlds are concrete because they exist in space-time.

  ‘Concrete’ is difficult to define, so this qualification must be handled carefully.

- Lewis concedes at least three senses in which his worlds qualify as “concrete.”

  1. They have *spatio-temporal* dimensions.
  2. Worlds are *particulars* (as opposed to *universals*).
  3. Worlds are *not abstractions* (like “the average Italian”).

- Given their concrete nature, we could also simply speak of *worlds*, rather than *possible* worlds.

→ This allows a complete reduction of modality in non modal terms.

The full extensionalization that was required by Quine’s standard is reached.

Isolatedeness

- Different possible worlds have **no spatiotemporal relations connecting them** or their parts.

  → Otherwise, given maximality, they would form a bigger possible world.

- There is also **no causal connection** among different possible worlds.

- Thus, possible worlds are spatio-temporally (and causally) **isolated**.

- Therefore, even though alternate worlds exist just as much as our world,

  they do not exist anywhere in relation to us.

- Distinct worlds have **no overlap** (spatiotemporally).

- No travel across possible worlds is possible at all.

- No sort of space or time travel is able to bring us to other possible worlds.

- Thus, no individual exist in different possible worlds.

- There is **no trans-world identity**.

- No individual in one world is the same as an individual in another world.

→ This is why *duplicates* and *counterparts* will be needed.

- It is important to stress that **isolatedeness** concerns *individuals*, not *properties* or *events*.

- The same property can be instantiated in different worlds.

  (This will be clearer when properties will be defined)

- Indeed, to decide whether individuals in different worlds are similar, we consider the properties they share.

Actuality

(No metaphysical privilege)

- For concretism, **all possible worlds are as real as ours**.

  This is why it is also called *modal realism* or *extreme modal realism*.

  They and their part exist in the very same way as our world and its parts.

- It may seem that Lewis goes too far in declaring that possible worlds exist “in just the same way”.

  After all, you and I are **actual**, whereas Pegasus and his world are not.

- So what is the difference between our world, the **actual** world, and the others?

- What makes our world **actual** is simply that it is **the world that we happen to inhabit**.

- ‘Actual’ does not indicate any special property of our world that distinguishes it from all other worlds.

- ‘Actual’ is like an **indexical** (“I”, “here”).

  It indicates the world we are in.

  But there is nothing special or more real in the world we are in, like there is nothing special in the place we are at.

- Non actual possible objects are just objects that are not “here”. They are not in the world we are in.

- Typically, we regard the actual world as **privileged** with respect to other worlds.

- Such a privilege has, among others, an **epistemic foundation**: we have privileged access to what happens in the actual world.

- Analogously, we tend to privilege the present, or the past, with respect to the future.

- For Lewis, however, there is no metaphysical or objective privilege beyond that epistemic impression.

- It is for this reason that Lewis' theory was almost immediately regarded as suspiciously Meinongian:

  Lewis seems to endorse the existence of certain things that do not actually exist.

- Given how Lewis interprets ‘actual’, however, this critique is misplaced.

Reductive view of modality

- A big apparent virtue of concretism is that it provides a reductive view of modality.

- Modal notions are not just explained in some way, but reduced to something else.

  They are explained away.

- They are reduced to something less problematic and clearer.

- Worlds, for Lewis, have no irreducible modal aspects.

  Modal features are always reduced to simple features of a concrete world.

- There are no “ghostly modal entities” standing for modal notions.

- The reduction is a big feature to reply to the modal skeptics, who do not believe that modal notions make sense.

- A big example is Quine, who stressed the problems we met at the beginning (intensions and substitution).

- Quine was Lewis’ teacher, and, in a sense, Lewis’ view is a way to vindicate modality by his teacher’s standards.

- Note that not all theories of possible worlds are reductive.

- The simplest example is modalism, which take modal notions to be primitive and irreducible.

Plenitude and recombination

- We now determined what possible worlds are, but which possible worlds exist?

- We do not know that by direct experience, since we cannot travel to other worlds.

- Another bad answer, for Lewis, would be: by imagination.

- Perhaps there exist worlds that we cannot imagine.

- Or perhaps we can imagine having a more developed imaginative capacity than the one we have;

  if this is so, then there is also a world in which we have a more developed imaginative capacity;

  but, then, why not believe that there are worlds that we cannot imagine, but that our possible counterparts can?

- Lewis also claims that it is not necessarily true that all we can imagine exists.

- Lewis says that we can imagine a square circle, but this does not mean that there is a world with a square circle.

  (The example is clearly problematic, though.)

Plenitude

- Another point is that so far, Lewis view is compatible with there being only a small number of possible worlds (like 3 or even 1).

- But in order to have an analysis of necessity and possibility in terms of worlds that is serviceable, we need quite a large varied collection of possible worlds.

→ We need many worlds to grant a plenitude of possibilities.

- In order to have enough worlds, and grant plenitude, we could add the principle for which:

- *If P is **possible** then there is a world at which P is true.*

  Namely, “Absolutely every way that a world could be is a way that some world is.”

- But this principle relies on possibility, so it blocks a reductive analysis of modality.

- So Lewis proposes a **Principle of Recombination**.

The principle of recombination

- The intuitive idea is that “patching together parts of different possible worlds yields another possible world.”

- The principle has two aspects: *coexistence* and *failure of coexistence*.

- **Coexistence:** any in individual could coexist with any other individual.

- Namely, every part of a world could coexist with every part of a (different) world.

- Where co-exist means being part of the same maximally connected object. Namely being spatio-temporally connected,

- **Failure of coexistence**:

  There are no necessary connections among objects. Thus, every individual can fail to coexist with any other individual.

  (The individuals can be separated and spread out in different worlds.)

- The idea is that “any distinct things may coexist together or fail to coexist together, as long as they occupy distinct spatiotemporal positions.”

- The individuals to be recombined need not belong to the same world; and neither

  the individuals’ size nor their mereological complexity make a difference.

- For example, the colosseum in Rome (existing in the actual world) could coexist with the pegasus (existing a non actual world).

- Note that the principle of recombination plays an **epistemological** role.

- It helps us determining if something is possible.

- How is the principle motivated?

  By **abduction**.

  It is part of the the theory that best explains modality.

- A first support of the principle is thus in line with the entire strategy.

  It is just an assumption of the theory, which should be accepted if the entire theory should be accepted.

  And the theory should be accepted if it works well and better than any other alternative.

- A second, weaker, reason is that it has intuitive appeal.

Refining the principle of recombination

- As stated, the principle of recombination does not work in a concretist view.

- Since individuals exist only confined in single worlds, they cannot also coexist with other individuals in other worlds.

  So the principle must be reformulated.

- Individuals cannot be recombined in other possible worlds.

- So we need something else to be recombined.

  Something that correspond to an individual in a world to an individual in another world.

  These are given by **intrinsic duplicates**.

Intrinsic duplicates

- Intrinsic properties are opposed to extrinsic properties.
- It is complicated and debatable how to define intrinsic properties.
- The idea, however is that “a thing has its intrinsic properties in virtue of the way that thing itself is, and nothing else.” (Lewis)

  “If something has an intrinsic property, then so does any perfect duplicate of that thing; whereas duplicates situated in different surroundings will differ in their extrinsic properties.” (Lewis)

- Paradigmatic examples:

  being an uncle and being six metres from a rhododendron are both **extrinsic**.

- Lewis proposes that shape, internal structure and (electric) charge as examples of **intrinsic**

  (but these are more controversial)

- In general, we could say that an intrinsic property is one that is independent of accompaniment:

  it belongs to an individual

  independently of whether that individual is, or is not, accompanied by any other collection of individuals.

- An **intrinsic duplicate** x of y is then an individual that share all the intrinsic properties of y.

- Another important distinction Lewis makes is between natural and non natural properties.

- However, this is further a refinement we can put aside.

Back to the recombination principle

- Once duplicates are available, the principle of recombination can be reformulated:

  PR!:

  For any (finite or infinite) number of objects a1,a2, ..., there is a world containing any number of duplicates of each of those objects in any spatiotemporal arrangement.

- Also the second aspect of recombination (failure to co-exist) should be formulated in terms of duplicates:

- Before that let us say that:

  objects a1,a2, ..., are **independent** of objects b1,b2, ...,

  if no sum of any parts of the former are parts or

  duplicates of any sum of any parts of the latter and vice versa;

→ My arm is not independent of my whole body (including the arm).

- The final reformulation then is:

- PR2:

  *For any world **w** any (finite or infinite number of) objects **a**1, **a**2, ..., in **w** and any objects **b**1, **b**2,..., in **w** that are independent of **a**1, **a**2, ...,*

  *there is a world containing duplicates of **a**1, **a**2, ..., and no duplicates of **b**1, **b**2, ...*

- Note that many worlds are easily conceived as consisting of duplicates of relevant parts of the actual world — suitably organized to retain their actual properties, or not, as needed.

- Stranger worlds (containing talking donkeys, exotic species resulting from a wholly different evolutionary history, and so on) could be conceived as reorganization of (duplicates) of microphysical objects.

- Note however that PR does not say that **only** the objects of the **actual** world can be recombined.

- Also objects in other (even weird) possible worlds can be recombined.

- PR is a way to fill the plenitude of possibility.

- It is not a complete epistemic principle telling us everything that is possible.

  Even though it can be used to guide us in our modal judgement.

- PR is not even needed as a complete metaphysical principle founding the plenitude.

- The plenitude of possibility can be taken as primitive in some form: the worlds exist as they are, and there are plenty of them.

  PR just sheds some light on what they are like.

Counterparts

- Possible worlds are used to make sense of modal statements, like:

  P: “Pippo the dog could be fatter.”

- This is a modal claim about an individual in the actual world, Pippo, which is a dog in the actual world.

- When we say that Pippo could be fatter, we claim that Pippo, not in the actual world, but in another world is fatter.

- However, in the concretist view, Pippo does not exist in other worlds. There is no overlap.

- So it is false that Pippo is fatter in another world.

- Indeed, in concretism, every truth about Pippo seems necessary,

  because there is no other world in which Pippo exists and has different properties.

- We have here a problem of **transworld identity**:

  an individual in one world can be (numerically) identical to an individual in another world.

- The metaphysical question is how this transworld identity works.

- From a concretist point of view, this seems particularly problematic.

  For example, if an individual is part of two worlds, then it seems that we could have a spatiotemporal mereological sum including the individual and those worlds.

  Isolatedeness is then lost.

- However, Lewis denies that an individual must belong to a different world in order to have a modal property.

  Suppose, Joe is blonde. Joe could have black hair.

  For Lewis, this does not mean that Joe exists in another world in which he has black hair.

  → Indeed, if this was the case, concretism would have a problem.

- This is an obvious problem for the view, but it can be fixed by complicating the theory.

- The problem is very similar to the problem of recombination that requires duplicates.

- Could we use duplicates again?

- It is easy to see that we could not.

- Having a certain amount of fat is an intrinsic property of Pippo.

  Thus, to be an intrinsic duplicate of Pippo in a different world, an individual must have the same amount of fat.

- Thus, no world can have an intrisinc duplicate of Pippo with more fat.

  So, if it is interpreted about duplicates, the claim is false.

- Pippo could not be fatter.

- The problem generalizes to many claims about intrinsic duplicates.

- Using intrinsic duplicates would require keeping all intrinsic properties fixed across worlds. Intrinsic properties would be necessary and thus essential.

  Only non intrinsic properties could be contingent.

  This seems wrong, or at least an inconvenient result.

- Since the treatment in terms of duplicates does not work, another notion must be introduced.

  The new notion must be more flexible and allow to individuate a corresponding individual in another world with enough differences to allow for modal claims with a correct truth value.

Counterparts

- The problem of transworld identity is solved, by Lewis, by introducing the notion of a modal **counterpart**.

- Counterpart is one of the most important notions of Lewis' modal view.

Counterpart:

Roughly, an object y in a world w is a ***counterpart*** *of an object x in w2*

if y resembles x and nothing else in w resembles x more than y

- It follows that:

  each object is its own counterpart in the world it inhabits,

  but it will typically differ in important ways from its other-wordly counterparts.

  (This is what is not possible with duplicates)

- Four salient characteristics of counterparthood tell it apart from identity.

  1. Unlike strict identity, counterparthood is **compatible with qualitative dissimilarity** and, thus, with an individual having **more than one counterpart** in a given world.

2. Like strict identity, counterparthood is reflexive, but unlike identity, it is **not transitive**.

3. Unlike identity, counterparthood is **not symmetric**.

4. Unlike identity, counterparhood is contextually defined.

- Counterpart theory shows that properties play a key role in Lewis’s metaphysics:

  It is by means of properties that the “identity” of individuals across worlds can be fixed.

- Having counterparts, we can offer the following analysis.

  When we say that “Pippo could be fatter” we mean:

  1. There is a world in which Pippo* is fatter than Pippo is in the actual world.

  (Here we read modality in terms of worlds)

  2. There is a world w in which a counterpart of Pippo (namely, Pippo*) is fatter than Pippo is in the actual world.

  (Here we reformulate with counterparts)

- Namely,

  “Pippo could be fatter is true if Pippo has at least a counterpart in some world that is fatter than Pippo is in the actual world.”

- Given this treatment, sentences of natural language containing modal expressions are disguised qualitative comparisons of individuals.

- Intuitively, your counterpart is a non-actual object that is “sufficiently similar” to you in certain worlds.

- A critical point, however, in the definition of counterpart is its crucial reliance on **resemblance**.

  When is an object “sufficiently similar?”

- Lewis thinks that there are not absolute conditions for similarity.

- What is “sufficiently similar” depends on the context.

  Thus, also what individual is a counterpart in a world depends on the context.

- The range of properties upon which the similarity rests varies based on the sentence under consideration and the specific context in which it is used.

- At a minimum the similarity will rest on one property and, at a maximum, it will rest on all the properties of the individuals under comparison.

- Note that **similarity here can involve also extrinsic properties**.

- Counterparts are not determined only on the basis of intrinsic properties like duplicates.

  (A distinction then could be traced between similarity and (a more narrower notion of) resemblance.)

- Indeed, in some cases extrinsic properties might be more important in determining what a counterpart is.

  (For example, who someone is married to...)

- Thus, modal claims, by relying on counterparts, do not have a fixed truth value, but require a contextual ingredient.

- Lewis thinks that this is an important virtue (not a flaw) of his view.

  Because it allows the flexibility that seems to be needed to do justice to the flexibility of our modal judgements.

- Take *de re* statements.

- Lewis thinks that in certain contexts it may be correct to think that people have humanity essentially.

  In other contexts it may be correct to think that people could be machines.

- This “Quinian” flavor, for which modal statements depend on the context, however, does not imply that we should avoid modal talk or that it is void of content, too confused, or useless.

Could we use counterparts instead of intrinsic duplicates in PR?

- Could we use counterparts to define the principle of recombination, rather than intrinsic duplicates?

- No.

  In this case the flexibility of counterparthood poses a problem, because counterparthood significantly differ from identity.

- Intrinsic duplicates are needed to have a notion as close as possible to strict identity in the context of concretism.

Intensions

- We know that intensions can be read in terms of extensions, using possible worlds.

- Concretism allows a further step.

- Take predicates.

  unlike possible world semantics, predicates are **not** to be thought of as having **different extensions at different worlds.**

- Each predicate has a **single extension that can contain objects across many different worlds**.

  All the objects that have that property across all possible worlds.

- For example “is a dog” is associated with the set of all dogs in all possible worlds.

- In standard semantics, this is not possible, because it is implemented in a metaphysics in which an individual can exist in different worlds, and thus it can be a dog in one world but not in another.

  So it should and should not be in the set.

  Thus a more complicate treatment is required (namely different extensions relative to worlds).

- Similar simplifications hold also for other intensional notions.

- A proposition is a set of possible worlds.
- A property is a set of individuals.

- Indeed, in this treatment, intensions are just extensions.

  They are not just explained in terms of extensions. They are the same sort of extensions we have in non modal discourse.

- They are just larger extensions than usual, because they are not limited to one world.

- In this way the extensionalization of modal discourse is complete.

- This is another merit of concretism.

- A proposition p is true in a world w, just in case w$\in$ p
- An individual a has a property P, just in case a$\in$P.
- An individual a has P accidentally, just in case a$\in$P but b$\notin$P for some other-worldly counterpart b of a;
- An individual a has P essentially, if b$\in$P for every counterpart b of a.

Advanced modalizing

- Advanced modalizing concerns modal talk about theoretical entities.

  It does not involve ordinary natural language, but notions introduced in the theory about modality (like concretism itself).

- The aim of concretism is to provide a reductive analysis of modal talk in natural language.

- For theoretical language, however, we can introduce a *sui generis* analysis.

- For example, for Lewis, there may be individuals that are not world-bounds.

  For instance, consider the scattered whole composed of me and one of my counterparts in another world.

  This whole is an individual that has parts in two distinct worlds.

- However, Lewis claims that modal sentences from ordinary language are never about such individuals.

- Thus, they pertain to **advanced modalizing**.

  This is something we can do from a theoretic perspective, and not in the usual natural language.

- For another example, one could consider all worlds and think that:

  There could have been more worlds than there are.

- Can the concretist read this?

  Apparently, if we read it in the concretist way, we would have to consider counterparts of the worlds… but it seems that there is no worlds where such counterparts could be taken...

- This, however, is also an example of advanced modalizing, because it concerns worlds which are part of the theory and not of the ordinary modal talk in natural language.

- So we can use a *sui generis* approach, and not be bound to counterparts.

- In particular, since worlds are the possible ways of being, that sentence can be read, according to concretism, as:

  There are more worlds than there are.

  Which is simply false, because it is contradictory.

Some virtues of concretism

1. Reduction

Concretism (allegedly) reduces modal entities to non-modal entities.

Modality is reduced to something non modal.

→ This completely solves metaphysical skepticism toward modality (Quine).

- No other theory of modality seems able to achieve that.

2. The richness of the theory

According to concretism, there are many more possibilities than the ones we can express in our language.

- Concretism is compatible with a sort of metaphysical humility, according to which the actual world does not contain all the kinds of things that there could be.

- All other theories seem to have problems to explain that.

3. Minimal metaphysics

The fourth theoretical benefit is that modal realism calls for an ontology that is, in a certain sense, minimal.

All there is are worlds.

(Their parts, and sets of their parts),

- **4. Expression power**

  The theory has no difficulty in accommodating modal truths that are not expressible in quantified modal logic.

  Examples are below.

Numerical quantification

- “There are three ways in which Joe could win the chess match”

is treated as genuine quantification over sets of worlds.

-”There could have been more things than there actually are”

is treated as:

“There is a world w that contains a counterpart of every actually existing thing and, moreover, w contains an object that is not the counterpart of any actually existing thing.”

- **Modalized comparatives**,

  “My car could have been the same colour as your car actually is”

  can be written as

  “There is a world w containing a counterpart c of my car, and c is the same colour as your actual car.”

- Note that the ability to express this modal statements is not a critique of the validity of modal logic in its area.

  Modal logic is fine, but it has a limited expressive power.

  There is just more to modality than modal logic.

- It is a criticism, however, of those who think that modal logical notions (box and diamond) could be taken as primitive notions, implicitly defined by logic, and taken to account for modality in general.

  For example, modalism.

Problems of concretism

1. The “incredulous stare.”

The main problem is that the fact that its ontology is wildly at variance with common sense.

- Lewis complained that when he first advocated extreme realism he was not met with argument but with ***incredulous stares***.

  Nevertheless, as he admits, the incredulous stare is damaging.

- For Lewis, the philosopher's job is not to justify or undermine our opinions;

  rather, its job is to systematize these opinions. Usually, in the course of such of a systematization, some of our pre-existing opinions must be altered: some things we thought were true must be counted false, and vice versa.

- The systematization is a good one as long as it respects those pre-philosophical opinions to which we were firmly attached. Violating these opinions counts against that theory

- However,

  1. Common sense need not be preserved at any cost.

     (Someone might even question the role of common sense in philosophical and scientific theories.)

- 2. Lewis argues that no other theory explains so much so economically.

  Thus, the existence of possible worlds should be accepted, given its benefits.

- Lewis emphasizes that common sense is not the final arbiter on what is philosophically best, and that the theoretical advantages of his concretist view ultimately outweigh the disadvantages.

2. Ontological parsimony

A principle of ontological parsimony would demand that entities should not be postulated beyond necessity.

But Lewis view promotes a tremendous proliferation of entities, beyond what is needed.

- But really beyond what is needed? Do not worlds serve the purpose of explaining modal facts?

- Yes. But they are not necessary because other theories, which do not postulate worlds, can explain such facts as well.

- So there are explanations that avoid postulating worlds. So worlds need not be postulated.

- In this respect, the other theories seem better, because they explain with less ontological commitments.

- It is at least debatable, however, that other theories can explain modal facts equally well.

- Lewis, moreover, replied by distinguishing **quantitative parsimony** from **qualitative parsimony**.

- **Quantitative parsimony:**

  The mere number of entities postulated.

  Lewis accepts that he is violating this.

- **Qualitative parsimony:**

  The number of **kinds** of entities a theory postulates.

  Lewis claims his concretism is qualitatively parsimonious.

  After all, we already believe inthe actual world, and Lewis is merely asking us to believe in more entities of the same kind.

- *Rejoinder:*

  It may be objected that concretism is not really qualitative parsimonious.

  Because, by PR, we come to believe in the existence of kinds of entities we did not believe before: unicorns, witches, spirits, flying donkeys, etc.

- **3. Humphrey**

  “If we say Humphrey might have won the election, we are not talking about something that might have happened to Humphrey but to someone else, a “counterpart”.

  Probably, however, Humphrey could not care less whether someone else, no matter how much resembling him, would have been victorious is another possible world.’

  (Kripke)

- Lewis replies that this is wrong.

  It is Humphrey (not someone else) that might have won the election.

- **But** it is *in virtue of* the fact that **someone** that saliently resembles Humphrey **has** (not might have) won the election, that **Humphrey** (not someone else) **might** have won the election.

- The objection, moreover, might also affect other views, like ersatzism.

  Humphrey is not interested in whether there is an abstract entity according to which he wins.

3. How do we know?

- Causal interaction with x is arguably required in order to know about x.

- But there is no causal interaction between us and other worlds.

  1. So how do we know that they exist?

  2. How do we know what they are like? (How can we have reliable modal judgements?)

- These are different questions and can receive different answers.

  1. We know that they exist by inference to the best explanation.

  “The best theory to explain modal facts (and else) is the theory that postulates them).”

- 2. We know (partially) what other worlds are like by using the **principle of recombination**.

  We imagine a scenario and test it with respect to the principle of recombination.

  Note that this is far from giving us complete knowledge of other worlds. Indeed, it is a very limited knowledge.

- This, however, should not worry us too much.

  Also in set theory our axioms are not enough to settle very question.

  And similarly in science we might not be able to settle everything.

- **4. No scattered world**

  Lewis contends that a continuous region of space-time is necessary and sufficient to individuate a world.

  And worlds are isolated.

  So, Lewis is forced to say that no possible world contains isolated space-time regions. But intuitively this seems a genuine possibility.

- Lewis accepts that and claim that such a possibility is “no central part of our modal thinking,”

- **5. The poverty of the theory**

  The theory might be not so rich in possibilities as advertised. Here are some missing possibilities.

- For example, it is plausible to think that there might have been nothing.

Unfortunately, this is not a possibility that the concretist can admit.

For the concretist, possible worlds are maximal spatiotemporally interrelated sums of possible objects.

But the mereological sum of nothing isn’t anything at all!

So there is no such a possible world.

- In general, if necessary beings existed (god, abstract entities). This may be acceptable.

- But for the concretist, for example, numbers are not located in space-time, so it is a problem.

- Analogously,

  even the weaker thesis that there might have been not-spatiotemporally extended entities is not a possibility that the extreme realist can easily accommodate.

- **Alien possibilities**

- Another case in which there may be not enough possibilities is that of strange possibilities involving properties that are alien to the actual world and any recombinations of its parts.

Note that an alien property is not just a property that is not actually instantiated.

For example, although the property of being a unicorn is not actually instantiated, it is not so foreign either;

in a sense, it can be constructed or analysed out of properties that are actually instantiated.

- By contrast, an alien property cannot be so constructed.

- Perhaps many strange properties could be obtained in a similar way, by recombining other parts, including subatomic parts.

- But, much more radically different properties might not be obtained like that. These are the alien possibilities.

- Even if it is not easy to give examples of properties that are alien, for obvious reasons.

As soon as we allow that there are such possibilities, we see that the principle of recombination, as it currently stands, does not entail that there are worlds containing alien properties.

- Accordingly, completeness has not yet been secured.

- **6. Circularity**

It can be objected (Lycan) that Lewis' analysis indeed employs a modal notion.

Namely, 'world' in Lewis' mouth means **possible** world, in contrast to the **impossible** worlds whose existenceLewis rejects.

Can Lewis' *theory* understand this distinction in completely non modal terms?

- Apparently, only if Lewis abandoned the distinction between possible and impossible worlds, ‘world’ could be a non modal term in Lewis’ primitive vocabulary.

- Moreover, it could be argued that for the same indispensability reasons in favour of possible worlds, Lewis should admit **impossible** worlds as well.

- But Lewis rejects that, for he rejects that contradictions could be true.

- So the worry remains.

6bis. No reduction of modality

The goal of Principle of recombination is to spell out the modal intuition that anything **can** coexist, or fail to coexist, with anything.

- But then there is a modal notion involved “can”.

  PR relies on the **possibility** that the intrinsic duplicates fit the reticulate of external relations.

- It rests on the the **possible coexistence** of the intrinsic duplicates and of a certain system of external relations.

- But **possible co-existence** is to be explained in terms of **counterparts**, which should already rely on the Principle of recombination.

- There is no reduction but another circularity.

- Lewis could reply that this is another case of **advanced modalizing** and the problem could then be avoided.

- **6ter. Another case of non reduction**

  The principle of recombination is built on intrinsic duplicates.

  Intrinsic properties are those which are **independent of accompaniment.**

- This independence should apparently be read as the recombination of entities without being accompanied by other entities.

- So we need a principle of recombination, which, needed duplicates to be defined.

- We are then in a circle again.