A THEORY OF CORRESPONDENCE

ABSTRACT

A common view of *truth* is that whatever is true reflects the way the world is. That is, truth consists in a relationship between that which is true and the world (or parts of it). This relationship is typically called *correspondence* (hence, *the correspondence theory of truth*). But philosophers have so far failed to spell out in precise terms just what the relation of correspondence *is*. Only a handful of proposals have been offered, and each of these makes use of undefined technical terms. Therefore, in this essay, I will offer a precise analysis of the correspondence relation. The analysis is valuable because it explains *how* a proposition could correspond to something as well as *why* propositions correspond to the things they do.

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A THEORY OF CORRESPONDENCE

> "In what is the agreement of the thing (fact) and the statement (proposition) supposed to consist, given that they present themselves to us in such manifestly different ways?" (Heidegger 1967, p. 180)

§1. THE VALUE OF AN ANALYSIS

The most common view of truth among philosophers (and non-philosophers) is that truths reflect the way the world is.[1] This view implies that there is a relation R, such that every true proposition stands in R to part of the world if and only if that proposition is true. Call such a relation *correspondence*. I will offer an analysis of the correspondence relation. But first, I will explain why we might care to have such an analysis.

One value of an analysis is that it would enable us to explain how it is even *possible* for propositions to correspond to things. Some philosophers have argued that there couldn't be any such relation as correspondence on the grounds that truth-bearers are too different from the things to which they allegedly correspond. Their argument can be summarized as follows:

(1) If propositions (truth-bearers) correspond to things, then they must be structurally similar to the things to which they correspond.

(2) Propositions aren't structurally similar to the things to which they allegedly correspond.

Therefore:

(3) Propositions don't correspond to things.

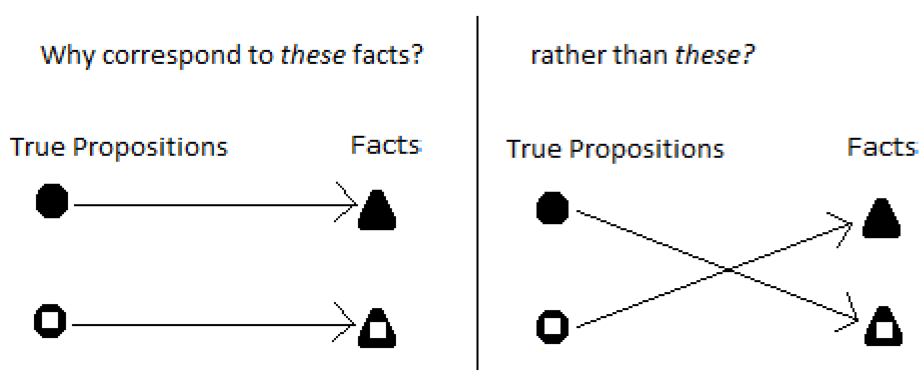
As a matter of historical observation, most proponents of the correspondence theory of truth (CTT) accept (1). Their reason is typically that it seems that only a relation of structural

[1] *Phil Papers Surveys* (2009).

similarity could explain how propositions built up out of terms (or concepts) might systematically correspond to facts that are built up out of things to which those terms (or concepts) refer. (There are proponents of CTT who do not accept (1), but the question of how a truth-bearer could correspond to something so different from itself seems all the more pressing if there is no structural similarity between a proposition and that to which it allegedly corresponds.)

Some skeptics of CTT motivate (2) by arguing that propositions are simply too different from the things to which they correspond to bear any structural similarity to them. I think the best argument for this is historical: every serious attempt at an analysis to date (e.g., Russell 1914, Newman 2002, Englebretsen 2006) fails to make clear what all their basic terms mean (most notably the term 'in an order') and therefore fails to make clear what the structural similarity between truth-bearers and corresponding parts of the world consist in. One value, then, of having a complete analysis of the correspondence relation is that it could help us see how propositions *could* correspond to things.

Here is another value: an analysis would allow us to explain why true propositions correspond to *the things they do*. Consider the diagram below:



We see that true propositions correspond to certain facts and not to others. For example, suppose the proposition that the cat is on the mat corresponds to a fact built up out of a cat and a mat.

Then it would seem that there ought to be an explanation as to why that proposition corresponds to something built up out of a *cat* and a *mat* rather than to (say) something built up out of a tree and shoe. An analysis of correspondence would provide such an explanation.

Thus, an analysis of correspondence would have these two values: it would help explain *how* a proposition could correspond to something, and it would help explain *why* propositions correspond to the things they do.

§2. Facts and Propositions

To give an analysis of correspondence, it will help to have an account of its relata—that is, of propositions (or truth-bearers) and of facts, the things to which propositions correspond. Elsewhere, I offer a theory of propositions and facts that can act as a foundation for a correspondence theory of truth.[2] Here I will review the essential components of that theory.

A fact is an *arrangement* of things.[3] I'll relegate the technical definition of 'arrangement' to the Appendix and simply present the intuitive idea. An arrangement is a mereological sum that consists in its parts bearing certain relations to one another. Consider an example: an arrangement consisting of a certain cat being on a certain mat has two parts, a particular cat and a particular mat. (The relations between its parts aren't themselves parts of it.) This arrangement exists if and only if the cat bears the *on top of* relation to the mat. In general, a given arrangement exists if and only if its parts bear certain requisite relations to one another.

There is no restriction on what sorts of things may form an arrangement. Thus, unlike Armstrong's states of affairs, arrangements may be wholly built up out of abstract entities, such

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[2] [Removed]

[3] Cf. Stenius (1960), p. 31.

as properties and relations. For example, there is an arrangement consisting of the number 6 bearing the relation of greater than to the number 4. In general, any related things from any ontological category form an arrangement (assuming the related things don't include the very arrangement they constitute).[4]

Turn now to propositions. I suggest that propositions are also arrangements: they are arrangements of individual essences (properties that can be essentially had by something and not possibly had by any other thing).[5] This means that the *unity* of a proposition is the same as the unity of a fact. It also means that, propositions, like facts, do not form a *sui generus* ontological category but are reducible to the more familiar category of mereological sum.[6]

A potential stumbling block to this account of propositions emerges by my use of individual essences. Some philosophers are skeptical that there are such things (e.g., see Menzel 2008). But the good news is that we may make use of surrogates by defining 'individual essence' in terms of 'singular proposition' as follows:

'x is an individual essence' $=_{def}$ '(x is a singular proposition about something, such that x is true if and only if what x is about exists'.

Then we can think of an "individual essence" as "exemplified by *x*" by virtue of its being true and intuitively about *x*. Therefore, singular propositions of a certain sort may play the role of

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[4] More precisely: □ (∀xs (~∃y (y is one of the xs and (y is an arrangement of the xs or (∃z z is part of y and z is an arrangement of the xs))) → (∃y (y is an arrangement of the xs)). This assumes that all things are related in some way (such as by non-identity).

[5] 'x is an individual essence' $=_{def}$ '◊ ∃y (y exemplifies x, □ (y exists → y exemplifies x), and □∀z (if z exemplifies x, then z = y))'.

[6] One interesting implication of treating propositions as arrangements of essences is that propositions *themselves* may be objects of correspondence for "higher-order" propositions. For example, if <Tibbles is on the mat> is an arrangement consisting of *being Tibbles* and *being the mat*, then there may be a proposition that corresponds to that arrangement. For example: <*being Tibbles* bears R to *being the mat*> (where 'R' is a relation r, such that necessarily, if an x bears <sitting on>$_R$ to a y, then every individual essence of x bears r to every individual essence of y.) This implication may help us appreciate why there are propositions in the first place. There are propositions because there are arrangements whose parts exemplify individual essences, and the individual essences themselves automatically form arrangements by bearing internal relations to one another, which are the propositions.

individual essences. Moreover, proponents of CTT of all stripes may benefit from the thought that propositions are arrangements of *certain* things (be they arrangements of words, brain states, or whatever), as an analysis of correspondence in terms of relations between arrangements might well be adaptable to different ontological frameworks. For ease of presentation, I will treat propositions as simply arrangements of individual essences.

This account of propositions allows us to give the following analysis of what it is for a proposition to be *about* something:

> (About) '$\underline{x}$ is about $\underline{y}$' $=_{def}$ '$\exists \underline{p}$ ($\underline{p}$ is a part of $\underline{x}$, $\underline{p}$ is an individual essence, and $\Box$ ($\underline{p}$ is exemplified $\rightarrow$ $\underline{y}$ exemplifies $\underline{p}$)'.

In other words, a proposition is about a thing if and only if it contains one of that thing's individual essences.[7]

This concludes my review of propositions and facts.

§3. The Nature of Correspondence

It is now time to offer an analysis of the correspondence relation. I will begin with a non-technical statement of the analysis. It is this: a proposition corresponds to an arrangement if and only if the arrangement's main parts exemplify the proposition's parts in the right order. Here's a more precise statement: a proposition P corresponds to an arrangement A if and only if (i) A's main parts—that is, its proper parts that aren't themselves proper parts of proper parts of that arrangement—exemplify the proper parts of P, and (ii) the proposition that A exists entails (logically necessitates) P.

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[7] We might also wish to talk about propositions being *indirectly* about things. For example, although the proposition *that James believes that Socrates is wise* seems to be primarily about a proposition, namely, the proposition *that Socrates is wise*, there is also a sense in which it is about Socrates. That sense might be spelled out recursively as follows: (Indirectly About) '$\underline{x}$ is weakly about $\underline{y}$' $=_{def}$ '$\exists \underline{z}$ ($\underline{x}$ is about $\underline{z}$ and $\underline{z}$ is about $\underline{y}$), or $\exists \underline{z}$ ($\underline{x}$ is about $\underline{z}$, and $\underline{z}$ is weakly about $\underline{y}$)'.

Now for the technical statement:

(~) ‘x corresponds to y’ $=_{def}$ ‘∀p (if p is a main part of y, then ∃q (q is a proper part of x and p exemplifies q)); ∀p (if p is a proper part of x, then ∃q (q is a main part of y and q exemplifies p)); <y exists> entails x’, where

‘p is a main part of y’ $=_{def}$ ‘p is a proper part of y, and ~∃q (p is a proper part of q and q is a proper part of y’),

and ‘<…>’ abbreviates ‘the proposition that …’.

(~) contains three non-logical terms: ‘is a proper part of’, ‘exemplifies’, and ‘entails’. I’ll say a few things about each one. The term ‘is a proper part of’ is supposed to simply express the familiar relation of parthood. It is the relation that men and women on the street express with ordinary uses of the term, ‘is a part of’, as in “the sandwich is a part of my meal.” (If there are distinct species of parthood, I mean the most general determinable of those species.) I assume that the notion of parthood is a pre-philosophical one, and that we all readily grasp it.

By ‘exemplifies’, I mean whatever it is that men and women on the street mean by “has” when they say such things as “this cat has some interesting features” or “my brother has almost none of the attributes of my sister.” I assume that the notion of *having* (as in having attributes) is a pre-philosophical one, and that we all readily grasp it.

The third term is ‘entails’. Here I mean what ordinary folk mean by “logically necessitates” when they say such things as “if twenty people just entered the bus, then that logically necessitates that there are more than ten people on the bus.” I believe the notion of *logically necessitates* is a pre-philosophical one, and that we all readily grasp it. But in case I’m mistaken about that, I will later offer a definition of ‘entails’.

Let’s consider a few examples to illustrate (~). Consider, first, the proposition that Tibbles is on the mat. Call it P. According to our theory of propositions, P is an arrangement consisting of an individual essence of Tibbles, say, *being Tibbles*, and an individual essence of a particular mat, say, *being the actual mat Peter bought last Tuesday*.[8] According to our theory of facts, there is also an arrangement that consists of Tibbles bearing the *on* relation to the mat. Call this arrangement A. Then, according to our theory of correspondence, P corresponds to A because (i) the parts of A exemplify the (main) parts of P—i.e., Tibbles exemplifies *being Tibbles*, and the mat exemplifies *being the actual mat Peter bought last Tuesday*—, and (ii) A's existence logically necessitates P.

Next consider a mathematical proposition: the proposition that 3 > 2. That proposition is an arrangement of individual essences of the numbers 3 and 2, and the arrangement it corresponds to is an arrangement of the numbers themselves. Both arrangements are abstract, but the arrangement of numbers might be considered more fundamental, as it is the arrangement that grounds the truth of the proposition that 3 > 2. The proposition corresponds to the arrangement in question because the parts of the proposition are exemplified by the parts of the arrangement of numbers, and, the sheer existence of this arrangement of numbers logically necessitates the proposition.

(~) allows us to handle the notorious *negative existential* propositions. For example, we may analyze <Socrates doesn't exist> as either <<Socrates exists> lacks truth> or as <*being Socrates* lacks exemplification>. In either case <Socrates doesn't exist> would correspond to an arrangement consisting of an entity (a proposition or an essence) bearing the lacking relation to something (either to truth or to being exemplified). Alternatively, we may take a traditional line and suppose that negative existential propositions are true by virtue of their negations *not*

[8] Given these individual essences, P might be more accurately expressed by 'Tibbles is on the actual mat Peter bought last Tuesday', where 'the actual mat Peter bought last Tuesday' rigidly designates a particular mat in the actual world.

corresponding to something. Since there are no sums that contain Socrates (assuming Socrates doesn’t exist), the negation of <Socrates doesn’t exist> fails to correspond to anything.

I will now point out three desirable consequences of (~). First, (~) guarantees that a true proposition corresponds to an arrangement whose parts (or constituents) are things that the proposition is *about*. This is just what proponents of CTT have traditionally wanted (see Russell 1912, pp. 127-8; Moore 1953, pp. 276-7; cf., Merricks 2007, p. 173). Proponents of CTT are inclined to think that, for example, whatever <the cat is on the mat> corresponds to, it must, in some sense, contain a cat and a mat. Principle (~) implies that <the cat is on the mat> corresponds to an arrangement of a particular cat and a particular mat. Moreover, it implies that <the cat is on the mat> is *about* a particular cat and a particular mat by virtue of containing an individual essence of a cat and of a mat (given our account of aboutness). In this way, (~) explains why propositions correspond to the very things they do.

A second desirable consequence of (~) is that it enables us to rebut the *dissimilarity objection* we discussed earlier. It does this by spelling out in precise terms how propositions correspond to arrangements.

Third, (~) enables us to have *truth-makers* for true propositions. Minimally, this means that if a proposition p corresponds to an arrangement a, then necessarily, if a exists, then p is true. This is desirable because advocates of CTT are typically motivated to accept CTT by the feeling that truths are grounded in (made true by, necessitated by) the existence of things in the world. (~) gives us truth-makers because the existence of an arrangement *logically necessitates* the proposition(s) that corresponds to it.

§4. An Objection

The most serious objection I’ve encountered is that the analysis given here is ultimately circular. For it defines ‘correspondence’ in terms of ‘entails’, which in turn can only be defined in terms of ‘true’. Since ‘true’ is supposed to be defined in terms of ‘correspondence’ (assuming CTT), ‘true’ is ultimately defined in terms of itself, which is circular.

Reply:

The claim that (~) is circular is based upon the claim that ‘entails’ can only be defined in terms of ‘true’. An implicit premise here is that ‘entails’ must be defined if it is to be understood. I will challenge that premise and then go on to offer a definition of ‘entails’ that avoids circularity.

I suggest that we can and do understand ‘entails’ without first having to understand ‘true’. To motivate this suggestion, consider an example of entailment: <Sue object has shape> entails <Sue object has size>. It seems that we immediately grasp the entailment—the logical necessitation—between these two propositions. More generally, it seems that whenever we see that one proposition entails another, we immediately grasp the entailment relation. If that’s correct, then we can understand ‘entails’ by simply dubbing ‘entails’ to stand for the entailment relation that we immediately grasp when we see that one thing entails another. Therefore, I suggest that a proponent of CTT may treat ‘entails’ as primitive.

But to be more secure, I will offer a definition of ‘entails’ that isn’t in terms of ‘true’. It is this:

(E) ‘$\underline{x}$ entails $\underline{y}$’ = ‘∀$\underline{z}$ (if $\underline{z}$ is a maximal proposition and $\underline{y}$ is a proper part of $\underline{z}$, then $\underline{x}$ is a proper part of $\underline{z}$)’, where

‘$\underline{x}$ is a maximal proposition’ = ‘$\underline{x}$ is possible, ∀$\underline{w}$ (if $\underline{x}$ is a proper part of $\underline{w}$, then ~ ($\underline{w}$ is possible)).

(E)'s non-logical primitive terms are 'is possible' and 'is a proper part of'. I assume that these are familiar, pre-philosophical terms and that we may treat them as primitives here.

(E) assumes that propositions have parts. This makes sense given our analysis of propositions as mereological sums: conjunctive propositions would then be sums of their conjuncts.[9] The proposal also seems consistent with our ordinary talk about propositions. For example, one might say, "*part* of what Joe said is false," where what Joe said is a complex proposition. So, a proponent of CTT who adopts our metaphysical framework may welcome (E) and thereby evade the charge that (~) is circular.

§5. Conclusion

I analyzed the correspondence relation using terms that are pre-philosophically intuitive. This is the first complete analysis to date, and thus its implications are worthy of further investigation.

[9] In the Appendix, I offer a summation principle and then demonstrate that our definition of 'entails' has the correct extension if there are indeed maximal propositions.

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APPENDIX

Definition of ‘Arrangement’

(1) ‘x is an arrangement of the ys’ $=_{def}$ ‘∃ys∃Rs (the Rs are binary relations and x is a mereological sum of the ys, such that x is not one of the ys and ∃z (**z is a proposition that entails a way in which the ys stand in the Rs**, such that z entails <x exists>, and <x exists> entails z))’, where

(2) ‘x is a proposition that entails a way in which the ys stand in the Rs’ $=_{def}$ ‘x is a proposition, and
 (i) ∀r (if r is one of the Rs, then ∃y∃z (y is one of the ys, z is one of the ys, and x entails <y stands in R to z>)),
 (ii) ∀z (if z is one of the ys, then ∃r∃w (r is one of the Rs, w is one of the ys, and ((x entails <w stands in r to z>) or (x entails <z stands in r to w>))))’. [10]

Identity Conditions

(3) □ (∀xs (~∃y (y is one of the xs and (y is an arrangement of the xs or (∃z z is part of y and z is an arrangement of the xs))) → (∃y (y is an arrangement of the xs)).

(4) □ (∀x∀y (if x and y are arrangements having the same parts and x exists if and only if y exists, then x = y)

Summation Principle

(Sum) (∀xs) if the xs are propositions, then ∃y (y is a proposition, y is a sum of the xs, and y the conjunction of the xs.

Entails

To show that our definition of ‘entails’ has the correct extension, it suffices to show that

Theorem E: ∀(x)(y) (Entails) ⇔ (Correct Extension), where

(Entails) = ∀(w) if w is a maximal proposition that contains x, then w contains y (our definition),

[10] By ‘x is a proposition’, I mean that x is the sort of thing that a person may believe, assert, deny, and so on. It’s also the sort of thing that can logically necessitate (entail) something. I assume that this description of ‘x is a proposition’ is pre-philosophically intuitive. (That isn’t to say that propositions cannot be further analyzed.)

and

(Correct Extension) = ∀(w) if w is a possible world that entails x, then w entails y, where a *possible world* o is a proposition that is (i) possible and (ii) such that ∀z (if z is a proposition, then either o entails p, or o precludes p).

Proof.

I will begin by proving the following lemma using the assumption that every proposition that's possible is part of a maximal proposition:

Lemma 1: ∀(x)∀(y) (Entails) ⇒ (Correct Extension).

Proof. Suppose Lemma 1 is false. Then, there is an *x* and a *y*, such that (Entails) is true but (Correct Extension) is not. Therefore, for some *x* and some *y*, there is a possible world *w* that entails *x* but does not entail *y*. There is also a maximal proposition *w** that contains *w* (by the assumption that every proposition that's possible is part of a maximal proposition).

Now *w** contains *x*. Here's why. Suppose *w** doesn't contain *x*. Then the conjunction of *w** and *x* is impossible (given that *w** is maximal). But I will now show that the conjunction of *w** and *x* is possible. First, *w* is part of *w** (see above). This means that *w** entails *w* (because all conjunctions entail each of their conjuncts, and *w** is the conjunction of the propositions it contains). *w* entails *x* (see above). Therefore, *w** entails *x* (by transitivity of entailment). Therefore, *w** entails the conjunction of *w** and *x* (because it entails both conjuncts). *w** is possible (by definition). No possible proposition entails an impossible proposition. Therefore, the conjunction of *w** and *x* is not impossible. Therefore, that conjunction is possible, which contradicts the previous statement that it is impossible. Therefore, the supposition that *w** doesn't contain *x* is false. Therefore, *w** contains *x*.

Now if (Entails) is true, then every maximal proposition that contains *x* also contains *y*. Therefore *w** contains *y*. Since *w** also contains *w*, it follows that *w* and *y* are compatible. *w* either precludes *y* or entails *y* (by definition). *w* doesn't preclude *y* (because it's compatible with *y*). Therefore, *w* entails *y*. But this contradicts the supposition that *w* doesn't entail *y*. Therefore, the starting supposition that Lemma 1 is false is itself false. Therefore, Lemma 1 is true.

Next, I will prove this lemma:

Lemma 2: ∀(x)∀(y) (Correct Extension) ⇒ (Entails).

Proof. Suppose Lemma 2 is false. Then, there is an *x* and a *y*, such that (Correct Extension) is true but (Entails) is not. Therefore, for some *x* and some *y*, there is a maximal proposition *w** that contains *x* without containing *y*. It follows that the conjunction of *w** and *y* is impossible (given that *w** is maximal). But I will now show that the conjunction of *w** and *y* is not impossible if (Correct Extension) is true. First, *w** contains *x* and therefore it entails *x* (because all conjunctions entail each of their conjuncts, and *w** is the conjunction of the propositions it contains). If (Correct Extension) is true, then x entails y. Therefore, w^* entails y (by transitivity of entailment). Therefore, w^* entails the conjunction of w^* and y (because it entails both conjuncts). w^* is possible (by definition). No possible proposition entails an impossible proposition. Therefore, the conjunction of w^* and y is not impossible. Therefore, that conjunction is possible, which contradicts the previous statement that it is impossible. Therefore, the supposition that Lemma 2 is false is itself false. Therefore, Lemma 2 is true.

Theorem E follows from Lemma 1 and Lemma 2.

Q.E.D.