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Holism and Cognitive Dissonance in the Discrimination of Correspondence between Sentences and Situations¹

A synthetic proposition is true, if there exists a situation corresponding to that which the proposition depicts. Assurance that such correspondence obtains depends on the coherence of a body of pragmatically tested beliefs, anchored to reality by objective observation statements endorsed as correct by the relevant linguistic community. Hull's "primitive suggestibility" and Festinger's "cognitive dissonance" are invoked to explain how failures of correspondence are detected.

Introduction: the picture theory of the meaning of sentences

In a paper entitled 'Intensionalism, connectionism and the picture theory of meaning' which I presented at the course on 'Naturalized Epistemology and the Philosophy of Mind' at Dubrovnik in September 1989 and which was subsequently published in this journal (Place 1990), I proposed a version of the picture theory (Wittgenstein 1921/1971) of the meaning of sentences in natural language. According to this theory, novel sentences acquire the property of orientating the behaviour of the listener towards an encounter with a novel situation by virtue of an isomorphism or correspondence between the syntactic structure and semantic content of the sentence on the one hand and the structure and content of what Barwise and Perry (1983) call 'a situation' which is thereby depicted on the other.

In order to give substance to this notion of an isomorphism between the structure and content of the sentence and the structure and content of the segment of extra-linguistic reality which it depicts we need two parallel taxonomies, one linguistic or syntactic, to be more precise, and the other ontological. The syntactic taxonomy which I favour derives from Frege's (1879/1960; 1891/1960) function and argument analysis of the structure of sentences which he introduced in place of the classical subject-predicate analysis in order to accommodate relational or multi-place predicates. This analysis is shown in Figure 1.²

¹ Earlier versions of this paper were presented at the Third International France Veber Congress, Maribor, Slovenia, and Bad Radkersburg, Styria, Austria, 21st-23rd September 1990, and at a conference on Epistemology and the Philosophy of Mind, Inter-University Graduate Centre, Dubrovnik, Croatia, 13th-17th April 1991. A shortened version was presented at the Annual Meeting of the Southern Society for Philosophy and Psychology, New Orleans, April 9th 1993.

² For a more detailed working out of this syntactic analysis, see Place (1992).

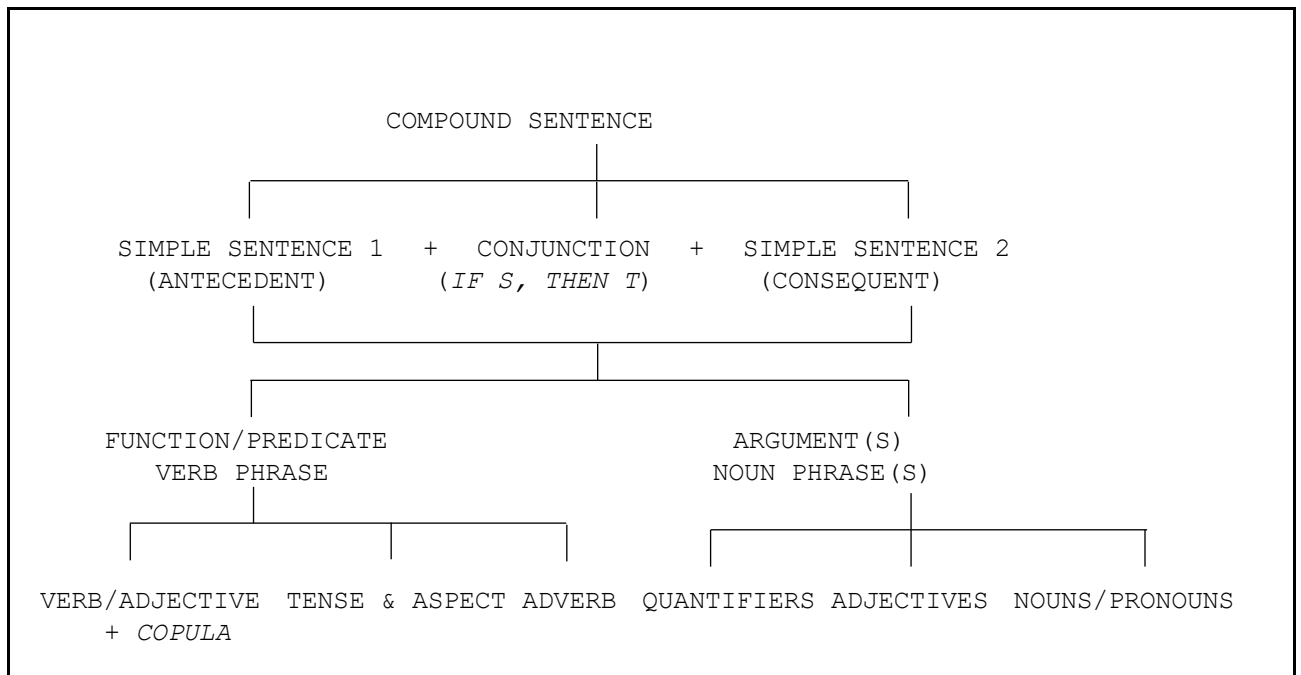


Figure 1. A Syntactic Analysis

Corresponding to this syntactic taxonomy, I propose an ontology which derives partly from Aristotle's taxonomy of Categories and partly from the taxonomy recently proposed by Barwise and Perry (1982) in conjunction with their "Situation Semantics". According to this view, every thing in the universe belongs to one or other of three basic categories

- (1) *concrete particulars*, or physical 'substances' to use Aristotle's term, space-time worms which are extended and bounded in three dimensions of space and one of time,
- (2) *features* which are of two kinds,
 - (a) *properties* which are properties of some other thing, but only one such thing, and
 - (b) *relations* in which two or more other things stand to one another, and
- (3) *situations* which are also of two kinds
 - (a) *states of affairs* whereby a property of a thing or a relation between two or more things persists unchanged over a period of time and
 - (b) *events* whereby a property of a thing or a relation between two or more things changes either at a moment of time or over an extended period of time.

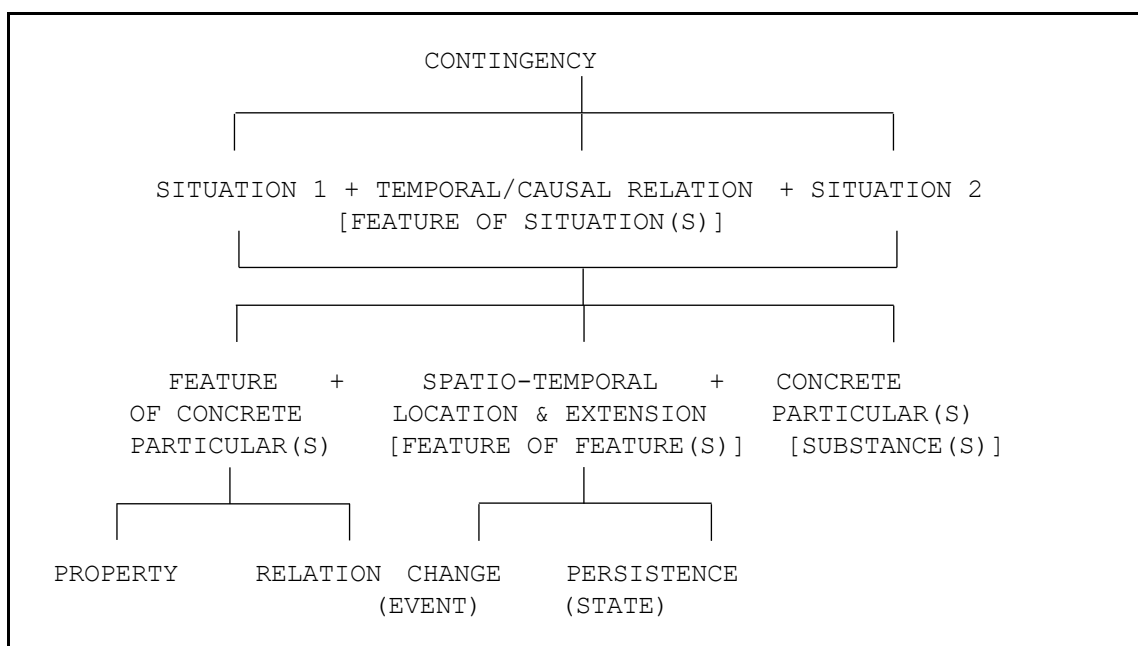


Figure 2. An Ontological Analysis

It should be noted that in this taxonomy the things that properties are properties of and that relations hold between may be either concrete particulars, features (properties of relations or relations between properties) or situations. However, relations, it would seem, can only hold between things of the same category, between concrete particulars, between properties or between situations. Moreover, there are no situations which do not involve the persistence of or changes in the features of one or more concrete particulars. As Aristotle puts it, substances are the ultimate subjects of all predication, the ultimate bearers of all properties, the entities between which all relations ultimately hold. From these considerations we can derive an ontological analysis which parallels the syntactic analysis presented in Figure 1 above. This ontological analysis is shown in Figure 2.³

The way in which these two taxonomies map onto one another may be illustrated by means of the well known example of a simple relational sentence *The cat is on the mat*. Thus:

- (a) *concrete particulars* are represented by the noun phrases *the cat* and *the mat* occupying the argument places generated by the function (the verb phrase *is on*)

³ For a discussion of the place of B. F. Skinner's concept of the "three-term contingency" in this ontological analysis, see Place (1992).

- (b) *features of concrete particulars* (in this case a relation between the two) are represented by a function or multi-place predicate expression (in this case the verb phrase *is on*)
- (c) *situations* are represented by the complete simple sentence (*The cat is on the mat*)
- (d) *features of features* are represented by adverbs and adverbial phrases (e.g. the adverbial phrase *without moving a muscle* in the sentence *The cat is sitting on the mat without moving a muscle*) while
- (e) *features of situations* are represented by compound sentences (e.g. *It is irritating to find the cat always on the mat, Dawn has broken and the cat is on the mat, If the cat is on the mat, it will be fed.*)

The picture theory of meaning and the correspondence theory of truth

The isomorphism or correspondence that is envisaged by this version of the picture theory of the meaning of sentences is an isomorphism or correspondence between the structure and content of the sentence and the structure and content of the segment of reality *that is depicted or represented as existing* by the sentence when it is uttered in the appropriate context. It is not and need not involve a further isomorphism or correspondence between the structure and content of the sentence and the structure and content of any segment of reality which actually exists.

Nevertheless, this further correspondence between the situation depicted by the sentence and an actual situation which exists at the times and places specified by the sentence must obtain, if a declarative sentence is to be true, as its assertion claims that it is, or must be brought about by the action of the listener, if an imperative is to be complied with. These relationships are laid out in Figure 3.

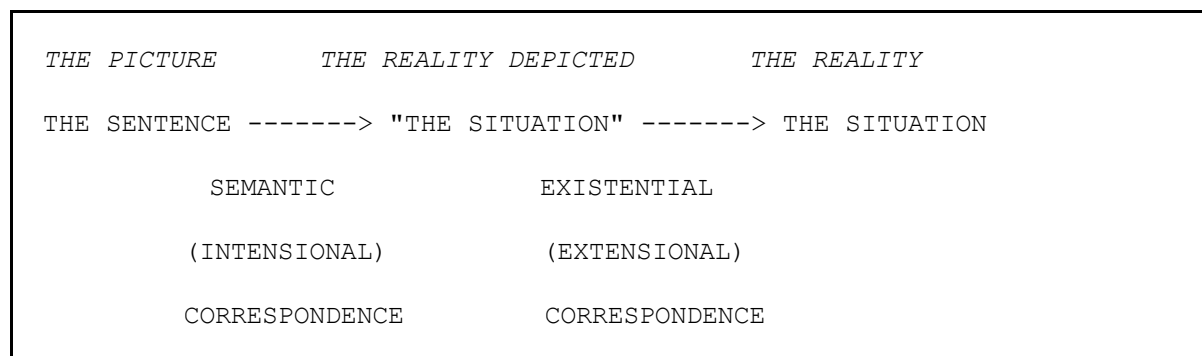


Figure 3. The Correspondence Theory of Truth

There is Existential Correspondence only where

- (a) an imperative has been complied with, or
- (b) a declarative sentence or statement is true.

The relativity of truth to semantic and syntactic convention

A declarative sentence is *true* (expresses a true proposition) if, given

- (a) the context of utterance and
- (b) knowledge of the existence of anything whose existence is entailed by the sentence,

any competent listener would be constrained by the syntactic and semantic conventions governing its construction and use to assent to it.

A declarative sentence is *analytically true* if, given the context of utterance,

- A1. there is nothing whose existence is entailed by the sentence, and
- A2. any competent listener would be constrained to assent to it *solely* by the syntactic and semantic conventions governing its construction and use.

A declarative sentence is *synthetically true* if, given the context of utterance,

- S1. there *is* something whose existence is entailed by the sentence, and
- S2. all those things whose existence is entailed by the sentence actually do so,

with the result that, given knowledge of the existence of those things, any competent listener would be constrained to assent to it by the syntactic and semantic conventions governing its construction and use.⁴

This version of the correspondence theory of synthetic truth, I contend, escapes the standard difficulties which are supposed to confront a correspondence theory of truth by virtue of the fact that the actual situation to which the situation depicted by a sentence corresponds when it is true is specified independently of its property as truthmaker of the sentence. An important factor in achieving this independent specification of the extra-linguistic reality which a true synthetic proposition maps onto is the substitution of Barwise and Perry's (1983) concept of the *situation* (which is either an event if properties and

⁴ In a recent paper Place (1991), I have examined and given reasons for rejecting Quine's well known critique of the analytic-synthetic distinction in 'Two dogmas of empiricism' (Quine, 1951/1953).

relations change, or a state of affairs if they remain constant over a period of time) for the more traditional concept of a *fact* with all its appalling *de dicto/de re* ambiguities. Another contributory factor is that this version of the picture theory is set within the framework of a conceptualist theory of universals which construes universals as mind-made concepts rather than independently existing features of reality. This allows for indefinitely many overlapping ways of carving up reality into actually existing situations. The so-called ‘realist’ about universals, by contrast, is constrained by the logic of that position to postulate a single uniquely correct way of carving up reality into discrete non-overlapping facts.

The relativity of synthetic truth to semantic and syntactic convention

An important feature of this version of the picture theory of meaning is the claim that it is not only analytic propositions whose truth depends on the semantic and syntactic conventions governing the context and structure of the sentences which express them. A synthetic proposition only depicts the situation it does depict by virtue of the semantic and syntactic conventions governing the content and structure of the sentences which express it.

This has two consequences. In the first place it means that there are no cases where we can straightforwardly observe a correspondence between a situation that exists and the situation depicted by a sentence. It might be supposed that a simple observation sentence like *there is a table here in front of me* would be such a case. But the correspondence between that sentence and the reality it purports to depict is uncertain, not so much because of traditional sceptical doubts concerning the very remote possibility that I might be suffering a hallucination, but because, in the absence of confirmation from other competent speakers of English, there is no assurance that that is the correct description of the situation according to the semantic and syntactic conventions of that language. Given that confirmation, however, not only do we exclude the already remote possibility that what we think we are confronted with is some sort of hallucination, we now have a declarative sentence which could only fail to constitute an accurate linguistic depiction of the situation confronting us in the extremely unlikely case where our fellow observers are engaged in a complex conspiracy to persuade us either that we are suffering from a hallucination or that the English sentence *There is a table here in front of me* has a different meaning from that which it actually has

by virtue of the conventions of the language, a contingency which, if it were realised, would rapidly lead to a breakdown in the conditions necessary for interpersonal linguistic communication.

Objective observation sentences as the anchors of empirical knowledge

These objective observation sentences whose accuracy as a description of the state of affairs confronting them is agreed by a number of observers all of whom are competent speakers of the language or code in use amongst them, are just the kind of incontrovertible empirical, synthetic and contingent propositions which according to the intuitions of the epistemic foundationalist are needed as an anchor or foundation for empirical knowledge. Without such an anchor, I contend, there is no way that we can be assured that a system of propositions, however internally coherent it may be, actually corresponds to the extra-linguistic reality it depicts. Moreover this empirical anchor is far superior to the private sensation protocols which have been cast in that role by traditional empiricist epistemologies. For however salient my experience of what I call 'my pain' may be, how can I be certain that *this* is really what they call 'pain' in English, when I can't feel what you call 'pain' and you can't feel what I call 'pain'? I can only be satisfied on this point by observing that what you call 'pain' in your case has the same publicly observable causes and the same publicly observable behavioural effects as what I call 'pain' in my case.

Confirmed objective observation sentences have another advantage over private sensation protocols as the anchor of empirical knowledge in that there is not, as there is in the case of the private sensation protocols, a temptation to suppose that we could somehow represent the meaning of sentences which refer to unobservables as somehow constructed out of or on the basis of the basic observation sentences *via* some kind of verification principle. Confirmed objective observation sentences provide *an anchor* at specific points where we can be satisfied that there is a correspondence between what we say and the way things are in extra-linguistic reality. What they cannot be plausibly represented as doing is providing a *continuous foundation* which underpins every true assertion we make.

Primitive suggestibility and the discrimination of misinformation

The fact that the correspondence between our system of synthetic beliefs is anchored to reality at only the relatively small number of points where such confirmed objective sentences are available reminds us of two things:

- (1) that one of the most important adaptive functions of our ability to construct and construe novel sentences is that it enables a speaker to convey information to the listener about aspects of extra-linguistic reality to which he or she would otherwise have no access, and
- (2) that this ability on the part of the listener to receive information from other speakers about otherwise inaccessible aspects of extra-linguistic reality carries with it, in a way, incidentally, that our sensory apparatus, finely tuned as it has been over millions of years of evolutionary history, does not, a serious danger of being deceived either deliberately or involuntarily by misinformation supplied by the speaker.

This danger of being misled by the lies and other false statements supplied by others is made more acute by the phenomenon of *primitive suggestibility*⁵ first demonstrated in an experimental study conducted at Ohio State University during the nineteen twenties by Ramona Messerschmidt,⁶ reported and discussed by Clarke Hull in the following passage from his 1933 book *Hypnosis and Suggestibility*:

The general nature of the relationship of direct verbal suggestibility to age has long been known. It is summed up in the common observation that children are more suggestible than are adults. For a confirmation of this time-honored belief by specific experiment, as well as for a more detailed picture of the situation, we are indebted to Messerschmidt. She tested approximately twenty-five children at five years and at two-year intervals from six to sixteen years of age, using the postural suggestion technique. The mean index of amplitude of response corrected for height ('Suggestion Amplitude Index,' Hull, 1933, p. 79) for the several ages is shown graphically in Figure 4. While the data present considerable irregularity, the essentials of the relationship are probably shown with a fair degree of accuracy. Aside from the general falling-off of the tendency to suggestibility with advancing years, the most noteworthy characteristic of these results is the marked rise from year five to year eight. Such a reversal of a growth curve as these data present is a distinctly unusual phenomenon in human behavior and calls for comment. In considering the question, the fact may be noted as possibly not entirely a coincidence that a relationship of an almost identical nature was long ago

⁵ I am indebted to Professor P. T. Geach (personal communication) for this description of the theory outlined in the passage quoted from Hull (1933).

⁶ The following passage from Hull (1933) would appear to be the only surviving record of the experiment using Hull's sway test from which the data shown on Figure 4. are derived. The experiment was presumably commissioned by Hull himself as a follow-up to the series of studies to which he refers later in the passage quoted and which are reported by Ms. Messerschmidt in the thesis entitled 'A Suggestibility Scale' which she submitted to Ohio State University in 1927 for the degree of Master of Arts. I am indebted to Professor George Pappas of the Department of Philosophy and to Ohio State University Library for supplying me with a photocopy of Ms. Messerschmidt's thesis.

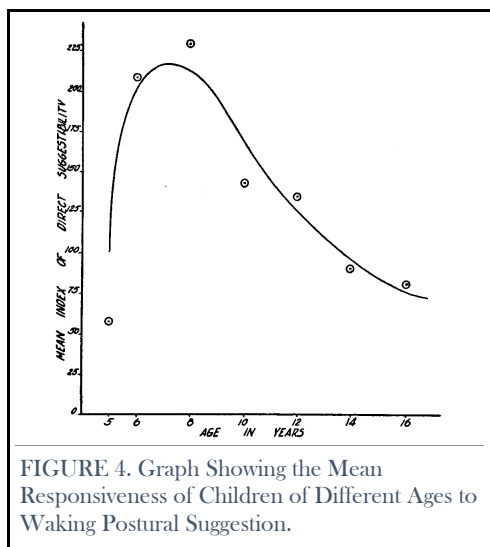


FIGURE 4. Graph Showing the Mean Responsiveness of Children of Different Ages to Waking Postural Suggestion.

observed by Guidi (1908) between age and the strong indirect suggestibility evoked by his pseudo-stove test (Whipple 1914; 1915). Very similar and even more convincing results on a considerable variety of indirect suggestibility tests are reported by Messerschmidt (Unpublished manuscript p. 375). As a plausible hypothesis to account for this reversal, it may be supposed that suggestion is based upon a primitive habit tendency (of responding directly to verbal stimulations) which is useful in most situations but maladaptive in the special type of situation represented by this suggestion test. Presumably the maladaptivity is related largely to the fact that if a person responds positively and indiscriminately to all suggestions made by others, he is likely to be taken advantage of by his associates in that the energies needed for his own welfare will be diverted to that of those giving the suggestions. The rise of the curve accordingly represents the acquisition of a working knowledge of the language, which obviously must proceed a certain distance before its maladaptive possibilities may be encountered; and the gradual fall observed from about eight years on may be regarded as

an indication of the progress in 'unlearning' those particular reactions to verbal stimuli which, having been established, have proved maladaptive. (Hull, 1933, pp.83-5)

I commented on this passage in a paper entitled 'The infallibility of our knowledge of our own beliefs' which was published in *Analysis* some years ago (Place 1971) as follows:

In the light of empirical evidence such as this, as well as in the light of a theoretical consideration of what is required for a child's acquisition of the ability to understand what is said to him, it seems not unreasonable to suppose that the child must necessarily begin by learning to accept a statement made by another person as equivalent in all respects to the actual existence of the environmental situation which the statement describes, and that unless he begins in this way he cannot learn to understand the meaning of what is said to him. In other words, unless as child begins by accepting whatever he is told and believes it implicitly, he cannot learn to understand what is said to him. If this is correct, it follows that anyone who listens to and understands an assertion made by someone else will necessarily believe that assertion and thus be disposed to act upon it, unless he has acquired an overriding disposition to reject assertions of that kind." (Place, 1971, pp. 199-200)

Holism and cognitive dissonance

How does the listener make this discrimination between those statements made by others which demand further careful scrutiny and those that can be allowed to go through 'on the nod', as the saying goes? Clearly not by tracing every statement made back to its source in observation. To do that would take far too long, even in those cases where it could be done, would be impossible in the case of statements about the past and other unobservables, and defeats the object of the exercise which is precisely to get information from

others to which one has no observational access oneself. Consequently, the child must learn some other strategy to test the truth of the information supplied to it by others.

Since it is only in a minority of cases that its primitive tendency to accept everything it is told as true will let it down, what it needs to do is to find some feature that will distinguish the odd piece of misinformation from the bulk of correct information which it can accept without further question.

For this purpose the only principle on which we can ultimately rely is the principle of the *indivisibility of truth* or *'holism,'* as it is sometimes called. This is the principle according to which every true proposition must be consistent with every other true proposition. It is a straightforward consequence of the law of non-contradiction whereby, if p is true, $\text{not } p$ must be false and *vice versa*. It follows from this law that if q entails $\text{not } p$, p and q cannot both be true. Either one is true and the other false or both are false. It follows from this that in building up a stock of beliefs about the world on which to base one's action, one should be made uncomfortable by any apparent contradiction or 'cognitive dissonance,' as Leon Festinger (1957) calls it, within one's existing belief system and endeavour to ensure that any such contradiction is ironed out, before the relevant beliefs are accepted as reliably true. The effect of this endeavour should be to ensure that by and large an individual's beliefs will constitute a coherent system and, provided most of constituent beliefs are true, will thereby constitute a body of knowledge whose reliability will be confirmed by its overall utility as a guide to action (the pragmatic principle) and its conformity to the opinions of others (Wittgenstein's, 1953, "agreement in judgments").

Given such a coherent body of beliefs whose overall correspondence with reality is guaranteed by its consistent reliability as a guide to action, the individual, whether child or adult, has a standard against which to evaluate any new piece of putative information presented to it by another speaker. If there is no obvious dissonance or contradiction between the new item and the existing stock, it can be allowed to go through on the nod. Only when a contradiction or dissonance is detected between the new item and the existing stock will alarm bells ring and all the armoury of logical argument be brought to bear in order either to justify the new item's rejection or find some way of resolving the contradiction and incorporating the new item into the system.

Holism and the relativity of rationality

In conclusion it is, perhaps, worth drawing attention to an interesting consequence of the principle of holism, construed as a matter of preserving consistency within a body of beliefs, for the theory of rationality. The principle of holism so construed suggests a theory of rationality in which whether or not it is rational to believe a particular proposition will depend on the tightness of logical fit between the proposition in question and the existing coherent body of beliefs held by an individual or held in common by a social group. It follows from this that where the beliefs of an individual or a social group are subject to substantial change and addition as a function of time, it may well turn out that while it is rational to believe p at one time and place, it will be rational to believe *not* p at another time and place. This relativity of rationality to particular social circumstances accords well with our linguistic intuitions, as does another consequence of the present view: the denial of any such relativity in the case of what is true and false.

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Addendum: Unpublished rephrasing of some of the central points of this article by the author

Implications of the dependence of synthetic truth on linguistic convention

Given

- Premiss 1 that the situation depicted by a sentence is determined by the syntactic and semantic conventions of the language in which the sentence is formulated,

it follows

- Conclusion 1 that we can never simply observe a correspondence between the situation depicted by a sentence and the situation which actually exists, and
- Conclusion 2 that the nearest we can get to certainty that such a correspondence exists is in the case of an *observation sentence* describing an *objective state of affairs* (e.g., the English sentence *there is a table here in front of me*) such that a group of competent speakers of the relevant natural language have inspected the state of affairs and confirmed that the sentence in question is indeed an accurate description of that state of affairs, given the existing conventions of the language.

In such a case, the only circumstance under which there could be a failure of correspondence between the situation depicted and the actual situation would be in the extremely unlikely event of a conspiracy on the part of the independent observers to persuade the speaker either

- (a) that he or she is hallucinating, or
- (b) that the words composing the sentence do not in fact mean what the conventions of the language prescribe.

Objective observation sentences as the anchors of empirical knowledge

Given further

- Premiss 2 that the only kind of sentence which satisfies the conditions required for certainty that a correspondence exists between what is depicted by the sentence and the actual situation is one which describes
- (a) a *state of affairs* (not an event) which is
- (b) *objective* in the sense of being available for inspection by more than one observer and
- (c) has actually been inspected by a number of observers who are competent speakers of the natural language in which the sentence is formulated who have confirmed the sentence is a correct description of that state of affairs, given the existing conventions of the language, and
- Premiss 3 that the primary function of language is to allow the speaker to depict situations to which the listener has no direct observational access,

it follows

- Conclusion 3 that these confirmed objective observation sentences can, at best, provide an *anchor* for the body of true propositions at specific points, and
- Conclusion 4 that some additional principle is required to explain how the assurance of correspondence between the situation depicted and the actual situation can be extended from objective observation sentences to sentences of other kinds.

Using Hull's sway test of suggestibility in which suggestibility is measured by the amount of sway produced in a blindfolded subject when repeatedly told that they are falling forward, Messerschmidt found that suggestibility in children increases with increasing linguistic competence up to the age of 8 and then declines slowly and continuously with advancing years.

Hull's interpretation of this data suggests that during the initial phase of language acquisition, the child has to learn to treat the words that it hears from others and produces itself as functionally equivalent to the sensory stimuli by which it recognises the objects and features of objects which are designated by those words. This means that in learning to understand complete sentences, it has to learn to treat the sentence as equivalent to the sensory stimulation which such a situation would generate and thus respond unquestioningly

as if the sentence were true. Only after this behaviour pattern has been established can it begin learning to discriminate between those cases where it is appropriate to treat the sentence as corresponding to an actually existing situation in the world and those where it is not.