[Minor revisions, July 1993 - Additions and substitutions in square brackets]

Conceptual Analysis 3 - Sentence Frame Analysis

The principles of conceptual analysis

All the three of the techniques of conceptual analysis we shall be considering are based on the principle, first stated by Frege (1884/1953), according to which a word or expression can only really be said to have meaning in the context of a sentence. Moreover, in terms of Frege's (1892/1960) distinction between sense and reference, while a sentence can be said to have a sense (and, in my terminology, a use) when considered apart from the occasions on which it is uttered; the referent of the singular referring words and expressions contained in a particular sentence cannot be finally determined until the sentence in question is uttered by a particular person on a particular occasion. This latter point is important because, for Frege, the sense (and, in my terminology, the use) of [a] sentence or expression is to be defined in terms of its utility as a means of referring to a particular feature of the universe when incorporated in what Strawson (1952) has called 'a singular referring expression' uttered on a particular occasion.

In sentence frame analysis what we are trying to do is to throw light on the kinds of things in the universe to which the words and expressions comprising a given concept can be used to refer by studying the kinds of sentences containing those words and expressions which, when uttered on a particular occasion, will succeed in being understood by a native speaker as referring to something that actually exists, occurs, or is the case in the universe. This principle has two very important consequences:

(i)   that when we study the sense or meaning of a word or expression we can only do so, either by studying the kinds of sentences in which the words or expression in question can meaningfully occur, as is done in sentence frame analysis, by studying the logical consequences of typical sentences containing the words and expressions in question, as is done in the type of conceptual analysis which I refer to as 'definition-in-use' or by studying the procedures used to ascertain the truth or falsity of a statement, as in 'operational' or 'verification analysis.'

(ii)   that in selecting appropriate sentences or sentence types for such analysis, we should always select examples of sentences or types of sentences which, when uttered on a particular occasion, can be used to refer to a particular entity, group of entities, occurrence or state of affairs which exists at the time of speaking or has existed in the past.

Sentence Frame Analysis[1]

As I indicated in the previous lecture, the technique of sentence frame analysis is a form of conceptual analysis whose object is to discover the syntactic rules governing the way in which those words and expressions which stand for or express a particular concept are combined with other words and expressions so as to form a meaningful sentence. These syntactic rules can also be viewed as semantic rules in the sense that they are rules of sentence construction which depend on the kind or category of thing to which the words or expressions in question refer or can be used to refer, rather than on the basic grammatical rules of sentence construction or pragmatic rules which determine the kind of function which the utterance performs in the process of communication.

The technique of sentence frame analysis

A sentence frame is an abstraction from the class of sentences containing a particular word or expression in which those words and expressions which are *variable*, in the sense that they can be replaced by other words and expressions without altering the sense of the sentence in so far as this is determined by the words or expression whose sense is under investigation, are replaced by a symbol, usually a letter of the

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[1] [Originally this was the first section of the lecture.]

Latin or Greek alphabet, while leaving in the form in which they occur in the natural language the word or expression under investigation together with any article, preposition, or other part of speech which cannot be changed without altering the sense of the sentence as determined by the word or expression under investigation. Thus a sentence frame analysis of the concept 'man' would study such sentence frames as 'a man is P', 'the man is P', 'this man is P', where 'is P' stands for any predicate that can be meaningfully asserted of a man, 'the man φ-ed O' or in the passive 'O was φ-ed by the man', where φ stands for the root form of any active verb that can be meaningfully predicated of a man and O for the direct object of that verb and 'X φ-ed the man' or in the passive 'the man was φ-ed by X' where X stands for the logical subject of any active verb which accepts a man as its object. Similarly a sentence frame analysis of the concept 'running' would examine sentence frames like 'X ran from A to B at time t' where X is any subject term of which the verb 'to run' can be meaningfully predicated, A and B are any two distinct positions in space and t any actual point or period of time.

The sentence frame 'X ran from A to B at time t' illustrates the principle whereby sentences of the form 'X ran', although they are grammatically well formed sentences in that they do not require a specification of when and where the running in question took place in order to be understood, cannot refer to a particular occurrence which took place on a particular occasion unless the place and time in question are made clear either in the case of time by the tense of the verb (in the case of the present tense, 'is running') or, more usually, by the context in which the sentence is uttered. But since, as we have seen, we need to concentrate for purposes of conceptual analysis on the referential uses of a sentence, it is important that the specification of the relevant time and place should be filled in constructing a sentence frame in which the concept under investigation can be unambiguously used to refer to a particular event or occurrence. In the case of substance concepts like 'man' there is no standard form of description which ensures that reference is made to one particular individual in the way that location in space and time ensures this for occurrences and events, except in the case of substances like trees or geographical features and points like Mt. Everest and its summit whose position relative to the surface of the earth is not subject to any material change during the course or their existence.

Another important point which is brought out by the sentence frame involving the verb 'to run' is that when used in this way the verb is *intransitive* in that it takes no direct object, as is indicated by the fact that the well-formed sentence frame 'X ran from A to B at time t' contains no direct object variable. If a direct object variable is introduced as in 'X ran O from time t_1 to time t_2,' we have a quite different concept in that in English the verb 'to run', when used transitively is equivalent to 'manage', 'operate' or 'cause to run' whereas in the intransitive sense it connotes a particular form of self-initiated and self-regulated motion of a human being or other two-legged creature through space over time.

Selecting the basic form of a concept

The first step in a sentence frame analysis of a particular concept must be to select the *basic form* or forms from among the various words and expressions which can be used to stand for or connote the concept in question. The basic form of a concept may be defined as a word or expression which is normally used to stand for or connote the concept in question in the context of sentences which, when uttered by a particular individual on a particular occasion, refer to particular instances which fall under the concept in question. The basic form of a concept may be contrasted with the *secondary forms* whose normal use is in the context of sentences which state some rule or principle involving the concept in question or sentences which refer to the concept itself rather than to particulars which fall under it.

When we examine the various words and expressions that stand for or connote a given concept from this point of view, we find that the same concept can be expressed by words and expressions belonging to different parts of speech as distinguished by grammarians. We also find that the basic forms belong to a different part of speech to that of the secondary forms. In the case of the concept 'man', for example, the basic form 'man' is a noun, whereas we have as secondary forms the adjective 'human', the verb 'humanize', and 'de-humanize', and a secondary noun form 'humanity'. Similarly the concept whose basic form is represented by the preposition 'before' or the prepositional phrase 'in front of' has as secondary forms the verb 'to precede' and the noun forms 'precedence' and 'priority'.

A secondary form in which a noun is formed from a basic form which is an adjective, verb, or preposition, is called a *nominalization*. The usual reason for using a nominalization rather than the basic form of a concept is in order to be able to use the concept as the grammatical subject of a sentence; and this one normally needs to do only when the *discussing* the concept itself as opposed to *using* the concept in order to refer to some actual event or state of affairs which falls under it. But because the focus of interest in conceptual analysis is on the concept rather than on the instances which fall under it, there is a strong temptation to discuss the concept in terms of its nominalization rather than in terms of its basic form. For example, it is tempting to discuss what is rightly referred to as the concept of priority in terms of the secondary nominalized form 'priority' instead of looking, as one should do, at the uses of the basic form, the preposition 'before'.

As a general rule it seems safe to say that the part of speech to which the basic form of a concept will be found to belong will depend upon the existential category to which the particular instances falling under it belong. Thus, as Aristotle pointed out long ago, there is a close logical connection between the category of substance defined in terms of logically independent existence and the subject term of a particular existential proposition and hence between the existential category of substance and the grammatical category of substantive or noun. In fact the concepts whose instances fall under the two groups of categories which I classified on the sheet distributed in connection with lectures 3 and 4 [see appendix of lecture 3] under the heading of Entities (i.e.: substances, features, geographical and types) all have nouns or noun phrases as their basic forms. On the other hand the most usual basic form in the case of those categories that fall under the heading "States" is an adjective. This is the rule in the case of what I call substantive properties or categorical states like being red or dirty; many dispositional properties like brittleness, flexibility and intelligence also have basic forms which are adjectival. In other cases, however, the basic form of a dispositional concept is a verb in the indefinite continuous tense (e.g.; 'runs' as opposed to the definite continuous form 'is running') or in a modal tense using 'can', 'could', or 'would'. In yet other cases such as the examples of profession concepts like 'grocer', 'doctor', and 'lawyer' mentioned by Ryle (1949) the basic form of the dispositional concept is a noun.

In the case of relations, although they often have basic forms like 'larger' which are adjectives or like 'father' which are nouns, such nouns and adjectives normally require the addition of a preposition, e.g.: 'than' in the case of 'larger', or 'of' in the case of 'father', in order to express the relational character of what is being asserted or implied in such cases; and there is an important sense in which the preposition is either the basic form of the concept or an essential ingredient of its basic form in any relational concept.

In the case of occurrences whether they be processes or instantaneous events the basic form is almost invariably a verb or verb phrase; and it is because mental concepts are either concepts which connote occurrences or concepts connoting dispositions involving such occurrences whose basic form is a verb or verb phrase, that sentence frame analysis of the psychological concepts of ordinary language has concentrated almost exclusively on the 'logical behaviour' of psychological verbs.

Exploring permissible case and tense variables

Having selected the appropriate basic form of the concept to be investigated and having constructed an appropriate sentence frame using that basic form, the next step in a sentence frame analysis is to explore the permissible variations of case in the case of a noun form or the permissible variations of tense [and aspect] in the case of a verb form which can be made without either altering the sense as opposed to the use, of the sentence frame or reducing it to nonsense. There is no real counterpart to this procedure in the case of basic forms which are adjectival or propositional except in so far as one can study the permissible case variations of noun phrases in which the adjectives occur or the permissible tense variations of verb phrases in which either adjectives or prepositions occur.

An exploration of the permissible case variations of a noun phrase would consist in the construction of sentence frames in which the noun or noun phrase in question occupies each of the various positions in a sentence which a noun or noun phrase is capable of occupying, i.e., as subject term in relation to an active verb, as subject term in relation to a passive verb, as object term is relation to an active verb, as the instrumental object in relation to a passive verb, and as an indirect object following prepositions indicating spatial or temporal position in an adverbial phrase qualifying an active or passive verb.

Similarly an exploration of the permissible tense[/aspect] variations of a verb or verb phrase would consist in the construction of sentence frames in which the tense[/aspect] of the verb or verb phrase is systematically varied from one sentence frame to another, not merely along the dimension-past, present, and future, but also and, indeed, especially along tense dimensions [aspect] which serve to differentiate continuous activities from instantaneous events, single occurrences from repeated or habitual occurrences, the beginning or completion of a process, and modal tense variations which indicate the possibility or probability of an event's taking place rather than its actual occurrence. Other variations of a verb or verb phrase which should also be explored under this heading, although they are not strictly speaking matters of tense, are the transformations of the verb from the active to the passive voice and the transitive and intransitive uses of the verb, as in the example of the verb 'to run' given above.

The purpose of such an investigation, which I hasten to point out has not yet been carried out systematically and completely for any one concept, is to discover sentence frames which are neither nonsensical as in the case of 'X φ–ed behind Christmas Day' or 'X was knowing that p at time t' or which involve a distinct change in the sense of the word or expression under investigation from one group of case or tense variants to another, as in the case of 'X φ-ed the rail' as against 'X φ-ed by rail' or the case of 'X saw O at time t' as compared with 'X was seeing O at time t.'

In judging that these artificially constructed sentence frames are either nonsensical or involve a shift in the sense of the word or expression in question, the conceptual analyst is, of course, relying primarily on his own intuitive feel for his native tongue. Nevertheless there are certain tests which can be made which help both to confirm the assertion that a particular sentence frame is anomalous or involves a shift of meaning and to explain why this is so. Thus, in the case of an anomalous sentence frame like 'X φ–ed behind Christmas Day' or 'X was knowing that p at time t,' it is always helpful to try to find a minimal modification in the sentence frame which yields an acceptable sentence, as one might do in correcting the utterance of someone who produced such an anomalous sentence, because he is not a native speaker of the natural language in question. Thus the sentence frame 'X φ–ed behind Christmas Day' would be corrected to 'X φ–ed after Christmas Day' and 'X was knowing that p at time t' or 'X was getting to know that p at time t'. Similarly in the case of shifts of sense one can show that in paraphrasing the word or expression in question different synonyms would have to be used in the two cases. Thus, 'X φ–ed the rail' would be paraphrased by 'X φ–ed the track' or 'X φ–ed the rod,' whereas 'X φ–ed by rail' would be paraphrased by 'X φ-ed by train'. Likewise 'X saw O at time t' would be paraphrased by 'X caught a glimpse of O at time t' whereas 'X was seeing O at time t' would be paraphrased by 'X was interviewing O at time t'.

The purpose of this somewhat tedious process (if it were ever carried out systematically) of exploring permissible and impermissible variations of case, tense [and aspect] is primarily to throw light on and test hypotheses as to the existential categories to which the instances falling under the concept in question belong. Probably the most important application is the use which Ryle makes of it in *The Concept of Mind* in drawing the distinction between *dispositional* verbs like 'purvey', 'cater for', 'know', 'believe', 'want', and 'intend', *activity* verbs like 'run', 'build', 'play', 'watch', 'listen', 'ponder', and 'dream' and *act* or *achievement* verbs like 'arrive', 'get', 'win', 'find', 'notice', 'remember', 'recognize', 'infer', and 'decide'. In this case dispositional verbs and act or achievement verbs are distinguished from activity verbs by the fact that they do no take definite continuous tenses [aspects] of the form 'X is φ–ing' 'X was φ–ing at time t,' etc. Act or achievement verbs are distinguished from dispositional verbs by the fact that they do not take definite continuous tenses [aspects] of the form 'X is φ–s now' or 'X φ–ed continuously from time t_1 to time t_2' etc., but do take indefinite instantaneous tenses [aspects] of the form 'X φ–ed at time t' and indefinite recurrent tenses [aspects] of the form 'X φ–es repeatedly', 'X φ–ed repeatedly between time t_1 and time t_2' which dispositional verbs do not. As I have argued elsewhere (Place 1972), this distinction between dispositional verbs, activity verbs, and act or achievement verbs corresponds to the distinction between three existential categories instances of which are commonly referred to by means of a verb or verb phrase, namely dispositional properties, processes and instantaneous events.

Exploring restrictions on variable filling
Having explored the permissible and impermissible variations of case, tense [and aspect] which apply to the basic form of a given concept, we can deepen our understanding of the kind or category of thing

which falls under the concept in question by studying the restrictions that apply in filling in the different variables which go to make up those sentence frames which have emerged as permissible from the preceding step in the analysis. Thus the fact that rainbows are perceptible phenomena rather than substances is shown by the fact that the verb root variable O in the sentence frames 'The rainbow φ--ed O' or 'X φ--ed the rainbow' can only be meaningfully filled either by verbs of visual perception such as 'see', 'look at', 'watch' in the case of 'X φ--ed the rainbow' or by psychological verbs which describe the psychological effect on O of looking at or seeing the rainbow in the case of 'the rainbow φ--ed O.' Any other kind of filling for O here such as 'The rainbow struck the tree' (as opposed to 'The rainbow struck the man as ψ') or 'X pushed the rainbow to one side' is anomalous.

In the field of philosophical psychology there are two areas where the study of restrictions on sentence frame variable filling are of special interest. The first concerns the restrictions which apply to the filling of the subject term in a sentence frame which contains a psychological predicate, i.e.: the restrictions on the kind of noun which can be meaningfully inserted in a place of the variable X in sentence of the form 'X is P' or 'X φ--ed O' where P is a psychological adjective like 'intelligent' or 'ambitious' and φ is a psychological verb like 'listen', 'want', or 'decide.' It has often been argued that psychological predicates can only be meaningfully applied to persons, i.e.: the subject term can only be meaningfully filled by a noun or noun phrase referring to a person, where a person is either a human being, a spiritual substance like God or the soul, or a legally constituted social organization of human being like a committee or a university; the implication of this view is that sentences like the sentence 'The trouble with this amplifier is that it doesn't know where earth is,' which I once heard uttered by an electronic engineer, are anomalous. But what are we to say about cases like this? If we accept them, as I believe we must, we have to recognize that only certain kinds of machine can be said to know things. What kinds of machine?

The problem of intentionality

A second important area of contention within philosophical psychology concerns the restrictions which apply to the filling of the object variable in a sentence frame which contains a psychological verb in the active voice, i.e.: the restrictions on the kind of noun or noun-phrase which can be meaningfully inserted in place of the variable O in a sentence frame of the form 'X φ-ed O' where φ is a psychological verb. This is the crux of the familiar problem of intentionality, as it was formulated in the last century by Brentano (1874/1973).

The problem of intentionality is the problem of whether or not there is some general characteristic to which the adjective 'intentional'[2] can be properly applied which distinguishes the nouns or noun phrases which can fill the object term in a sentence frame containing an active voice psychological verb, and if so, how this characteristic of intentionality is to be defined.

There are three rival theories to be considered:

1.   Brentano's theory[3] according to which the objects of psychological verbs are intentional in the sense of being *'inexistent,'* in that, although there may be and often is an actually existing entity or state of affairs answering to the description that is given of the object of a psychological verb, no such entity or state of affairs need exist for the psychological verb to be meaningfully predicated.

2.   The view of some logicians such as Prior (1957) and Davidson (1963) who hold that when the underlying logical form of psychological predicates is fully worked out, the object of a psychological verb will always turn out to be a proposition. In other words, all psychological verbs either describe or imply some kind of *propositional attitude.*

3.   [The view espoused by Frege (1892/1960), Quine (1953/1961) and Geach (1972) according to which the objects of psychological verbs, in so far as they are intentional, "refer indirectly" (Frege), are "opaque" (Quine) or "non-Shakespearean" (Geach - a reference to Shakespeare's "A rose by any other name would smell as sweet"). What this means is that, within the expression which occupies

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[2]   [This is to ignore the important distinction drawn by the late Professor W. Kneale (1968) between 'intensional' spelt with an 's' and 'intentional' spelt with a 't' in which the former is a feature of linguistic expressions and the latter a feature of action or behaviour, its purposive or goal-directed character. In terms of Kneale's distinction, it is 'intensional,' spelt with an 's,' locutions rather than 'intentional,' spelt with a 't,' behaviour that is at issue here.]

[3]   [This linguistic interpretation of Brentano's position seems to have originated with Roderick Chisholm (1957).]

the position of grammatical object with respect to a psychological verb, there is a suspension of Leibniz's Law, whereby whatever is true of something under one description is true of that thing under any description that applies to it. For example] from the premises

(a)   'John knows that Ellis Bell is the author of *Wuthering Heights*' and

(b)   'Ellis Bell is the same person as Emily Brontë'

we cannot legitimately infer the conclusion

(c)   'John knows that Emily Brontë wrote *Wuthering Heights*.'

These three theories need to be tested against the following nine sentence frames:

1.   X is thinking about O
2.   X wants O
3.   X is looking for O
4.   It occurred to X that P
5.   X believes that P
6.   X knows that P
7.   X is feeling pain in his O.
8.   X has a tingling sensation in his O.
9.   X is listening to O.

It can be shown that Brentano's theory of intentional inexistence works well for cases 1 and 3.   It also works for 2 provided that what is wanted is a particular substance such as a pencil; but slightly less well if it is a state of affairs such as the possession of a pencil, since in this case the object of desire, not merely need not exist, it must necessarily not exist to be a proper object of desire. Brentano's theory can also be made to work for cases 4 and 5 provided the proposition believed or entertained is an existential proposition. Moreover, if we are prepared to stretch Brentano's 'inexistence' formula, [in the manner proposed by Chisholm (1957),] so as to include the possibility of having false non-existential propositions as the objects of psychological verbs, cases 4 and 5 can be firmly included under his definition. On the other hand Brentano's formula cannot cope with the case of knowledge (case 6) where the proposition known, whether existential or non-existential, must be taken to be true, if w are to give any sense to the claim that it is known, rather than being believed. Nor, for different reasons, can Brentano's theory be made to cover cases 7, 8, and 9.

The propositional attitude theory applies directly to cases 4, 5 and 6, can be plausibly applied to 7 and 8, if they are rewritten as

7a.   'X is feeling that he has a pain in his O' and

8a.   'X has a feeling that he has a tingling sensation in his O'.

It can also be plausibly argued that case 1 (thinking about O) consists of a series of acts of the type described in case 4 (it occurring to X that P, Q, R, etc.) where P, Q, R, etc. are all propositions with O as the subject term. Case 2 can arguably be brought into line as a propositional attitude by rewriting it as 'X wants that P' where P is a proposition describing the state of affairs which constitutes the consummation of the desire in question. But this device comes hopelessly unstuck on cases 3 and 9 [(selective attending)], which in turn throws considerable doubt on the correctness of the analysis in the cases of wanting (case 2) and sensations (cases 7 and 8).

[The indirect reference, referential opacity,] non-Shakespeareanity view has the advantage of not requiring any elaborate rewriting of the cases in order to demonstrate its application.   It works for all cases from 1 to 6, but not for 7, 8, and 9 [(sensations and non-specifically goal-directed selective attention)].

[From this two conclusions would seem to follow;

1.   The term 'intentional' as a technical term in philosophy is not univocal; it is used in at least three only partly overlapping senses.

2.   In none of these senses is it true that the grammatical objects of *all* psychological verbs, qualify as intentional.

Where that leaves the topic of 'intentionality' and the claim that intentionality is the mark of mental is not clear. What *is* clear is that this is a problem which will only be resolved by further sentence frame analysis.']

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⁴ [Since this lecture was written, my attention has been drawn to the observation, first made in an unpublished paper by Burnheim (1969) and subsequently and more systematically by Martin and Pfeifer (1986), that dispositions and dispositional predicates show most, if not all, the traditionally recognized 'marks of intentionality.' I have discussed this claim and its implications in an (as of 1993) unpublished paper entitled

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