

The concept of intensionality in the work of Ullin T. Place

Short title: Place and intensionality

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Abstract

The current paper overviews of the notion of intensionality as it is presented in the work of Ullin Place, with the aim of characterising Place's somewhat neglected thinking about this topic. Ullin Place's work showed a development regarding his views concerning this topic, which, in themselves, illustrate a variety of possible stances that can be taken towards the concept of intensionality. Ultimately, Place suggested that 'intensional' statements are not necessarily connected with 'mentalistic' language, nor with 'mentalistic' explanations. Rather, Place came to the view that intensionality should be taken to be the mark of the 'conversational' – that is, it is a property of verbal behaviour that characterises non-scientific everyday discourse. This view has relevance to furthering the understanding of Place's work regarding intensionality, and also relevance for understanding the types of language that could be used in explanations given by behavioural science.

Key words: intensionality, extensionality, Ullin Place, mentalism, explanation.

At first glance, the concept of intensionality, spelt-with-an-S, appears to be one of the most intellectually challenging topics of philosophical debate. This topic, in various guises, exercised as important a thinker as Ullin T. Place (1924-2000) for much of his life, as he dealt with issues related to the philosophy of behavioural psychology, language learning, and mental states. In fact, Place produced many refinements in his position with respect to intensionality over his career (e.g., Place, 1978; 1981; 1984, 1987, 1996, 1999), and the present paper aims to elucidate them. In other words, my goal is to provide an overview of his approach, and outline some of the possible positions that can be taken with respect to intensionality and explanation in psychology

The importance of outlining the development of Place's work is that such an overview can help to provide a great deal of insight into the potential meaning of the term 'intensionality'. Also, it will help to illuminate the importance of this often neglected topic for behavioural psychology. Place is a particularly important philosopher in this area for many reasons, not only for his prominence in the field of philosophical psychology (see Graham & Valentine, 2004), but also for the breadth and depth of his thinking (see Leslie, 2001). In addition, each of the positions he explored with regard to intensionality represents an important approach toward understanding this concept, which can also be seen in the work of others who have addressed this topic and its relation to scientific explanation. At the very least, outlining the many different ways in which that people have understood the meaning and implications of intensional statements may help in generating greater understanding of what often looks like a debate that occurs at cross purposes (e.g., see the debate engaged upon and summarized by Foxall, 2008).

The nature of intensional statements is of particular relevance in the context of understanding scientific discourse; the status of any explanation that relies on intensional

constructions has been the subject of debate by behavioural scientists (see Foxall, 2007; Moore, 2007). Many philosophers have objected to the use of intensional explanations in science (e.g., Carnap, 1934; Quine, 1953).

The paper first sketches of the usual depiction of intensionality. Following this, the evolution of Place's thinking on the topic will be traced through his attempts to understand intensionality as characterising particular forms of proposition; from his earlier positions that associated intensionality with the mental and intentional (with-a-t), through his equation of intensionality with the dispositional, to his later suggestions regarding 'intensionality as the mark of the conversational'. This evolution can be traced through a summary of his papers, the most notable of these for the present purposes are: "*Psychological paradigms and behaviour modification*" (Place, 1978); "*Skinner's verbal behaviour – why we need it*" (Place, 1981); "*On the relation between intentional-with-a-T and mental phenomena and intensional-with-an-S, mentalistic and oratio obliqua locutions*" (Place, 1984), which sets out much of the development in his thinking in the context of previous work; "*Intensionality as the mark of the dispositional*" (Place 1996); and "*Vagueness as a mark of dispositional intentionality*" (Place, 1999). It is the latter article that contains the most important insights on this difficult and complex topic.

The potentially confusing nature of intension and intensionality

For a non-philosopher, there are a number of problems that beset a clear understanding of the terms 'intension' and 'intensionality'. In part, these difficulties are produced because, as highlighted by an examination of Place's work, these terms can be characterised as referring to different linguistic constructions (e.g., intensional constructions can be taken to mark the proposition as 'mentalistic', or 'dispositional', or 'conversational'). Thus, it should be made clear

at the outset that intensionality may not be a single notion, and there are at least two sources of potential confusion to anybody attempting to discuss this term. Firstly, the precise meaning of intensionality has changed over time; and secondly, its relationship with statements about particular classes of event can make defining its meaning difficult. These points of potential confusion relating to the meaning of intensionality were highlighted by Place in a number of articles (see Place, 1984; 1999), and the two points made above are worth some brief mention at the start of any exegesis of these texts.

First, as Place (1984) documented, the uses of ‘intension’ and ‘intensionality’ appear to refer to different (if related) aspects of linguistic philosophy at different points in history (see also Kneale & Kneale, 1962). Early in the development of the understanding of this concept, ‘intension’ or ‘intensionality’ referred to a way of ascribing a particular item’s membership to a larger class of items (a form of categorisation). Historically, these discussions revolved around understanding the meaning of general terms for classes of objects/events, and were particularly important to understanding the properties of universals (see Jubien, 2004; Kneale & Kneale, 1962; Quine, 1948). That is, the intension of a term referred to the objects/events to which it could be related, in the sense that it gave the meaning to a term that applied to a range of otherwise unconnected objects/events (see also Hugly & Sayward, 1996). However, over time the focus of the discussion of the meaning of intensionality increasingly turned to its relationship with the nature of propositions (see Kneale & Kneale, 1962, for an account of these historical developments). After these developments, ‘intensionality’ was often taken to refer to a particular set of logical properties that may be possessed by a proposition. Although Place (1984) clearly viewed these two usages as related to one another (see sections below), it is the latter usage concerning the properties of a statement that is most relevant in the current context.

Second, Place (1984; 1999) noted that much discussion of the term ‘intensionality’ has revolved around its relationship to particular linguistic constructions that are related to psychological terms: often concerning the use of verbs like ‘know’ or ‘believe’. In part, this is what has given most relevance to the discussion of ‘intensionality’ from the standpoint of the philosophy of psychology – many debates about the use of intensional statements in psychology often boil down to a discussion of the helpfulness of mental or intentional states, that can be characterised by verbs such as the above (e.g., ‘knowing’ and ‘believing’), as explanations for behaviour (cf. Foxall, 2007, Moore, 2007). Perhaps stemming from this latter use, ‘intensionality’ often has been employed when discussing mental states (as shall be seen below).

Clearly, this latter use of ‘intensional’ explanations is widespread in psychology, as the types of psychological terms (e.g., knowing, believing, etc.) that are used in explanations for behaviour often fulfil the criteria for something being an ‘intensional proposition’. However, it should be noted that statements about psychological events and intensional propositions not co-extensional with one another – that is, ‘intensionality’ is a logical property also possessed by statements other than those connected to mental states. As such, the properties of intensional statements for scientific explanation have a broader significance than being just about discussing mental states (see Carnap, 1934). Nevertheless, and perhaps due to this correspondence, the term ‘intensionality’ has often, and incorrectly, been used synonymously with its homophone ‘intentionality’, which does refer to the direction of a mental state.

These two issues will recur in the discussion of Place’s conception of intensionality and its relationship with different types of statement. As such they are important to bear in mind when trying to understand the different conceptions of intensionality, and the reasons why these conceptions have lead some philosophers to suggest that these types of statement should play no

role in scientific discourse. As noted above, this was one of the central reasons why Place attempted to explore the nature of these statements (particularly in the context of scientific explanations of language – e.g., see Place, 1981).

The characteristics of intensional propositions

Having outlined the potential confusions in understanding intensionality, it is important to discuss what can be agreed about the nature of intensionality. To this end, the current section outlines the basic distinction between the ‘intension’ (very roughly – the meaning) and the ‘extension’ (the referent) of an expression. In addition to offering a brief outline of this distinction, there are two properties of intensional (but not extensional) statements that also help to define the character of the former sort of proposition, and the current section will highlight these properties: (1) how the meaning of a concept that is defined in an extensional or intensional manner can be determined; and (2) the logical property of non-substitutability that intensional but not extensional statements possess, which is especially noticeable when dealing with some mental verbs. This basic introduction regarding the ‘intension’ of a term should, hopefully, help to illustrate the importance of the topic to scientific language in psychology, and also illustrate the importance of Place’s attempts to understand the nature of intensionality.

Extension and intension

Table 1 about here

Historically, making a contrast between the ‘extension’ and ‘intension’ of a proposition is not the only way that the various aspects of linguistic constructions have been classified or described. In fact, Place (1984) set out multiple manners in which distinctions between various aspects of linguistic constructions have been attempted throughout history. Table 1 gives a brief survey of such distinctions based on Place’s (1984) review. There are many overviews of the development of this field available already (see Kneale & Kneale, 1962), but it is worth pointing out for expository purposes that a similar contrast to the ‘extension’/‘intension’ of a term has been drawn between the ‘denotation’ and ‘connotation’ of a term (Mill, 1843), and later between the ‘referent’ and ‘sense’ of a term (Frege, 1892). These contrasts give some insight into the relative meanings of ‘extension’ and ‘intension’. It might be noted at this point that an aversion to the potentially vague or undefinable aspects of the ‘sense’ of a term partly underlies Skinner’s (1950) rejection of such terms as part of a science of behaviour (see Dennett, 1978; Place, 1984; 1987; 1999).

Although the ‘gist’ of what is meant by these distinctions between intension/extension, denotation/connotation, and reference/sense, is easy enough to grasp, even a cursory examination of these contrasts reveals that, although most conceptualisations agree on what constitutes ‘extension’ (i.e. the precise referent of the term), there is some disagreement as to what constitutes the ‘intension’ (or meaning) of the term. In all of these historical systems, the ‘extension’ (‘denotation’, ‘referent’) of a term refers to all of the items that are examples of that predicate. Thus, in the expressions: ‘food can act as reinforcement’, and ‘water can act as reinforcement’, ‘food’ and ‘water’ are extensions of the term ‘reinforcement’. However, the intension of reinforcement – that is, its connotation or sense – is not necessarily as clear, and

different systems have understood this aspect of the proposition (that is, its meaning) in different ways.

This lack of agreement on the ‘meaning of meaning’ makes this topic difficult to get to grips with, and characterising the nature of intensional propositions occupied a sizeable part of Place’s research output. This quest was engaged upon as these differing conceptions underlie disagreements about why intensional statements should or should not be employed in scientific discourse (cf. Dennett, 1978; Place, 1987; Skinner, 1950) – that is, this debate concerns the nature of the thing that was to be rejected in scientific explanation (e.g., Quine, 1948; Skinner, 1950), and which was a topic addressed in several articles by Place (1981; 1984).

To focus on what Place viewed as the key aspect of intensionality, as this is the central thrust of the current paper, we can turn to his article: “*On the relation between intentional-with-a-T and mental phenomena and intensional-with-an-S, mentalistic and oratio obliqua locutions*” (Place, 1984), in which he defines intensionality as follows: “...*the intenSion of a predicate expression is used to classify members of a universe of discourse into those items to which the predicate applies and those to which it does not.*” This view of the key aspects of intensionality was the one that Place held across all of his writings when trying to explore the nature of statements that contained intensional propositions (e.g., see Place, 1981; 1996; 1999).

Thus, for Place, the intension of an expression refers to the general characteristics of the members of a class of objects or events that makes all of those objects/events members of that class. As noted above, this represents something of a return to the earlier conceptions of the usage of intensionality involving the meaning of universal terms (see Hugly & Saward, 1996; Kneale & Kneale 1962). That is, the intension of a predicate term contains the general elements found in the objects to which that predicate applies. However, it is important to note

that the properties characterising the intension of the general term do not necessarily form part of the definition of any single member of that class of items. ‘Intensionality’, then, refers to a form of words: “.....*whose truth is dependent on the meanings, and not just the reference, of its component words, or on the meanings, and not just the truth-value, of any of its subclauses.....*” (Rundle, 1979). Thus, ‘intension’ is a way of determining the meaning of a term or an expression, and it is important to remember that it is a property of linguistic terms that has no other use in ordinary language (Flew, 1979).

Determining meaning in extensional and intensional cases

Under an extensional logic, a term gains its meaning through all of the examples of that term in existence. The situation in an intensional context is quite different. To ascribe an intension to a term is to make its intension a common property of all items that work as reinforcement. There are numerous ways in which this issue can be debated, not necessarily relevant to the current discussion. A key philosophical issue regarding extensional versus intensional cases concerns the status of the abstract entities that may be assumed to be shared among a diversity of empirical instances. These can be termed universals, Platonic forms, abstract objects (i.e., properties, relations, kinds, etc.). Realists about universals (e.g., Armstrong) assume the existence of shared abstract objects behind the empirical variety of instances, whereas non-realists (since Ockham at least) reject this metaphysical assumption.

It is in the above context that many of Skinner’s criticisms of such intensional theories of psychology were made (see Skinner, 1945; 1950; see Zilo, 2016, for full discussion). Skinner pointed out that the attempt to corroborate a particular intension attribution made for a term can often lead to a futile search for such proof. For example: “*Research designed with respect to*

theory is also likely to be wasteful. That a theory generates research does not prove its value unless the research is valuable. Much useless experimentation results from theories, and much energy and skill are absorbed by them." (Skinner, 1988, p.88). For Skinner, any such search is doomed to fail because of the infinite regress that will occur in attempting to anchor such statements on non-extensional referents. *"Rather than attack mentalistic concepts by examining the behavior that is said to be explained by them, the physiologist is likely to retain the concepts and search for their physical bases...The unhappy result is that physiologists usually look into the black box for the wrong things."* (Skinner, 1969; p. 282). However, as shall be seen below, Place did not necessarily share this position regarding the problems of intensional propositions in psychological science (see Place, 1956; 1999), and he developed a quite different view of way intensional propositions are difficult to include in scientific discourse.

Beliefs and intensional contexts

A further feature of intensional constructions, related to that noted above, is particularly apparent when applied to reports of people's mental states. If it is said that: 'Jones believes that the singer with Blondie is Debbie Harry', and it is said also that: 'Jones believes that the singer with Blondie is excellent', it does necessarily mean that: 'Jones believes Debbie Harry is excellent'. In an intensional context, whatever is true of a term (i.e. the singer with Blondie) under one description of that term, does not necessarily apply to it under any other description. According to Place (1984): *"It is in this sense that to describe an expression as intensional is to say the same thing about it that Frege would have expressed by describing it as 'referring indirectly', that Peter Geach expresses by describing it as 'a non-Shakespearean predicate', i.e.*

a predicate that does not obey the principle... 'a rose by any other name would smell as sweet', that Quine describes as 'opaque' as opposed to 'transparent' ...".

From this latter example concerning mental states, it is clear that 'intensionality' – the linguistic property – is connected with the manner in which the description or proposition is expressed. In particular, an intensional construction appears to occur when the grammatical object of verbs like 'know' and 'believe' is contained in an embedded indicative sentence using *oratio obliqua* construction (i.e. indirect reported speech). Thus, in the sentence: 'Jones believes Debbie Harry is excellent', the object of the belief ('Debbie Harry') is embedded in a sentence that reports something about Jones' beliefs. This sentence gives the 'gist' or 'meaning' of what was said by Jones about Debbie Harry (see Geach, 1957).

It is partly for reasons connected to these difficulties that many have argued for the removal of intensional locutions from the realm of scientific discourse, particularly from scientific psychological discourse (e.g., Quine, 1953; Skinner, 1950) – that is they appear to lead to logical inconsistencies that are not compatible with scientific discourse. Again, as with many things, Place did not take on this view in formulating his objections to the use of intensional statements in scientific language.

Intensionality as the Mark of the.....

The above sections have attempted to outline some of the key features of intensional propositions, and to relate these features to some problems that can emerge when these types of linguistic construction are employed in science, especially in psychology. In particular, it has been suggested that intensional propositions carry with them certain problems of logic (especially concerning the production of failures regarding substitution of identicals and

existential generalisation), and also problems connected to offering proof for the specific intension postulated for a term.

These objections, although very commonly adhered to by those who reject intensional explanations in science, carry with them particular views about the nature of intensional propositions that do not necessarily have to be accepted. If these views about intensionality are not accepted, then it may be that these reasons to reject such statements from science can be rejected. Indeed, in his developing thinking, Place did come to reject many of these accounts of why intensional statements should be banned from science. Thus, it is helpful to give an overview of these different views of intensional statements in the context of Place's thinking as this may help to establish why different people view such statements as unscientific, and allow an appreciation of which of these reasons, if any, might be legitimate to hold.

There are at least four distinct views relating to the types of proposition that can be claimed to be intensional, according to Place (see especially, Place, 1984; 1996; 1999). These are: mentalistic statements, intentional (spelt-with-a-t) statements, dispositional statements, and conversational statements. The reasons why each type of statement has been rejected by behavioural psychologists will be considered below, and Place's views regarding these arguments, and the associated rejection of intensional propositions, will be documented. Hence, an aim in each of the sections that follow is to highlight Place's concerns about the use of each of these views regarding what types of proposition intensionality marks.

The next sections outline different views about intensionality, which are presented in more or less historical sequence as they relate to Place's thinking about the topic. Each of the views about intensionality, as will be seen, have some problems, which lead Place to wonder about the legitimacy of dismissing such propositions from psychological and behavioural

science. However, one of the key and neglected aspects of Place's work on intensionality was an attempt to demonstrate that intensional locutions can have a legitimate place in scientific discourse, as can some statements which apparently refer to mental events. In doing so, Place attempted to demonstrate two important points with respect to intensionality. First, to disassociate intensionality from mentalism; and secondly, to demonstrate that, even if intensional explanations are risky in many circumstances, they are necessary in some contexts.

Intensionality as the mark of the mental

One often employed reason to reject 'mental' language by behavioural psychologists is its assumed link to intensional explanations and their associated logical problems (e.g., Quine, 1953). The notion that intensionality is: 'the mark of the mental', can be attributed to many philosophers (e.g., Carnap, 1934, Quine, 1953), and it is a widespread view across many areas of psychology and philosophy (see Crane, 1998; Sellars 1981). In fact, as a consequence of its ubiquity, this is the view about the nature of intensionality that Place (1984) terms: 'the established view'.

In discussing this view, Place (1981; 1984) suggested that this reason for rejecting intensional language in psychological/behavioural science makes a number of assumptions: (1) mentalism should be rejected; and (2) as intensional propositions are intimately linked to mentalism, they should also be rejected. For Place, 'mentalism' is intimately connected to the manner in which such explanations are delivered in language: "*...I have consistently argued ever since my 'Psychological Paradigms and behaviour modification' which appeared in De Psycholoog in 1978 that what makes mentalistic language unacceptable in a scientific psychology is its reliance on quotations of what the agent has said or might be expected to say in*

its explanations what she or he has done in the past and its predictions of what he or she will do in the future...this argument has become entangled with a philosophical discussion of the distinction between T-intentionality, the mark of the dispositional, and S-intentionality, the mark of a quotation." (Place, 1999). Place's expressed view about these assumptions is that contention (1) is correct, as long as what is classed as 'mentalist' is carefully considered; but that contention (2) is not necessarily correct, and, consequently, a rejection of mentalism is not sufficient grounds for a rejection of intensional statements.

There are many instances of the rejection of mentalism in behavioural theorising (see Uttal, 1999, for examples), but there are fewer reasoned explanations for this rejection (however, see Moore, 1981, 2007, for such discussions). This general discrepancy between the act and the justification was gently pilloried by Dennett (1978), who suggested that Skinner had a strong: "*gut feeling that mentalistic language was somehow utterly disqualified as scientific explanation*", but that: "*his reasons were often self-contradictory*". This assertion regarding Skinner may or may not be true (see Place, 1987), but Place (1954; 1981; 1984), among others, did construct and discuss a number of reasons for the rejection of mentalism in behavioural works. Two of these views, in particular, are worth noting in the context of the rejection of intentional statements: (1) the relationship between mentalism, teleological explanations, and intensionality; and (2) the relationship between mentalism, introspection, and intensionality.

One of these commonly used objections to mentalism is that the teleological, or purposive, explanations that often characterise mentalistic approaches are taken to be inappropriate to science. It has been suggested that teleological explanations do not give 'efficient causal' explanations (often meaning 'mechanistic' explanations), such as are sought by science. As purposive explanations involving a directed mental state are taken to be intensional

in nature (e.g., they violate the rules of substitutability), it is argued that such intensional propositions must also be disqualified as a form of explanatory locution. Attempts at overcoming or circumventing this problem have been at the root of many movements with the broad spectrum of behavioural approaches to psychology. For example, neo-behaviourists (e.g., Tolman, 1932) attempted to operationalise mental concepts in order to study them with a scientific framework. The status of the last approach in the eyes of many radical behaviourists is questionable (see Skinner, 1945).

The suggestion that all terms used in the description of what is observed must be linked to an operationally-defined concept in order to make an empirical test of the proposition, and capable of being objectively verified by multiple observers (Comte, 1856; Bridgeman, 1928), lead behaviourists to reject introspection as a method of scientific observation as its results could not be independently verified. As introspections are couched in intensional (reported speech) terms, so intensions are ruled out as explanations. It is perhaps this latter view that lead philosophers such as Quine (1953) and Carnap (1947) to believe that there was a link between the behaviourist rejection of mentalism, and their own rejection of intensional statements as useful explanations. As a consequence, logical behaviourists have attempted to extensionalise such purposive and introspective language.

These types of view regarding the nature of mentalism and intensionality are similar to those to which Place subscribed throughout most of his early career, at least up until the early 1980s. However, in his later writings, Place (1984; 1999) began to question some of the basic assumptions of this relationship between the intensional and the mental, and also to question the strength of this claim to support an argument rejecting mental language and intensional locutions in science. The basic propositions of 'the established view', as identified by Place

(1984), are set out in Table 2, and they suggest that intensional locutions are intimately tied to mentalistic explanations of behaviour.

 Table 2 about here

However, Place (1981; 1984) noted that there are several difficulties with the views that ‘intensionality is the mark of the mental’, and that this putative link disqualifies intensional statements as explanations for behaviour. Place points to two different problems that he felt were important in distancing himself from the view that intensionality is the mark of the mental. First, the characteristic of non-substitutability also applies outside the realm of the psychological. For example, in the case of logical modal operators ‘possibly’ and ‘necessarily’. For Place, this showed that intensionality and mentalism are not co-extensive (see Crane, 1998). Second, Place believed that there are some mental phenomena that are not intensional – especially those phenomenon related to attention (see Place, 1954). This view further broke the assumed connection between the mental and the intensional, and this view is worth a closer examination in the current context, as it shows the relationship between Place’s early and later philosophical work.

According to Place, it is possible to isolate at least two distinct types of mental phenomena that do not require the use of intensional descriptions (e.g., Place, 1954; 1984). First, pre-dating his reconsideration of the ‘established view’ of intensionality, Place (1954) argued in his paper the ‘*Concept of Heed*’ that verbs of attention, such as: ‘look at’, ‘watch’, and ‘listen to’, are to be distinguished from other psychological verbs, such as ‘to see’ and ‘to hear’. According to Place (1954), the former set of ‘attentional’ verbs does not require the possession of a mental

disposition toward an object. Rather they require only the ability to perform the activity in question. This means that the object of these attentional verbs does not have to be intensional and opaque, but can easily be extensionalised, circumventing some of the problems that otherwise accompany the use of such psychological verbs from a behavioural standpoint.

The second class of mental terms distinguished is that of ‘motivational’ verbs, such as ‘want’, which imply that somebody desires a particular outcome, but, as argued by Place (1984), they do not imply that it is desired a proposition to be true. For example, to say that: “Bill wants an apple” does not require him to want the proposition: ‘that I have an apple’, to be true. This contrasts with the situation when applied to other mental verbs, like ‘belief’, in which this implied commitment to the truth of a proposition is the case. If Bill believes that ‘Debbie Harry sang the number 1 song Heart of Glass’, then Bill is committed to the truth of the proposition that: ‘Heart of Glass was a number 1 song’. If these two above suggestions are accepted, then it appears that only psychological verbs associated with ‘knowing that’, but not those associated with ‘knowing how’ (see Ryle, 1949) – which includes the groups of ‘attentional’ and ‘motivational’ verbs – may be intensional in nature.

If this is true, as Place argued later in the development of his thought about this topic, then there is no need to abandon the study of some supposedly mental phenomena (e.g., attention and motivation), as they do not require intensional explanations. There are two related corollaries of these exceptions to the view that all psychological (‘mental’) verbs require intensional locutions. These corollaries point to links with contemporary learning theory, and, to this extent, substantiate Place’s view that some forms of alleged ‘mental event’ can be examined scientifically (which may not come as too much of a surprise to the many Skinnerians who have addressed this issue). The two above exceptions to the rule of non-substituability in locutions

containing psychological verbs, may be one reason why: attentional (see Pearce & Hall, 1979) – ‘stimulus control’ for Skinnerians (see Morse & Skinner, 1956); and motivational (see Dickinson & Balleine, 2002), phenomena are widely studied in contemporary associative learning theory. In contrast, other psychological states, especially knowledge, and belief attribution, are still largely frowned upon when used as explanations of nonhuman behaviour.

Thus, Place (1984) argued that the link between intensionality and the mental was not as solid as previously believed by some authors. According to Place, the link fails on a number of grounds: (1) the lack of co-extension between mental and intensional locutions; and (2) the existence of psychological verbs that do not require intensional locutions. Given this, Place (1984; 1996; 1999) suggested that this assumed link, in itself, was not a reason to abandon the use of intensional statements.

Intensionality as the mark of the intentional

Implicit in the above discussion of ‘the established view’ has been the view that intentional (spelt-with-a-t) acts are mentalistic, and that, as mental acts are intensional, that intentionality (spelt-with-a-t) and intensionality (spelt-with-an-s) are linked. In fact, the view that intensionality is the mark of the intentional has become quite widespread (see Place, 1984, for a discussion). This characterisation of intensionality as the mark of the intentional moved discussion away from ‘the established view’ that intensionality was the mark of the mental. This view of intensionality as the mark of the intentional has been discussed widely (cf. Chisholm, 1967; Searle, 1983), and will be mentioned here, briefly, before returning to the development of Place’s view on the subject.

There are a number of variants of the view that intentional phenomena and intensional locutions are inseparably linked. In part, this view emerged accidentally, because, up to about 1968, the two words were used interchangeably with one another. This became a problem for understanding the terms, especially after the advent of more widespread adoption of a philosophical style involving Wittgenstein's doctrine that the meaning of words like 'belief' were to be found in their use, rather than in the head of the person holding them (Wittgenstein, 1953). After this point, the focus of investigation turned, from the behaviour of the organism, to the behaviour of the word, and, as the two words behaved the same way in many writings, at least for most people in most contexts, 'intention' and 'intension' became contingently linked.

Perhaps more importantly for theory, proponents of the view that intensionality was the mark of the intentional (e.g., Chisholm, 1967) believed in the *inexistence* of intensional objects, such as the objects of perception. Here, somewhat confusingly, *inexistence* means 'existence in the mind', rather than something that is not present in reality. This usage revives a more ancient scholastic employment of this term, that was re-introduced by Brentano (1874): "*Every mental phenomenon is characterised by what the Scholastics of the Middle Ages called the intentional (or mental) inexistence of an object, and what we might call, though not wholly unambiguously, reference to a content, direction towards an object (which is not to be understood here as meaning a thing), or immanent objectivity.*" (Brentano, 1874).

Chisholm (1967) developed a view of what characterises 'intentionality' or an intentional act – as being one that is directed toward something, or that is about something – which was ultimately defined by the logical properties that distinguished the types of language that can be used to describe such mental acts from the properties of language that can be used to describe physical phenomena. The key aspect of this logical property was the above discussed

characteristics of referential opacity and non-substitutability. That is to say, intentional acts, of necessity, have to be described in terms of intensional propositions.

However, this view of intensionality as the ‘mark of the intentional’ has largely been rejected on the grounds that there is, in fact, no necessary connection between the use of intensional locutions and intentional phenomena. For instance, intensional locutions extend also to modal operators, such as ‘possibly’ that have no direct connection to mental states (Crane, 1998). Moreover, others such as Searle (1979; 1983; McIntyre, 1984), maintain a very strong distinction between intentional phenomena and intensional locutions. It may be that some intentional statements are couched in intensional locutions, but: *“The problem of Intentionality is not, for Searle, the problem of explaining why sentences about Intentional mental phenomena violate certain logical principles (although he does offer an explanation). Rather, it is the problem of explaining how those Intentional mental phenomena themselves relate to the states of affairs they are 'of' or 'about'”* (Macintyre, 1984). If this rejection of the view of intensionality as the mark of the intentional is accepted, then it implies that intentional statements are not necessarily mentalistic and that they are not necessarily disqualified from the language of the behavioural psychologist. This is the position adopted by Place (1984).

Intensionality as the mark of the dispositional

Concerns about the necessary relationship between intensional propositions and mentalism prompted Place (1981; 1984) to change his view regarding the nature of intensional statements from ‘the established view’, to one similar to that professed by Searle (1979; 1983). This view in the context of Place’s writings was outlined in the paper: *“Intentionality as the mark*

of the dispositional” (Place, 1996), but the seeds of this view regarding the nature of intensional locutions were present in his earlier works (Place, 1981; 1984).

Despite the general similarities, it should be noted that the view regarding the nature of intensional propositions and their place in scientific psychology developed by Place (1981) differed from that outlined by Searle (1979). In particular, Place took intensional statements as being particularly connected to ‘dispositional states’ (which overlap with the attentional and motivational behaviours mentioned in the context of mental acts), rather than as characterizing all ‘intentional’ acts (which would involve beliefs, etc.). According to Place (1981):

“...intensionality-with-an-S when used as an explanation of behaviour is a logico-grammatical device whereby what we call the dispositional determinants of human behaviour are characterised in terms of an assumption of a consistent and rational relationship between what a human being does and what he or she had been told or instructed to do.”

The development of this view of intensionality as the mark of the dispositional has a number of strong foundations in philosophical analysis. An important support being the recognition by Goodman (1955), among others, that intensional statements can be termed ‘dispositional’ as they have a ‘modal’ character. That is, the intensional propositions include those with modifiers, such as ‘possibly’ (as mentioned above), which allows them to sustain counterfactuals (see Place, 1983) – that is, the event to which the proposition refers may or may not occur without disproving the proposition. In this sense, intensional statements make implied reference to behaviours that are possible, but which may not actually occur.

This view suggests that there are instances of mental acts, notably goal-directed behaviours (motivation), expressed in terms of intensional propositions (as these are the mark of the dispositional), that can be considered within the realm of scientific psychology. The way

around the problem of assuming that such goal-direction is mentalistic and non-verifiable for Place (1984; 1996), was to adopt Skinner's solution that goal-directedness can be explained as a result of the prior behavioural history of the organism – which is verifiable in the way that a mental state is not. One indirect, but important, consequence of this move to viewing intensional statements as being related to dispositional properties, rather than being mentalistic, is connected with the language that should be used to describe mental states.

However, the adoption of this view implies that there are some forms of human goal-directed behaviour that cannot be extensionalised in the manner outlined by Geach (1957). This is important to note, as these latter suggestions have been adopted by many radical behaviourists to avoid intensional constructions. Geach (1957) suggested that the only way in which mental states can be inferred is by reference to what the person holding them might know or believe. In turn, these can only be inferred by reference to past regularities in the actions of that person – that is, to the probabilities of their acting in certain ways, in certain situations. To this degree, this view corresponds with that of Place (1984; 1986). When dealing with private acts (mental events), Geach, in his work *'Mental Acts'* (1957), argued that the only way to produce an objective analysis of such phenomena is to alter the way in which we describe it. In particular, by substituting *oratio recta* (direct speech) for *oratio obliqua* (reported speech). Geach (1957) argued that *oratio obliqua* constructions should not be used in analyses of mental acts as they report the purport or gist of what was said, and this might require further analysis by way of the psychological concepts the mental acts were supposed to explain. A similar criticism was mounted by Skinner (1945; 1950; 1969; 1988): “A *return to the lay vocabulary of behavior cannot be justified...No doubt many pressing needs can still be most readily satisfied by casual discussion. In the long run, however, we shall need an effective..To reach that understanding we*

must recognise the limitations of the remedial patchwork which emerges from commonsense discussions... ”.” Skinner (188, p.87). In contrast, as *oratio recta* is not a psychological construction, but represents reality, it may usefully be extended to mental acts to avoid this regress in the analysis of mental acts.

Unfortunately, in the case of verbally pre-planned actions, which would count as producing goal-directed behaviour, and which also play a strong role in human behaviour (Hayes, Zettle, & Rosenfarb, 1989), this produces a problem for any explanatory system that relies on extensionalising such behaviours. The issue is that there are some propositions that can both guide behaviour and which are false (e.g., see Matthews, Shimoff, Catania, & Sagvolden, 1977). Indeed, basing behaviour on false propositions is common in humans, and has been taken by some as a fundamental problem in generating maladaptive human behaviour (e.g., Ellis, 1989; Hayes, 2004). These false propositions cannot be extensionalised – as no such state of affairs exists in the world, they cannot be mapped directly to any event, and such statements must be intensional. If this is not to mean that verbal statements are inherently non-verifiability, then there must be an alternative conception of intensionality.

This alternative conception, in fact, comes from consideration of the role of intensionality in modal operations as noted above; especially in the realm of statements about things that are ‘possible’. Consider the classic example of ‘brittleness’. The possession of ‘brittleness’ consists in an object’s orientation to an event that has not yet occurred, and which may never occur – in this sense, the possibility of such future events is intensional. Similarly, if we say that: ‘I hold a belief’, then this consists of the possibility that I will act on this belief in the future. The truth of the statement depends upon what I may or may not do at some time in the future. Thus, on the

basis of this argument, intensionality can be taken as the mark of the dispositional, not of the mental, or of the intentional.

In this view of intensionality as the ‘mark of the dispositional’, it is accepted that there may be a requirement for the use of intensional locutions in the explanation of adult human behaviour (although not, for Searle, in the case of nonhumans or pre-linguistic humans, which is a view not implied by Place – see the discussion in the section, above, regarding the connection between Place’s, 1956, ‘*Concept of Heed*’ and contemporary learning theoretic examinations of attention and stimulus control). Thus, the view clearly suggests that intensional constructions should not be omitted from scientific discourse about behaviour, nor should they be assumed to be mentalistic.

Intensionality as the mark of the conversational

Although the above argument suggests that there is nothing inherently mentalistic about the use of intensional statements, and, for this reason, that they should not necessarily be excluded from the behaviourist repertoire, it does pose some additional problems (see Place, 1999a; 1999b). These problems are connected to the degree to which such intensional statements can be given precise meaning (see Place’s 1999b article “*Vagueness as a mark of dispositional intentionality*”), and lead Place to re-evaluate, for the final time, the manner in which intensional statements should be characterised (Place, 1999b).

Prime amongst these problems is the notion that intensional statements are far from easy to verify; they have an inherent ‘vagueness’ about them. According to Place (1999a; 1999b), it is this vagueness that seems to characterise such statements, rather than any direct and unique connection to mentalism, or, indeed, to any psychological language. In this relation, it should

also be remembered that logical operators, such as possibly, and probably, also fall within the compass of intensionality, and also have a certain degree of vagueness.

In developing this argument relating the nature of intensionality to vagueness, Place (1999a) again relies to an extent on the earlier work of Geach (1957), and also sees this characterisation as emerging out of a link between intensionality and dispositions. Place (1999a) points out that Geach suggests that almost all verbs that are used to express propositional attitudes of a person (e.g., believe, intend, desire, know, notice, perceive, remember): ".....*report the gist or upshot of somebody's remark rather than the actual words he used*" (Place, 1999a). It is claimed that this form of expression has to be used in order to cover the possibility that somebody who expresses this type of attitude will do so differently on different occasions, and to use anything more precise than the gist of a statement about such mental states would be to misrepresent their nature as being more definite than they are in fact.

Thus, intensional statements are given in terms of *oratio obliqua*, or indirect speech: for example, 'he believed that....', etc., which are assessed by reference to dispositional tendencies (see Geach, 1957; Place, 1996; Searle, 1979). Just as we say that glass is brittle because it *may* break at some point, not that it *will* break at a set time; we also say that, for example: 'a politician believes in equality', because, at some point in the future, they may do something about it, and not because at a specific time, they will do something about it. As with the logical operators 'possibly' and 'probably', the meaning of these statements about psychological states can only be determined with less than certainty. There is, thus, a contingent, albeit not a necessary, connection between the intensional and the unspecified (note, not the unspecificable).

This observation about the nature of intensional statements, has suggested that they are best characterised as giving the 'gist' of a state of affairs. They refer to what may or may not

happen, but which is not happening now, or they refer to putatively causal events that are not fully specified. In either case, intensional statements are not tied to specifics. Given the distinction between intensional and extensional language, this should not come as a surprise, but this simple characterisation seems to have been lost in a misleading equation of intensional statements with only psychological terms.

This characteristic of intensional statements, their ‘gist giving’ qualities, is for Place (1999b) reminiscent of the characteristic of ‘gossip’, or everyday conversation. This is a view that has been developed by semiotic practitioners, especially Umberto Eco (1976). Irrespective of these considerations, this is the view that characterised Place’s later thinking (Place, 1999a; 1999b). Place (1981) noted that the ability of humans to make such vague or intensional statements, and also for their behaviour to be guided by such statements (see also above section), means that there are circumstances in which such intensional locutions are needed in the explanation of human behaviour.

Summary

The forgoing discussion has attempted to serve two main purposes: primarily to give airing to the richness of the thought given to this topic by Ullin Place; and secondly, in doing so, to highlight the possible views that can be taken in relation to understanding the nature of intensionality. The current exposition highlighted the development of Place’s views concerning this topic, but ultimately Place suggested that ‘intensional’ statements are not necessarily connected with ‘mentalist’ language nor explanations. Rather, intensionality was argued to be the mark of the ‘conversational’ – a property of verbal behaviour characterising everyday discourse rather than scientific theory. This view has relevance to understanding the types of

language that could be used in explanations given by behavioural science, and the view that is taken on this topic will influence the types of theory, and the type of psychologist (behavioural or cognitive) that a person may become. This discussion should also serve to demonstrate that intensional statements are not necessarily beyond the pale for behavioural psychologists, but rather that their necessity and limitations in scientific discourse need to be acknowledged.

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Acknowledgements

Table 1: Comparison of a term's distinctions

Port Royal School	Comprehension	Extension
William Hamilton	IntenSion	Extension
Gotlieb Frege	Sense	Reference
John Stuart Mill	Denotation	Connotation

Table 2: Characteristics of ‘The Established View’ of Intensional statements (from Place, 1984).

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1. All mental phenomenon are intentional.
 2. All intentional phenomena are mental.
 3. All intentional phenemona require intensional descriptions.
 4. All mental phenomena require characterization through intensional locutions.
 5. All non-modal intensional locutions describe mental phenomena; all intensional locutions describing mental phenomena are mentalistic.
 6. All mentalistic locutions are intensional.
 7. All embedded *oratio obliqua* sentences are intensional.
 8. All intensional locutions are best expressed by *oratio obliqua* statements.
 9. All embedded *oratio obliqua* sentences are mentalistic.
 10. All mentalistic locutions are best expressed by embedded *oratio obliqua* sentences; all mentalistic locutions are embedded in *oratio oblique* sentences.
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