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FlashReport

The causality implicit in traits

Laura M. Kressel, James S. Uleman *

New York University, USA

HIGHLIGHTS

- Traits are ambiguously descriptions of behaviors or persons, or causes of behaviors.
- Past research suggests traits function as causes, when people judge causal relations.
- But would this occur if "causality" were not explicit in the instructions.
- Lexical decisions were faster for behaviors primed by traits in causal lists.
- Results suggest automatic activation of causal relations between traits and behaviors.
- Traits' meanings implicitly include causing behaviors.

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ABSTRACT

Are personality trait concepts merely descriptive of behaviors or do they describe causes? Social psychologists have differing views. Thus we looked at lexical decision response times (RTs) in a list context paradigm, which presents prime–target pairs embedded in lists of different contexts. In lists of associated pairs, traits did not affect RTs to related behaviors. But in lists of causally related pairs, traits primed RTs to behavioral words. Causality was never mentioned, and RTs were short enough to suggest automatic processing. This is consistent with other research on priming thematic relations. It also indicates that traits are implicit causes rather than mere descriptions of behavior, at least among Western participants. This challenges some current formulations in the social psychology of impression formation.

Introduction

Personality traits are among the oldest concepts in psychology and are interpreted in several ways. Costa & McCrae have long held that traits are internal causes of behavior, "endogenous dispositions that follow intrinsic paths of development essentially independent of environmental influences" (McCrae et al., 2000, p. 173). Jones and Davis (1965) also saw traits as causes of acts, and explored how they are inferred from behaviors in causal attributions (cf. Hamilton, 1998). On the other hand, Buss and Craik (1981) held that traits are merely descriptive of acts, and that trait categories have a graded structure and prototypic behavioral members. Mischel focused on traits as more descriptive of behaviors than persons, and showed that traits' meanings are often implicitly conditional on the situation (e.g. Wright & Mischel, 1987). Traits are inherently ambiguous and can be used in several ways (Uleman, 2005). Thus one may say that "he is [dispositionally, always] hostile," "he is hostile [now]," "that [act] was hostile," or "that [act] was hostile [in this situation, or in that sense]." The intended meaning is usually clear from the linguistic and pragmatic context. As Wittgenstein said, "the meaning of a word is its use in the language" (Brenner, 1999).

But traits' meanings are not completely ambiguous or they would not communicate anything. When isolated from a communicative context, do traits explain or merely describe behavior? This question arose in the study of spontaneous trait inferences (STIs; see Uleman, Rim, Saribay, & Kressel, 2012), i.e., trait concepts that are activated by behaviors but without perceivers' intentions and often without awareness. Do such concepts — which may never be put to any "use in the language" — explain why the actor engaged in the behavior or merely describe the actor and/or behavior? When reading that "the secretary solved the mystery half way through the book" unintentionally and unconsciously activates *clever*, is *clever* a cause or merely a description?

Carlston and Skowronski (2005) argued that STIs are causes because they result from (causal) attributional processes because they share several features with intentionally formed impressions. For example, they are more likely for negative than positive behaviors, and they are disrupted by doubts about the truth value of behavior descriptions

* Corresponding author at: Department of Psychology, New York University, New York, NY 10003, USA.
E-mail address: jim.uleman@nyu.edu (J.S. Uleman).

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(Crawford, Skowronski, Stiff, & Scherer, 2007). They differ from spontaneous trait transferences (STTs), which Carlston and Skowronski (2005) argue are based on purely associative processes and which show neither effect. (STTs occur when a communicator who describes an actor's behavior becomes associated with that behavior's trait implications. Both STIs and STTs are usually unconscious.) Thus in this view, a concept's meaning depends on the process that produces it. Hamilton (1998) used a similar meaning-from-process argument but arrived at the opposite conclusion. In his view, causes only arise from intentional causal attribution processes. Because STIs are unintentional, they cannot be causal attributions. Again, inference processes determine meanings.

Here we argue that personality traits are implicitly causal explanations of people's behaviors. Although conversational usage can change this, and trait terms can be used in several other ways, their meaning includes being the causes of people's behaviors.

There is already some evidence for this. Fenker, Waldmann, and Holyoak (2005) used a relation recognition paradigm and found that causal relations between word pairs (e.g., *sunshine–freckles*) are identified faster when the words are presented in a predictive sequence (*cause*, then *effect*) than in a diagnostic sequence (*effect*, then *cause*). They theorized that concepts are stored in this sequence in semantic memory because they occur in this order in experience. Kressel and Uleman (2010) noted that contrary to the experience of observing causes followed by effects, STIs provide examples of effects (behaviors) followed by causes (inferred traits). Furthermore, traits are never observed, only inferred. Would traits nevertheless function as causes in the Fenker et al. paradigm? Kressel and Uleman (2010) used trait–behavior (adjective–verb) pairs (e.g., *clumsy–stumble*) in the relation recognition paradigm, along with the non-social stimuli of Fenker et al. Surprisingly, they found the same response time asymmetry for both stimulus sets. Participants recognized non-social causal relations ("either because the concept described by the first word *causes* or is *caused by* the concept described by the second word") 77 ms faster for presentations in the predictive than in the diagnostic order. And they recognized causal relations between the social pairs 72 ms faster for presentations in the predictive (trait → behavior) than the diagnostic (behavior → trait) direction. "Apparently traits and behaviors are causally related in semantic memory, regardless of how these concepts are activated" (Kressel & Uleman, 2010, p. 216).

However, this relation recognition paradigm has drawbacks. The theoretical rationale does not apply to traits, which are never observed. Relationship judgments are relatively slow (means in the 1200 to 1300 ms range) compared with lexical decision or pronunciation tasks. And causality is explicit in the task instructions. In order to corroborate Kressel and Uleman (2010), we sought another paradigm that makes no mention of causality and might yield shorter RTs.

In many spreading activation models of semantic memory, the links or relations themselves between concepts have distinct conceptual meanings (Collins & Loftus, 1975; Moss, Ostrin, Tyler, & Marslen-Wilson, 1995; Quillian, 1967). Functional relations (e.g., instrument/action pairs such as *broom/sweep*) are especially central to meaning. Lucas (2000) compared the size of semantic priming effects as a function of the semantic relation between prime–target pairs, in a recent meta-analysis. Functional relations produced the largest priming effect size (0.55) whereas other semantic relations — synonyms, antonyms, category coordinates, and script relations — produced effect sizes from 0.20 to 0.27. Only studies that equated simple associative strength across all types of semantic primes were included, to ensure that discrepancies in effect sizes were not due to differential cue–target word association frequencies. Importantly, causal relations are one kind of functional relation.

The importance and distinctiveness of functional relations are also seen in patients with Wernicke's aphasia. Also known as semantic dementia, this condition impairs language comprehension but other aspects of language, such as syntax and phonology, remain intact. These patients cannot generate category exemplars, name pictures, or match pictures to spoken words, and seem unable to understand familiar words. Despite these deficits, they show implicit knowledge of *functional* semantic relations — and functional relations only — as seen in large semantic priming effects for functionally related prime–target pairs in lexical decision tasks. This indicates that "the functional properties of concepts remain accessible well after other aspects of meaning are no longer available" (Tyler & Moss, 1997, p. 533).

McKoon and Ratcliff (1995) showed that one can prime the semantic relationship itself between pairs of concepts, through the relational context in which the pairs are embedded. For example, presenting prime–target pairs that are opposites (e.g., *tall–short*) in a lexical decision (or a pronunciation) task in which the other pairs in the list are also opposites produces faster response times (RTs) than when the other pairs are merely associates (e.g., *table–chair*) or synonyms. In this task, the nature of the relationship is never made explicit. Therefore this list context effect may provide another test of the purported causal relation between traits and behaviors without any explicit mention of causes or causality, and with relatively short RTs. Our prediction was that lexical decision RTs for trait–behavior pairs would be shorter in the context of a list of causally related concepts than in the context of associatively related pairs, because the causal list context would prime the implicit causal relation between traits and behaviors.

Method

Forty-five NYU undergraduates received course credit for their participation. This sample size was estimated from prior studies with this paradigm.

Stimuli consisted of prime–target word pairs: 108 cause–effect pairs, 108 associated pairs, 32 trait–action pairs, 32 unprimed actions (preceded by unrelated words), and 112 word–nonword pairs. All pairs except the last were from the USF free association norms (Nelson, McEvoy, & Schreiber, 1998), and were chosen for their *low association values*. For the causal list, the forward strength of association (proportion of respondents giving a particular response, or FSG in Nelson et al., 1998) averaged 0.036 and had a median of 0.01 (i.e., 3.6% and 1% of participants gave that response). The associated list, selected to match as closely as possible, had a mean of 0.040 and a median of 0.01. The trait–action list had a mean of 0.067 and a median of 0.033. Cause–effect pairs (*acid–corrosion* to *wind–erosion*), associated pairs (*acrobat–athletes* to *vessel–vein*), and trait–action pairs (*afraid–run* to *violent–hit*) were selected by the first author. Causal pairs from Fenker et al. (2005) were included whenever normed. All sets are available from the authors.

These stimuli made up two causal and two associated lists, each with 98 trials. They contained 54 cause–effect (or associated) pairs, 4 trait–action pairs, 4 unprimed action pairs, and word–nonword pairs. Trait–action and unprimed action pairs always appeared in the same position in the lists, whereas other pairs were pseudo-randomly dispersed throughout the lists. Across participants, trait–action pairs appeared equally often in causal and associated list contexts, and never twice for any participant.

Participants made speeded lexical decisions for targets in the two associated lists and then the two causal lists. On each trial, a fixation cross (250 ms) was followed by the prime word (250 ms) and then the target word, on screen until participants responded "word" (press the c-key) or "nonword" (the n-key). They were asked to read (and memorize for a subsequent memory test) the first word in each pair, and then judge as quickly as possible whether or not the following letter string was a word. Relationships between primes and targets were never characterized.

Results

Correct RTs to actions primed by traits in the causal list context ($M = 520$, $SD = 96$) were 48.9 ms faster than in the associated list