12 Stereotypes and Trait Inference

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For this chapter, I thought it would be fun to very briefly trace the influence of Jim Uleman's research on spontaneous trait inference to work in my own research career on stereotyping and social cognition more broadly. Although I have been influenced by much of Jim's work, there is one paper that stands out as particularly impactful in my own research life. I am referring to Winter and Uleman (1984), which demonstrated that people draw trait inferences from others' behavior spontaneously, without necessarily intending to or being aware of having done so. This, of course, is the spontaneous trait inference (STI) paper that launched a thousand research projects. When I began graduate school in 1989, this was one of the very first papers my advisor, Dave Hamilton, told me to read. Even five years after its publication, Dave considered this to be the absolute cutting edge of social cognition research, and he was right. It kind of blew my mind. Upon entering graduate school, I was not well versed in the burgeoning social cognition literature, and was just beginning to wrap my head around the methods that were being used to figure out what was going on in people's heads when they thought about other people. I found Winter and Uleman's (1984) adaptation of Tulving's encoding specificity approach especially clever. It almost seemed like a magic trick for reading people's minds. I became intensely interested in understanding what, when, how, and why we decide what other people (and, later, groups of people) are like. I pursued such questions in the context of deciphering the sources of self-knowledge, person perception, stereotyping, differences between individual and group perception, perceptions of group variability, stereotype formation, the processes surrounding the encoding and retrieval of expected and unexpected information, employee evaluations, and social role inferences. More broadly, Winter and Uleman (1984) was integral in kickstarting a career-long fascination with identifying the mechanisms of social cognition that reached a natural conclusion with an abiding interest in formal models designed to identify and measure the hidden processes that drive our judgments and evaluations of other people.

The Mental Representation of Social Knowledge

I can identify two broad research enterprises in my own work that owe a major debt of gratitude to Jim's work on trait inference. First, early in my career, I was engaged in a research program aimed at identifying whether people's judgments about the self and others are based on abstract mental representations that have been formed and stored in memory (e.g., trait inferences) versus specific pieces of information (e.g., episodic memory; category exemplars) that are retrieved at the time of judgment and summarized in order to make social judgments. Initially, this work was conducted with Stan Klein on the self-concept (Klein et al., 1993; Klein et al., 1996; Klein et al., 1997). Stan was interested in the fundamental nature of self-knowledge and whether judgments about the self require autobiographical memory. Could people know themselves without remembering their specific behaviors? Both philosophers and psychologists had long argued that such autobiographical memories were essential to the construction of self-knowledge.

The alternative is that people develop stable, semantic self-knowledge. That is, that people make inferences from their behavior about the traits that describe themselves and retain these inferences in memory. When judging themselves, rather than retrieving and summarizing autobiographical memories, they may simply access the stored trait inference. This work largely demonstrated that people need not access specific autobiographical memories in order to judge themselves. Moreover, the extent to which self-knowledge is independent of autobiographical memory is related to the amount of experience a person has with him or herself in a particular context. In novel contexts, in which people do not have much basis for self-knowledge, they rely on autobiographical memories. However, as they gain experience, they develop stable self-knowledge that is independent from autobiographical memory. In other words, over time and experience, people make inferences from their behavior about the stable traits that characterize them.

In subsequent work, we extended this analysis to knowledge of others (Sherman & Klein, 1994; see also Klein et al., 1992). In this case, the question was whether we can make judgments about other people without accessing specific memories of their behavior. As with self-knowledge, the answer is that it depends on the extent of experience one has with another person. Early on, as we are just getting to know others, our judgments about them involve the retrieval of specific biographical behaviors. However, as we become more familiar with them, we extract trait inferences that may be accessed independently of the specific behaviors upon which they were based. We also showed that, when exposed to relatively extreme behaviors that strongly exemplified a particular trait, this process occurred more rapidly. That is, when a person engages in highly diagnostic behavior, we make trait inferences very quickly.

Obviously, these ideas share much in common with Jim's work on STIs. Yet, they are distinct in important ways. First, whereas work on STIs tests

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whether or not a trait is inferred, our work tested whether judgments about traits are based on the retrieval of specific behaviors. If judgments are not based on specific behaviors, we assume that they are based on already formed and stored trait inferences—they must be based on something. Note that the use of specific behaviors doesn't mean that a trait has not already been inferred and stored. It simply means that respondents are not content to rely solely on existing trait knowledge, perhaps due to a lack of confidence in the inference. Also note that, in both cases, judgments are based on trait inferences. In one case, the inferences have been made and stored in memory. In the other, the inference is based on the trait implications of the retrieved behaviors. Second, the extent to which the inferences in our work are made spontaneously or possess other features of automaticity is unclear. Subjects are asked to form impressions of the target, though they are not informed ahead of time that they will be asked about particular traits.

Finally, we expanded these ideas into the study of stereotype formation and group knowledge. With novel groups, for which perceivers do not possess pre-existing stereotypes, the results mirrored those for the self and for individual others (Sherman, 1996). Namely, at low levels of experience, judgments of the group involved the retrieval of specific behaviors performed by individual group members. However, as knowledge of the group increased, an abstract trait impression of the group (i.e., a stereotype) was created that formed the basis for group judgments, independent of memory for specific behaviors. In another study, I asked the same question about groups that were known to participants and for which they possessed pre-existing stereotypes (e.g., engineers). In this case, judgments about stereotype-relevant traits never involved the retrieval of group behaviors. Even when little was known about the specific group (of engineers), participants did not need to refer to specific group behaviors in order to judge the group. Rather, it seemed that the stereotype provided ready-made trait knowledge that permitted immediate inference, even in the absence of direct knowledge about the group in question. Thus, merely categorizing a person as a member of a stereotyped group invokes existing stereotypes about the group that are stored in memory and which provide ready-made inferences about stereotype-relevant traits. At the same time, judgments about non-stereotypic traits did invoke the retrieval of specific group behaviors. Thus, the stereotype permitted inferences only about stereotype-relevant traits.

In subsequent research, we examined how intergroup motivations influenced the development of group stereotypes (Sherman et al., 1998). In this case, via a minimal group manipulation, participants were assigned to an arbitrary group. Subsequently, they learned either positive or negative information about either their own group or an outgroup to which they did not belong. The results showed that the rate of trait inference (i.e., stereotype formation) varied as a function of trait valence and group membership. For positive attributes, participants retrieved specific behaviors to make judgments about the outgroup but not the ingroup. In contrast, for negative

behaviors, they retrieved behaviors to make judgments about the ingroup but not the outgroup. Thus, trait inferences were made in accordance with intergroup motives. Positive stereotypes of ingroups and negative stereotypes of outgroups developed quickly and judgments along these traits were made independent of specific group memories. In contrast, negative stereotypes of ingroups and positive stereotypes of outgroups developed slowly and judgments along these traits required the retrieval of specific behaviors.

Stereotype Efficiency and Encoding Flexibility

Our work on mental representation fed directly into the second line of research that builds on Jim's trait inference work. One of the conclusions from my studies on stereotype formation (Sherman, 1996) is that, once a group stereotype exists, it provides relevant trait inferences that no longer need be inferred from group members' behavior. This meaning supplying function of stereotypes is central to the view of stereotypes as judgmental heuristics that help to simplify the world and make social cognition more efficient (Hamilton & Sherman, 1994). Related research on stereotype efficiency focused not on the inference process but on how stereotypes direct our attention toward different kinds of information and how that affects our subsequent memory for that information. Though not directly focused on trait inference, per se, the inference process formed the theoretical basis and explanation of key results. In this work, stereotypes were seen as information filters that efficiently directed attention toward certain kinds of information and away from others, thus reducing overall cognitive load (for a review, see Sherman et al., 1998).

Specifically, according to this view, stereotypes are thought to direct attention toward others' stereotype-consistent behavior and away from stereotype-irrelevant and stereotype-inconsistent information. The logic is that, because behavior that fits stereotypic expectancies is easier to understand (i.e., it is easier to infer the trait meaning), stereotypes make social perception efficient by directing attention toward that information and away from information, such as stereotype-inconsistent behavior, that requires more cognitive resources to understand and integrate. This results in stereotype confirmation and subsequent superior memory for stereotypic behavior. Because the need for efficient processing is magnified under cognitive load, these processes were thought to be more prevalent in those circumstances. For example, subjects who were distracted by an irrelevant newscast when learning about a target person subsequently recalled more stereotypic than counter-stereotypic information about the person (Stangor & Duan, 1991).

My own reading of the literature led me to propose a different interpretation of the data and a new model for understanding how stereotypes affect the processing of stereotype-relevant information. At the heart of this analysis, again, is the trait inference process. As for the data, they were more

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complex and nuanced than had generally been recognized. Although free recall favored stereotype-consistent over-inconsistent behaviors, particularly when encoded under cognitive load, recognition memory showed the opposite pattern—better memory for stereotype-inconsistent behavior, particularly under cognitive load (Stangor & McMillan, 1992). Free recall reflects not only attention and encoding, but retrieval advantages for expected (versus unexpected) information and response biases that lead people to set a lower threshold for reporting stereotype-consistent than-inconsistent behavior. Thus, greater recall of stereotype-consistent behavior is not clear evidence for an attentional filtering mechanism that favors that information. In contrast, recognition memory controls for retrieval and response biases by presenting the to-be-remembered behaviors to participants. As such, recognition performance is a much clearer index of attention and encoding effort than is free recall. Thus, the fact that recognition memory favors stereotype-inconsistent information, particularly when encoded under cognitive load, argues against the suggestion that stereotypes focus attention on consistent information and filter out inconsistent information.

Theoretical considerations further argue against a filter model. Given that stereotypes facilitate the processing of information that confirms the stereotype, it is not clear why extra attention would be devoted to that information. Because they confirm what is expected, the trait meaning of those behaviors may be easily inferred and, indeed, the trait impression of the actor may be inferred directly from the stereotype without attending to the behavior at all. This was one of the conclusions from my earlier work (Sherman, 1996). In my view, it made much more sense for attention to be directed toward information that cannot simply be inferred from a stereotype. In an efficient system, this should be particularly true when under cognitive load and processing resources are scarce. We called this model the Encoding Flexibility Model (Sherman et al., 1998) and supported its primary predications across many experiments. Specifically, we showed that people pay more attention to and better encode the perceptual and contextual details of stereotype-inconsistent than-consistent information, particularly under cognitive load. For example, using a dot probe technique, we showed that participants learning about a target person while under a cognitive load (rehearsing an eight-digit number) attended more carefully to stereotype-inconsistent than-consistent behaviors (Sherman et al., 1998). In particular, reactions to dot probes were faster when they appeared during the presentation of stereotype-inconsistent than-consistent behaviors, particularly when subjects were under cognitive load. This shows that those participants were attending more carefully to the stereotype-inconsistent than-consistent behaviors.

At the same time, people are better able to extract the conceptual (trait) meaning of consistent than inconsistent behavior (Allen et al., 2009; Sherman & Frost, 2000; Sherman et al., 1998; Sherman et al., 2004). For example, subjects who learned about a target person while under a cognitive

load were subsequently better able to accurately identify traits implied by stereotype-consistent than -inconsistent behaviors when those traits were flashed very quickly (33 ms; Sherman et al., 1998). This shows that, when under cognitive load, perceivers are more likely to infer the trait meanings of stereotype-consistent than-inconsistent behaviors, which are subsequently more accessible. Coming full circle, we (Wigboldus et al., 2004) demonstrated this latter effect most directly in a study on how stereotypes affect spontaneous trait inferences for stereotype-consistent and\-inconsistent behavior using a variant of the trait probe method pioneered by Winter and Uleman (1984; Uleman et al., 1996). Specifically, when under cognitive load, subjects required more time to accurately judge that traits only implied by stereotype-consistent behaviors hadn't been explicitly presented than it took to make the same judgment about traits implied by stereotype-inconsistent behaviors. This demonstrates that subjects were more likely to spontaneously make trait inferences about stereotype-consistent than-inconsistent behavior, particularly when under cognitive load.

Summary

To summarize, questions about trait inference have been central to my research, and it was Uleman's work on spontaneous trait inference that ignited my interest in the topic. In one line of work, I studied when trait inferences occur and how they interact with and promote independence from (auto) biographical memory in social judgment. In another line of work, I examined how the trait inference process is informed by stereotypes and how that, in turn, influences the encoding of stereotype-relevant behavior, particularly in conditions that demand efficient social cognition.

   I would like to conclude with a few personal observations about Jim and his influence on my professional life. Beyond the obvious influence of his research, Jim had a major impact on my socialization and sense of belonging in the guild of social psychology. As I'm sure is true for many social cognition researchers, Jim was the first big shot (other than my advisor) who seemed to take a genuine interest in me—not just as a researcher, but also as a person. In my case, this occurred at a Person Memory Interest Group conference, where Jim has long been a fixture. Unassuming, welcoming, and funny, I could not believe that this was Jim Uleman! The guy whose work had put a charge into my early life as a social cognition researcher? Whose work seemed impossibly sophisticated and precise, theoretically and methodologically? If not for Jim being Jim, I would have been intimidated, as I was in the presence of other big shots. Jim simply would not permit that. He approached *me*, asked about my research, and made me feel welcome and at ease. He remembered who I was and what I did. He helped me feel like maybe I belonged. I was but one of countless young social psychologists to whom Jim extended such kindness. For these reasons alone, I would be proud to contribute to this volume, and I am grateful to the editors for providing me with

an opportunity to express my admiration and appreciation of Jim as an exceptional scientist and human being.

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