Literature Review on Generic Statement Study

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Part I. Research Question

My research question is: how do human beings acquire new information from generic statement using a Bayesian inference paradigm? My research project focuses on building an interactive speaker-listner model using the classic Bayesian inference model. In a speaker-listner interaction scenario, where the speaker utters a true generic statement 'C(category) are F(feature),' we hypothesize that, when C is a novel category, the listner uses her own background knowledge to infer the prevalence rate of feature F in category C upon hearing the generic. In our current paradigm, we provide participants a familiar category $C_{familiar}$, $C_{familiar}$ serving as background knowledge. We are working on manipulating the demographics variables (age, gender) of the participants so that we do not have to explicitly provide the familiar categories. This work is inspired and guided by the following three studies, presented in chronological order.

Part II. Previous Studies

i. L. Ross &A. Ward (1995) *Native Realism: Implications for Social Conflict and Misunderstanding*

L. Ross and A. Ward's paper makes two major assertions about the communication between human beings as well as human beings' subjective recognition of themselves and others: (1) differences in subjective interpretation or construal matter, that they have a profound impact in the conduct of everyday social affairs. (2) social perceivers characteristically make insufficient allowance for such impact in the inferences and predictions they make about others. This paper includes a detailed

account of multiple studies done by L. Ross and others on the topic of naive realism. Among the many studies that L. Ross and A.Ward referenced, one study revealed that the manipulation of labels and language can be used effectively to disengage normal mechanism of moral evaluation. It shows that, during the process of perspective taking, human beings frequently make mistakes on their estimation of what others are thinking. In their paper, L. Ross and A. Ward suggest that there are two direction in which the next step in psychology researc should head to in studying this phenomena - studying the direct influence of manipulation of labels and language and the indirect (Ross &Ward, 1996).

ii. M. Rhodes et al.(2012) *Cultural Tranmission of Social Essentialism*

In M. Rhodes et al. paper on the cultural transmission of social essentialism, the authors set out to study how generic languages facilitates the transmission of essentialist beliefs about social categories from parents to children. This study by M. Rhodes et al followed a prior project done by MG. Taylor along with M. Rhodes and S. Gelman on the existence of essentialist beliefs by participants from the age 7 - 10 years old who are in communities that respectively have politically (1)conservative and (2)liberal takes on the issue of race (Taylor et al., 2009). In their 2012 study, M. Rhodes et al. recruits both children and adults participants, introducing them to a novel creature called Zarpies. They studies different forms of expressing a generic statement, from using bare plural, indefinite singular, specific singular, to using no-label as the referential subject. Participants are told stories about Zarpies framed in line with using the aforementioned four categories in the generic statement. The objective of study is to find out whether different forms of generic statements convey different messages to participants about the inherent quality of Zarpies, i.e. social essentialism. The result of this study indicates that generic languages using bare plural facilitates the idea of inheritance of qualities.

iii. M.H. Tessler &N.D. Goodman(2018) *The language of generalization: Probability, vagueness, and interaction*

In this working paper, M.H Tessler and N.D. Goodman studies several aspects of generalization that are formulated through the use of language. Their work inlcudes two major parts: first, they proposed their hypothesis on people's inference process based on a Bayesian inference process, counting the conditional probability based on some prior event as a crucial variable in their model. They went through the mathematical derivation for their model before went on the field, using Amazon Mechanical Turk to recruit their participants and run survey studies. For the generic statement study specifically, the authors collected data on participants' estimation for the baseline prevalence for certain category $C_{familiar}$ and its given feature F. They also provided different narratives to introduce participants to novel categories C_{novel} with the same set of features F, to see how the co-ocurrence of $C_{familiar}$ and C_{novel} within the same narrative would influence the way in which participants make their estimation on feature prevalence rate P about the novel category C_{novel} (Tessler &Goodman, 2018).

Part III. Extension of Previous Studies in Current Work

L. Ross and A. Ward's work on naive realism, showcasing not only people's difference in their subjective construal of the world but also the potential negative consequence of such construal on a social level, has led us to ask: how did this difference in how people perceive themselves, the world and their interlocutors occur? Can we build a model that tries to pinpoint where it is more likely that this difference is generated? Although L. Ross and A. Ward brought up this question of naive realism in the field of social psychology, it is an equally important subject of study for researchers in developmental psychology. Since the manifestation of adult naive realism can be traced back to the developmental stages for children, it is important to consider this question also understand the framework of an ontogenesis of subjective construals.

Following from L. Ross and A. Ward's direction as to study the direct effect of language manipulation, the studies by M. Rhodes et al. looks at the potentially negative effect of generic statement,

transmitting cultural essdetialism (Rhodes et al., 2012). One question that is worth asking is: what is the benefit to the wide use of generic statement if its presence is to the detriment of our society? One suspicion is that people are economical with their words, or that the most optimazing way of conveying information for them is through generic statement. Moreover, it is not directly harmful for people themselves when they use generic statememt to describe others. The over-generalization doesn't work against their interest. It is then a problem of whether, when speaker's priority may be not presenting the most truthful information, what is the inferential process on the listner's part? This is one of the reasons that we are building our current speaker-listner interaction model.

Combining Rhodes et al. study with Tessler and Goodman's current project on the language of generalization, we set ourselves to study how certain essentialist's concepts are transfered from a speaker to a listner. At the moment, we are using a similar platform (Amazon Mechanical Turk) as Tessler and Goodman, running surveys that uses the introduction of a novel category C_{novel} and then ask about the prevalence rate of certain features F. Instead of setting up to directly provide participants with familiar comparison categories $C_{familiar}$, we are manipulating the demographics of participants(gender and age) and the question that we are asking to see if we could use their possibly already-existed stereotypes and biases to show this phenomenon. Another next step that we are pursuing is that we also are in communication with M. Rhodes to discuss methods that we can extend our own research on young children offline in our lab, so that we can get a more complete picture of how this understanding of generic statement or estimation for novel categories using prior background information changes or remains the same across developmental stages.

Reference

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3. Taylor, Marianne G., Marjorie Rhodes, and Susan A. Gelman. "Boys will be boys; cows will be cows: Children's essentialist reasoning about gender categories and animal species." *Child development 80, no. 2* (2009): 461-481.

4. Tessler, Michael Henry, and Noah D. Goodman (Working Paper). "The language of generalization: Probability, vagueness, and interaction." *arXiv preprint arXiv:1608.02926* (2018).