Cognition 126 (2013) 352–363

Contents lists available at SciVerse ScienceDirect

Cognition

journal homepage: www.elsevier.com/locate/COGNIT

Coalitional psychology on the playground: Reasoning about indirect social consequences in preschoolers and adults

David Pietraszewski [a,b,*], Tamsin C. German [a]

[a] Department of Psychological and Brain Sciences, University of California, Santa Barbara, United States
[b] Center for Evolutionary Psychology, University of California, Santa Barbara, United States

ARTICLE INFO

Article history:
Received 14 December 2011
Revised 24 October 2012
Accepted 25 October 2012
Available online 29 December 2012

Keywords:
Social cognition
Triadic awareness
Coalitions
Friendship
Conflict
Anger

ABSTRACT

Surprisingly little is known about how relationship information is used predict others' behavior. We examine a key element of this ability—how relationship information is used to anticipate how others will react to events in which they are not directly involved. This requires both using relationship information to modify expected reactions (e.g., friends may be more responsive than acquaintances) and also inference rules for restricting the class of reactions that may be felt or experienced on behalf of others (e.g., uninvolved friends may become angry but cannot become dizzy). These capacities were examined in both preschoolers and adults. Two different events were presented; one that would elicit anger from those who were involved and one that would elicit dizziness. For both sets of participants, cues to relationship status had a strong impact on anger expectations (uninvolved friends were expected to be more angry than uninvolved classmates), but had no effect dizziness expectations (neither uninvolved friends nor classmates were expected to be dizzy). Follow-up analyses also revealed a developmental difference. Adults made distinctions within the uninvolved friends category—expecting friends to be less angry at their own friend, and that levels of anger would vary according to their friend's role within the social conflict—whereas preschoolers did not. These results demonstrate that by the early preschool years sophisticated inference rules already govern the expected reactions of uninvolved others, but that important developmental differences also remain. These results also indicate that relationship representations are inference engines for anticipating others' behavior and reactions, not simply static containers for sorting people into categories.

1. Introduction

The consequences of social interactions often extend beyond the individuals directly involved. Feuds, riots, and even world wars can be sparked by single events involving handfuls of people. Everyday mundane interactions can spark the ire or admiration of friends and co-workers. Even young monkeys seem to appreciate the capacity of uninvolved others to react, as they will readily take food from an even smaller monkey, but not if that monkey's mother is around (Harcourt & deWall, 1992).

At their core, each of these examples involves an indirect social consequence—a modification of the relationship status between non-interactants. In a canonical example Kyle and Sean are friends. Jerry comes along and hurts Sean. Kyle's relationship with Jerry is now negative, even though Jerry and Kyle did not interact at all (thus it is an indirect, rather than direct, consequence). Indirect social consequences are a broad phenomenon (i.e., not restricted to just friendships and negative events), are a defining feature of coalitional (multi-person) dynamics, and are not reducible to the dynamics of dyadic social interaction (Harcourt, 1988).

* Corresponding author. Present address: Department of Psychology, Yale University, Box 208205, New Haven, CT 06520-8205, United States. Tel.: +1 203 436 1415; fax: +1 203 432 7172.
E-mail address: david.pietraszewski@yale.edu (D. Pietraszewski).

0010-0277/$ - see front matter © 2012 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.cognition.2012.10.009

Representing indirect social consequences—predicting them ahead of time and keeping track of them once do they occur—is crucial for predicting others' behavior, and maintaining up-to-date representations of the social world. Yet little is known about the underlying psychological processes that make this competence possible and how it emerges over the course of development (for the most closely related work see Bennett, Yuill, Banerjee, & Thomson, 1998; Lickel, Miller, Stenstrom, Denson, & Schmader, 2006).

1.1. Reasoning about indirect social consequences

Pre-existing relationships strongly determine reactions from uninvolved others. This means that the psychology responsible for generating inferences and expectations about uninvolved individuals should be sensitive to cues of relationship status and when detected, should modify expectations of how strongly, and in whose favor, an uninvolved individual is likely to react.

Moreover, in order to form coherent and useful expectations, the inferences that follow from the perception of these relationship cues—and that govern expectations of indirect social consequences in general—must be highly selective and restrictive. Going back to the example above, suppose Jerry punches Sean and as a result Sean feels pain. Both Sean and his uninvolved friend Kyle will feel anger (directed at Jerry), but only Sean will feel pain. This illustrates that while some states and reactions may be shared simultaneously by both the involved and uninvolved friend, others will be restricted to the directly involved person. These and other fundamental differences suggest that the underlying rules for reasoning about uninvolved people cannot just be the same as those for reasoning about the people directly involved in some event. Instead, inference rules are necessary which, by virtue of their structure, specify the class of reactions that are, and are not, expected to be experienced by uninvolved others. (Additional rules for modifying the expected strength of these reactions are also likely necessary).

1.2. Current studies

The current studies investigate this ability to reason about indirect social consequences in preschoolers and adults, examining if both populations use relationship information to selectively modify their expectations of how third parties will react to events in which they are not directly involved. There are two primary goals: (1) To establish if young children have any sense of indirect social consequences, and if they do, to verify that this awareness is not driven by either an experimental artifact or by overly-simplistic rules, and (2) to empirically examine the adult-state capacity to reason about indirect consequences.

Demonstrating the ability to reason about indirect social consequences requires demonstrating that participants use relationship information to selectively modify their expectations of certain reactions and not others. To test for this, participants were presented with vignettes in which two characters were directly involved in a particular event, while two other characters were not. Information about the relationship between the involved and uninvolved characters was manipulated between-subjects. For half of participants, these were described as friends and were shown playing together cooperatively. For the other half, these were described as classmates and shown engaging in parallel activities, but not interactively and at a distance from one another. Next, all participants were shown two different events—one an anger-inducing event and the other a dizziness-inducing event. The anger-inducing event was a social conflict in which one character took a toy away from another, leading to a fight. The dizziness-inducing event involved two characters spinning on playground equipment.

After viewing the social conflict, participants were asked to indicate who they expected would be angry, and could nominate any and all of the characters. If participants modify their expectations of uninvolved others based on relationship information, then there will be a difference between the friend and classmate conditions; uninvolved friends will be expected to be more angry than uninvolved classmates. However, this difference should be restricted to only the uninvolved characters. There should be no effect on judgments of the characters directly involved (all of whom should be expected to be angry, regardless of whether friends or classmates are watching nearby). Including both the directly involved and uninvolved characters as response options allowed us to examine if relationship information in fact only impacts judgments about the uninvolved characters.

An understanding of indirect social consequences will lead participants to make the same judgment about the involved and uninvolved friend; that both will be angry. However, participants (and preschoolers in particular) may also be arriving at this answer for the wrong reasons. For instance, although there is evidence that children have first-person knowledge and experience with friendship (Berndt & Perry, 1986; Costin & Jones, 1992; Grammer, 1992; Newcomb & Bagwell, 1995; Strayer & Noel, 1986), little is known about how children use relationship cues to reason about third-parties. It would be possible for children to entertain large classes of overly broad and simple rules for reasoning about third-party reactions, such as "friends always experience internal states on behalf of one another", or that "friends are interchangeable with respect to their reactions to events", and these would also generate the expectation that both the involved and uninvolved friends would be angry in response to the social conflict. These would make it appear that children are able to reason about indirect social consequences, while not actually being able to do so. Worse still, friendship may simply be more important and salient, and therefore participants would be more likely to confuse one friend for another in memory. In which case the attribution of anger to the uninvolved friend would reflect an accidental experimental artifact, rather than reflecting reasoning about indirect consequences in a sophisticated and selective way.

To ensure that neither overly simple rules or experimental artifacts could be driving participants' responses, a second event was also presented: a dizziness-inducing event, involving the two other characters spinning on