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# Toward a Theory of Goal Detection in Social Interaction

## Effects of Contextual Ambiguity and Tactical Functionality on Goal Inferences and Inference Certainty

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The inferences individuals make about others' goals is an integral, but neglected, aspect of empirical and theoretical work on social interaction. An original theoretical framework is proposed to account for interindividual agreement and certainty of goal inferences. Two experiments applied the framework to explain how contextual ambiguity and tactical functionality affected agreement and certainty. Results generally support hypotheses regarding agreement, such that goal inferences converged (i.e., interobserver agreement increased) as the context and tactic became more compatible, yet results largely do not support hypotheses for inference certainty, as the only significant effect that emerged was that certainty was higher in unambiguous than ambiguous contexts. A reconsideration of the theoretical framework on goal detection is discussed and implications are advanced.

**Keywords:** *goal detection; goal inferences; social cognition; interpersonal communication; message production; message processing; ambiguity; conversation*

Extant theory and research on goal pursuit in social interaction model communicators as social actors attempting to achieve goals (Dillard, 1997; Greene, 1997a). Goals are desired end states, and conversation goals (henceforth *goals*) are end states that require interaction with others to be achieved. *Goal detection* is the process by which people infer the goal(s) others are pursuing. Interlocutors' detection of others' goal(s) is as much a part of social interaction as goal pursuit. Individuals infer others' goals across various types of interactions (Carberry, 1990). Evolution likely made the ability to infer others' goals innate (Bogdan, 1997). Even infants (Phillips, Baron-Cohen, & Rutter, 1992) and infant chimpanzees (Uller, 2000) infer others' goals, and people use them to explain others' behavior (Dillard, 1990; Poynor & Morris, 2003).

Consequences of goal inferences demonstrate their significance in social interaction. Individuals' framework for understanding an interaction depends, in part, on goal inferences (Berger, 2000; Dillard, 1990). Accurate goal detection, for example, allows for better recall of events and the filling of gaps between events (Taylor &

Crocker, 1981). The accuracy of goal inferences likely affects communication competence (Berger, 2003). For example, the more individuals are aware of their partners' goals, the more competent their partners perceive them to be (Lakey & Canary, 2002). Goal inferences likely affect communication success (Berger, 2000; Wilensky, 1983). Interacting with inaccurate goal beliefs, for example, leads to misunderstandings more often than when conversing with accurate goal beliefs (Russell & Schober, 1999). Despite the significance of goal inferences in interaction, little theoretical and empirical attention to this process exists in the literature (Berger, 2005; Wilson, 2002).

The current article presents an original theoretical framework on goal inferences and individuals' certainty in those inferences. The framework hinges on the idea that individuals perceive different factors in any given social interaction, the factors are cognitively associated with certain goals, and people rely on these cognitive associations when inferring others' goals. Goal inferences and inference certainty, therefore, depend on the goals activated via the cognitive associations perceived during conversation. The current research applied this framework to explain how contextual ambiguity and tactical functionality interact to affect goal inferences and inference certainty. The following first explicates the basic assumptions, concepts, and principles of the theoretical framework. Next, an application of the theoretical framework in two experiments is detailed to test the effects of contextual ambiguity and tactical functionality on inter-individual agreement and certainty in goal inferences. Finally, the framework is reconsidered in light of the results and implications are discussed.

## Theoretical Assumptions

People typically infer that others are pursuing a single, primary goal, as opposed to multiple goals. People pursue primary and secondary goals (Dillard, Segrin, & Harden, 1989). Primary goals are the central and defining focus of an interaction (e.g., persuade); secondary goals (e.g., maintain politeness) are constraints that recur across interactions and do not define an interaction. People may be aware of others' secondary goals, but goal inferences likely focus on primary goals. Individuals opt for complex, multi-reason explanations for their own behaviors; yet causal reasoning for others' behaviors typically uses a single reason to conserve cognitive energy (Fiske & Taylor, 1991; Heider, 1958). To preserve mental effort, people typically rely on a quick, uncomplicated goal inference that another is pursuing a single, primary goal.

Goal inferences likely begin at the inception of an interaction (Benoit & Follert, 1986); some inferences may occur even before conversation commences (e.g., anticipated interactions). Whenever the onset of goal detection, certainty in goal inferences is a central element. People initially accept problematic messages at face value, but when certainty is low and the need for accurate interpretation is high,

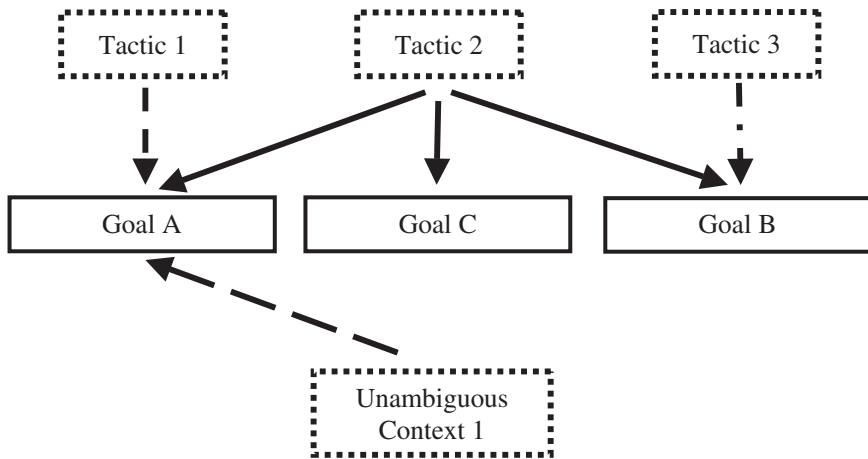
people seek to reinterpret them (Hewes, 1995). Certainty management can influence interaction (Berger, 1986). Inference certainty is the extent to which people have trust and confidence in the accuracy of the goals they infer others' are pursuing (Pillow, 2002). As individuals' sense of conviction in the accuracy of an inferred goal increases, inference certainty increases.

The theoretical framework is based on the idea that goals are linked to what will be called *factors*. Factors are components or elements that vary across interactions and can provide meaning and interpretability to interactions. Factors include contexts, tactics, perspectives, relational types, and other components. For example, a restaurant would be a contextual factor, whereas an assertion would be a tactical factor. Factors are similar to what others have called cues (Berger & Kellermann, 1994), dimensions (Cody, Canary, & Smith, 1994), and features (Greene, 1997b). Factors are diagnostic of individuals' goals because factors are linked (i.e., cognitively associated) to goals through frequent and consistent coactivation in interaction (Bargh & Barndollar, 1996). When people (implicitly or explicitly) perceive factors, they retrieve the cognitive associations among the factors and goals (henceforth, *factor-goal linkages*). For example, people commonly perceive an association between a restaurant context and an order food goal (a context-goal linkage; Schank & Abelson, 1977), whereas making a promise is typically connected to enforcing an obligation (a tactic-goal linkage; Wilson, 1990). Thus, a restaurant will activate an order food goal, and a promise will activate an enforce obligation goal. Factor-goal linkages are similar to Wilson's (1990) cognitive rules and Greene's (1997b) procedural records. Figure 1 illustrates different types of factor-goal linkages.

Individuals use the diagnostic information in factor-goal linkages to infer others' goals. Factor-goal linkages create *goal inference restrictions*, which are the limitations produced by factor-goal linkages that direct individuals to the goals they might infer. Increases in goal inference restrictions narrow the range of goals to potentially infer. The extent to which goal inferences are restricted is a function of the overall number of goals made accessible via the linkages coupled with the strength of those linkages. When someone perceives a factor, the associated goals become accessible via factor-goal linkages; the stronger the association between a factor and a goal, the more accessible the goal becomes. For example, activating a relational-type factor of mother-child increases the accessibility of goals consistent with that factor (e.g., succeed in school) more than when a different relational type (i.e., friendship) is activated (Fitzsimons & Bargh, 2003). The number of goals with the highest level of accessibility will determine the extent of the goal inference restrictions. For example, a small number of strongly linked (and therefore highly accessible) goals will produce greater (i.e., more narrow) goal inference restrictions than a larger number of strongly linked goals.

The sheer number of factor-goal linkages and the strength of those linkages determine the extent to which goal inferences are restricted. The current research limits its focus to linkages from factors to goals of relatively high strength. Left for future

**Figure 1**  
**Conceptual Representation of Tactic-Goal Linkages and**  
**Context-Goal Linkages in Experiment 1**



research are several nuances, such as differences in the strength of linkages, indirect linkages, and other issues. Furthermore, although concepts other than factor-goal linkages likely influence the accessibility of goals (e.g., recency of activation), these issues are not addressed in the current research.

### Theoretical Principles

The core idea of the theoretical framework is that individuals' inferences of others' goals focus on the most accessible goals that factor-goal linkages activate. In any given social interaction, the goal inference restrictions that factors trigger largely determine the goal inferences made and inference certainty. However, factors do not always provide useful goal inference restrictions, and in these situations other sources shape goal inferences. This section expands on these ideas by explicating the general principles of the theoretical framework, as listed in Table 1.

Individuals agree more and are more certain in the goals they infer as factors restrict potential goal inferences to a smaller number of highly accessible goals. For example, a factor strongly linked to one goal (e.g., Tactic 1 in Figure 1) leads to higher levels of certainty and agreement across individuals or observers than a factor strongly linked to more goals (e.g., Tactic 2 in Figure 1) because there are fewer

**Table 1**  
**Theoretical Principles**

First set	When individuals infer others' goals, they rely on the most accessible goals; a smaller number of highly accessible goals leads to higher levels of agreement and certainty in goal inferences.
Second set	When multiple factors are compatible, individuals tend to infer others' goals based on the factors' mutually strongly linked goals; reliance on mutual goals increases certainty.
Third set	Compared to compatible factors, when multiple factors are incompatible, individuals tend to infer others' goals based on idiosyncratic sources; reliance on these subjective sources decreases agreement and certainty.
Fourth set	As per the exhaustive access model, when factors are inadequate, individuals tend to infer others' goals based on idiosyncratic sources; as per the ordered search model, individuals tend to infer others' goals based on a dominant goal; when factors are inadequate, inference certainty is lower than when factors are more adequate.

choices to make (i.e., less goals potentially to infer) as the number of highly accessible goals decreases. An urgent context (e.g., emergency) is associated with a smaller set of goals (e.g., get help, assist others) than a less urgent context (e.g., party; Kanekar & Miranda, 1990). People in an urgent context will have narrower inference restrictions than those at a party, which likely will result in higher levels of goal inference agreement and certainty in the urgent context. Thus, the *first set of general theoretical principles* proposed is: When individuals infer others' goals, they rely on the most accessible goals; a smaller number of highly accessible goals leads to higher levels of agreement and certainty in goal inferences.

Multiple factors likely affect goal inferences and certainty. Just as goals can vary in their compatibility (Wilensky, 1983), so can factors. Factors in a particular interaction are compatible when they produce inference restrictions of at least one mutual goal. Factors *completely overlap* when their inference restrictions are identical (e.g., Context 1 and Tactic 1 in Figure 1 restrict inferences to the single mutual Goal A). Factors also can be compatible when one factor constrains a subset of another factor's inference restrictions, resulting in *subsumed overlap*. In Figure 1, for example, Tactic 2 (linked to Goals A, B, and C) subsumes the singularly linked Goal A of Context 1. When factors are compatible, individuals rely on the mutual goal inference restrictions, maximizing certainty. People are cognitive misers who prefer heuristic-based solutions (Fiske & Taylor, 1991); relying on mutually linked goals provides an easier, faster means to infer goals with certainty. Reliance on the mutual goal(s) generated by multiple factors occurs because of the overlap in information provided by the factors. A *second set of principles* is: When multiple factors are compatible, individuals tend to infer others' goals based on the factors' mutually strongly linked goals; reliance on mutual goals increases certainty.

Incompatible factors occur when a factor produces inference restrictions that do not align with another factor's restrictions (e.g., Tactic 3 and Context 1 in Figure 1). Incompatible factors emerge in at least two ways. Factors can *conflict* by generating opposing goals (e.g., comfort and humiliate goals). On the other hand, factors *lack overlap* when they produce different, but not opposing, goals (e.g., procrastinate and initiate relationship goals). Because incompatible factors are diagnostic of distinct goal sets, how people infer goals is not as straightforward as when factors are compatible. If factors are incompatible, then they are less likely to determine goal inferences; rather, people infer goals using their idiosyncratic sense of which goal among the set of linked goals should be inferred. These subjective sources can include unique experiences, personality, and other intrapersonal cues. Agreement and certainty are lower when factors are incompatible than when compatible because the diagnostic information is inconsistent and mixed and people have difficulty reaching decisions based on inconsistent information (Latané & Darley, 1968). A *third set of principles* posited is: Compared to compatible factors, when multiple factors are incompatible, individuals tend to infer others' goals based on idiosyncratic sources; reliance on these subjective sources decreases agreement and certainty.

Factors also can be inadequate in their inference restrictions when they provide relatively little diagnostic information for inferring goals. *Inadequate factors* result in virtually no goal inference restrictions, allowing for multiple goals to become highly accessible. Factors can be inadequate when individuals are unable to access the appropriate linkages (e.g., in an ambiguous context). Individuals find the factors unclear and poorly understood, which decreases their ability to activate the linkages. For example, readers have difficulty generating inferences for texts when they do not have the appropriate knowledge needed for proper comprehension (Graesser & Clark, 1985). Two competing explanations, loosely based on two divergent models of lexical ambiguity resolution (Gorfein, 2001), account for inferences when factors are inadequate.

The *exhaustive access model* (Blunter & Sommer, 1988) is similar to the explanation for inferences when factors are incompatible. With inadequate factors, inferences are subjective and based on idiosyncratic sources. Individuals conduct an exhaustive search among the multiple accessible goals they potentially can infer. In this search, individuals use different intrapersonal sources to choose a goal, which lowers agreement in goal inferences compared to when factors are adequate because these sources vary across people. The *ordered search model* (Rayner & Frazier, 1989) posits an alternative rationale. People search accessible goals in an order based on the frequency with which the goals generally are pursued. The top-ranked goal is the dominant (i.e., chronic, default) goal pursued most often across all interactions. The dominant goal is the same for most people (particularly those from the same speech community) because interaction is routinized and—even though concrete goals ostensibly can drastically vary across individuals and interactions (e.g., teach math, explain plot of movie, give demonstration of product, etc.)—at a relatively high level of abstraction (e.g.,

give information) the same types of goals occur with similar frequencies (Berger, 2005). The ordered search model, thus, predicts that agreement based on inadequate factors is at a level similar to when factors are more adequate because people tend to select the dominant goal among all accessible goals as it has the greatest level of accessibility.

Inference certainty is relatively low when factors are inadequate because people cannot rely on a limited number of potential goal inferences. Having virtually no inference restrictions, people cannot rely on suitable, useful information. Individuals who interpret discourse without the appropriate knowledge have an unclear understanding (Warner, 1985). Because inadequate factors provide little diagnostic information, inference certainty is relatively lower than when factors are more adequate. This explanation proposed for certainty when factors are inadequate is consistent with both the exhaustive access and ordered search models because, although a dominant goal may be inferred by default (as per the ordered search model), inferring a dominant goal would be tentative, as other goals are still highly accessible and possible to infer.

Thus, a *fourth set of principles* is: As per the exhaustive access model, when factors are inadequate, individuals tend to infer others' goals based on idiosyncratic sources; as per the ordered search model, individuals tend to infer others' goals based on a dominant goal. When factors are inadequate, inference certainty is lower than when factors are more adequate.

Two experiments applied the framework to explain how the attributes of two factors affect agreement and certainty in goal inferences. *Contextual ambiguity* is the extent to which people perceive the rules, roles, norms, and physical setting of a situation as clear, recognizable, and understandable (Argyle, Furnham, & Graham, 1981). Individuals have a difficult time knowing what to expect and how to react in ambiguous contexts (Clark & Word, 1972). Contextual ambiguity is determined, in part, by individuals' familiarity and experience with the context. Those familiar with a context can understand it and perceive it as less ambiguous than those unfamiliar with the context. *Tactical functionality* is the extent to which a tactic can be used to achieve certain goals (Kellermann & Kim, 1991; Waldron, 1991). Tactics function to achieve some, but not all, goals (Benoit & Follert, 1986; Dillard, 1997). Tactical functionality is determined by the joint levels of the efficiency (or expediency) and effectiveness (or successfulness) of a tactic (Kellermann & Shea, 1996; Kim, 1994). As a tactic's efficiency and effectiveness for a goal increase, the tactic's functionality for the goal increases.

## Experiment 1

Experiment 1 used a written scenario. Participants read one of six versions of the scenario in which they imagined being in a situation in a foreign country and talking with an interaction partner. The scenario differed regarding the ambiguity of the

context in which the interaction took place and the functionality of the tactic that the partner used. Contextual ambiguity had two levels—ambiguous and unambiguous—with the unambiguous context strongly linked to a single goal (Goal A). Tactical functionality had three levels: a tactic functionally linked to the goal to which the unambiguous context was linked (Goal A), a tactic linked to a different goal (B), and a tactic linked to the previous two goals and a third (Goals A, B, and C). Contextual ambiguity, tactical functionality, and their respective linkages corresponded to each other in these predefined ways to allow for variation in factor compatibility and adequacy. Figure 1 illustrates the linkages from the tactics and the unambiguous context to the three goals.

## Theoretical Rationale

*Context-goal linkages* are cognitive representations of the goals people typically pursue in certain situations (Schank & Abelson, 1977). Individuals in social gatherings begin friendships more than they seek care, whereas the pattern reverses in medical situations (Argyle et al., 1981). Goal formation research suggests that ambiguity affects the extent to which people activate associations between factors and goals (Wilson, 1990). Because ambiguous contexts inhibit the activation of context-goal linkages, they provide virtually no goal inference restrictions. People, therefore, have more goals highly accessible in an ambiguous context than an unambiguous context. Following from the first set of principles, agreement (Hypothesis 1 [H1]) and certainty (Hypothesis 2 [H2]) in goal inferences are higher when a context is unambiguous than when a context is ambiguous.

A *tactic-goal linkage* is a cognitive representation of the goals individuals can achieve using a particular tactic (Benoit & Follert, 1986; Meyer, 1990). As a tactic's functionality increases across goals, the number of tactic-goal linkages generated increases, as will the number of accessible goals. For example, because a praise tactic is functional for more goals than a ridicule tactic (Kellermann & Kim, 1991), a praise tactic will activate more goals than a ridicule tactic. As the number of goals that tactic-goal linkages make highly accessible increases, determining which goal is being pursued becomes more difficult to do with certainty (Dillard, 1997). Based on the principles, agreement (Hypothesis 3 [H3]) and certainty (Hypothesis 4 [H4]) in goal inferences are higher when a tactic is functionally linked to a single goal than when a tactic is functionally linked to three goals.

Contextual ambiguity and tactical functionality likely have interactive effects as well. Focusing on an unambiguous context, agreement and certainty should decrease as the context and tactic become less compatible. In Figure 1, for example, Tactic 1 and Context 1 (which have complete overlap of the solely linked Goal A) are more compatible than are Tactic 2 (linked to Goals A, B, and C) and Context 1 (linked to Goal A), which have subsumed overlap. Thus, people will tend to infer Goal A in both instances, but agreement and certainty when Context 1 and Tactic 1 completely

overlap will be higher than when Tactic 2 subsumes Context 1 because the instance of subsumed overlap activates more goals than the instance of complete overlap. Agreement and certainty should decrease even further when the two factors are incompatible (i.e., Context 1 linked to Goal A lacks overlap with Tactic 3 linked to Goal B) because inferences will be primarily based on idiosyncratic sources. Thus, in an unambiguous context strongly linked to one goal, agreement (Hypothesis 5 [H5]) and certainty (Hypothesis 6 [H6]) in goal inferences are higher when the context and tactic completely overlap than when the tactic subsumes the context, and agreement and certainty are higher when the tactic subsumes the context than when they lack overlap.

Goal inferences are less dependent on the context when it is ambiguous because ambiguity inhibits the activation of context-goal linkages (Wilson, 1990). Thus, people try to focus on the tactic to infer others' goals in an ambiguous context. Depending on the diagnostic information that the tactic provides, however, two possibilities exist for how individuals infer goals in an ambiguous context. First, if the tactic in an ambiguous context provides adequate goal inference restrictions, then people will rely on the tactic. Tactics 1 and 3 in Figure 1 would provide adequate goal inference restrictions in an ambiguous context, as both are linked to a single goal (A or B, respectively). In an ambiguous context, Tactic 1 would result in frequent inferences of Goal A, whereas Tactic 3 likely would lead to inferences of Goal B. As the inference restrictions for Tactics 1 and 3 in an ambiguous context are identical, however, the level of agreement should be the same. In other words, when a tactic is linked to one goal in an ambiguous context, individuals will infer that goal. Based on the principles, in an ambiguous context, agreement in goal inferences when a tactic is functional for a single goal is at a level similar to when another tactic is functional for a different single goal, even though individuals infer the respective tactic-linked goal (Hypothesis 7 [H7]).

Second, if a tactic in an ambiguous context is linked to multiple goals, then, similar to the context, it too provides inadequate restrictions. Thus, goal inferences should not be primarily based on either factor because there is very little diagnostic information in the factors. In Figure 1, for example, Tactic 2 (linked to Goals A, B, and C) in an ambiguous context would create inadequate restrictions, compared to Tactics 1 or 3 (each linked to a single goal) in an ambiguous context. Based on the exhaustive access model, when factors are inadequate, goal inferences are based on idiosyncratic sources that vary across individuals. Because goal inferences are subjective, agreement is relatively low. Based on the order search model, however, individuals would infer a dominant goal when the tactic and context are inadequate. Due to a dominant goal, agreement would not decrease. Thus, based on these models, two competing hypotheses are forwarded: In an ambiguous context, agreement in goal inferences is lower when a tactic is functionally linked to three goals than when a tactic is functionally linked to one goal (Hypothesis 8a [H8a]). In an ambiguous context, agreement in goal inferences when a tactic is functionally linked to three goals

is at a level similar to when a tactic is functionally linked to one goal (Hypothesis 8b [H8b]). In other words, based on the exhaustive access model, when a tactic is linked to three goals in an ambiguous context, individuals will infer goals based on their subjective perception of which is the best to infer; thus, individuals should not agree on what goal to infer. In terms of the ordered search model, however, if a tactic linked to three goals is in an ambiguous context, then individuals will infer a dominant goal, thereby producing a relatively high level of agreement.

Regardless of the validity of either model, certainty is relatively low based on inadequate factors because there are virtually no goal inference restrictions (even if a dominant goal is inferred tentatively). In an ambiguous context, certainty in goal inferences is lower when a tactic is functionally linked to three goals than when a tactic is functionally linked to one goal (Hypothesis 9 [H9]).

## Pilot Phase

The scenario-based experiment required three objectives—generating a goal list, creating ambiguous and unambiguous contexts, and selecting tactics. Pilot studies met these objectives, thereby allowing the scenario to be altered to manipulate the independent variables.

*Objective 1.* The first objective required the generation of a non-redundant goal list that represented extant literature and did not neglect other goals. A literature search resulted in 49 goals. To have a sufficiently exhaustive list, 103 participants read one randomly assigned version of several scenarios set in various situations that differed along dimensions on which situations are known to fall (Argyle et al., 1981). Participants then listed all the goals they thought people in scenario-relevant roles might be pursuing, adding 24 goals. A second pilot study reduced the 73 goals to a manageable, non-redundant list. Similarity data on the 73 goals were collected in a study in which 57 participants completed a sorting task. Participants were given a stack of 73 cards, with one goal on each card and each stack in a unique, random order. Participants placed similar goals in the same pile, started a new pile for each different goal, made as many or few piles as needed, and double-checked their piles. A  $73 \times 73$  co-occurrence matrix was analyzed via hierarchical cluster analysis with the average linkage between groups. Analysis of fusion coefficients and extant goal typologies revealed that a 34-cluster solution optimally matched the extant literature and removed redundancies. Appendix A lists the resulting 34 goals.

*Objective 2.* The second objective was to construct an unambiguous context with a single context-goal linkage and an ambiguous context. The two contexts were as parallel as possible. Both contexts first described background circumstances. When ambiguous, these background circumstances took place in a city called Neen in a fictitious, yet intended to be credible, foreign country—Butani—so that participants

would have few, if any, preconceived notions and knowledge about the country. The ambiguous background circumstances contained unclear rules, roles, and norms and described events, behaviors, interactions, and objects that were not understood and recognized easily. The unambiguous background circumstances took place in a more familiar locale—London, England—and were clear, understandable, and recognizable. Appendix B lists both background circumstances. Each context then described, in two paragraphs, an activity participants did while in the foreign country based on the advice of someone they “met” at their hotel. For the ambiguous context, an unspecified and unclear place in which the activity occurred was described in the first paragraph. The second paragraph for the ambiguous activity focused on a particular individual of whom participants would infer a goal. To ensure high ambiguity, minimal information was provided about this person. For the unambiguous context, a clear, understandable, and recognizable place was specified in which the activity occurred. Based on preliminary tests, the activity most capable of manipulating the context-goal linkage as needed was “going to a cathedral.” The second paragraph of the cathedral activity described a defined role of an attendant at the cathedral. The cathedral activity was revised until it was strongly associated with a goal of “get something” (i.e., 34 in Appendix A), with all other goals not strongly associated. The final versions of the cathedral and ambiguous activities are in Appendix B.

A third pilot study confirmed the context-goal linkage of the cathedral activity. Fifteen participants read the unambiguous context and then read the 34 goals in Appendix A (listed in a unique, random order across participants) and checked any goal they thought the cathedral attendant could be pursuing. Participants then assigned each checked goal into a primary group of goals the attendant *definitely* (i.e., *truly, unquestionably*) was achieving or a secondary group of goals the attendant *possibly* was achieving. A strongly linked goal was evidenced when 70% or more of participants assigned it to the primary group, whereas the criterion for non-linked goals was at 35% or below. Only the get-something goal was strongly linked to the cathedral activity, as 13 participants (86.67%) assigned it to the primary group. The other 33 goals were considered non-linked: Participants never assigned 20 goals to the primary group, and only 1 to 4 participants (6.67% to 26.67%) assigned the remaining 13 goals to the primary group.

In a fourth pilot study, 40 participants read one of the two randomly assigned contexts and then completed two ambiguity measures each on a 7-point scale (7 = *ambiguous*; ambiguity of overall situation:  $\alpha = .88$ ,  $M = 4.42$ ,  $SD = 1.40$ ; ambiguity of activity:  $\alpha = .91$ ,  $M = 4.53$ ,  $SD = 1.36$ ). Five items (four reverse coded) measured contextual ambiguity of the overall situation by focusing on the extent to which participants recognized inappropriate behaviors, identified events, knew how to behave, felt confused, and understood others' actions. The seven items (four reserve coded) that assessed the activities' ambiguity focused on the activity and asked the extent to which participants were unfamiliar with it, knew what behaviors were common, had

a difficult time figuring out their experiences in it, were confused, clearly realized what they should be doing, could explain why events occurred, and knew what to expect. Participants who read about Butani then indicated its credibility by selecting one of four options: (a) The country *once existed* but no longer does; I can no longer visit it. (b) The country *currently exists*; I can visit it, if I wanted to. (c) The country *might exist*; I have never heard of it, so I may be able to visit it. (d) The country *definitely does not exist*; I cannot visit it, now or ever. Participants finally stated the continent on which they think Butani resides.

Results indicated that the overall situation in London was less ambiguous (3.32) than that in Butani (5.42),  $t(38) = 7.15, p < .01, \eta^2 = .57$ . The cathedral (3.64) activity was less ambiguous than the activity in Butani (5.33),  $t(38) = 4.99, p < .01, \eta^2 = .40$ . Participants commonly selected that Butani might exist (85.71%) or currently exists (4.76%) and rarely selected that it does not exist (9.52%). Participants indicated that Butani resides in Africa 19.05% of the time, in North America 9.52% of the time, in Europe 4.76% of the time, and in Asia 4.76% of the time. The remaining 61.90% said they did not know.

*Objective 3.* The final objective required selecting three tactics varying in functionality (i.e., efficiency and effectiveness) for the get-something and two other goals. Initial tests showed that the give-information and provide-assistance goals (i.e., 22 and 29 in Appendix A) were best suited as the two other goals. A literature review generated a list of tactics with definitions (Wierzbicka, 1987). Tactics were defined as speech act categories to provide a general understanding without limiting it to a particular expression. The use of speech act categories likely was unproblematic because specific utterances correspond to speech acts and people recognize such associations and find them meaningful (Gallardo, 2005; Link & Kreuz, 2005). Preliminary tests reduced the list to three tactics: claim something to you (i.e., state something to you that has obvious proof and evidence that the claim is true), thank you (i.e., express and acknowledge their gratitude to you), and reveal something to you (i.e., tell you a secret). Henceforth, these tactics are referred to as claim, thank, and reveal, respectively, with claim intended to be functional for all three goals, thank for the get-something goal but not the other two, and reveal for the give-information goal only.

A fifth pilot study confirmed these intentions. Participants ( $N = 75$ ) imagined conversing with someone referred to as their "partner," who was trying to achieve one of the three randomly assigned goals. Participants read their assigned goal as listed in Appendix A and, along dimensions of efficiency and effectiveness, judged the three tactics that their partner might use to achieve the goal. For efficiency, participants focused on their partner's goal, indicating how wasteful of time, energy, and effort each tactic was for achieving that goal. Each participant completed the efficiency measure (7 = *very efficient*) with the tactics randomly ordered across participants. The procedure for the effectiveness ratings (7 = *very effective*) mirrored

those of efficiency. Effective tactics were defined as successful, useful, and productive ways to achieve a goal. Participants completed these two ratings in random orders across participants.

A  $3 \times 2 \times 3$  mixed-model analysis of variance (ANOVA) used a between-subjects factor of goal (get something, give information, provide assistance), a within-subjects factor of tactical dimension (efficiency, effectiveness), a within-subjects factor of tactic (claim, thank, reveal), and six dependent variables (i.e., two ratings for each of the three goals). As expected, the sole effect of a tactic  $\times$  goal interaction showed that the three tactics had different levels of functionality across the three goals,  $F(4, 144) = 22.09, p < .01, \eta^2 = .38$ . The claim tactic was the same across the goals for efficiency,  $F(2, 72) = 0.09, p > .05$ , and effectiveness,  $F(2, 72) = 0.13, p > .05$ , as intended (mean level of efficiency: get something = 5.16, give information = 5.28, provide assistance = 5.28; mean level of effectiveness: get something = 5.40, give information = 5.32, provide assistance = 5.24). Post hoc power analyses, using a two-tailed  $\alpha$  of .05 and a medium effect size, indicated that the tests had sufficient power ( $> .90$ ). The thank tactic varied across the goals for efficiency,  $F(2, 72) = 17.53, p < .01, \eta^2 = .33$ , and effectiveness,  $F(2, 72) = 24.27, p < .01, \eta^2 = .40$ . Least significant difference tests with Bonferroni adjustments determined that thank was higher for the get-something goal on efficiency (5.36) and effectiveness (5.64) than the give-information (efficiency = 3.84, effectiveness = 3.68) and provide-assistance (efficiency = 3.64, effectiveness = 3.64) goals. The reveal tactic also had the expected patterns across the goals for efficiency,  $F(2, 72) = 27.04, p < .01, \eta^2 = .38$ , and effectiveness,  $F(2, 72) = 29.89, p < .01, \eta^2 = .45$ . Similar post hoc tests showed that the reveal tactic was higher for the give-information goal on efficiency (5.40) and effectiveness (5.76) than the get-something (efficiency = 3.56, effectiveness = 3.68) and provide-assistance (efficiency = 3.64, effectiveness = 3.56) goals.

Having met the three objectives during the pilot phase, the scenario-based paradigm was implemented in Experiment 1, the method for which is subsequently reported.

## Method

*Participants.* Students ( $N = 120$ ) participated, received credit for a course at a West Coast university, and were 65% female, with ages from 18 to 33 years ( $M = 21.18, SD = 2.17$ ).

*Independent measures and the scenario.* Six versions of the written scenario manipulated the independent variables by combining contexts and tactics. Each scenario had background circumstances and an activity, together serving as an ambiguous or unambiguous context. A tactic was inserted in the scenario after the activity by two sentences that told participants that they were talking with the person described in the activity during which that person said or did the tactic (e.g., the thank tactic was inserted by stating, "You are talking with the [attendant at the

cathedral/nearby person at the final room] you are currently visiting. While talking with you, the [attendant/nearby person] thanks you (i.e., expresses and acknowledges their gratitude to you).”) Figure 2 illustrates the context- and tactic-goal linkages for Experiment 1.

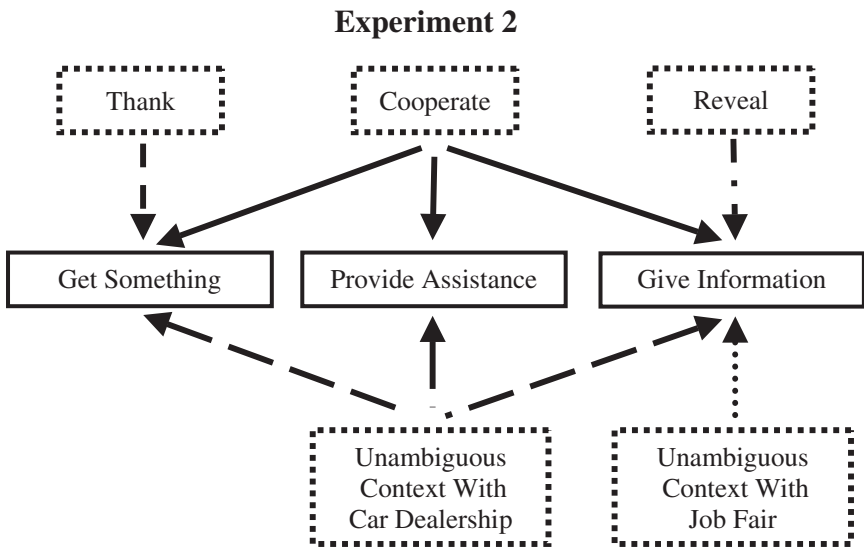
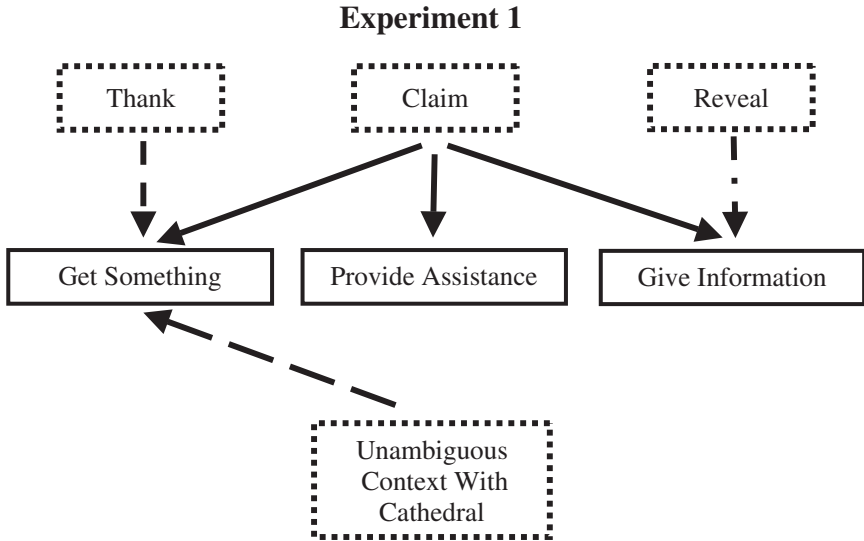
*Dependent measures.* To measure agreement in goal inferences, a trichotomous, forced-choice item had participants infer one of the three goals of this research. The first part of this item used the specific activity, role, and tactic in the scenario that participants read but followed the general format of why they thought the person with whom they were talking used the tactic in the activity (e.g., “The attendant thanked you [i.e., expressed and acknowledged their gratitude to you] while talking with you at the cathedral. We are interested in why you think the attendant thanked you.”). The item then instructed participants to read each goal carefully and check the goal they thought the person was most likely trying to achieve. The three goals were listed (as in Appendix A) in an order randomized across participants. Given this forced-choice item, agreement was operationalized as the percentage of participants who selected the modal goal within a particular condition of the design.

Because determining the reliability of this forced-choice item was not possible via internal consistency, three continuous goal inference measures were included. The four items (two reverse coded) for each measure focused on the extent to which participants thought inferring one of the three goals was reasonable and sensible and the extent to which they would not think of or consider that goal as one they would infer. The three reliable scales ( $\alpha > .80$ ) were identical, except for the goal to which the items referred and the tactic, role, and activity associated with the version of the scenario participants read. Although results from these continuous measures are not reported herein, comparative analyses of the continuous measures and the forced-choice item indicated that when participants inferred a particular goal via the forced-choice item, the three continuous measures demonstrated a similar pattern, suggesting that the forced-choice item reliably measured participants’ goal inferences.

A four-item, 7-point inference certainty scale (one reverse coded) assessed the extent to which participants had certainty, confidence, reservations, and trust in the accuracy of the goal they inferred via the forced-choice item ( $7 = \text{certain}$ ;  $\alpha = .84$ ,  $M = 4.41$ ,  $SD = 1.27$ ). As in the goal inference items, the inference certainty items referred to the specific activity, role, and tactic in the scenario that participants read (e.g., “How confident are you that the goal you checked is the attendant’s true objective for thanking you while talking with you at the cathedral?”).

*Tactic recognition.* A tactic-recognition item ensured that the tactic was remembered and comprehended as intended. Participants indicated what the person in the activity said while talking with them by selecting one of six options, three of which were the claim, thank, and reveal tactics listed using synonymous labels or descriptions, whereas the other three were distractor tactics to allow for non-superficial

**Figure 2**  
**Operational Definitions of Tactic-Goal Linkages and**  
**Context-Goal Linkages in Experiments 1 and 2**



tactic recognition. Based on this item, 10 participants (8.33%) *not* choosing the tactic at the end of their scenario were dropped from further analyses.

*Dominant goal.* Given the ordered search model, three measures assessed the extent to which participants generally pursued the three goals when talking with others. Two items (one reverse coded) formed each moderately reliable, 7-point scale (7 = *frequent*; get something:  $r(108) = .45, p < .01$ ; give information:  $r(108) = .41, p < .01$ ; provide assistance:  $r(108) = .42, p < .01$ ).

*Procedure.* Participants completed a questionnaire that instructed them to imagine the situation described in the scenario, as if they were experiencing it firsthand. Participants read one randomly assigned version of the scenario and then completed the tactic recognition item, mixed with filler recognition items. Participants completed the forced-choice goal inference item and then the inference certainty measure, intermingled with fillers. Next, participants completed the continuous goal inference and dominant goal items, inserted among fillers, focusing on one goal at a time, with the order of the goals randomized. This process took 25 to 35 minutes.

## Results

*Dominant goal analyses.* A  $3 \times 2 \times 3$  mixed-model ANOVA, using a within-subjects factor of goal, a between-subjects factor of context, and a between-subjects factor of tactic, analyzed the three dominant goal measures. The only effect emerging was that participants pursued the three goals with different frequencies independent of the tactic or context in their scenario,  $F(2, 103) = 68.05, p < .01, \eta^2 = .57$ . *t* tests with Bonferroni adjustments revealed that the get-something goal (3.61) was pursued less often than the give-information (5.55),  $t(109) = 11.60, p < .01, \eta^2 = .55$ , or provide-assistance (5.38),  $t(109) = 9.63, p < .01, \eta^2 = .46$ , goals. Participants reported that they pursued the give-information and provide-assistance goals equally often,  $t(109) = 1.28, p > .05$ . Results yielded two dominant goals: the give-information and provide-assistance goals.

*Data analysis strategy.* For coherency, results are presented in two groups—one for agreement in goal inferences and one for inference certainty. A priori contrasts with one-tailed tests examined the hypotheses of certainty. Hypotheses regarding agreement predicted specific differences in the proportions of participants inferring the most frequently inferred goal in particular conditions. One-tailed chi-square analyses (cf. Tries, Skrable, French, & Chabot, 1999) and one-tailed *z* ratios for the significance of the difference between two independent proportions tested hypotheses dealing with agreement in goal inferences. Although the chi-square tests allowed for the examination of predicted correlations among the discrete variables, *z* ratios tested the precise predictions of the differences in particular frequencies with which

**Table 2**  
**Results for Agreement in Goal Inferences for Experiment 1**

Hypothesis	Condition		Goal Inferred					
			Get Something		Give Information		Provide Assistance	
			%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
1	Ambiguous	—	29.6	16	46.3 <sup>a</sup>	25 <sup>a</sup>	24.1	13
	Cathedral	—	64.3 <sup>a</sup>	36 <sup>a</sup>	30.4	17	5.4	3
3	—	Claim	41.7	15	47.2 <sup>a</sup>	17 <sup>a</sup>	11.1	4
	—	Thank	68.6 <sup>a</sup>	24 <sup>a</sup>	17.1	6	14.3	5
	—	Reveal	33.3	13	48.7 <sup>a</sup>	19 <sup>a</sup>	17.9	7
5	Cathedral	Reveal	50.0 <sup>a</sup>	10 <sup>a</sup>	45.0	9	5.0	1
	Cathedral	Claim	57.9 <sup>a</sup>	11 <sup>a</sup>	42.1	8	0.0	0
	Cathedral	Thank	88.2 <sup>a</sup>	15 <sup>a</sup>	0.0	0	11.8	2
7	Ambiguous	Thank	50.0 <sup>a</sup>	9 <sup>a</sup>	33.3	6	16.7	3
	Ambiguous	Reveal	15.8	3	52.6 <sup>a</sup>	10 <sup>a</sup>	31.6	6
8	Ambiguous	Claim	23.5	4	52.9 <sup>a</sup>	9 <sup>a</sup>	23.5	4
	Ambiguous	Thank	50.0 <sup>a</sup>	9 <sup>a</sup>	33.3	6	16.7	3
	Ambiguous	Reveal	15.8	3	52.6 <sup>a</sup>	10 <sup>a</sup>	31.6	6

Note: Percentages refer to the frequency (or level of agreement) at which individuals in a particular condition inferred the corresponding goal. *n* values after each percentage are the number of participants who inferred a particular goal in the corresponding condition.

a. Refers to the highest level of agreement for a particular condition.

participants inferred goals. The forced-choice inference item resulted in some cells with low observed frequencies. Low-frequency cells are statistically problematic *only* when they generate expected (not observed) frequencies that are zero (Gottman & Roy, 1990). Expected frequencies can be as low as 0.5 without affecting the statistical test, and Monte Carlo studies show the oft-learned rule of a minimum expected cell size of 5, created in pre-computer days and by intuition, is too conservative and arbitrary (Siegel & Castellan, 1988). In Experiment 1, expected cell frequencies were frequently above 5 and never below 0.5.

*Goal inferences.* Table 2 reports the frequencies with which participants inferred goals. A log-linear analysis confirmed the predicted three-way interaction of ambiguity, functionality, and inferred goal,  $G^2 = 39.46$ ,  $df = 12$ ,  $p < .01$ . The specific hypotheses are subsequently tested.

A 2 (context)  $\times$  3 (goal inferred) chi-square test revealed that goal inferences varied as a function of ambiguity,  $\chi^2(2) = 15.44$ ,  $p < .01$ ,  $\eta^2 = .07$ . Supporting H1, people agreed more in the unambiguous context (64.3%) than in the ambiguous context (46.3%),  $z = 1.90$ ,  $p < .05$ .

Mixed support emerged for H3, which predicted more agreement when a tactic was functional for one goal (thank and reveal) than for three goals (claim). A 3 (tactic)  $\times$  3 (goal inferred) chi-square showed that goal inferences depended on the tactic,  $\chi^2(4) = 11.77, p < .01, \eta^2 = .04$ . As predicted, individuals agreed more when the tactic was thank (linked to the get-something goal only; 68.6%) than when it was claim (linked to all three goals; 47.2%),  $z = 1.82, p < .05$ . Unexpectedly, however, agreement when the tactic was reveal (solely linked to the give-information goal; 48.7%) was at a level nearly identical to when it was claim,  $z = 0.13, p > .05$ .

H5 predicted that agreement would drop as the tactics decreased in their compatibility with the unambiguous context (thank > claim > reveal). H5 received mixed support. A 3 (tactic)  $\times$  3 (goal inferred) chi-square showed that goal inferences depended on the tactic in the unambiguous context,  $\chi^2(4) = 12.04, p < .01, \eta^2 = .07$ . Specifically, agreement was higher for complete overlap (thank 88.2%) than for subsumed overlap (claim 57.9%),  $z = 2.03, p < .05$ , and lack of overlap (reveal 50.0%),  $z = 2.48, p < .01$ . Unexpectedly, there was no significant difference in agreement between subsumed overlap (claim) and lack of overlap (reveal),  $z = 0.49, p > .05$ .

Results were consistent with H7, which predicted that goal inferences in the ambiguous context depended on whether the tactic was thank (linked to get something) or reveal (linked to give information). A 2 (tactic)  $\times$  3 (goal inferred) chi-square was significant,  $\chi^2(2) = 4.98, p < .05, \eta^2 = .07$ . Moreover, the tactic-linked goals were inferred at similar levels of agreement,  $z = 0.16, p > .05$ ; for the thank tactic, the linked get-something goal was primarily inferred (50.0%), and for the reveal tactic, the linked give-information goal was inferred most often (52.6%).

Two competing predictions were made for inadequate factors: Agreement when the factors provided inadequate goal inference restrictions (i.e., claim-ambiguous scenario) would be at a level either lower than (H8a) or similar to (H8b) more adequate restrictions (i.e., thank-ambiguous or reveal-ambiguous scenarios). Results generally were consistent with the ordered search model (H8b). A 3 (tactic)  $\times$  3 (goal inferred) chi-square showed that goal inferences did not depend on the tactic in the ambiguous context,  $\chi^2(4) = 5.80, p > .05$ . The levels of agreement in the ambiguous context were virtually identical across the three tactics (claim 52.9%, thank 50.0%, reveal 52.6%). Moreover, when factors were inadequate (i.e., claim-ambiguous scenario), a dominant goal of give information (52.9%) was inferred more frequently than the non-dominant get-something goal (23.5%),  $z = 1.77, p < .05$ .

*Inference certainty.* Although the predicted interaction between contextual ambiguity and tactical functionality emerged,  $F(2, 104) = 5.78, p < .01, \eta^2 = .10$ , hypotheses for inference certainty generally were not supported. H2 was supported: Inference certainty was higher when the context was unambiguous ( $M = 4.65, SD = 1.29$ ) than when it was ambiguous ( $M = 4.17, SD = 1.20$ ),  $F(1, 108) = 4.16, p < .05, \eta^2 = .04$ . H4 was not supported: Certainty was not lower when the tactic was claim

(functional for all three goals;  $M = 4.44$ ,  $SD = 1.13$ ) than when the tactic was functional for just one goal (reveal = 4.47,  $SD = 1.41$ ; thank = 4.33,  $SD = 1.26$ ; means averaged for contrast),  $F(1, 107) = 0.02$ ,  $p > .05$ . The prediction of H6 that people in the unambiguous context would have decreasing levels of certainty across the thank (complete overlap;  $M = 5.12$ ,  $SD = 1.00$ ), claim (subsumed overlap;  $M = 4.25$ ,  $SD = 1.22$ ), and reveal (lack of overlap;  $M = 4.64$ ,  $SD = 1.48$ ) tactics received no support,  $F(2, 104) = 2.33$ ,  $p > .05$ . Finally, results were counter to H9: Individuals in the ambiguous context had a higher level of certainty when the tactic was claim (linked to all three goals;  $M = 4.65$ ,  $SD = 1.01$ ) than when the tactic was thank ( $M = 3.58$ ,  $SD = 1.02$ ) or reveal ( $M = 4.29$ ,  $SD = 1.34$ ; means for thank and reveal were averaged for contrast),  $F(1, 51) = 4.53$ ,  $p < .05$ ,  $\eta^2 = .08$ . Power analyses (with a one-tailed  $\alpha$  of .05 and a medium effect size) indicated that insignificant tests had sufficient power ( $> .90$ ). Overall, inference certainty was slightly higher in the unambiguous than ambiguous contexts.

## Discussion

Experiment 1 tested the theoretical framework that posited to account for agreement and certainty in goal inferences. In an unambiguous context, individuals tended to agree (H1). Agreement, however, depended on tactical functionality; that is, the extent to which the factors were compatible affected goal inferences. As the tactic and context became more compatible, peoples' goal inferences converged (H5); yet there was not a significant difference in agreement between subsumed overlap and lack of overlap. When the context was ambiguous, agreement was relatively low. Because the ambiguous context gave relatively little diagnostic information for inferring goals, individuals tended to rely on the information from the tactic's functionality (H7). However, when the context was ambiguous and the tactic was functional for three goals (inadequate factors), people tended to infer a dominant goal (as per the ordered search model; H8b). Inference certainty, in contrast, did not fluctuate as predicted. In fact, the only difference in inference certainty consistent with predictions was that it was higher when the context was unambiguous than ambiguous (H2).

The same cognitive processes were posited to explain *both* agreement and certainty in goal inferences; yet the framework predicted agreement better than certainty. A single explanatory mechanism for both agreement and certainty apparently is unsatisfactory. Notwithstanding conceptual explanations for why certainty received less support than agreement, the results of Experiment 1 may be confined to the cathedral activity, the claim tactic, the country of Butani, or other facets of the operationalizations. Before advancing a theoretical rationale for why the framework was relatively successful at predicting agreement, yet failed for certainty, testing for stimulus generalizability is worthwhile, as executed in Experiment 2.

## Experiment 2

The first objective of Experiment 2 was to test for stimulus generalizability. Experiment 2, therefore, used a similar design with some operationalizations altered. All hypotheses of Experiment 1 (H1 to H9) were forwarded for Experiment 2.

Another issue that emerged from the results of Experiment 1 focused on inadequate factors. The framework posited that factors were inadequate when the tactic was functional for multiple goals and the context was ambiguous, but this instance may not be the sole way to generate inadequate factors. Inadequate factors may also occur when an unambiguous context and tactic both activate multiple goals (e.g., a tactic and context linked to Goals A, B, and C). The inadequacy of this instance, however, is questionable because the factors completely overlap and are thus compatible. A second objective for Experiment 2, therefore, was to examine agreement and certainty when an unambiguous context was strongly linked to three goals.

Adding an unambiguous context (linked to three goals) to the design allowed for two novel ways to examine the framework. First, the unambiguous context linked to three goals permitted a context to subsume a tactic. Drawing on the theoretical framework, when an unambiguous context (linked to Goals A, B, and C) subsumes a tactic (singularly linked to Goal A or B), individuals will primarily rely on the mutually linked goal. That is, if a tactic is linked to one goal in an unambiguous context that is also linked to that goal plus two other goals, then individuals will infer the goal linked to the tactic. Thus, in an unambiguous context linked to three goals, agreement in goal inferences when a tactic is functional for a single goal is at a level similar to when another tactic is functional for a different single goal, even though individuals infer the respective tactic-linked goal (Hypothesis 10 [H10]). Second, adding an unambiguous context linked to three goals provided an instance of a tactic and a context both linked to the same three goals. As the adequacy of the goal inference restrictions in this instance is unclear (i.e., Do three activated goals create inadequate goal inference restrictions?), no hypotheses were forwarded for when a tactic and an unambiguous context were linked to the same three goals; rather, agreement and certain in this instance were examined via research questions in exploratory analyses.

## Method

*Overview.* Experiment 2 used the same scenario method of Experiment 1. Contextual ambiguity had three levels: ambiguous, unambiguous (linked to Goal A), and unambiguous (linked to Goals A, B, and C). Tactical functionality had three levels: a tactic functional for Goal A, a tactic functional for Goal B, and a tactic functional for the previous two goals and Goal C. The 3 (ambiguity)  $\times$  3 (functionality) design yielded 9 versions of the scenario.

*Pilot phase.* In a pilot phase, similar to that of Experiment 1, unambiguous and ambiguous contexts were generated, and tactics varying in functionality were selected.

The first objective was to construct two unambiguous contexts, one linked to a single goal and another linked to that goal and two others. The unambiguous background circumstances used in Experiment 1 also were used in this experiment. The activities used in the unambiguous contexts were similar to the two-paragraph structure of the cathedral activity. Preliminary tests revealed that a job fair activity (with a job notification announce as the role) could manipulate a single context-goal linkage and a car dealership activity (with a car salesperson as the role) could manipulate three context-goal linkages, as confirmed in a pilot study ( $N = 30$ ), virtually identical to that used for Experiment 1. After reading the context with the job fair activity, 12 participants (86.67%) assigned the give-information goal to the primary group, only 1 to 5 (6.67% to 33.33%) assigned 23 goals to the primary group, and all never assigned 10 of the goals to the primary group. For the car dealership activity, most participants assigned the get-something (13, 86.67%), give-information (12, 80.00%), and provide-assistance (11, 73.33%) goals to the primary group, whereas they rarely assigned (6.67% to 33.33%) 9 and never assigned 22 goals to the primary group. Thus, the job fair activity was strongly linked to the give-information goal and the car dealership activity to that goal plus the provide-assistance and get-something goals.

The ambiguous context in Experiment 2 was identical to that used in Experiment 1, except that Fidonia replaced the fictitious country of Butani. A pilot study ( $N = 59$ ), virtually identical to that of Experiment 1, compared the contexts. Both ambiguity measures were reliable (overall situation:  $\alpha = .84$ ,  $M = 3.66$ ,  $SD = 1.32$ ; activity:  $\alpha = .84$ ,  $M = 4.07$ ,  $SD = 1.21$ ). The overall situation in Fidonia was more ambiguous (5.18) than that of the job fair (2.70),  $t(37) = 10.60$ ,  $p < .01$ ,  $\eta^2 = .75$ , or car dealership (3.17),  $t(37) = 7.77$ ,  $p < .01$ ,  $\eta^2 = .62$ , activities. The activity of Fidonia was more ambiguous (5.27) than the job fair (3.16),  $t(37) = 7.57$ ,  $p < .01$ ,  $\eta^2 = .61$ , or car dealership (3.84),  $t(37) = 5.48$ ,  $p < .01$ ,  $\eta^2 = .45$ , activities. Fidonia was sufficiently realistic (might exist = 78.95%, exists = 5.26%, does not exist = 15.79%), and Fidonia and Butani were equally credible,  $\chi^2(2) = 0.57$ ,  $p > .05$ . Participants thought Fidonia resides in Europe (47.37%) or Asia (5.26%) or did not know (47.37%), and the patterns of the assumed continent for Fidonia and Butani diverged, as intended,  $\chi^2(4) = 13.06$ ,  $p < .05$ ,  $\eta^2 = .16$ .

A final objective required the selection of three tactics varying in functionality (i.e., efficiency and effectiveness) for the three goals. The thank and reveal tactics from Experiment 1 were used in Experiment 2. Preliminary tests suggested that a new tactic functional for all three goals was cooperate with you (i.e., collaborate and works things out with you). A tactical functionality pilot ( $N = 75$ ), virtually identical to that of Experiment 1, confirmed this intention. A  $3 \times 2$  mixed-model ANOVA with a between-subjects factor of goal and a within-subjects factor of tactical

dimension resulted in no significant effects, as expected (power > .90). The cooperate tactic was equally high in efficiency,  $F(2, 72) = 0.01, p > .05$ , and effectiveness,  $F(2, 72) = 0.03, p > .05$ , for all three goals, as desired (mean level of efficiency: get something = 5.32, give information = 5.36, provide assistance = 5.32; mean level of effectiveness: get something = 5.36, give information = 5.32, provide assistance = 5.40).

*Participants.* Students ( $N = 180$ ; age range = 18 to 52,  $M = 21.28, SD = 2.80$ ; 62% female) from the same university of Experiment 1 received credit for participating.

*Measures and procedure.* The measures and procedure for Experiment 2 were identical to those of Experiment 1. All measures were reliable ( $\alpha > .80$ ). Based on the tactic recognition item, 19 participants (10.56%) were dropped. Figure 2 illustrates the factor-goal linkages.

## Results

The data analysis techniques for Experiment 2 mirrored those of Experiment 1.

*Dominant goal analyses.* Similar to Experiment 1, a  $3 \times 3 \times 3$  mixed-model ANOVA revealed that participants pursued the three goals with different frequencies independent of the tactic or context in their scenario,  $F(2, 304) = 165.00, p < .01, \eta^2 = .52$ . Participants pursued the get-something goal (3.70) less often than the give-information (5.42),  $t(160) = 13.79, p < .01, \eta^2 = .54$ , or provide-assistance (5.58),  $t(160) = 15.07, p < .01, \eta^2 = .59$ , goals, and they pursued the give-information and provide-assistance goals equally often,  $t(160) = 1.68, p > .05$ . Results again yielded give information and provide assistance as dominant goals.

*Goal inferences.* Cell frequencies for each hypothesis, reported in Table 3, had expected counts frequently above 5 and never below 0.5. The predicted three-way interaction of goal inferred, contextual ambiguity, and tactical functionality,  $G^2 = 91.48, df = 20, p < .01$ , emerged.

H1 predicted more agreement in the ambiguous than unambiguous contexts and was supported generally. A 3 (context)  $\times$  3 (goal inferred) chi-square revealed that goal inferences varied as a function of the contexts,  $\chi^2(4) = 41.58, p < .01, \eta^2 = .09$ . Agreement in the ambiguous context (40.7%) was significantly lower than in the car dealership (69.8%),  $z = 2.90, p < .01$ , and marginally significantly lower than in the job fair (55.6%),  $z = 1.54, p = .06$ .

H3 (i.e., more agreement when a tactic was functional for one goal than for three goals) was supported overall. A 3 (tactic)  $\times$  3 (goal inferred) chi-square showed that inferences depended on the tactic,  $\chi^2(4) = 33.66, p < .01, \eta^2 = .07$ . Agreement based on the cooperate tactic (41.5%) was lower than that based on the reveal tactic

**Table 3**  
**Results for Agreement in Goal Inferences for Experiment 2**

Hypothesis	Condition		Goal Inferred					
			Get Something		Give Information		Provide Assistance	
			%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
1	Ambiguous	—	20.4	11	38.9	21	40.7 <sup>a</sup>	22 <sup>a</sup>
	Job fair	—	31.5	17	55.6 <sup>a</sup>	30 <sup>a</sup>	13.0	7
	Car dealership	—	69.8 <sup>a</sup>	37 <sup>a</sup>	13.2	7	17.0	9
3	—	Cooperate	32.1	17	26.4	14	41.5 <sup>a</sup>	22 <sup>a</sup>
	—	Thank	53.6 <sup>a</sup>	30 <sup>a</sup>	21.4	12	25.0	14
	—	Reveal	34.6	18	61.5 <sup>a</sup>	32 <sup>a</sup>	3.8	2
5	Job fair	Thank	38.9 <sup>a</sup>	7 <sup>a</sup>	38.9 <sup>a</sup>	7 <sup>a</sup>	22.2	4
	Job fair	Cooperate	26.3	5	57.9 <sup>a</sup>	11 <sup>a</sup>	15.8	3
	Job fair	Reveal	29.4	5	70.6 <sup>a</sup>	12 <sup>a</sup>	0.0	0
7	Ambiguous	Thank	42.1 <sup>a</sup>	8 <sup>a</sup>	21.1	4	36.8	7
	Ambiguous	Reveal	10.5	2	78.9 <sup>a</sup>	15 <sup>a</sup>	10.5	2
8	Ambiguous	Cooperate	6.3	1	12.5	2	81.3 <sup>a</sup>	13 <sup>a</sup>
	Ambiguous	Thank	42.1 <sup>a</sup>	8 <sup>a</sup>	21.1	4	36.8	7
	Ambiguous	Reveal	10.5	2	78.9 <sup>a</sup>	15 <sup>a</sup>	10.5	2
10	Car dealership	Thank	78.9 <sup>a</sup>	15 <sup>a</sup>	5.3	1	15.8	3
	Car dealership	Reveal	68.8 <sup>a</sup>	11 <sup>a</sup>	31.3	5	0.0	0

Note: Percentages refer to the frequency (or level of agreement) at which individuals in a particular condition inferred the corresponding goal. *n* values after each percentage are the number of participants who inferred a particular goal in the corresponding condition.

a. Refers to the highest level of agreement for a particular condition.

(61.5%),  $z = 2.05$ ,  $p < .05$ , and marginally lower than the thank tactic (53.6%),  $z = 1.26$ ,  $p = .10$ .

For H5 (that predicted increases in agreement from lack of overlap to subsumed overlap to complete overlap), a 3 (tactic)  $\times$  3 (goal inferred) chi-square, focusing on the job fair activity, showed that goal inferences did not depend on the tactic,  $\chi^2(4) = 5.62$ ,  $p > .05$ . In fact, agreement for complete overlap (reveal 70.6%) was significantly higher than lack of overlap (thank 38.9%),  $z = 1.88$ ,  $p < .05$ , but not significantly higher than subsumed overlap (cooperate 57.9%),  $z = 0.79$ ,  $p > .05$ . A marginally significant difference in agreement emerged when comparing subsumed overlap (cooperate) to lack of overlap (thank),  $z = 1.16$ ,  $p = .12$ . Nonetheless, the pattern of agreement was consistent with H5 (lack of overlap, thank-job fair = 38.9%, subsumed overlap, cooperate-job fair = 57.9%, and complete overlap, reveal-job fair = 70.6%), offering tentative support for H5.

Results were mixed for H7, which predicted that goal inferences in the ambiguous context depended on whether the tactic was thank or reveal (each linked to a different,

single goal). In the ambiguous context, a 2 (tactic)  $\times$  3 (goal inferred) chi-square showed that inferences varied across thank and reveal,  $\chi^2(2) = 12.75, p < .01, \eta^2 = .17$ . In the ambiguous context, people primarily inferred the tactic-linked goals, but agreement levels for thank (42.1%) and reveal (78.9%) were unexpectedly dissimilar,  $z = 2.32, p < .01$ .

Results were generally consistent with H8b (i.e., agreement when the factors provided inadequate goal inference restrictions were similar to when they provided more adequate restrictions) and the ordered search model. Focusing on the ambiguous context, a 3 (tactic)  $\times$  3 (goal inferred) chi-square showed that goal inferences depended on the tactic,  $\chi^2(4) = 41.58, p < .01$ . Agreement with inadequate factors (cooperate-ambiguous scenario = 81.3%) was identical to the reveal-ambiguous scenario (78.9%),  $z = 0.17, p > .05$ , but unexpectedly higher than the thank-ambiguous scenario (42.1%),  $z = 2.36, p < .01$ . Consistent with H8b, with inadequate factors, a dominant goal of provide assistance (81.3%) was inferred more frequently than the non-dominant get-something goal (6.3%),  $z = 4.28, p < .01$ .

H10 predicted that people who read the car dealership activity frequently would infer the get-something goal when the tactic was thank but give information when the tactic was reveal (at similar levels). A 2 (tactic)  $\times$  3 (goal inferred) chi-square within the car dealership activity showed that goal inferences depended on the tactic,  $\chi^2(2) = 6.07, p < .05, \eta^2 = .09$ ; yet the pattern was inconsistent with H10. Inferences of get something based on the thank tactic (78.9%) unexpectedly were higher than inferences of get information based on reveal (31.3%),  $z = 2.84, p < .01$ . In fact, agreement levels for inferring the get-something goal in the car dealership were surprisingly similar across the thank (78.9%) and reveal (68.8%) tactics,  $z = 0.69, p > .05$ .

*Inference certainty.* The predicted ambiguity  $\times$  functionality interaction was not significant,  $F(4, 152) = 0.67, p > .05$ . Thus, results for the hypotheses on inference certainty are not detailed. In fact, all hypotheses were unsupported (power  $> .90$ ), except for H2: Certainty was higher for the unambiguous (job fair = 4.66,  $SD = 1.06$ ; car dealership = 4.92,  $SD = 1.37$ ; means averaged) than the ambiguous ( $M = 4.02, SD = 1.20$ ) contexts,  $F(1, 158) = 14.55, p < .01, \eta^2 = .08$ .

*Exploratory analyses.* Experiment 2 sought to explore agreement and certainty when the unambiguous context and tactic were linked to the same three goals (i.e., cooperate-car dealership scenario). The goal primarily inferred was not a dominant goal, as 11 people (61.1%) inferred the get-something goal marginally more often than provide assistance (6, 33.3%),  $z = 1.67, p < .10$ , and provide assistance was inferred more frequently than give information (1 or 5.6%),  $z = 2.12, p < .05$ . Inference certainty was the same across all tactics,  $F(2, 50) = 0.82, p > .05$ , (cooperate = 5.22,  $SD = 1.64$ ; thank = 4.64,  $SD = 1.16$ ; reveal = 4.92,  $SD = 1.27$ ; power  $> .90$ ).

## Discussion

Experiment 2 demonstrated that the theoretical framework predicted agreement in goal inferences more effectively than inference certainty. In general, Experiment 2 replicated Experiment 1, obtaining stimulus generalizability and thus ruled out some alternative explanations.

Experiment 2 also observed goal inferences in an unambiguous context strongly linked to three goals. Contrary to H10, individuals frequently inferred the get-something goal across all tactics in the car dealership activity. This result ostensibly suggests that the car dealership activity ineffectively manipulated the three context-goal linkages; yet, a pilot test confirmed that the car dealership activity was strongly linked to the get-something, give-information, and provide-assistance goals (i.e., 70% of people indicated that the car salesperson definitely, truly, and unquestionably was pursuing all three goals). That the car dealership activity successfully instantiated the intended condition is highly probable.

Acknowledging an effective manipulation suggests the theoretical possibility that people infer others' goals in hierarchies. Interactants hierarchically represent their own goals, with subordinate goals facilitating the achievement of superordinate goals (Dillard, 1997), and readers hierarchically infer goals (Caillies & Denhière, 2001). Goal hierarchies may also aid goal inferences in social interaction by prioritizing some goals over others. With this rationale, perhaps people who responded to the car dealership activity thought the sales person was pursuing the give-information and provide-assistance goals only to facilitate the get-something goal. Thus, participants frequently selected the get-something goal across all tactics in the car dealership activity because they integrated the other two goals (generated by a tactic or the context) into a goal hierarchy and not because they were blind to or ignored the other goals. For example, most people did not infer the give-information goal based on the reveal tactic in the car dealership because they considered that tactic-linked goal subordinate to the get-something goal. Nonetheless, not everyone may have seen the get-something goal as superordinate in the car dealership activity, as people inferred the give-information goal (31.3%) when the tactic was reveal more often than when it was thank (5.3%),  $z = 2.03$ ,  $p < .05$ . This outcome suggests individual differences in how people construct goal hierarchies. People may have predispositions to infer certain types of goals (compared to other types of goals) as superordinate in a goal hierarchy. For example, individuals who are skeptical of others' motives likely may infer that someone is pursuing a prosocial goal (e.g., comfort) only to facilitate this person's achievement of an egocentric goal (e.g., seek compliance), even though no factors are linked to the selfish goal (cf. Palomares, 2007). Elaborating on the idea of goal hierarchies in goal inferences would shed light on the goal-detection process, and future research would benefit from such examinations.

## General Discussion

Experiments 1 and 2 tested the theoretical framework regarding the inferences individuals make about others' goals and the certainty in those inferences. In terms of inference certainty, very little support emerged for the framework. In fact, the only significant effect across both studies was that inference certainty was higher in unambiguous than ambiguous contexts (H2). The theoretical framework, on the other hand, fared relatively well explaining agreement in goal inferences. Largely consistent across both experiments were that individuals agreed more when the context was unambiguous than ambiguous (H1) and that they agreed more when the tactic was linked to a single goal compared to three goals (H3). Important, however, is that contextual ambiguity and tactical functionality interacted to influence goal inferences. The extent to which a tactic and an unambiguous context were compatible affected individuals' goal inferences. As the tactic and context became more compatible, inter-individual agreement in goal inferences tended to converge (H5). When an ambiguous context provided relatively little diagnostic information for inferring others' goals, people were inclined to infer goals based on the information found in the tactic's functionality (H7). When individuals confronted inadequate goal inference restrictions (i.e., a tactic functional for three goals in an ambiguous context), individuals tended to agree on the inference of a dominant goal (as per the ordered search model; H8b). Noteworthy, however, is that although these general conclusions can be made across both experiments, they should be considered in light of the mixed support that emerged at times (particularly with respect to H5 and H8). Indeed, these, as well as the other, results from Experiments 1 and 2 yield several theoretical reconsiderations and meaningful implications, as discussed in the current section.

### Theoretical Reconsiderations

The results highlight at least three aspects of the framework—agreement versus certainty, factor compatibility, and dominant goals—that would benefit from theoretical deliberation.

*Agreement versus certainty.* The same explanatory mechanism attempted to account for agreement and certainty in goal inferences; yet this single mechanism was insufficient, as it more effectively explained agreement than certainty. Different processes apparently exist for inferring others' goals versus being certain in those inferences. Being certain may require more information than agreeing. In essence, this information accumulation explanation is that the threshold of diagnostic information is lower for agreement than for certainty. Recipients of the message, "I want to help you," for example, may agree initially on a provide-assistance goal; yet they may be merely moderately certain because the single utterance provides minimal

information. Inferences, thus, may initially converge to an ostensibly transparent or superficial goal with moderate certainty; but to agree on a goal non-tentatively, additional information must be accumulated over time. In fact, being highly certain may require several minutes or even multiple interactions, especially if ensuing data lead to the modification of an earlier inference.

Certainty may require more information than agreement because people seek to test initial goal inferences over the course of an interaction. People employ passive, active, and interactive information-seeking strategies to increase certainty (Berger & Bradac, 1982), and they initially accept messages at face value, but, to increase certainty, they will adapt their interpretation with more information (Hewes, 1995). Attitudinal certainty is positively correlated to attitude-relevant information (Saltiel & Woelfel, 1975). Confirming or ruling out an inferred goal, thus, likely takes more information than does tentatively agreeing on a goal. The extent to which people are motivated to infer goals accurately may moderate the relationship between information accumulation and certainty. Relatively little information might lead to moderate certainty for people with low motivation; yet those highly motivated may require more information to be moderately certain because they have higher standards for what counts as diagnostic information.

An information accumulation hypothesis can account for the current results. The amount of information from a scenario, for example, was relatively small and may have been sufficient for high agreement but only moderate certainty. Certainty barely breached the scale's midpoint, yet agreement frequently reached the 60th to 80th percentiles. Certainty differed only as a main effect of contextual ambiguity, likely because ambiguity provided relatively little diagnostic information. In fact, the predicted interaction for certainty was probably unsupported because the amount of information across these conditions did not vary enough to produce the expected differences. Future research can advance and test an information accumulation explanation for inference certainty in similar scenario-based experiments by manipulating the amount of information participants have. As confirmatory information increases, so should certainty (a linear relationship), but agreement should quickly reach high levels with little information, and more confirmatory information should not significantly increase agreement (an asymptotic relationship).

*Factor compatibility.* A second theoretic reconsideration focuses on compatible and incompatible factors (H5). Agreement was predicted to be lower for lack of overlap (i.e., reveal cathedral or thank job fair scenarios) than subsumed overlap (i.e., claim-cathedral or cooperate-job fair scenarios) because inferences based on lack of overlap are more likely to emerge from idiosyncratic sources. Small anticipated differences were found between factors lacking overlap and a tactic subsuming a context, but they were unexpectedly insignificant in Experiment 1 and merely marginally significant in Experiment 2. People, thus, may use idiosyncratic sources equally for lack of overlap and subsumed overlap, or the instances of lack of

overlap and subsumed overlap in the current research may have provided highly similar goal inference restrictions. Either way, agreement was moderate for both lack of and subsumed overlap, and it only reached significantly higher levels for complete overlap (i.e., thank-cathedral or reveal-job fair scenarios). A reason for this outcome may be because the operationalization for incompatible factors focused on factors lacking overlap and not in conflict. Perhaps agreement based on conflicting factors would have been lower than subsumed overlap. Agreement may have been the same for subsumed overlap and lack of overlap because the goals merely misaligned; that is, they did not prevent each other and conflict. Future research can gain insight into factor incompatibility by manipulating conflicting factors as well as lack of overlap.

*Dominant goal.* A third theoretical reconsideration focuses on the ordered search model (H8b). Support for a dominant-goal explanation of inadequate factors generally emerged. When a context and tactic were inadequate (providing virtually no goal inference restrictions), people's inferences tended to default to a goal they pursued most often in their own interactions. There is a drawback to this finding, however—both the give-information and provide-assistance goals were dominant. The existence of two dominant goals generates an important question: If there were two dominant goals with equally high accessibility, then how did people select between the two goals? One answer is that people may have used idiosyncratic sources to select one of the two dominant goals. Yet this explanation sounds more like the exhaustive access model than the ordered search model and is unlikely because if people used idiosyncratic sources to choose one of the two dominant goals, then agreement based on inadequate factors should have been lower than when factors were more adequate. Results, however, indicated relatively similar levels of agreement.

A more likely explanation employs the idea of goal hierarchies. A tactic linked to multiple goals (i.e., claim or cooperate) in an ambiguous context may have led people to form a goal hierarchy. In other words, because the tactic activated two dominant goals and a non-dominant goal, individuals structured those goals into a hierarchy even though the context was ambiguous. This alternative explanation parallels the explanation offered in the discussion section of Experiment 2 for the cooperate tactic linked to multiple goals in the unambiguous car dealership context. Thus, because people likely formed goal hierarchies in both instances, the theoretical framework may need to evolve to include the potential that whenever factors generate multiple goals, people tend to form goal hierarchies (regardless of contextual ambiguity). The tendency to represent others' multiple goals in a hierarchy may be because causal reasoning for another's behavior features a single reason to preserve cognitive effort (Fiske & Taylor, 1991), and a goal hierarchy allows people to infer a single, primary goal in the face of multiple goals.

If goal hierarchies played a role in goal inferences in the ambiguous context, then the results indicated differences in how people constructed goal hierarchies. When

the claim tactic was in the ambiguous context, the give-information goal likely was superordinate in a hierarchy, whereas the cooperate tactic in the ambiguous context likely made the provide-assistance goal superordinate. This probable difference in the construction of goal hierarchies may have emerged because cooperate has more of an assistance component, whereas the claim tactic has more of an information component (Wierzbicka, 1987). In other words, certain characteristics of the two tactics (other than functionality) may have caused people to erect different goal hierarchies, which implies that the structure of a goal hierarchy depends on aspects of factors beyond the types of linkages examined in the current research. Perhaps there is a difference in the frequencies with which people employ each tactic to achieve the two goals, even though the functionality is identical. That is, people may use the claim tactic to achieve the give-information goal more than cooperate, whereas they use the cooperate tactic for the provide-assistance goal more than claim. Whatever the reason, goal hierarchies seem to play a significant role in the goal-detection process.

## Implications

Implications emerged from the current research, a few of which—imagined interactions, indicators of context-goal linkages, and consequences of goal detection—are discussed below.

*Imagined versus real interactions.* A limitation of the current research was that imagined interactions were proxies for real interactions. Fictional scenarios, thus, may have produced unique results. Yet imagined interactions likely posed an insignificant threat to external validity because people ranging in age from childhood to adulthood infer protagonists' goals in fictional stories (Poynor & Morris, 2003; Wenner, 2004). People also frequently imagine interactions with people they know, and these hypothetical conversations are realistic and an integral part of planning (Honeycutt, 2003). Participants in the current research, therefore, are likely highly experienced in inferring goals in imagined interactions with fictional and actual people.

Imagined interactions likely posed a minor limitation; nonetheless, research under way is directly addressing this limitation (e.g., Palomares, 2007). The theoretical framework for the goal-detection process is being tested in real interactions. In an experimental design, two people engage in an initial interaction (either both are participants or one is a participant and the other a confederate). Prior to the conversation, one member of the dyad is directed to pursue a goal unbeknownst to the other member. The conversation is videotaped so that it can be examined in terms of certain aspects of goal detection. Afterward, the participant who is not given a goal to pursue infers what he or she thinks the other person was trying to achieve and completes other relevant measures. Different operationalizations of this general method

and several features of the theoretical framework are being employed for these experiments, but generally they seek to understand the accuracy with which people infer others' goals as a result of the induced circumstances of the social interactions.

*Indicators of context-goal linkages.* Another implication from the current research is to investigate an answer to the question of what specifically activates context-goal linkages that subsequently lead to certain goal inferences. One potential answer focuses on the actions and behaviors of the person described in the unambiguous activities (e.g., the attendant in a cathedral holding a basket). Because any given action can be identified in a variety of ways (Wegner & Vallacher, 1986), determining the ways in which people identify a particular action can aid in answering this question. Future research, for example, could determine if identifying an action at a certain level of abstraction leads to different goal inferences compared to identifying the same action at another level of abstraction. The ways in which people focus on and identify others' actions could advance an explanation for how context-goal linkages affect agreement and certainty in goal inferences.

Another possible answer to the question focuses on how roles, in and of themselves, activate context-goal linkages. Different roles in the same physical setting can lead to different goal inferences. For example, in a health context, the goal of looking after someone is associated with a nurse role more than a patient role, whereas the goal of seeking care is associated with a patient role more than a nurse role (Argyle et al., 1981). Thus, people likely infer that nurses pursue look-after goals and patients pursue seek-care goals. The role of a goal pursuer may directly affect goal detectors' inferences, yet the role of the detector also may have similar consequences. Individuals in certain roles might infer particular goals compared to people in other roles because goal detectors' roles may generate goal-inference restrictions of their own. For example, a leader of a team (compared to someone in a non-leadership role) might infer that other team members are seeking guidance relatively often. This difference may occur because non-leaders more frequently seek advice from leaders than visa versa. Future research should manipulate the roles of goal pursuers and detectors and also look into the compatibility of role-based factors. Roles of goal pursuers and detectors that are compatible might increase agreement and certainty in goal inferences relative to incompatible roles.

*Consequences of goal detection.* The current work emphasized the antecedents of goal inferences and mentioned potential consequences primarily to justify the topic. By extending this justification, however, the framework could be applied to potential outcomes of goal detection (e.g., Palomares, 2007). For example, people who are relatively accurate in inferring others' goals may be judged more competent than inaccurate goal detectors. In fact, as individuals' sensitivity to their partners' goals increases, perceived communication competence increases (Lahey & Canary, 2002). This outcome likely results because accurate inferences foster effective communica-

tion, which is a key component of communication competence (Spitzberg & Cupach, 2002).

Relatedly, accurately detecting others' goals likely reduces misunderstandings in conversations. Agreement and certainty in goal inferences were lower in the ambiguous than unambiguous contexts. These results imply that novel situations may create inaccurate goal inferences and, in turn, misunderstandings. This implication, in part, may explain why miscommunication can occur in intercultural settings. Intercultural miscommunication likely transpires because people who have little experience with another culture inaccurately infer the goals of people from that culture. The explanation for the effects of contextual ambiguity on agreement and certainty also would predict that the miscommunication of visitors to a different culture will subside as they gain knowledge and familiarity with the context.

Misunderstandings spawned from inaccurate goal inferences also could cause people to erroneously pass negative judgment on others. A teenage daughter, for example, may inaccurately infer that her father is restricting her freedom, when he only seeks to offer her advice. The inaccurate goal inference can be a source of conflict because it triggers the daughter to judge her father as controlling and unreasonable. The father, however, may not be completely innocent, as the daughter's inaccuracy may be due to the functionality of the tactic he used to achieve the offer-advice goal. That is, despite the father-daughter role being strongly linked to an offer-advice goal, the father may have used a tactic (e.g., disagree, urge, or criticize) that is functionally linked to a restrict-freedom goal (resulting in incompatible factors). Communicators, thus, should select tactics that are not linked to unintended goals, even when a context-goal linkage will activate the intended goal.

Future research can study these and other consequences by examining the relationships between detection accuracy and several outcomes of goal detection. In fact, the previously mentioned experiments currently investigating goal detection in dyadic interactions are doing just that. Following the interactions, goal detectors complete outcome measures such as communication competence. Some experiments also have the member of the dyad who was given a goal to pursue complete similar outcome variables.

## Conclusion

This research was an initial step toward programmatic scholarship on the inferences individuals make about others' goals in social interaction. As Berger (2000) noted, incorporating the concepts of "goal detection . . . into message-production theory and research remains a challenge for communication researchers" (p. 164). The overall aim of the research was to directly confront this challenge and serve as an impetus for theory development and empirical investigations on how individuals understand and infer others' goals and, more broadly, the goal-detection process in social interaction.

## Appendix A

### Goal List

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1. Assessing my skills and abilities; that is, determining what I am capable of doing well (e.g., trying to hire me for a job, seeing if I am a good fit with what they're looking for, assessing my personality and matching it to something, etc.).
2. Avoiding my inquiries or wishes; that is, not doing what I want them to do (e.g., sidestepping my questions, refusing what I want to do, etc.).
3. Breaking off (i.e., ending) our relationship.
4. Checking to see if I have anything dangerous (e.g., gun, knife) on me.
5. Checking up on me, such as making sure that I am carrying out my responsibility, monitoring my behavior, or making sure that I'm not doing anything wrong.
6. Comforting me (e.g., making me feel better, listening to me, etc.).
7. Completing an assigned activity together.
8. Dealing with (i.e., handling, repairing) an embarrassing situation.
9. Discussing and sharing ideas and things together (e.g., talking about our thoughts regarding something, making a decision about what we want to do, disclosing our thoughts to each other, etc.).
10. Doing what I want to do, even though they would rather not; that is, yielding to me and going along with my wishes.
11. Explaining and letting me know why they acted a certain way.
12. Expressing their beliefs and emotions to me; that is, telling me how they feel about something.
13. Finding out why I am at the place.
14. Further developing our relationship (e.g., moving our relationship forward to the next stage, spending time together, determining the state of our relationship); that is, increasing the closeness between us to a higher level.
15. Gaining an advantage over me (i.e., coming out on top) by the end of the conversation.
16. Getting me involved in what is going on.
17. Getting me to allow them to do something; that is, obtaining my permission.
18. Getting me to go out on a date with them.
19. Getting me to like them (e.g., creating a positive impression, such as they are nice and intelligent; making me think highly of them; getting me to notice them; etc.).
20. Getting me to stop an annoying habit.
21. Getting to know me (e.g., finding things out about me, finding out what type of person I am, etc.).
22. Giving me information (e.g., informing me or making me aware of something, teaching me something, giving me recommendations or advice, explaining something to me, etc.).
23. Having fun; that is, winding down, relaxing, and having an enjoyable time.
24. Holding me accountable for my behavior, such as putting me in my place, punishing me, attributing fault to me, making me feel badly, or making me suffer and feel some mental or emotional pain.
25. Initiating a relationship with me (e.g., starting a relationship with me, seeing if I like them, etc.).

26. Making me feel at ease; being pleasant and congenial.
27. Obtaining information (e.g., facts, ideas, opinions, views, etc.) about something from me; that is, learning or getting information from me about something.
28. Passing idle time together; that is, killing or wasting their time with me (e.g., overcoming boredom, avoiding being alone, procrastinating, etc.).
29. Providing assistance (i.e., aid, help) to me, such as helping me find what I am looking for, making sure I am finding things okay, helping me find where I want to go, and so on.
30. Relieving their frustration (i.e., letting off some steam).
31. Resolving a conflict with me; that is, dealing with differences we have with each other.
32. Seeking my assistance or help (e.g., getting my advice or recommendations, checking out their ideas with me, getting my aid, etc.).
33. Taking my order for something.
34. Trying to get something from me, such as getting money from me, getting me to buy something, getting my support, getting me to submit an application, getting me to do them a favor, or getting me to change my mind.

## Appendix B

### Unambiguous and Ambiguous Background Circumstances and Activities for Experiments 1 and 2

#### Background Circumstances

##### Ambiguous Background Circumstances

You win a trip to the city of Neen in the country of Fidonia/Butani. The only major thing that you know about the country is that some Fidonians/Butanians speak English, in addition to their native language.

When you arrive at the airport, you can't read the signs, so you follow people to try to get to customs, but get lost. You try to ask someone how to get to customs, but they don't speak English. You finally get to what you think is customs, but there is no discernable line. Unable to determine what to do, you make your way to someone behind a counter who looks like a customs official. You hand your passport to the person, who takes it, looks at it, and gives it back. As you walk by, the person says something you don't comprehend. You can't decide whether to say "Thank you," or say something else, so you say nothing. After making it through customs with no clue how, you get your bags. You look for a way to your hotel and somehow run into a subway station. You can't figure out which train to take, so you get on the first one that arrives. After some time, the train stops, and everyone gets off. You follow others and get off the train. You leave the subway and wander down the street. You see a car that might be a taxi cab, so you flag it down. The car pulls over, you get in and ask the driver to take you to your hotel, but the car does not move. The driver says something you don't understand, so you try to give the driver some money. The driver smiles, doesn't take your money, talks to you some more, and laughs. The car still does not move. You smile and get out of the car. The

*(continued)*

## Appendix B (continued)

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car drives away. You walk a few more blocks and somehow arrive at your hotel. You are doubtful you could make your way from the airport to your hotel again without help. It is late, so you decide to go to sleep.

The next morning you go to a restaurant for breakfast. To get seated, you approach someone standing near the door and wearing some sort of black and green garb. The person says something in a language you don't know, opens the door, and points outside. You walk outside and the person closes the door. After standing outside for a bit, the person comes outside, tells you something, walks you to a restaurant next door, and seats you at a table. You eat your meal and leave. You see an open grassland area where people are tossing and kicking a pear-shaped object, as they run around in a circle shouting at each other, laughing, and having fun. From the grassy area, you see an old, tall structure that people are gazing at and taking pictures of. You look at it while crossing a bridge. Walking along the street, people are saying things you don't understand, and some people are holding a crumpled piece of orange material.

### Unambiguous Background Circumstances

You win a trip to London in England.

When you arrive at the airport, you follow the signs to get to customs. When you get to customs, you stand in a line and wait to see a customs official. When you reach a customs official, you hand your passport to the official. The official takes your passport, looks at it, enters some information into a computer, stamps it, and gives it back to you. As you walk by, the customs official says "Have a nice day." You say "Thank you" to the customs official in return. Knowing that you successfully made it through customs, you get your bags. You go to the subway station in order to get to your hotel. You find the correct train to take, get on, and ride it for a few minutes. While riding on the train, you look at a map of the subway system posted on the wall of the train. You get off the train at the subway station that is nearest to your hotel. You leave the subway station, and you walk down the street one block to find a taxi cab. You see a taxi cab, so you flag it down. The car pulls over, and you get in. After getting in the cab, the car begins to move. The driver asks "Where to," and you say the name of your hotel. The driver asks you if you are visiting. You answer "Yes" and continue to talk with the driver for a short while. The driver takes you several blocks to your hotel, and you pay the driver and get out. You are confident you could make your way from the airport to your hotel again. It is late, so you decide to go to sleep.

The next morning you go to a restaurant for breakfast. To get seated, you approach the host, who is standing near the door and wearing a black uniform. The host says "Hello," and tells you that it will be a short wait. After waiting for a bit, the host says "Follow me" and seats you at a table. You eat your meal and leave. You see an open field where people are kicking a soccer ball, as they run across the field shouting at each other, laughing, and having fun. From the field, you see the Tower of London. People are gazing at it and taking pictures of it. You admire the old, tall Tower as you cross the nearby Tower Bridge, which spans across the River Thames. Walking along the street, people are sitting in outdoor cafés drinking coffee, and some people are playing chess.

## Activities

### Ambiguous Activity

Earlier in the day, someone you talked with at your hotel invited you to an interesting place. The person did not tell you much about the place—only that it will be a worthwhile visit and that it is okay for you to go by yourself. Even though the person did not tell you what the place was about and the person will not be there, you decide to look for the place. When you finally find the place, there are a bunch of people in a large room. As you enter the room, you pass by someone standing near the door, who says something you can't comprehend. You are not sure how to respond, so you just grin and continue to walk past the person. Hesitant to move about the room, you go to the end of the room, then to the middle of the room, and then to the side of the room. In the corner of the room, you see a long, wide object made of dark oak, which has three metal cylinders attached to its left side. You notice the walls in the room, which have windows that are sporadically arranged along the walls. Not knowing where to be, you notice that some people in the room are standing, others are sitting in chairs, and others are standing with their backs to tables. Certain people are talking loudly, others are talking at a very low volume, and some are talking at a normal volume. A few people are walking around the perimeter of the room. As someone walks by you, you say "Hello" to the person, but you can't comprehend what the person says in response. The person then walks to one end of the room and then to the other end. You see a sign on one of the walls in the room, but you are unable to comprehend what the sign says.

You notice someone near you at the final room you are in.

### Cathedral Activity

Earlier in the day, someone you talked with at your hotel invited you to an interesting cathedral. The person did not tell you much about the place—only that it will be a worthwhile visit and that it is okay for you to go by yourself. Even though the person will not be there, you decide to look for the place. When you find the cathedral, there are a bunch of people at the cathedral. As you enter the cathedral, you pass by a priest standing near the door, who quietly says "Hello." You grin and continue to walk past the priest. Not hesitant to move about the cathedral, you gently walk through the cathedral, go to left side of the cathedral, and take a seat. In the corner of the exceptionally quiet cathedral, you see large crucifix carved from dark oak. You notice the walls in the cathedral, which have stained glass windows formed in the shape of ovals and rectangles and evenly arranged along the walls. At one end of the cathedral, there is an altar. You notice that most people at the cathedral are quietly sitting along benches, others are kneeling, and very few are standing. Hardly any people at the cathedral are talking to each other. A couple of priests are silently walking around the cathedral lighting candles. As a priest walks by you, you very quietly say "Hello" to the priest, who whispers "Hello" in return. The priest continues to walk past you to another part of the cathedral. You see a sign on one of the walls at the cathedral that displays the start time of the next Mass.

You notice an attendant at the cathedral who is standing away from most people near the back corner of the virtually silent cathedral. The attendant is wearing a suit and tie. The attendant's straight face looks intent, quiet, and serious. In one hand, the attendant is holding a sign that

*(continued)*

## Appendix B (continued)

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says “Your Donations Are Needed!” and, in the other hand, a wicker basket that has cash and coins in it.

### Job Fair Activity

Earlier in the day, someone you talked with at your hotel invited you to an interesting job fair. The person did not tell you much about the place—only that it will be a worthwhile visit and that it is okay for you to go by yourself. Even though the person will not be there, you decide to look for the place. When you find the job fair, there are a bunch of people at the job fair. As you enter the job fair, you pass by an attendant standing near the door, who says “Hello.” You grin and continue to walk past the attendant. Not hesitant to move about the job fair, you walk through the job fair and go to the left side of the job fair. In the corner of the job fair, you see various informational brochures on a table made of dark oak. You notice the walls in the job fair, which are lined with informational booths evenly arranged along the walls. At one end of the job fair, there is an informational video playing. You notice that some people at the job fair are standing, others are sitting in chairs, and others are standing in and around the booths. Most people at the job fair are talking at a normal volume. People are walking around the room gathering informational brochures here and there. As another attendant walks by you, you say “Hello” to the attendant, who says “Hello” in return. The attendant continues to walk past you to another part of the job fair. You see a sign on one of the walls at the job fair that says, “International Job Fair 2005.”

You notice a job notification announcer at the job fair who is standing behind a booth toward the back corner of the job fair away from most people. The booth has a variety of free informational brochures. The job notification announcer is holding two of the informational brochures, which have titles that read, “Free Job Listings For This Week” and “Up-To-Date Job Announcements for Free.” The job notification announcer’s tired face looks exhausted, quiet, and passive. There is a sign near the job notification announcer that says, “Free job announcements!”

### Car Dealership Activity

Earlier in the day, someone you talked with at your hotel invited you to an interesting car dealership. The person did not tell you much about the place—only that it will be a worthwhile visit and that it is okay for you to go by yourself. Even though the person will not be there, you decide to look for the place. When you find the car dealership, there are a bunch of people at the car dealership. As you enter the car dealership, you pass by an attendant standing near the door, who says “Hello.” You grin and continue to walk past the attendant. Not hesitant to move about the car dealership, you walk through the car dealership and go to left side of the car dealership. In the middle of the car dealership, you see informational brochures about different cars and fliers that have a directory and a map of the car dealership on a table made of dark oak. You notice the walls in the car dealership, which are lined with cars for sale and informational kiosks for various international car companies evenly arranged along the walls. At one end of the car dealership, a car salesperson is helping a customer understand how

to operate the features of a particular car that is for sale. You notice that some people at the car dealership are standing, others are sitting in chairs, and others are standing in and around the kiosks. Most people at the car dealership are talking at a normal volume. Customers are walking around the car dealership gathering informational brochures about the cars that are for sale, learning about the cars from salespersons, and asking the salespersons for help. As another attendant walks by you, you say "Hello" to the attendant, who says "Hello" in return. The attendant continues to walk past you to another part of the car dealership. You see a sign on one of the walls at the car dealership that says, "International Car Dealership."

You notice a car salesperson at the car dealership who is standing near an informational kiosk and a brand new car that lists the car's features and price on the sticker displayed in the window. The car salesperson is wearing a suit and tie. The car salesperson is holding three informational brochures, which have titles that read, "Information About The New 2005 Model," "Important News and Information for Car Consumers," and "How to Choose the Right Car." There is a sign near the car salesperson that says, "Learn why this is the perfect car for you. Buy yours today, regardless of where you live. A salesperson can help." You notice that the car salesperson has been using a directory and map to help customers locate where certain things are at the car dealership. The car salesperson also has been explaining and demonstrating different features and functions of the car to customers.

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Note: The ambiguous background circumstances used in Experiment 1 were identical to those used in Experiment 2, with the exception of the country in which the situation took place. The ambiguous activity used in Experiment 1 was identical to that used in Experiment 2.

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