

Abstract

How do people describe the location of a target object to another? This task requires a reference object or frame and terms of reference. Traditional linguistic analyses have loosely organized perspectives around people, objects, or environments as reference objects, using

Descriptions of Simple Spatial Scenes

One situation we cannot escape is the spatial environment in which we conduct the business and pleasure of life. Often, we are called on to describe that environment, for example,

1982; Levelt, 1984, 1989, 1996; Miller & Johnson-Laird, 1976; Levinson, 1996; Talmy, 1983; Taylor & Tversky, 1996). One might expect that these analyses would find that different types

“Encoder Pad.” In the minimal baseline scene depicted in Figure 2, there are limited ways to describe the location of the target, indicated by an arrow. The participant can adopt the participant’s own perspective, saying “it’s the one directly in front of me,” or can adopt Z’s perspective, saying “it’s the one on your left.”

description choice will be supported.

Our third addition to the two-object task was to vary the cognitive load of speakers and addressees by varying the task to be performed. If politeness is the major determinant of

that are more difficult to produce and comprehend than terms like

Here, the addressee, rather than the speaker, has the relevant information, a relative advantage to the addressee. The speaker needs to find the information, but cannot ask directly. Instead, the speaker has to formulate a yes/no question that the addressee can answer directly from given

degrees. Difficulty of constructing a description was varied in another way. Left/right discriminations are more difficult than discriminating other spatial dimensions such as front/back

be able to respond to ask for clarification so they should “make each of your messages clear and concise.” Participants were informed that the information available would vary across scenarios, and specifically that “sometimes you and Agent Z will know which direction is north, sometimes you won’t.” Participants were told that there might be alternate ways to describe the correct action (for Agent Z), so to “choose whatever way you think would be clearest, based on the situation and the information available, on a case-by-case basis.”

Each scenario page consisted of a paragraph describing the situation, a map depicting it, a question from Agent Z, and a single line for the participant’s response. The opening descriptions were written with the goal of entertaining participants in order to keep them engaged with the task; for example, “Unscrupulous nuclear plant operators have secretly stored radioactive waste in a container in a warehouse at Fred’s U-Store-It. Fortunately, your Geiger counter has picked out the container, and Agent Z has arrived in her radiation-proof clothing.” Descriptions were originally written in English, and translated into Japanese for use by the Kanazawa participants.

Descriptions also gave a brief key to the diagram below them (e.g., “the squares are the task; fcompaarion is nort

For the US sample, two between-participant variables were crossed: the gender of the participant and the ordering of scenarios in the questionnaire (one of four constructed). A constrained-random ordering was constructed by randomly ordering the 4 baseline copresent scenarios (plus four filler remote scenarios) and then appending a random ordering of the

that of a participant providing a single description.

Some participants produced procedural descriptions, giving instructions to their addressee about how to get to the target. As much as possible, these were analyzed using the same perspective categories as used for static descriptions. When the instructions began with the addressee at the location indicated in the situation diagram, they were coded as involving the

(distinguishing between the two compass conditions) had no apparent effect on use of compass directions. In no scenario type was the speaker's perspective used by more than 12% of

participants usually take the perspective of their addressees (as was summarized in Table 3), and found this even when neutral perspectives were available.

Second, we found that choice of perspective can be sensitive to configural aspects of the situation in which the speaker and addressee are embedded. Perspective choices varied considerably and fairly consistently over different scenarios within each category. However, we found little support for our initial hypothesis that advantages in the discriminability of near/far relationships over left/right relationships were the configural aspects that would influence participants' choice of perspective. Instead, the distance between potential points of reference

Procedure

Experiment 3: Ask Other

In this experiment, participants were asked to imagine being in scenarios much like those in Experiment 1, in which a target was hidden in one of two identical objects. But rather than being told (by an arrow on the map) which of the two was the target, participants had to obtain this information from their imagined partner, Agent Z. They were asked to produce a question that could be answered with a simple yes or no. Thus, participants had to pick out by means of a locative expression one of the two potential targets and ask Agent Z if it did (or did not) contain the target. Either a yes or a no response would unambiguously specify the target, since there were only two to choose from.

If politeness were the only factor, then participants should frame questions using Agent Z's perspective, and arbitrarily choose between the two objects in selecting one to mention in their query. But if communicative balance and ia
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whereas the converse was true for Agent Z. Participants were prompted for their responses by the tag, “You signal to Agent Z, asking him:” Below each response line participants were told,

replication at Kanazawa University used only one ordering of scenarios.) Unlike Experiment 1, the baseline scenarios were intermixed with the others, rather than appearing among the first eight.

Procedure. As in Experiment 1, participants were run in groups and given up to 30 minutes to complete the questionnaire.

Data Analysis

The same coding scheme was used as in Experiment 1, with the following results: $T(1, 15) = 0.0006$, $p < 0.05$.

were most popular, addressee perspectives second most, and speaker perspectives least. Unlike previous experiments, mixed personal/neutral perspectives were rarely used.

For each scenario type in Table 10, a Chi-square test was performed to investigate

strongly prefer north to south, and east to west ($\chi^2(3) = 25.9, p$

expectation is that the relative use of speaker and addressee viewpoints will follow the relative cognitive burden in communication. Figure 3 summarizes the results from the four baseline scenarios in each experiment. In these scenarios, participants had a simple choice between using the speaker's perspective or adopting Agent Z's, since neither compass directions or landmarks were available. For each participant, the proportion of responses to baseline scenarios that used Agent Z's perspective was calculated: Figure 3 plots the means of these proportions. The proportion taking Agent Z's perspective diminished dramatically as the cognitive burden on

perspectives were used about half the time in the “ask other” and “tell self” situations, but only about a quarter of the time in the “tell other” situation, where use of personal perspectives dominated.

Figure 4 also shows a complex pattern of differences between the US and Japanese samples across experiments. In terms of landmark use, in each experiment Japanese participants

Imagine, if you will, that you have hidden a present for your friend [X] in one of two identical boxes in your living room. The situation is shown below. You and [X] are both facing the center of the room (between the two boxes). The arrow points to the box with the present.

(For half the forms, [X] was the male name *Dirk*, for the others the female name *Gwen*.)

Following this description was a diagram similar to that shown in Figure 2. One of eight different diagrams was used, based on a 2 x 2 x 2 design: the addressee (Dirk or Gwen) was depicted either at the top of the diagram (across from the participant) or at the left of the diagram (diagonally in front and to the left of the participant); the boxes were either aligned with or perpendicular to the direction the participant was facing; and either the top (or left) or bottom (or right) box was marked as containing the target.

The form then asked: “Without gesturing, how would you tell [X] where [his or her]

93%) of participants took the addressee's perspective when the addressee was near the target, while few (26% and 10%) took the addressee's perspective when the speaker was near the target. In choosing between the relations *left* and *right*

Several interdependent factors, social, spatial, and cognitive, might affect perspective choice. One is politeness. It is polite to take into consideration the viewpoint of an addressee, both literally and figuratively. In work that inspired the present experiments, Schober (1993) investigated the minimal "tell other" condition, finding that in most cases, participants took the perspective of the addressee. Another is the difficulty of describing a spatial scene, a combination of spatial and cognitive factors. For example, descriptions using *left* or *right* are known to be more difficult than those using *front* or *near*. Using *left* and *right* requires discrimination of spatial symmetry whereas using *front/behind* or *near/far* do not.

For the "tell other" task, use of the addressee's perspective dominated but not for the "ask other" and even less so for the "tell self" tasks. Mirroring these data were those for use of Tbutx7rks and cardinal directions, which were lower for the "tell other" task than for the "ask other" and "tell self" tasks. Other salient phenomena in the present data were the use of the partner's location as a Tbutx7rk and the bias toward *near*. These findings make it clear that choosing which of several ways to describe a situation is not simply adopting the point of view

critical object. The participant can ease the task of understanding by framing an utterance from the addressee's point of view. In the "ask other" task, both addressee and participant must

happen consistently. Each of the nonpersonal perspectives has its advantages and disadvantages, in general and in this situation. Landmarks were visible in the diagrams of the scenes just as

due to language per se, as *far* is the neutral or unmarked member of the pair and is easier to process (Clark & Clark, 1977). Rather, terms like *near* seem to be preferred to their opposites

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Table 1

Schematic Diagrams of the Scenarios

A. The 20 Copresent Scenarios

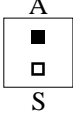
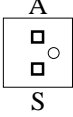

Relationship of			Scenario type				
Addressee to speaker	Containers to speaker	Config. code	Baseline	Landmark/ equidistant	Landmark/ skewed	Compass/ north-up	Compass/ north-side
Facing	Near/far	FN					

Table 2

Perspectives Codes and Examples

<i>Code</i>	<i>Basis or Bases</i>	<i>Examples</i>
S	Speaker	“the one nearest myself” “the cage closest to me”
A	Addressee	“info booth on your left” “2nd one directly in front of you”
L	Landmark	“the one farthest from the grape press” “the sandbox closer to the jungle gym”
C	Compass	“the west one” “the eastern-most barn”
S&L	Speaker & Landmark	“start at the iguana exhibit and walk towards me. The rat is in the snake cage on your right” “back to cabinet, facing me, on left”
S&C	Speaker & Compass	“couc right” “back to1uuththe eaf.08 0.240in front of entrankke cnl400s3

Table 3

*Overall Use of Perspective Elements in Participants' Initial Descriptions,**Experiment 1*

Perspective element	Mean frequency per participant		Maximum possible frequency	% of maximum frequency	
	US	Japan		US	Japan
	Speaker	1.8	1.9	20	9
Addressee	15.2	13.9	20	76	70
Landmark	3.3	4.5	12	28	38
Compass	6.0	5.1	12	50	42

Table 4

Perspective Use by Scenario Type, Experiment 1

A. Copresent Scenarios

Table 5

Percent of Participants Initially Using Speaker Elements in Copresent Scenarios,

Experiment 1

Scenario type

Config.

code Baseline

Table 7

Perspective Use by Scenario Type, Experiment 2

A. Copresent Scenarios

Scenario type	Culture	Mean % respondents using perspective					
		S	S&N	A	A&N	N	Other
Baseline	US:	66		31			3
	Japan:	65		31			4
Landmark/equidistant	US:	56	6	23	0	10	4
	Japan:	57	2	15	3	21	1
Landmark/skewed	US:	37	4	14	0	44	1
	Japan:	36	1	9	1	53	0
Compass/north-up	US:	34	12	1	3	50	1
	Japan:	38	10	8	4	39	1

Table 9

*Overall Use of Perspective Elements in Participants' Initial Descriptions,**Experiment 3*

Perspective element	Mean frequency per participant		Maximum possible frequency	% of maximum frequency	
	US	Japan		US	Japan
	Speaker	3.4	3.0	24	14
Addressee	8.9	6.0	24	37	25

Table 11

Spatial Relation Choice within “Pure” Perspectives, Experiment 3

A. Speaker, Addressee, and Landmark Perspectives

% Responses Using Relation

Table 12

Spatial Relation Pairings in Experiment 4

Table 13

Proportion of Participants Choosing Addressee's Perspective





