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Navigating Joint Projects in Telephone Conversations

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Conversation coordinates joint activities and the joint projects that compose them. Participants coordinate (1) vertical transitions on entering and exiting joint projects; and (2) horizontal transitions in continuing within them. Transitions are coordinated using *project markers* such as *uh-huh, yeah, right,* and *okay.* In the authors' proposal, participants use *uh-huh, yeah,* and *right* to continue within joint projects, and *okay* and *all right* to enter and exit them. This was examined in 2 telephone conversation corpora. Telephone conversations divide into an entry, body, and exit phase, each of which is a joint project. *Okay* and *all right* were used to transit from the entry to body and from body to exit, whereas *uh-huh, yeah,* and *right* were used within the body.

JOINT PROJECTS IN CONVERSATION

In conversation, the participants do not just speak—they do things together. These joint actions are normally the reason for their encounter, and their talk is shaped by the need to coordinate them. To understand what people are doing in conversation, one must understand the joint activities they are engaged in.

Outside of conversation, individual and joint activities have long been analyzed into hierarchies of projects and subprojects (Cranach, Kalbermatten, Indermühle, & Gugler, 1982; Grosz & Sidner, 1986; Leont'ev, 1981; Miller, Galanter, & Pribram, 1960; Newell & Simon, 1972). Take Betty and Camilla baking a cake together. That joint project will include subprojects, such as preparing the batter, pouring it into a cake pan, and baking it in the oven. Preparing the batter might it-

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self include subprojects, such as adding and mixing the ingredients. Joint projects such as this are characterized by both a hierarchical (or vertical) and a sequential (or horizontal) structure. Hierarchically, subprojects are nested in overarching projects, and they must be complete before the overarching projects are complete. Many subprojects are performed sequentially. Although Betty could stir the batter while Camilla was preparing the icing—that is, in parallel—Camilla cannot apply the icing until the cake has been taken from the oven. As an observer, Diane would see Betty and Camilla complete many steps sequentially. However, if she thought the steps had no hierarchical structure, she would be mistaken. In fact, people observing actions spontaneously identify their hierarchical structure (Zacks, Tversky, & Iyer, 2001).

The vertical and horizontal structure of joint projects should surface in the way people talk about those projects. Betty and Camilla need to talk in order to coordinate both the horizontal steps within a project and the vertical switches between projects. Still, their talk must be sequential. Camilla cannot answer a question from Betty until Betty has asked it. But it would be a mistake to assume that an utterance is contingent only on the immediately preceding utterance, just as it would be a mistake for Diane to infer that Betty and Camilla's actions in baking the cake were merely sequential.

Many studies of conversation have focused on its horizontal and vertical structure at the local level. Turns, for example, are often organized locally into *adjacency pairs,* such as question plus answer, request plus promise, and thanks plus acknowledgment (Schegloff & Sacks, 1973). And some adjacency pairs serve as *presequences* to larger segments of conversation. When Betty asks Camilla, "Can I ask you a question?" she is preparing Camilla for a question to be asked later (Schegloff, 1980). Adjacency pairs can be viewed as carrying out minimal joint projects, and the larger sequences introduced by prequestions, as carrying out more inclusive joint projects. The evidence for these structures has come largely from close analyses of the sequencing of turns in casual conversation (Atkinson & Heritage, 1984; Sacks, Schegloff, & Jefferson, 1974; Schegloff & Sacks, 1973).

In this article, we take a complementary approach. We focus on entire encounters rather than short sequences of talk. And we analyze the talk of people carrying out well-defined tasks rather than casual conversation. If we know what people are trying to do together, then we can understand how that is reflected in their conversation. We show how people on the telephone use words such as *uh-huh, yeah,* and *right* to continue within joint projects (we call this *horizontal navigation*) and words such as *okay* and *all right* to switch from one project level to the next (we call this *vertical navigation*). These words, which we collectively refer to as *project markers,* form a system of devices for navigating tasks in dialogue (Bangerter & Clark, in press).

MARKERS FOR NAVIGATING JOINT PROJECTS

There are many ways to mark structure in conversation. One is with discourse markers such as *well, now, and,* or *oh*, which typically preface more extended utterances (Fox Tree & Schrock, 1999; Louwerse & Hite Mitchell, in press; Schiffrin, 1987). Another is with words such as *uh-huh, yeah, right*, or *all right*, which have been called *back-channels* (Yngve, 1970), *continuers* (Schegloff, 1982), and *acknowledgment tokens* (Jefferson, 1984a). These are used by listeners during or immediately after a speaker's turn as devices for regulating turns (Drummond & Hopper, 1993; Duncan, 1974; Goodwin, 1986; Jefferson, 1984a; Schegloff, 1982). *Okay* has sometimes been treated as a discourse marker and sometimes as an acknowledgment token (Beach, 1993; Condon, 1986, 2001; Guthrie, 1997; Hoyle, 1994; Louwerse & Hite Mitchell, in press; Merritt, 1984).

In a study of talk in well-defined tasks (Bangerter & Clark, in press), we found that *m-hm, uh-huh, yeah, yes,* and *yep* were typically used to continue within major joint projects, for example to ground each part of a series of instructions. In contrast, *okay* and *all right* were typically used to enter and exit these projects. Here is an example from a task in which two people plan how to transport cargo in a simulated world. One person plays the role of a rail manager (M) and the other plays the role of a planning assistant (S; Gross, Allen, & Traum, 1993):

(1) S okay so E2 goes to Corning then on to Bath and gets a boxcar
M m-hm
S then on to Avon load bananas
M m-hm
S and then go back to Corning we get to Corning at 3
M fantastic that solves the problem

S is explaining a projected sequence of moves to M, which he does in installments. M acknowledges each installment with *m-hm*, and the end of the whole sequence with an evaluative marker („fantastic"). Discussing the steps of the plan is a joint project, and M uses *m-hm* to ground each step proposed by S. In other words, *m-hm* is used to continue within that project.

Contrast this with the use of *okay* in the following example (Gross, Allen, & Traum, 1993):

(2) M … and there's a tanker at .. Corning. [4 s] okay can ya– can we hook up the tanker with the engine and the boxcar in when we're getting the w– oranges from the warehouse
S yes yes that's no problem
M okay so we'll do that
S okay
M so then [continues]

M is thinking about what to do next and falls silent. He then asks S whether a particular move is possible („okay can ya– can we hook up"). S answers that it is, whereupon M decides to implement it. This sequence is also a joint project. M uses *okay* to enter it and both M and S use *okay* to exit it.

M-hm and *okay*, then, are specialized for different types of project navigation (Bangerter & Clark, in press). *M-hm* and words such as *uh-huh*, *yeah*, *yes*, *yep*, and *right* are used primarily as acknowledgment tokens. People use them to signal that they understand and, perhaps, agree with their partner's current phrase or statement. That makes them useful for horizontal navigation—for continuing within the current joint project. *Okay* and *all right*, on the other hand, are used primarily to mark *consent*. When Diane asks Betty for permission to do something ("Can I take the last beer here?"), Betty can give her consent with *okay*. To say *okay* is to presuppose that Diane and Betty are considering a joint undertaking. *Okay* is used to ask for or grant consent to proceed with that undertaking. *Okay* is therefore useful for vertical navigation—for coordinating entry into or exit from joint projects. It is so useful, in fact, that in certain tasks with strong requirements for coordination, it is one of the most frequently used words (Bangerter & Clark, in press). There are other words for marking vertical transition, but they are specialized for other purposes. *By the way*, for example, can be used to mark entry into a digression, and *anyway* or *so,* to mark a return from a digression (Grosz & Sidner, 1986).

Research on back-channels or acknowledgment tokens has tended to lump together different words as an undifferentiated class or to characterize their use in isolation or in pairwise contrasts. We suggest, instead, that they are components of a system specialized for navigating tasks in dialogue (see Bangerter & Clark, in press). We distinguish between vertical and horizontal transitions as a way of focusing on the collaborative tasks participants are engaged in rather than on the discourse. Here, we focus on how people use these words to navigate well-defined tasks via telephone conversations.

JOINT PROJECTS IN TELEPHONE CONVERSATIONS

All social encounters—all joint activities—require two essential transitions: The participants must go from not interacting together to interacting together and back again to not interacting together (Clark, 1996). That is, social encounters divide into at least three phases: an *entry,* a *body,* and an *exit*. Typically, these phases are themselves joint projects and are negotiated sequentially.

The entry phase is where people orient to the possibility of interacting, for example, when one person approaches another on the street or dials a number on the telephone (Schegloff, 1968, 1979). The two people then establish relevant identities and define the terms of the encounter. Once they initiate talk about the main

business of the encounter, they enter the body of the encounter, which focuses on what they are to do with each other. In some types of conversations, they discuss one or more topics, which are themselves joint projects that must be entered and exited in a coordinated fashion (Button & Casey, 1984; Mondada, 1995). To end an encounter, two people need to agree that they have finished what they were doing with each other and initiate the exit phase, where they take steps to disengage from the encounter (Schegloff & Sacks, 1973).

Telephone conversations are a type of social encounter in which the entry, body, and exit take characteristic forms:

The entry: The entry begins when one party, say, Betty, calls Camilla and Camilla picks up the phone, thereby indicating a readiness to enter into conversation with an as yet unspecified caller. Betty and Camilla identify themselves to each other and may exchange greetings, depending on their relationship (Schegloff, 1968, 1979). If they know each other, the call ends a separation, and is often marked by an exchange of news (reestablishing continuity; Bangerter, 2002).

The body: Many calls are made for a purpose, such as discussing homework. By initiating talk about homework, Betty and Camilla close the opening section and enter the body.

The exit: When Betty thinks she and Camilla have nothing more to say, she does not just hang up. Rather, she signals this to Camilla by a preclosing move, such as *okay* (Schegloff & Sacks, 1973). If Camilla agrees that they have nothing more to talk about (say, by replying *okay*), they can move into the exit phase of the call. In the exit phase they disengage from the encounter, performing such ritual functions as expressing pleasure at the conversation ("It was nice talking to you"), expressing regret at the upcoming separation ("I'm sorry I can't talk longer"), making continuity statements ("I'll see you"), and well-wishing ("Good-bye"). The conversation ends when Betty and Camilla hang up, which they manage to do at more or less the same time (Albert & Kessler, 1976, 1978; Clark & French, 1981). Thus, the tasks accomplished in the body of the call (corresponding to a topic or topics) are bracketed by an entry and an exit phase.

Moving from the entry to the body and from the body to the exit is, in our terminology, vertical navigation. Callers exit one main joint project and enter the next. If this is true, we should find markers specialized for vertical navigation at these transitions. Schegloff and Sacks (1973) describe the use of *okay* in exiting the body. However, it should also be used in entering the body. A purely sequential account of conversation cannot explain these uses of *okay*. If people are just proceeding from one move to the next, then all they need are markers like *uh-huh* or *yeah*.

In this article, we examine how different project markers (*uh-huh*, *yeah, right, okay,* and *all right*) are used in two corpora of telephone conversations: the Switchboard corpus (Godfrey, Holliman, & McDaniel, 1992) and the Directory Enquiry corpus (Barnard, 1974). Callers in both corpora called each other for a well-defined purpose. In the Switchboard corpus, it was to discuss a predefined topic, and

in the Directory Enquiry corpus, it was to get a telephone number. These tasks define the body of the call and make it possible to locate entry and exit transitions. For our purposes, task-oriented conversations have an advantage over casual conversations, where topics are more nuanced (Button & Casey, 1984; Jefferson, 1984b) and where analysts are not privy to the participants' agendas (Tracy & Coupland, 1990). In casual conversations, it is often difficult to identify what joint projects participants are undertaking and when.

For each corpus, we show that *uh-huh, yeah*, *right, okay,* and *all right* are used in line with the joint projects account. The body consists of one broad topic—a single joint project. Words such as *uh-huh* and *yeah,* by our hypothesis horizontal navigation tools, are used to navigate *within* this topic, or to continue the current joint project. They are used to ground contributions to the topic (Clark & Schaefer, 1989). Thus, *uh-huh* and *yeah* should be used uniformly throughout the body but decrease in use around transition points. On the other hand, words such as *okay* and *all right*, by our hypothesis vertical navigation tools, are used to ground transitions from the entry phase to the body and from the body to the exit phase. Transiting from one phase to another requires the consent of both participants (in contrast to continuing a topic previously agreed upon). This consent must be coordinated, and vertical tools are used for this purpose. Thus, *okay* and *all right* should appear more often at transition points and less often within the body.

TOPIC-DEFINED CONVERSATIONS

Method

Data. The Switchboard corpus consists of about 2,500 telephone conversations between 500 callers, most of them employees of Texas Instruments (Godfrey et al., 1992). People signed up for this project, chose a topic from a list of possible topics, and were matched at random with other people who chose the same topic. On each call, the pair was prompted by a question on the topic they signed up for, for example, "Do you believe the U.S. government should provide universal health insurance, or should at least make it a long-term goal? How far in that direction would you be willing to go? What do you see as the most important pros and cons of such a program?" They were also reminded that they could hang up at any time, or take as much time as they needed to introduce themselves before starting recording. Each pair typically talked for several minutes.

Data analysis. The challenge was locating topic entries and exits. Pairs were instructed to press "1" on the telephone to start recording their conversation. Some pairs started recording at the very beginning of their conversation, so their recordings include small talk at the beginning of the conversation before they initiated the

topic (we refer to these segments as *call beginnings*). People initiated the topic in a number of ways. Sometimes they referred to the topic itself ("So we're supposed to talk about music"). Or they asked if their partner was ready ("Are you ready for me to push '1'?"). Most recordings were cut off before the end of the conversation, but some lasted until the two people exited the topic (e.g., "Well I guess that will do it") and hung up (we refer to these segments as *call endings*). We were interested in the recordings with call beginnings and with call endings, because these include the full topic entries and exits.

We searched for call beginnings by looking for calls containing *hi* or *hello* and found 53 such calls. We discarded 3 of these in which the topic was not initiated after 50 turns of talk. Thus, in our final sample, each call beginning consisted of a 50-turn window from the beginning of the conversation with the topic entry located somewhere in that window. Likewise, we searched for call endings by looking for calls containing *bye* and found 499 of them. We sampled a subset of about one fourth of these calls, discarding those where the topic was not exited within a 50-turn window (counting back from the last utterance of the call). This yielded a final sample of 116 call endings. For each call beginning or ending, we computed the turn position (1–50) of each occurrence of *uh-huh, yeah* (including *yes, yep,* and *yup*), *right, okay,* and *all right*. We also coded the turn position of the topic entry for each call beginning and topic exit for each call ending. Interrater agreement was checked by having a second person double-code 27% of topic entries and exits and calculating Cohen's kappa statistic (Fleiss, 1981). We applied a conservative criterion: Coders had to code exactly the same turn position for it to count as agreement (i.e., a difference of one turn was treated as nonagreement). Agreement was unproblematic (82%; $\kappa = .81$).

We computed the production rates (number of occurrences per 1,000 words) for *uh-huh, yeah,* and *okay* for the entire corpus (2,959,024 words) and for our samples of call beginnings (24,860 words) and call endings (61,323 words). We did not compute production rates for *right* because it is difficult to automatically distinguish *right* used as a project marker from other uses.

Results and Discussion

Production rates. *Okay* occurred much less often overall—by an order of magnitude—than either *uh-huh* or *yeah*. The production rates are shown in Table 1. This is initial evidence for our analysis of project structure in telephone calls. If *okay* is used mainly to transit from entry to body and from body to exit, it should occur less often than markers used in the body.

Call beginnings and endings include transitions from entry to body and body to exit. By the joint projects account, *okay* should be more frequent near transition points than it is overall. Indeed, *okay* occurs 9.3 and 4.3 times per thousand in call beginnings and endings, respectively, but only 1.9 times per thousand overall (see

TABLE 1
Production Rates of Okay, Uh-Huh, and Yeah in the Switchboard Corpus (Call Beginnings, Endings and Overall). Number of Occurrences, Mean Rate per 1,000 Words, and *t* Value of Difference From Overall Corpus

Place	*Okay*	*Uh-Huh*	*Yeah*
Beginnings			
Occurrences	201	224	436
Mean rate per 1,000 words	9.3	9.8	19
t(49)	8.5*	0.2	1.5
Endings			
Occurrences	229	559	1,362
Mean rate per 1,000 words	4.3	10.2	24.1
t(115)	6.6*	0.2	6.4*
Overall (including beginnings and endings)			
Occurrences	5,494	29,632	49,388
Rate per 1,000 words	1.9	10.0	16.7

*$p < .001$.

Table 1). In contrast, *uh-huh* and *yeah* were no more frequent in call beginnings than in the corpus overall. *Uh-huh* was no more frequent in call endings than overall, but for some reason *yeah* was.

Call beginnings. For each call, we computed the number of turns between every project marker and the topic entry point. If the marker occurred before topic entry, then the difference was negative; if it occurred afterward, then it was positive. We thus obtained a frequency distribution for four types of project markers (*uh-huh, yeah, okay,* and *all right* combined and *right*). We converted frequencies to percentages and averaged the percentages over calls. The results are shown in Figure 1.

The numbers of *okay* and *all right* rose sharply around topic entry and fell as talk progressed into the body. Also, *uh-huh, yeah,* and *right* occurred more often in the body than in the entry phase. To confirm these impressions, we tested for trends in the use of project markers between the entry phase and the body. We created 6 five-turn bins starting from the initiation point. Bin 0 comprises the two turns before topic initiation, the turn of topic initiation, and the two turns after it (Turns –2 through +2). Bin 1 comprises Turns +3 through +7 after topic initiation, and so on. We counted the mean percentage of occurrences of each project marker type in each bin. If token use is unrelated to the phases in a call, then there should be no trends over bins. For talk in the body, we tested for linear and quadratic trends in Bins 1 to 5 for each project marker type. We used the curve estimation module in SPSS, which fits various regression models to data. We selected quadratic over lin-

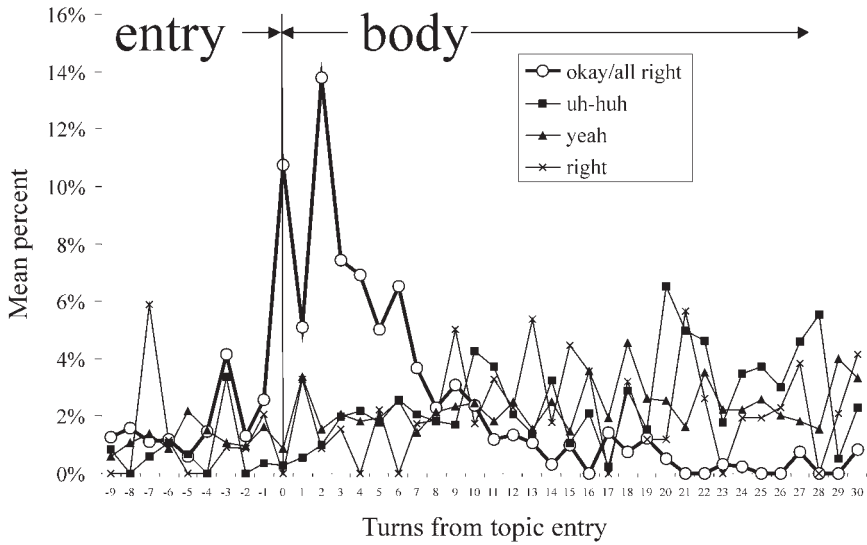

FIGURE 1 Mean percentage distribution of different project markers relative to topic entry point in the Switchboard corpus.

ear models only when they explained a higher proportion of variance (R^2) and the quadratic coefficient (expressed in *b* coefficients) significantly differed from 0. For example, a significant linear trend with a negative *b* coefficient indicates a linear decrease in the production of a project marker type over Bins 1 through 5. We compared these results with those for the transition point, that is, Bin 0, using *t* tests.

Okay and *all right* occurred more often around topic initiations than in the body of the call. In particular, they occurred equally often in Bins 0 and 1, that is, up to seven turns after the initiation point, but they decreased sharply over Bins 1 to 5. There was a significant decreasing linear trend over Bins 1 to 5, but using a quadratic model increased R^2 from .17 to .20, and the quadratic coefficient was significantly different from 0, $b_{\text{quadratic}} = .09$, $t(3) = 3$, $p = .002$, and $b_{\text{linear}} = .81$, $t(3) = 4.4$, $p < .0001$. There was no difference between Bin 0 and Bin 1, two-tailed $t(44) = .9$, *ns*.

Uh-huh, yeah, and *right* were used uniformly throughout the body, as none of them exhibited significant linear trends over Bins 1 to 5: *uh-huh,* $t(3) = 1.6$, *ns*; *yeah,* $t(3) = 1.4$, *ns*; *right,* $t(3) = 0.1$, *ns*. Comparing the mean frequency of occurrence for Bin 0 with the collapsed means of Bins 1 to 5 showed that use of *uh-huh* and *right* increased (*right* increased marginally) between the topic initiation point and the body. *Yeah* occurred at a constant rate from topic initiation through to the body (Bins 0 to 5). These are the statistics: *uh-huh,* two-tailed $t(44) = 5.7$, $p < .0001$; *yeah,* two-tailed $t(44) = 1.5$, *ns*; *right,* two-tailed $t(44) = 1.7$, $p < .10$.

These results support the hypothesis that *okay* and *all right* are used to coordinate the transition from the entry to the body, whereas *yeah, uh-huh,* and *right* are used mainly in the body itself.

How exactly are the different markers used in conversation? Here is an example of a topic entry (Godfrey, Holliman, & McDaniel, 1992)

(3) B Yeah, I, I've gotten a lot of people from Texas, and they always think, wow, Wisconsin [laughter].
A I know, that's like, oh, my gosh. So we're supposed to talk about music.
B Uh-huh.
A Okay.
B Okay.
A
I'll push "1" then.
B Okay [beep].
A Okay.
B All right. Well, what kind of music do you like?

A initiates the topic ("So we're supposed to talk about music"). However, his initiation remains a suggestion until A and B both consent to it by saying *okay*. A then pushes the button to start the recording. This action is also closed by reciprocal *okay*s. But then B still does not start on the topic without once more saying *all right*. Thus, transiting from the small talk of the entry to the official topic takes several steps, many of which require mutual consent. It is for this purpose that the participants use *okay* and *all right*.

Tokens specialized for horizontal navigation, that is, *uh-huh*, *yeah*, and *right*, occurred less often in the entry phase than in the body, where they occurred at a roughly constant rate. Here is an example of talk from the body (callers are discussing clothing):

(4) B So, I think that'll be good for work, too.
A Oh, yeah. It'll be comfortable.
B Yeah. Yeah. So,
A I guess down here, uh, we just recently moved to Texas, so my wardrobe has changed quite a bit.
B Uh-huh.
A Um, we moved from Colorado where, and I have a closet full of sweaters.
B Uh-huh.
A That,
B Well, see, I live in Virginia.
A You live in Virginia, now?
B Uh-huh.
A Oh, that's interesting.
B Yeah. Yeah. So, I'm, you know, like right now, today [continues]

Here topical talk remains loosely focused on clothing, but within this space, A and B explore different areas (e.g., climate and clothing). They ground new contributions with *yeah* and *uh-huh,* which contrasts sharply with the use of *okay* and *all right* in the topic entry excerpt (3). By our account, this is because new contributions to the ongoing construction of clothing as a topic are continuing moves within a joint project.

Call endings. We counted the number of turns between every project marker and the topic exit point in the same way as for call beginnings. The results are shown in Figure 2. We then tested for trends in the same way as for call beginnings. We created 5 five-turn bins before topic exit (Bins –5 to –1) and a five-turn bin (Bin 0) including the topic exit turn plus the two turns before and after it (Turns –2 to +2). *Okay* and *all right, yeah,* and *right* showed no linear trends over Bins –5 to –1: Their rates were constant up to the topic exit: *okay* and *all right,* $b = .004$, $t(3) = -0.5$, *ns*; *yeah,* $b = .04$, $t(3) = 1.2$, *ns*; *right,* $b = .02$, $t(3) = 1.1$, *ns*. *Uh-huh* decreased significantly over Bins –1 to –5, $b = .05$, $t(3) = -2.1$, $p < .05$, but the effect was small ($R^2 = .008$).

Okay and *all right* increased significantly between Bins –5 to –1 and Bin 0, $t(109) = 8.4$, $p < .001$. *Right* decreased significantly between Bins –5 to –1 and Bin 0, $t(109) = 2.7$, $p < .01$, whereas *yeah* and *uh-huh* did not vary: *yeah,* $t(109) = 0.7$, *ns*; *uh-huh,*

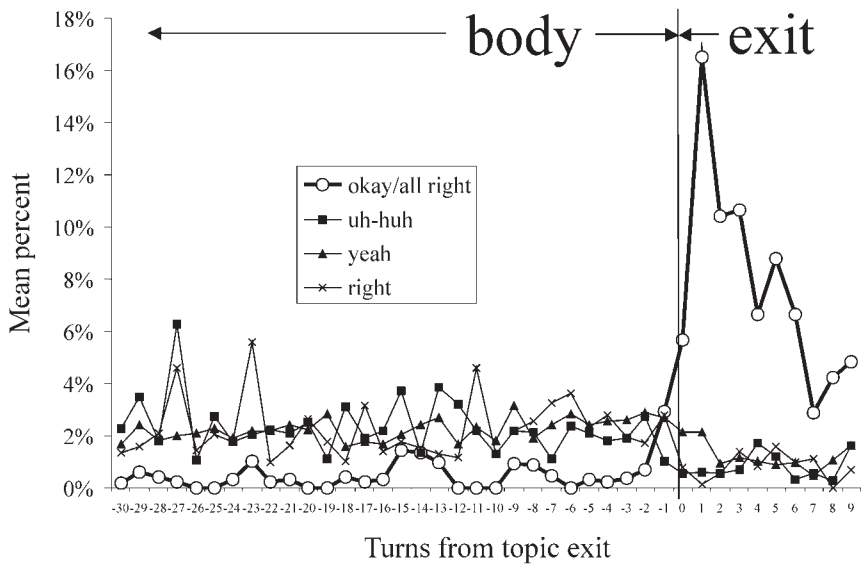

FIGURE 2 Mean percentage distribution of different project markers relative to topic exit point in the Switchboard corpus.

$t(109) = 1.1$, *ns*. Thus, *okay* and *all right* are closely associated with topic exits in the same way as for call beginnings, whereas *uh-huh, yeah,* and *right* are not.

Here is an example of exiting the topic and then the call.

(5) B [continued talk] So that was, that was a couple things that we liked.
A Yeah.
B But,
A Well, sounds good.
B Okay. You have anything else to say?
A No, I think we covered everything.
B [Laughter] Okay, well thanks a lot.
A Well, thank you for being home [laughter].
B [Laughter] Okay.
A Okay, bye-bye.
B Bye-bye.

Just as for topic entry, a number of small steps must be coordinated. A says "Well, sounds good," a summarizing statement that B takes as a proposal to end the topic; B consents to that proposal by saying *okay*. Note that B could have taken "Well, sounds good" at face value and replied "Yes, it does," but he does not. A and B then explicitly establish that they have nothing more to say; this exchange is also closed by *okay*s. They then thank each other, an exchange again bracketed by *okays,* before saying "bye-bye" and hanging up. Here is strong evidence that *okay* is indeed used to navigate vertically. Each of the steps in Example 5 are successive minimal joint projects that must be completed to end the encounter smoothly, and *okay* is instrumental in establishing the mutual consent.

Vertical navigation in the body: Closing side sequences. *Okay* is seldom used in the body of a call, but when it is, how is it used? Is it used in the same way as continuers such as *uh-huh* or *yeah*, or in some other way? To investigate this issue, we looked at question and answer pairs, one common type of adjacency pair. Adjacency pairs can be considered minimal joint projects (Clark, 1996). Many questions and answers arise as side sequences to the main line of talk. In these, people briefly digress from the main line to, say, clarify some state of affairs. By doing so, they are really initiating an *embedded* joint project, or doing a *push* (Grosz & Sidner, 1986). In answering a question, they continue this project. If the answer is satisfactory to the person asking, they may return to the main project. In doing so, they often explicitly terminate the digression (a *pop*; Grosz & Sidner, 1986). They may use *okay* to do this, as in the following example:

(6) A Uh, but I like, uh, Reggie Roby.
B Reggie Roby, who does he play for? [initiates digression]
A He, Miami. [continues digression]
B Okay. [terminates digression]
A Uh, at times I like Kevin Butler on the Bears.

Here A and B are talking about football players, and A is telling B which players he likes. B initiates a digression from this line of talk when she asks who Reggie Roby plays for. She is apparently satisfied with A's answer and says *okay*, whereupon A returns to describing players he likes. Thus, in this example *okay* is used in minimal vertical navigation in the main body. By the joint projects account, *okay* should be used to exit these side sequences, whereas other tokens should not.

To examine this possibility, we first coded whether or not each *okay* was related to topic initiation or topic exit. To check reliability, two different coders double-coded 90 cases (21% of the data). Cases were coded either as related to entries or exits, or not. Agreement was high at 96% ($\kappa = .87$). Focusing on those cases of *okay* unrelated to topic shifts, we then coded whether or not they were preceded by a question two turns before as in the example given earlier. We also coded this for a matched subset of randomly chosen cases of *uh-huh*, *yeah,* and *right*. Double-coding of 117 of these cases indicated agreement was high at 99% ($\kappa = .98$).

There was a clear preference for using *okay* to close side sequences. For call beginnings, almost half (48%) of all *okay*s unrelated to topic initiation were used to end side sequences, compared with 25% for *uh-huh,* 22% for *yeah,* and 13% for *right*. The difference between *okay* and the other markers together is significant, $\chi^2(2, N = 240) = 18.3$, $p < .001$. For call endings, 35% of all *okay*s unrelated to topic exits were used to end side sequences, compared with 7% for *uh-huh*, 3% for *yeah*, and 7% for *right*. The difference between *okay* and the other markers together is significant, $\chi^2(2, N = 240) = 34.7$, $p < .001$.

In summary, project markers in the Switchboard corpus were systematically related to horizontal and vertical navigation. Callers used *okay* and *all right* to ground the different steps in moving from the entry phase to the body and from the body to the exit phase. Within the body, they mainly used *uh-huh*, *yeah,* and *right* to ground new contributions to their topics. When they did use *okay* in the body, about half the time it was to close side sequences. As (3) to (6) show, entering and exiting joint projects is something that must be done sequentially and bilaterally. However, our results suggest that people mark these transitions as hierarchical, or vertical, with project markers such as *okay* and *all right*.

DIRECTORY ENQUIRIES

The Directory Enquiry corpus differs from the Switchboard corpus in several ways. First, it consists of naturally occurring calls. Second, the speakers are British, and the calls were recorded about 15 years earlier. Third, the task is different; it is about exchanging information.

Method

This corpus consists of 756 calls to Directory Enquiries in Cambridge, England, in 1974. Calls were recorded in 17 sessions of 1 hr each (Barnard, 1974), featuring 19 operators (O, all women) and the callers (C, whom we refer to as male). In most cases, C requested one private or business number and O provided it. Sometimes C requested more than one number. Most numbers (82%) were traceable. Here is a brief example:

(7) O Directory Enquiries, for which town, please?
C In Cambridge
O What's the name of the people?
C It's the Shanghai Restaurant, it's not in my directory, but I know it exists
O It's Cambridge 12345
C 12345
O That's right
C Thank you very much
O Thank you, good bye

These calls are service encounters (Merritt, 1984), that is, interactions between members of an institution providing goods and their customers. These calls do not involve buying and selling goods but rather requests for information. Nevertheless, there is an encounter script in which C typically dialed Directory Enquiries and O answered, "Directory Enquiries, for which town, please?" C then provided O with the name or address of the party in question, and O provided the telephone number. Calls then ended with exchanges of *thank you*s or *goodbye*s (Clark & Schaefer, 1987). Unlike the Switchboard calls, there is no entry phase. Establishing personal identities and making small talk is irrelevant to the business at hand, so operators initiate the body of the call with their opening utterance. The body is made up of the exchange of information relevant to the number the caller needs. And the exit phase is when callers disengage, producing *thank you*s and *goodbye*s.

We estimated the number of words in the corpus from the hand-typed transcripts as follows. We manually counted the number of words for every call in two sessions (Sessions 1 and 13). Calls averaged 82.4 words in Session 1 (n = 52) and 98.5 words in Session 13 (n = 27). This difference is not significant, $t(77) = 0.87$, so we computed the average number of words from calls of both sessions, multiplied by the total number of calls, and got an estimate of 66,461 words. We computed another estimate by counting the number of words per page in Sessions 1 and 13 and multiplying this by the total number of pages. This yielded an estimate of 65,089 words. The difference between these estimates corresponds to 1.8 words per call, or about 2% error. We used the 65,089 word estimate to compute production rates.

Results and Discussion

Production rates of project markers. Callers and operators together produced 238 cases of *okay* (3.7 per 1,000 words); 448 cases of *right* or *that's right* (6.9 per 1,000 words); 68 cases of *all right* or *that's all right* (1 per 1,000 words); 75 cases of *mmm*, a British English relative of *m-hm* (1.2 per 1,000 words); and 1,586 cases of *yes* (24.4 per 1,000 words), which speakers used much more often than *yeah*.

As in the Switchboard corpus, vertical markers such as *okay* and *all right* were used less often than horizontal markers such as *yes* and *right*. *Mmm* was also rare, which may be because of the task. The exchange of numbers and addresses creates a higher criterion for understanding, which may have depressed the use of *mmm*, a less explicit form than *yes*.

We divided each call into deciles based on the total number of utterances, counted the number of each marker type in each decile, and converted the counts to percentages. We could not compute distributions for each call separately because of the low production rates for some markers. Figure 3 shows these distributions.

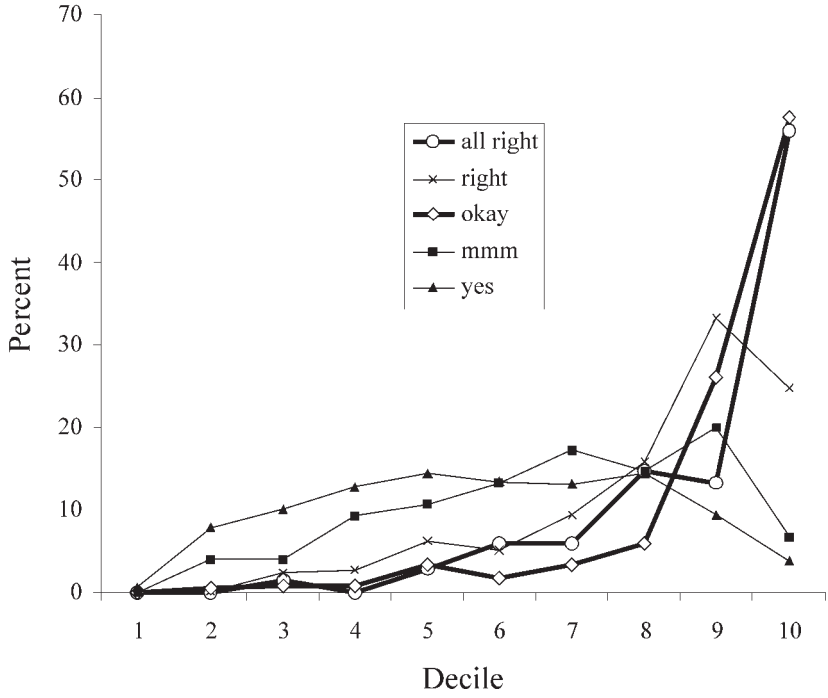

FIGURE 3 Percentage distribution of different project markers over the course of calls in the Directory Enquiry corpus.

Mmm and *yes* have parallel profiles. Their use increases in the opening deciles of calls, stays constant in the middle part, and decreases in the closing deciles. *Okay* and *all right* also have parallel profiles. Both are infrequent through most of the call, but increase sharply near the end of the call. *Right* has a similar profile to *okay* and *all right*, except that it decreases between the ninth and tenth decile.

To get a more systematic idea of which profiles were similar to which, we ran a hierarchical cluster analysis on the data in Figure 3, with project markers as cases and the 10 deciles as variables. The analysis grouped the project markers by how similar their decile profiles were to each other. We did the analysis twice, once with average linkage between groups with phi-square measures of dissimilarity, and once with average linkage within groups, and they produced the same clusters: That is, *mmm* and *yes* were clustered first, then *okay* and *all right* were clustered, and then finally *right* was added to the *okay–all right* cluster.

These results are consistent with the Switchboard results. *Mmm* and *yes* are most frequent in the body, and decline near the end of calls, whereas *okay* and *all right* do just the reverse. The results are ambiguous for *right*. In the Switchboard corpus, it was used in the body. Here it seems to be used near the end of calls, yet its use declines in the last decile. However, what we wanted to know is how tokens are used in navigating different phases of encounters, and similarity of use in deciles is only one measure of this. Another measure is similarity of use in preceding and following contexts.

Predecessors and successors of project markers. For this analysis, we first classified the utterance immediately preceding each project marker, its *predecessor*. We checked interrater agreement by having two people double-code the predecessors of 294 project markers (12% of the total number of project markers). Agreement was unproblematic at 78% ($\kappa = .67$).

Talk in the body often involved *numbers or addresses* ("Haverhill Bus Depot," "Cambridge 58885"). C and O also asked *questions* ("And what code were you dialling?," "Inner London?") and provided *answers*. On the other hand, predecessors could also be *other project markers*, for example, O says "yes," whereupon C says "okay." These, along with *thank you*s, are elements of the exit phase of the call, because they transit from talk about information to closing moves. Table 2 shows the percentage of cases of each project marker type that was preceded by the categories described above, as well as by *other* categories (proposals, instructions, remarks, and the like). *Mmm*, *yes*, and *right* are used primarily to acknowledge talk about numbers or addresses, questions, and answers, whereas *okay* and *all right* are used after other markers, to acknowledge thanks, or after other kinds of talk (i.e., explanations, instruction, apologies, exclamations). As before, we ran a hierarchical cluster analysis once with average linkage between-groups method, phi-square measures of dissimilarity, token types as cases, and predecessor profiles as

TABLE 2
Predecessors of Five Types of Project Markers (in percentages)
in the Directory Enquiry Corpus

Predecessor	*Mmm*	*Yes*	*Right*	*Okay*	*All Right*
Number–address	36	56	63	19	23
Question	22	19	4	4	2
Answer	17	3	1	3	4
Other project marker	3	5	13	27	12
Thank you	1	1	5	16	12
Other	21	16	14	31	47
Total	100	100	100	100	100

variables, and once with average linkage within groups. Both analyses yielded the following clustering: *Okay* and *all right* were joined in a first cluster, followed by *mmm* and *yes*. In a third step, *right* was added to the *mmm–yes* cluster. Thus, *mmm*, *yes,* and *right* are more often preceded by elements of the body than are *okay* and *all right*.

We then classified the utterances immediately following each project marker, its *successor*. Interrater agreement, checked by having two people double-code successors of the same 294 project markers, was high (85%, $\kappa = .81$). We coded for the same categories as before. Results are shown in Table 3. More tokens were followed by *goodbye*s or the end of the call than for predecessors, so we list this category separately (in Table 2, it was subsumed under *other*). *Mmm* and *yes* are followed primarily by talk about numbers or addresses, as well as by questions and answers. *Right*, *okay,* and *all right* are followed primarily by *thank you*. As before, we ran a hierarchical cluster analysis once with average linkage between-groups method, phi-square measures of dissimilarity, token types as cases, and predecessor profiles as variables and once with average linkage within groups, and they

TABLE 3
Successors of Five Types of Project Markers (in percentages)
in the Directory Enquiry Corpus

Successor	*Mmm*	*Yes*	*Right*	*Okay*	*All Right*
Number–address	45	45	13	5	13
Question	9	18	5	4	5
Answer	5	1	1	0	0
Other project marker	7	7	13	10	13
Thank you	4	5	51	50	45
Goodbye–end of call	0	0	6	14	8
Other	30	24	11	17	16
Total	100	100	100	100	100

yielded the following clustering: *Right* and *all right* were joined in a first cluster, followed by *mmm* and *yes*, and finally, *okay* was added to the *right–all right* cluster. Thus, *mmm* and *yes* are more often followed by elements of the body than are *right*, *okay,* and *all right*.

The finding that *mmm* and *yes* are both preceded and followed by talk from the body is strong evidence that they are typically used in the body. On the other hand, *okay* and *all right* are typically preceded by other project markers, *thank you*s and other kinds of talk not from the body. And they are often followed by *thank you*s. This, in turn, is evidence that *okay* and *all right* are used to transit from the body to the exit phase of a call. Of interest, *right* was more similar to *mmm* and *yes* for predecessors but more similar to *okay* and *all right* for successors. This suggests that *right* is used to *end* sequences of talk involving numbers and addresses by confirming the correctness of a piece of information as a whole, before exiting the body. This is illustrated in the following call:

(8) O Directory Enquiries, for which town?
C Err, Ingram
O Ingram, and what is the name of the people?
C Goliath Trading Co?
O Goliath as in David and Goliath?
C Yes
O yes, the number's 02–479 5849
C yes, and what is the correct address?
O 200 Hancock Lane, Ingram
C Hancock Lane?
O that's right
C okay thank you
O thank you

C and O exchange information about the address and phone number of the Goliath Trading Company. They both use *yes* to ground installments of this information. However, O uses *that's right* to confirm the last piece of information, and C uses *okay* to move out of the body.

Moving out of unsuccessful traces. We noticed that *okay* occurred about 4 times as often (50% vs. 11%) in calls with untraceable numbers (for which the operator could not find the requested number) than in calls with successful traces, $\chi^2(1, N = 756) = 108$, $p < .001$. *All right* occurred about 3 times as often (19% vs. 6%) with unsuccessful traces than with successful ones, $\chi^2(1, N = 756) = 25$, $p < .001$. This is consistent with the observation (Merritt, 1984) that *okay* is often used in service encounters to release one of the parties from their current obligation. When clerks do not have goods available they would be expected to have (e.g., a certain size of clothing), customers use *okay* to release them from their obligation. In the calls to Directory Enquiries, by acknowledging an unsuccessful trace with

okay, C releases O from her obligation to provide information, which allows them to move into the closing phase of the call. In these cases, *okay* and *all right* are used by C to move out of an unsuccessful project by consenting to release O from her commitment.

In summary, project markers in directory enquiries were used systematically for horizontal and vertical navigation. *Yes*, *right*, and *mmm* were used to ground exchanges of information about telephone numbers and addresses. *Right* was more often used to confirm the correctness of a whole address sequence delivered in installments, whereas *yes* was more often used to confirm single installments. This corresponds to continuing within the joint project of getting a phone number or address, that is, horizontal navigation. *Okay* and *all right* were used to move from the body to the exit phase, or even to end the call. This is vertical navigation. *Okay* and *all right* were also used to move to the exit phase when the project in the body of the call had been unsuccessful.

GENERAL DISCUSSION

We investigated the use of project markers in telephone conversations. Our results suggest that project markers are used in at least two general ways. *Uh-huh*, *yeah,* or *right* are typically used to ground new contributions to the body of a conversation, by acknowledging them or displaying agreement. They are used to ground horizontal transitions—transitions within a joint project. In contrast, *okay* and *all right* are used primarily to enter and exit projects, such as moving into the body of a call or closing a side sequence. They are used to ground vertical transitions—transitions between levels of a project hierarchy.

In the Switchboard corpus, in which participants discussed a predefined topic, *okay* occurred less often than *uh-huh* and *yeah*. When *okay* did occur, it was typically around topic entry and exit points. In contrast, *uh-huh*, *yeah*, and *right* occurred most often in the body of the call and declined around topic entry and exit points. When *okay* did occur in the body of the call, it was used about half of the time to close a side sequence.

In the Directory Enquiry corpus, conversations were between telephone operators and callers requesting phone numbers. Results were similar to those from the Switchboard corpus. *Okay* and *all right* were used less often than *yes* and *right*. When *okay* and *all right* were used, it was to move out of the body to the exit phase, or even to end the call. *Yes* and *mmm* were used to acknowledge information (often given in installments) about numbers and addresses. *Right* was often used as a final acknowledgment of the accuracy of an address or number before moving out of the body of the call.

Taken together, our results suggest that words such as *uh-huh*, *yeah*, *right*, *okay,* and *all right* are used to ground transitions in conversation. Previous research has

often considered them as interchangeable or members of pairwise contrasts. We suggest, instead, that these words are each specialized components of a system of contrasts for navigating joint projects in discourse (Bangerter & Clark, in press). *Okay* and *all right* are specialized for vertical navigation—entering and exiting joint projects. *Yeah*, *uh-huh*, and *right* are specialized for horizontal navigation—continuing within joint projects.

Okay and *all right* can be viewed as devices for seeking or giving consent to a proposed joint undertaking. In (3), A and B agree to embark on the joint project of talking about a topic. However, they coordinate this in several steps: pushing the recording button, deciding who is to start first, and so on. A and B use *okay* to seek and give consent to move on with each step. Contrast this with the use of *yeah* and *uh-huh* in (4). These are used not to seek or give consent, but to acknowledge or display agreement with prior utterances. A and B do not need each other's consent, because their current joint project (talking about clothes) has already been decided on. But in (5), when A and B engage in the project of ending their call, they need to coordinate on getting out of the topic, performing the necessary rituals of well-wishing and continuity, and hanging up, and *okay* is instrumental in this coordination.

This research focused on single-topic conversations that were bracketed by entry and exit phases. Other conversations, of course, often cover several topics that are not specified in advance. The participants coordinate topic transitions in these conversations in much the same way as the participants did in our study (Button & Casey, 1984b; Mondada, 1995). They often coconstruct topic transitions in a gradual, stepwise manner—that is, as horizontal transitions. This seems to be the norm in informal conversation. Sometimes, however, it is necessary to mark a distinction between topics explicitly, as in the case in which participants have to get out of a sensitive topic. Jefferson (1984) proposed that such a process is tantamount to restarting the conversation. We call this a vertical transition—exiting one joint project and entering another.

Another issue we did not investigate is prosody. Prosodic factors, such as intonation, can modulate the meaning of project markers. For example, rising intonation might be used in combination with *okay* to initiate a joint project, whereas falling intonation might be used to close it (Hockey, 1993; Kowtko, 1996). Intonation is known to be functional for turn taking (Beattie, Cutler, & Pearson, 1982), so it is likely to be functional in project navigation as well (Mushin, Stirling, Fletcher, & Wales, 2003).

Previous accounts of project markers have often been limited to local organization—to sequential dependencies between utterances. However, these accounts do not capture the way participants coordinate their actions within the larger conversation. Our results support an account of conversation as navigating joint projects. If participants are jointly navigating both within and between overarching projects and subprojects, and if they must ground each transition, then it makes sense to have different methods for different transitions. They need acknowledgments for

transitions within major joint projects and stronger expressions of consent for transitions into and out of those projects.

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