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Okay as a marker for coordinating transitions in joint actions: Effects of participant role and age in Swiss German and Swiss French interviews

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ABSTRACT

Joint actions like everyday conversations feature the use of speech particles like back-channels or discourse markers to coordinate transitions from one part of the action to another. Transitions can be either horizontal (within tasks or subtasks; i.e., moving from one step to the next in a task) or vertical (between tasks or subtasks). In English, *okay* is typically used to coordinate vertical transitions. In institutionalized joint actions, *okay* is used especially by institutional representatives to manage the joint action. Little is known about these uses of *okay* in other languages, or about when *okay* may have diffused into those languages. We investigated the use of *okay* as a vertical coordination marker in Swiss German research interviews and Swiss French job interviews. *Okay* was consistently used as a vertical transition marker in both settings, especially by interviewers. Younger participants used *okay* more often than older participants. The findings suggest that okay may have diffused into other languages not only as a marker of agreement, but also as a marker for coordinating transitions.

1. Introduction

One of the primary functions of everyday conversation is coordinating joint actions (Clark, 1996). These can be as diverse as psychotherapy sessions (McCabe and Healey, 2018), university lectures (Schleef, 2008), or cheese-tasting (Mondada, 2018). But conversation is itself a joint action that is intricately coordinated, on at least two levels: Semantic and procedural (Mills, 2014). Semantic coordination is related to meaning construction; it involves processes furthering the accumulation of common ground during a conversation (Clark, 1996). Procedural coordination relates to progress in the joint action; that is, aligning the sequence and timing of participants' individual contributions to the conversation.

Procedural coordination can be either specific or generic (Knutsen et al., 2019). Recurrent, institutionalized joint actions develop specific coordination procedures (Drew and Heritage, 1992). For example, conversations between teachers and pupils

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in classrooms follow a typical sequence of the teacher asking a question, a student answering it, and the teacher evaluating the student's answer (Mehan, 1979). Activity-specific coordination procedures like scripts or routines (Okhuysen and Bechky, 2009) may also obviate the need for conversation to coordinate the activity. For example, interacting with a cashier at a checkout counter does not require conversation to coordinate the transaction of goods and money. But activity-specific coordination does not allow solving all coordination problems, because these may emerge unexpectedly. Human conversation thus features generic coordination procedures ("devices", Dideriksen et al., 2023). According to the "human interaction engine" hypothesis (Levinson, 2006), spontaneous human interaction creates a recurrent environment and thus a selection pressure for language specialized in coordinating action. By this view, social interaction creates coordination problems that are similar across linguistic contexts and so similar solutions evolve in different languages to solve those problems (Dingemanse et al., 2015). Perhaps the most basic of these is turn-taking, which solves the problem of coordinating who is to speak when (Levinson, 2016; Sacks et al., 1974). Another basic coordination procedure is repair, which solves the problem of detecting and correcting emergent problems in speaking, hearing and understanding (Dingemanse and Enfield, 2024; Dingemanse et al., 2015; Drew, 1997; Schegloff et al., 1977). Yet another is the use of speech particles like discourse markers (e.g., *and*, *so*, *but*; Schiffrin, 1987) or back-channels (*yeah*, *mhm*, *uh-huh*; Bavelas et al., 2000; Dideriksen et al., 2023; Tolins and Fox Tree, 2014) to coordinate transitions from one part of a joint action to another (Bangerter and Clark, 2003).

Among these particles, *okay* has been much researched, and studies have documented a myriad of uses (Gaines, 2011) in specific settings. Many of these studies are qualitative, which has the advantage of contextualizing analyses in real-life situations, increasing ecological validity. Further, *okay* has been abundantly studied in institutional settings (Betz and Sorjonen, 2021). Qualitative studies in specific settings are difficult to compare, especially if those settings are strongly institutionalized, making it difficult to draw more general conclusions about the use of *okay*. An exception to this is research in the tradition of conversation analysis, which comparatively documents use in similar sequential environments of talk (Betz et al., 2021). Another exception is the work of Bangerter and Clark (2003), who proposed that *okay* is part of a specialized system for marking transitions in joint actions. The hierarchical and sequentially organized nature of joint action creates the need for participants to coordinate two kinds of transitions, horizontal (transitions within tasks or subtasks; i.e., moving from one step to the next in a task) and vertical (transitions between tasks or subtasks). *Okay* is typically used to coordinate vertical transitions. We adopt this approach in the current paper.

Further, *okay* is used in many languages other than English, however, there is less work on these languages, especially comparing languages (but see Col and Delahaie, 2019, and Betz et al., 2021, which constitutes a major step forward). Such work could answer important questions about the diffusion of *okay* and its potential adoption as a marker of vertical transitions in languages other than English. Evidence of diffusion can potentially be found in differential use by individuals of different cohorts. For example, Schleef (2008) investigated whether younger US university lecturers use *okay* more than older ones. But do speakers of other languages also evidence cohort-specific effects in use of *okay*?

In this paper we investigate the use of *okay* in two corpora of interviews, one with Swiss German speakers and one with Swiss French speakers. We show that *okay* is used similarly in both corpora, namely as a marker of vertical transitions between parts of the interview. We also show role effects: *Okay* is used more by interviewers, especially as a vertical marker, consistent with interviewers' role in managing interactional progress. Finally, we show that, in Swiss German speakers, older participants tend to use *okay* at a lower rate than younger participants, which constitutes potential evidence of diffusion of *okay* among Swiss German speakers. Our study makes several contributions to the literature: (1) Improving our comparative understanding of the role of *okay* in managing transitions in institutional encounters in languages other than English, (2) adding two much-needed data points on the potential diffusion of *okay* into languages other than English, and (3) providing further support for an account of transitions within and between parts of joint actions across languages.

2. *Okay* as a marker for coordinating vertical transitions in joint actions

Joint actions entail procedural coordination, the timing and sequencing of individual contributions in order to progress in a task (Mills, 2014; Knutsen et al., 2019). Indeed, each incremental step in a joint action is coordinated, or *grounded*, among participants (Clark and Schaefer, 1989). *Okay*'s role in coordinating transitions has been amply documented (Mondada and Sorjonen, 2021). In his work on frame analysis, Goffman (1974) noted the use of *okay* in "bracketing" (marking the beginning or end of) phases of encounters. Condon (1986, 2001) described similar functions of *okay* in decision-making interactions, further suggesting that it may serve to mark returning from "off-task" behavior to the main task at hand. Beach (1993) documented the use of *okay* as a signal of readiness to transition to a next phase of an interaction, projecting "forthcoming action-sequences in the accomplishment of task-specific activities" (p. 337). Subsequently to these pioneering contributions, further research supports the role of *okay* as a signal of transitions. Mondada and Sorjonen (2021) recently reviewed this research, distinguishing between cases of closing simple sequences (*okay* in second or third position after a target utterance), larger sequences, transitioning between activities in an encounter, and moving to closing the encounter.

Okay is used in managing routine tasks in institutionalized joint actions (Betz and Sorjonen, 2021). In such settings, there may be a division of labor between institutional representatives (counselors, interviews, clerks, physicians) and clients or laypersons in the use of *okay*. Merritt (1978) described *okay* used to mark transitions in service encounters, with service providers and clients both using it in role-specific ways. In call helplines in Brazil, call-takers use *okay* to manage transitions between parts of the call (Ostermann and Harjunpää, 2021). In academic counseling sessions, students use *okay* more often

than counselors (Guthrie, 1997; Henricson et al., 2023), but counselors use *okay* more often as a content word than as a speech particle.

While different kinds of transitions are often described and treated separately, they may share a common underlying organization. Based on the hierarchical and sequential structure of human goal-directed action (Miller et al., 1960; von Cranach et al., 1982), Bangerter and Clark (2003) proposed that joint actions can be described in terms of hierarchies of joint projects. A joint project can be divided into subprojects or phases, which themselves can be decomposed into sub-subprojects, and so on. For example, a job interview (Brosy et al., 2020) can be divided into an opening phase, a question-and-answer phase, and a closing phase. The question-and-answer phase might be divided into subphases involving questions about the applicant's past work experiences, their motivations, or their skills. The subphase about the applicant's past work experiences might involve subsubphases, or sequences where applicants are asked to describe each of their previous jobs. In this view, simple sequences, larger sequences, transitions between activities and closings (as well as openings) can all be construed as projects or subprojects within a larger and encompassing joint action.

Because all joint actions share this hierarchical-sequential structure, Bangerter and Clark (2003) proposed that they involve two kinds of generic transitions. The first kind, *horizontal* transitions, involve moving from one step *within* a joint project to the next. An example of this would be grounding successive instalments of a complex instructional sequence (Clark and Wilkes-Gibbs, 1986) or producing responses to the steps in a narrator's telling of a story (Bavelas et al., 2000). The second kind, *vertical* transitions, involve moving *between* joint projects or subprojects. Examples include moving from the opening to the main body of an encounter, or from the main body to the closing (Bangerter et al., 2004), returning to the main task from a side sequence, or moving from one topic to the next. Bangerter and Clark (2003) proposed that different speech particles in a language are specialized to mark these two kinds of transitions, suggesting that (in English), horizontal transitions are marked by expressions like *uh-huh*, *m-hm*, *yeah*, or *right*, whereas vertical transitions are marked by expressions like *okay* and *all right*. They found evidence for this proposal in a range of experimental and naturalistic joint actions in English, Swiss French, and Swiss German (see also Bangerter et al., 2004).

3. *Okay* as a vertical transition marker in different languages: diffusion over time

Okay probably emerged in the Eastern US in the 1840s (Read, 1963; for an overview see Betz and Sorjonen, 2021). In recent years, research on *okay* has documented its spread into and adoption by many languages other than English, for example Danish, Finnish, French, Polish, Italian, Korean and Japanese (Betz et al., 2021), Thai (Wutthichamnong, 2016) or Spanish (Delahaie and Solis Garcia, 2019). Google Ngram data suggests it may have spread into French between the 1940s and 1970s, and into German later (Fagard, 2019). In Finnish, *okay* may been have increasingly used in informing sequences between the 1980 and 2015 (Koivisto and Sorjonen, 2021). But functions of *okay* in languages other than English are unclear, especially whether it serves a similar function as a generic vertical transition marker. This does seem to be the most frequent function in spoken French (Fagard, 2019). Some data exists for Swiss German, where participants completing an experimental matching task used *okay* similarly to English speakers (Bangerter and Clark, 2003).

Determining whether *okay* is used as a vertical transition marker in different languages would suggest that the distinction between vertical and horizontal transition markers is potentially a universal aspect of conversation. This in turn would constitute a further set of generic coordination procedures for conversation, and thus another line of support for the interaction engine hypothesis (Levinson, 2006), according to which human sociality is underpinned by a human-unique but universal ability for social interaction. By this hypothesis, coordinating joint action poses similar coordination problems, and thus human groups have (in part independently) evolved similar tools (linguistic or otherwise) to solve those problems. Of course, *okay* has not appeared independently in different languages, but diffused from English to other languages. That *okay* has diffused as a marker of agreement into many languages is not surprising, as that is the official dictionary definition of *okay* and it is instantiated in many aspects of material culture (like technology, e.g., in software commands or on buttons of remote controls). However, the fact that *okay* may have diffused as a vertical transition marker suggests a more subtle process, whereby it may have been culturally selected to fit a niche for coordinating joint action.

The potential diffusion of *okay* raises questions about the temporality of the diffusion in different languages. There are few studies on the diffusion of *okay* over time, partly because investigating this issue typically requires systematic collection of conversational data from different periods. For example, Couper-Kuhlen (2021a) compared the uses of *okay* in two corpora of American English speakers interacting in informal settings, one recorded in the 1960s, and the other recorded in the 1990s and early 2000s. *Okay* was used more frequently in an epistemic function (to acknowledge provision of information) over time, as well as a marker of recipiency of non-consequential information. However, the conclusions may be limited by non-controlled variation in conversation type between the samples, and the lack of inferential statistical analyses to support claims of differences. Another possibility for investigating potential changes over time related to diffusion would be to conduct cross-sectional studies (apparent time studies; Labov, 1978) with participants of different ages participating in a comparable task. The assumption here is that participants of different ages use language in accordance with their socialization as a certain period in time, that is, age differences may be interpreted as cohort differences (Cheshire, 2005; Labov, 1978). Strictly speaking, cross-sectional designs confound age and cohort effects (Schaie, 1965), or language change and age grading (Wagner, 2012) but may be a viable alternative when authentic conversational data from different periods is not available.

4. Our studies

The present paper intends to further our understanding of *okay* used as a generic marker for vertical transitions (Bangerter and Clark, 2003) in institutionalized joint actions, and languages other than English. We expect to find that *okay* is specialized more for use in vertical transitions than horizontal. Based on this research, we formulate Hypothesis 1: *Okay is a marker specialized for marking vertical transitions in joint action*. There are at least three ways of testing Hypothesis 1. First, *okay* should appear more often than expected by chance at the beginning and end of a joint action, consistent with its role in openings and closings. Second, *okay* should appear more often than expected by chance in the vicinity of shifts from one interview phase to another. Third, *okay* should be less likely to be used as a backchannel utterance, and more likely to be used as a transition marker. We also investigate the use of *okay* as a function of the participants' roles and age. Because it is unclear whether to expect systematic differences in this respect, we formulate Research Question 1, *Is okay used more often by institutional representatives, especially as a vertical marker?* And Research Question 2, *Is okay used more often by younger than by older participants?*

We investigate Hypothesis 1 and Research Questions 1 and 2 in one corpus of research interviews in Swiss German and one corpus of job interviews in Swiss French. In each corpus, as institutional representatives (researchers in the Swiss German corpus and recruiters in the Swiss French corpus), interviewers are responsible for advancing the interview agenda, and thus might be expected to produce *okay* more often, especially as vertical transition markers. Further, the age differences between participants allow an exploratory analysis of the potential timeline for diffusion of *okay* in Swiss German and Swiss French. As an initial investigation into the use of *okay* in the corpora, we coded the functions of each instance of *okay*. We describe the characteristics of the corpora and the results of this coding in the following section.

5. Description of the corpora and functions of *okay*

5.1. Swiss German research interviews

This corpus consists of semi-structured research interviews about respondents' life course (Grob et al., 2001). The interviews were conducted with Swiss German speakers, and followed a standardized protocol in terms of questions asked by the interviewer, while allowing respondents the opportunity to describe their experiences in detail, offering an ideal compromise between naturalistic data and structured task situations to test Hypothesis 1 and investigate Research Question 1. Respondents were sampled from 3 cohorts who were 25, 50, or 75 years old at the time of the study. This allows investigating Research Question 2, assuming that differences in the use of *okay* between cohorts reflect cohort-specific differences in habitual language use, and thus potentially diffusion of *okay* in Swiss German.

5.1.1. Sample: respondents and interviewers

The interviews were conducted in 1997–1998 and intentionally sampled respondents from three different cohorts. Seventy-five respondents were recruited by mail from a randomly drawn pool obtained through the administrative register of the city of Berne (twenty-five per cohort; 75 year-olds: 14 men, 11 women; 50 year-olds: 11 men, 14 women; 25 year-olds: 12 men, 13 women; overall response rate = 22.9%). They received CHF 30 for participation. There were three different interviewers, two women and one man. The man (Adrian Bangerter) and one woman were under 30 years of age at the time of the study, and the other woman was under 40 years of age.

5.1.2. Interview procedure and transcription

Interviews were conducted in German, with some respondents speaking in Swiss German dialect. They lasted around 90 min. Respondents reported personal goals, significant life events and life satisfaction at different points over their life span as part of a semi-structured interview which focused on both the retrospective and prospective life course (Grob et al., 2001). Participants briefly described their current life situation, and then described events that significantly affected their life. The interviewers used a visual aid, a large grid showing a time line of age in years, numbered from 0 to 100, and five domains: society, education/work, leisure/culture, family/friendship, and personal/health. Events mentioned by respondents were marked on the grid in the corresponding domain. The life period between 0 and 25 was assessed first, followed by the others in chronological order. In addition, respondents' perceived control over events was assessed: after all events of a given period had been collected, respondents selected those events they perceived as personally controlled or not personally controlled. Interviews were audiorecorded and transcribed word-for-word, including fillers (e.g., *uh*), interjections and discourse markers and back-channels, most notably *okay*. The transcriptions also contained remarks related to the actions performed by the interviewer and the respondent (e.g., laughter, pauses). Because the original transcripts were not produced with the intent of analyzing speech particles like *okay*, we checked the accuracy of all transcripts in this respect.

5.2. Swiss French job interviews

This corpus consists of real job interviews conducted in French with Swiss French speakers (Brosy, 2019). It offers another ideal compromise between naturalistic data and structured task situations. Beyond coding functions of *okay*, we test Hypothesis 1 using codings of *shifts* between seven phases in the interviews (Brosy et al., 2020). Shifts correspond to vertical

transitions between large sections of the job interview, as determined by the agenda of the interviewers. As with other kinds of vertical transition, we expect it to be more likely to find *okay* near these shifts. We also investigate Research Question 1. We investigate Research Question 2 for both interviewers and applicants.

5.2.1. Sample: applicants and interviewers

The sample was constituted by 80 job interviews (mean duration 35.2 min, $SD = 13.5$ min), conducted in 2015–2017 (Brosy, 2019), in either a cantonal administration ($n = 36$ interviews) or a cantonal hospital ($n = 44$ interviews). Each interview involved one job applicant (30 men, 50 women, mean age = 34 years, $SD = 13.6$ years, age range 14–61 years) and 2 or 3 recruiters. The interviews were for 18 different kinds of position in both organizations (e.g., head nurses, administrative assistants, social workers, police officers). Interviews were conducted by 31 different recruiters, typically human resources personnel or managers (20 men, 11 women, mean age = 45.1 years, $SD = 9.1$ years, age range 29–58 years). Each interview involved several interviewers and each interviewer could take part in either one or several interviews.

5.2.2. Interview procedure and transcription

We contacted the human resources (HR) department of both organizations to obtain their initial agreement to conduct the study. They then contacted the participants (recruiters in the organizations and applicants). Non-HR recruiters (e.g., line managers) were informed about the study when they selected applicants to interview (76% agreed to participate). They received an information letter and a consent form. Applicants were informed about the study when they were invited for an interview (89% agreed to participate). Julie Brosy attended and audiorecorded all interviews, but did not participate in them beyond introducing herself at the beginning of the interview. Interviews were transcribed word-for-word. Transcribed features included fillers (*uh*), discourse markers (*okay*), and vocalisations like laughter and sighs. We used brackets to signal overlapping talk. As in the Swiss German corpus, because the original transcripts were not produced with the intent of analyzing speech particles like *okay*, we checked the accuracy of all transcripts in this respect.

5.3. Functions of okay

5.3.1. Coding functions of okay

All *okays* in both corpora were coded as to their function. Based on Bangerter and Clark (2003) and Bangerter et al., 2004, as well as readings of the transcripts of both the Swiss French and the Swiss German interviews, we distinguished between five different functions: Agreement, reported speech, back-channel, closing side sequence, and transition. These functions serve as a broad description of the data without necessarily distinguishing between horizontal and vertical transitions (although some of the functions correspond to horizontal versus vertical transitions).

Agreement was coded when *okay* was used as part of a verb phrase (e.g., as an adjective) expressing agreement or the acceptability of a state of affairs. An example from the Swiss German corpus would be when an interviewer asks the respondent if the interview reflects their life situation at the end of the interview, e.g., *do you have the feeling this is okay as it is?* (*haben Sie das Gefühl, das ist so okay?*) when asked if they have anything to add.

Reported speech was coded when *okay* appeared as the first word of a sequence of reported speech, for example *would it be possible for you to tell him okay I'll come back later?* (*ça serait envisageable pour vous de lui dire ok je reviens plus tard*, Swiss French corpus). It appears from this example that *okay* is not used as a quotative, but rather as part of the reported speech sequence. Another example (Swiss French corpus) illustrates the same: *then well you tell us well so okay I stay in the race or no unfortunately I withdraw my candidacy* (*pis sinon ben vous nous dites ben voilà ok je reste dans la course ou bien non malheureusement je retire ma candidature*). To our knowledge, this use of *okay* has not been documented before. Romaine and Lange (1991, p. 251) describe a similar case of reported speech in English: *I mean, I was like, okay, so she thinks they're expensive, that's*. They did not comment on the use of *okay*. However, here as well, *okay* follows the quotative *like* and thus is presumably intended as part of the reported speech sequence.

Back-channel was coded when *okay* was used to acknowledge an instalment of a larger stretch of an interlocutor's speech. In such cases, *okay* is the only word in the turn. Here is an example from the Swiss French corpus:

Interviewer:	the first year is 750 francs per month (*la première année c'est 750 francs par mois*)
Applicant:	Mhm
Interviewer:	the second 950 and the third 1450 (*la deuxième 950 et la troisième 1450*)
Applicant:	okay *(ok)*
Interviewer:	in addition there is a further 1000 francs (*à cela s'ajoute encore un montant de 1000 francs*) [continues]

In this example, the interviewer is explaining the monthly salary to an applicant being interviewed for an apprenticeship. This explanation involves several instalments, and the applicant acknowledges them using *mhm* and *okay*.

Closing side sequence was coded when *okay* was used to close an emergent (i.e., unplanned) sequence in the interview conversation. In the Swiss French corpus, such sequences were typically initiated by questions, often asked by interviewers not responsible for conducting the interview, or by applicants. Here is an example:

Interviewer:	mhm. have you been googling (*mhm vous avez été un peu aller googliser*)
Applicant:	I didn't have time (*j'ai pas eu le temps*)
Interviewer:	you didn't have time okay (*vous avez pas eu le temps ok*)
Applicant	honestly no (*honnêtement non*)
Interviewer:	I so I'd like to come back to that (*moi j- alors j'aimerais revenir un peu là-dessus*)

In response to a previous answer by the applicant, the interviewer asks the applicant if they have googled information about the position they have applied for. This is an emergent question, that is, a side sequence initiation. The applicant replies that they did not have time to do so. The interviewer repeats the applicant's utterance and says *okay* to close the sequence, moving back to another topic.

Transition was coded when *okay* was used to move to a next part of the interview, for example a next question after an extended response or another phase of the interview guide. It corresponds to the vertical transition function of *okay*. In this function, *okay* is immediately followed by an utterance initiating the next part, for example (Swiss German corpus) when the interviewer suggests to move to another part of the interview: *Okay then now let's take a jump back to your youth again* (*okay jetzt würde ich gerne einen Sprung zurück zu Ihrer Jugendzeit machen*).

The entire Swiss German corpus was coded by one author. Seven interviews were double-coded by a second author, resulting a Cohen's kappa score of 0.54. Because this score reflects “moderate” agreement according to Landis and Koch (1977), for the analyses relative to Hypothesis 1, we collapsed the *closing side sequence* and *transition* categories for further analyses (indeed, both of these categories constitute vertical transitions). This resulted in kappa = 1. The Swiss French corpus was coded by the first four authors. Four interviews were double-coded by these authors, resulting in a Fleiss' kappa score of 0.68 (“substantial”, Landis and Koch, 1977). Again, for the analyses relative to Hypothesis 1, we collapsed the *closing side sequence* and *transition* categories for further analyses, resulting in kappa = 0.76.

5.3.2. Frequencies of functions of okay in both corpora

Table 1 shows frequencies and mean rates per 1000 words of *okay* produced in different functions in both corpora. Closing side sequences, transitions and backchannels are the most frequent functions. Use of *okay* in an agreement function accounts for around 3% of all occurrences in both corpora. Use of *okay* in reported speech is very infrequent in Swiss German (less than 1% of occurrences) but more frequent in Swiss French (about 3%). In both corpora, most occurrences of *okay* are produced by interviewers. *Okay* is used differently depending on role, with interviewers using *okay* most often to close side sequences, whereas respondents and applicants use *okay* in transitions and as backchannels. Indeed, in the Swiss French corpus, applicants' use of *okay* as backchannels accounts for 62% of all *okay* occurrences. These descriptive data offer initial support for Hypothesis 1 and Research Question 1, but we explore them more rigorously in the next sections, using logistic mixed models to estimate the probability of *okay* being used in a speaking turn depending on function, speaker role, position in the interview, and speaker age, while controlling for other factors.

Table 1
Frequencies (mean rates per thousand words) of *okay* in different functions in the Swiss German and Swiss French corpora, by role.

	Swiss German		Swiss French	
	Interviewer	Respondent	Interviewer	Applicant
	Frq (Rate)	Frq (Rate)	Frq (Rate)	Frq (Rate)
Closing side sequence	153 (0.97)	12 (0.05)	412 (1.31)	112 (0.39)
Transition	95 (0.59)	32 (0.17)	131 (0.41)	27 (0.04)
Backchannel	10 (0.07)	29 (0.14)	155 (0.46)	260 (1.13)
Reported speech	0 (0.00)	2 (0.01)	20 (0.06)	13 (0.09)
Agreement	9 (0.05)	1 (0.002)	31 (0.09)	8 (0.03)
Total	267 (1.67)	76 (0.37)	749 (2.32)	420 (1.67)

Note. Frq, Frequency, Rate, Mean rate per 1000 words.

6. Effects of role and age on *okay* use in Swiss German interviews

6.1. Data preparation and statistical analyses

Remarks from the original transcripts were removed so that the final transcripts only included the utterances produced during the interview. The corpus was then divided into ten deciles based on the total number of turns produced. All occurrences of *okay* in the corpus were attributed to a decile and to a speaker (i.e., the interviewer or the respondent). We excluded all instances of *okay* used in reported speech and agreement functions because these are not related to coordinating interaction. We collapsed the two types of vertical functions, closing side sequence and transition, into a single category

(hereafter: transition). This resulted in the creation of a database of *okay* instances used either as transitions (vertical project markers) or backchannels (horizontal project markers).

According to Hypothesis 1, *okay* should appear more often than expected by chance at the beginning and end of a joint action (i.e., an interview), consistent with its role in openings and closings. This translates into the prediction that *okay* should be more frequent in the opening and closing deciles of the interview than in the "middle" deciles. Second, *okay* should be used more often than expected by chance in a transition function and less often in a backchannel function. To investigate Research Questions 1 and 2, we further examine the effect of participant role (interviewer versus respondent) and respondent age (we only had three interviewers, so we were not able to test the effect of their age). We ran three analyses. The first two analyses tested whether the participants' role and the decile affect the probability that one of the participants would produce *okay* (6.2.1) and the probability that *okay* would be used in a backchannel function (versus a transition function, 6.2.2). The third analysis (6.2.3, which only included the respondent data) tested whether the participants' age and the decile affect the probability that one of the participants would produce *okay*. Given the predictions about the frequency of *okay* at the beginning or end of the interview, we modelled the effect of decile as a linear and as a quadratic trend (to account for the fact that *okay* may appear more often at the beginning and at the end of interviews). All predictor variables were mean-centred prior to analyses. Moreover, age was modelled as a categorical variable in this set of analyses, as our participants were sampled according to three age groups (around 25, 50 and 75 years of age).

We used logistic mixed models (SAS OnDemand for Academics, GLIMMIX procedure). Mixed models were chosen because each interview involved two people (the interviewer and the respondent) and because each interviewer took part in several interviews. Logistic models were used because the outcome variable was binary (i.e., it was either the probability of producing *okay*, or the probability of using *okay* in a backchannel function). The mixed models included both fixed effects (i.e., the effects of interest), but also random intercepts (to account for variability across analysis units) and random slopes (to account for variability in the units' sensitivity to the independent variables included in the analyses). Following Barr et al. (2013), we started by including the maximal random effect structure justified by the design. However, not all random effects contribute significantly to the model. In such cases, the random effects which do not contribute to the model may be removed without affecting the model parameters (keeping them in the analysis would cause the model to fail to converge; Kiernan et al., 2012). Thus, the results reported hereafter correspond to the models from which such random effects were removed. The final random effects structures used in all analyses are reported in Appendix A. Furthermore, the number of data points varied a lot across participants. Indeed, in this study, the number of data points corresponded to the number of speech turns in each interview, which varied across interviewer-respondent dyads. We addressed this issue by correcting the degrees of freedom in the analyses using Satterthwaite's correction (Keselman et al., 1999; Satterthwaite, 1946).

6.2. Results

6.2.1. Effects of role and decile on the probability of producing okay

The analysis revealed a significant effect of role: Interviewers were more likely to produce *okay* than respondents. The analysis also revealed a significant negative linear trend and a significant positive quadratic trend, indicating that the probability of producing *okay* tended to decrease over the interview, but increase again towards the end. Finally, the analysis revealed a significant role-by-quadratic-trend interaction, indicating that the quadratic trend was stronger for the interviewer than for the respondent. See Fig. 1 for the probability of producing *okay* by role and decile, and Table 2 for the model parameters. These results support Hypothesis 1: *okay* is more frequent near the beginning and end of the interview than in the middle. Further, they answer Research Question 1, because interviewers produce *okay* more often than respondents, and especially so near the beginning and end of interviews.

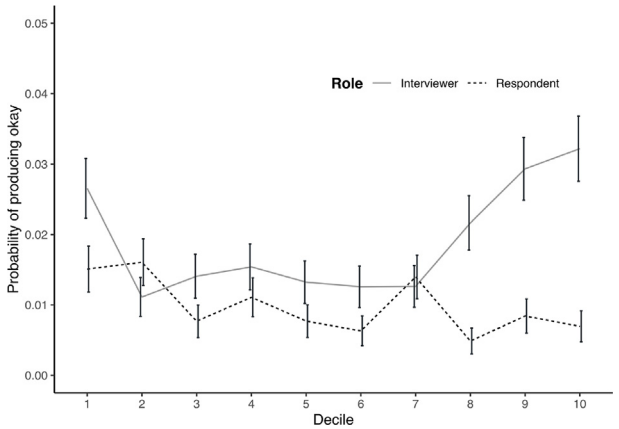

Fig. 1. Probability of producing *okay* as a function of role and decile in the Swiss German corpus. *Note*. Error bars represent ±1 SE.

Table 2
Model parameters for mixed logistic regression testing the effects of role and decile on the probability of producing *okay* in the Swiss German corpus.

Effect	*Df*	*F*	*B*	*SE*	*P*
Intercept	–	–	−4.53	0.49	<0.001
Role (baseline value: interviewer)	1, 28,613	35.64	−0.65	0.11	<0.001
Decile (linear trend)	1, 28,613	14.01	−0.39	0.10	<0.001
Decile (quadratic trend)	1, 28,613	13.10	0.04	0.01	<0.001
Role * linear trend	1, 28,613	1.28	0.18	0.16	0.258
Role * quadratic trend	1, 28,613	3.99	−0.03	0.01	0.046

6.2.2. Effects of role and decile on the probability of using okay as a backchannel

The analysis revealed only a significant effect of role. Respondents were more likely to use *okay* as a backchannel, i.e., a horizontal transition marker, than interviewers. See Fig. 2 for the probability of using *okay* as a backchannel by role and decile, and Table 3 for the model parameters. These results answer Research Question 1, suggesting that *okay* is used more often as a vertical transition marker by institutional representatives. Fig. 2 further suggests that respondents and interviewers tend to use *okay* as backchannels in different parts of the interview (interviewers more in Decile 3 and respondents more in Deciles 6–8).

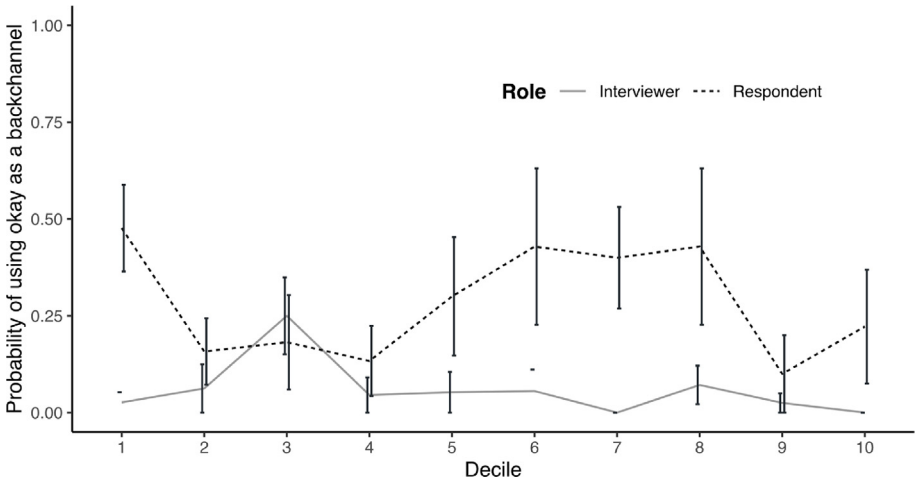

Fig. 2. Probability of using *okay* as a backchannel as a function of role and decile in the Swiss German Corpus. *Note*. Error bars represent ±1 SE.

Table 3
Model parameters for mixed logistic regression testing the effects of role and decile on the probability of using *okay* as a backchannel in the Swiss German corpus.

Effect	*df*	*F*	*B*	*SE*	*P*
Intercept	–	–	−3.190	0.59	0.323
Role (baseline value: interviewer)	1, 201	28.19	2.58	0.49	<0.001
Decile (linear trend)	1, 380	0.17	0.31	0.49	0.682
Decile (quadratic trend)	1, 380	0.68	−0.05	0.05	0.412
Role * linear trend	1, 380	0.44	−0.39	0.59	0.508
Role * quadratic trend	1, 380	0.85	0.05	0.06	0.356

6.2.3. Effects of respondent age and decile on the probability of producing okay

Only the respondent data were included in this analysis, which revealed only a significant effect of age: respondents around 25 years old and around 50 years old were significantly more likely to produce *okay* than respondents around 75 years old. See Fig. 3 for the probability of producing *okay* by age and decile and Table 4 for model parameters. An additional Bonferroni-corrected pairwise comparison revealed no significant difference between respondents around 25 years old and around 50 years old, $t(85) = 1.30$, corrected $p = 0.588$. That is, younger respondents (around 25 and 50 years old) used *okay* more often than older respondents, answering Research Question 2.

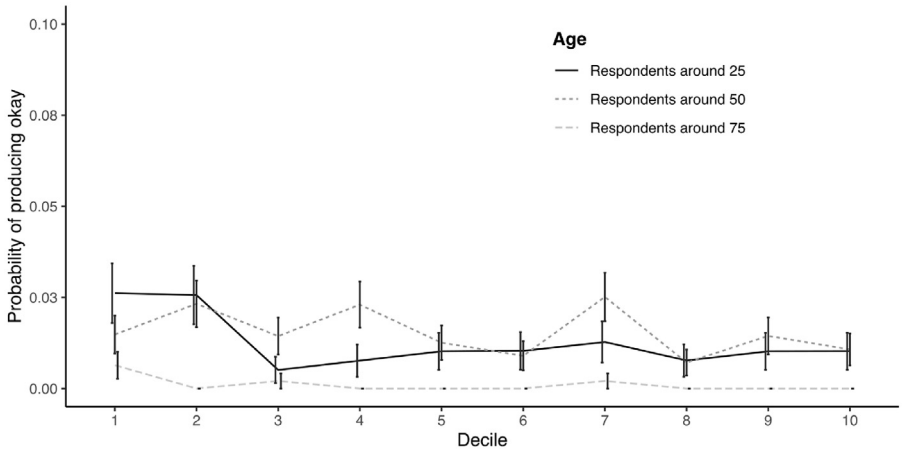

Fig. 3. Probability of producing *okay* as a function of age and decile in the Swiss German corpus. *Note*. Error bars represent ±1 SE.

Table 4
Model parameters for mixed logistic regression testing the effects of age and decile on the probability of producing *okay* (respondent data) in the Swiss German corpus.

Effect	*Df*	*F*	*b*	*SE*	*P*
Intercept	–	–	−7.75	1.12	<0.001
Age 25 (baseline value: 75)	2, 146	4.73	2.92	0.96	0.010
Age 50 (baseline value: 75)	–	–	2.17	0.98	–
Decile (linear trend)	1, 14,274	3.74	−1.03	0.73	0.053
Decile (quadratic trend)	1, 14,274	1.39	0.07	0.08	0.238
Age 25 * linear trend	2, 14,274	2.43	0.54	0.76	0.088
Age 50 * linear trend			1.06	0.75	–
Age 25 * quadratic trend	2, 14,274	1.79	−0.03	0.08	0.168
Age 50 * quadratic trend	–	–	−0.07	0.08	–

6.3. Discussion

Interviewers used *okay* significantly more often than respondents. We found (Hypothesis 1) that *okay* is consistently used in vertical transitions, at two different levels. First, *okay* is used more often at the beginning and end of the interviews, suggesting a function in opening and closing the interview as a whole. This finding is particularly strong for interviewers (Research Question 1). Second, *okay* is less likely to be used as a backchannel (and thus more likely to be used in transitions) by interviewers than by respondents, supporting Hypothesis 1 for interviewers, and further suggesting evidence of a division of labor between interviewers and respondents in managing progress in the interview (Research Question 1). We also found evidence that younger respondents use *okay* more often than older respondents, suggesting a potential cohort effect: respondents aged around 25 years used *okay* more than respondents aged around 75 years, and similarly to respondents aged around 50 years. This might suggest that *okay* started to diffuse in German with the middle and youngest cohort (that is, after around 1950–1970). The alternative explanation of an age effect, whereby respondents would use *okay* less and less often as they age, seems implausible – we review this explanation in the General Discussion.

7. Effects of role and age on *okay* use in Swiss French interviews

7.1. Data preparation and statistical analyses

In a previous study on this data (Brosy et al., 2020), interview transcripts were divided into seven phases (opening, applicant self-presentation, question-answer, organization presentation, simulation, applicant questions, closing). The coding system was reliable (inter-rater agreement was assessed by double-coding 14 interviews, Cohen's kappa = 0.79). Each speaker turn was attributed to one of the seven phases. Four phases were present during almost all 80 interviews: opening, question-answering, applicant's questions and closing. The other three phases occurred occasionally. We used this coding as an independently derived measure of large vertical transitions, or shifts between phases, with which to test Hypothesis 1. Because shifts can take more than one turn to coordinate, and because okay may get produced at different positions in such a process, we operationalized a shift as consisting of the two-turn stretch including the last turn of a given phase and the first turn of the next phase. Each turn in the interview transcripts thus featured either the presence (=1) or absence (=0) of a shift.

In addition, unlike in the Swiss German corpus, we were able to take the interviewers' age into account (as well as the applicants' age), because the interviews were conducted by 31 different interviewers aged between 29 and 58. Further, because the participants (applicants and interviewers) were more continuously distributed than in the Swiss German corpus, we were able to model age as a continuous variable (instead of a categorical variable, as we did for applicant age in the Swiss German corpus), which was centred for the purpose of this analysis. Thus, the analyses were conducted following a slightly different rationale than for the Swiss German corpus. We ran four analyses. The first two analyses focused on the use of *okay* in speech turns which featured a shift or not. They examined whether the presence of a shift between phases, the participants' role and the participants' age affect the probability that one of the participants would produce *okay* (7.2.1) and the probability that one of the participants would use *okay* in a backchannel function (versus a transition function, 7.2.2). The other two analyses followed the same rationale as the Swiss German corpus. They examined whether the decile (linear and quadratic functions, all predictor variables were mean-centred prior to analyses), the participants' role and the participants' age affect the probability that one of the participants would produce *okay* (7.2.3) and the probability that one of the participants would use *okay* in a backchannel function (versus a transition function, 7.2.4).

Importantly, when examining the corpus, we found that one of the interviewers, who took part in 30 interviews, produced a very high number of *okays* (380), that is, more than half of all interviewer-produced *okays*. In order to avoid biasing our findings, we decided to remove this interviewer's data from the analysis. The results reported hereafter thus correspond to a dataset from which this interviewer is absent. We also report the results based on the full dataset (i.e., the dataset which also includes the data from this interviewer) in Appendix B.

7.2. Results

7.2.1. Effects of shift, role and age on the probability of producing okay

The analysis revealed a significant effect of shift: participants were more likely to produce *okay* in the presence of a shift than in the absence of a shift. The analysis also revealed a significant shift-by-role interaction, indicating that the difference between shift and non-shift turns was stronger for interviewers than for applicants. See Fig. 4 for the probability of producing *okay* by shift and role, and Table 5 for model parameters. Finally, there was a significant role-by-age interaction, indicating that for interviewers, the probability of producing *okay* increased as age increased, whereas for applicants, the probability of producing *okay* decreased as age increased (Fig. 5). These results support Hypothesis 1, and suggest an answer to Research Question 1 about the division of labor between interviewers and applicants.

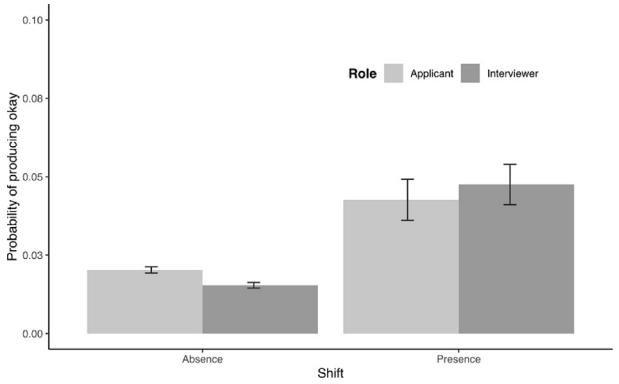

Fig. 4. Probability of producing *okay* as a function of role and shift in the Swiss French corpus. *Note*. Error bars represent ±1 SE.

Table 5
Model parameters for mixed logistic regression testing the effects of role, shift and age on the probability of producing *okay* in the Swiss French corpus.

Effect	*Df*	*F*	*B*	*SE*	*P*
Intercept	–	–	−4.80	0.14	<0.001
Role (baseline value: interviewer)	1, 175	0.08	0.42	0.19	0.783
Shift (baseline value: absence of a shift)	1, 110	45.05	1.55	0.21	<0.001
Age	1, 290	1.98	0.05	0.01	0.160
Role * shift	1, 187	5.60	−0.73	0.30	0.019
Age * role	1, 311	10.91	−0.06	0.01	0.001
Age * shift	1, 180	0.62	−0.01	0.02	0.433
Age * role * shift	1, 175	0.19	0.01	0.02	0.661

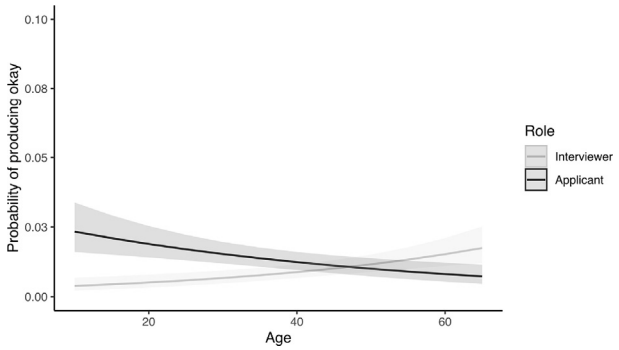

Fig. 5. Interaction effect of age and role on the probability of producing *okay* in the Swiss French corpus. *Note*. Shaded areas represent 95% CI. Curves represent predicted values.

7.2.2. *Effects of shift and role on the probability of using okay as a backchannel*

The analysis revealed only a significant effect of role. Applicants were more likely to use *okay* as a backchannel, i.e., a horizontal transition marker, than interviewers. See Fig. 6 for the probability of using *okay* as a backchannel by role and shift, and Table 6 for the model parameters. The results suggest an answer to Research Question 1: Okay is less likely to be used as a backchannel by interviewers, in keeping with their institutional role in managing the interaction.

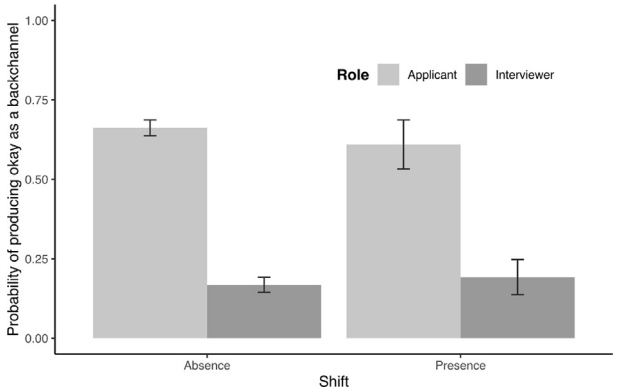

Fig. 6. Probability of using *okay* as a backchannel as a function of role and shift in the Swiss French corpus. *Note*. Error bars represent ±1 SE.

Table 6
Model parameters for mixed logistic regression testing the effects of role, shift and age on the probability of using *okay* as a backchannel in the Swiss French corpus.

Effect	*Df*	*F*	*b*	*SE*	*P*
Intercept	–	–	−1.64	0.22	<0.001
Role (baseline value: interviewer)	1, 140	52.54	2.40	0.27	<0.001
Shift (baseline value: absence of a shift)	1, 212	0.04	0.14	0.43	0.837
Role * shift	1, 214	0.45	−0.40	0.59	0.501

7.2.3. *Effects of role and decile on the probability of producing okay*

The analysis revealed a significant positive linear trend and a significant positive quadratic trend, indicating that the probability of producing *okay* increased across the interaction, especially towards the end. The analysis also revealed a significant role-by-linear trend interaction, indicating a weaker linear trend for applicants than interviewers. However, the analysis also revealed a significant role-by-quadratic trend interaction, indicating a stronger quadratic trend for applicants than interviewers. See Fig. 7 for the probability of producing *okay* by role and decile, and Table 7 for model parameters.

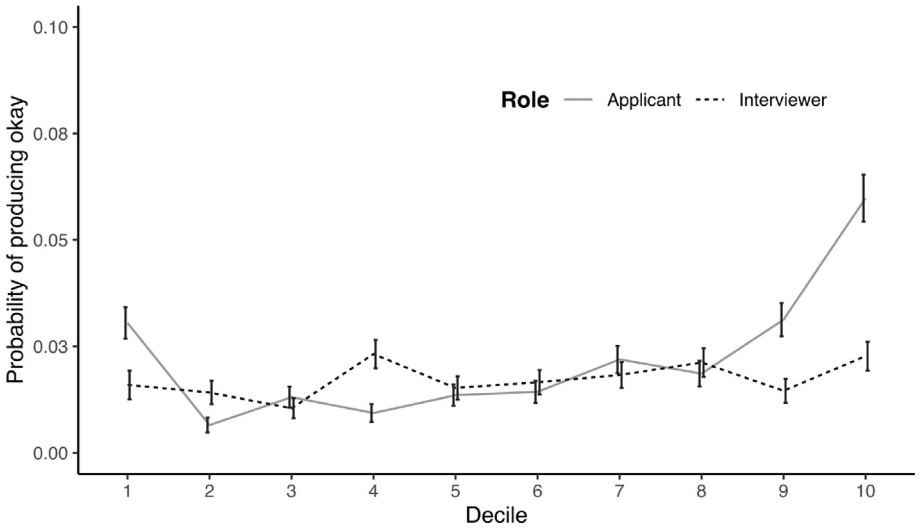

Fig. 7. Probability of producing *okay* as a function of role and decile in the Swiss French corpus. *Note*. Error bars represent ±1 SE.

Table 7
Model parameters for mixed logistic regression testing the effects of role, decile and age on the probability of producing *okay* in the Swiss French corpus.

Effect	*Df*	*F*	*B*	*SE*	*P*
Intercept	–	–	−4.53	0.14	<0.001
Role (baseline value: interviewer)	1, 79	1.05	0.17	0.17	0.308
Decile (linear trend)	1, 39,596	18.90	0.01	0.10	<0.001
Decile (quadratic trend)	1, 39,596	33.65	<0.01	<0.01	<0.001
Role * linear trend	1, 39,596	19.78	−0.54	0.12	<0.001
Role * quadratic trend	1, 39,596	28.60	0.06	0.01	<0.001

7.2.4. Effects of role and decile on the probability of using okay as a backchannel

The analysis revealed a significant effect of role. Applicants were more likely to use *okay* as a backchannel than interviewers. The analysis also revealed a significant negative linear trend and a significant positive quadratic trend, indicating that the probability of using *okay* as a backchannel tended to decrease over the interview, but to increase again towards the end. See Fig. 8 for the probability of using *okay* as a backchannel by role and decile, and Table 8 for the model parameters.

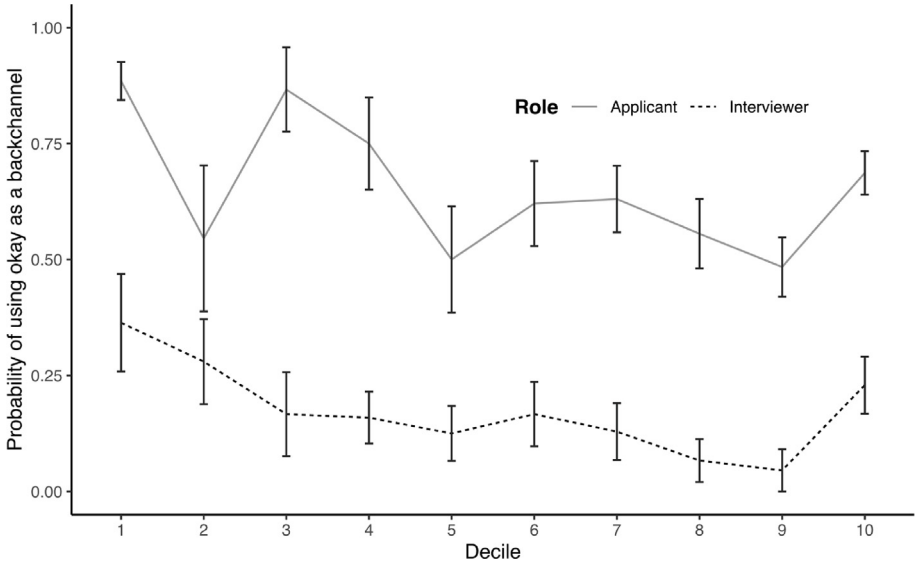

Fig. 8. Probability of using *okay* as a backchannel as a function of role and decile in the Swiss French corpus. *Note*. Error bars represent ±1 SE.

Table 8
Model parameters for mixed logistic regression testing the effects of role and decile on the probability of using *okay* as a backchannel in the Swiss French corpus.

Effect	*Df*	*F*	*b*	*SE*	*P*
Intercept	–	–	−1.62	0.20	<0.001
Role (baseline value: interviewer)	1, 98	87.75	2.37	0.25	<0.001
Decile (linear trend)	1, 704	13.72	−0.64	0.26	<0.001
Decile (quadratic trend)	1, 704	10.26	0.05	0.02	0.001
Role * linear trend	1, 704	0.08	0.09	0.32	0.778
Role * quadratic trend	1, 704	0.18	−0.01	0.03	0.674

7.3. Discussion

We found no evidence that interviewers used *okay* more often than applicants. However, we found (Hypothesis 1) that *okay* is consistently used in vertical transitions, at two different levels. First, *okay* is used more often at the beginning and end of the interviews, suggesting a function in opening and closing the interview as a whole. Second, *okay* appears significantly more often during shifts from one interview phase to another. Third, *okay* is less likely to be used as a backchannel (and thus more likely to be used in transitions) by interviewers than by applicants, supporting Hypothesis 1 for interviewers, and further suggesting evidence of a division of labor between interviewers and applicants in managing progress in the interview (Research Question 1). Contrary to our expectations (and contrary to the Swiss German corpus findings), we found that the quadratic trend for using *okay* was stronger for applicants than for interviewers. However, this may be due to the fact that the job interviews often featured a final administrative phase where interviewers explained details of the position to applicants. Applicants were thus primarily in a listening role during this phase and accordingly produced a lot of backchannels to acknowledge these explanations in the final deciles of the interview. Some of these may have been *okay*s. This explanation is corroborated by the quadratic trend for applicants in using *okay* as a backchannel (70% probability of producing okay as a backchannel in decile 10, see Fig. 7). We also found age effects (Research Question 2), which differed depending on the participants' roles. Applicants' use of *okay* decreased with age, whereas interviewers' use of *okay* increased with age. The age effect for applicants is thus consistent with the idea that *okay* may have diffused in Swiss French in the past decades, i.e., a cohort effect in actuality. The age effect for interviewers apparently contradicts this idea. However, interviewers are institutional representatives, and their age may correlate with their seniority. More senior interviewers may be higher in rank, and thus take a more active role in managing the interview. This may increase their use of *okay*, thus masking the cohort effect of diffusion. Note also that interviewers are on average older than applicants (mean age 45 versus 34 years).

As mentioned in the methods section, one of the interviewers in the Swiss French corpus produced a very large number of *okays*, which led us to remove the data from this interviewer from the main analysis. An additional analysis, in which these data were included, is reported in Appendix B. The two analyses led to a very similar pattern of results, as only two differences were found. First, the main effect of age on the probability of producing okay was non-significant in the main analysis, but this effect was significant in the additional analysis: participants were more likely to produce *okay* as their age increased. Because our verbose interviewer was older than most of the applicants, this finding is most likely due to this interviewer producing more *okays* than applicants. Second, the probability of producing *okay* over deciles followed a positive linear (and quadratic) trend. In the main analysis, this linear trend was stronger for interviewers than for applicants, whereas in the additional analysis, the linear trend was stronger for applicants than for interviewers, suggesting that the verbose interviewer presented a particularly strong positive linear trend (i.e., the probability of producing *okay* increased over the interaction). Interestingly, these two differences only concerned the probability of producing *okay*, and not how it was used (i.e., backchannel vs. vertical transition), suggesting that the decision to exclude this interviewer did not affect the main results relevant to our hypothesis and research questions. If anything, the interviewer's data constitutes an extreme example of how institutional representatives use *okay*, speaking to Research Question 2.

8. General discussion

We investigated how *okay* is used in interviews in Swiss German and Swiss French. Interviews are structured social interactions conducted in institutional settings between institutional representatives (the interviewers) and "laypersons" (research participants in the Swiss German corpus and job applicants in the Swiss French corpus). The structured nature of these interactions enabled us to test Hypothesis 1 that *okay* would be specialized for marking vertical transitions in both languages. They also allowed us to investigate Research Question 1 on a potential division of labor between institutional representatives and laypersons in using *okay* as a vertical transition marker. Further, because participants varied widely in their age, we were able to investigate Research Question 2 about the potential temporality of the diffusion of *okay* in Swiss German and Swiss French.

Okay was consistently used as a vertical transition marker in both languages, supporting Hypothesis 1. This was observable in three ways: (1) *okay* was used more often in the opening and closing deciles of the interviews, (2) in the vicinity of ad hoc coded transitions from one part of the interview to another, and (3) in the vicinity of large-scale shifts between job interview phases in the Swiss French corpus. Further, we observed a division of labor in both languages, thus answering Research

Question 2, with interviewers using *okay* more often in vertical functions than respondents and applicants (who tended to use *okay* more as a backchannel). Finally, we found evidence that participants of different ages use *okay* differently, thus suggesting a potential cohort effect and evidence for the temporality of *okay* diffusing in Swiss German and Swiss French. We located this period at around 1950–1970 for respondents in the Swiss German cohort, for which the data was collected in 1997–1998. In the Swiss French corpus, we also found that applicants used *okay* less with increasing age. In that corpus (data collected 2015–2017), the oldest applicants are of comparable age to the youngest cohort in the Swiss German corpus. Interestingly, the likelihood of producing *okay* (Fig. 5) for older participants in the Swiss French corpus is similar to the likelihood of producing *okay* for the comparable (youngest) cohort in the Swiss German corpus (Fig. 3). This suggests a roughly similar period of diffusion for *okay* as a vertical transition marker in both Swiss French and Swiss German. Of course, these languages are strongly interrelated because they are geographically close and share a common (Swiss) culture. Thus, the diffusion may have been interrelated as well.

Our findings make several important contributions to the literature. First, they support the account of Bangerter and Clark (2003) for languages other than English and for naturalistic (non-experimental) structured conversations in institutional settings. *Okay* seems to be part of a conventional system of contrasts for distinguishing "smaller", horizontal transitions (next steps within a task or sub-task) from "larger", vertical transitions (shifts between one sub-task or task and another) in English, Swiss French and Swiss German. This opens up the question of whether similar systems may be found in other languages (with or without the use of *okay*). If that is the case, such a system of contrasts may be potentially universal, constituting a component of the human interaction engine (Levinson, 2006). Future research should investigate this possibility by collecting data on the coordination of structured joint action in comparable tasks across languages. Tasks with similar goal structures (e.g., Clark and Wilkes-Gibbs, 1986, Clark and Krych, 2003) and thus similar affordances for horizontal and vertical transitions allow more direct comparisons in the use of speech particles across languages. Because such studies are difficult to conduct, entailing the replication of the task in different cultural settings, the number of languages that can be directly compared is limited. It is thus especially important to sample non-Indo-European languages or languages that are as typologically diverse as possible (Stoll and Bickel, 2013).

Second, our findings further our understanding of the use of *okay* by institutional representatives (Betz and Sorjonen, 2021) in the fine-grained management of the agenda and progress in institutional conversation (Ostermann and Harjunpää, 2021). Beyond marking the hierarchical structure of joint action, *okay* thus also indexes the roles of participants in those joint actions. This raises interesting possibilities for automatic detection of role, status or hierarchy from speech. While quite a lot is known about linguistic or paralinguistic correlates of power (e.g., speaking time, Schmid Mast, 2002; powerful and powerless speech styles, Ng and Bradac, 1993) in social interactions, they tend to be more related to interpersonal dominance. *Okay* may serve as a more task-related indicator of control (Bradac et al., 1994) over an interactional agenda. For example, although dominance and speaking time are associated (Schmid Mast, 2002), in our data, interviewers spoke less than interviewees. Thus, their use of *okay* is a much stronger predictor of their role in controlling the interview than their speaking time. *Okay* might thus constitute a potential marker for analyzing social interactions like team collaboration processes (Mastrogiacomo et al., 2014).

Our study has some limitations. One limitation is our exclusive reliance on textual data. Joint action coordination is multimodal (Kendrick et al., 2023; Mondada, 2019; Rasenberg et al., 2022). In particular, prosodic variations in the production of *okay* may modulate its meaning (Col et al., 2019; Couper-Kuhlen, 2021b; Hockey, 1993) and thus lead to other conclusions about whether specific instances of *okay* have horizontal or vertical functions. For instance, some cases of *okay* classified as horizontal may have prosodic features that actually signal vertical transitions, or vice versa. Alternatively, prosodic features may converge with textual features, that is, the acoustic profile of *okay* may differ systematically depending on whether it is used in a horizontal or vertical transition function. Finally, the evolution of prosody over time may also impact the meaning of *okay* in diffusion. Future research should investigate the multimodal production of *okay* in context in a quantitative manner, because the complex and graded nature of acoustic signals may escape qualitative analyses (e.g., Hockey, 1993).

A second limitation is the fact that our conclusions are based on analyses of the distribution of *okay* in specific discourse contexts (vertical versus horizontal transitions). We have not analyzed the fine-grained relations between *okay* and other aspects of the linguistic or extralinguistic context. Such analyses are the hallmark of more micro-focused, qualitative approaches of which conversation analysis is a prominent representative (Betz et al., 2021). One aspect of this is the frequent repetition or co-occurrence of *okay* with other speech particles. Thus, it will be crucial to investigate this co-presence in other languages. This might help us understand the place of *okay* in the local linguistic system, but also its selection as a marker with a specific function in this system.

Both of these limitations follow from our quantitative analytical strategy, which has allowed us to identify robust findings in a large data set. Our analyses would have been intractable had we integrated more fine-grained analyses based on prosody or micro-context. Indeed, we view our analytical strategy as complementary to the other approaches mentioned.

A third limitation of our study is that our conclusions about the temporality of the diffusion of *okay* are based on differences in the use of *okay* as a function of participants' age. This rests on the assumption that age grading effects are in reality cohort effects (Cheshire, 2005). That is, we assume that participants' choices of words reflect preferences they acquired during their socialization, and that these preferences remain relatively invariant over their life course. The alternative explanation consists in treating these differences as an effect of age (i.e., participants use *okay* less and less often as they grow older, perhaps because of socialization pressures associated with the transition to adulthood, e.g., Schleef and Flynn, 2015). We consider this explanation to be less plausible because *okay* does not seem to be strongly associated with an age group

vernacular. However, strictly speaking, our data do not allow us to distinguish between age-based and cohort-based explanations, i.e., between language change and age grading. Future research would ideally collect data on participants from at least two cohorts at two different points in time (i.e., repeating data collection on the same participants) to resolve this problem (Schaie, 1965). We recognize that collecting such data is extremely time-consuming, however.

In sum, our work contributes to a better understanding of the diffusion of *okay* in two different languages: Swiss French and Swiss German. We have shown that *okay* has diffused in these languages as a marker for coordinating transitions across joint projects. We have also documented how each participant's institutional role in the dyad, as well as their age, affect the production of *okay.*

CRediT authorship contribution statement

Adrian Bangerter: Writing – review & editing, Writing – original draft, Validation, Supervision, Resources, Project administration, Methodology, Investigation, Data curation, Conceptualization. **Dominique Knutsen:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Methodology, Formal analysis, Data curation, Conceptualization. **Elisabeth Germanier:** Writing – review & editing, Visualization, Validation, Software, Methodology, Formal analysis, Data curation. **Gilles Col:** Writing – review & editing, Writing – original draft, Methodology, Data curation, Conceptualization. **Julie Brosy:** Writing – review & editing, Investigation, Data curation.

Declaration of competing interest

None.

Data availability

Data will be made available on request.

Appendix A. Random effects structures of the mixed logistic models

Table A1
Random effects structures used in the analyses – Swiss German Corpus.

Analysis	Random effect	Estimate	SD
6.2.1 Effect of role and decile on the probability of producing *okay*	By-interviewer random intercepts	0.85	0.82
	By-candidate random intercepts	0.89	0.19
6.2.2. Effect of role and decile on the probability of using *okay* as a backchannel	By-interviewer random intercepts	0.64	0.75
	By-candidate random intercepts	0.99	0.64
6.2.3. Effect of age and decile on the probability of producing *okay*	By-interviewer random intercepts	1.85	1.90
	By-candidate random intercepts	2.03	0.54

Table A2
Random effects structures used in the analyses – Swiss French corpus (analysis reported in the main manuscript, from which one of the interviewers was excluded).

Analysis	Random effect	Estimate	SD
7.2.1. Effect of shift, role and age on the probability of producing *okay*	By-group random intercepts	0.10	0.20
	By-group random slopes corresponding to role	0.13	0.24
	By-group random slopes corresponding to shift	0.27	0.15
	By-participant random intercepts	0.56	0.25
	By-participant random slopes corresponding to shift	0.08	0.14
7.2.2. Effect of shift and role on the probability of using *okay* as a backchannel	By-group random slopes corresponding to role	0.12	0.32
	By-participant random slopes corresponding to shift	0.47	0.36
7.2.3. Effect of role and decile on the probability of producing *okay*	By-group random intercepts	0.41	0.18
	By-group random slopes corresponding to role	0.30	0.22
	By-participant random intercepts	0.49	0.18
	By-participants random slopes corresponding to quadratic trend	<0.01	<0.01
7.2.4. Effect of role and decile on the probability of using *okay* as a backchannel	By-group random slopes corresponding to role	0.35	0.16
	By-group random slopes corresponding to quadratic trend	<0.01	<0.01
	By-participant random slope corresponding to linear trend	0.03	0.02

Table A3
Random effects structures used in the analyses – Swiss French corpus (analyses reported in the appendix, in which all data from all interviewers were included).

Analysis	Random effect	Estimate	SD
7.2.1. Effect of shift, role and age on the probability of producing *okay*	By-group random intercepts	0.12	0.16
	By-group random slopes corresponding to role	0.05	0.17
	By-group random slopes corresponding to shift	0.12	0.10
	By-participant random intercepts	0.64	0.20
	By-participant random slopes corresponding to shift	0.08	0.11
7.2.2. Effect of shift and role on the probability of using *okay* as a backchannel	By-group random slopes corresponding to role	0.37	0.21
	By-participant random slopes corresponding to shift	0.15	0.20
7.2.3. Effect of role and decile on the probability of producing *okay*	By-group random intercepts	0.30	0.16
	By-group random slopes corresponding to role	0.21	0.19
	By-participant random intercepts	0.68	0.16
	By-participant random slopes corresponding to quadratic trend	<0.01	<0.01
7.2.4. Effect of role and decile on the probability of using *okay* as a backchannel	By-group random slopes corresponding to role	0.41	0.14
	By-group random slopes corresponding to quadratic trend	<0.01	<0.01
	By-group random slopes corresponding to quadratic trend	<0.01	<0.01

Appendix B. Results for the Swiss French corpus including the additional interviewer

1. Effect of shift, role and age on the probability of producing okay

The analysis revealed a significant effect of shift: participants were more likely to produce *okay* in the presence of a shift than in the absence of a shift. The analysis also revealed a significant effect of age: the probability that the participants would use *okay* increased as their age increased. There was also a significant role * shift interaction (*okay* was more likely to be produced in the presence of a shift, but this was especially true for interviewers) and a significant age * role interaction (the probability of producing *okay* increased with age for interviewers, but decreased with age for candidates). See Figure B1 for the probability of producing *okay* by shift and role, and Table B1 for model parameters.

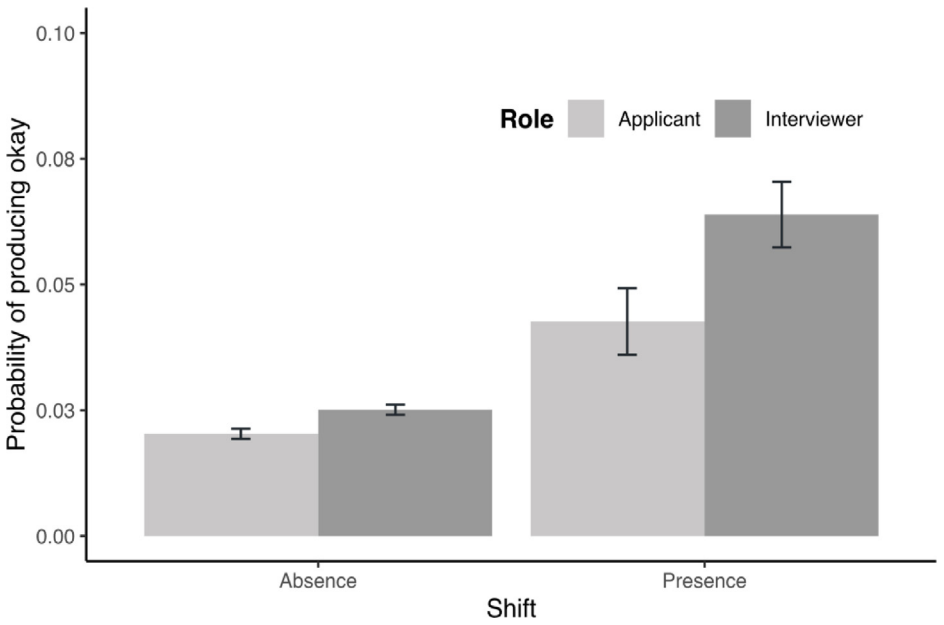

Fig. B1. Probability of producing *okay* as a function of role and shift in the Swiss French corpus. *Note.* Error bars represent ±1 SE.

Table B1
Model parameters for mixed logistic regression testing the effects of role, shift and age on the probability of producing *okay* in the Swiss French corpus.

Effect	*df*	*F*	*B*	*SE*	*P*
Intercept	–	–	−4.58	0.12	<0.001
Role (baseline value: interviewer)	1, 219	0.25	0.23	0.18	0.617
Shift (baseline value: absence of a shift)	1, 139	48.57	1.43	0.19	<0.001
Age	1, 360	6.96	0.07	0.01	0.009
Role * shift	1, 263	4.98	−0.65	0.29	0.027
Age * role	1, 386	22.14	−0.08	0.01	<0.001
Age * shift	1, 259	1.32	−0.02	0.02	0.252
Age * role * shift	1, 253	0.60	0.02	0.02	0.440

2. Effects of shift and role on the probability of using okay as a backchannel

The analysis revealed a significant effect of role. Candidates were more likely to use *okay* as a backchannel, i.e., a horizontal transition marker, than interviewers. See Figure B2 for the probability of using *okay* as a backchannel by role and shift, and Table B2 for the model parameters.

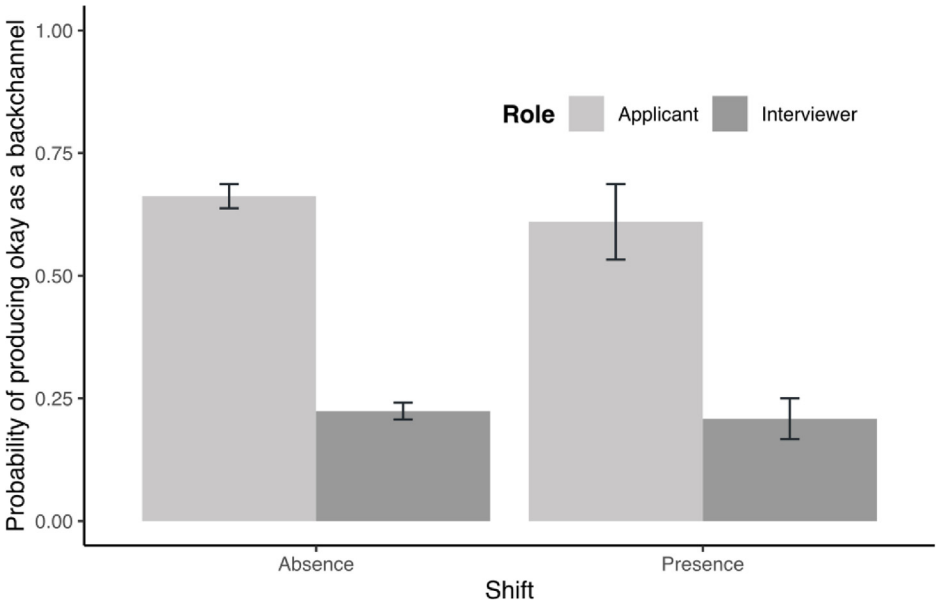

Fig. B2. Probability of using *okay* as a backchannel as a function of role and shift in the Swiss French corpus. *Note*. Error bars represent ±1 SE.

Table B2
Model parameters for mixed logistic regression testing the effects of role, shift and age on the probability of using *okay* as a backchannel in the Swiss French corpus.

Effect	*df*	*F*	*B*	*SE*	*p*
Intercept	–	–	−1.36	0.15	<0.001
Role (baseline value: interviewer)	1, 236	55.17	2.11	0.22	<0.001
Shift (baseline value: absence of a shift)	1, 242	0.74	−0.08	0.29	0.389
Role * shift	1, 243	0.27	−0.25	0.48	0.604

3. Effects of role and decile on the probability of producing okay

The analysis revealed a significant positive linear trend and a significant positive quadratic trend, indicating that the probability of producing *okay* increased across the interaction, especially towards the end. The analysis also revealed a significant role-by-linear trend interaction, indicating a stronger linear trend for applicants than interviewers. Finally, the analysis revealed a significant role-by-quadratic trend interaction, indicating a stronger quadratic trend for applicants than interviewers. See Figure B3 for the probability of producing *okay* by role and decile, and Table B3 for model parameters.

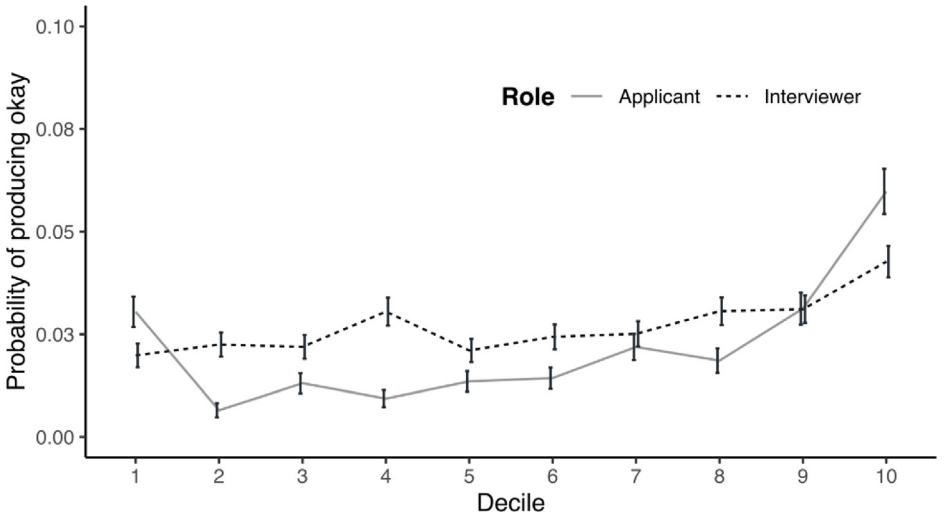

Fig. B3. Probability of producing *okay* as a function of role and decile in the Swiss French corpus. *Note*. Error bars represent ±1 SE.

Table B3
Model parameters for mixed logistic regression testing the effects of role and decile on the probability of producing *okay* in the Swiss French corpus.

Effect	*df*	*F*	*B*	*SE*	*P*
Intercept	–	–	−4.22	0.12	<0.001
Role (baseline value: interviewer)	1, 82	0.71	−0.14	0.16	0.400
Decile (linear trend)	1, 46,710	27.88	0.01	0.06	<0.001
Decile (quadratic trend)	1, 46,710	52.60	<0.01	0.01	<0.001
Role * linear trend	1, 46,710	30.63	−0.55	0.10	<0.001
Role * quadratic trend	1, 46,710	39.90	0.05	0.01	<0.001

4. Effect of role and decile on the probability of using okay as a backchannel

The analysis revealed a significant effect of role. Candidates were more likely to use *okay* as a backchannel than interviewers. The analysis revealed a significant negative linear trend and a significant positive quadratic trend, indicating that the probability of using *okay* as a backchannel tended to decrease over the interview, but to increase again towards the end. See Figure B4 for the probability of using *okay* as a backchannel by role and decile, and Table B4 for model parameters.

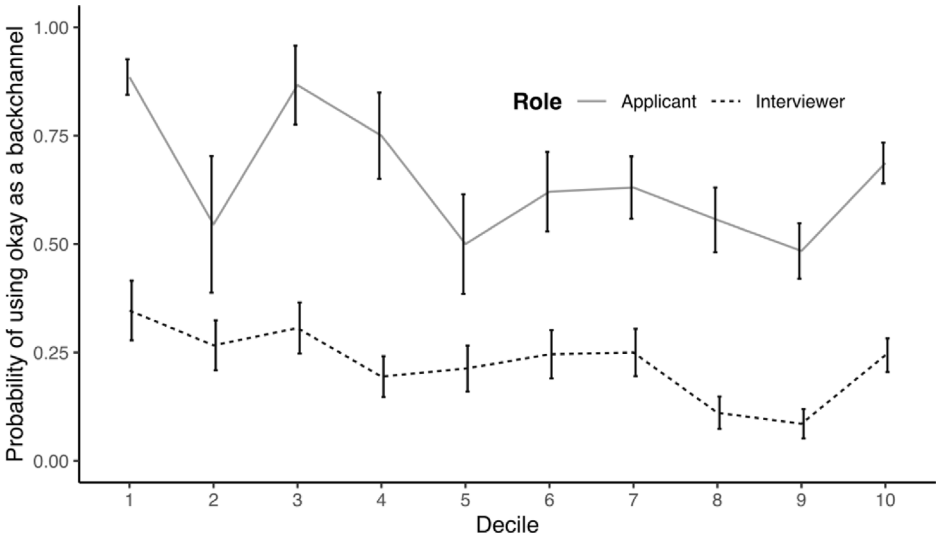

Fig. B4. Probability of using *oka*y as a backchannel as a function of role and decile in the Swiss French corpus. *Note*. Error bars represent ±1 SE.

Table B4
Model parameters for mixed logistic regression testing the effects of role and decile on the probability of using *okay* as a backchannel in the Swiss French Corpus

Effect	*df*	*F*	*B*	*SE*	*P*
Intercept	–	–	−1.39	0.14	<0.001
Role (baseline value: interviewer)	1, 98	101.37	2.13	0.21	<0.001
Decile (linear trend)	1, 1096	10.74	−0.27	0.15	0.001
Decile (quadratic trend)	1, 1096	6.38	0.02	0.01	0.012
Role * linear trend	1, 1096	1.12	−0.26	0.25	0.291
Role * quadratic trend	1, 1096	0.93	0.02	0.02	0.336

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