



King's Research Portal

Document Version
Peer reviewed version

[Link to publication record in King's Research Portal](#)

Citation for published version (APA):
Szczepk Reed, B. (in press). Horse-directed vocalizations: clicks, trills, and /ho:/. *Language & Communication*.

Citing this paper

Please note that where the full-text provided on King's Research Portal is the Author Accepted Manuscript or Post-Print version this may differ from the final Published version. If citing, it is advised that you check and use the publisher's definitive version for pagination, volume/issue, and date of publication details. And where the final published version is provided on the Research Portal, if citing you are again advised to check the publisher's website for any subsequent corrections.

General rights

Copyright and moral rights for the publications made accessible in the Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognize and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the Research Portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the Research Portal

Take down policy

If you believe that this document breaches copyright please contact librarypure@kcl.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

Horse-directed vocalizations: clicks, trills, and /ho:/

Beatrice Szczepek Reed, King's College London

Abstract

The study investigates horse-directed vocalizations in English and German. A corpus of human-horse activities contains clicks, trills, and variants of /ho:/. Horse-directed vocalizations show much phonetic and prosodic variation, which makes them adjustable to local interactional contexts. The largest group are clicks (lateral, dental, bilabial), which are used to ask horses to move faster. Trills (bilabial, alveolar) optionally end in alveolar stops. Their duration, intonation, and overall pitch vary considerably. German and English speakers use trills for opposite interactional purposes (slowing down vs. speeding up). /ho:/-type vocalizations vary with regard to first consonants, vowels, final consonants, duration, and intonation. /ho:/-variants are used to calm and/or slow horses down. Unlike non-lexical vocalizations in human talk, horse-directed vocalizations have specific, conventionalized meanings.

Keywords: *interspecies interaction, horse-riding, prosody, clicks, trills, conversation analysis*

1. Introduction

The language that humans direct at non-human animals has not received much academic attention despite its pervasiveness in human-animal interaction. In linguistics and other language-oriented research, the interest in animal-directed speech has been threefold. A first focus has been to compare it with infant-directed speech (e.g., Hirsh-Pasek and Treiman, 1982; Mitchell and Edmonson, 1999; Mitchell, 2001; Burnham et al., 2002; Xu et al., 2013). Several similarities have been observed, including verbal repetition, simple syntax, and high or low overall pitch. As in human-only talk, linguistic features of animal-directed talk depend on the social context of the interaction. For example, high pitch has been found with human displays of affection for dogs and low pitch with displays of human dominance (Jeannin et al., 2017). It appears that some animals, including horses, respond to 'baby talk' (Lansade et al., 2021); however, Helesiki et al. (2015) show that horses' positive or negative associations with specific tones of voice are learned rather than innate.

A second focus has been on interactions in which humans address animals with talk that is in fact designed for other humans. Here, animals are treated as would-be recipients, or 'thematic resources' (Bergmann, 1988, p. 305), for example, in talk among family members (Tannen, 2004), at the vets (Roberts, 2004), and on dog walks (Torres Cajo and Bahlo, 2016).

A third area of interest has been interspecies interaction, specifically, social interaction between humans and animals. In line with Pennycook's (2018) and Cornips's (2019; 2022) call for an animal turn in linguistics, recent interaction-oriented studies have explored everyday human-animal intercommunication (e.g., Mondémé, 2023a; b; 2024; Peltola and Simonen, 2024; for an overview, see the introduction to this Special Issue). This growing body of work has begun to explore, amongst other things, the verbal language directed at

animals, turn-taking between humans and animals, sequence organization, and haptic interaction. A large gap exists with regard to the sound patterns of interspecies interaction. Exceptions are a small number of interactional studies on human imitations of animal sounds (e.g., Mitchell, 2024) including a recent study on interspecies prosodic matching (Harjunpää, 2022), and an analysis of prosody as a resource for interspecies recipient design (Szczepek Reed, 2023a). Alongside other pieces in this Special Issue, the present research contributes to this emerging field by mapping the sounds with which humans address horses. In addition to investigating the phonetic and prosodic forms of horse-directed vocalizations, the study explores how humans deploy vocal sounds when they are not constrained by the grammar, lexis, and phonology of a given human language; and how such sounds contribute to humans' and animals' joint accomplishment of interspecies interaction. Horse-directed vocalizations are not only of interest because they show how humans communicate vocally with horses, but also because they allow linguists to observe how humans systematically adapt and appropriate sound patterns, including those outside their own language systems (see also Rasenberg et al., 2023).

2. Non-lexical vocalizations

At first sight, the sound patterns reported below may appear to fall into a group of language forms that linguists have referred to as 'non-lexical vocalizations' (Keevallik and Ogden, 2020a; b), a sub-group of 'interjections' (Dingemanse, 2023). While the latter include a larger collection of 'uninflected, conventionalised' words that typically stand alone (Dingemanse 2023, p. 477), such as *mhm* but also *Pardon?*, non-lexical vocalizations are 'sounds that are not words in the traditional sense but that nonetheless are treated by participants as meaningful' (Keevallik and Ogden, 2020b, p. 1). Examples include coughs, sniffs, and sighs. Non-lexical vocalizations have been conceptualized as 'liminal' (Dingemanse, 2020) and 'on the margins of language' (Keevallik and Ogden 2020b). They are characterized by considerable flexibility in terms of form and function and have interactional 'ambiguity and deniability' (Dingemanse, 2020, p. 191).

Non-lexical vocalizations in human-only interaction have been the focus of recent studies in Conversation Analysis and related areas. Contributors to a dedicated Special Issue (Keevallik and Ogden, 2020a) explore the interactional uses of clicks, sniffs, whistles, and response cries; other research has investigated swallowing (Ogden, 2021), lip smacks (Wiggins and Keevallik, 2021), sighs (Hoey, 2014), and 'eugh' (Wiggins, 2013). Non-lexical vocalizations have been found to play a role in music instruction (Tolins, 2013) and dance lessons (Keevallik, 2014; 2021; Albert and vom Lehn, 2023). They have been found to index affectivity (Reber, 2012), physical effort (Grahn et al., 2023), and the sensory experiences of others (Keevallik et al., 2023). An important feature of non-lexical vocalizations is that their articulation is often variable. For example, Hofstetter (2020) shows that moans during board games can involve a range of different open vowels.

Clicks, which feature prominently in the analysis below, have been widely asserted to express negative stances in English conversation ('tutting', Ogden, 2020; see overviews in Wright, 2011a and Ogden, 2013). They have also been shown to play a role in the organization of turns and sequences in English (Wright, 2011a; b; Ogden, 2013; 2018) and Mandarin (Li,

2020). Ogden (2020) shows that clicks can stand in for verbal talk, while Keevallik and Ogden (2020b) describe clicks that accompany a gestural depiction. Most of the clicks described in this literature are dental clicks, referred to also as central alveolar clicks; they are the sound that most people will associate with ‘tutting’. Wright (2011a; b) also finds bilabial clicks, which are similar to a kissing sound. Lateral clicks – which are in the majority in this study and are perhaps the most well-known horse-oriented sound – seem to be rare in human-only talk. However, Ogden (2020) identifies a difference between stances expressed through dental and lateral clicks in English when they appear at the end of verbal turns: in that position, dental clicks draw attention to, or intensify the stance expressed in the preceding turn, whereas double lateral clicks can index “collusion” and “self-praise” (p. 80). Ogden argues therefore ‘that some clicks have features that resemble linguistic signs, where forms and meanings are associated in a conventional, arbitrary way’ (ibid.). The arbitrariness of non-lexical sounds will be relevant for the study reported here: the data show that while horse-directed vocalizations are ‘phonetically underspecified’ (Keating, 1988, in Keevallik and Ogden, 2020b), they are nevertheless conventionalized within language communities. For the items described below, the term ‘vocalizations’ (rather than ‘non-lexical vocalizations’) will be used to account for the arbitrary but conventionalized nature of their use, which makes them more lexeme-like than they might appear at first glance.

3. Vocalizations in interspecies interactions

Little research exists on vocalizations directed at animals. Bynon (1976) distinguishes between human sounds that mimic the sounds of other species and those that are ‘arbitrary signals’ (p. 62). In the first group, he includes calls directed at wild animals, for example, during hunting (ibid.). Humans’ imitations of pets’ sounds, such as dog growling, also belong in this category (Mitchell, 2001; 2024; Mondémé, 2018; Harjunpää, 2022). The study presented here is interested in the second group, that is, non-imitative and conventionalized sound patterns. An early collection of linguistic forms for addressing domestic animals was compiled by Bolton (1897a; b), who also focused not on ‘imitations’ but on ‘original sounds adapted to [man’s] own vocal organs’ established ‘by constant repetition’ (p. 65). His long lists of animal-directed sounds from across the world include vocalizations for dogs (hunting-related commands, summoning, driving away, attacking), horses (summoning, speeding up, turning left and right, stopping, quietening), and cattle (summoning, driving herds, driving yoked oxen). Shorter sections are provided on sounds for sheep and goats, pigs, cats, birds (hawks, poultry, ducks, geese, turkeys); and brief mentions are given to calls for ostriches, doves, buffaloes, and elephants. Some forms are partially lexical or lexis-based (such as ‘giddap’ for starting horses, p. 80); however, many other forms appear to be without existing lexical origins, especially those used for animals other than dogs:

...in commanding the movements of the other domestic animals - horses, cattle, sheep, swine, poultry, etc – [man] employs a variety of singular terms never used in speaking to his fellows; these comprise inarticulate sounds and musical calls, besides whistling, chirping, clicking, and other sounds not easily represented by any combination of letters of the English alphabet. (1897a, p. 66-67)

Bolton's impressive inventory, based on his own observations and on international correspondence, is unsurpassed. Beyond this comprehensive compendium, animal-directed vocalizations have not received much attention. An exception are cattle calls, on which there is some research, as identified by Jääskeläinen (forthcoming, this issue). In addition, a small number of typological studies have described what Dingemanse (2023, p.484) calls 'conative interjections', that is, directives addressed at animals. Bynon (1976) investigates the calling of domestic animals in a Berber community of central Morocco (Tamazight). His study, which is based on a single informant, focuses on conventionalized vocalizations for domestic animals in a farming community. Bynon catalogues voice commands for horses, mules, donkeys, camels, cows, sheep, goats, dogs, cats, and fowl. Distinct commands for 'come' and 'go away' exist for all the listed species, but all except cats and fowl also have more nuanced and diverse commands. Each species is shown to have 'its own individual code' (p. 49), which can contain 'sounds totally foreign to the articulatory system of the normal language' (p. 52), including clicks, whistles, and trills. The concept of a 'code' resembles Kohn's (2013) notion of the 'trans-species pidgin', which is further developed in Jääskeläinen (forthcoming, this issue).

In a related study, Amha (2013) compares directives for humans and animals in Zargulla, Maale, and Wolaitta. She identifies interjectional and imperative forms for starting/continuing, stopping, and resuming movement, as well as for summoning and dispersing animals. Most of these forms appear to be variants of, or based on, lexical forms. Certain suprasegmental features including intonation, duration, and nasalization, are highly variable. More recently, Jääskeläinen (2021) has provided a survey of animal-directed interjections in old Finnish dialects based on written sources. The study lists vocalizations for cows, horses, chickens, cats, dogs, sheep, reindeers, pigs, and goats. While Jääskeläinen refers to interjections as 'animals' own words' (p. 133), the focus is not on imitations of animal sounds but on animal calls more broadly. Jääskeläinen argues that animal-directed vocalizations build intersubjectivity and treat the animal as a 'conversational partner' (p. 139). Finally, three recent studies by Andrason and colleagues investigate 'conative animal calls' (Andrason and Karano, 2021: Arusa Maasai (Tanzania); Andrason and Akumbu, 2024: Babanki and Bum (Cameroon); Andrason, Mulugeta and Mazengia, 2024: Macha Oroma (Ethiopia)). The authors identify semantic-pragmatic, phonetic, morphological, and syntactic features. Their identified forms are partly based on existing lexemes and partly non-lexical. Semantic-pragmatic components include requesting the animal to perform an action involving movement or to give attention to the human, or calming the animal down.

The above-mentioned research is based on authors' personal observations, archives, and other-reported usage rather than on naturally occurring data. Lundgren's (2017) interactional study of Swedish riding lessons mentions 'ptro' as 'a signal to the horse to slow down or calm down' (p. 76, translation by this author), as well as clicking 'when the horse needs to increase the pace or energy level' (ibid.). In addition, a recent study by this author has shown that riding instructors use vocalizations and prosody to design instruction talk for humans and horses in parallel (Szczepk Reed, 2023a).

4. Conceptual approach, methodology, data

The present study aligns conceptually and methodologically with Conversation Analysis (Schegloff, 2007) and Interactional Linguistics (Couper-Kuhlen and Selting, 2018). This means that its claims are based on the observable behaviour (linguistic, embodied) of the human and non-human participants. Human-horse interaction has been the focus of a small number of conversation analytic studies, most of which have focused on riding lessons (Norris, 2012; Lundgren, 2017; Rettig, 2020; 2022; Lundesjö Kwart, 2020; Lundesjö Kwart, and Melander Bowden 2022; Szczepek Reed 2023a; 2023b; 2024a; 2024b; but see also Mondémé, 2023a). Outside of the conversation analytic paradigm, riding lessons have been described as an ‘interspecies collaboration’ (Dashper, 2016, p. 87), with horses playing an important role in the teaching process (Zetterqvist Blokhuis, 2019; 2021; Lundesjö Kwart and Szczepek Reed, in prep.). An important consideration when analyzing horse-riding is that the embodied communication between rider and horse is often invisible. In riding instruction, this becomes a ‘members’ problem’ (Hutchby and Wooffitt, 2008, p. 50), as riding instructors, too, can often not see what riders are doing with their seat, weight distribution, the inside of their legs, or their arm or hand muscles. In the study reported here, this becomes relevant when horses appear to respond to instructors’ vocalizations. As analysts we must remember that riders are constantly interacting with the horse, and that horses are likely to be responding to their embodied aids as well as to instructors’ spoken contributions. The transcripts only show what is visible: on many occasions, riders are likely to be communicating with the horse with only very little of this interaction being visually accessible. More generally, the transcripts show those aspects of the visible and audible interaction that are relevant to the analysis. The notation follows GAT 2 (Selting, 2009/2011; see Appendix) for talk, with the modification that intonation units are not represented as separate lines to keep transcript sizes manageable; and Mondada (2019) for embodied actions.

Both the continuous embodied interaction between rider and horse that is horse-riding and the invisibility of much of this interaction are explicitly acknowledged here as important empirical and analytical challenges. The rider’s foremost and most regular communication with the horse is through their body. This means that in those recordings that involve horse-riding (Recordings 1-5), the human-horse interaction is influenced by much more than vocal sounds. Therefore, it is not possible to determine for certain whether horses’ actions are exclusively done in response to humans’ vocalizations. In some extracts, horses perform directed actions immediately upon a human vocalization, which suggests that they are indeed responding to them. In others, their responses are less obvious. The analysis below is primarily concerned with humans’ use of vocalizations directed at horses. The uses and human-intended functions of those vocalizations can almost always be evidenced from surrounding human talk. A comprehensive understanding of horses’ displayed responses, for example, through their movements of their ears, mouth, and tail, is beyond the scope of this study. Equally beyond the scope of this study is an in-depth analysis of the embodied interaction between riders and horses.

The study draws on a subset of five recordings from a larger corpus of human-horse interactions held by the author; and one recording from the FOLK corpus (FOLK_E_00345), which is part of the Database for Spoken German of the Institute for the German Language (Schmidt, 2014). Recordings 1 and 2 are German language masterclass-type riding lessons in front of a paying audience and recorded for broadcasting purposes, available on youtube. The

instructors are German-speaking dressage coaches. Recording 3 is an English language dressage lesson of a similar style but with a smaller audience, also available on youtube. The lesson is in English but instructor's first language is German. Recording 4 is a private English language riding lesson, recorded in the UK in 2022. The instructor's first language is English. Recording 5 is a dressage demonstration, during which the rider speaks to the audience in English, available on youtube. The rider's first language is Dutch. Recording 6 is of a German speaking person lunging a horse, that is, asking them to circle around her on a long line. The recording is privately recorded and available via the FOLK corpus. It is audio only, whereas all other recordings are video recordings. Speakers' first languages are reported here because they may be relevant for some of the findings. All data have been anonymized, and the participants in Recording 4 have given their consent that their anonymized data can be used and disseminated for research purposes.

The rationale for choosing these six recordings was, firstly, that they contained high numbers of horse-directed vocalizations. Most recordings in the larger corpus contained clicks, but the chosen recordings also showed frequent uses of other sound patterns, such as trills and /ho:/. Secondly, the sound quality of these recordings was good enough to allow careful phonetic and prosodic analysis. Some recordings were excluded because their overall quality was low, or because they contained background noises that could not be clearly distinguished from clicks. The study therefore does not attempt to - and is not in a position to - make claims about the overall distribution and usage of horse-directed vocalizations. Instead, its aim is, firstly, to map the most prominent forms in the corpus; secondly, to show their phonetic and prosodic variability; thirdly, to show their adjustability to the interactional context in which they are deployed; and finally, to explore how humans adapt and appropriate sounds that may be outside of the constraints of their own language system.

5. Variability and adjustability of horse-directed vocalizations

The horse-directed vocalizations in the data set can broadly be categorized into clicks (lateral, bilabial, dental); trills (bilabial, alveolar), at times ending in /t/; and variants of /ho:/, that is, vocalizations involving a long dark vowel or diphthong (/o:/, /u:/, /ou/) preceded by a consonant (typically /h/, one speaker uses /v/). Beyond these vocalization types, the instructor in Recording 4 once uses *hup* to motivate the horse to move faster. The person lunging a horse in Recording 6 uses *hop* for the same purpose 64 times, on its own and in series of up to nine items. Since *hup* only occurs once and *hop* is only used consistently by one speaker and in a recording that is audio only, it was decided that there was not enough data for a full analysis. Further, the study does not consider lexical voice commands, such as 'walk' or 'trot'.¹ Table 1 shows the spread of vocalization types across the six recordings.

¹ Such lexical voice commands are also phonetically and prosodically interesting. For example, several of the German speakers in the corpus use /ʃe:rit/ and /te:rap/, which are adaptations of the German words for 'walk' (Schritt, /ʃɪʁt/) and 'trot' (Trab, /tra:p/). The added syllables are typically lengthened. Similarly, British English speakers can sometimes be heard to add an additional syllable to the word 'trot' when asking horses to 'tuuhrot' (/tə:ɹɒt/). These sound patterns are not within the scope of this study, which focuses on vocalizations only, but clearly deserve future attention.

	Clicks (lateral/bi- labial/ dental)	Trills (bilabial, alveolar)	/ho:/- variants	Recording duration	Language and format
Rec 1 Horse/Rider 1	28 (27/0/1)	17 (bilabial)	14	24m 03s	German public lesson
Rec 1 Horse/Rider 2	400 (392/4/4)	3 (bilabial)	1	31m 56s	
Rec 2 Horse/Rider 1	31 (28/2/1)	2 (bilabial)	1	27m 10s	German public lesson
Rec 2 Horse/Rider 2	31 (25/5/1)	15 (bilabial)	2	25m 10s	
Rec 3	182 (148/29/5)	9 (bilabial)	2	51m 41s	English public lesson
Rec 4	133 (lateral)	2 (bilabial)		29m 10s	English private lesson
Rec 5	25 (21/0/4)		33	19m 14s	English public demonstration
Rec 6	131 (lateral)	13 (alveolar)	14	10m 12s	German private lunging
Total	961 (905/40/16)	61 (48/13)	67	218m 36s	

Table 1. Vocalizations across the data set.

5.1 Clicks

The data contain 961 clicks. The majority are lateral clicks (905), some are bilabial (40) or dental (16). *Lateral clicks*, represented in IPA as ɺ, are probably the most commonly known click sounds addressed to horses in Europe and North America. In English, they are commonly referred to as ‘clicking’ or ‘clucking’. To produce them, the middle or the sides of the tongue are released from the hard palate quickly. As with all clicks, air is being sucked in in the process. *Bilabial clicks* are kissing or smacking sounds produced with the lips, represented in IPA as ɸ. *Dental clicks*, represented as ɽ, are the ‘tutting’ sounds that can express disapproval in English (see Section 2). Here, the blade of the tongue is quickly released from the alveolar ridge.

The following extracts show lateral clicks as they occur in the data. Extract (1) provides additional verbal evidence that human participants use clicks to mobilize horses (lines 5-7). Regarding riding terminology, the directive to ‘go large’ (‘ganze Bahn’, line 1) in Extract (1) asks the rider to ride all the way around the arena. ‘Canter’ is the horse’s three-beat gait, in contrast to the four-beat walk and the two-beat trot. ‘A little leg’ (‘bisschen treiben’, line 2) refers to the rider touching the horse’s side with the inside of their leg, here in order to move them on; and ‘ho’ at line 3 is a vocalization that is used to calm horses down (see Section 5.3). In the transcripts, ɺ represents a single lateral click.

To appear in: *Language & Communication*

(1) Recording 2 Horse/Rider 1 8.46

- 1 I: **ruhig ganze +BAHN? +.hh**
why don't you go large
H >>canters->
R +leg +leg
- 2 -> I: **|| || *(0.4) bisschen* +TREI*ben, geNAU, (0.5)**
a little leg that's it
H ->*canters faster-* *reduces speed->
R +leg +reins->
- 3 I: **<<p> HOOOO,> .hheh*+ (0.4)**
H ----->*

R ----->+</p>
</div>
<div data-bbox=

(2) Recording 3 1/10.00

- 1 I: **change direction; MORE WALK- (0.4)**
H >>walks slowly->
- 2 -> I: **|| (0.7) ||*(0.5) GOOD BOY::; (0.2) THA::T's right. (0.3)**
H ----->*faster->>
- 3 I: **change direction+&n- PUSH: little bit- THA:T's right;&**
R +leg
R &pushes with her seat-----&

(3) Recording 4 1-12.02

- 1 I: **RIGHT, prepare for <<f> TROT?*(0.4) A:nd trot ↑ON.>(0.3)**
H >>walks slowly-----*walks faster->
R +pushes with seat and legs->
- 2 -> I: **|| || *(1.3) that's it GOOD, (0.3) shorten that left REIN again;**
H ---->*trots->>
R ---->+rising trot->>

(4) Recording 5 12.02

- 1 R: **and a little bit QUICKer?**
H >>canters->
H >>performs a pirouette->>

2 -> R: || *(0.8) || (0.6) and SMALL. .hh and BACK.
H ->*canters faster->

3 R: *<<1> BRAAF.> GOOD. (0.6)
well done
H ->*canters more slowly->>

(5) Recording 6 1/1.23

1 HUM: <<↑↑↓U:nd nOchma schön> VORwärts- <<h> KOMM?> (0.4)
and again nice and forward come on

2 -> HUM: || (0.7) ↑VOR↓wärts chArлие. (0.3) <<h+interval> ↑JA↓WOLL ja- >
// forward Charlie that's it yes

In the above cases, horses are being asked to move faster. In Extracts (1)–(3), riding instructors ask riders to request more movement from the horses (*a little leg*, (1); *more walk*, (2); *and trot on*, (3)), as well as directing clicks at the horses. The horses appear to treat their clicks as mobilizing: in all three extracts, clicking is immediately followed by horses' tempo increases. In (1), the horse's response is so enthusiastic that both the rider (via the reins, line 2) and the instructor (via a vocalization, line 3) immediately seek to slow her down again. In (2), the rider-directed request to increase the energy in walk (line 1) has no effect. Only after two horse-directed clicks does the horse move faster (line 2). In (3), the rider gives visible aids to the horse in response to the directives *prepare for trot* and *trot on* (line 1), but it is only after three clicks from the instructor that the horse starts to trot (line 2).

An important point to note with regard to Extract (3) is that prior to the clicks, the instructor delivers the phrases *trot* and *a:nd trot on* with increased loudness. The word 'trot' is almost certainly known to the horse as a 'voice command'. In many recordings in the corpus, instructors actively avoid its use by, for example, spelling it out or calling it 'you know what' when they want to make sure that the horse is responding only to the rider and not to them (see also Szczepek Reed, 2023a, pp. 110-111). Here, the rider is a beginner, and it is likely that the instructor is actively supporting her by mobilizing the horse herself. The clicks occur only after the loud calls of 'trot' and 'trot on', reinforcing these commands. There is no evidence in the corpus that clicks by themselves are used to request a transition from a lower gait to a higher one (walk to trot, trot to canter). Instead, they are used to ask horses to move faster or with more energy more generally. Clicks can accompany directives to trot or canter, as in (3), but they do not seem to be used to accomplish such gait-specific directives on their own.

In (4), the demonstrating dressage rider is asking the horse to perform a canter pirouette, that is, a movement where she pivots around her hind legs in canter. He notifies the audience that he will ask the horse to move *a little bit quicker* and subsequently clicks twice. The horse increases her tempo immediately after the first click (the rider's embodied aids are not visible but are likely to have an effect, too). In (5), the person lunging a horse verbally mobilizes him (*nice and forward come on* || *forward Charlie*) before and after the click. There is no video evidence for this extract; however, the human's positive assessment *that's it yes* indicates that the horse has complied.

The interactional purpose of clicks remains constant throughout the corpus: they are always used to mobilize the horse to move faster or with more energy. However, their articulation is variable. The following extracts show bilabial and dental clicks in free variation with lateral clicks. In extract (6) from a riding lesson, horse and rider are being asked to perform ‘leg yield in trot’, which means that they will be trotting sideways. At the same time, they are being asked to keep the energy in their trot. In the transcript, ! represents a single dental click and ⊙ a single bilabial click.

(6) Recording 3 3/0.30

- 1 I: *(0.8) GOOD.* (0.3)
H *turns off the outside track*
- 2 -> I: THA*T'S it; MORE; (.) ! (0.2) MORE trOt, (2.6)*
H *moves sideways, back towards the outside track*
- 3 I: *GOO::D. (0.6) GOOD job. rEIns a little bit SHORTer- (0.2)
H *trots around the outside track->>
- 4 -> I: ⊙ (0.3) ⊙ (0.3) kEEp RiDing, (0.3) FORward-

Line 2 shows a dental click used in combination with verbal directives to increase the energy (*more ! more trot*). Soon after, two bilabial clicks precede the directives *keep riding* and *forward* (line 4). The two click variants have a different amplitude, as shown in the wave forms in Figures 1 and 2. The low amplitude of dental clicks may be a reason why they are used so rarely in the corpus.

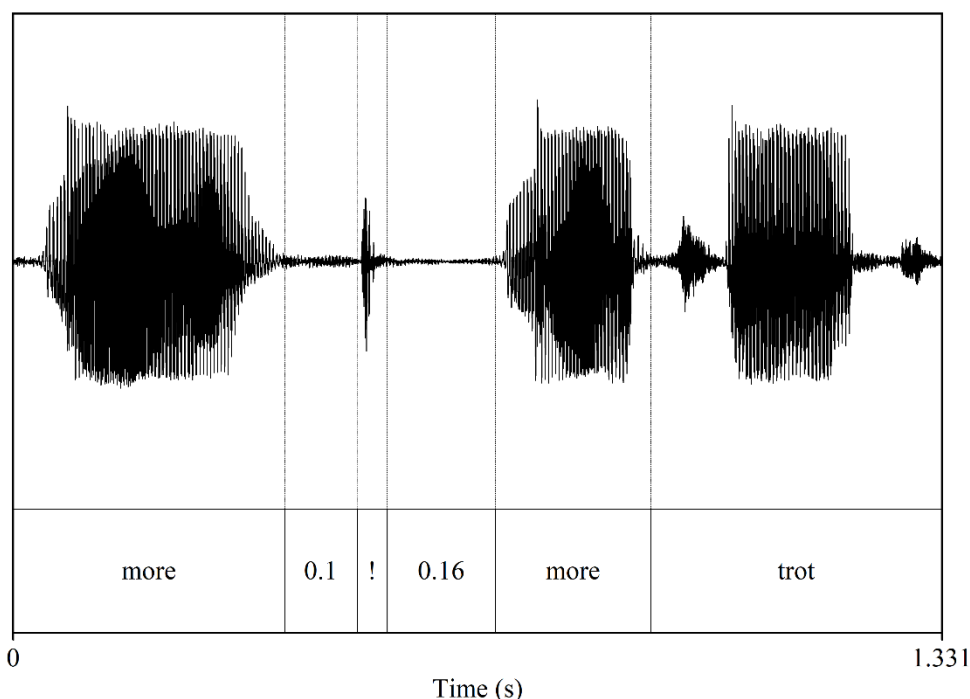


Figure 1. Dental click in Extract (6), line 2.

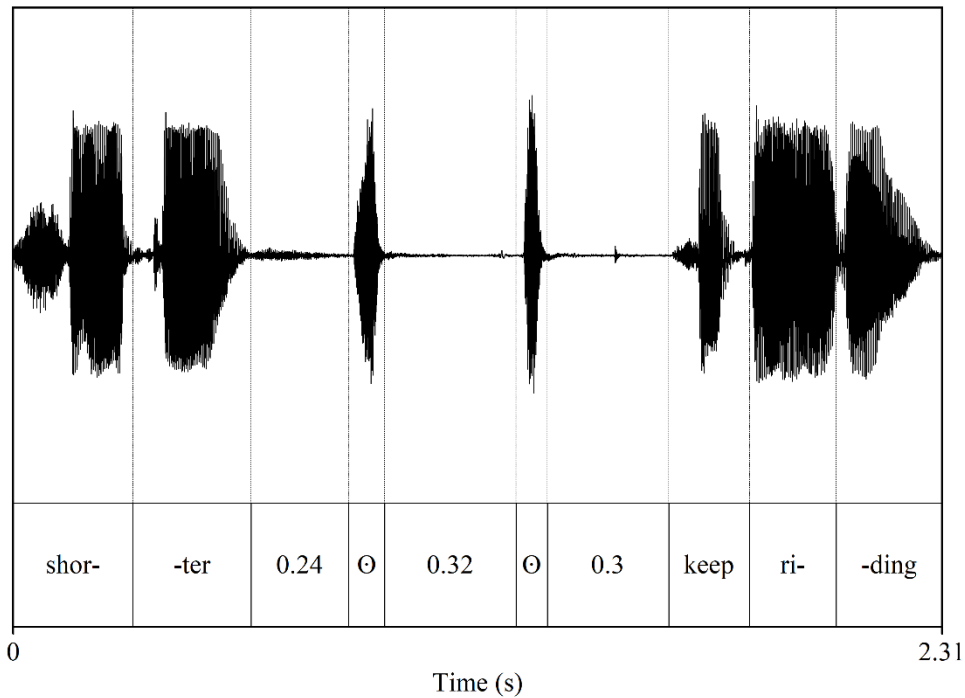


Figure 2. Two bilabial clicks in Extract (6), lines 3-4.

That click variants can be used in free variation is also apparent when different variants occur together a part of a series. In the following extract, a riding instructor produces many lateral clicks and in-between them a single dental and two bilabial clicks. Horse and rider are being encouraged to keep a rhythmic and energetic canter over a longer period. At line 5, a dental click and a lateral click are produced in close succession, surrounded by lateral clicks. At line 10, two bilabial clicks precede four lateral clicks.

In the transcript, || represents a single lateral click, ! a single dental click, and ⊙ a single bilabial click.

(7) Recording 1 Horse 2 32.20

- 1 I: da: musst du .hh mehr mit dem ÄU:ßeren zÜgel und auch mal
then you have to (do) more with the outside rein and also
H *canters on circle->>*
- 2 I: einmal mit dem ÄUßeren BEIN reiten. || || (0.2)
ride with the outside leg || ||
- 3 I: mal kurz nach LINKS stellen ne kleine spur; (0.2) HAND,
briefly bend (her) to the left a little bit hand
- 4 -> I: || || (0.2) ↑SO. (0.2) || || Noma; || || || Noma; (0.2) KOMM; (0.2)
|| || that's it || || again || || || again come on
- 5 -> I: ! || (0.4) und SITZen. (0.2) und SITZen. (0.2)
! || and sit and sit
- 6 I: und HINTern in sAttel und || ||
and bum into the saddle and || ||

2min 7sec omitted

- 7 I: und KOMM. (0.2) || || (0.8) so ne dass du Erst ma
and come on || || like that yeah so that first of all you
- 8 I: 'n bIsschen (0.8) ZUG da rein kriegst- und Immer 'n bisschen
get a bit of momentum into it and always a bit of
- 9 I: (0.2) ABsprung. (0.2) bisschen-
lift a little bit
- 10 -> I: @ @ (0.3) || || (0.4) || || (0.6) sEtz dich HIN.
@ @ || || || || sit down
- 11 I: (0.2) und wieder ÄUßerer Zügel.
and outside rein again

Here, clicking accompanies much of the instructor's talk. The clicks at lines 4-5 are part of a more general mobilizing and 'cheering on' that is typical for the instruction of 'sustained embodied activities' (Szczepek Reed, 2023b), where an ongoing physical effort is being requested. In the second half of the extract, the instruction talk is oriented to an increase in the horse's energy (*momentum* and *lift*, lines 8-9), which is underpinned by a combination of bilabial and lateral clicks (line 10). Figure 3 shows that the dental click approximates the preceding verbal material in amplitude but is quieter than the subsequent lateral click.

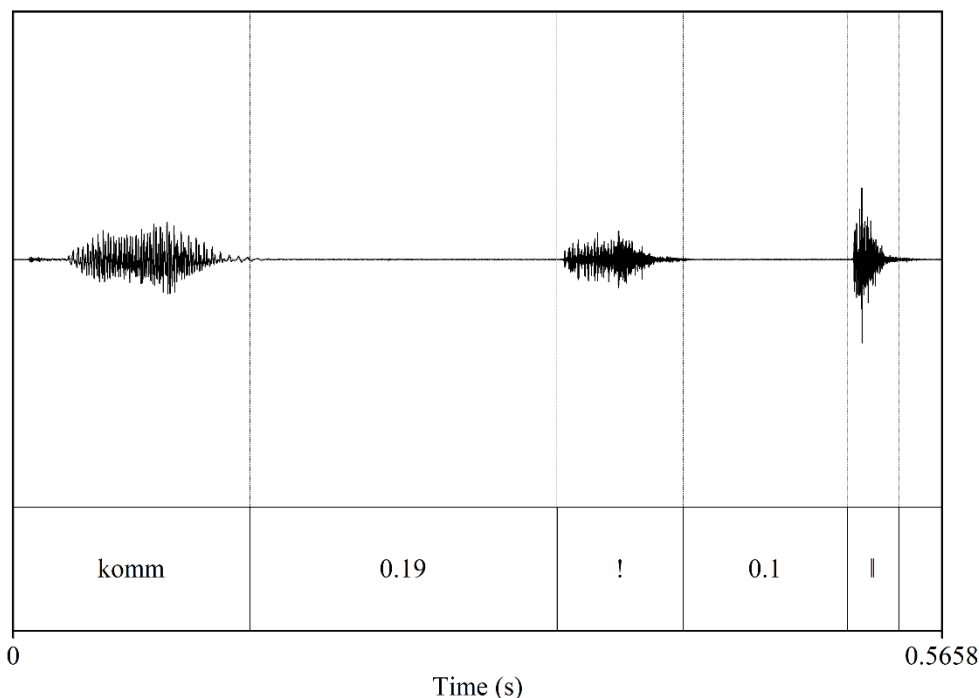


Figure 3. Dental click followed by lateral click in Extract (7), lines 4-5.

A final point about clicks concerns their frequent occurrence as part of a series, and, related to this, their rhythmic orientation. Across the corpus, only 225 of 961 clicks are produced on

their own. All others occur in series of up to eight clicks. Recording 6, in which a horse is being lunged, contains three uninterrupted series of 19, 20, and 22 clicks, respectively. Clicks can also be combined with lexical items to form more complex series, as seen in Extract (7), line 4. The following example comes from a riding lesson in which a rider is being coached on how to use her legs while doing ‘rising trot’, that is, rising out of the saddle on every other trot stride. The objective of the clicks is to keep the horse trotting, which is evident from the verbal directives that precede them (*keep going*, line 3). At line 4, a series of seven lateral clicks is delivered in rhythmic alignment with the horse’s trot strides. The symbol || represents a single lateral click.

(8) Recording 4 2-3.49

1 I: as you SIT, that’s when you want to Use that LEG; YEAH? (0.4)
 H >>trots->>
 R >>rising trot->>

2 I: dOn’t try and Use the leg as you RISE. (1.4)

3 I: thAt’s it keep GOing. (2.0) keep GOing. (0.2)

4 -> I: *|| *|| *|| *|| *|| *|| *||
 H *stride *stride *stride *stride *stride *stride *stride

5 I: (0.6) RIGHT. after the A mArker we’re gonna cAnter.

Ogden (2013) describes the interactional use of ‘clicks as metronomes’ (pp. 314-316) and shows that they can fill otherwise silent rhythmic beats in conversation or project the rhythm of upcoming laughter particles (ibid.). Due to the parallel nature of concurrent instruction (Szczeppek Reed, 2024a), clicks can accompany participants’ – here: the horse’s – movements. Through rhythmic alignment they replicate the horse’s existing tempo and simultaneously encourage him to keep it up. In another instance in the corpus, a series of clicks corresponds with a horse’s strides initially but subsequently sets a faster pace, inviting horse and rider to ‘catch up’ with the new tempo.

5.2 Trills

Trills are sounds during which an articulator flaps or vibrates. Examples are the alveolar trill that is used for the ‘rolled’ r represented in IPA as /r/; and the voiced bilabial trill represented as /B/. In the data, all 61 trills start with bilabial closure. One type continues as a bilabial trill (48 cases), optionally ending in /t/ (14 cases). A second type continues with an alveolar trill ending in /t/ (13 cases). This gives the variants /B/, /Bt/, /brt/. In the transcripts, trills are represented as B / Bt or brt, with successive B or r symbols representing 0.1 second in duration (e.g., BBBBB for a token of 0.5 seconds). This notation has been used to show the highly variable duration of trills. The longest token in the data is 1.6 seconds (Recording 6); the shortest is 0.05 seconds (Recording 2). Trills are also very variable with regard to intonation. Of the 61 trills in the data, 25 are level tones, 19 are simple falls (18 to mid; 1 to

low), 6 are rise-falls, 6 are simple rises (1 to mid, 5 to high), 1 is a rise-fall-rise, and 4 are, or contribute to, musical intervals. Table 2 shows the intra- and cross-speaker variability of trill articulation and intonation.

Trills	/B/	/Bt/	/brt/
Rec 1 Horse 1 <i>17 cases</i>	5 simple falls (to mid) 4 rise-falls 1 level tone	3 simple rises (to high) 2 level tones 2 musical intervals	
Rec 1 Horse 2 <i>3 cases</i>	1 simple fall (to mid)	2 level tones	
Rec 2 Horse/Rider 1 <i>2 cases</i>		1 simple fall (to mid) 1 level tone	
Rec 2 Horse/Rider 2 <i>15 cases</i>	1 simple fall (to mid) 1 level tone	11 level tones 1 simple fall (to mid) 1 simple rise (to mid)	
Rec 3 <i>9 cases</i>	3 simple falls (to mid) 3 level tones 2 rise-falls 1 simple fall (to low)		
Rec 4 (English) <i>2 cases</i>	2 simple rises (to high)		
Rec 5 <i>0 cases</i>			
Rec 6 <i>13 cases</i>			6 simple falls (to mid) 4 level tones 2 musical intervals 1 rise-fall-rise

Table 2. Trills: articulation and intonation.

Trills are used differently in different riding communities. As the extracts below show, in some German speaking communities *B(t)* or *brt* are used to slow horses down. This also applies to some communities in the USA. While these data hold only one recording from the USA and that recording involves a native speaker of German (Recording 3), there is evidence from publicly available discourses, including on social media. For example, in her ‘weekly horse training tips’ on youtube, US American dressage coach Deanna Corby dedicates one episode to ‘how to teach your horse to stop by using your voice’ (Corby, 2016, 0.27-0.31). She explains that using common commands like ‘whoa’ and ‘ho’

sound too much like the rest of our words. But I'll tell you what doesn't sound like the rest of our words is what I call the trill sound: *brrrrt?*. If you can't do that you can always do this *BBBBB?*' (0.41-0.57).

The quotation not only presents trills as a conventionalized way of asking horses to stop, but also as phonetically variable but equivalent.

In the UK, however, trills are used to speed horses up, that is, for the directly opposite interactional purpose. This corpus contains two trills by a British English speaker, and both are being used in this manner (see Extract 9). Here, too, there is much publicly available evidence. For example, a contributor to the online discussion forum 'The Tack Room' hosted by the British equestrian journal *Horse and Hound* posts a question regarding a head camera video by a famous German event rider:

Anyway I was just wondering if anyone can make sense of what she's saying? She does this really strange rrrrrrrr trill sound which I think has the meaning of a 'steeadyyyy' but I've never heard it before. Is it a German thing?? (Mo-Jo 2013, post #1)

To which another member replies:

"BRRR" was also used in Scandinavia when I lived over there, it was used as a vocal encouragement for the horse to slow down. I learned to ride abroad so was very used to using 'brr' when I came back to the UK – had a nasty surprise in the beginning as it seems to be used to get horses to go faster in this country!! (Mo-Jo 2013, post #7)

The fact that bilabial trills appear to be used for directly opposite communicative purposes in different human-horse communities shows the arbitrariness and lack of innate iconicity of these sound patterns (see also Ogden, 2020, p. 80 on clicks).²

The extract below comes from the riding lesson recorded in the UK with a British English-speaking instructor. The young rider has been instructed to ask the horse to trot; however, the horse is not responding. The instructor asks her to use her *leg again* (line 1). In the transcript, *BBBBB* represents a 0.5 sec bilabial trill. *||* represents a single lateral click.

(9) Recording 4 2-10.18

```
1      I:      || || leg aGAIN, (0.2) *|| || || || || (0.2) and aGAIN?*(0.6)
      H      >>walks-----*jogs->
      R                                  *leg

2  -> I:      <<h> BBBB?>*|| || || THAT'S It.
      H      ->*trots->>
```

Before and after the bilabial trill, the instructor produces series of clicks and gives verbal directives asking the rider to mobilize the horse. The trill, which is high pitched at its onset

² Horse trainer Julia Zenner speaks more generally about the cross-cultural variation of commands for horses doing forestry work (Equitana Podcast, 2023). She explains that different commands are being used across Europe, and that working with two horses from different regions can present challenges (21.52-25.24).

and rises further, is used in combination with the clicks for the same interactional purpose: to urge the horse to start trotting. Following a brief period of slow jogging, the horse eventually transitions to a fully-fledged trot, seemingly in response to the trill. The same recording holds one other instance of a bilabial trill, which also co-occurs with series of clicks and other mobilizing directives.

The following extracts show trills by German speakers. Throughout the corpus, participants whose first language is German use trills to ask horses to slow down or to stop. In the transcript, *Bt* represents a 0.1 sec bilabial trill ending in /t/.

(10) Recording 2 Horse/Rider 2 49.26

- 1 I: **nochmal zuRÜCK,+(0.6) +*jetzt einmal *HALTen?**
back again now halt once
H trots-----*stops abruptly*walks->
R +leans back+
- 2 -> I: **Bt- (0.3) einmal kurz HALTen,* (0.6) SO::; (0.8)**
Bt one quick halt that's it
H ->*stands->
- 3 I: ***Und wieder SCHRITT gehen lassen. SO::-**
and let (her) walk again that's it
H ->*walks->>

The bilabial trill at line 2 follows a directive to stop (line 1). It is very short and produced with little breath force: *Bt* is not fully realized as a flapping sound, but air is being blown through half-closed lips, followed by an unreleased alveolar closure. The pitch is level. Immediately before, the horse has been hard to stop, such that the rider has had to lean far back with her upper body to slow her down (line 1). Once she does so, the horse comes to what seems like an abrupt halt, and for a brief moment she looks as if she is going to stand. In overlap with this, the instructor asks the rider to stop the horse (*and now halt once*). However, the horse takes a step forward, which elicits the bilabial trill and another directive to the rider to ask the horse to stop (*one quick halt*, line 2). The horse stands immediately after. The short duration of the bilabial trill and its abrupt /t/ closure is fitted to the brevity of the moment during which the horse looks as if she was stopping abruptly, and to the short time it takes her to come to a final stop. The time that elapses between the first directive to stop (end of line 1) and the horse's final halt is only 1.6 seconds. Throughout the sequence, the horse's movements are slowing down, and the halt seems imminent.

In contrast, the bilabial trills in the following excerpt are longer and fitted to a longer time period during which directives to slow down are being complied with. Here, an instructor uses trills repeatedly to bring the horse back from trot into walk. All three trills are approximately 1 second in duration. Their pitch varies between a rising-falling contour (lines 2 and 4) and a high-pitched level tone (line 8). The instructor is teaching in English; her first language is German. In the transcript, *BBBBBBBBBB* represents a 1.0 sec bilabial trill. *l* represents a single lateral click and *⊙* a single bilabial click.

(11) Recording 3 3/5.26

1 I: .hh SO. (0.2) NOW come to the WALK Once, (0.8)
H >>trots->

2 -> I: ^BBBBBBBBBBhh.

3 I: ^A::ND ↓WA+::LK.& (0.9)
R +visibly uses left rein->
R &slows down her rising movement->

4 -> I: ^BBBBBBBBBBhh. (0.8)*+&.hhh
H ->*walks->>
R ->+&

5 I: GOOD. (0.2) FREE walk. (0.4) +MORE. (0.2) FREer walk. ||
R +lets the reins out

59 sec omitted

6 I: GOOD. (0.2) FORward. || (0.4) WALKing. (0.2) @ *(0.7)
H >>walks on long rein-----*walks faster->

7 I: THE::RE you go;* h. (0.6) DOESn't mAtter;
H ->*trots->

8 -> I: +<<h> BBBBBBBBBB->* SIT,+
H ->*walks->>
R +gathers up reins-----+

9 I: <<f> GOOD;> pUsh aAGAIN. || (0.8) come BACK for it.=

At line 1, the rider is being asked to transition from trot to walk; however, there is no change in the horse's movements. Instead, he keeps trotting at the same speed. The instructor produces a long bilabial trill with rising and then gradually falling pitch, ending in a short exhalation (line 2). There is still no change in the horse's movements, and the instructor follows up with a directive *and walk* with prosody that is potentially directed at the horse: a long first syllable *and* with level pitch is followed by a similarly lengthened low falling second syllable *walk*. In overlap, the rider begins to give visible aids to the horse by using her left rein and by slowing down her rising movement. Since there is still no response from the horse, the instructor produces another bilabial trill (line 4) with briefly rising (186-270 Hz) and then falling (270-123 Hz) pitch (Figure 5). Shortly afterwards, the horse transitions to walk. The time between the end of the initial directive to walk (line 1) and the horse's walking (line 4) is 6.1 seconds. The lengthened bilabial trills are fitted to the horse's continued trotting and to the time it takes to bring about the requested transition to walk.

During the subsequent instruction sequence of approximately 1 minute (data mostly not shown), the instructor directs the rider to ask the horse to walk freely forward (see lines 5, 6). The rider lets out the reins to encourage this in the horse (line 5). At line 6, the instructor produces a lateral and a bilabial click. The horse begins to walk faster but then starts trotting (line 7), which is not what was desired – he was being asked to walk with more energy, not to start trotting. This misunderstanding is verbally acknowledged and dismissed by the coach

(*doesn't matter*; line 7), who subsequently initiates repair with a bilabial trill (line 8). The trill is held on a high and level pitch throughout, rising quickly from 306 Hz to a level tone below 400 Hz (minimum 346 Hz, maximum 397 Hz), as shown in Figure 6. The long trill accompanies the ongoing undesired trotting, and the horse eventually comes back to walk. The time between the moment the horse starts trotting and his coming back to walk is 3.0 seconds. Again, a lengthened trill is fitted to a longer period during which a horse is being asked to slow down.

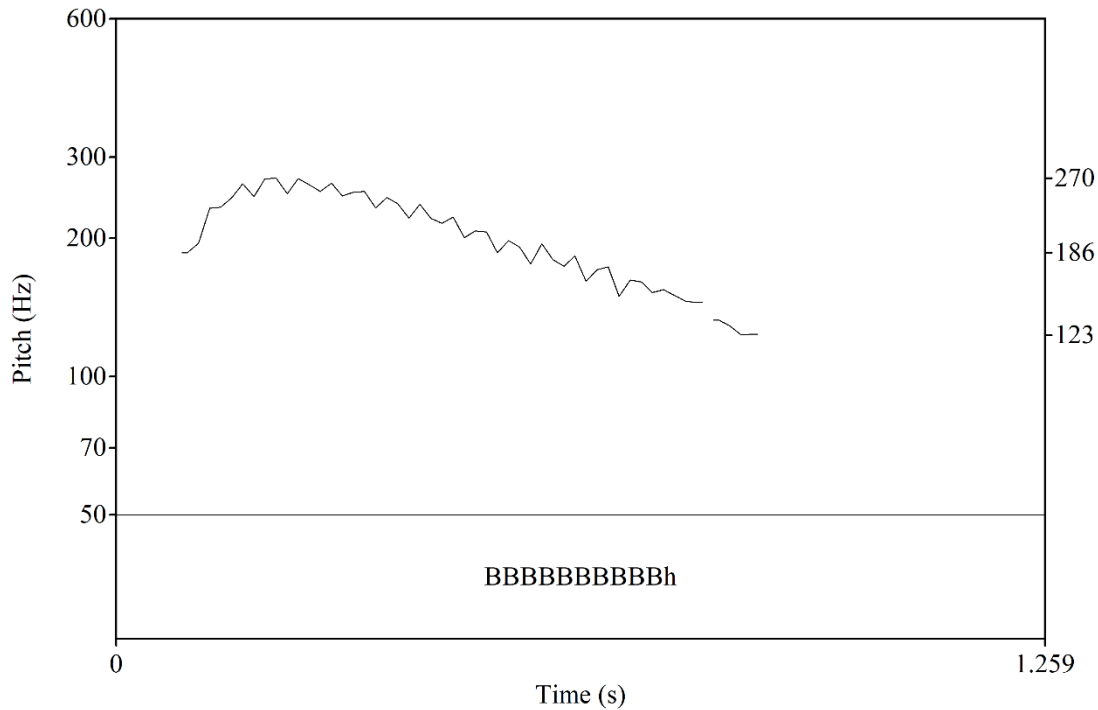


Figure 5. Rising-falling bilabial trill. Extract (11), line 4.

down. In contrast, the only British English speaker in the corpus uses trills to speed the horse up. While this is a small sample, the cultural variation confirms Heleski et al.’s (2015) finding that the associations horses make with human sounds are learned and based on repetition rather than inherent in the sound patterns.

5.3 /ho:/-type vocalizations

The third kind of horse-directed vocalization in the corpus are variants of /ho:/, of which there are 67 cases in the corpus. They, too, show underspecification with regard to articulation and prosody, as shown in Table 3; however, all cases involve a long vowel and almost all have low overall pitch. Articulation can vary with regard to the vowel: the corpus includes /o:/, /u:/, and /ou/. It also varies with regard to closure, as some realizations end in an unreleased bilabial stop. The speaker in Recording 6 consistently uses a labiodental first consonant (/vo:/); see Extract (12), line 3. Two speakers appropriate the German word ‘so’, which in instruction sequences can take on the meaning of a positive assessment (‘that’s it’), and which contains the same vowel as German ‘ho’, allowing them to combine horse-directed and human-directed recipient design (Szczepek Reed, 2023a). Speakers’ phonemic inventories may be relevant. For example, /u:/ is only found with a speaker whose first language is Dutch (Recording 5). /ou/ is only found with speakers who are using English (Recordings 3 and 5). And the most common vowel in the corpus, the close-mid back rounded vowel /o:/, is part of the German but not the (standard) English vowel system. The British English speaker (Recording 4) uses no variants of /ho:/ at all. The duration of /ho:/ and its variants ranges from 0.17 seconds (Recording 5) to 1.38 seconds (Recording 1). In the transcripts, duration is shown via successive vowel symbols representing 0.1 second in duration (e.g., *hoouooo* for a vocalization of 0.5 seconds).

Like trills, variants of /ho:/ are highly variable with regard to intonation. Of the 67 cases, 25 are simple falls (15 to mid; 10 to low), 7 are rise-falls, 23 are level tones, 11 are simple rises (to mid), 1 is a musical interval. Table 3 shows intra- and cross-speaker variability of the articulation and intonation of /ho:/-type vocalizations.

/ho:/-type vocalizations	/ho:/	/hou/	/hu:/	/ho:p/ /hu:p/ /hoop/	/vo:/	/so:/
Rec 1 Horse 1 <i>14 cases</i>	7 rise-falls (to low) 2 level tones			1 simple rises (to mid) <i>(hoop)</i>		3 simple falls (to low) 1 level tones
Rec 1 Horse 2 <i>1 case</i>				1 simple rise (to mid) <i>(hoop)</i>		
Rec 2 Horse/ Rider 1 <i>1 case</i>	1 simple rise (to mid)					

Rec 2 Horse/ Rider 2 2 cases	1 simple rise (to mid)					1 level tone
Rec 3 2 cases	1 level tone	1 simple fall (to mid)				
Rec 4 0 cases						
Rec 5 33 cases	1 level tone 1 simple fall (to mid)	1 simple fall (to low)	15 level tones 7 simple falls (to mid) 4 simple rises (to mid)	1 simple rise (to mid) <i>(huup)</i> 1 level tone <i>(huup)</i> 2 simple rises (to mid) <i>[houp]</i>		
Rec 6 14 cases					12 simple falls (6 to mid, 6 to low) 1 level tone 1 musical interval	

Table 3. /ho:/-type vocalizations: articulation and intonation.

The following extract shows /ho:/ being used when a horse reacts sensitively to her local environment. Horse and rider are being asked to change direction. To do this, they need to pass by the audience, who is seated at ground level, only about a meter away from the boards that enclose the arena. As horse and rider are passing by the audience, the horse speeds up. *HOOOOOO* represents a vocalization lasting 0.6 seconds.

(13) Recording 2 Horse/Rider 2 36.07

- 1 I: einmal HANDwechsel? +(1.2)*und im trab-+ (0.2)
change direction and in trot
H >>trots-----*.....*trots faster->
H/R +pass by the audience+
- 2 -> I: <<1> HOOOOOO-> gAnz WEInig machen.*
/ho:/ do very little
H ->*
- 3 I: *(1.0) auf jEden fall ist sie auch HOCHsenSibel? (0.4)
in any case she is also highly sensitive
H *gradually slows down to normal trot->>
- 4 I: ich glaub auch DAS sieht man, sehr AUFmerksam? (1.1)

To appear in: *Language & Communication*

I think you can see that too very attentive

- 5 I: **hÖrt alle geRÄUsche, sIEht +ALLes? &(1.3)**
hears all noises sees everything
- R +gives more rein
H &relaxes neck slightly
- 6 -> I: **<<1> SOOOOOOOOO;> (0.7) GA:NZ glEIchmäßig.**
that's it (be) totally consistent

The instructor responds to the horse's faster trot with a low pitched and lengthened /ho:/ and with advice to the rider to *do very little* (line 2). She then describes the horse as *highly sensitive, very attentive* and as someone who *hears all noises, sees everything* (lines 3-5). This shows her treatment of the horse's behaviour as more than simply too fast: /ho:/ is oriented to quietening the horse rather than a merely slowing her down. The instructor's second use of a /ho:/-variant is also responsive to more than speed. As the horse continues to trot with high energy, the rider gives the horse more of the reins (line 5). In response, the horse minimally relaxes her neck and drops her head slightly, showing less tension as well as responsiveness to the rider. This more relaxed manner of trotting is met with a long and low-pitched /so:/ (line 6), which appropriates the German word 'so' ('that's it') to an item that is both a positive assessment of the new, more relaxed state and a calming cue oriented to the horse's continued high energy.

Similarly, the dressage rider in Recording 5 uses /ho:/-variants to both slow his horse down and to calm her. The horse is sensitive to her environment (line 1), similar to the horse in Extract (13). *HOOOOOOO* represents a vocalization lasting 0.6 seconds.

(14) Recording 5 1.22

- 1 R: **cause she gets a little bit aFRAID, (0.7)**
H >>trots->>
- 2 R: **<<1+p> BRAA:F; GOOD so. oKAY;> (0.3)**
well done
- 3 R: **and then Every TIME, (0.4) *i tAke her a little bit BACK. (0.2)**
H *slows down->
- 4 R: **because she wAnts to rUn too mUch, (0.3)**
- 5 R: **and then i lEt her trot *REA:Lly SMALL and SIMPlE, (0.4) cause**
H ->*trots normally->
- 6 R: **it's s- she dOesn't NEED to trot BIG yet.*(1.5)**
H ->*speeds up slightly->
- 7 -> R: **<<1+p> HOOOOOOO;> (0.8)**
/ho:/
- 8 R: **and Every tIme when i *FEEL she wants to RUN,***
H ->*slows down-----*
- 9 R: ***(0.9) i brIng her BACK a little bit.**

H *trots normally->>

At line 2, the rider praises the horse softly and with low pitch, showing his orientation to a need for her reassurance (see line 1). He then explains to the audience that, when he feels that the horse *wants to run too much* (line 4), he asks her to slow down from time to time. He demonstrates this, bringing about a slower trot for a short period (lines 3-4). At line 6, the horse speeds up very slightly, which the rider responds to with a lengthened /ho:/, delivered with low pitch and reduced loudness (line 7). Thus, the vocalization is fitted directly to an increase in the horse's speed in a context of her displayed nervousness.

/ho:/ variants are also used in a more general manner when horses are simply going too fast. In those cases, their use appears equivalent to trills, at least among the German speakers in the corpus. Extract (1), line 3, showed an instance of /ho:/ that is treated by the speaker as an antidote to a click, that is, as a repair of an earlier mobilizing of the horse, and as a resource for slowing the horse down again. Extract (12) showed uses of both /brt/ and /vo:/ as seemingly equivalent cues to the horse to stop. Thus, variants of /ho:/ appear to be used in contexts similar to those for trills but can have an additional orientation. While both vocalization types are aimed at a reduction in energy and/or speed, trills exclusively seem to address fast tempo, whereas /ho:-variants also occur in situations where horses show excitement or sensitivity to their environment. Displays of excitement often result in faster speed, and /ho:/ can treat them as requiring calming rather than merely a slower tempo.

6. Concluding discussion

This study has investigated the forms and functions of horse-directed vocalizations. In summary, the sound patterns in the corpus are clicks, trills, and variants of /ho:/. Clicks vary with regard to their articulation (lateral, bilabial, dental) and number (alone or as part of a series). Lateral clicks are by far the most frequent. Human and equine participants orient to clicks as resources for mobilizing horses to move faster or with more energy.

Horse-directed trills vary with regard to articulation and prosody. They can be bilabial, optionally ending in /t/; or alveolar. Alveolar trills start bilabially and end in /t/. The phonetic variants that were found in the corpus are /B/, /Bt/, /brt/. Trills can be realized with varying degrees of breath force, which in short vocalizations can result in loss of vibration. Their intonation can be falling, level, rising, or a musical interval. In this collection, their duration ranges from 0.05 to 1.6 seconds. The German speakers in the corpus use trills to slow horses down. The single English speaker uses them to mobilize the horse to move faster. Neither clicks nor bilabial trills are phonemes of English or German.

/ho:-type vocalizations vary with regard to articulation and prosody. First consonants can be /h/ or /v/; vowels are always long and can be /o:/, /u:/, and /ou/. Some end in bilabial stops. German speakers also appropriate the lexical item 'so' to accomplish the horse-directed work of /ho:/ (as well as the human-directed work of a positive assessment). In this collection, the duration of /ho:-variants ranges from 0.2 to 1.4 seconds. /ho:-type vocalizations are treated as resources for slowing and/or calming horses down in contexts where they display undesired speed, excitement, or nervousness.

This study offers a new perspective on animal-directed vocalizations beyond earlier typologies of animal calls. The close analysis of naturally occurring interspecies interaction reveals that humans appropriate existing sound combinations as well as new sounds from outside their own language systems to accomplish joint local actions with animals. The phonetic and prosodic flexibility of horse-directed vocalizations means that they can be fitted to different sequence and action slots (see also Keevallik and Ogden, 2020b, pp. 5-6). This is especially the case with regard to duration, as the length of trills and /ho:/-variants can be adjusted to the temporalities of actions by recipients who are constantly in motion. Series of clicks can accomplish similar forms of temporal and rhythmic alignment. However, while the underspecification found in this corpus resembles that of human-directed non-lexical vocalizations, here their use is much more specific. For example, a click in human-directed talk may infer a vaguely defined negative stance, which a speaker is deliberately expressing without words, i.e. non-lexically. In contrast, a click in horse-directed talk always means ‘go faster/ with more energy’. Clicks are directly contrastive to vocalizations that mean ‘slow down’, such as trills (in German) and /ho:/. Due to this semantic contrast, which holds across contexts within single speech communities, the attribute ‘non-lexical’ has been dropped here: horse-directed vocalizations are clearly more lexeme-like than those directed at other humans.

Having said that, the phonetic underspecification of horse-directed vocalizations goes far beyond that of human-directed lexis, where even slight changes in articulation can change word meaning (ibid.). Humans appear to trust horses to recognize vocalizations despite their great variability, possibly because their number is so small compared to the number of words known by the average human speaker. The fact that humans only have to articulate contrasts between tens, rather than tens of thousands of items potentially provides them with more articulatory latitude. Animal-directed vocalizations can make use of sounds outside the phonemic inventory of a given language (Bynon, 1976), which ensures that they ‘[don’t] sound like the rest of our words’ (Corby, 2016, 0.47). Both factors – fewer contrasts and distinctiveness – are human-centred and do not consider what kinds of contrasts horses actually perceive and respond to.

In addition to phonetic and prosodic underspecification, there appears to be regional form-meaning variation. This was already noted by Bolton (1897a), who writes that the (lateral) click is used to ‘start a horse’ by ‘Germans, Poles, Bulgarians, Greeks, Japanese, and by the natives in southern India to *stop* yoked oxen’ (p. 80, emphasis in the original). The present corpus shows differences between speakers of German and British English, based, however, on only one British English speaker. Other evidence can be found outside of the present data set (see Section 5.2). The regional variation shows that the relationship between animal-directed sounds and the actions they elicit is established socially rather than iconically. This makes them part of the human linguistic system of signs, whose connection between signifier and signified is arbitrary and conventionalized (see also Bynon, 1976; Ogden, 2020, p. 80). Unlike the clicks, sighs, and whistles of human-only interactions, animal-directed vocalizations are not ‘liminal signs’ (Dingemanse, 2020). The animal-directed sounds described above have no ‘ambiguity and deniability’ (ibid., p. 191). They communicate to the animal unambiguous meanings, which are “‘on record” [and] accountable’ (Dingemanse, 2023, p. 11): for example, animal-directed vocalizations can be repaired, as seen in Extract (1). Animal-directed vocalizations are therefore not ‘sounds on the margins of language’

(Keevallik and Ogden, 2020a); instead, they constitute, together with conventionalized lexical items, the basis of the verbal language that humans use to communicate with animals.

References

- Albert, S., vom Lehn, D. 2023. Non-lexical vocalizations help novices learn joint embodied actions. *Language & Communication* 88, 1-13.
- Amha, A., 2013. Directives to humans and to domestic animals – the imperative and some interjections in Zargulla. In: Simeone-Senelle, M.-C., Vanhove, M. (Eds.), *Proceedings of the 5th International Conference on Cushitic and Omotic Languages*. Köppe, pp. 211-229.
- Andrason, A., Akumbu, P. 2024. Towards a linguistic analysis of conative animal calls in Babanki and Bum (Grassfields languages of Cameroon). *Kervan – International Journal of African and Asiatic Studies* 28(1), 3-28.
- Andrason, A., Karani, M. 2021. Conative calls to animals: from Arusa Maasai to a cross-linguistic prototype. *Lodz Papers in Pragmatics* 17(1-2), 3–41.
- Andrason, A., Mulugeta, O., Mazengia, S. 2024. Conative animal calls in Macha Oromo: function and form. *Linguistics Vanguard* <https://doi.org/10.1515/lingvan-2023-0056>.
- Bergmann, J.R. 1988. Haustiere als kommunikative Ressourcen. In: Soeffner, H.-G. (Ed.), *Kultur und Alltag*. Schwarz, pp. 299-312.
- Bolton, H.C. 1897a. The language used in talking to domestic animals. *American Anthropologist* 10(3), 65-90.
- 1897b. The language used in talking to domestic animals. *American Anthropologist* 10(4), 97-113.
- Burnham, D., Kitamura, C., Vollmer-Conna, U. 2002. What's new, pussycat? On talking to babies and animals. *Science* 296, 1434-35.
- Bynon, J. 1976. Domestic animal calling in a Berber tribe. In: McCormack, W.C., Wurm, S.A. (Eds.), *Language and Man: Anthropological Issues*. Mouton, pp. 39-66.
- Corby, D. 2016. How to Teach Your Horse to Stop // Voice Commands // Horse Training Tips with Deanna Corby Dressage. Uploaded 12/05/2016. <https://www.youtube.com/watch?v=df-C3QzzG3Q> Last accessed 12/06/2024.
- Cornips, L. 2019. The final frontier: non-human animals on the linguistic research agenda. In: Berns, J., Tribushinina, E. (Eds.), *Linguistics in the Netherlands* 36(1), Benjamins, pp. 13–19.
- 2022. The Animal Turn in Postcolonial Linguistics: the interspecies greeting of the dairy cow. *Journal of Postcolonial Linguistics* 6, 209–231.
- Couper-Kuhlen, E., Selting, M. 2018. *Interactional Linguistics. Studying Language and Social Interaction*. Cambridge University Press.

- Dashper, K. 2016. Learning to communicate: the triad of (mis)communication in horse riding lessons. In Davis, D., Maurstad, A. (Eds.), *The Meaning of Horses: Biosocial Encounters*, Routledge, pp. 87-101.
- Dingemanse, M. 2023. Interjections. In: van Lier, E. (Ed.), *The Oxford Handbook of Word Classes*. Oxford University Press, pp. 477-491.
- 2020. Between sound and speech: liminal signs in interaction. *Research on Language and Social Interaction*, 53(1), 188-196.
- Equitana Podcast 2023. Der Equitana Podcast mit Julia Zenner. 12/10/2023.
<https://www.equitana.com/essen/de-de/fuer-besucher/podcast.html> Last accessed 12/06/2024.
- Grahn, I-L., Lindholm, C., Huhtamäki, M. 2023. Accounting for changes in series of vocalisations - Professional vision in a gym-training session. *Journal of Pragmatics* 212, 72-86.
- Harjunpää, K. 2022. Repetition and prosodic matching in responding to pets' vocalizations. *Language & Society* 176(2), 69-102.
- Heleski, C., Wickens, C., Minero, M., DallaCosta, E., Wu, C., Czeszak, E., von Borstel, U.K. 2015. Do soothing vocal cues enhance horses' ability to learn a frightening task? *Journal of Veterinary Behavior: Clinical Applications and Research* 10(1), 41–47.
- Hirsh-Pasek, K., Treiman, R. 1982. Doggerel: motherese in a new context. *Journal of Child Language* 9, 229-237.
- Hoey, E.M. 2014. Sighing in interaction: somatic, semiotic, and social. *Research on Language and Social Interaction* 47(2), 175–200.
- Hofstetter, E. 2020. Nonlexical “moans”: response cries in board game interactions. *Research on Language and Social Interaction* 53(1), 42-65.
- Hutchby, I., Wooffitt, R. 2008. *Conversation Analysis*. 2nd Edition. Polity Press.
- Keating, P.A. 1988. Underspecification in phonetics. *Phonology* 5(2), 275–292.
- Jääskeläinen, A. (forthcoming) “But for calves we were sweeter”. Cattle calls as trans-species pidgin and calling different animals in traditional Finnish cattle calling. *Language & Communication*.
- Jääskeläinen, A. 2021. Eläinten omat sanat: Eläimille suunnatut interjektiot ihmisen ja eläimen vuorovaikutuksen osina. In: Peltola, R., Jääskeläinen, A., Harjunpää, K. (Eds.), *Kieli ja eläin: Vuorovaikutusta ja kielioppia monilajisissa yhteisöissä*. Helsinki: Suomalaisen Kirjallisuuden Seura, pp. 133–184.
- Jeannin, S., Gilbert, C., Leboucher, G. 2017. Effect of interaction type on the characteristics of pet-directed speech in female dog owners. *Animal Cognition* 20, 499-509.
- Keevallik, L. 2014. Turn organization and bodily-vocal demonstrations. *Journal of Pragmatics* 65, 103–120.

- 2021. Vocalizations in dance classes teach body knowledge. *Linguistics Vanguard* 7(s4), 20200098.
- Keevallik, L., Hofstetter, E., Weatherall, A., Wiggins, S. 2023. Sounding others' sensations in interaction. *Discourse Processes* 60(1), 73-91.
- Keevallik, L., Ogden, R. 2020a. Sounds on the Margins of Language. Special Issue. *Research on Language and Social Interaction* 53(1).
- (2020b). Sounds on the margins of language at the heart of interaction. *Research on Language and Social Interaction* 53(1), 1-18.
- Kohn, E. 2013. *How Forests Think: Towards an Anthropology Beyond the Human*. University of California Press.
- Lansade, L., Trösch, M., Parias, C., Blanchard, A., Gorosurreta, E., Calandreau, L. 2021. Horses are sensitive to baby talk: pet-directed speech facilitates communication with humans in a pointing task and during grooming. *Animal Cognition* 24, 999–1006.
- Li, X. 2020. Click-initiated self-repair in changing the sequential trajectory of actions-in-progress. *Research on Language and Social Interaction* 53(1), 90-117.
- Lundgren, C. 2017. Ridtränares kommunikation under privatlektioner i dressyr: en samtalsanalytisk studie. *Scandinavian Sport Studies Forum* 8, 67–86.
- Lundesjö Kwart, S. 2020. Instructions in horseback riding - the collaborative achievement of an instructional space. *Learning, Culture and Social Interaction* 25, 100253.
- Lundesjö Kwart, S., Melander Bowden, H. 2022. Instructing equestrian feel: on the art of teaching embodied knowledge. *Scandinavian Journal of Educational Research* 66(2), 290-305.
- Lundesjö Kwart, S., Szczepek Reed, B. in prep. Horses as instructional partners: how learnables emerge in an interspecies instruction setting.
- Mitchell, R.W. 2024. Dog talk. Dogs and humans barking and growling during interspecies play. *Interaction Studies* 24(3), 484-514.
- Mitchell, R.W. 2001. Americans' talk to dogs: similarities and differences with talk to infants. *Research on Language and Social Interaction* 34(2), 183-210.
- Mitchell R.W., Edmonson, E. 1999. Functions of repetitive talk to dogs during play: control, conversation, or planning? *Society and Animals* 7, 55–81.
- Mo-Jo 2013. Anyone speak German? (Ingrid Klimke XC). [Online forum post]. *Horse and Hound, The Tack Room*. <https://forums.horseandhound.co.uk/threads/anyone-speak-german-ingrid-klimke-xc.640072/> Last accessed 12/06/2024.
- Mondada, L. 2019. Conventions for multimodal transcriptions. Version 6.0.1. <https://www.lorenzamondada.net/multimodal-transcription> Last accessed 12/06/2024.
- Mondémé, C. 2024. Gaze in interspecies human–pet interaction: some exploratory analyses. *Research on Language and Social Interaction* 56(4), 291–310.

- 2023a. Interspecies haptic sociality: the interactional constitution of the horse's esthesiologic body in equestrian activities. *Human Studies* 46(4), 701–721.
- 2023b. Shared intelligibility in interactions between visually impaired people and guide dogs. In: Due, B.L. (Ed.), *The Practical Accomplishment of Everyday Activities Without Sight*. Routledge, pp. 49–68.
- 2018. How do we talk to animals? Modes and pragmatic effects of communication with pets. *Langage et Société* 163(1), 77-99.
- Norris, S. 2012. Teaching touch/response-feel. A first step to an analysis of touch from an (inter)active perspective. In: Norris, S. (Ed.), *Multimodality in Practice: Investigating Theory-in-Practice-Through-Methodology*. Routledge, pp. 7–19.
- Ogden, R. 2021. Swallowing in conversation. *Frontiers in Communication*, 6:657190.
- 2020. Audibly not saying something with clicks. *Research on Language and Social Interaction* 53(1), 66-89.
- 2018. The actions of peripheral linguistic objects: Clicks. In: Ginzburg, J., Pelachaud, C. (Eds.), *Proceedings of Laughter Workshop 2018*. Sorbonne Université, pp. 2-5.
- 2013. Clicks and percussives in English conversation. *Journal of the International Phonetic Association* 43(3), 299–320.
- Pennycook, A. 2018. *Posthumanist Applied Linguistics*. Routledge.
- Peltola, R., Simonen, M. (Eds.), 2024. Towards interspecies pragmatics: Language use and embodied interaction in human-animal activities, encounters, and narratives. Special Issue. *Journal of Pragmatics* 220, 15-19.
- Rasenberg, M., Amha, A., Coler, M., Van Koppen, M., van Miltenburg, E., De Rijk, L., Stommel, W., & Dingemanse, M. 2023. Reimagining language. Towards a better understanding of language by including our interactions with non-humans. *Linguistics in the Netherlands* 40(1), 309-317.
- Reber, E. 2012. *Affectivity in Interaction: Sound Objects in English*. Benjamins.
- Rettig, H. 2022. Versuche der Grenzüberschreitung: Zur Rolle der Empathie in der Interspezies-Interaktion. In: Lind, M. (Ed.), *Mensch – Tier – Maschine: Sprachliche Praktiken an und jenseits der Außengrenze des Humanen*. transcript, pp. 195-227.
- 2020. Praktiken des Empathisierens in Reitunterricht und Pferdeausbildung. In: Jacob, K., Konerding, K.-P., Liebert, W.-A. (Eds.), *Sprache und Empathie*. de Gruyter, pp. 285-332.
- Roberts, F. 2004. Speaking to and for animals in a veterinary clinic: a practice for managing interpersonal interaction. *Research on Language and Social Interaction* 37(4), 421-446.
- Schegloff, E.A. 2007. *Sequence Organization in Interaction. A Primer in Conversation Analysis*. Cambridge University Press.

- Schmidt, T. 2014. The Research and Teaching Corpus of Spoke German – FOLK. Proceedings of the Ninth Conference on International Language Resources and Evaluation (LREC'14), 383-387.
- Selting, M., Auer, P., Barth-Weingarten, D., Bergmann, J., Bergmann, P., Birkner, K., Couper-Kuhlen, E., Deppermann, A., Gilles, P., Günthner, S., Hartung, M., Kern, F., Mertzluft, C., Meyer, C., Morek, M., Oberzaucher, F., Peters, J., Quasthoff, U., Schütte, W., Stukenbrock, A., Uhmann, S. (2009). Gesprächsanalytisches Transkriptionssystem 2 (GAT 2). *Gesprächsforschung* 10, 353-402.
- Translated and adapted for English by Couper-Kuhlen, E., Barth-Weingarten, (2011). *Gesprächsforschung* 12, 1-51.
- Szczepek Reed, B. 2024a. “You don’t need me shouting here”: When instructors observe learners in silence. *Research on Language and Social Interaction* 57(2), 169–192.
- Szczepek Reed, B. 2024b. Escalating prosody: the vocal depiction of mobile action sequences. *Interactional Linguistics* 4(1), 97-129.
- Szczepek Reed, B. 2023a. Designing talk for humans and horses: prosody as a resource for parallel recipient design. *Research on Language and Social Interaction* 56(2), 89-115.
- Szczepek Reed, B. 2023b. “Go on keep going”: The instruction of sustained embodied activities. *Discourse Studies* 25(5), 692-717.
- Tannen, D. 2004. Talking the dog: framing pets as interactional resources in family discourse. *Research on Language and Social Interaction* 37(4), 399-420.
- Tolins, J. 2013. Assessment and direction through nonlexical vocalizations in music instruction. *Research on Language and Social Interaction* 46(1), 47–64.
- Torres Cajo, S., Bahlo, N. 2016. „Ach der ist ja süß...“ – Gassigespräche. Eine kommunikative Gattung in Hinblick auf Soziabilität und Zweckorientierung. *Deutsche Sprache* 44(1), 77-96.
- Wiggins, S. 2013. The social life of 'Eugh': disgust as a form of evaluation in family mealtimes. *British Journal of Social Psychology* 52(3), 489–509.
- Wiggins, S., Keevallik, L. 2021. Parental lip-smacks during infant meal times. Multimodal features and social functions. *Interactional Linguistics* 1(2), 241-272.
- Wright, M. 2011a. On clicks in English talk-in-interaction. *Journal of the International Phonetic Association* 41(2), 207-229.
- 2011b. The phonetics–interaction interface in the initiation of closings in everyday English telephone calls. *Journal of Pragmatics* 43(4), 1080-1099.
- Xu, N., Burnham, D., Kitamura, C., Vollmer-Conna, U. 2013. Vowel hyperarticulation in parrot-, dog- and infant-directed speech. *Anthrozoös* 26(3), 373-380.
- Zetterqvist Blokhuis, M. 2021. Teaching horse riding: is the role of the horse recognized? *Society & Animals* 31(5-6), 797-813.

- 2019. Interaction Between Rider, Horse and Equestrian trainer. A Challenging Puzzle.
Södertörn Doctoral Dissertations 162.

Appendix

Verbal transcription, adapted from Selting et al. (2009/ 2011)

(.)	noticeable micro pause, below (0.2)
(1.2)	measured pause
:::	lengthening
ACcent	primary pitch accent
Accent	secondary pitch accent
<<h>	high pitch register
<<f>	forte
.h .hh .hhh	in-breath
h hh hhh	out-breath
	lateral click
!	dental click
⊙	bilabial click

[talk

[talk overlap

Phrase-final pitch movements:

?	rise-to-high
,	rise-to-mid
-	level
;	fall-to-mid
.	fall-to-low