THE INTERACTIONAL ORGANISATION
OF PAIN DISPLAYS
IN MEDICAL CONSULTATIONS

BY

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Abstract

Pain is commonly understood as a private experience situated within the individual. However, pain also takes place in the social world, emerging as an interactional event *between* individuals. The current thesis examined pain displays in interaction and showed how they are sensitive to, and shaped by, the immediate social environment. Discursive psychology and conversation analysis were used as theoretical and methodological frameworks to investigate pain displays as social actions. The empirical data of the study were video recordings of medical consultations between general practitioners and patients. Pain displays within physical examinations were analysed as complex multimodal Gestalts following Mondada (2014b); these are locally constituted from a web of embodied and vocal resources. The first analytic chapter focused on pain displays and the organisation of turns. Participants oriented to pain displays as structural units with an onset, peak, and projectable completion place that organised when and how they built their turns-at-talk. Pain displays were also visible in the progressivity of turns-at-talk, emerging at transition relevant places, suspended and re-initiated with respect to speaker turns. The second analytic chapter showed that pain displays were sequentially organised. Pain displays were oriented to as responsive actions that progressed pain solicitations. However, they did not lead to activity closure, raising questions about the status of pain displays as conditionally relevant next actions. The thesis demonstrated the orderly ways pain displays were coordinated with, and contributed to, the diagnostic work of the ongoing medical interaction. Pain displays were found to be inextricably tied to the interactional environment, a finding supported by other research which has shown internal states like pain and emotion are produced as socially-organised practices. Finally, the thesis contributes to debates within multimodal research, providing support for the utility of talk-focused conversation analytic concepts to describe embodied action. The findings also have practical applications for people seeking medical help for pain.

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Chapter 1: Introduction

Within lay and professional understandings, pain is typically thought of as a physiological phenomenon located in the body that erupts from within the individual and into the social world. These understandings have informed how scientists approach the expression of pain, viewing it as a window into people's internal experience of suffering. In this thesis I take a different approach, bracketing off the internal world to consider displays of pain as a socially organised interactional event. Although pain is typically thought to be located and experienced in the body, pain emerges in social environments where it can be consequential for the trajectory of talk and action. Using discursive psychology as a theoretical framework and multimodal conversation analysis as an analytic approach, I consider the interactional organisation of pain displays within the context of medical consultations.

The central claim of the thesis is that there is an orderliness to how pain displays impact, and are impacted by, the temporal unfolding of interaction. In support I present empirical work to demonstrate that pain displays are organised with respect to turn-taking and sequence. There are two key contributions that emerge from my research. First, it shows that pain displays, an embodied phenomenon typically thought of as outside of discourse, are systematically organised in talk-in-interaction. This destabilises the widely presumed boundaries between the individual and the social. Second, it shows that embodied actions, like pain displays, can be described using concepts based on the sequentially of talk, such as turn constructional units and sequence, albeit with some limitations. Such findings speak to debates in multimodal research and show that talk-based conversation analytic concepts are applicable to embodied conduct.

The structure of the thesis is as follows: It begins with an introduction that situates the research theoretically, justifies my approach to pain, and reviews the relevant research into pain in interaction. The introduction is followed by a method chapter that describes the data and research process. Subsequent are two analytic chapters. The first looks at the organisation of pain displays as units of action at the level of turns. The second broadens out to consider pain displays as actions in sequence. Closing the thesis is a chapter discussing the findings and their relevance to the wider literature.

Having provided an outline of the thesis as a whole, I now turn to the rest of this chapter. I begin by situating the research of the thesis within the wider literature and explain how pain is commonly approached. I highlight a theoretical lack in the existing research, which fails to recognise that pain gains its meaning from the social context, and in doing so I justify my approach to pain as an interactional event. This is followed by a description of discursive psychology, a theoretical framework that I draw upon because it offers alternative way to conceptualise pain. I then review the relevant literature on pain and emotion, which demonstrates how internal states can be re-specified as an object for analytic study and exemplifies how I will analyse pain. To close the chapter, I describe the specific research questions that this thesis addresses and explain how these will be answered using conversation analysis as an analytic tool.

Pain as an individual experience

Pain is a ubiquitous form of distress affecting people from all populations regardless of age, sex, income, race/ethnicity, or geography (Hadjistavropoulos & Craig, 2004). Despite the ubiquity and universality of pain, many researchers have puzzled over how best to conceptualise it (Gatchel & Kishino, 2011). Whether pain can be categorised as a sensation, emotion, or something else entirely, is a constantly evolving debate. For decades, pain was investigated as sensation. Early biomedical models considered pain to be an objective event where tissue damage stimulates a response from the nervous system (Gatchel et al., 2007). Subsequent neurobiological research showed that pain sensations are generated by the brain's response to perceived danger rather than an injury itself. This caused psychological and social factors to be integrated into conceptions of pain, leading to the recent, more holistic, biopsychosocial model of pain (Hadjistavropoulos et al., 2011). In complement to more holistic approaches to pain, is a burgeoning number of studies within neuropsychology that have linked pain to emotion processes in the brain (Lumley et al., 2011). A key implication of this research is that pain is no longer considered purely biological but also psychological, emotional, and social. Although conceptualisations of pain have developed, and in the process have acknowledged a social aspect, the primacy given to pain as an internal experience has remained constant. This is epitomised by the International Association for the Study of Pain (IASP), a multi-disciplinary body of researchers and practitioners, who define pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of damage" (2018; para. 2).

The idea of pain as an individual experience is prevalent in social psychological research focusing on the social communication of pain. This body of research uses quantitative measurement to try and access people's internal pain experience. Two main methods are used for measuring pain including verbal self-report on rating scales (e.g.

slightly to excruciating) and non-verbal communication measures including observation (Hadjistavropoulos & Craig, 2004). These forms of measurement offer a tool to objectify another's subjective experience.

Latent behind the pain communication approach is an assumption that the expression of pain has a social function (Hadjistavropoulos et al., 2011). Craig (2009) argued that how pain is experienced and then expressed influences how an observer appraises the pain and makes judgements regarding a sufferer's care. The verbal and non-verbal communicative components of pain expression make internal experiences of pain externally available to others. From this perspective, the sufferer's expression of pain is a communicative action decoded by another.

Pain communication research approaches pain as an internal and private state accessible only through communicative verbal and non-verbal behaviours which directly reflect one's experience. It is a tenuous proposition. The idea that language maps words to concepts and representations in each person's mind has faced critique from the philosopher Wittgenstein's (1953) private language argument, an important theoretical influence on discursive psychology. Wittgenstein argued that language is a social event, and meaning happens between language users. Taking pain as an example, Wittgenstein argued that language has no meaning independent of its context. Pain gains its meaning from its use within a 'language game'—by the way it functions outside the individual. Without context, pain has no particular meaning as it is not significant for a particular purpose. Thus, how pain words get attached to pain sensations is unknowable because the subjective experience can never be separated from the words that describe it. The object of study, Wittgenstein argued, should be how pain is used through language to do particular kinds of activity.

This brief review of research on pain and pain communication shows how approaches to pain typically situate it as occurring within the individual. Taking the perspective that such an approach does not adequately address pain, I instead focus on how pain is displayed in interaction rather than how language reflects people's internal experiences of pain.

Theoretical and methodological frameworks

Some of the ideas imparted by Wittgenstein's (1953) philosophy are further developed in the theoretical and methodological frameworks informing my research question. These are discursive psychology and conversation analysis. Discursive psychology offers a lens to examine pain in the social world and conversation analysis provides a 'toolkit' to uncover the practices that people use to construct, understand, and display pain in everyday interaction.

Discursive Psychology. Discursive Psychology offers a distinctive framework to theorise about internal experiences, such as pain. Discursive Psychology developed from Potter and Wetherell's (1987) pioneering work that sketched a framework for approaching psychological phenomena as they become observable in talk and texts. Instead of viewing language as a window into internal psychological processes and a tool to 'get inside the mind', Discursive Psychology brackets off issues of cognition (Wiggins & Potter, 2008). The heart of analysis is discourse, which is language *in use* in text and interaction (Wiggins, 2016). Discourse is taken to be the "primary arena for action, understanding and intersubjectivity" (Wiggins & Potter, 2008, p. 73). It is through texts and everyday interactions that people invoke, construct, display, and understand psychological phenomena like attitudes, emotions, and, of course, pain.

Discursive Psychology is built upon three main principles which inform the approach to psychological phenomena (Potter & Edwards, 2001), such as pain. The first is that discourse accomplishes action. Discourse is a vehicle to carry out tasks in everyday interaction such as blaming, justifying, accounting, and displaying internal states. Similarly, psychological terms like 'angry' (Edwards, 1999) or 'know' (Weatherall, 2011) or 'pain' can be investigated to understand how they are deployed in interaction to accomplish action. Secondly, discourse is constructed, built from resources such as words, categories, and embodied actions. Thus, psychological concepts like pain can be re-specified and examined for how they are accomplished in interaction. The third principle is that discourse is situated. This means that discourse must be understood in the specific context that it is produced and organised. It is situated within sequences of interaction, where any utterance is understood according to what precedes and follows it. Following this principle, I examine how pain is (sequentially) organised in social interaction.

Some phenomena present challenges for discursive study. Scholars have argued that the world is not solely constructed through language; there is some bedrock of reality to human life that cannot be discursively analysed (Burr, 1999; Cromby & Nightingale, 1999). Embodiment, and various psychological phenomena related to the body, such as emotions, perceptions, and pain, are argued by some to be extra-discursive. They are considered experiences that are constructed and expressed through embodiment in ways that cannot be translated into discourse (Burr, 1999). However, Edwards, Ashmore, and Potter (1995) pointed out that aspects of embodied materiality make meaningful contributions to interaction. They argue that embodied behaviour, like words, can also signify and produce social action. From their perspective, embodied behaviour is constructive of the world and, therefore, is a site for discursive study. Despite the possibility that aspects of embodiment, like the internal experience of pain, are outside of language, what can be discursively analysed is how embodied actions, such as pain displays, figure in talk-in-interaction.

Conversation analysis. Conversation analysis, a powerful qualitative methodology, is increasingly becoming the method of choice within discursive psychology to study social interaction.

The fundamentals of conversation analysis originate from the work of Erving Goffman (1972) and Harold Garfinkel (1967). Goffman established that social life has an underlying organisation, and can be investigated as a topic in its own right. Garfinkel, the founder of ethnomethodology, was concerned with how social members make sense of the everyday social world and build joint understanding. According to Garfinkel, people have methodical and orderly procedures to produce recognisable courses of social action. Sacks (1992) combined these ideas to develop conversation analysis, which is founded on the assumption that social interactions in everyday life have a previously unimaginable orderliness that can be the target of systematic study (Heritage & Clayman, 2010).

The aim of conversation analysis is to uncover the structures and organisations that produce social interaction and to identify and describe the ordinary practices that participants use to produce intelligible actions (Atkinson & Heritage, 1984; Schegloff, 1991). Despite its name, conversation analysis is not only focused on talk, but all aspects of observable behaviour in interaction. The 'embodied turn', a burgeoning field of work on interaction and embodiment, demonstrates that embodied behaviour, like talk, is also ordered (Nevile, 2015). This means that conversation analysis can shed light on the audible and *visible* orderly practices which make embodied conduct recognisable to others as pain. Conversation analysis offers two main ways to study embodied action (Potter & Hepburn, 2008), both are applicable to pain. It can be used to study embodied displays of pain that are coordinated with, and contribute to, the ongoing going interaction. It can also be used to investigate how the pain is invoked, displayed, and responded to in interaction.

In order to demonstrate how pain displays, as embodied phenomena, can be discursively analysed in talk-in-interaction, I will now describe a body of literature that exemplifies the different ways pain and other internal states have been approached in conversation analytic research.

Research review: Pain and emotions in social interaction

As discussed earlier, there has been much debate about how to conceptualise pain. For decades pain was investigated as sensation. Recently, however, pain has been linked to emotion processes in the brain (Lumley et al., 2011). Some suggest that pain is both a sensation and an emotion (Perl, 2007), which is reflected in its current definition (IASP, 2018). Although there appears to be no clear categorical fit for pain, the focus of the thesis is not what pain is but, instead, *how it occurs in interaction* and *how it is oriented to by participants*. In this section I draw upon emotion research in conversation analysis, not because I take a stance on pain as emotion, but because it exemplifies a conversation analytic approach to internal states as manifest in interaction. This section will review research on a number of different emotions as they inform the relatively sparse area of pain research.

Displays of emotion. Visceral bodily expressions, such as laughing and crying, are commonly conceptualised as emotive displays driven by uncontrollable physiological processes. Putting aside preconceived understandings of bodily expressions, conversation analytic research has systematically investigated how laughter and crying are actually invoked in everyday interaction. Jefferson, Sacks, and Schegloff (1987) showed that laughter is a methodically produced activity that is carefully coordinated with the actions of participants. In sequences where impropriety is followed by affiliation, laughter often occurred as a pre-affiliating mid component. Laughter, it seems, is deployed as a resource for interaction, which suggests that it is more complex than an uncontrollable bodily function. In a similar vein, Hepburn (2004) examined the different features that constitute crying such as whispering, sniffing, and wobbly voice. Hepburn suggested that these seemingly inconsequential features of crying may hold different functions that are consequential for interaction. For example, wobbly voice signals distress yet a willingness to continue talking. Such research on laughter and crying suggests that phenomena typically understood as uncontrollable physiological responses to emotive stimuli, are in fact oriented to by participants as orderly social practices used to manage everyday interactional demands.

Other conversation analytic research has examined emotional displays or what is termed by Goffman as response cries. These are “exclamatory interjections that are not fully-fledged words” (Goffman, 1978, p. 900), such as ‘ow’, ‘oops’, and ‘ew’. According to Goffman, social members understand response cries as externalisations of inner emotional states that maintain a sense of unintentionality. They are conveyed as if escaping control and blurted out, rather than purposefully communicated. Goffman theorised that despite their apparent spontaneity, response cries may have an interactional function. However, his arguments were not grounded in its actual usages in everyday interaction. Conversation analytic research has since provided systematic data for Goffman's theorisation about the social uses of response cries. For example, surprise is commonly understood as a spontaneous response to an unexpected stimulus. This has been challenged by Wilkinson and Kitzinger (2006), who showed that expressions of surprise are systematically organised interactional achievements used to accomplish social action. They found that co-participants collaborated to produce a display of surprise, preparing for its occurrence several turns in advance. Moreover, surprise was displayed in relation to a surprise source more than once without sacrificing a visceral, immediate character.

Other conversation analytic research has examined the sequential environments where response cries regularly occur and how these perform specific function. 'Gustatory mmm's' can display pleasure during eating (Wiggins, 2010), sighs display 'resignation' in complaint and acknowledgement sequences (Hoey, 2014), 'oh' delivered with a subdued prosody displays disappointment following a rejection of a request or proposal (Couper-Kuhlen, 2009), and oh-prefaced assessments such as 'Oh god' can display empathy following announcements of trouble (Maynard, 2003).

The research discussed so far highlights the organisation of verbal/vocal resources which constitute emotion displays. However, as Goodwin and Goodwin (2001) argued, emotion is also an embodied performance and it is displayed through a range of embodied practices. A study by Clift (2014) identified an embodied practice called 'visible deflation', which is characterised by a transition from a body position in tension to a slumped position. Clift argued that this bodily resource systematically occurred as an action used to display what can be glossed as exasperation in response to a prior turn.

Ruusuvuori and Peräkylä (2009) examined facial expressions produced before assessments in storytelling. They found that facial expressions can stretch the temporal boundaries of a turn-at-talk, displaying a stance towards what is being said before the evaluation itself. This suggests that embodied conduct has different affordances from verbal/vocal conduct, allowing unique contributions to the production of an emotional display. Other research has shown that turn-opening smiles can initiate an emotional transition in conversation (Kaukomaa, Peräkylä, & Ruusuvuori, 2013), recipients' facials expressions can modify the emotional stance displayed by the speaker's utterance (Kaukomaa, Peräkylä, & Ruusuvuori, 2015), and turn-opening frowns can foreshadow something problematic in an upcoming utterance (Kaukomaa, Peräkylä, & Ruusuvuori, 2014).

In sum, discursive and conversation analytic research has begun to build a different view of emotion by examining how it is invoked, described, and made accountable for interactional purposes. This body of work shows that verbal and embodied emotional displays are socially organised and used to perform social action. This shows how something like pain, commonly conceived as residing within the body, can be re-specified and studied as a social object.

Pain displays. Some conversation analytic research has begun to examine the orderly ways that pain is accomplished in everyday interaction. Jenkins and Hepburn (2015) examined children's expressions of pain and discomfort during mealtimes. They identified four distinct components which comprised pain expression. This included lexical formulations (e.g. 'it hurts'), features of crying and upset (e.g. creaky delivery), pain cries (e.g. separate utterances like 'ow'), and non-verbal embodied actions (e.g. shifting from side to side). They suggest possible interactional functions for each component. For example, the pain cry can wordlessly orient participants to some trouble and the embodied actions can draw attention to a specific part of the body. This suggests that it is important to attend to the different ways that pain is expressed in interaction.

In the same study, Jenkins and Hepburn (2015) also examined how pain expressions were treated by participants, and found that pain expressions were socially accountable. Participants treated pain expressions as making available a trouble source sensation and responded by asking diagnostic questions about the nature, severity, and location, thus treating pain expressions as private internal states only accessible to and reportable by the sufferer. In another study, Jenkins (2015) showed that children's pain expressions could be negotiated. Although children claimed unmediated access to their own experience and rights to report on their experience, the nature of pain sensations were negotiated in extended sequences. Adult's responses formulated the sensation as serious, easily resolvable, or exaggerated, and children displayed rights to accept or resist another's claim. This reveals participants' orientations of pain as an internal but also unfixed experience, where the precise nature of that pain can be negotiated in interaction.

Other research has shown how pain emerges in the sequential progression of medical actions and activities. Heath (1989) examined patients' expressions of 'unpleasant physical sensation' in response to doctor's physical manipulations during physical examinations. Pain displays were used to negotiate a tension between demonstrating reasonable grounds for seeking the doctor's help while taking an analytic stance towards their own medical problem. Heath observed how pain cries expressed suffering but also marked the moment in the manipulation where pain was experienced. These diagnostically relevant pain cries were treated as the basis for further enquiries and not responded to with sympathy. This work is significant as it shows that expressions of pain and responses to it are organised and sensitive to the local accomplishment of specific actions and advance the diagnostic activity.

In another study, McArthur (2018) examined expressions of pain in unsolicited environments during physical examinations, where doctors do not ask for pain information. McArthur suggested that in these contexts independently asserting pain risks breaching the interactional norm that requires patients to defer to doctors' medical authority. Pain displays were a practice used to assert pain in unsolicited environments while managing this interaction delicacy. Like response cries, pain displays are characterised by a sense of unintentionality and uncontrollability. Pain displays can assert pain information while also being accounted for, as the product of a sudden and uncontrollable pain sensation. Thereby, it displays the patient's reduced agency over providing the unsolicited pain information. In both Heath's and McArthur's study, pain displays served an interactional function, balancing the tensions pertaining to interactional obligations and power asymmetries that characterise medical consultations.

Berducci (2016) took a more micro-approach to pain, investigating how displays were structured with respect to turn-taking. Berducci argued that infant pain cries during vaccinations are systematically responded to by adults and used as devices in turn-taking, and were therefore inadvertently deployed as interactional resources. Infant's cries, which were considered natural reactions, became integrated into the interactional order through adults' responses, who oriented to pain cries as infant turns. Berducci demonstrated that infant cries' have a structure that is a resource in turn-taking. Their cries manifested with an inverted "U"-shaped intensity, which made their ends projectable. Once the cries reached a 'peak' of intensity then the 'fall' in intensity and completion was projectable, providing a transition relevant space where adults began their next turns. Berducci emphasised that only adults' responses invoked the normative turn-taking order. Infants' responses to adults' actions were not systematically organised—their responses did not come at transition relevant place.

In sum, the existing literature examines how pain, as a social object, is deployed and oriented to in interaction, and used as a resource to manage interactional demands within medical consultations. It shows that how pain is displayed is bound up in the social environment and organised with respect to the interactional tasks and goals within the local context. Lacking, however, is research focusing on how pain displays emerge within the progressivity of talk at the level of turns and actions. Only Berducci (2016) has begun to address this important topic by showing that pain displays are used as resource for turn-taking by recipients. Berducci's research suggests that pain displays contribute to the temporal unfolding of talk and can be consequential for the trajectory of talk and action. An important implication of this research is that the organisations that build and structure talk, such as turn-taking organisation, can be used to analyse pain in interaction. Building upon Berducci's research, in this thesis I draw upon structures within talk to analyse the interactional organisation of pain displays. The aim of this research is to investigate the extent to which pain displays contribute to, and are influenced by, the temporal unfolding of interaction.

Analytic approach

This thesis adopts the tools of multimodal conversation analysis to examine pain displays as socially organised embodied phenomena. In the section below I detail how conversation analysis is applied to multimodal conduct and how such an approach can be used to analyse pain displays. Then I discuss the specific focus of the thesis and how this draws upon established conversation analytic findings.

A multimodal conversation analytic approach. Conversation analysis has uncovered some of the structures and organisations that produce social interaction, largely with a focus on talk (Atkinson & Heritage, 1984). The same orderly practices that produce talk-in-interaction may also shape how pain displays are produced as social actions. However, as pain is conceptualised in lay and professional understandings as a mostly physiological phenomenon located and experienced in the body, an interactional analysis of pain needs to address its embodied nature and attend to the bodily practices used to invoke and elicit pain.

Early studies employing conversation analysis relied mostly on audio recordings and focused on verbal conduct, however improvements in video recording and editing technology has enabled micro-analyses of multimodal embodied conduct (Mortensen, 2012). The embodied turn in multimodal conversation analysis focuses attention on how social action is constituted through resources beyond speech (Mondada, 2016a; Streeck, Goodwin, & LeBaron, 2011). This includes embodied resources such as gesture, gaze, facial expressions, body postures, body movements, and linguistic resources such as grammatical constructions and prosodic contours (Mondada, 2014b). Taking a multimodal approach allows conversation analysts to address the constitution of social action more holistically. For example, pain displays can be observed directly through other resources such as non-lexical vocalisations, facial expressions, and bodily conduct, and also claimed and described through speech.

Although many resources can comprise social actions, such as with pain displays, there is no a priori hierarchy and no analytic priority given to any resource within conversation analysis (Mortensen, 2012). These resources are not considered independently of each other but as a combination of embodied and linguistic modalities jointly used to perform social action (Mortensen, 2012; Stivers & Sidnell, 2005). Some approaches focus on a particular aspect of multimodal interaction in a specific sequential environment (e.g. nod, gaze, facial expression), whereas others focus on a web or resources used together to produce actions which are known as complex multimodal Gestalts (Mondada, 2016b). In this thesis the focus is on the constitution of pain displays through co-occurring and coordinated embodied and vocal resources, rather than a single modality.

Different terms are used to refer to this conversation analytic research on embodied interaction including ‘multimodal interaction’, ‘embodied interaction’, or ‘multimodality’ (Nevile, 2015). Subsets of interactional studies which adopt these categories imply that talk-focused research like conversation analysis disregard other modalities treating interaction as monomodal or disembodied. Hazel, Mortenson, and Rasmussen (2014) took the position that the different categories are redundant because all interaction, even talking, is performed by embodied beings in the material world. Although the analytic focus might be on visual or verbal elements, depending on what is treated as potentially relevant for constructing an action, all research into social interaction is fundamentally about embodied interaction. The same stance is taken in this thesis. ‘Interaction’ is considered a sufficient category that indexes all the resources people deploy to construct social action. However, terminology such as ‘multimodal’ and ‘embodied’ are utilised to hone the analytic focus when it pertains specifically to interactional contributions involving the body rather than verbal or vocal conduct. Phrasings such as non-vocal and non-verbal have faced critique for presenting human conduct in a bi-partite way (Nevile, 2015; Mondada, 2014b). Recognising such critiques, I use contrasting terminology in the analyses of this thesis only when comparison is being purposefully invoked, such as in cases where the affordances garnered by vocal modalities is being compared to the non-vocal.

Sequential structures. This thesis develops research on pain by examining the extent to which pain displays in medical consultations are sequentially organised with respect to turn-taking and sequence. There are established sets of practices, norms, and preferences that are fundamental to the ways talk-in-interaction progresses. These sequential structures are applied to the analysis of pain displays to investigate whether the same practices used for conducting talk, are also involved in the production of pain displays.

Turn constructional units. I draw upon Sacks, Schegloff, and Jefferson's (1974) model of turn-taking to understand how pain displays are organised with respect to turns. Their model of turn-taking explicates the orderly and systematic manner in which participants coordinate and allocate turns-at-talk. Relevant to my analyses is the concept of turn constructional units which are considered as the building blocks of turns-at-talk. Turn constructional resources are built from linguistic resources such as non-lexical or lexical items, clauses, phrases, and sentences (Hazel, Mortenson, & Rasmussen, 2014). Each turn constructional unit is recognised as a self-contained and possibly complete utterance. Turn constructional units function as a resource for speaker change. At or near the end of a turn construction unit is a transition-relevant place where a transfer of speakership becomes a possibility. The progression of each turn construction unit makes it possible to project the end of a turn and locate opportunities for a change in speakership.

The analyses presented later utilise the concept of turn constructional units to examine how pain displays emerge within the turn-by-turn unfolding of talk-in-interaction, and they investigate the role of pain displays as resources for turn-taking.

Sequence organisation. The concepts of sequence organisation (Schegloff, 2007) were also relevant to the later analyses of pain displays. Turn constructional units and turns emerge sequentially in interaction—one following another, organised by reference to what came before and subsequently influencing what comes next (Schegloff, 2007; Stivers, 2012). The positioning of a turn or unit within a sequence can be integral to its organisation and its intelligibility as an action. For example, a surprise token (e.g. 'oh my god') positioned after the delivery of news marks it as the source of surprise (Wilkinson & Kitzinger, 2006). The basic unit of a sequence is an adjacency pair (Schegloff, 2007). These are two turns produced by different speakers which follow on from each other. The first pair part launches an action and the second pair part responds to an action. Examples of adjacency pairs include greeting-greeting, invitation-acceptance/declination, request for information-answer, and so on. What binds the first pair part and the second pair part is conditional relevance. The type of first pair part initiated constrains the particular types of second pair part responses that are relevant (Schegloff, 2007). Consequently, the delay or absence of a conditionally relevant second pair part disrupts progressivity and becomes 'noticeable' and accountable to participants in interaction.

The analytic work of this thesis draws upon concepts such as adjacency pairs and conditional relevance to consider the positioning of pain displays within sequences. They are used to analyse what actions pain displays accomplish, the responding actions they make relevant, and the courses of actions they progress.

Conversation analysis and institutional talk. Conversation analytic research has shown that interaction is situated and that the social context influences how talk and action unfold (Heritage & Clayman, 2010). The data used in this thesis is drawn from medical consultations, an institutional context that has been widely studied using conversation analysis (Heritage & Maynard, 2006). Due to the medical setting of the data, the approach taken to institutional talk within conversation analysis also informs my analytic approach.

Conversation analysis distinguishes between two main types of interaction: those occurring in ordinary, everyday settings and those in institutional settings (Heritage, 2005) Interaction occurring within institutional settings are considered distinct from ordinary settings in three main ways (Heritage & Clayman, 2010). First, practices deployed in institutional settings tend to embody or connect with institutional identities and tasks. In medical contexts, the practices used to invoke and respond to pain are consequential for the management of seeking and receiving help. Second, institutional contexts can impose constraints on how participants interact. For example, pain displayed in medical consultations is typically responded to with an analytic, rather than sympathetic, stance (Heath, 1989). Third, the structure of the institutional context provides an important inferential framework for making sense of actions. In medical consultations, the doctor purposefully inflicting pain to the patient is typically treated as a normative part of the physical examination performed for diagnostic purposes. Contrastingly, inflicting pain to another in an everyday setting is likely to be oriented to as problematic.

The unique characteristics of institutional talk informed how I approached pain displays in my data. Analyses took into account the institutional setting of the medical consultation and the various ways it can constrain how actions are organised and oriented to. Although the institutional setting can shape interaction, it was not considered as pre-existing or pre-determining of the interaction. Rather, the context was approached as being locally constituted by participants or 'talked into being' (Heritage, 2005).

Contributions to multimodal research

By analysing the sequential organisation of pain displays, I aim to intervene in debates within multimodal research regarding the relevance of talk-based concepts from traditional conversation analysis to multimodal conduct.

Embodied turns? The concept of a turn emerged from empirical research predominately based on talk (Sacks et al., 1974). Subsequently, concepts of turn construction units and speaker change are grounded in the sequential organisation of turns-at-talk which unfolds in a linear, turn-by-turn fashion. In contrast, multimodal interaction is characterised by simultaneous streams of conduct emerging concurrently (Mondada, 2016a). Multiple activities can unfold at the same time. Take for example a patient who displays pain while a doctor is talking and examining the sore part of their body. More than one course of action can unfold at the same time without being treated as problematic. Furthermore, the boundaries of actions are not clear cut. An action can be prepared, foreshadowed, or pursued in one modality while, in another, participants are orienting to some other business (Deppermann, 2013b). For example, a doctor may ask their patient a question while simultaneously preparing to perform a physical manipulation. Encounters involving co-occurring actions that are not isochronic is typical of face-to-face interaction. In light of the simultaneity of multimodal action, concepts such as 'speaker change', 'turns-at-talk', and the 'turn constructional units' that build them, may not accord with the organisation of embodied pain displays. Due to its talk-focused origins, some analysts have argued that the concept of a 'turn' refers to vocal and verbal activities only and that non-verbal turns do not exist (Deppermann, 2013b; Olsher, 2004). Deppermann (2013a) contrasted 'turns' with 'actions', which can be accomplished through verbal/vocal and non-verbal conduct. According to Mortensen (2012), multimodal research has led to a shift away from turns-at-talk as the focus of analysis, to the construction of action as the basic unit of analysis.

Despite these limitations, there is still utility in the concepts. Research has demonstrated that embodied conduct is involved in the production of verbal turn constructional units (Goodwin, 1980; Streeck & Hartge, 1992; Schegloff, 1984; Kendon, 2004; Mondada, 2007b; 2015). Further, embodied conduct is involved in turn-beginnings providing the preconditions for the upcoming turn (Deppermann, 2013b). For example, establishing mutual gaze can be used to establish recipiency before beginning a new verbal turn constructional unit. Multimodal conduct can also complete a turn constructional unit, such as a gesture completing a partial turn-at-talk (Olsher, 2004). Other work has shown that a turn constructional unit can be delayed. Iwasaki (2015) demonstrated that when shifting from an aligning to disaligning stance, the final negative element of a turn constructional unit can be delayed using multimodal resources like talk, gaze, and facial expression.

While the above studies demonstrate the relationship between embodied conduct and turn constructional units, other research has gone further to suggest that embodied units without any accompanying talk can constitute turn constructional units. Keevallik (2014) showed that embodied displays, such as bodily-vocal demonstrations, can function as turn constructional units with a transition relevant place. This occurred when embodied behaviour occupied a separate spate of time in a turn from verbal segments. Similarly, Klippi (2005) showed that gestures can constitute turn constructional units in the conversations of people with aphasia. She argued for the reconsideration of turn constructional units as not only comprising linguistic units but also visual and non-verbal units. In another study, Kääntä (2010) found that teachers employ head nods and point gestures to allocate response turns to students. She argued that these embodied allocations can constitute what she termed as 'turns-of-action'. She adopted this term to refer to multimodal units of action and avoid the confusion with terminology concerning turn constructional units as a linguistic site hinted at by Klippi. 'Turns-of-action' capture the fact that actions come in sequentially ordered, contingent turns, and that turns are performed to accomplish actions. Drawing on prior research about turn constructional units and multimodal 'turns-of-action', this thesis addresses the question of whether embodied pain displays can function as turn constructional units.

Embodied actions in sequence? Similar debates exist for concepts relating to sequence organisation such as adjacency pairs and, relatedly, conditional relevance. As per its name, adjacency pairs are founded on the assumption that turns unfold adjacently, thus reliant on concepts of turn-taking and speaker change. This does not accord with characteristics of embodied interaction where multiple streams of action can unfold at once. Some scholars, such as Stukenbrock (2014), have raised issues about the limited applicability of conditional relevance to multimodal interaction. Models of conditional relevance are based on adjacent turns-at-talk, however a different relationship may exist for multimodal conduct that operates below the level of turns and action, and lacks the status of an action proper. Some multimodal actions do not require a responsive action but an ongoing orientation. For example, if a speaker pointing to clarify a verbal referent, notices that a recipient does not gaze upon their gesture, then this observation will shape both the emerging action. Stukenbrock suggested that a different relationship may exist between multimodal actions, such as the allocation of gaze to gesture and the conditional relevance established by a first pair part.

There is, however, research to suggest that adjacency pairs are also applicable to multimodal conduct. Responsive actions to initiating actions can be granted through embodied behaviour in request sequences (Rauniomaa & Keisanen, 2012) and instructional sequences (Arminen, Koskela, & Palukka, 2014; De Stefani & Gazin, 2014). Moreover, initiating actions can also be enacted through embodied conduct alone such as the cupping the ear to initiate repair in classrooms (Mortensen, 2016). Other research has shown that both the initiating and responding action can be accomplished entirely through embodied conduct. For example, Kendrick and Drew (2016) argued embodied displays of trouble when recruiting help can result in embodied assistance. In light of this research, part of the analytic work on sequence considers the extent that pain displays are treated as actions in sequence.

The present thesis

This thesis asks to what extent are pain displays, typically thought of as an internal, individual experience, socially-organised with respect to the immediate interactional environment. It considers whether the same structures that organise talk can be used to describe pain displays. Turn-taking and sequence organisation are used to investigate the interactional organisation to examine how pain displays impact upon the temporal unfolding of interaction.

Drawing upon discursive psychology and multimodal conversation analysis, the empirical work of this thesis examined pain displays in medical consultations between patients and general practitioners (GPs). Patients' pain displays typically emerged during the physical examination in response to physical manipulations. These pain displays were produced through the simultaneous use of a range of interactional resources, both vocal and embodied. A multimodal transcription system was developed to capture the various features that constituted pain displays, and it was through their careful transcription that I developed my approach to pain displays as locally constituted from a web of resources that combine in what Mondada (2014b) called complex multimodal Gestalts. The multimodal transcripts that were developed were foundational for subsequent analyses of the sequential organisation of pain displays.

The analytic work in this thesis focused on how pain displays emerged with respect to turn-taking and sequence organisation. It demonstrated that pain displays are structural units successively organised with respect to participants' turns-at-talk, oriented to by recipients as resources for building turns and turn transition. It also showed that pain displays, as embodied units, are organised with respect to sequences in talk. They are responsive actions that progress initiating actions, but they also occasion further talk and systematically make relevant other actions before closure.

The work presented in this thesis addresses broader issues about the organisation of multimodal conduct more generally. Analysing the sequential organisation of pain displays raised questions about the extent to which organisational features of talk also organise embodied conduct. The applicability of turns-at-talk and adjacency pair sequences to pain displays was another main focus of this thesis. The work of this thesis showed that participants oriented to pain displays as units that structured turn-taking. However, questions were raised about the status of pain displays as responding second pair part actions.

Having introduced the thesis, we now turn to the Chapter 2, which describes the method undertaken to formulate the analytic findings. The method chapter documents the data and the analytic process taken. It also details the careful transcription of pain displays, a process that required innovation to capture the complexity of embodied action and that also led to a firmer definition of what pain displays actually are. Together, these were two major aspects of the analytic process that informed the findings of the thesis.

Chapter 2: Method

The theoretical ideas underpinning conversation analysis were described in the introduction. This chapter details how conversation analysis is done in practice. It begins by describing the data, the process of corpus building, and the final dataset that was used to analyse pain displays. It then details the analytic process, documenting how pain displays were transcribed and analysed. Key parts of the analytic process were developing a specialised transcription system to represent pain displays and defining what pain displays actually were. Both were ongoing activities occurring throughout the entire analytic process and inseparable from other parts of analysis. These are described in the final sections of the chapter as they cannot be separated into a distinctive 'step' in the research process. Each are dedicated their own section so they can be comprehensively addressed due to their significance to the research.

The data

Video recordings of medical consultations were the data for the thesis. In this section I give a description of the data, outlining where and how I obtained the data for the corpus. Then I describe the final dataset and the ethical considerations for its use.

ARCH database. The data for this study was obtained from The Applied Research on Communication in Health (ARCH) corpus of audio and visual recordings of heath interactions between practitioners and patients. An interdisciplinary team of researchers created and maintain the corpus, which currently consists of recordings from 478 health interactions involving 533 participants. Participants provided consent for their data to be used by authorised researchers and educators. Archived at University of Otago, Wellington, the ARCH corpus is a searchable digital database with a custom-designed data management system. It holds audio and video recordings of each health interaction with corresponding logs, transcripts, medical notes, field notes, and other associated documents. Access to the ARCH data was obtained through application to the ARCH Governance Group.

Corpus building. The corpus for the thesis was obtained by searching the ARCH database for pain-related health interactions and conducting multiple rounds of data collection. Note that the corpus was built early during the research process and although pain was the research focus, the specific research questions of the thesis were yet to be defined. Therefore, the aim of corpus building was to find data that was pain-related which included but was not limited to those that contained pain displays.

The first round involved selecting data from a shortlist of health interactions where pain was mentioned. This shortlist had been drawn up for an existing ARCH project examining conversations about chronic pain. The data selection process involved reading through transcripts and watching parts of the corresponding videos to choose relevant interactions where pain was a significant subject matter within the interaction, whether it was displayed or talked about. Key word searches for related terms such as 'pain' or 'sore' were also performed on the transcripts to find relevant material. 11 consultations were obtained from the first round of data collection. The second round of data collection involved selecting further recordings of health interactions. This involved moving beyond the chronic pain shortlist to consider a wider range of health interactions. Eight more consultations were added to the collection following this step. The final round of data collection involved watching entire health interactions where pain was a key topic, in real time. Five more consultations were obtained, contributing to the final corpus of 24 interactions between health practitioners and patients.

Dataset. Out of the 24 interactions selected, only 15 were kept after repeat viewings. Eight were excluded because pain was peripheral to the main business of the interaction. The interactions that were retained formed a dataset which included consultations between GPs and patients about acute pain, chronic pain, and gout-related pain. The dataset constituted five hours and 14 minutes of video recorded interaction. Consultations varied in length from 12 to 42 minutes, with the average consultation lasting 20 minutes.

Ethical considerations. This study operates under the ethical approval that was granted to the original researchers who collected data for ARCH Corpus. They have permission to share data with other researchers under strict conditions. Gaining permission to use the data involved signing a memorandum of understanding agreeing to follow the protocols required to ensure the privacy and confidentiality of participants. Due to the sensitive nature of the material, all transcriptions and recordings were stored securely and confidentially on password-protected and encrypted files and computers. With respect to the dissemination of data, all identifying information was removed from extracts and images from the videos were anonymised. Non-anonymised clips of video data, stored in an encrypted folder, were provided to the examiners of the thesis. The examiners were required to have signed a memorandum of understanding before viewing the clips and were instructed to delete the recordings after use.

An overview of the analytic process

This section begins by detailing the analytic process undertaken to identify and describe the practices that construct pain displays. It describes the process for selecting the dataset, explains how data was transcribed, and outlines the approach taken to analysing data. Generating the research findings of both analytic chapters involved similar processes of analysis. However, specific to Chapter 4, was collection building which was a useful analytic strategy for identifying sequential patterns.

Selecting the dataset. I began by selecting relevant extracts from the data. Each medical consultation was relatively long, so target sections where patients displayed pain were identified. Each video of the corpus was watched in real time to search for pain displays, as they were not always noted in base transcripts and logs provided by ARCH. The combined content and size of the final dataset ensured that any single phenomenon or pattern relating to pain displays would recur frequently enough across interactions.

Time constraints were also taken into account when determining the size of the final dataset as the recorded data needed to be transcribed to a high level of detail, as per conversation analytic conventions (Hutchby & Wooffitt, 2008). The transcription process is described next.

Representing the data. The transcription of data is a key part of analysis and it was integral to the development of the thesis. In total, nine interactions were transcribed in full, and the relevant sections of a further six videos were partially transcribed using Jeffersonian (Jefferson, 2004) and multimodal conventions. Due to time constraints, some of the recordings were not transcribed entirely using conversation analytic conventions.

Talk was transcribed using Microsoft Word and the audio editing software Audacity was used to play and manipulate the audio recordings during transcription. Embodied conduct was also transcribed using Microsoft word. The video editing software Adobe Premiere Pro was used to play the video data during transcription. This was a useful tool for the precise video manipulation required for working in a detailed manner with small segments of interaction.

I transcribed by using conventions that would ensure readers have a kind of ‘independent access’ to the data and participants’ orientations to talk (ten Have, 2007). This was accomplished by producing transcripts that captured talk-in-interaction at the same level of detail that participants attended to talk. Talk was transcribed using the Jeffersonian transcription system,[1] which is standard practice in conversation analysis (Jefferson, 2004). The Jeffersonian transcription system was essential for capturing the minutiae of everyday talk reflecting the underlying conversation analytic principle that seemingly irrelevant details of speech are treated as important by participants and, therefore, are consequential for how talk-and interaction is accomplished (Atkinson & Heritage, 1984).

Using this system, notations were ascribed to features of speech production such as pace, pitch, and volume, and the temporal and sequential positioning of utterances, such as the timing of gaps in between turns and the onset/offset of overlapping speech. In doing so, I was able to capture important features such as the onset of vocal features of pain displays in relation to other bodily conduct. For example, a gasp occurring at the same time as the GP pressing, can show the physical manipulation as the source of the pain display.

Each video was transcribed using Jeffersonian conventions and then sections of each interaction were transcribed and re-transcribed multimodally. Unlike the transcription of talk, conventions used for multimodal conduct are not standardised within conversation analysis but in the process of development (Nevile, 2015). I, like other researchers who work with multimodality, was able to experiment with the transcription of video data (Hepburn & Bolden, 2017). I devised a transcription system, adapting conventions used by other analysts, suited to the particularities of my data. This transcription system captured pain displays and related embodied actions such as physical manipulations. The details of this process are described later in the chapter.

Transcription was a re-iterative, flexible, and ongoing process, and details of the embodied conduct represented in transcripts were constantly adapted to the developing analysis (Mondada, 2007a). These transcripts varied in terms of precision, level of granularity, selectivity, and the style/configuration in the way that details were represented. Through repeated listening and examination of recorded data, to revise and re-format transcripts, I developed an intimacy with the data that played a key role in the subsequent analysis.

The transcripts were a tool for analysis but the recordings remained the primary data (Hepburn & Bolden, 2017). Despite close attention to detail, the transcripts were only ever selective representations of the data through which analytical insights could be gleaned and certain details lost (Mondada, 2007a). The transcripts I produced reflected my analytic interests. They conveyed what Goodwin (1994) described as a ‘professional vision’, making

[1] The Jeffersonian transcription conventions used in the extracts are presented in Appendix A.

available the researcher's way of seeing and understanding the world and, at the same time, making the data available for re-analysis by other conversation analysts. This meant that the transcripts needed to facilitate engagement in how participants' themselves were orienting to the data, which was key for grounded analysis.

'Unmotivated looking'. Alongside the transcription of pain displays, I engaged in close analysis of the data using 'unmotivated looking', a preliminary step in a conversation analytic study (Schegloff, 1996). This is a process of observation that is important for generating findings. As put by Sacks (1984) "from close looking at the world we can find things that we could not, by imagination, assert were there" (p. 25). Looking at the transcripts and recordings together, I examined pain displays with an open-mindedness, which led to 'noticings' of interesting features. The noticings cohered around the turn-taking and sequence organisation of pain displays and became the basis for the analytic chapters in the thesis. Although the data was explored in an unmotivated manner, observations were formulated through rigorous analysis by applying knowledge regarding the systematic organisation of interaction. This analysis attempted to answer questions such as: 'How are pain displays organised?', 'What actions are they accomplishing?', and 'What actions do they give rise to?' Some analysis was undertaken in group-data sessions, where my ideas were tested and the insights of others informed my work. Group data sessions are typical of the conversation analytic process.

Participants' orientations. The key conversation analytic principle of participants' orientations was followed in the analysis to ensure observations were grounded in participants' own understandings (Schegloff, 1992); Hutchby & Wooffitt, 2008). Actions were analysed according to participants' own interpretations. Therefore, my analyses were derived from participants' own interpretation of what was occurring in talk.

Related to the concept of participants' orientations is next-turn proof procedure. This was used as a tool to ensure the validity of my claims and to produce analyses grounded in participants' orientations (Peräkylä, 2011). As subsequent turns displayed participants' own interpretations of utterances (Mazeland, 2006), I examined 'next' turn responses to ensure convergence between participants' interpretations and my own analytic interpretations. The example below[2] demonstrates how 'next-turn proof' procedure operates:

---

[2] The formatting used for the extracts in this thesis is described in Appendix B. However, it is worth noting here that, throughout the thesis, the turns or actions of interest in the extracts are indicated with an arrow.

Extract 2.1

IS GP27 02e

00:21-00:34

```
GP: --> [so] how’s th[ings?]
PT: -->             [ .H H]HH yep well I’m still breathing
        and I’m alive and [ that sorta carry on ] hhh
GP:                       [this is a good thi:ng]
        (0.6)
PT: --> >.HH HH< my legs hh and my hip is sore, .hh I need some
        more voltaren or pain relief >of some sort
```

The above extract is from the beginning of a medical consultation. At line 01 the GP asks “so how’s things?” In mundane settings, questions like these tend to be oriented to as a general state inquiry. However, in medical contexts, it can also be taken as an invitation for problem presentation (Heritage & Robinson, 2006). The patient’s next turn, “yep well I’m still breathing and alive and that sorta carry on” (lines 2-3), reveals their orientation to the GP’s question as a general state inquiry. After giving this response, the patient also accounts for their visit, orienting to the norm that when seeking medical help patients must provide a reason for their visit.

Applying the principle of participants’ orientations to data using next-turn proof procedure was important for making sense of pain displays with respect to turns and sequence. By using next-turn proof procedure, I analysed participants’ orientations to pain displays as unit-like structures which formed the basis for the work of chapter 3. I examined where recipients produced their next turns following a pain display, and conversely where pain displays were placed subsequent to turns-at-talk. I also used next-turn proof procedure to analyse the sequence organisation of pain displays, identifying the actions pain displays accomplished and responses to them. The sequences I identified were added into my collections of phenomena, discussed next.

Collection building. The analytic work of Chapter 4 on the sequence organisation of pain displays was developed from collection building, an analytic strategy used to generate findings commonly used in conversation analysis (Hutchby & Wooffitt, 2008). Following the conventions of collection building, I assembled cases of pain displays, and systematically analysed each instance to find recurrent features and patterns across different interactions (Clayman & Gill, 2011). The aim of collection building was to formulate a clear description of phenomena so that they become recognisable (Hutchby & Wooffitt, 2008). The phenomena identified through my application of collection building were pain displays in solicitation sequences.

At the beginning of the process I had a loosely-specified idea of what a ‘pain solicitation sequence’ was, and a diverse set of cases were assembled. By analysing a range of instances I was able to further specify the sequential pattern and explicate how it operated (Hoey & Kendrick, in press; Wilkinson & Kitzinger, 2017). Eventually a clear description of a particular type of solicitation sequence was developed, one that specified its sequential order, the actions accomplished within it, and the form that the actions took. Although each individual case differed according to the local interactional goals of the participants, they were accounted for by the broader, generalised description (Hutchby & Wooffitt, 2008).

Working with a collection involved the constant comparison and analysis of cases which helped to further specify the target phenomenon. Some sequences were what Schegloff (2007) described as boundary cases, with some but not all of the same features of a clear case. For example, pain solicitations formulated as requests for confirmation (e.g. it’s sore isn’t it?”) were classified as boundary cases. These displayed GPs’ existing knowledge of patients’ pain, unlike the solicitations in the main collection (e.g. “how’s that?), and accomplished different actions. Boundary cases helped to further specify the phenomenon and more clearly delineate what constituted a candidate case. They were not included in the final collection.

Other sequences were classified as deviant cases, as described by Hutchby and Wooffitt (2008). These did not have all of the features of a clear case but provided additional evidence to support analytic claims (Peräkylä, 2011). For example, the deviant cases in my collections were solicitations that were responded to verbally and followed by activity closing. These were different from the sequential trajectory of solicitations in the main collection, which were responded to with non-verbal pain displays. As the deviant cases departed from the normative order of events, they provided additional support for the pattern being claimed, which was that pain displays, as embodied responses, occasioned further talk. Through the process of collection building and use of boundary and deviant cases, I was able to clearly delineate the parameters of my phenomena. This led to a clear description of the sequential trajectory of solicitations showing that pain displays were responded to with requests for confirmation, forming the basis of the analytic work of Chapter 4.

In sum, a substantial part of the analytic process was transcribing and analysing the data using next-turn proof procedure. Some of analysis also involved forming collections of exactly where pain displays occurred within sequences of turns. Next, I further elaborate upon two major aspects of the analytic process. These were: adapting transcript conventions to represent pain displays and defining pain displays. Both occurred concurrently and were ongoing throughout the analytic process. Through the careful representation and adaption of transcript conventions to instances of pain, I was able to define pain displays with more precision. How pain displays were defined shaped my analyses of them.

Transcribing pain displays

I produced a multimodal transcription system to represent the particularities of pain displays including a range of vocal and embodied features such as gasps, vocal cries, and grimaces. The onset and offset of these embodied features with respect to each other and talk were captured and became analytically relevant in some cases. Building on established conventions, I further developed notations to capture when and how particular vocal and embodied features of a pain display emerged. Transcription was part of the analytic process. Extracts from the transcripts are used as evidence in support of the claims being made.

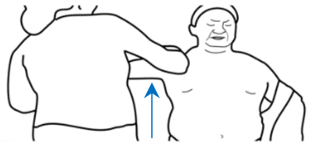
Decisions were made on a turn-by-turn basis throughout the transcription process regarding what modalities to include and at what level of detail. Various analytic lenses were applied to the data which brought the relevance of particular modalities into focus. The modalities that were included in the edited transcripts presented in this thesis are talk, touch, facial expression, bodily movement, and posture. These were relevant to how pain was displayed, elicited, and responded to.

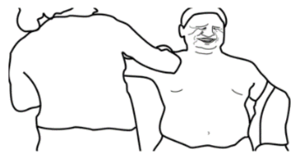
Verbal and vocal resources. In the process of transcription, I adopted some of Hepburn's (2004) conventions originally developed to capture features of crying. Hepburn showed that the features of affective phenomena need to be transcribed in detail rather than just noting they occurred. This is because, within Hepburn's study on crying, recipients attended to different features, such as sniffing and wobbly voice, as distinctive and responded accordingly. The features of pain displays that I transcribed using the conventions for capturing crying included non-lexical vocalisations such as aspiration, and changes in pitch, volume, and voice quality. However, some elements of notation were developed to capture features of pain displays that did not occur in crying, such as a hissing and gasping. The transcription conventions for these features will be shown later in the chapter.

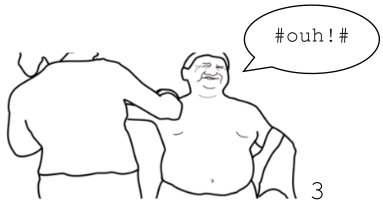
Visual resources. Visual aspects of interactions were transcribed by drawing on a range of conventions used by other researchers working with multimodal data. The transcription of pain displays required detailed transcription and adapted conventions from the work of Mondada (2014a), Streeck (e.g., Streeck, 2013), and Goodwin (e.g., Goodwin, 2000; 2007). The main conventions of my transcription system are described in relation to the extract below.

Extract 2.2

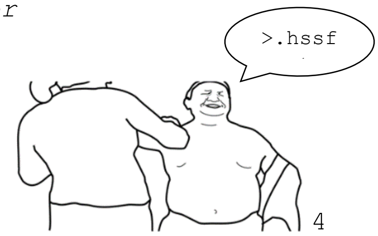
```
IS GP07 06
6:42-6:47

    pt  -->                                       *grimaces  *
                                                  |          |
01  GP:       |I'm just going to see if I can get (.)
              |GP lifting PT's arm (FIG 1)

    pt  -->             *grimaces (FIG 2)______________________
                        |
02            any further >(is) it make any difference

    pt  -->   tilts head back (FIG 3)_______face relaxes*
              |                             |
03            whether I'[m holding] |(o-)  [no] it's
04  PT:                 [  #ouh!# ]        [hh]
                                    |PT arm moves up slower

        -->                                 tilts head back (FIG 4)
    pt  -->           *grimacing____________bares teeth___________
                      |                     |
05  GP:       =the same [>just] as pain[ful if I'm]=
06  PT:                 [ m m ]        [ >.hssf<  ]
```


1


2



3



4

The participants' talk was transcribed using Jeffersonian conventions. The embodied features of the patient's pain display are shown in blue, positioned above the talk. Detailed notions, discussed below, mark the initiation, continuation, and the completion of embodied action relative to the temporality of talk. Below the lines of talk in italics are transcriber's comments which gloss behaviour. Although less precise, they describe the occurrence of a significant action. Placing the stream of embodied action above the line of talk, and the transcriber's comments below, allows them to be easily read alongside talk, clearly representing the temporal relationship of embodied conduct to talk. To the right of the transcript are frame grabs from the recording, transformed into drawings, presenting a visual depiction of the multimodal actions. These provide a holistic gloss of what was done at a point in time with respect to the temporality of talk.

Detailed notation of pain displays. To track how different elements of pain displays unfolded and were coordinated, I drew upon Streeck's (2013) transcription style. Streeck delimits actions on a separate line from talk (inserting repeated symbols into lines of talk can disrupt the flow of reading what is said). Colour was used to distinguish pain displays from other conduct. Both embodied and vocal aspects of pain displays, such as gasps and vocal cries, were transcribed in blue to show they comprised a pain display.

A vertical line, “|”, was used to locate the initiation and termination of an embodied action relative to the verbal modality that was occurring simultaneously. In between the vertical lines were rows of dots, “.....”, which marked the continuation of an action. Corresponding descriptions of events were placed above the dots and vertical lines. For example, in Extract 2.2 above, at line 1, the vertical line and the description above it shows that the initiation of the grimace begins at “I”. This grimace continues on until the dots cease with another vertical line marking the end point which occurs after “get” is uttered.

At times, the embodied actions extended across lines of talk. In the same extract above, another grimace begins at line 2 when “further” is uttered. This grimace continues across line 2 onto line 3 and ends once the dots cease after “(o-)”. Note that there is another description at the termination of the grimace, “face relaxes”. Sometimes descriptions are used to capture what occurs at the end of an action either for added clarity or analytic relevance.

Distinctive shifts within an action trajectory were marked with an additional vertical line which occurs between the initiating and terminating vertical markers. These described changes within the course of the main action rather than the initiation of a new separate action. For example, between the initiation and termination of the grimace from lines 2-3 is another vertical line at the “w” of “whether”. Above the line is a description which indicates that the patient begins to tilt their head at this point *while* grimacing. Having multiple vertical lines may confuse where a pain display ends. To improve clarity, a red asterisk (*) is also used to mark the beginning and end of each pain display.

A final point to note is that when multiple actions occur at the same time, notations are placed one above the other. For example, at the beginning of the hiss “>.hssf<” on line 6, the patient bares their teeth and tilts their back simultaneously.

Transcriber’s comments. The transcriber’s comments were used to gloss embodied action crucial for understanding the dynamic of the interaction but were deemed not to require detailed transcription. These were italicised to distinguish embodied from verbal action. The transcriber’s comments described actions occurring simultaneously with the talk on the line above. The onset of the transcriber’s comment was marked with a ‘|’ symbol inserted into lines of talk. Another ‘|’ symbol was placed underneath, prefacing the corresponding transcriber’s comment. The transcripts do not delimit the termination of actions unless relevant. Subsequent transcriber’s comments, accompanying frame grabs, and the written analyses also provides context regarding when an embodied action ends.

Visual representations. Images provided an easily interpretable method for depicting multiple modalities at once. They provided a snapshot of what was occurring at one point in time. Goodwin's (2000; 2007) method for depicting imagery was integrated into my transcription system. Goodwin often edits imagery to increase the clarity of representation and maximise focus on participants and their actions. Like Goodwin's work, my transcription system included frame grabs from the video recordings that had been transformed into drawings. This was done to emphasise the participant's embodied actions and capture their facial expressions while keeping their identities anonymous. Using the illustration programme Inkscape and a graphics tablet, the participants in each of the frames were digitally traced over and all irrelevant background imagery was removed. Arrows and other symbols are used to depict movement or draw attention to particular action depicted in the frame grab. Where relevant, simultaneously occurring verbal conduct within the embodied modality, such as a vocal cry during a grimace, was captured in speech bubbles superimposed onto the image. This was done to give a more holistic impression of the interaction, conveying a sense of what was occurring in the interaction at a specific point in time.

So far I have described the transcription system for representing interaction with pain displays, which includes detailed notations, transcriber's comments, and visual representations. The development of my transcription system was reflexively informed by how pain displays were accomplished in interaction, and the different verbal and non-verbal features that constituted them. In the next section I define what pain displays are, describe the resources that build them, and show how these are captured using transcript conventions.

Defining pain displays

Before analysing the sequential organisation of pain displays, it was important to first determine what makes behaviour mutually intelligible as a pain display. I take the view that actions are accountable (Garfinkel, 1967) and built to be recognisable to others. Conduct that is intelligible as expressing pain can be defined as a pain display regardless of a participant's internal state or how participants orient to it.

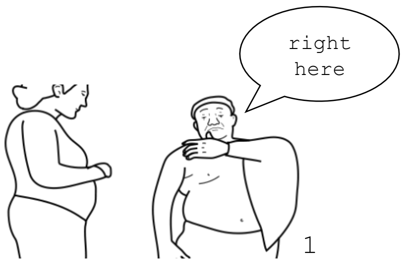
Initially, when I gathered the corpus of data for this thesis, I used my member's knowledge (Garfinkel, 1967) of pain displays to find instances of them. Through the careful transcription of the constituent parts of the pain displays gathered, I was able to arrive at a more precise definition of what pain displays were. I now approach pain displays as complex multimodal Gestalts (Mondada, 2014b). These are courses of recognisable action formed from an integrated web of resources which make sense holistically. According to Mondada (2014b), complex multimodal Gestalts do not have a pre-determined fixed form. They are malleable, unfolding incrementally, constantly adjusting to the ongoing action and the interactional setting they are situated within. By the same token, there is no fixed, prototypical set of resources occurring in a fixed form that constitute a pain display. In contrast, pain displays are formed by a set of resources that are mobilised in complex ways that are locally adapted to the ongoing interaction.

To further unpack my approach towards pain displays as complex multimodal Gestalts, I describe the transcription conventions used to capture the kinds of vocal and embodied behaviour that comprise pain displays in more detail. This section begins with non-lexical vocalisations including gasps and vocal cries, which occur in the verbal modality, followed by a description of the visual features of pain displays, which includes grimaces and other forms of bodily conduct. I point to the characteristics and potential interactional functions of each feature, highlighting the importance of transcribing them in detail. The section closes with a discussion of how the features cohere together within the wider Gestalt.

Note: Transcripts differ and vary in detail depending on the focus of analysis. For example, where the focus is non-lexical vocalisations, the embodied aspects of pain displays are reported but not shown in detail. However, where the focus is grimaces, the transcription is more detailed and includes figures showing variations in facial expression.

Gasps. Non-lexical vocalisations resembling sharp in-breaths, which I refer to as gasps, can occur as part of pain displays. The transcription of gasps develops Jefferson's (2004) conventions for capturing breathiness in talk. A dot-prefixed row of 'h's represents an in-breath. It is bracketed by a left and right carat to indicate that the bracketed in-breath is sped up, lending it a 'sharp' vocal quality. Extract 2.3 demonstrates the representation of a gasp (line 3) in a transcript. Just prior to the extract, the GP had asked the patient to put one finger on the sorest bit of his shoulder

Extract 2.3



1

```
IS GP07 06
6:08-6:14

01   PT:      |right here
              |touches front of shoulder (FIG 1)

02   GP:      ri:ght

       pt                      *grimaces(FIG 2)_*
03   PT: -->  |an(h)d (0.2)  >.Hh<  (0.8)   |round the back
              |reaches behind shoulder      |touches back shoulder

04   GP:      mm::

05   PT:      °there
```

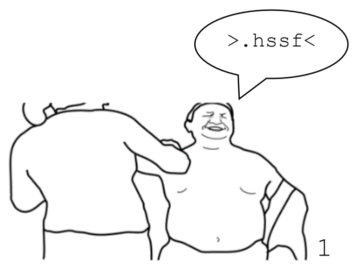
2

The patient utters “right here” and touches the front of their shoulder with ease, moving relatively quickly (line 1, figure 1). Uttering “an(h)d” (line 3), the patient begins to index another location, reaching behind their shoulder much more slowly. During this action the patient produces a gasp, represented as “>.Hh<” (line 3, figure 2), and simultaneously grimaces, which is examined in more detail later. The short and sharp quality of the gasp marks the precise moment in the movement where difficulty transitions into what seems to be a display of acute pain. Lerner and Linton (2004) showed that gasps regularly have a disjunctive quality, indicating something just realised, remembered, or noticed. In the extract above, the gasp of pain interrupts the turn of talk.

Vocal quality. Gasps can be characterised by different vocal qualities. These include a hissing noise indicated with a ‘s’, a ‘sucking in’ sound indicated with an ‘f’, and a ‘hardness’ in the production of the gasp, indicated with a ‘k’. Extract 2.4 demonstrates the representation of a gasp produced with a ‘s’ and a ‘f’. As the GP attempts to lift the patient’s arm up higher, the patient begins a pain display. In this extract, the patient grimaces before they deliver a gasp at line 3.

Extract 2.4

```
IS GP07 06
6:46-6:51

    pt                          *grimacing------------------------
                                 |
01  GP:     =(o-) [no] it's the same [>just] as=
02  PT:           [hh]               [ m m ]
            ((GP lifting PT's arm higher throughout[3]))

    pt      baring teeth (FIG 1)-----------closed mouth grimace----
            |                              |
03  GP:     =pain[ful if I'm] doing it [as if] you're=
    -->          [ >.hssf<  ]          [yeah ]

    pt      ----------------------
04  GP:     =doing it?
```



1

This gasp has a distinctive hissing quality and ends with an ‘f’ sound, represented as “>.h<u>ss</u>f<” (line 3). It is possible that different vocal qualities of gasps display distinctive qualities of pain. For example, a hissing quality for this patient seemed to accomplish a sharp stinging pain.

---

[3] This transcriber’s comment is presented in brackets because it does not depict the onset of the action unlike other transcriber’s comments which are prefaced with the “|” symbol.

Amplitude and length. Gasps can vary in length and volume. Differences in volume are represented according to Jeffersonian conventions. The difference in the length of a gasp is indicated by the number of consonants, for example ‘h’ or ‘s’. Extract 2.3 demonstrates a short gasp that is loud at its onset before softening. Extract 2.4 demonstrates a longer gasp that is a similar volume to the surrounding talk but the ‘s’ sound is stressed. The length of a gasp may vary depending on the type of pain. The short gasp in Extract 2.3 precisely pinpoints the location of pain during a physical manipulation. Longer gasps can mark pain displays that are longer in duration. The amplitude of gasps can characterise the intensity of the pain display in the increase from soft to loud.

Vocal cries. Another element of pain displays are vocal cries which are lexical (e.g., ‘mm god!’) or non-lexical (e.g., ‘ah’) in form. These have a ‘crying out’ quality that is distinct from breathiness. Non-lexical vocal cries are represented with a combination of consonants and vowels, which are typically variations of ‘ah’ and ‘ooh’. In Extract 2.5 the patient emits a vocal cry on line 2 as the GP lowers their arm.

Extract 2.5

IS GP07 06
6:51-6:55

1

pt ...*ongoing grimace*...........................

01 (0.6)
((PT’s arm lowering))


2

pt ...*(FIG 1)*...........................*face relaxes* * *(FIG 2)*

02 PT: --> **<AH::*h*>** (geez) I can’t even lower

03 that mm(h) properly(hh)

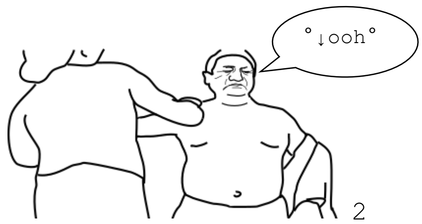
The patient emits a non-lexical vocal cry “<AH::h>” (line 2). Like the gasps shown in the earlier extracts, the vocal cry also occurs while the patient is grimacing (figure 1). The vocal cry demonstrates difficulty lowering the arm and is followed by an assessment at line 2, where the patient verbally claims an inability to lower their arm properly. According to Heath (1989), vocal cries in medical consultations can mark the moment during a physical manipulation where pain is experienced. Thus, the patient’s vocal cry marks the movement of lowering their arm as painful, demonstrating pain and providing evidence for the subsequent verbal claim of pain.

An example of another vocal cry is presented in Extract 2.6. The GP is holding the patient's arm when a vocal cry occurs at line 5.

Extract 2.6

```
IS GP07 06
6:37-6:42

01   GP:       le- let me  hold  the we[ight,]
02   PT:                               [ khh ]
               ((GP holding PT's arm throughout))

              *grimace (FIG 1)______________________________
               |
03   PT:       >.hHK<

               ........face relaxes*
                      |
04             (1.0)

05   PT: -->   °↓ooh°
               (FIG 2)
```

1



2

The pain display begins with the patient gasping and also grimacing (line 3). After the patient's face relaxes out of the grimace, the pain display ends with the vocal cry "°↓ooh°" at line 5. With similar vowels sounds to those in 'boot', this vocal cry is formed by expelling breath through a narrowly rounded mouth. The vocal cry occurs once the patient's face has returned to neutral (figure 2). Positioned at the end of the pain display, it shows the *alleviation* of pain, or what could be described as relief. According to Reber (2012) the sound object 'ooh' can display a range of affect and that its valence is not attached to the prosodic design of 'ooh' but contextually constructed by the sequential environment. Thus, the vocal cry above can be understood as displaying relief due to the vocal qualities of 'ooh', its positioning at the end of a pain display, and its synchronisation with other features such as a relaxed face.

In extracts 2.5 and 2.6, different vocal cries corresponded with certain actions. 'Ah' marked a moment of pain and, contrastingly, 'ooh' marked relief from pain. This shows the importance of transcribing how vocal cries sound rather than just reporting they occurred. Other cries from my data included 'oh', 'mm', 'ow', 'ay', and 'wah'. Some vocal cries can sound guttural, represented with a 'gh'.

Amplitude and length. Similar to gasps, vocal cries also include variations in amplitude and length. They can range from soft to loud, short to long. These variations are captured using existing Jeffersonian conventions that depict the same qualities in speech.

What is distinct about vocal cries, when compared to gasps, is that their production can be significantly elongated. In contrast, gasps are expelled through the catching of breath in the throat. Due to the physical mechanisms that underlie their production, gasps cannot be elongated by much. The elongation of vocal cries offers different affordances for interaction. In Extract 2.5 the vocal cry “<AH::*h*>” is coordinated with the slow lowering of the patient’s arm, marking the entire duration of the movement as the pain source. Another possibility afforded by the diffuse nature of vocal cries is that they allow patients to continue occupying the interactional floor, making speaker change less likely. For example, also in Extract 2.5, the patient prefaces their turn with an elongated vocal cry that holds the interactional floor for a subsequent assessment.

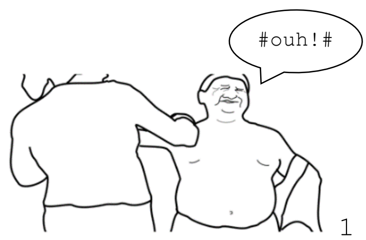
Other distinctive features of vocal cries include aspiration, pitch, creaky voice, and exclamation. These features and how they are transcribed are discussed below.

Pitch. Some vocal cries have changes in pitch. Changes in pitch are associated with displaying affect. High pitch has been found to show heightened emotion (Ruusuvuori, 2013), distress (Hepburn, 2004), the delivery of good news (Maynard & Freese, 2012), and it is also used in children’s pain formulations (Jenkins & Hepburn, 2015). Low pitch has been found to display disappointment (Couper-Kuhlen, 2012) and the delivery of bad news (Maynard & Freese, 2012). The low pitch of “°↓ooh°” in Extract 2.6 produces a subdued tone which adds to the sense of relief conveyed through the vocal cry.

Creaky voice. Vocal cries can have the quality of a creaky voice or laryngealization, as in Extract 2.7. The GP lifts the patient’s arm and asks if it makes a difference to the pain. A vocal cry is delivered in a creaky voice at line 4.

Extract 2.7

```
IS GP07 06
6:42-6:47

    pt                                    *grimaces  *
                                          |          |
01  GP:     |I’m just going to see if I can get (.)
            |GP lifting PT’s arm

    pt                *grimaces----------------------------------------
                      |
02          any further >(is) it make any difference

    pt      tilts head back (FIG 1)----faces relaxes*
            |                          |
03          whether I’[m holding] (o-) [no] it’s the same
04  PT: -->           [  #ouh#  ]      [hh]
```



1

The patient begins a pain display at line 2. They grimace, tilt their head back, and deliver a creaky vocal cry “#ouh!#” (line 4) which overlaps with the GP’s speech. A creaky voice in vocal cries is produced by partially opening the throat and not fully engaging the vocal chords (Jenkins & Hepburn, 2015). This lends vocal cries a suppressed quality. It sounds inhibited while also involuntarily leaking out into talk. The seemingly subdued vocal cry in Extract 2.7 allows it to overlap with the GP’s talk without being so loud it claims the interactional space. Although the vocal cry disrupts the progressivity of the GP’s talk, shown by the cut off at line 3, the GP ultimately continues speaking.

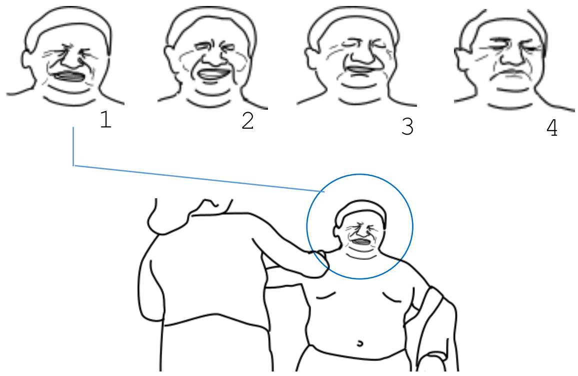
The description so far has shown that gasps and vocal cries are non-lexical vocalisations that form pain displays. Due to varying qualities such as amplitude, length, and pitch, non-vocalisations and the pain displays they comprise can manifest in a range of ways, possibly performing different interactional functions. Although it was not the focus of analysis, in all of the examples given non-lexical vocalisations were accompanied by grimaces. This suggests that grimaces, which are examined in the next section, are another important component of pain displays.

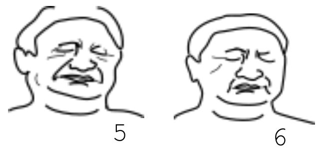
Grimaces. Peräkylä and Ruusuvuori (2009) defined facial expressions as “observable changes in the gestalt of the face in relation to the previous one” (p. 379). Changes in facial expression are an important feature of pain displays. In the data examined for this thesis facial displays of pain resembled those described in broader pain research which focuses on the relationship between facial expression and internal experiences of pain. Research in this area has documented four core elements that jointly produce a facial pain display. This includes lowered brow, tightened eyelids and raised cheeks, wrinkled nose and raised upper-lip, and eye closure (Craig, Prkachin, & Grunau, 1992). Other characteristics associated with pain expressions include lip pulling (associated with smiling), lip stretching, and mouth opening (Prkachin & Solomon, 2008). This gestalt of facial changes which express pain are referred to as ‘grimaces’ in the transcripts and subsequent analyses in this thesis. Grimaces constitute an important element of pain displays and their characteristics and representation in transcription are discussed below.

Characteristics. Grimaces are dynamic, which means there are many changes to facial expression within the trajectory of a single grimace. A more detailed version of an earlier extract is presented below as Extract 2.8. It contains two grimaces that vary in both duration and intensity. The GP holds the patient’s arm and utters “let me hold the weight”. The first grimace following this physical manipulation occurs simultaneously with the gasp at line 3. The second grimace occurs when the GP is lifting the patient’s arm at line 6.

Extract 2.8

```
IS GP07 06
6:37-6:44

01   GP:      |le- let me  hold  the we[ight,]
02   PT:                               [ khh ]
              |GP holding PT's arm

     pt       *bared teeth grimace (FIG 1)
        -->   ______tilts head back  (FIG 2-3)__________
              |      |
03   PT:      >.hHK<

     pt   -->   ____faces relaxes* (FIG 4)
                   |
04            (1.0)

05   PT:      °↓ooh°

     pt  -->                            *grimaces  * (FIG 5-6)
                                         |        |
06   GP:      I'm just going to see if I can get (.)
              |GP lifting PT's arm
```





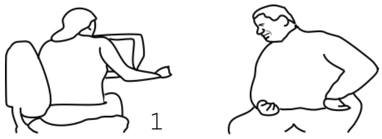
The shorter grimace at line 6 exemplifies a 'basic' version of a grimace. It is short in duration, beginning and ending in the time the GP says "I can". The patient has their eyes closed, brow lowered, cheeks raised, and mouth stretched (figures 5-6). The quick tensing and relaxing of the face creates an embodied feature that I describe as wincing. In contrast, the first grimace at lines 3-4 seems to display more intense pain because the facial expression is more exaggerated and extends for longer. Deeper, more pronounced lines form the grimace on the patient's face (figure 1). The patient has their eyes tightly closed, brow dramatically lowered, and cheeks raised high and taut. The patient's lip is also raised, revealing teeth (figure 1), which contrasts with the closed mouth of the shorter grimace (figure 5). The first grimace is also longer, extending across 0.8 tenths of a second and ending at line 4 (figure 4), when the patient's face is relaxed again.

The two grimaces also differ based on their motility. The first grimace is dynamic, involving shifts in head movements and facial expressions throughout. During the grimace, the patient's head also tilts backwards. Although head movement is not an aspect of facial expression, it is a relevant embodied behaviour that is often coordinated with grimaces. Once the patient's head reaches its furthest point, their face relaxes (figure 4). There are also smaller changes in facial expression for the duration of the grimace. The patient's mouth opens wider and the position of their cheeks shift slightly throughout (figures 2-3). Then the patient's face gradually relaxes again with their cheeks, mouth, and eyes becoming less tense, although their eyes remain closed (figure 4). This contrasts with the second grimace which remains relatively static. Its short duration constrains its dynamic possibility, and there are fewer observable shifts in facial expressions.

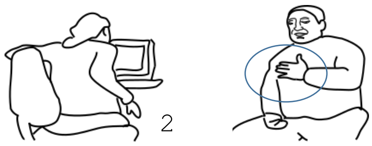
Bodily conduct. In addition to facial expression, forms of bodily conduct produce pain displays. These were either localised to a painful area of the body or involved larger movements using the entire body. In the case of the former, a patient might touch or look at the sore part of their body during a pain display. For example, in Extract 2.9 the patient produces a gasp coupled with a grimace at line 1, and then touches their shoulder (line 2, figure 2).

Extract 2.9

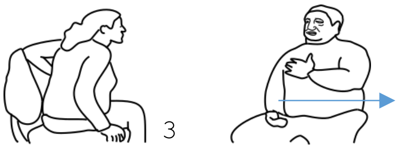
IS GP07 06
14:30-14:37



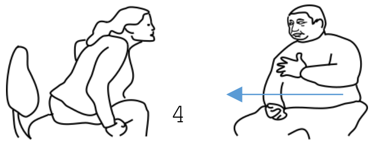

```
    pt   -->      *grimaces (FIG 1)________________face relaxes (FIG 2)
                   |                               |
01  PT:  -->  >.h[hH< ]
02  GP:           [with] the um:: with the |>medica-<
         -->       |PT re-centering body    |PT touches shoulder
```




```
    pt   -->  leans backwards (FIG 3)____________________________
              |
03            the codeine medication |it can bung you
                                     |GP turns to PT
```




```
    pt   -->  leans forward (FIG 4)_____________________________*
              |                                                |
04            up it's a good idea to eat your cereal
```



The patient touches their shoulder to show the location of pain. This is an embodied resource used to retrospectively show the source of earlier components of the pain display such as the grimace and the gasp. Similarly, Jenkins and Hepburn (2015) found that pain can be displayed through embodied practices such as using hands to draw attention to parts of the body. In the data of this thesis other forms of bodily conduct used to display pain includes stiffening the body, moving a sore part of their body, or holding something for support.

Some forms of bodily conduct involve larger body movements such as shaking, recoiling, flinching, collapsing, or turning away. In extract 2.9 above, the patient shifts the position of their entire upper torso during the pain display. At line 1 the patient gasps and grimaces, and moves from a body torque (Schegloff, 1998) back to home position, ending the body movement from where it departed (figures 1-2). Then the patient begins a slow rocking movement, leaning their torso backwards and forwards (line 3-4, figures 3-4). By occurring after the gasp and grimace which form the most intense part of the pain display, the rocking movement extends the boundaries of the pain display across lines 3-4. The gentle rocking movement displays ‘residual’ pain occurring in overlap with the GP’s talk, as if the patient is still ‘reeling’ from the impact of the acute pain earlier.

The examples above show some of the ways that bodily conduct can communicate important information about pain displays. It can display the location or intensity of pain and make a pain display more diffuse. Embodied behaviour is transcribed similarly to grimaces. The behaviour itself is described clearly and succinctly and presented with figures to clarify. Arrows, as in figure 4, can be used to show movement, and other markings may be used to direct attention to certain aspects of the embodied conduct. Like grimaces, the beginning, continuation, and end of the grimace is transcribed relative to the temporal order of talk

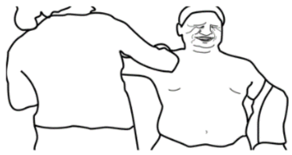
This section has described the careful transcription of the vocal and embodied features that constitute pain displays and pointed at the potential interactional relevance of each feature. Given how the features can be interactionally consequential, it is important to transcribe the subtle ways they manifest. Having described the possible significance of each feature of pain displays, the next section explores the different ways these features can combine to build a pain display.

Complex Multimodal Gestalts. As mentioned earlier, this thesis approaches pain displays as complex multimodal Gestalts (Mondada, 2014b). Careful transcription has shown that pain displays are courses of action made recognisable through webs of integrated resources that make sense together and are more than a simple sum of the parts. Non-lexical vocalisations, grimaces, and other bodily conduct are the gestalt of resources occurring across multiple modalities that are jointly used to produce pain displays. A more detailed version of an earlier extract is presented as Extract 2.10 to show how pain displays manifest in a diversity of ways involving different combinations of features. The first pain display is brief, involving a short grimace at line 1, whereas the second pain display is longer and includes a grimace at line 2, head movement at line 3, and a vocal cry at line 4. The second pain display is the focus of analysis.

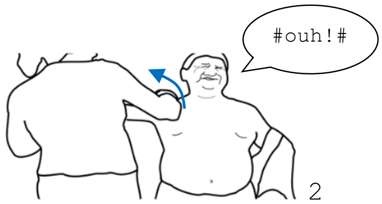
Extract 2.10

IS GP07 06

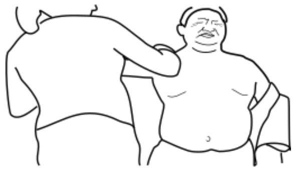
6:42-6:47



1



2



3

```
    pt                                  *grimaces *
01  GP:     |I'm just going to see if I can get (.) =
            |GP lifting PT's arm

    pt  -->            *grimaces (FIG 1)
02          any further >(is) it make any difference

    pt -->  tilts head back (FIG 2)     face relaxes* (FIG 3)
03          whether I'[m holding] (o-) [no] it's the same
04  PT:-->            [  #ouh!# ]       [hh]
```

This collection of individual features must be considered together as part of a larger course of action for them to be coherent as a pain display. The grimace at line 2 (figure 1) marks the beginning of a pain display, whereas a different feature, the head tilt at line 3 (figure 2), shows its intensification. The most intense point, or the 'peak' of the pain display, is made apparent by the simultaneous occurrence of multiple features as shown in figure 2. These features include the head tilting to the furthest point backwards, the tightening of the eyes and lips, and the vocal cry shown at line 4. The face relaxing, shown in figure 3, is the end of the pain display. Note that the patient's vocal cry at line 4 overlaps with the GP's talk and disrupts its progressivity. After the vocal cry, the GP cuts off, terminating the trajectory of their talk before launching a new utterance "no it's the same" (line 3). Thus, each feature (e.g. vocal cry, gasp, grimace), its different characteristics, positioning, and the other features it occurs alongside, influences how pain is displayed.

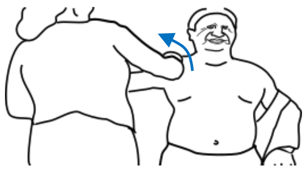
Extract 2.10 also highlights how the different features of pain displays have different affordances. The vocal cry (line 4) interrupted the progressivity of the GPs' talk, but the patient's grimace (line 2) extends across the GP's talk, occurring simultaneously without interrupting its progressivity. A grimace can be a subtle embodied action that operates on a different modality to talk, allowing it to concur with the GP's speech. Different interactional possibilities exist for vocal cries which are contrastingly loud and sharp, operating within the same modality as talk.

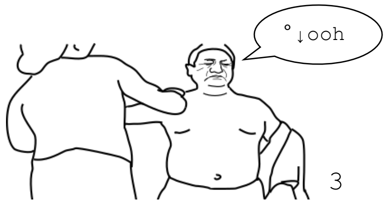
Extract 2.10 demonstrates a pain display (lines 2-3) that builds in intensity, reaches a peak, and eases off again. Extract 2.11, which is a more detailed version of an earlier extract, presents a similarly contoured pain display although the individual features and their positioning differ. The target pain display is at lines 3-5 and occurs after the GP takes hold of the patient's arm.

Extract 2.11

```
IS GP07 06
6:37-6:42

01   GP:      le- let me  hold  the we[ight,]
02   PT:                              [ khh ]
              ((GP holding PT's arm throughout))

       pt     *bared teeth grimace (FIG 1)
       -->    ...........tilts head back  (FIG 2)............
              |          |
03   PT:      >.hHK<

       pt     ........faces relaxes*
                      |
04            (1.0)

05   PT:      °↓ooh°
              (FIG 3)
```

1


2



3

The pain display begins with the patient simultaneously gasping and grimacing at line 3 (figure 1). Intensity builds with the patient's head tilting back and face tightening. The peak of the pain display occurs when the patient's head tilts to the furthest point (figure 2). The vocal cry "°↓ooh°" occurs at line 5 at the end of the pain display. It functions to display relief rather than pain per se, occurring *after* the patient's face relaxes (figure 3). This vocal cry has a different trajectory from the one in Extract 2.10. It occurs right *before* the patient's face relaxes, displaying the peak of the pain display rather than the alleviation of pain. Thus, depending on its characteristics, positioning, and the coordination with other features, vocal cries can have different functions. They can form the majority of a pain display or they can be a small component within a gestalt of other features. In the case of the latter, vocal cries can mark the beginning, peak, or end of a pain display, and subsequently function differently according to their position.

Comparing the gasp in the pain display in Extract 2.11 (line 3) with the vocal cries in Extracts 2.10 and 2.11, demonstrates that the affordances specific to each feature can characterise a pain display in different ways. The gasp occurred at the climax of a pain and demonstrated maximum pain intensity. As sharp inhalations, gasps are not as a malleable as vocal cries. The vocal cries in Extract 2.10 "#ouh!#" (line 4) and Extract 2.11 "°↓ooh°" (line 5) were flexible with variations in pitch, sound, and length. This flexibility allows them to convey pain at its most (Extract 2.10) or least intense (Extract 2.11). The multifaceted nature of vocal cries creates more possibilities for displaying pain. However, gasps, by their very nature, are constrained to communicating pain rather than aspects of pain such as relief. In this way, a spectrum of qualities that characterise features of pain display, such as modality, volume, and intensity, can influence how pain displays are differentially taken up in interaction.

To sum up, this section has described the resources that can constitute a display that is understood as pain. Through a process of detailed transcription, I have demonstrated that pain displays have no one form. Rather a range of resources can be deployed to forge the unique contours of any one pain display. Within this thesis, pain displays are approached as complex multimodal Gestalts. These unfold incrementally and are fitted to the ongoing action within the local context they are situated within. Each pain display is analysed as a phenomenon built from a range of features that take different forms, occurring in different places within a gestalt. Each feature also has its own affordances, constraining and enabling how it can operate within a pain display. Understanding the individual building blocks of pain displays is important for understanding how pain displays operate and accomplish action in interaction. The mutability of its features enables pain displays to be malleable in form, and fitted to the interactional task performed. Subsequent chapters build on this descriptive work to consider the sequential organisation of pain displays as complex multimodal Gestalts.

Having demonstrated the approach to pain displays, I now turn to the analytic chapters of the thesis. Each of the two analytic chapters considers specific aspects of the sequential organisation of pain displays.

Chapter 3 identifies and describes how pain displays are organised with respect to turn-taking. It shows how participants orient to pain displays as units of action when building turns, and how pain displays themselves are structured by turn-taking organisation. It points to larger theoretical issues about the applicability of the turn-taking organisation of talk, to multimodal conduct, which will be considered in more detail in the discussion

Chapter 4 analyses the sequence organisation of pain displays within a solicitation sequence. It examines how non-verbal pain displays are deployed and responded to in solicitation sequences. The findings have relevance to debates regarding the status of embodied actions.

Together the analysis shows that pain displays in medical consultations emerge into interaction in sequentially organised ways, which points to the social nature of something that is typically conceptualised within psychology as something private and physiological.

Moreover, through the sequential analysis of pain displays, it considers the extent to which CA concepts grounded in talk, such as turns-at-talk and conditional relevance, can account for the organisation of embodied units of action.

Chapter 3: Pain displays as units of action

As discussed in the previous chapter, pain displays are made recognisable from a set of features that combine in a complex multimodal Gestalt, a term adopted from Mondada (2014b). This chapter examines how pain displays, as complex multimodal Gestalts, are organised with respect to turns in interaction, and in doing so, addresses a debate regarding the status of embodied action as units of turns. Through the analysis of pain displays, this chapter presents evidence in support of the view that embodied action can form unit-like structures involved in turn construction and turn transition.

Conversation analytic research has shown that actions produced through talk are housed in single or multiple turn constructional units (Sacks et al., 1974). Building upon this work is research showing that complex spates of embodied conduct can support the production of turn constructional units in talk (Goodwin, 1980; Streeck & Hartge, 1992; Schegloff, 1984; Kendon, 2004; Mondada, 2007b; 2015). For example, turn constructional units can be initiated (Deppermann, 2013b), completed (Keevallik, 2014; Klippi, 2005; Olsher, 2004), and suspended (Iwasaki, 2015) through embodied resources. Such research has highlighted how embodied resources can contribute to the accomplishment of predominately verbal turn constructional units (Keevallik, 2018).

It is contested, however, as to whether embodied conduct can constitute a turn constructional unit in the absence of talk and, in a recent critique, Kääntä (2010) noted a lack of research on how embodied actions by themselves figure as turn constructional units. Some researchers, such as Depperman (2013b) and Olsher (2004), have argued that features of turn-taking, like turn constructional units and turns, do not accord with embodied action. Turn-taking concepts were founded upon talk which is linear and successive where one turn follows another. As embodied conduct forms a different layer of behaviour that is both non-verbal and simultaneous, the notion of turn constructional units and turns may be inapplicable to embodied action. Yet a few recent studies, albeit far from conclusive, have suggested that embodied actions alone can constitute turn constructional units (Kääntä, 2010; Keevallik, 2014; Klippi, 2005), providing support for an alternative view that the notion of turn constructional units does have relevance to the organisation of embodied behaviour. Drawing from this research, I argue that embodied conduct can constitute something akin to turn constructional units, and can be used to construct and project when turns are complete.

The following analysis examines pain displays with respect to turn-taking organisation. The first section examines participants' orientations to pain displays as units of actions with an onset, a peak, and a projectable completion place. Note, the term 'units of action' is adopted to describe how pain displays operate as actions in interaction with a unit-like structure. The second section investigates how pain displays, as units of action, are visible in the progressivity of turns-at-talk. Together, the two sections present evidence to support a view that pain displays function as units of action that are organised with respect to turns.

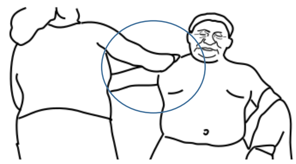
Pain displays as recipient resources for building turns

The subsequent analyses show participants orienting to a pain display as a structural unit that organises when and how they build their turns-at-talk. In the data examined for this thesis, participants treated pain displays as units of action with an initiation and completion point. This suggests that some pain displays have a 'grammar' that enables them to be projectable as possibly complete, similar to the transition relevant place of turn constructional units. My analysis draws on Sacks and Schegloff's (2002) and Raymond and Lerner's (2014) work on the sequentiality of body movements. Sacks and Schegloff found that body positions tend to end where they begin—departing from and returning to what they termed as a 'home position'. The concept of a 'home position' is useful for defining the boundaries and the projected trajectory of an embodied action. Extending this work, Raymond and Lerner showed that embodied actions can be suspended or slowed down. The notion that one embodied action can be adjusted on account of another, is useful for showing the emergent relationship between two courses of embodied actions.

Extract 3.1, presented below, depicts a stretch of interaction that was examined in Chapter 2. Here, the analysis focuses on the pain display being oriented to as a unit of action with an initiation, an apex, and a completion point. Note that the beginning and end of the target pain display is indexed with a red asterisk (e.g. *). All the target pain displays of this chapter will be marked up in this way to clearly show their initiation and completion point, which is relevant for turn-taking organisation.

Extract 3.1

```
IS GP07 06
6:35-6:45

01   GP:      |oka[ y   . h h   ]
02   PT            [↓mmgh god(h)!] |.Hh
              |GP walks to PT      |holds PT's arm (FIG 1)

     pt            *grimace     *
                   |            |
03   GP:      le- let me  hold  the we[ight,]
04   PT:                              [ khh ]

         -->  *bared teeth grimace (FIG 2)
     pt       ...........tilts head back  (FIG 3)...................
              |          |
05   PT:      >.hHK<

     pt -->   ....faces relaxes
                  |
06            (1.0)

07   PT:-->   °↓ooh°*
              (FIG 4)

08            |(0.4)
              |GP begins lifting PT's arm (FIG 5)

09   GP:      I'm just going to see if I can get (.)
10            any further >(is) it make any difference
```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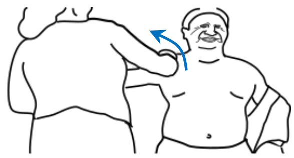
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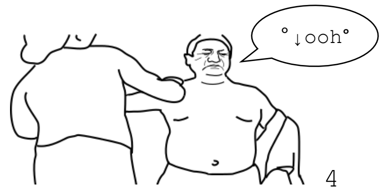

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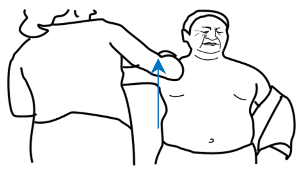

5

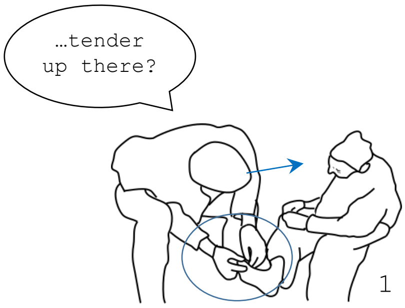
After the GP takes hold of the patient's arm, the target pain display begins with a bared teeth grimace and a sharp gasp (line 5, figure 2). Near the end of the gasp, the patient tilts their head back and grimaces more intensely (line 5, figure 3). The patient's face relaxes again at line 6 and they emit a vocal cry "°↓ooh°" (line 7, figure 4). The cry and the relaxing of the face marks the alleviation of pain (see chapter 2) and the end of the pain display.

The GP launches two consecutive and interrelated actions. The first: the GP holds the patient's arm (line 2, figure 1). The second: the GP lifts the patient's arm to try and raise it (line 8, figure 5). The first action is a necessary preliminary to realise the second—the GP must take hold of the arm before lifting it. However, the smooth progression of the transition from the first to the second is interrupted. The GP remains holding the patient's arm and does not lift it until the completion of the pain display at line 7. Earlier in the pain display, after the initial gasp ">.hHK<" (line 5), there was a 1.0 silence (line 6). This silence could be taken as a gap in the interactional floor where change of speakership is possible. However, the embodied features of the pain display, the grimace and head tilt (line 5, figures 2-3), are oriented to as a part of the unit-in-progress. It is only after the termination of the pain display that the GP begins to lift the patient's arm, demonstrating an orientation to the prior array of embodied and vocal conduct as part of a co-joint unit. The break in the progressivity between the GP holding the arm and lifting it appears to be oriented to the initiation and completion points of the pain display. Speaker transition takes place only after the pain display is fully realised as a unit of action.

In Extract 3.1 the GP began a turn-at-talk after the completion of the pain display. In Extract 3.2 the GP begins their turn-at-talk while the pain display is ongoing, projecting the completion of the pain display. Points of projectable completion in visual conduct are not as easily parsed as verbal conduct. Linguistic forms of interaction have grammatical and prosodical structures (e.g. sentences and intonation), which form resources for projecting the completion of a unit (Keevallik, 2014). However, the pain display shown in Extract 3.2 is an embodied unit of action with a projectable completion point where speaker transition becomes relevant. In Extract 3.2 the patient has a sore toe and is undergoing a physical exam when a pain display occurs (lines 7-9). The GP launches a next action before the pain display has reached completion, displaying their projection of the ongoing pain display.

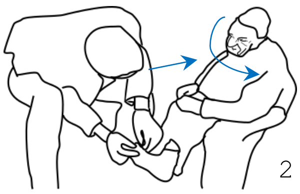
Extract 3.2

```
TS GP03 20
3:30-3:48

01           >whereas this I agree I think it looks
02           probably a bit more infected is it-<

03   GP:     |is it getting |tender up there?
             |GP pressing PT's toe
                            |GP gazes at PT (FIG 1)
```

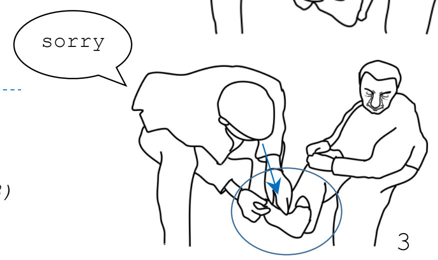


1

```
     pt -->  *grimaces and turns head away (FIG 2)
             |
04           (0.4)
                 |GP stops pressing toe
```

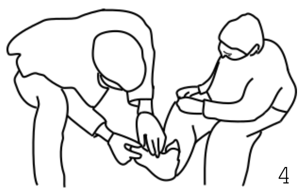

2

```
     pt -->  continues turning head

05   GP:     yeah sorry
                  |GP rubs PTs foot
                  |GP gazes at PTs foot (FIG 3)
```



3

```
     pt -->  ......head in home position (FIG 4)*
                  |
06  (GP/PT)  >.hh<

07   GP:     so::

08           (0.4)

09   PT:     .hh see how it's looking that's how
10           [ it   was   the] last ti:me
11   GP:     [yeah::: I kno:w]
```


4

The pain display begins after the GP presses the patient's foot and asks the diagnostic question "is it getting tender up here?" (line 3, figure 1). Under the GP's gaze, the patient grimaces and turns their head away (lines 4-6, figures 2-3). The GP begins a turn-at-talk (line 5) during the patient's pain display, gives an affirming "yeah", then apologises and rubs the sore foot as the patient turns their head away (line 5, figure 3). Although the GP's talk occurs while the patient's pain display is still unfolding, it is not 'interruptive'. The GP begins their turn-at-talk near the apex of the pain display when the patient's head is reaching the furthest point from home position (line 5, figure 3). Given the torque of the patient's body (figure 3), it is available to the GP that the patient's head is reaching the furthest point from home position, and unable to turn much further. The clear end of the pain display is when the head has returned to home position (line 6, figure 4). However, the apex constitutes a transition relevant place, where the completion of the pain display is projectable. Having reached the apex, the patient's head is projectably on the way back to where it departed. Therefore, the pain display is projectably on its way to completion. This means that the GP's talk, which occurs at the apex of the patient's pain display, comes at a transition relevant place.

Sequential placement also contributes to the projectability of the pain display. The GP initiates a first pair part request for confirmation about the patient's pain experience. This is followed by a pain display that confirms the patient's foot is tender.[4] Before the pain display is complete, the GP begins a new action, apologising for the physical manipulation which was the source of the pain. Features of the partially completed pain display, such as the grimace and head turn, were treated as sufficient confirmation of the patient's pain. What is demonstrated here, then, is that the organisation of pain displays through sequences provides a structure to project its completion. The moment a pain display is recognisable as progressing the preceding action, then speaker transfer becomes relevant, even if the pain display has not ended. A point of contrast can be made with the pain display in Extract 3.1, where the sequential position of the pain display does not provide a structure to project its completion. The pain display shown in Extract 3.1 follows an action from the GP that does not require a response "let me hold the weight" (line 3). Therefore, the end of the pain display is not projectable and transition only becomes relevant at its completion.

The pain displays in the previous two extracts emerged in a spate of time between turns-of-talk. In contrast, the pain display in Extract 3.3 unfolds concurrently with talk. Face-to-face interaction is typically characterised by simultaneously unfolding forms of

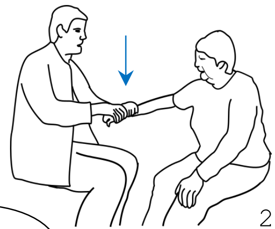
[4] The sequential positioning of pain displays in adjacency pairs will be discussed in depth in the next chapter.

multimodal conduct (Hazel, Mortenson, & Rasmussen, 2014; Mortensen, 2012) and separate courses of action can emerge at the same time without being treated as problematic (Oloff, 2013). However, in Extract 3.3, the simultaneously occurring pain display disrupts the progressivity of the GP's turn-at-talk. As a result, the GP abandons their turn-in-progress to attend to the patient's embodied behaviour. Note that the patient has a sore elbow which is being physically examined by the GP. The GP is testing the patient's ability to hold their arm in a certain position when a pain display occurs at line 8, just after the GP utters "so".

Extract 3.3

```
TS GP03 17
3:05-3:15

01   GP:     .hh if you make <a um:> (0.4) |a fist
                                           |GP forms fist
02           |like that(h),
             |PT forming fist
03           (0.4)
04   GP:     .hh |and then
                 |GP turns PT's fist down  (FIG 1)
05           (0.4)
06   GP:     |keep your hand in posi|tion(h),
             |GP holds PT's wrist   |GP lowering PT's arm  (FIG 2)
07           (0.4)
         -->                    [grimaces (FIG 3)           ]*
         -->        *shoulder lifts
     pt              |                      |
08   GP:     |so don't fight again- |=is that so:re?
             |still lowering        |movement ceases
09   PT:     very sor|e=
                     |GP reaching hand under PT's palm  (FIG 4)
10   GP:     >(and) what about< going that way?
```


1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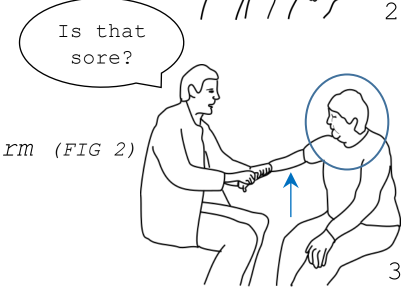

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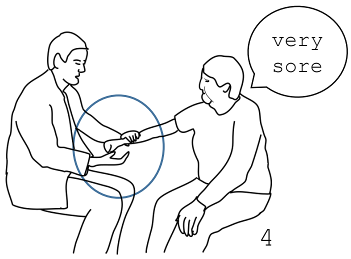


4

The pain display emerges near the beginning of the GP's turn constructional unit "so don't fight again-" (line 8), at a place where speaker transition is not relevant. The pain display begins with the patient's shoulder jerking upwards, to which the GP orients by abandoning their turn-in-progress. The GP cuts off at the word "again-" (line 8) and begins to ask "is that so:re?" as the patient forms a grimace (line 8, figure 3).

Before the emergence of the pain display the GP had been preparing for a physical manipulation by directing the patient to assume a certain position with their arm (lines 1-5). The GP then performs the physical manipulation on the patient's arm by lowering it at line 6.

Physical manipulations in diagnostic sequences for acute pain are typically performed to solicit pain information (Heath, 1989; McArthur, 2018). In Extract 3.3 the patient conveys pain information through their pain display which marks the physical manipulation as painful. It gives the solicited information, but it is delivered before the GP has finished giving an instruction for the physical manipulation "so don't fight again-" (line 8). As the patient had already demonstrated the physical manipulation is painful, the GP abandons the instruction-in-progress ("don't fight again-") because it is no longer relevant to the interactional activity.

The GP orients to the pain and asks "is that so:re?" (line 8), treating the patient's embodied behaviour as a pain display and requesting confirmation, a pattern that will be discussed in the following chapter. The GP stops lowering the patient's arm (line 8), treating the diagnostic sequence as complete. By abandoning a turn-in-progress to attend to the pain display, the GP displays an orientation to the pain display as a relevant unit of action that is consequential for the diagnostic task at hand.

The analysis of these three extracts has demonstrated that pain displays are treated as coherent units of action with a kind of 'grammar' which makes the trajectory of their unfolding projectable. The shape of pain displays were used as a resource for recipients to self-select and launch their next turns. In Extract 3.1, the GP began their turn after the initiation and completion of the pain display, orienting to it as a unit of action. In the analysis of Extract 3.2 next-turn proof procedure was used to demonstrate the GP's orientation to the pain display as a unit of action. The GP apologised at the apex of the pain display, treating it as a responsive unit of action which answered their prior request for confirmation "is it getting tender up there?" (line 6). Although the GP's talk emerged when the pain display was ongoing, it occurred once the pain display had culminated at the apex and was projectably on its way to completion. Extract 3.3 contains a pain display, as a unit of action, interrupting a turn-at-talk. The GP abandoned their turn-at-talk to attend to the relevancy of the pain display as a unit of action. The three extracts, each depicting a unique interaction, demonstrates how pain displays are oriented toward as units of action. The following section shifts the focus from pain displays as resources for recipients to build turns of talk, and examines how pain displays are organised with respect to speakers' turns-at-talk.

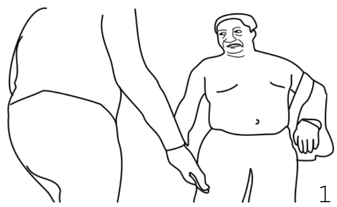
Pain displays organised with respect to turns-at-talk

The analysis in this section demonstrates that pain displays are units of action that are sensitive and fitted to the local production of turns. The section begins by showing an example of a pain display emerging in a transition relevant place. It is followed by an example of a pain display that is abandoned and re-initiated to attend to the relevancies of the GPs competing talk. Both examples demonstrate how pain displays are locally adjusted to sustain the progressivity of the ongoing interaction and the turn-by-turn production of action.

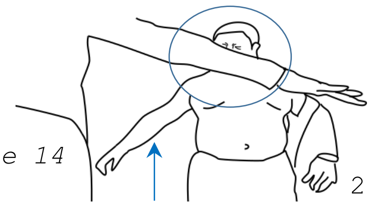
In Extract 3.4 the apex of the patients' pain display emerges in a transition relevant place. The GP lifts their arm up and requests the patient do the same (lines 1-2, figure 1). The patient, who has a painful shoulder, acquiesces but with some difficulty (line 2) and continues efforts throughout the extract. As the patient lifts, a pain display begins with a grimace (line 3) and continues until line 14. A vocal cry occurs as part of the same pain display at line 7.

Extract 3.4[5]

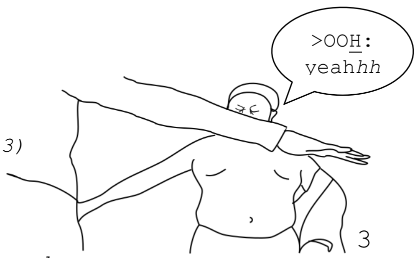
```
IS GP07 06
6:22-6:32

01   GP:      |.Hh (0.4) >I'll get you to um: move your arm
              |GP begins raising arm (FIG 1)
```


1

```
02   GP:      |outwards and we'll see how far we go:
         -->  |PT begins raising arm

03            |(0.6)|
         -->  |*begins grimacing (FIG 2), continues until line 14
                    |GP stops moving arm
```


2

```
04   PT:      .Hhh

05            (0.8)

06   GP: -->  where is it catch[ing you?]
07   PT: -->                   [ >O O H:] yeahhh
                               |PT tilts head back
                               |PT stops raising arm (FIG 3)
```



3

```
08   PT:      (to lift)   >.Hh<     |right   |around
              |reaches for shoulder |touches shoulder
                                             |reaches for underarm

09   PT:      |°hh° .hhH
              |touches underarm
```

The GP orients to the grimace as a pain display and tries to locate the source of pain by asking a diagnostic question "where is it catching you?" (lines 6). As the GP utters this question, the pain display intensifies and reaches its apex. The patient tilts their head back and emits a vocal cry ">OOH:" (line 7, figure 2). The apex occurs at a transition relevant place after the GP says "catch" (line 6), resulting in a turn-terminal overlap (Jefferson, 1986)

[5] The specialised notation system is not used here as the patient is grimacing throughout the extract and fine detail is not relevant to the analysis.

where the vocal cry overlaps with the end of the GP's turn. This shows that the features of pain displays, like the apex, can be finely coordinated with recipients' turns-at-talk.

The pain display is also responsive to the actions made relevant by the GP's turn. Although the pain display constitutes one cohesive unit, it has distinct sub-units that produce different actions throughout its course. The first action is accomplished by the grimace which begins at line 3 (figure 2). It marks the motion of lifting the arm as painful and is oriented to by the GP through the diagnostic question (line 6). This question is responded to through a vocal cry, another component of the same pain display. The vocal cry forms the beginning of a responding action to the GP's first pair part question. It occurs at a *specific point* during the lifting motion and demonstrates where during the lifting motion that pain impinges on the patient's mobility, followed by indexical touching which shows where the pain is located.

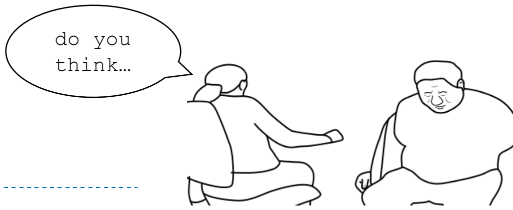
The pain display began as a separate stream of non-verbal action unfolding concurrently with the GP's talk but vocal resources were strategically deployed to attend to the demands of the GP's turn-in-progress. Through a range of multimodal resources, pain displays can accomplish multiple actions as a cohesive and sustained unit. The various modalities that form the pain display can be incrementally and reflexively adjusted to meet the interactional relevancies of the local context in relation to turn and sequence organisation.

Finally, the pain display in the Extract 3.4 contrasts with the pain displays of Extract 3.1 and 3.2, which also occurred in transition relevant places. The pain display in 3.1 emerged after the request "let me hold the weight" (line 3) and the other, in 3.2, emerged after a pain solicitation "is it getting tender up in there?" (line 6). In both, GP's verbal actions emerged simultaneously with a physical manipulation (e.g. holding patient's arm, or squeezing their toe). The onset of the physical manipulations occurred near the end of the GPs' turns, where speaker change was relevant. Thus, in Extract 3.1 and 3.2, the pain displays occurred in transition relevant places because the GPs had performed physical manipulations near the transition space. However, in Extract 3.4 the apex of the pain display occurs at a transition relevant place but it cannot be attributed to the onset of the physical manipulation. The physical manipulation had begun a few turns earlier near the beginning of the extract (line 2), performed by the patient themselves rather than the GP. This demonstrates that features of pain displays can be designed to emerge at transition relevant places independently of GPs' physical manipulations.

Similar to Extract 3.3, the pain display presented in Extract 3.5 occurs at the same time as the GP's talk. In response to the GP's emergent turn-at-talk, the patient orients to the pain display as a competing unit of action and subsequently abandons the action causing the pain. The extract below begins while the patient is taking their jacket off while the GP gazes at the computer. As the patient leans forward to slide off the jacket, a pain display occurs in the form of a grimace (line 1).

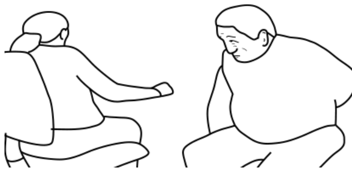
Extract 3.5

```
IS GP07 06
2:18-2:43

    pt  -->    *grimacing (FIG 1)...................................
               |
01  GP:        do you think it might have been
               |PT leaning forward to remove jacket
```

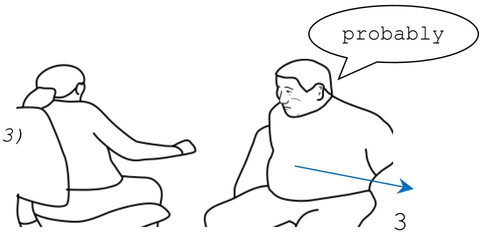


1

```
    pt         .....face relaxes*  (FIG 2)
                    |
02             long|er than a month ago?
       -->          |PT stops leaning forward, turns to GP
```

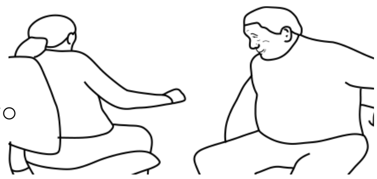

2

```
03             (1.4)

04  PT:        |probably HIH >hih hih< it probably is
               |begins shifting jacket down arms (FIG 3)
```



3

```
05             .hh >I- and I was- it was was- <
06             [  this   year   some    |time   ]
07  GP:        [^do you think it might have been]
                                        |stops removing jacket

08             oct|ober two thousand and ^four?
                  |GP turns and gazes at PT

09             (0.8)

10  PT:        was it la:st ^yea:r?

11             (0.4)
               |GP gazes at computer

12  GP:        chopping wood?

13             (0.4)  |(1.6)
                      |GP gazes at PT

14  PT:        .hh that's it! (.)  (             )  .hh
               |PT removes left sleeve (FIG 4)

15             didn't think that it was that lo:ng (.) ago

               (1.4)

16             that's it >yeah that- that'll do
```


4

```
    pt  -->    *grimacing...............................
               |
17             (2.0)
               |PT removing right sleeve (FIG 5)
               .........................................

18  PT:        >ah(hh)<
```

5

During the pain display the GP begins a turn-at-talk and asks “do you think it could have been longer than a month ago” (line 1-2), while still gazing at the computer (figure 1). Mid-turn, when “long” is uttered, the patient stops grimacing and leaning forward to remove their jacket (line 2, figure 2). The coordination of the onset and termination of the grimace with the action of leaning forward, marks the action of removing the jacket as the cause of the pain. The patient abandons the action of removing their jacket and the accompanying pain display, in order to attend to the GP’s talk. Typically, a body movement is complete as a unit once there is a return to home position (Sacks & Schegloff, 2002). The patient does not return to home position. From the leaning position, the patient turns their torso and gaze towards the GP (figures 2-3). This displays a shift in attention from the embodied trajectory of the pain display and the action of taking their jacket off, to the GP. By suspending the ongoing action on account of another (Raymond & Lerner, 2014), the patient is ‘doing interjection’ visibly showing they are halting a painful action to attend to the GP’s talk.

Existing work has shown that actions are abandoned when turns-at-talk overlap (Sack et al., 1974). This is because co-occurring turns are treated as competing courses of action. Overwhelmingly, a speaker drops out and attends to the primacy of the other. Although the pain display is produced through embodied conduct only, and does not audibly overlap with the GP’s talk, it is treated as a co-occurring competing course of action with the GP’s turn-at-talk. The patient attends to the primacy of the GP’s question by abandoning the action of taking their jacket off and the accompanying pain display, and they provide the requisite answer. The patient provides a mitigated confirmation, “probably HIH >hih hih< it probably” (line 4), and specifies that it was “this year some time” (line 6). This is followed by more turns-at-talk where the patient and GP further negotiate the date the injury happened. In overlap with the patient’s talk, the GP suggests a contrasting date: “^do you think it might |have been october two thousand and ^four?” (lines 7-8). After some more negotiation (lines 9-13) the patient confirms the GP’s candidate date (line 14), after which, the GP turns back to the computer immediately (line 11). Then the patient resumes taking their jacket off which is marked by another pain display (lines 17-18). The re-uptake of this pain source action, after the completion of the sequence initiated by the GP’s questions regarding the date of the injury, provides further evidence that they were abandoned due to their status as courses of action competing for the interactional floor.

In sum, this section has shown that pain displays can emerge at a transition relevant place and are organised with respect to turns-at-talk. Furthermore, the features that build a pain display, as they emerge in real time, can advance the turn-by-turn production of the interaction. The analysis also showed that pain displays are oriented to as competing units of action and can be abandoned and resumed to attend to the contingencies of turns-at-talk. Together, these examples demonstrate that pain displays are deployed as units of action that advance the progressivity of the turn-by-turn production of talk.

Conclusion

This chapter has suggested that pain displays are socially organised with respect to turn-taking in interaction. It has demonstrated participants' orientations to pain displays as units of action with respect to selecting themselves as next speaker. In Extract 3.1 participants oriented to pain displays as coherent units of action with an initiation and completion point that constitutes a turn. In Extract 3.2 the structure of the pain display, specifically its apex and completion point, was a resource for recipients to project the completion of the pain display as a unit and launch their next turn. Like the linguistic structures that make verbal turn constructional units projectable, some pain displays as embodied units of action also contain a structure that allow recipients to anticipate their completion and select themselves as next speaker.

Recipients also oriented to pain displays as units of action when building their own turns-at-talk. In Extract 3.1 and 3.2 GPs designed their physical manipulations to occur near the transition space, leaving the interactional floor open for patients' potential pain responses. Thus, GPs' turn design practices reveal an orientation to pain displays as successively ordered units. Then in Extract 3.3 the GP abandoned their turn-in-progress in order attend to the relevancies of the patient's simultaneous pain display. This shows that participants can orient to pain displays as competing units of action when designing their talk.

Pain displays were also visible in the progressivity of turns-at-talk, unfolding with respect to speakers' turns. In Extract 3.4 the apex of a pain display emerged in a transition relevant place, as a response to the GP's soliciting question. Unlike the aforementioned extracts, the pain display occurred in a transition relevant place independently of the onset of the physical manipulation. Patients, then, can be said to organise the emergence of pain displays with respect to turns-at-talk. In Extract 3.5 the patient abandoned the action that elicited the pain display, and the pain display in progress, to attend to the GPs' simultaneous talk, orienting to it as a competing unit of action. Once the relevancies of the talk had been attended to, the patient resumed the painful action showing how pain displays can be suspended and re-initiated according to the local production of turns-at-talk.

The analysis presented in this chapter supports the argument that pain displays can be considered as units of action akin to turn constructional units, used as resources for building turns and coordinating turn transition. Pain displays, like turn constructional units, were organised sequentially, unfolding with respect to the turn-by-turn progression of talk. The finding, that pain displays are sequentially organised as embodied units of action that are contingent on turns, has relevance to debates about the applicability of turn-taking concepts to multimodal conduct. It shows that although concepts of turn-taking were grounded in talk, they can be useful for describing embodied conduct. The significance of this idea, that embodied actions can be similarly organised to a turn-at-talk, will be discussed in Chapter 5. The next chapter moves beyond the level of units and turns to consider the positioning of pain displays in sequences of talk.

Chapter 4: Pain displays in sequence

The prior chapter showed how turn-taking organisation can be used to understand the ways pain displays shape turns of talk-in-interaction. Chapter 4 applies concepts of sequence organisation to pain displays. I identify one type of sequence that pain displays systematically occur in and make the claim that pain displays, as multimodal units, are organised with respect to sequences of talk. The analytic work of this chapter has relevance to broader issues within multimodal conversation analytic research regarding the sequence organisation of embodied conduct. Specifically, it addresses concerns regarding the action status of embodied units of action. Research has shown that embodied actions can initiate action and, additionally, respond to and progress initiating actions (Kendrick & Drew, 2016; Mortensen, 2016; Rauniomaa & Keisanen, 2012). However, a question that remains to be fully settled is the applicability of concepts that organise talk such as sequence, adjacency pairs, and conditional relevance to embodied conduct. The ways in which my research casts new light on the matter will be picked up in the discussion

Soliciting pain

In acute primary consultations, a physical examination can involve sequences characterised by physical manipulations and solicitations, which are questions requesting information about patients' bodily sensations (Heath, 1989; McArthur, 2018). The main activity in these sequences is to solicit pain and gather relevant diagnostic information. One resource that patients can use to respond to solicitations is non-verbal pain displays. These are pain displays that are constituted from embodied and vocal conduct without any verbal resources. The sequential organisation of non-verbal pain displays in solicitation sequences is the focus of this chapter. I examine how non-verbal pain displays are deployed and responded to by participants, to progress the activity of soliciting pain.

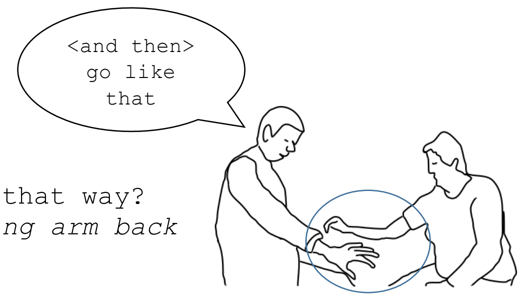
Before examining non-verbal pain displays, this chapter looks at verbal responses to solicitations, another resource used by patients to respond to GP's solicitations. Verbal responses to solicitations have a different sequential trajectory to non-verbal pain displays, which are embodied only responses. Verbal responses are treated as sufficient to end the solicitation and shift the activity. In contrast, non-verbal pain displays alone are insufficient to close the diagnostic activity and make relevant a relatively extended sequence before a shift to next activity occurs. Although verbal pain responses are not the focus of the chapter, they constitute comparative cases which highlight the extended sequential trajectory of non-verbal pain displays. The divergent sequential patterns between the two types of pain responses are a result of GPs orienting to embodied pain displays differently from verbal ones. This highlights how participants orient to non-verbal pain displays, as embodied units of action, differently from verbal responses.

Two verbal pain responses to solicitations are shown below. In the first extract, the patient only uses verbal resources but in the second, they use verbal and embodied ones. Both extracts show that a verbal response is treated as sufficient by the GP to close the activity.

In Extract 4.1 a patient's verbal response to a solicitation is shown. It was selected as a clear example of a verbal response closing the pain solicitation sequence. The patient's sore elbow is being physically examined by the GP. The GP gives a directive (line 1), instructing the patient to bend their arm upwards. After the patient accomplishes a physical manipulation without pain, the GP begins another solicitation sequence. Through the directive, "and then go like that back and forth like that" (line 6-7), the GP instructs the patient to perform another physical manipulation while also modelling the position to take (line 6, figure 1). The patient complies with the directive and imitates the GP's arm movements (line 6-7, figure 2). The target line occurs shortly after at line 8 when the patient gives a verbal claim of pain, after which the GP moves to the next activity.

Extract 4.1

```
TS GP03 17
2:32 - 2:46

01  GP:     |>.hh can you bend it all |the way that way?
            |GP bending arm back      |PT bending arm back

02          (0.6)

03  GP:     |that's gre[at]
04  PT:                [ye]ah-  yep
            |PT's hand touches shoulder

05          (0.4)
            |PT lowers arm

06  GP: -->|<and then> go |like th|at
            |GP straightens arm
                          |GP turns arm down and out (FIG 1)
                                  |PT turns arm down

07  GP: --> back and forth |like that
                           |PT turns arm out (FIG 2)

08  PT: --> ye:s |it's pa:inful
                 |PT turns arm up (FIG 3)
                 |PT gazes at GP
```



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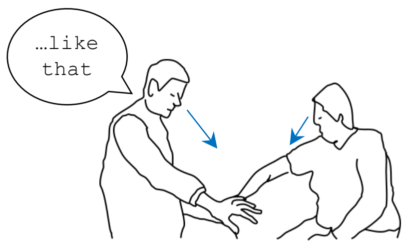

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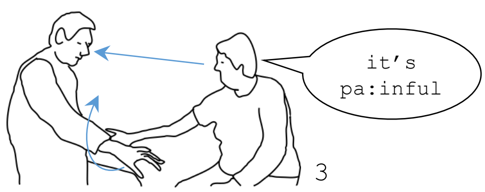


3

```
09  GP:     |okay .hh >what I might do< is just ho:ld .hh
            |GP reaches for PTs arm
10          um .hh just twist against my hand that wa:y
```

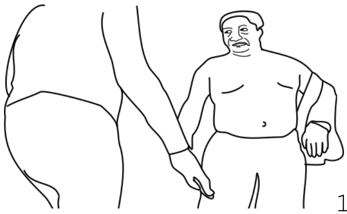
The GP’s directive (line 6-7) is oriented to by the patient as performing two actions. First, it is taken as a directive for the patient to perform a physical manipulation. Complying, the patient imitates the body position demonstrated by the GP, turning their arm down and out (line 6-7, figure 2). Second, it is taken as a tacit solicitation for pain information. Physical manipulations within the physical examinations for acute pain conditions are performed to gather pain information. Therefore, the GP’s directive for a physical manipulation is also given to implicitly solicit pain. The patient’s orientation to the second directive as a solicitation for pain information is displayed at line 8. In a transition relevance place, the patient gives affirmation that they can assume the physical manipulation, “>ye:s”, but then adds that “it’s painful” while gazing at the GP (figure 3). The patient appears to perform the physical manipulation without difficulty and it is only through a verbal claim that pain is made apparent. Immediately after the patient’s verbal delivery of pain information, the GP ends the solicitation sequence and moves on to the next activity. The activity shift is marked using shift implicative “okay” (Beach, 1993), and it is followed by the initiation of another physical manipulation at line 9. The activity shift taking place immediately after the patient’s verbal claim of pain shows the GP’s orientation to the verbal pain response as sufficient to stop soliciting pain information and move onto another diagnostic task.

Extract 4.2 (previously presented in Chapter 3 as Extract 3.4), shows a patient giving a verbal and an embodied response to a solicitation. These responses are also treated as sufficient to progress the activity and move towards closure. In the extract the mobility of the patient’s injured shoulder is being examined by the GP. The GP initiates a physical manipulation. They then give a directive, instructing the patient to move their arm outwards while demonstrating the motion for the patient (lines 1-2, figure 1). Complying, the patient raises their left arm but displays difficulty and begins to grimace (line 3, figure 2), continuing to do so throughout the entire extract. At line 6, the GP verbally solicits pain information by asking “where is it catching you”.

Extract 4.2

IS GP07 06

6:27-6:35

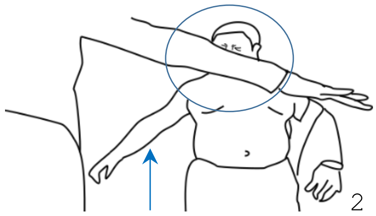


1

```
01   GP:       |.Hh (0.4) >I’ll get you to um: move your arm
               |GP begins raising arm (FIG 1)

02   GP:       |outwards and we’ll see how far we go:
               |PT begins raising arm

03             |(0.6)|
               |*begins grimacing (FIG 2), and continues until line 14
                     |GP stops moving arm
```

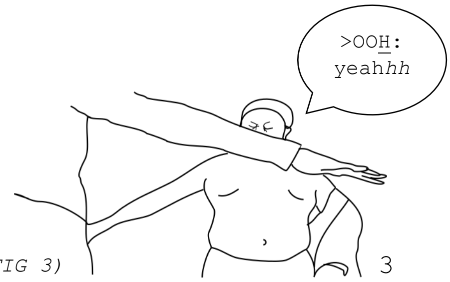


2

```
04   PT:       .Hhh

05             (0.8)

06   GP: -->   where is it catch[ing you?]
07   PT:                        [ >O O H:] yeahhh
         -->                    |PT tilts head back
                                |PT stops raising arm (FIG 3)
```

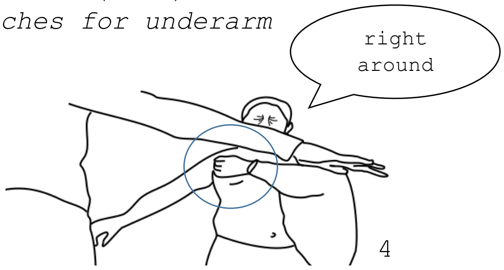


3

```
08   PT: -->   (to lift)   >.Hh<     |right   |around
               |reaches for shoulder |touches shoulder (FIG 4)
                                              |reaches for underarm

09   PT:       |°hh° .hhH
               |touches underarm (FIG 5)

10             |(0.4)
         -->   |PT raises arm
         -->   |GP raises arm
```



4

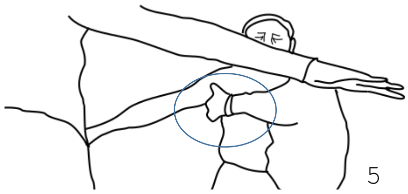
```
11   PT:       HHh

12             (2.6)

13   GP:       |oka[ y   . h h  ]
14   PT:       |    [↓mm god(h)!]*  |.Hh
               |GP walks to PT      |GP holds PTs arm

15             (0.4)

16   GP:       le- let me  hold  the we[ight,]
```



5

The patient stops raising their left arm but leaves it suspended, ceasing the physical manipulation to attend to the relevance of the solicitation. First, the patient responds to the solicitation through non-verbal means, displaying pain with a vocal cry “>O O H:” (line 7). Then the patient draws upon verbal resources to provide more pain information. The patient verbally affirms that it is painful, “yeah*hh* (to lift)” (lines 7-8), then gasps, “>.Hh<” (line 8), and verbally indexes the pain, “right around” (line 8). This verbal pain description is also coupled with indexical touching. As the patient utters “right around” they touch their left shoulder (line 8, figure 4). They then reach to touch their left underarm (line 9, figure 5), establishing joint attention to the localised source of the pain.

The GP’s solicitation “where is it catching you” (line 6) has a dual meaning. It can be understood as asking about where during the lifting motion is painful or where on the body is painful. The patient’s verbal and embodied response (lines 7-9) address both facets of the question. Their immediate vocal cry demonstrates pain at a specific point during the lifting motion and the following verbal response, combined with touching, shows the location of pain on the patient’s body. After the patient’s response, both GP and patient shift out of the solicitation sequence and resume the wider diagnostic activity, which was to test how far the patient can raise his arm. Earlier, the patient had suspended this action at line 7 to attend to the relevancies of the soliciting question. After giving a response to the solicitation, the patient resumes lifting their arm at line 10, as does the GP. Thus, the embodied and verbal pain response is treated as a responsive action that fulfils the conditional relevance of the solicitation, leading to an activity shift.

Two different cases of pain solicitation have been presented. The first was a verbalisation of pain and the second was an embodied pain display accompanied by verbalisation of the pain. Both were treated as sufficient by the GP and fulfilled the conditional relevance of a response to the solicitation. A shift in activity occurred after the responses were given. In contrast, the examples I examine next are of non-verbal pain with no accompanying talk. The trajectory of these show non-verbal pain displays are oriented to differently from verbal pain responses and make relevant other actions occasioning further talk rather than a quick progression to closure.

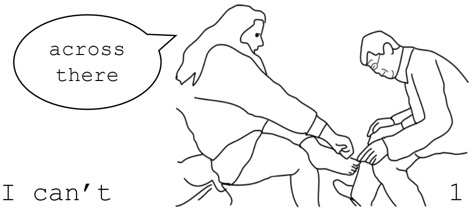
Non-verbal pain displays

Non-verbal pain displays in solicitation sequences are presented next. I begin with cases where solicitations are non-verbal and produced by the physical manipulation. This is followed by cases where solicitations are verbal, produced explicitly by a question or through a directive. The following analyses demonstrate that the same sequential pattern is found for non-verbal and verbal solicitations.

Non-verbal solicitation. The non-verbal solicitations in this section are accomplished by GPs’ physical manipulations which tacitly solicit pain information. In the two cases below, both GPs display a readiness to move onto the next activity when they give the verbalised pain observation. They treat the observed pain information as sufficient to cease performing the physical manipulation and soliciting pain information. However, at the same time, they produce their verbal pain observations as a request for confirmation, orienting to the relevance of having patients confirm their observations. In the extracts below, after patients give confirmation, a shift to next activity occurs.

Extract 4.3 is taken from a medical consultation where the patient is experiencing pain in their foot. Just prior to the extract, the patient had initiated the physical examination by taking off their socks and shoes. The patient extends their foot and the GP gazes upon it, before asking a diagnostic question about the location of the pain at line 3.

Extract 4.3



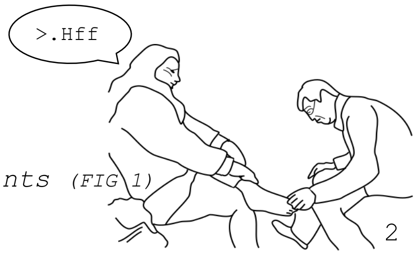
1

```
DS GP29 01 part 1
1:42-1:55

01   PT:      look (0.8) I can't touch it I can't
02   PT:      bend it and it hurts like  mad .hhh

03   GP:      which ah which area you have a pain?

04   PT:      |there (.) |across there
              |PT pointing at foot
                         |GP holds foot where patient points (FIG 1)
```



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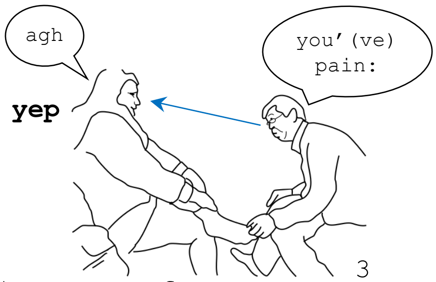


3

```
    pt                   eyes closed                        *
06   PT: -->   |*>.Hff  [   a g h   ]
07   GP: -->            [you'(ve) p]ain: |in this [area]
08   PT: -->                                      [ mm ] yep
                                     |PT nods

         -->   |GP squeezes foot (FIG 2)
         -->            |gazes at PT (FIG 3)
         -->                         |releases
         -->                                   |squeeze |rel.|gazes at foot

09             (0.4)
         -->   |squeezes slightly different spot

10    PT:      |yep
               |releases and squeezes other parts of foot
```

In response to the GP's question, the patient points at their foot and verbally indexes it (line 4). The GP holds the patient's foot at the indexed location (line 4) and squeezes it there (line 6, figure 1). This physical manipulation is a non-verbal solicitation for pain information as the GP squeezes in the indexed location to identify the precise location of the pain. When the GP begins to squeeze (figure 2), the patient gasps, ">.Hff", and then emits the vocal cry "agh", closing their eyes (line 6, figure 3). The coordination of the onset of the gasp with the moment the GP squeezes demonstrates that the pain is located precisely in the area the GP had manipulated. Gasping, as a vocal feature of the pain display, furthers the progressivity of the GP's embodied action. By pointing, the patient claims a specific area as sore, but it is through the pain display that the patient *demonstrates* that her foot is sore and simultaneously marks the pain location. The gasp ends quickly whereas the vocal cry extends for the duration of the physical manipulation, marking it as painful.

After the gasp, the GP gives a verbal observation of the patient's pain display, "you'(ve) pain: in this area" (line 7). The verbal pain observation conveys the GP's treatment of the pain display as responsive to their solicitation, showing the precise location of the pain. When the GP produces the verbal pain observation, they also stop applying pressure to the patient's foot after "you'(ve) p" (line 7). By ceasing the physical manipulation, the GP shows an orientation to the pain display as providing sufficient pain information to stop soliciting more pain. Thus, the verbal pain observation is shift implicative in character, displaying a readiness to end the diagnostic activity. However, the GP also orients to the relevance of receiving confirmation before activity closure.

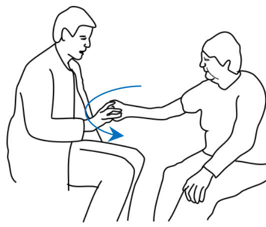
According to Heritage (2012), declaratives referring to matters within the recipient's epistemic domain are oriented to as requiring confirmation. The GP's verbal pain observation is produced using declarative syntax that makes claims about the patient's pain experience. This is a matter which lies firmly within the patient's epistemic territory, making confirmation relevant from the patient. As the GP gives the verbal pain observation, they also direct their gaze at the patient (figure 3), a practice identified by Stivers and Rossano (2010) for mobilising a response. Then on line 7, at "in this" of "you'(ve) pain: in this area", the GP squeezes the patient's foot a second time in the same location as before. The GP uses touch to provide the referent for the indexical "this" to clarify the meaning of their turn, displaying an orientation to recipient design. Thus, the deployment of turn design, gaze, and touch shows the GP's orientation to the relevance of receiving a response from the patient.

The patient also orients to the verbal pain observation as requiring confirmation. During the GPs' verbal pain observation, the patient nods (line 8). Then, nearer the end of the GP's turn, the patient provides verbal confirmation, "<u>mm</u> yep" (line 8). Their verbal confirmation demonstrates epistemic entitlement to confirm the GP's observation as the experience of the pain firmly lies in the patient's epistemic domain. Once the GP has received the solicited pain information (the specific location of pain) and verbal confirmation, they move to a next activity. After the patient's confirmation, at the onset of "yep", the GP's gaze moves from the patient's face to their foot (line 8) and checks for pain elsewhere. The GP non-verbally solicits pain in a different location (line 9) and the patient verbally confirms pain, “yep” (line 10). After this, the GP continues examining other parts of the foot (line 10). This extract provides a clear example of the sequential trajectory of solicitations responded to with a non-verbal pain display. It shows that in these sequences an activity shift occurs once a verbal observation receives verbal confirmation. A similar sequential pattern is shown below.

Extract 4.4 presents another solicitation sequence where a verbal observation responds to a non-verbal pain display. As in Extract 4.3, a shift to next activity occurs after confirmation is given. Note that Extract 4.4 is the same as Extract 3.3 from Chapter 3, where the patient’s sore elbow is being examined by the GP. It is presented again because it offers a clear second example of a non-verbal pain display occurring in a non-verbal solicitation sequence. The extract begins at the start of a new diagnostic activity within the physical examination: the GP is directing the patient to adopt a specific position with their arm.

Extract 4.4

```
TS GP03 17
3:05-3:15

01   GP:      .hh if you make <a um:> (0.4) |a fist
                                            |GP forms fist

02            |like that(h),
              |PT forming fist

03            (0.4)

04   GP:      .hh |and then
                  |GP turns PT’s fist down  (FIG 1)

05            (0.4)

06   GP:      |keep your hand in posi|tion(h),
              |GP holds PT’s wrist   |GP lowering PT’s arm (FIG 2)

07            (0.4)

       -->                      [grimaces (FIG 3)          ]*
       -->          *shoulder lifts
     pt
08   GP:      |so don’t fight again- |=is that so:re?
              |still lowering        |movement ceases

09   PT:-->  very sor|e=
       -->           |GP reaching hand under PT’s palm (FIG 4)

10   GP:-->  =>what about< going that way?
```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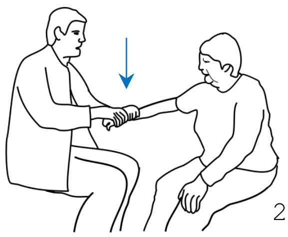
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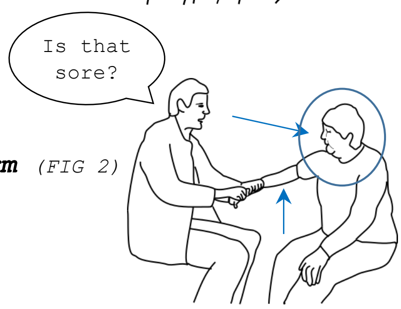

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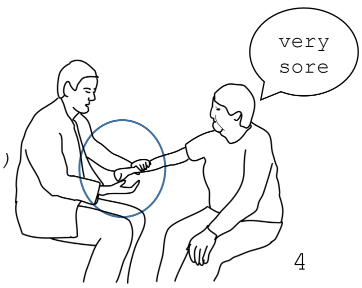


4

The GP directs the patient to form a fist that faces downwards (lines 1-4) and then begins to solicit pain by performing a physical manipulation, lowering the patient’s arm (line 6, figure 2). A pain display emerges in response to the physical manipulation, marking it as painful. The patient's shoulder jerks upwards and is followed by a grimace (line 8, figure 3). The GP orients to the pain display as relevant, cutting off mid turn, "so don't fight again-" (line 8), and then rushes through the transitional space to give a verbal observation of the patient's pain, "=is that so:re?". Their verbal pain observation displays an orientation to the pain and houses the implied proposition that performing the physical manipulation is painful for the patient.

The verbal pain observation receipts the patient's pain and is shift implicative, like in Extract 4.3. The GP ceases the physical manipulation, no longer soliciting pain when they give the verbal pain observation (line 8). This shows the GP's orientation to the pain display as a sufficient pain response and demonstrates a readiness to shift to the next activity. However, before a shift happens, the GP orients to the relevance of first receiving confirmation from the patient. Their verbal pain observation is accomplished through a yes/no interrogative with a positive polarity which establishes a preference for receiving confirmation. As in Extract 4.3, the GP gazes at the patient's face (figure 3) when they give the verbal pain observation, mobilising a response from the patient (Stivers & Rossano, 2010). The patient also orients to the relevance of giving confirmation, responding that they are "very sore" (line 9). The intensifier, "very", performs an epistemic upgrade and asserts a greater epistemic claim to their own pain experience. After the verbal confirmation, the GP initiates a shift to a next activity. At line 9, the GP reaches under the patient's palm in preparation for a different physical manipulation. Verbally, the GP also initiates a shift by giving a different directive at line 10. As in Extract 4.3, the verbal pain observation receipts the earlier pain display as solicited pain, but a shift to next activity only occurs once confirmation is received from the GP.

Verbal solicitations. In the previous section GPs performed physical manipulations to solicit pain information. In the extracts that follow, GPs use verbal resources to solicit information pertaining to body sensation or pain from the patient. These can be in the form of questions (e.g. "how's that") or through directives for the physical manipulation (e.g. "and back the other way?"). The same sequential pattern is observed. Patients' non-verbal pain displays make relevant verbal pain observations from the GP. After patient confirmation of such observations, GPs initiate a shift to next activity.

A verbal solicitation sequence is presented in Extract 4.5. The GP is testing the patient's mobility in respect to pain. The GP instructs the patient to move their arm forward (line 1) and then solicits information about the patient's bodily sensation, "how does it feel if you do that?" (line 3). The patient demonstrates difficulty but claims no pain (line 5-6, figure

1). Treating the patient's verbal response as sufficient to move onto a next activity, the GP initiates a different physical manipulation through the directive "and back the other way?" (line 7). This directive, which tacitly solicits pain information, constitutes the beginning of the verbal solicitation sequence.

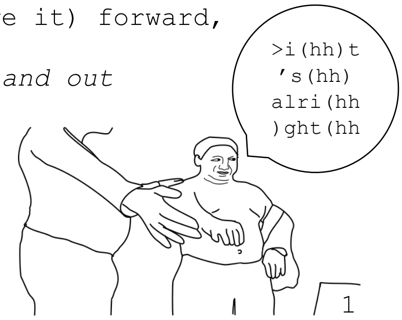
Extract 4.5

IS GP07 06

7:00-7:16

01 GP: can you [move your |arm] towards me so- (move it) forward,
02 PT: [H H H h h h]
|GP begins raises arm up and out

03 GP: |how does it feel if you do that?
|PT begins raising arm



1

04 (0.6)

05 PT: |>i(hh)t's(hh) alri(hh)ght(hh)< it's alright
|PTs arm almost at 90 degrees *(FIG 1)*

06 the|::re |yu(hh)p
|PT lowers arm
|GP lowers arm

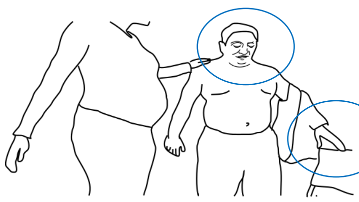
2

07 GP: --> **and back the other |way?**
|GP/PT move arm back

08 PT: °.hh°

09 (0.8)

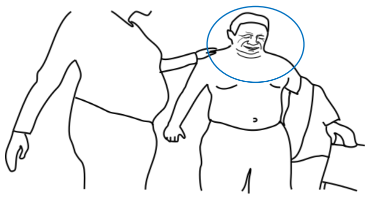
pt --> *grimaces (FIG 2)



3

10 (1.2)
|PT arm moves back slowly

face relaxes*

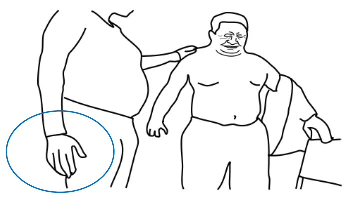


4

11 PT: --> oh!(hh) |tch .hh
|PT holds chair
--> |PT moves arm back *(FIG 3)*

12 (0.4)

pt --> *grimaces (FIG 4)

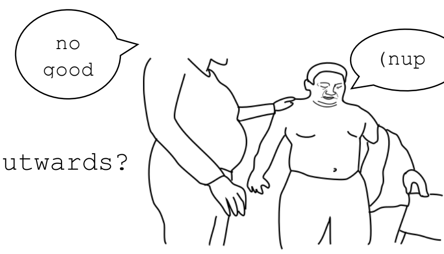


5

13 (0.2) (0.2)
--> |GP releases arm *(FIG 5)*

face relaxes* (FIG 6)

14 GP: --> **no |good,** .H[H]
15 PT: --> | [**(n]up)**
|PT's arm moves forward slightly



6

16 GP: --> >(kay)< .HH |how about if you roll it outwards?
|GP begins to roll arm out
|PT begins to roll arm out

Following the GP's directive, both the GP and patient move their arms backwards in synchronisation (line 7). However, the patient's momentum stalls and this deceleration in movement is coordinated with the onset of a grimace (line 10, figure 3). This marks the arm movement as the source of the pain. As the patient continues to attempt the action, the intensity of the pain display builds and culminates in a vocal cry "oh!" (line 11). Following the cry, the patient's face relaxes and the pain display ends (figure 3), as they abandon attempts to move their arm back. Despite the patient's abandoned efforts, the GP keeps their own arm suspended (line 11, figure 3), orienting to the activity of gathering pain information as still ongoing. Aligning with the GP, the patient takes hold of the chair and moves their arm further backwards (line 11, figure 3). This second attempt at the physical manipulation is marked with another grimace (line 13, figure 4).

The GP attends to the patient's second pain display through the cessation of the physical manipulation. The GP is not directly manipulating the patient's body, but demonstrating the action of moving their arm back while the patient performs it. To show they have gathered sufficient pain information and are no longer soliciting pain, the GP relaxes and lowers their arm out of its suspended position (line 13, figure 5), while the patient is grimacing (in the second pain display). This contrasts with the previous extracts, where the GPs simply stopped performing the physical manipulation to show they were no longer soliciting pain. Moreover, the cessation of the physical manipulation occurs just prior to the verbal pain observation, differing from the two previous extracts where they had occurred together. This shows that the cessation of the physical manipulation can be accomplished differently and at different sequential locations.

The GP also attends to the patient's pain display through the verbal pain observation at line 14. It is produced through the declarative statement "no good" (line 14), displaying high epistemic access to the patient's pain experience (Heritage, 2012). The verbal pain observation demonstrates that the GP has acquired the relevant solicited pain information which releases the patient from the obligation of performing the physical manipulation. The patient stops attempting to move their arm backwards (line 15). This is coordinated with the end of the pain display and the patient's face relaxing out of a grimace (line 14, figure 6). However, the patient's arm remains suspended behind them, orienting to the GP's authority to ultimately initiate the transition from one activity to the next. The GP's verbal pain observation receives a verbal response from the patient. The patient treats it as within their epistemic territory to confirm the GP's observation of their pain experience, and gives verbal confirmation "(nup)" at line 15. After confirmation is given, the GP initiates a shift to a next activity, beginning another physical manipulation by asking the patient to roll their arm outwards (line 16).

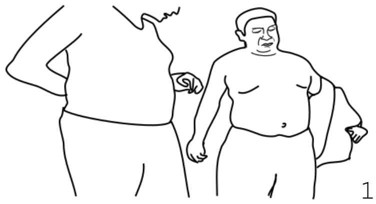
This extract supports the argument that a verbal confirmation of a painful experience is normatively relevant in physical examinations. It also demonstrates that the same sequence can be found when the GP is issuing solicitations verbally only.

Extract 4.6 presents another example of a verbal solicitation with a non-verbal pain display that is followed by a verbal observation of pain. The sequential pattern shown below is different from the previous extracts where the physical manipulation or directive is the solicitation. In Extract 4.6 the two are separate. The directive for a physical manipulation is given first, and then followed by a solicitation question. This becomes significant in the subsequent analysis. The diagnostic activity shown in Extract 4.6 is from the same interaction as 4.5 but it occurs later on, depicting the last diagnostic activity within the physical examination. The patient has a sore shoulder and the GP is testing its mobility. The GP asks the patient to assume a specific kind of body position, like a lady "doing up [her] bra strap" (line 1-3), and demonstrates it for the patient (figure 1). As the patient complies, the GP initiates a diagnostic sequence. This directive is followed by the soliciting question "how's that" (line 6).

Extract 4.6

IS GP07 06

7:19-7:32

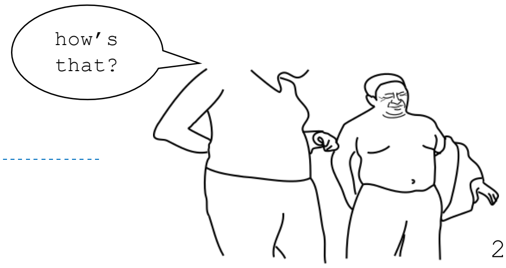


01 GP: [. h h] [>a]nd [if you] pren-=
02 PT: [°(okay)°]
|GP moves twists arm behind back

03 GP: =pretend you're: a: lady doing up your |bra strap?
|PT begins to twist arm
(FIG 1) 1

04 (PT) .hh

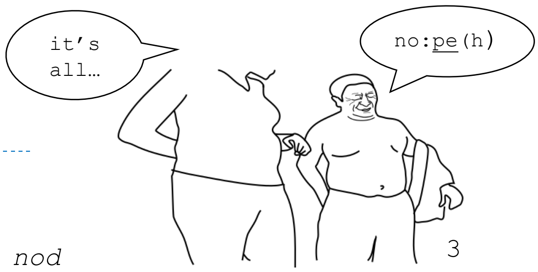
05 (0.4)



pt --> *grimaces (FIG 2)

06 GP: --> **how's that?** 2

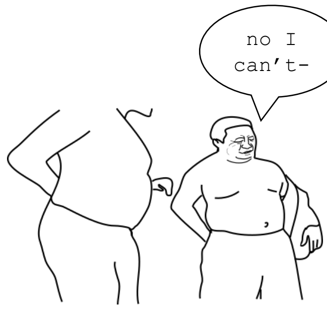
07 (1.0) (0.2)
--> |PT shakes head



(FIG 3)

08 GP: --> [**it's <u>all</u> p**]**retty** [**sore isn't it?**]
09 PT: --> [n o:<u>pe</u>(h)] [no |**yeah**]
|PT slight nod 3

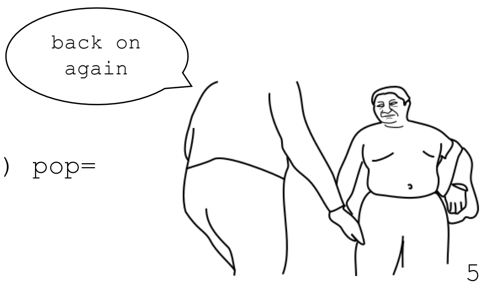
gp face relaxes*



10 GP: ye[a::h]
11 PT: [°( )°] |no [I can't-] I can't [do that]
12 GP: [o k |a y,] [. h h] h=
|PTs arm stops moving (FIG 4)
|GP begins taking step back

13 GP: =|al[r i g h t.] (hh)
14 PT: [(can't do it)]
|GP releases arm, turning away 4

15 (0.4)



16 PT: (my ba[ck)]
17 GP: --> [tch] I'll get [you to] um: (0.2) pop=
18 [. hh]
19 GP: =your things |back ↓on again
|PT releases arm (FIG 5) 5

Despite the patient grimace (line 6, figure 2), which marks the physical manipulation as painful, the GP continues with the physical manipulation, treating the pain display as insufficient to meet the conditional relevance of the solicitation. After a silence (line 7), the patient orients to the lack of uptake and deploys additional resources to give more pain information. The patient shakes their head (line 7), and then progresses to using verbal responses. They give the negative exclamations "no:pe(h)" and "no" (line 9), which makes available their struggle to complete the action. However, at the same time that the patient begins speaking, the GP displays an orientation to the pain. Self-selecting in overlap, the GP gives a verbal pain observation of the patient's pain display, "it's all pretty sore isn't it?" (line 8). This receipts the patient's pain display and head shake, showing that the GP has attended to them as solicited pain information.

The GP's verbal pain observation is accomplished through a declarative statement, "it's all pretty sore", which displays high epistemic access to the patient's pain experience. This verbal pain observation occurs during the last diagnostic activity of the physical examination and, through the pronoun "all", captures all the prior pain displays. The verbal pain observation also makes an assessment of the patient's condition in general, giving a kind of diagnostic conclusion that displays a high epistemic claim to the patient's experience. The verbal pain observation is produced with "isn't it?", a tag question. Speakers can use tag questions to mobilise affiliative responses from recipients (Heritage, 2012), which is the case in this extract, as the patient gives a verbal response at line 12, uttering "yeah" (line 9), to confirm the GP's verbal pain observation.

As mentioned earlier, the directive for the physical manipulation (line 1-3) and the solicitation of pain information (line 6) were produced as two separate actions. Although the patient has provided confirmation and the GP has attended to the pain display as relevant diagnostic information, the patient persists with the physical manipulation. They orient to the conditional relevance of the earlier request (line 1-3) and attempt the physical manipulation until line 12, when they account for doing so, "no I can't- I can't do that". Shortly after the patient has ceased the physical manipulation the GP does the same. During the patient's account, the GP steps back, releases their arm from behind their back, and turns away from the patient (line 12-14). The GP begins to progress the interaction towards closing, uttering shift implicative 'okay' at line 12 and 'alright' at line 13 (Beach, 1993). The activity shift is accomplished at line 17, when the GP directs the patient to put their clothes back on, bringing the diagnostic activity and the entire physical examination to a close. Aligning with this shift, the patient abandons the physical manipulation altogether, releasing their arm from behind their back (line 19, figure 5).

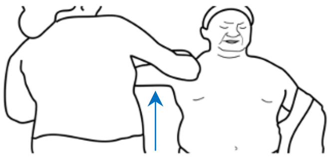
In Extract 4.6 the GP moves out of the physical manipulation at a later sequential position than those previously analysed. The GP ceases the physical manipulation *after*, rather than during, the verbal pain observation. When the GP gives the verbal pain observation, they do not display the same level of readiness to move onto the next activity. However, like the other extracts, the verbal pain observation receipts the patient's non-verbal pain display and shows the GP has attended to it as relevant.

Extract 4.7 has a similar sequential pattern to that in 4.6 where the verbal pain observation is shift implicative and receives verbal confirmation from the patient. It is given as a clear case of a pain display oriented to as relevant by the GP because it interrupts their turn in progress. Extract 4.7 contains a diagnostic sequence within the physical examination from the same medical consultation shown in the previous two examples. Just prior, the patient had demonstrated difficulty raising their arm upwards. The GP walks over to the patient, announces her attempt to try get it up further (line 1-2), and begins lifting their arm (figure 1), initiating a physical manipulation.

Extract 4.7

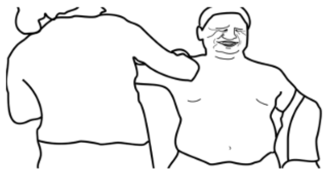
IS GP07 06

6:42-6:51



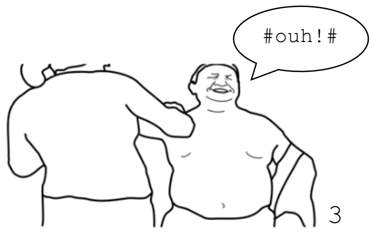
1

```
                                    *grimaces  *
                                    |          |
01   GP:      |I'm just going to see if I can get (.) =
              |GP lifting PT's arm (FIG 1)
```



2

```
        -->            *grimaces (FIG 2)-------------------------
                       |
02      -->  any further >(is) it make any difference
```



3

```
              tilts head back  (FIG 3)-----*
              |                            |
03            whether I'[m holding] |(o-)  [no] it's
04   PT: -->              [  #ouh!# ]       [hh]
                                   |arm moves up slower
```

4

```
                                         tilts head back (FIG 4)
     pt                *grimacing        bares teeth
                       |                 |
05   GP: --> =the same [>just] as pain[ful if I'm]=
06   PT:               [ m m ]        [ >.hssf<  ]

     pt
              ----------closes mouth*
                        |
07   GP: --> doing it [as if] you're doing it
08   PT:              [yeah ]
                          |PTs arm stops moving up


     pt                 *grimacing---------------------------------------
                        |
09   GP:      |oka:y we'll pop it =do[wn< to your] side again (there)
10   PT:                             [  .  h  H  ]
              |GP lowers PT's arm
```

The patient grimaces (line 2, figure 2), marking the physical manipulation as the source of the pain display. During the pain display, the GP verbally solicits information, asking if it makes a difference with them holding the arm (line 2-3). At the same time, the pain display intensifies and culminates in an apex—the patient's head tilts back and they emit a vocal cry in overlap with the GP's question (line 4). Immediately after the vocal cry, the GP attends to the pain display and abandons their soliciting question, cutting off at "o-" to launch a new action.

The change in the trajectory of action shows the GP's tracking of the patient's embodied behaviour as it emerges in real time. Following the cut off, the GP gives a verbal pain observation, "no it's the same just as painful if I'm doing it as if you're doing it" (lines 3-7). This declarative statement displays higher epistemic access to the patient's experience than the earlier solicitation (Heritage, 2012). Before, at the beginning of the patient's pain display, the GP asked whether the physical manipulation made any "difference". The subsequent verbal pain observation given after the apex of the pain display is further specified and presupposes that the pain is "the same". The shift in the framing of the patient's pain experience from the solicitation to the verbal pain observation shows that the GP has attended to the intensification of the patient's pain. As with the previous extracts, this verbal pain observation is a verbal resource for the GP to receipt the patient's non-verbal pain display.

Like in Extract 4.6, the GP continues with the physical manipulation, soliciting pain information while producing the pain observation. In doing so, the GP displays an orientation to the earlier pain display as insufficient to close the activity. The simultaneity of the GP's verbal pain observation (lines 3-7) with the ongoing physical manipulation suggests that they are soliciting pain information rather than preparing for closing. Orienting to the verbal pain observation as a solicitation, the patient draws upon more resources to demonstrate pain. The patient begins another pain display by grimacing (line 5) and marks the physical manipulation as painful. Then the patient verbally affiliates with the GP's verbal pain observation, giving a weak acknowledgment token "mm" (Gardner, 2001) (line 5). Despite the patient's responses, the GP continues with the physical manipulation and the pain display intensifies. The patient tilts their head back, bares their teeth (line 5), and gasps, ">.hssf<" (line 7, figure 4). As in the previous extract, the physical manipulation ceases after confirmation is given. The patient's arm stops rising after the patient gives the stronger affiliating response "yeah" (line 8). Following the affiliation and the cessation of the physical manipulation, the GP moves onto a next action. They conclude the diagnostic sequence with the announcement “okay we’ll pop it down again” (line 9) and lower the patient’s arm.

Extract 4.7 contrasts with prior extracts, in which GPs, having solicited sufficient pain information, cease the physical manipulation when they give a verbal pain observation. In the previous extracts GPs display a readiness to progress the diagnostic activity towards closing but seek confirmation from patients before doing so. In Extract 4.7, the GP does not display the same readiness for closing. When the GP gives the verbal pain observation, they do not cease the physical manipulation, showing that the activity of soliciting pain is ongoing. Through the verbal pain observation, the GP shows they have receipted the patient’s non-verbal pain display and treated it as insufficient close the activity. This progresses the interaction because it displays a need for more pain information performed through a request for confirmation. Thus, the verbal pain observation in Extract 4.7 is shift implicative in a sense, but it does not demonstrate the same readiness to close the sequence as in the previous extracts.

Conclusion

The analyses of this chapter support the general theoretical point about pain displays: there is an orderliness to the ways they impact on the temporal unfolding of interaction. In my collection, pain displays were systematically deployed as responses to solicitations. GPs then followed a patient’s pain display with a verbal pain observation that requested a verbal confirmation. Once confirmation was given, GPs initiated a shift to next activity. This demonstrates that pain displays are organised by sequence, deployed and responded to as embodied actions that further the progressivity of talk.

This chapter also presented evidence to suggest that non-verbal pain displays are oriented to differently from verbal responses. Pain displays occasioned further talk, contrasting with verbal responses which progressed the sequence to closure. The different trajectory of the two kinds of responses suggests that pain displays, as embodied responses, were insufficient to fulfil the conditional relevance of solicitations. The actions that followed pain displays oriented to a verbal response as necessary for closing.

Chapter 3 highlighted how pain displays are deployed similarly to turns-at-talk in interaction, oriented to by participants as turn constructional unit-like structures. Chapter 4, however, points to both similarities and differences between the organisation of pain displays and that of talk. It highlights the unique position pain displays hold in sequence. Although they are visible in the sequential progression of actions in talk, they do not appear to hold the status of a responding action proper. The relevance of these findings to debates about multimodal research will be discussed in the next chapter

Chapter 5: Discussion

Researchers have long puzzled over how best to approach pain. But consistently, whether it is conceptualised as an emotion, sensation, or something else, pain is believed to be situated within the individual and experienced subjectively. In this thesis I considered pain from a different perspective. I bracketed off the internal experience of pain and instead examined pain as a socially-organised interactional event, taking something typically thought of as an internal phenomenon and investigating it in talk and social interaction. This is because foregrounding pain as experienced within the individual ignores the social context in which it manifests. Instead, I sought to understand to what extent pain is shaped by the social environment that it occurs in.

To investigate this research question, I analysed pain displays in social interaction using video-recorded medical consultations between GPs and patients. Fine-grained analysis into the sequential location of pain displays showed that they were organised with respect to turn-taking and sequence. Chapter 3 demonstrated that participants oriented to pain displays as units of action that structured talk, comparable to turn-constructional units. Pain displays constituted resources for recipients to select themselves as next speaker and were organised with respect to speaker turns. Chapter 4 showed that non-verbal pain displays were deployed and responded to as actions within sequence. However, unlike verbal responses, pain displays were not followed by activity closure but occasioned further talk, calling into question their status as a responding action proper.

The main contribution of the thesis is the finding that pain displays are interactionally organised. Pain displays were visible in the progressivity of talk, emerging as part of the turn-by-turn, action-by-action, production of talk-in-interaction. Despite lay and professional understandings of pain as internal and individual, this research provides reason to suggest that the public manifestation of pain, at least within diagnostic medical settings, is inextricably linked with the social environment. The empirical work of the thesis also informs wider issues within multimodal research. The analyses showed that pain displays as embodied actions were sequentially organised suggesting that the structures of talk have applicability to embodied conduct, albeit with some limitations. The implications of these findings will be further developed as part of this discussion chapter.

Having summarised the research questions, empirical work, and findings of this thesis, I now turn to the bulk of the discussion. I first consider the contributions of the thesis towards understanding pain in interaction and then discuss the relevance of the findings to multimodal research and discursive psychology. Following this, I consider some limitations of this study, give some suggestions for future research directions, and point to some practical applications of this work.

Pain in interaction

I discuss the contributions of the thesis to three areas of interactional research on pain. I begin by describing the *approach* taken to pain displays and its utility for research on the accomplishment of pain in interaction. Then I discuss the contributions of the *analytic work* of the thesis to two areas of pain research. The first is research on the social organisation of pain and the second is research on sequential organisation of pain.

Accomplishing pain. The approach taken to pain displays in this thesis contributes to a small body of research that documents how pain displays are accomplished (Heath, 1989; Jenkins & Hepburn, 2015). As set out in the method, I approached pain displays as constituted from a set of resources that were identified through careful transcription. The set of resources identified were similar to those found in other research (Heath, 1989; Jenkins & Hepburn, 2015) and included gasps, vocal cries, grimaces, and bodily movement. A unique contribution of this thesis is the detailed description of gasps and grimaces, features that have not been addressed as in depth by other studies, unlike the focused analysis of vocal cries in Heath's (1989) and Jenkins and Hepburn's (2015) work. I found that both gasps and grimaces were consequential features of pain displays. The short and sharp character of gasps were used to reveal the precise location of pain and display maximum pain intensity, whereas grimaces showed varying levels of pain intensity. Grimaces were important for making sense of the structure of pain displays and marked the beginning and end of some pain displays. The careful transcription of pain displays made visible the consequentiality of gasps and grimaces to building pain displays. It also demonstrates that the accomplishment of pain depends on the features that make it up and reaffirms the importance of uncovering the possible interactional contributions of each.

In addition to pointing to the possible interactional contributions of the individual features that build pain displays, this thesis also demonstrates the importance of considering all of the features of pain displays together, as parts of a larger whole. I approached pain displays as complex multimodal Gestalts, a term adopted from Mondada (2014b), viewing them as courses of actions accomplished through the *coordination* of a set of resources that made sense together. Pain displays were treated as locally constituted courses of action with no fixed-form. This meant that each of its features were considered in tandem with others, rather than in isolation, as the interactional function of each feature depended on where it occurred within the Gestalt and its coordination with other features. For example, a vocal cry after the relaxing of a grimace showed relief, whereas a vocal cry during a grimace displayed maximum pain intensity. Approaching pain displays as complex multimodal Gestalts was necessary to understanding the complex and interwoven nature of pain displays. It showed the importance of considering all features of pain display together as conjoint unit as the accomplishment of a pain display is more than the sum of its parts.

Social organisation of pain. Having discussed some of the contributions of the approach to pain, I now turn to the findings from the empirical work of the thesis and their contributions to other research on pain in interaction. I examined how pain displays, as actions within sequence, were deployed and responded to in interaction. Analysis showed that pain displays were socially organised with respect to the ongoing activity. How participants oriented to pain displays was shaped by features of the local context, including the diagnostic activity being accomplished and participants' domains of expertise and rights to know and report on bodily sensations. In what follows, I discuss the relevance of this finding to other research on the social organisation of pain displays.

This thesis investigated participants' responses to pain displays and revealed how people make sense of pain *in situ*. Like other studies it showed that participants treated pain as a private and internal state (Jenkins & Hepburn, 2015). Although GPs oriented to patients' pain displays as indicative of pain sensation, they also sought confirmation from patients before initiating a shift to next activity. By requesting confirmation of patients' pain, GPs displayed their understandings of pain as an internal experience only accessible to the sufferer. Furthermore, this thesis, like other work, has shown how the nature and meaning of pain can be negotiated in interaction (Jenkins, 2015). By designing verbal pain observations as requests for confirmation, GPs provided patients with opportunities to assert their own experience and, in doing so, negotiate the meaning of the pain display. Through their responses to GPs' requests for confirmation, patients could assert their epistemic rights, aligning, upgrading, or disagreeing with GPs' observations of their pain experience.

Research focusing on pain in medical consultation has found that pain displays and responses to them accomplish actions that are sensitive to and can advance the diagnostic activity (Heath, 1989; McArthur, 2018). In accordance with this research, the analytic work undertaken in the thesis showed that non-verbal pain displays were a resource for patients to mark a physical manipulation as painful, progressing the solicitation sequence. Moreover, through detailed examination, it showed how the accomplishment of pain displays was fitted to the type of information the GP solicited. For example, in accordance with the kind of information sought through GPs' questions, a sharp gasp at the touch of a GP demonstrated the precise location of the pain, whereas a vocal cry during a lifting movement marked where during the motion pain occurred. Although pain displays advanced the diagnostic activity on a more general level, by providing a relevant response to a solicitation, how pain displays were accomplished as responses was also locally adapted to the specific interactional goals. Through their individual features, pain displays provided specific information about pain sensation that was fitted to the particularities of the solicitation. This shows how even the specific form pain displays take can be coordinated with the local diagnostic goals.

Other research has also examined how participants' negotiations of pain in interaction can speak to the management of self-other relations in medical consultations (Maynard & Heritage, 2005). For example, McArthur (2018) examined how patients asserted pain in unsolicited environments while managing risks associated with challenging the medical authority of GPs. The research of the thesis further specifies how power asymmetries in medical consultations operate, showing that they can be bi-directional in nature. Although patients typically defer to GPs' medical authority in medical consultations (Heritage & Clayman, 2010), work on the sequence organisation of pain displays showed that GPs defer to patients' authority over their own subjective experiences. By seeking confirmation, rather than relying on their own pain observations, GPs oriented to the experience of pain as lying within patients' epistemic territory. Although GPs were entitled to solicit pain and held the power to initiate, suspend, and complete physical manipulations, authority over the experience of pain ultimately lay with the patient.

Sequential organisation of pain. Although the work of this thesis demonstrated the social organisation of pain more broadly, the focus was on the *sequential* organisation of pain displays. The main contribution of the thesis was the finding that pain displays were sequentially organised embodied actions that emerged with respect to turns and sequence. Next, I discuss how this finding accords with other research on the sequential organisation of pain.

Recipients oriented to pain displays as embodied units of action and used them as resources to build turns-at-talk. This accords with Berducci's (2016) finding that adults used infants' pain cries as resources for turn-taking. Adults were able to project the end of pain cries due to their inverted 'U' shaped intensity structure. Once the infants' pain cry had reached the peak of maximum intensity it was projectable that the intensity would fall, making the completion of the pain cry projectable. Rather than following Berducci and isolating one feature like pain cries and examining it as a resource for turn construction, I instead analysed pain displays in their entirety. Pain displays, as embodied units of actions, had a similar structure to the pain cries analysed by Berducci, with an initiation, apex, and completion point. The structure of the pain displays was locally constituted and built from the complex coordination of a range of features. For example, a vocal cry together with other resources such as a head tilt can constitute the peak of a pain display. Yet a vocal cry, situated after a sharp gasp, can also constitute the completion of a pain display. This shows that entire pain displays can have a coherent structure with a point of maximum intensity, but it also highlights how the structure depends on the particularities of the Gestalt.

Although adults used infants' pain cries as devices for turn-taking, Berducci (2016) emphasised that infants themselves did not design their pain cries to emerge according to normative turn-taking organisation. In contrast, this thesis showed that pain displays (of adults) were organised with respect to speakers' turns. Pain displays, as multimodal units of action, emerged in transition relevant places. In some cases, this was a consequence of GPs designing their physical manipulations to occur in transition relevant places. However, there was also evidence to suggest that patients designed their pain displays to occur in transition relevant places independently of GP's physical manipulations. This shows that some pain displays are organised according to the norms of turn-taking organisation in much the same way as turns-at-talk. Even pain displays emerging in real time were adjusted according to the local turn-taking order. In one example, a pain display overlapping with talk was oriented to as competing for the interactional floor and subsequently abandoned, resumed only after the relevancies of talk had been attended to. Highlighted here are two different ways that pain displays are visible in the progressivity of talk, further supporting the claim that they are systematically deployed according to the normative turn-taking order.

In addition to turn-taking, there was an orderliness to the sequence organisation of pain displays. The thesis contributes to the findings of other studies that have examined how pain displays operate as a practice within particular sequences to accomplish local interactional goals (Heath, 1989; McArthur, 2018). It showed that non-verbal pain displays were regularly deployed as resources to demonstrate pain and progress solicitation sequences. Non-verbal pain displays were receipted as relevant responses to solicitations through verbal pain observations that made confirmation relevant. This sequential pattern showed that there is an orderliness to the ways that pain displays impact on the temporal unfolding of interaction. They are deployed and responded to in systematic ways within the local context of the medical consultation.

This thesis also showed that non-verbal pain displays are oriented to differently from verbal responses. Unlike non-verbal pain displays, which occasioned further talk, the next relevant action after verbal pain responses was a shift to next activity. The different trajectories between the two responses suggests that pain displays are treated as insufficient for activity closure. GPs ended solicitation sequences only after patients gave verbal confirmation, suggesting that pain displays, as embodied responses, do not fulfil the conditional relevance of solicitations. The extended trajectory that pain displays occasion highlight their unique action status within solicitation sequences where they are oriented to as responsive actions that progress the interaction but not to the extent of activity closure.

The analytic work of this thesis suggests that pain displays are a structural unit akin to a turn constructional unit in talk, but they do not hold the status of a responding action proper. Such findings can speak to wider issues within multimodal research about the applicability to talk-based concepts to the organisation of embodied conduct. What follows is a discussion of the relevance of my work on the sequential organisation of pain to these debates within multimodal research.

Debates within multimodal research

Within multimodal research there is uncertainty as to the applicability of talk-based concepts such as turn constructional units to embodied conduct (Deppermann, 2013a; Hazel, Mortensen, & Rasmussen, 2014; Mortensen, 2012). The concept of turn constructional units was founded upon the sequentiality of talk; turn constructional units, turns, and the actions they hold are understood as successively unfolding in a linear fashion (Schegloff, 2007). Unlike talk, multimodal interaction is characterised by simultaneity rather than sequentiality, where multiple modalities can simultaneously unfold to accomplish action (Deppermann, 2013a). Through multimodal Gestalts, different actions can be accomplished across different modalities which may not be temporally synchronised with each other. Subsequently, some analysts have pointed to the limits of turn-taking organisation to adequately capture embodied interaction (Mortensen, 2012). However, other research has shown that embodied conduct is involved in the production of turn constructional units (Iwasaki, 2015; Mondada, 2015; Olsher, 2004) and, further still, some have argued that embodied conduct can constitute turn constructional units in themselves (Kääntä, 2010; Keevallik, 2014; Klippi, 2005).

The analytic work of this thesis supports the notion that embodied conduct can constitute turn constructional units. It shows that participants in interaction treat pain displays in similar ways to turn constructional units. As set out earlier, pain displays emerged in interaction similarly to turns-at-talk, successively ordered with respect to other turns. Pain displays, albeit multimodal, can be deployed as sequentially ordered actions that are contingent on turns. This shows that some forms of embodied conduct at least, can be described using turn-taking organisation which accords with other multimodal research (Kääntä, 2010; Keevallik, 2014; Klippi, 2005). It is a distinctive contribution to the literature, as much of the relevant research tends to focus on how embodied behaviour supports the production of verbal turn constructional units (Keevallik, 2018). There are some existing studies which demonstrate that embodied units can complete a partial turn-at-talk (Streeck, 2002), and some studies even demonstrate that embodied conduct can form a separate embodied turn constructional unit in a multi-unit turn (Keevallik, 2016). However, little research has shown that embodied turn constructional units can be self-contained and not conjoined with grammatical structures, as is done in this thesis.

The accomplishment of pain displays as embodied units independent of talk is important for producing their spontaneous and visceral character. Take, for example, a verbally prefaced pain display, 'that hurts, argh'. This would have an almost pre-mediated quality that would detract from the sense of uncontrollability and suddenness conveyed by a self-contained unit without talk: 'argh!', for example. In a similar vein, McArthur (2018) argued that the practices used to display pain can vary the extent to which they are hearable as motivated by sudden pain sensation. Non-lexical pain displays, which were self-contained units, were identified as most strongly hearable as motivated by sudden pain sensation, whereas turn-initial pain displays were the least hearable as motivated by pain sensation. McArthur's work supports the notion that designing pain displays as self-contained embodied units of action, independent of talk, is important for the accomplishment of pain displays as a product of visceral bodily sensations. Thus, organisation of embodied actions with respect to turns-at-talk can be consequential for how they are understood in interaction. In other words, it is not just the form of an embodied behaviour that produces its meaning but its organisation within turns-at-talk. This suggests that the organisation of the pain displays analysed in this thesis were bound up with the nature and meaning of the actions they were accomplishing in interaction.

In sum, the analysis of pain displays as embodied units of action has shown that the boundaries between what constitutes an 'action' and a 'turn' are blurred with respect to multimodal conduct. Perhaps the distinction between the two is a false one, because 'turns', as a talk-focused concept, does not incorporate the multimodal nature of interaction. One possibility is to redefine 'turn' so that it can encompass multimodality. Hayashi (2005) suggested that ‘turns’ be defined as a “temporally unfolding, interactively sustained domain of multimodal conduct through which speaker and recipients build in concert with another relevant actions that contribute to the further progressivity of the activity in progress” (p. 1). Such a definition avoids the confusion in terminology that associates turns with the linguistic domain.

There is also a debate within multimodal research regarding the applicability of concepts related to sequence organisation, such as adjacency pairs and conditional relevance. Adjacency pairs are based on the assumption that turns unfold adjacently and are grounded upon notions of turn-taking and speaker change (Schegloff, 2007). These are characteristics which apply to talk but do not address the simultaneity of embodied interaction where actions unfold concurrently. Similarly, the concept of conditional relevance is based on adjacent turns-at-talk and may not capture the different levels of turns and actions that can exist within multimodal interaction (Stukenbrock, 2014). Some research suggests that embodied actions can initiate actions and, conversely, respond to and progress initiating actions (Kendrick & Drew, 2016; Mortensen, 2016; Rauniomaa & Keisanen, 2012), however the debate is far from fully settled.

The work of this thesis contributes to the debate. Analyses of solicitation sequences demonstrated that non-verbal pain displays did not hold the status of a conditionally relevant responding action. Although they were treated as providing pain information in response to solicitation, they were insufficient for activity closure. Relevant here is Stukenbrock’s (2014) argument that conditional relevance needs to be redefined to better capture the multi-layered phenomena of multimodal interaction which operates below the level of turns and actions. Stukenbrock identified phenomena that did not initiate a responsive next action but required co-participant’s attention, which constituted the precondition for a potential next action. Similarly, the pain displays in the solicitation sequences did not hold status of a second pair part in the same way as verbal pain responses. However, unlike the phenomena examined by Stukenbrock (multimodal conduct that occurred as part of talk-based courses of action), the pain displays in solicitation sequences were units of action in themselves. Thus, these pain displays appear to exist somewhere in between embodied phenomena that emerge alongside turns, and verbal conduct which operates as a second pair part of an adjacency pair. Thus, the concept of conditional relevance and adjacency pairs needs to be expanded to better capture the different levels of actions that multimodal conduct can produce.

Another finding that speaks to debates within embodied conduct is that pain displays, as responses to solicitations, were oriented to differently from verbal responses. Unlike verbal responses to solicitations which led to activity closure, pain displays occasioned further talk. Participants' orientations to pain displays provide some clues as to why pain displays did not lead to activity closing. Pain displays were treated as 'off the record' responses that needed to be explicitly put 'on record'. GPs responded to patients' non-verbal pain displays with verbal pain observations, which can be understood as verbal 'receipts' of embodied pain displays. The action of 'seeing' another's pain is silent and embodied, thus GPs used verbal resources to publically show they had witnessed pain displays and treated them as relevant responses to solicitations. Contrastingly, GPs did not receipt patients' verbal pain responses, orienting to them as already 'on the record'. The reason that embodied responses were treated as 'off the record' is perhaps due to the different discursive profiles that embodied and verbal responses can hold in interaction (Keevallik, 2018). Stevanovic and Monzoni (2016) demonstrated that verbal and embodied modalities hold dominant or subordinate roles depending on the activity and context. They showed that embodied actions had primacy in the management of joint activities involving the manipulation of objects. Embodied actions may have primacy in activities where actions are primarily embodied, but in other contexts, the verbal mode may be the main form of meaning-making. In the context of medical consultations, talk appears to have primacy as the main resource for accomplishing action. For instance, the problem presentation, history taking, diagnosis, and treatment are primarily accomplished through talk (Heritage & Maynard, 2006).

Participants' orientations to pain displays also revealed an understanding that different modalities can convey varying levels of access to another's subjective pain experience. Verbalisations of pain were oriented to as giving GPs explicit and direct access to patients' otherwise private pain experience. After patients gave their verbal pain responses, GPs initiated a shift to next action. In contrast, the precise meaning of patients' bodily expressions of pain was oriented to as requiring confirmation. GPs responded to non-verbal pain displays with verbal pain observations. These were vehicles to present their presuppositions about patients' subjective pain experience for confirmation, allowing patients to explicitly communicate their private experience before moving on to next activity. Thus, GPs' next actions displayed an orientation to embodied pain displays as providing less direct access to patients' subjective pain experience with bodily displays requiring 'interpretation' whereas verbal responses did not. GPs' orientations to pain displays showed a sensitivity to self-other relations (Heritage & Maynard, 2006; Maynard & Heritage, 2005). Rather than relying on their own observations and deductions, GPs sought confirmation from patients, treating them as agentic beings with the rights to voice their own experience, rather than passive objects for inspection (Heath, 1989).

So far, I have discussed two reasons why participants oriented to embodied pain displays as insufficient to fulfil the conditional relevance of the solicitation. Conditional relevance was not fulfilled by the pain display as embodied responses were treated as 'off the record', possibly due to the primacy of verbal modality within medical consultations. Furthermore, pain displays did not meet the conditional relevance of solicitations because the meaning conveyed by bodily expressions of suffering were oriented to as unclear. Participants' orientations to embodied pain displays in solicitation sequences highlights how the fulfilment of conditional relevance is dependent on the local interactional environment and the actions being accomplished within it. This has implications for embodied interaction and sequence organisation more generally. It suggests that first pair part actions can require responses of a particular modality, depending on the activity being accomplished and the particular meaning that verbal and embodied actions have within the local context. Thus, whether an embodied response can fulfil the conditional relevance of a first pair part depends on the nature of the activity being accomplished.

In sum, the work of this thesis addresses debates in multimodal research by showing that participants oriented to pain displays as units of actions similar to turn constructional units. As turn constructional unit-like actions, pain displays were used as a resource for turn-taking and emerged according to the norms of turn-taking. This provides support for arguments that embodied action can be described using concepts of turn-taking organisation grounded in talk. However, in solicitation sequences, pain displays did not have the status of a responding action proper as they did not fulfil the conditional relevance of the initiation action and lead to activity closure. This was due to participants' orientations to the ambiguous meanings of embodied pain displays, the management of self-other relations, and the primacy of the verbal modality within medical consultations. This suggests that the status that actions hold in interaction is locally determined by the contexts they occur in.

Pain and discursive psychology

This thesis has taken a discursive psychological approach to pain displays, conducting grounded analyses of how participants themselves oriented to pain in social interaction. The main research focus was on how pain displays were organised, accomplished, and responded to in medical consultations. Investigating pain as an interactional event contrasts with other approaches, such as the social communication model, which treat expressions of pain as direct reflections of one's internal pain experience and, in doing so, are unable to capture the social dimensions of pain. The work of this thesis showed that pain displays within medical consultations could not be separated from the interactional environment. In other words, the form and location of pain displays were shaped by the local context. For example, other participants' conduct and the local interactional goals were consequential for how pain displays emerged. Moreover, like turns-at-talk, pain displays were responsive to prior turns, actions, and the transition space. Therefore, to conceptualise pain as only an internal experience ignores the social context which, as demonstrated here, is consequential for the accomplishment of pain displays.

The work of this thesis also speaks to a concern within discursive psychology about whether phenomena like embodiment can be investigated discursively. Some argued that aspects of human life located in the body are not accessible through discourse (Burr, 1999). However, others pointed out that embodied behavior is used to produce meaning in interaction and produces social action (Edwards, Ashmore, & Potter, 1995). This thesis demonstrates how pain, typically thought of as embodied and produced by physiological processes, can be discursively studied in talk. Using conversation analysis, I examined pain as an interactional event and produced rich insights about its interactional organisation. Analyses showed that pain displays were inextricably linked to the social environment. They were coordinated with, and contributing to, the social and sequential organisation of the interaction. This highlights how a discursive approach can be taken to understand the social aspects of an embodied phenomena. Despite perceptions of embodiment as more grounded in the body and individual than other kinds of phenomena, my analyses show that embodiment can also be understood as socially produced.

Approaching pain as a social phenomenon has also contributed to an area of discursive and conversation analytic research interested in how internal states like emotion are expressed. This body of research has shown how a range of emotions, from surprise (Wilkinson & Kitzinger, 2006) to disappointment (Couper-Kuhlen, 2016), are produced as orderly social practices in interaction that accomplish social action. Similar research exists for displays of visceral bodily expressions such as crying (Hepburn, 2004) and laughter (Jefferson et al., 1987). The thesis shows that pain, like emotion, is also socially organised and used to accomplish action. Despite uncertainty as to what pain is, this thesis shows that how pain is oriented to and treated in interaction is similar to other internal states. However, the specific ways that pain displays are accomplished and the actions they produce are different from displays of emotion. For example, pain displays in particular settings provide responses to solicitations whereas laughter shows alignment (Jefferson et al., 1987). But it can be said that in social interaction at least, pain displays have similarities to emotion. They, like emotional displays, invoke an internal state and are deployed as interactional resources to accomplish action.

Evaluation of the research and future directions

The analytic work of this thesis was based on a small sample of pain displays. As Heath (1989) pointed out, pain displays in medical consultations are rare. Similarly, the number of pain displays found in the research of this thesis was relatively small compared to the amount of recorded data that constituted the total dataset. Moreover, transcribing and analysing pain displays in their complexity was time-consuming and only a small number was manageable within the time constraints. Despite the small sample size, the analysis strongly suggests that pain displays are organised with respect to turn and sequence. However, a larger sample may provide a more diverse set of pain displays occurring in different sequential organisations and accomplishing a range of different actions.

As mentioned earlier, analysis was based on pain displays as units that were independent from verbal talk. One avenue for future research would be to consider other kinds of pain displays, like those that occur concurrently with or complete talk. These pain displays, because of their different organisation, may accomplish different actions in interaction. Furthermore, only one sequence pattern was identified and analysed. In these sequences, pain was typically purposefully solicited as part of the diagnostic activity. Research into pain in medical consultations could be extended by investigating pain displays that occur in sequential locations where the main activity is not the solicitation of pain. For example, investigating pain displays during problem presentation could yield findings about how pain displays without an allocated sequential ‘slot’ are organised, accomplished, and responded to in interaction.

Interactional practices within institutional settings tend to be specific to goals (Heritage & Clayman, 2010a). In accordance, the findings of the thesis were specific to the institutional environment of medical consultations. Pain displays furthered the diagnostic goals of the medical consultation and functioned as responses to pain solicitations that provided evidence of patients’ health complaints, helping to establish the legitimacy of patients’ medical problems. Moreover, the sequential location of pain displays analysed in the thesis were also specific to the medical consultations. The turn-taking, sequence, and overall structural organisation of institutional settings tend to be more pre-specified than talk in mundane settings (Heritage, 2005). Pain displays typically occurred after solicitations and physical manipulations within the activity of the physical examination. In less routinized, everyday settings, pain displays are likely to be organised differently as the institutional setting of the medical consultation constrains where and how pain displays manifest. Jenkins and Hepburn (2015) provide an example of analyses of pain displays in mundane settings. They examined children's expressions of pain at family mealtimes and showed that pain displays were used as a resource for children to avoid eating. This shows how pain displays are used to achieve different interactional goals in mundane settings. Thus researching pain displays in everyday settings would contribute to a more nuanced understanding of pain displays in interaction.

In the thesis pain displays were analysed based on visual and audible conduct. Streeck (2013) argued for a more holistic conception of the interacting body to include aspects such as tactile sensations, kinesthesis (the ability of the body to feel its own movement), embodied memory, and intercorporeal moments where two bodies are engaged in a shared bodily experience. The last is particularly relevant to the pain displays shown in this thesis. During physical manipulations, patients' and GPs' bodies were interconnected through touch, bodily position, and proximity. Streeck argued that there are diverse bodily experiences and embodied meanings that are shared and communicated in interaction. Through a range of resources, people can induce bodily sensations and affective responses, shaping how social meaning in interaction is physically experienced. For example, Heath (1989) found that patients adopted a "middle distance" gaze during physical manipulations, visually distancing themselves from the GP's operations and presenting their bodies as objects of inspection. The patients' gaze can convey embodied meaning during physical manipulations and characterise the nature of the shared bodily experience as an analytical medical encounter. It was outside of the scope of this thesis to investigate pain displays beyond visual and audible conduct, however it is important that future research addresses pain and embodiment more holistically. Yet, as Streeck pointed out, it is challenging to do so while making rigorous and grounded analyses.

The video data used for this thesis was drawn from an existing corpus of health interactions. This corpus was crucial for the thesis as obtaining ethical approval, recruiting participants, and filming consultations myself within the timeframe of a Master's thesis would have been impossible. However, some of the video data used was recorded before multimodal research had gained momentum, so the videos were not always filmed under ideal conditions for multimodal analysis. For example, sometimes participants' bodies were not fully in the shot or obscured in some way, light from windows distorted faces, or sound was difficult to hear. Due to these factors, some relevant analytic detail was possibly lost. Future research into pain displays needs to ensure video quality is optimal. Measures taken could include setting up multiple cameras, high-quality equipment, and ensuring good lighting conditions. However, obtaining recordings where participants are always fully and clearly in view may not always be possible as medical consultations are dynamic activities and both the GP and patient move about frequently, especially during physical examinations.

Practical applications

The analytic work of this thesis yields a range of practical applications for medical consultations. It has shown that patients designed their pain displays according to the norms of turn-taking. This has relevance for how GPs design their turns to solicit pain. GPs, like patients, can treat pain displays similarly to turns. GPs can design their solicitations and physical manipulations to occur at transition relevant places, providing patients with a turn-space to give pain information or produce a pain display. This would also maximise the accuracy of the pain information given. Given that pain displays are indeed sequentially organised, this would align with patients' practice of designing pain displays to occur at transition relevant places and avoid confusing the GP's diagnostic conclusion.

This thesis also documents how pain displays can be a resource for turn-taking. Pain displays can have a structure with an initiation, apex, and completion point, which makes their completion projectable. This structure provides GPs with a resource to build turns-at-talk at appropriate times. Coming in too early (before the apex), could be treated as interruptive and insensitive to patients' pain. However, beginning a turn-at-talk past the apex produces a turn that is fitted to the patients' pain trajectory. In addition to documenting the structure of pain displays, the thesis also points to the different resources that build pain displays. It highlights that it is important for GPs to observe a range of features when attending to patients' pain. Grimaces, in particular, were very typical of pain displays, which suggests that it is important for GPs to attend to patients' facial expressions during a pain display. For example, when enacting physical manipulations, GPs could ensure they adopt a position where they have a clear view of their patient's face.

Analysis of the sequence organisation of pain displays yielded findings that also have practical applications. GP's verbal pain observations, given in response to pain displays, were a resource to show they had attended to patients' conduct and interpreted it as a pain display. By designing verbal pain observations as requests for confirmation, GPs also ensured that patients aligned with their interpretations before shifting to next activity. Verbal pain observations were useful interactional tools that gave patients an opportunity to exercise their agency. Therefore, making verbal observations may be a helpful resource for responding to a range of embodied actions, not limited to pain. They also allow GPs to reduce power asymmetries during medical consultations. However, it is important for GPs to attend to turn-design when performing their verbal pain observations. Research has shown that the design of a question reveals the speakers' presuppositions, and can be tilted towards certain kinds of answers (Hayano, 2013). How a speaker designs a question is consequential for interaction, therefore it is important that GPs are sensitive to how they design their verbal observations/requests for confirmation.

Patients' pain displays were performed to mobilise the closing of the physical manipulation, and multiple pain displays suggested ongoing efforts to do so. Although patients performing a physical manipulation demonstrated pain, it was ultimately within GPs' medical authority to initiate and terminate a physical manipulation. Due to this power asymmetry, it is important for GPs to heed patients' pain during physical manipulations. In situations where a patient has demonstrated pain, but the GP has not solicited sufficient pain, GPs can give a verbal pain observation to show they have attended to the pain. This displays to the patient that the GP has oriented to the pain display and requires more information, rather than leaving it ambiguous for the patient as to whether the GP is attending to the pain displays as analytically relevant.

Concluding comments

How best to approach pain is a difficult and contentious subject that has long eluded researchers. Conceptualisations of pain have shifted over the decades, from sensation to emotion and beyond, but what remains largely unchanged is the belief that pain is situated within the individual as a subjective and mostly physiological experience. In this thesis I took a different approach to pain, moving beyond the internal experience to examine pain in social interaction. Using discursive psychology and conversation analysis, I analysed pain as an interactional event, focusing on how pain is displayed within medical consultations. The empirical work of this thesis showed that pain displays, as complex multimodal Gestalts, were socially organised, shaped by the features of the local context such as the diagnostic activity being accomplished and, importantly, the sequential organisation of talk. The orderliness to how pain displays impact, and were impacted by, the temporal unfolding of interaction shows that pain can be studied as a social phenomenon inextricably tied to the social environment. Pain cannot be simply thought of as a visceral bodily sensation located within the individual, as doing so ignores its social aspects.

The findings of this thesis also speak to debates within multimodal research. It showed that pain displays functioned as units of action similar to turn constructional units and were organised with respect to sequence. This provides support for arguments that talk-based concepts of turn-taking and sequence organisation are applicable to embodied conduct. However, this thesis also shows how pain displays were oriented to differently from talk. They were treated as insufficient responses to initiating actions due to the participants' understandings of bodily displays as 'off the record' pain informings and their orientations to the primacy of talk in medical consultations. These findings suggest that the status of embodied conduct as conditionally relevant next actions is determined within the local context.

Its relevance to multimodal debates notwithstanding, the main contribution of the thesis is the finding that pain displays are interactionally organised, much in the same way as talk. The implications of this finding can make a practical difference for people seeking help for pain. It destabilises notions that pain is only situated within the individual, and highlights how it is also a socially produced phenomenon. This can inform and enhance people's understandings of pain, making available possibilities for understanding and responding to pain that are sensitive to its social organisation.

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Appendix A

Transcription conventions

The transcription symbols used in this thesis to capture the delivery of vocal conduct were developed by Gail Jefferson and are commonly used within conversation analysis. Following are a description of the transcription conventions, adapted from Jefferson (2004) and Hepburn (2004).

Sequential and temporal relationships

[	A left bracket indicates a point of overlap onset where the talk of two or more speakers occurs simultaneously
]	A right bracket indicates a point of overlap offset where simultaneous talk ends
=	An equals sign indicates there is no pause or silence between two turns or between parts of a turn
(.)	A dot in parentheses indicates a silence of less than two tenths of a second
(0.0)	Numbers in parentheses indicate silences by tenths of a second

Speech delivery

.	A period indicates falling intonation.
?	A question mark indicates strongly rising intonation.
,	A comma indicates slightly rising intonation.
(.)	A dot in parentheses indicates a silence of less than two tenths of a second.
<u>wo</u>rd	Underlining indicates some form of stress or emphasis, either by increased amplitude for higher pitch. The more of a word is underlined, the higher the stress or emphasis.

WOrd	Uppercase letters indicate especially loud sounds relative to the surrounding talk.
◦word◦	Degrees signs encloses talk that are spoken quietly or softly.
↑	An upwards arrow indicates a higher pitch shift.
↓	A downwards arrow indicates a lower pitch shift.
#word#	Hash signs enclose talk spoken with a creaky voice.
w*gh*ord	A ‘gh’ within or attached to a word indicates guttural delivery.
>word<	Left/right carets indicate the enclosed speech is sped up compared to the surrounding talk.
<word>	Right/left carets indicate the enclosed speech is slowed down compared to the surrounding talk.
<word	A single right caret indicates the immediately following talk is ‘jump started’ or louder than expected.
wo:::rd	Colons indicate the prolongation or stretching of the sound preceding them. The greater the number of colons, the longer the stretch.
wor-	A hyphen after a word or part of a word indicates a sound cut-off.
wo:rd	An underscored colon indicates an upward intonation contour where the sound moves from down to up.
wo:rd	An underscore under a vowel preceding the colon indicates a downwards intonation contour where the sound moves from up to down.
.hh	A dot pre-fixed row of ‘h’s indicates an in-breath. The more h’s, the longer the inhalation.
hh	A row of ‘h’s indicates an out-breath. The more h’s, the longer the exhalation.
wohhrd	A row of ‘h’s within a word indicates breathiness.
wo(hh)rd	Parenthesised ‘h’s indicate plosive breath within or outside a word.

Transcriber descriptions

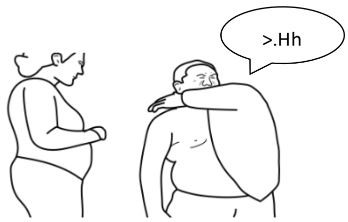
(word word)	Parenthesised words or speaker name indicate dubious hearings.
( )	Empty parentheses indicate transcriber was unable to hear what was said.
((phone rings))	Double parentheses indicate transcriber's comments or transcriber's interpretation of something they hear that is not talk.
(.)	A dot in parentheses indicates a silence of less than two tenths of a second.

Appendix B

Transcript formatting

Data was presented in extracts throughout the thesis. The formatting of the transcript is described below with reference to a typical example of an extract presented below.

Extract 2.3




```
IS GP07 06
6:08-6:14

01   PT:       |right here
               |touches front of shoulder (FIG 1)

02   GP:       ri:ght

     pt                     *grimaces(FIG 2) *

03   PT: -->   |an(h)d (0.2)  >.Hh<  (0.8)  |round the back
               |reaches behind shoulder      |touches back shoulder

04   GP:       mm::
```

Each extract was numbered for ease of identification. They were numbered according to the chapter and the consecutive order they were presented in. For example, Extract 2.3, was presented third in Chapter 2. Each extract also had a code identifying which interaction from within the ARCH corpus that it is drawn from. Following the code is a time-stamp which identifies when during the original video recording that the extract occurred.

Each participant was given a two letter identifier. ‘GP’ referred to general practitioner and ‘PT’ referred to patient. Following the identifiers were the talk or embodied conduct of the specified participant. Each line of talk within the transcript was given a line number for ease of reference. Embodied conduct was shown relative to the temporality of lines of talk and was not given a line number. Lines of interest were indicated in boldface and with arrows.