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'He moved then?': The management of worry-indicative information requests in moderate and high-risk fetal ultrasounds

'Ele mexeu daí?': o gerenciamento de pedidos de informação indicativos de preocupação em ultrassonografias fetais de médio e alto risco

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RESUMO / *ABSTRACT*

This study analyzes video-recorded fetal ultrasound scans held in a moderate and high-risk pregnancy ward at a Brazilian public hospital. Informed by Multimodal Conversation Analysis (Mondada, 2018), it investigates the ethnomethods participants employ to manage worry-indicative concerns whose presentation is initiated by pregnant women during a medical exam that does not typically comprise a specific phase for that (Nishizaka, 2010, 2011b, 2014). The analysis shows that pregnant women orient to three environments to request worry-indicative information: (i) topic, (ii) image, and (iii) phase transition, tailoring the design of their requests to each particular environment. Our findings reveal that, despite previous studies claiming otherwise, pregnant women are highly agentive in finding optimal opportunities to raise their concerns and to mobilize health professionals to respond to them. The physicians performing the scans respond to those requests while dealing with the contingencies inherent to the context of fetal ultrasounds which have implications for the provision of information. The analysis reveals the interplay between the pregnant women's ethnomethods of raising concerns where 'normality' is constantly at stake and the health professionals' ethnomethods in attending to those demands while orchestrating the distinct semiotic resources involved in the multiactivity setting of ultrasound scans.

Keywords:
Multimodal Conversation Analysis; Fetal ultrasound scans; Information requests; Doctor-Patient Interaction; Health Communication

Este estudo analisa ultrassonografias fetais gravadas em vídeo em uma ala hospitalar que atende a gestações de médio e alto risco em um hospital público brasileiro. Por meio da Análise de Conversa Multimodal (Mondada, 2018), o estudo investiga os etnométodos utilizados pelas/os participantes para gerenciar pedidos de informação indicativos de preocupação iniciados pelas gestantes em um exame que regularmente não contempla uma fase específica para isso (Nishizaka, 2010, 2011b, 2014). A análise mostra a orientação das gestantes para solicitar informações indicativas de preocupação em três contextos interacionais: (i) tópico, (ii) imagem e (iii) transição entre fases, adaptando o formato de suas solicitações a cada contexto. A despeito de estudos anteriores reivindicarem o contrário, nossa análise mostra que as

Palavras-chave:
Análise da Conversa Multimodal; Ultrassonografia Fetal; Pedidos de Informações; Interação Médica/Médico-Paciente; Comunicação na Saúde

gestantes são altamente agentivas na busca de oportunidades ideais para apresentar suas preocupações e mobilizar as/os profissionais para respondê-las. As/Os profissionais respondem às solicitações de informação enquanto lidam com as contingências inerentes ao contexto da ultrassonografia fetal que apresentam implicações para o provimento de informações. A análise revela a relação entre os etnométodos das gestantes para apresentar preocupações onde 'normalidade' está constantemente em risco e os etnométodos dos profissionais para atender a essas demandas enquanto orquestram recursos semióticos distintos envolvidos no ambiente de multiatividade das ultrassonografias fetais.

1. Introduction

Normality is understood as an organizing principle of pregnancies (Bredmar & Linell, 1999) that encompasses general considerations on pregnancies as normal events in somebody's life, and individual considerations on each woman having their pregnancy as normal. The advent of ultrasound technology has afforded a remarkable means to more closely observe and monitor fetal development and health, one that can provide reassurance for both families and health professionals (Bricker *et al*., 2000; Mitchell, 2001; Roberts, 2012). Nevertheless, the further 'surveillance' afforded by ultrasound scans, in serving their actual primary purpose – *i.e.,* screening – also provides information that might put 'normality' at stake, thus rendering the interactions held during fetal scans a *locus* for normality to emerge as a topic (Jonsson, 2007). However, fetal ultrasound screening, as compared to medical consultations, might not always favor the discussion about concerns and normality within their interactional organization.

In primary care consultations, patients are regularly invited to talk about their concerns – most frequently starting with the very reason for seeking a medical appointment (*e.g.*, Robinson, 2006; Heritage & Robinson 2006). In those consultations, the presentation of a patient's concerns – a phase or activity also known as 'problem presentation' – typically happens at the beginning of the medical visit and as a response to a doctor's invitation, often done with questions (*e.g.,* "What can I do for you today?" and "What brings you here today?" (Robinson, 2006).

Unlike primary care health encounters, typical fetal ultrasound examinations do not involve a problem presentation phase, which is not surprising, as their main purpose is to perform an 'exam' by means of image screening. As a result, pregnant women have to find appropriate 'environments' along the interaction to introduce concerns (Nishizaka, 2010). In analyzing regular prenatal fetal ultrasound scans in Japan, Nishizaka (2010; 2011b; 2014) observes that participants tightly orient to the contingencies of the in-progress examination. That is, whereas health professionals tend to initiate other activities (*e.g*., offering advice and explanations) during "transitory phases", pregnant women tend to take advantage of these transitory phases as systematic opportunities to present their concerns.

Drawing from a larger project that investigates interactions in fetal medicine (Ostermann, 2013), this study analyzes audio and video recorded ultrasound scans held in a moderate and high-risk pregnancy department at a public school hospital in Brazil. Informed by Multimodal Conversation Analysis (Mondada, 2018), the study examines the participants' ethnomethods (*i.e*., the members' methods) for managing worry-implicative information requests initiated by the pregnant women. The study shows how, in such complex and highly contingent ecology, pregnant women skillfully bring their concerns to the surface, and how doctors tactfully manage them. Besides orienting to "transitory phases" to raise concerns (Nishizaka, 2010; 2011b; 2014), pregnant women use the topic under discussion and images 'there-and-then' visually accessible.

The findings sustain that, by informing patients about the overall organization of the examination, professionals may prevent patients' untimely information requests. Moreover, the findings counter the claims of 'passiveness' attributed to pregnant women in previous literature (Chazan, 2007; Mitchell, 2001; Taylor, 2008). Instead, our data suggest that pregnant women are highly agentive and tactful in finding the optimal opportunities to raise their concerns and to mobilize health professionals to respond to them.

2. A multimodal approach to CA

Embracing a multimodal conversation analytic perspective, this paper focuses on how interactants organize themselves to carry out 'actions' in the world (Sacks, 1984; Streeck, Goodwin & LeBaron, 2011; Mondada, 2018). Upon looking at social interaction that way, verbal language is not our *sole* object of concern nor necessarily our *primary* one. Instead, language is here investigated as *one* of the various resources participants use for action formation and action recognition.

Such an approach has not always been central to CA (Sacks & Schegloff, 2002). The initial CA focus on *verbal* social interaction is partially due to the recording technology accessible in the late 1960s-early 1970s – *i.e.*, increasing availability of portable audio recorders, but not yet of video recording – and to the initial type of data investigated by Sacks' pioneering work on phone calls to a suicide prevention center – which

became central to his first set of UCLA lectures[1].

A less logocentric approach to analyzing social interactions, later referred to as the *embodied*, *visual* or *multimodal* turn (Nevile, 2015; Mondada, 2016), started with the works by C. Goodwin (1979, 1980, 1981) and M. Goodwin (1980). Such perspective has incorporated the insights provided by gesture studies (*e.g.*, Kendon, 1990; 2004; McNeill, 1992; Duncan, 2002) and the temporal and sequential description of embodied actions (*e.g.*, Haddington *et al*., 2014; Mondada, 2018; Nevile, 2015) to the investigation of social interaction. The multimodal turn in social interaction has afforded numerous insights also to many interactional linguistics studies (*e.g.,* Deppermann & Gunthner, 2015; Doehler, De Stefani, & Horlacher 2015; Fox & Heinemann, 2016).

The multimodal turn also afforded a more thorough understanding of how various simultaneous or serial activities emerge and are orchestrated in social interaction. The term *multiactivity* highlights "specifically the social, interactional and temporal features of situations and conduct in which people organize multiple activities together, concurrently or serially" (Haddington *et al*., 2014, p. 5). Ethnomethodological and conversation analytic studies are particularly interested in describing how interactants coordinate distinct semiotic resources to accomplish multiple activities in complex institutional settings – usually involving technology and complex space organizations **(**Goodwin & Goodwin, 1996; Heath & Luff, 1992, 2000; Mondada, 2003, 2007a, 2008, 2011; Zimmerman, 1992; Hindmarsh & Pilnick, 2007) – and in mundane everyday contexts (Goodwin, 1980; Haddington; Rauniomaa, 2011; Mondada, 2012; Nevile, 2012).

Ultrasound exams, the interactional context under scrutiny in this paper, constitute a multiactivity event, as "the same individual engages in multiple distinct activities using the same or different modalities of resources [and these multiple activities] may be more or less concurrent or simultaneous without one being referentially embedded in another" (Nishizaka, 2014, pp. 80-81). Obstetric ultrasounds, despite primarily constituting a medical assessment of fetal development and uterine health, most frequently encompass other, non-technical uses. While conducting the exams, health professionals tend to verbally and embodiedly orient to the activity of examining also as an opportunity to socially share the normal development of the fetus (Nishizaka, 2010; 2011a; 2011b; 2013; 2014).

3. Presentation of concerns in health encounters

Conversation analytic studies of medical consultations have shown that physicians typically solicit patients' presentation of concerns in the opening sequence of the encounters (Heritage & Robinson 2006; Robinson, 2006). Additional concerns may also be presented at the closing of medical encounters, the so-called 'doorknob' concerns (White, Levinson & Roter, 1994; Nielsen, 2012). Those studies mostly investigate how different turn designs orient to different types of concern (*e.g.,* Robinson, 2006) and how they reach better outcomes to solve the problem of patients withholding unmet medical concerns (*e.g.*, Heritage *et al*., 2007). Alternatively, patients can also initiate the presentation of concerns without being invited to do so by the professionals. For instance, in analyzing routine check-ups in a primary care context and regular prenatal check-ups, Stivers & Heritage (2001) and Nishizaka (2010) show how patients expand their responses to the professionals' inquiry so that they incorporate their concerns into this expansion.

In analyzing when and how patients create opportunities to introduce new concerns in general practice, White (2018) observed three methods: (a) fitted-to-topic concerns, (b) fitted-to-activity concerns, and (c) disjunctive concerns. Instead of presenting additional concerns at the closing of medical encounters, as research on acute, primary care visits has shown (White, Levinson & Roter, 1994; Nielsen, 2012), White (2018) observes that, in general practice, patients tend to present concerns at the beginning of the consultation, and skillfully fit new concerns in the ongoing talk or activity. Our data on fetal ultrasonography, despite looking at a distinctive setting, show similar methods through which moderate and high-risk pregnant women raise concerns, as described in the analytic session below.

Anthropological studies (Chazan, 2007; Mitchell, 2001; Taylor, 2008) have described fetal ultrasound scans as hybrid interactional encounters, as they comprise the ultrasound activity – *i.e*., a clinical examination – intertwined with the activity of socializing the fetus with the pregnant woman. Such hybridism, according to those authors, would generate communication 'problems' during the exams: (a) absent description and/or explanation of the projected images; (b) absent requests for the missing description and explanation; (c) several questions about other types of information that seem to 'hinder' the scan. In sum, these studies claim pregnant women and their companions highly depend on the willingness of the professionals who perform the exams to gain information about the fetus.

However, the microanalytic scrutiny of ultrasound scan interactions reveals a different scenario. Nishizaka (2010, 2011b, 2014) observes that pregnant women demonstrate orientation to the interactional sequence while presenting their concerns in the following "transitory phases" within the overall organization of the exams: (a) preparation phase for the ultrasound (*e.g*., gel application), (b) transition phases, and (c) response expansions. Pregnant women use those interactional environments as opportunities to least disrupt the ongoing examination. By orienting to avoid disrupting the professionals' work, pregnant women reveal their low

[1] See, in particular, the Special Issue of *Human Studies* 12 (3/4), Harvey Sacks Lectures 1964–1965 (Dec., 1989).

entitlement[2] to present concerns. Moreover, Nishizaka (2010) observes that pregnant women tend to present concerns as reports of what happened to them, an action that does not create relevance for a response. As a result, some of the problem presentations raised by pregnant women in those data are not met with responses.

In order to observe how the professionals respond to patient presentation of concerns, this paper aims at investigating the management of worry-implicative information requests initiated by pregnant women of moderate and high-risk pregnancies, an under-investigated context by the lenses of Multimodal Conversation Analysis. The focus on information requests allows us to observe how the professionals deal with the constraints of responding while coordinating distinct semiotic resources to achieve the activities that constitute fetal ultrasound scans.

4. Participants and setting

The data set analyzed in this paper derives from a larger research project (Ostermann, 2013), and consists of interactions held during fetal ultrasound scans that were audio and video recorded between October 2013 and June 2014 at a moderate and high-risk pregnancy department in a public school-hospital[3] in Brazil. About 80 pregnant women and seven professionals[4] agreed to participate in the study. To be serviced at the moderate and high-risk fetal medicine department in that hospital, pregnant women have to be referred by public health physicians upon the identification of some type of fetal or pregnancy abnormality during prenatal visits. Therefore, when seeking this department, women are already aware of an existing condition that might pose risk to the pregnancy.

Some of the indicators of risk are: (a) individual characteristics and sociodemographic conditions of a pregnant woman (*e.g.*, over 35y.o.); (b) previous reproductive history (*e.g.*, frequent miscarriage); (c) previous clinical conditions (*e.g.*, high blood pressure); and (d) clinical/obstetric complications with the current pregnancy (*e.g.*, fetal malformation) (Brasil, 2012). Thus, in addition to concerns typical to any pregnancy, patients consulting in this ward might experience further pregnancy-related concerns. As a result, moderate and high-risk pregnancies also demand more frequent and, often, more specialized image screening, which is scrutinized during the visit, in co-presence, as the ultrasound scan unfolds.

5. Data and Methods

The data consist of 114 recorded interactions held during three types of fetal scans: morphological, obstetric[5], and heart ultrasounds. Because this is a school hospital, resident doctors typically perform the morphological and obstetric scans by themselves, being joined later by the attending doctor, who then inspects the images and/or captures new images while the patient is still in the room. Fetal heart scans, however, are not part of the residency program, and thus are performed by a single specialized doctor.

The recordings were limited to consultations in which all participants had previously consented. Due to ethical restrictions, video recording was restricted to angles that captured the computer screen where the scan images were projected and made visually available to the participants, as well as body gestures that happened in front of it. To capture the computer screen, as **Figure 1** below illustrates, a video camera was positioned behind the physicians.[6]

Such restriction, nevertheless, afforded us visual access to an expanded diversity of embodied conduct that ranged from finger-pointing and other hand gestures (*e.g.*, circling in the air, representations of the fetus' positions) to 'derived' human-technological actions (*e.g.*, stabilizing, freezing, zooming the image in and out, mouse/cursor-pointing) that take place during the exam. The data set also includes field notes taken during the scans by one of the researchers.

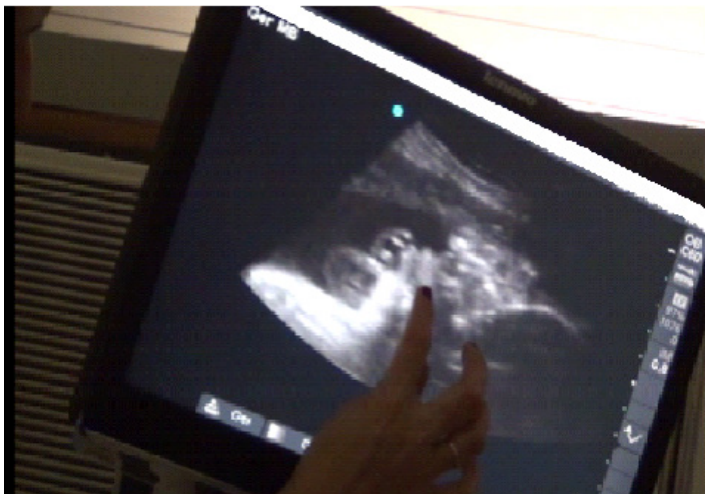


Figure 1

Print screen taken by the authors from the video played on the software VLC media player

[2] CA studies have shown how participants in interaction are oriented to their 'entitlement', that is, their right or capacity to perform an interactional action at a certain interactional sequence (Craven & Potter, 2010; Curl & Drew, 2008; Asmuβ & Oshima, 2012). Those studies have claimed that the participants' different degrees of entitlement reflect on how they design the turns that implement certain actions.
[3] The research project has been reviewed and approved by the Unisinos Ethics Committee and the IRB at the hospital where the recordings took place.
[4] In Brazil, obstetric ultrasound examinations are performed by a trained physician who, most frequently, is not the obstetrician in charge of the patient's case.
[5] Bruns, Araujo Júnior & Nardozza (2012) distinguish morphological US scans as more 'comprehensive' than regular obstetric scans. Whereas the former measures details that afford the identification of a larger range of 'abnormalities', the latter assesses only fetal weight, amniotic fluid, placenta, and a few other variables.
[6] Ideally, the data should contain video recordings of other angles, in particular, images of how the participants coordinate body postures, F-formations (Kendon, 1990), embodied participation frameworks (Goodwin, 2000), eye gaze (Goodwin, 1979; 1981), gestures, and the manipulation of material and technological artifacts.

The recordings were transcribed based on Jefferson's (2004) and Mondada's (2019) conventions. For the discussion of the segments presented here, a two-line transcription system was used: 1st line presents the original language (*i.e.*, Brazilian Portuguese), and 2nd, the English gloss. Participants are identified as PWO (pregnant woman), RES (resident doctor), and DOC (attending/preceptor doctor or heart ultrasound doctor). The collection investigated for this paper consists of 12 instances in which the pregnant women introduce concerns by means of worry-indicative information requests about the ongoing pregnancy; more specifically, those regarding the fetus' development and wellbeing.

The analytical section that follows is organized to present how pregnant women initiate worry-indicative information requests in ways that show orientation to three different environments: (i) topic, (ii) image, and (iii) phase transition. We specifically examine how pregnant women orient to designing their requests in ways that each reflexively shows relevance to the immediate context. The analysis also shows how the professionals respond to those requests vis-à-vis the contingencies inherent to the context of fetal ultrasound, and that can implicate the provision of answers to the requests presented by the pregnant women.

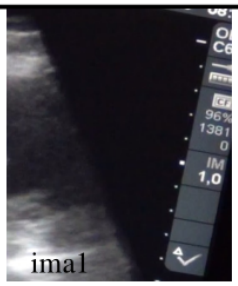
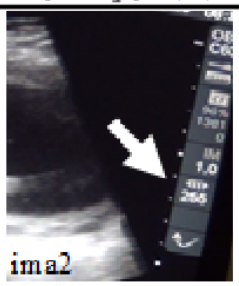
6. Presentation of concerns as oriented to best-fitted environments

The analysis of the data shows that, although ultrasound interactions do not typically comprise a problem (or concern) presentation phase, patients still manage to raise concerns, and doctors do respond to them. We discuss here *when* and *how* patients manage to bring up their concerns employing information requests (with or without accounts) and thus to have them dealt with by the doctors. The data show patients orient to different 'environments' to do that by adjusting the design of their worry-indicative requests for information according to the constraints imposed by these environments.

Table 1 shows the three environments in which the pregnant women introduce their concerns as worry-indicative information requests:

Table 1

Environments in which pregnant women raise concerns

Environment	N	Explanation	Example
(i) topic-oriented worry-indicative information requests	4	Responsive to physicians' descriptions or assessments of what is projected on the screen	1 DOC: **e peso um** 2 **duzentos ↑e trinta e três:** *and the weight is one ((kilo))* *two hundred ↑and thirty-three* 3 PWO: **é normal o peso com essa** 4 **idade ges[tacional],** *is the weight normal with this* *gestatio[nal age,]* 5 DOC: **[bem] (.) bem adequado** *[very] (.) very adequate*
(ii) image-oriented worry-indicative information requests	4	Visuotemporally-oriented to images projected on the screen. (Arrow on Ima2 points to the number that emerges on the screen.)	  1 **#ima1 (2.3) #ima2 (2.5)** 2 PWO: **e quantos centímetros ele tem?** *and how many centimeters is he?* 3 **(0.8)** 4 RES: **{{falsete} não interessa.}** *{{falsetto} ((it)) doesn't* *matter.}*

			5 (0.5) 6 PWO: °não intere[ssa?°] °((it)) doesn't ma[tter?°] 7 RES: [não] interessa 8 os centímetros né [the] centimeters don't matter right 9 nem te preo[cu↓pa] don't even bo[ther] 10 PWO: [>é que] eu fiquei 11 com medo por causa que a [>it's because] I got afraid because the 12 médica falô< que eu posso ter 13 ele prematuro por causa da- doctor said< I can have him born prematurely because of- 14 °ela falou que eu não vou tê 15 corpo suficien↓te° °she said I won't have enough body ((structure))°
(iii) phase transition-oriented worry -indicative information requests	4	Fitted within transitionally relevant places in the overall sequential organization of the encounters	1 DOC: se tu quisé: ir mais pra 2 ↑cima te posicioná: if you wa:nt to go up a bit to position yourself 3 PWO: eu queria sabê: se por acaso 4 tu podia me dizê: porque eu tô 5 com um pouquinho de medo 6 tem como ver o peso dela I'd like to know if by any chance you could tell me because I'm a bit.DIM afraid is it possible to see her weight

Source: elaborated by the authors

Each worry-indicative information request reflects the speaker's orientation to the sequential environment in which it is produced; that is, pregnant women either use an opportunity generated by the immediately prior context (i) or they generate a slot (ii and iii) to formulate their concerns. In this perspective, the participants' orientation to these different interactional environments becomes observable in the ways they reflexively design their turn vis-à-vis the 'here-and-now' ecology of the complex organization of ultrasound encounters.

These cases are explored at length in the next section.

From 'ecologically-fitted in' to careful ways of bringing concerns about

Out of a collection of 12 occurrences of worry-indicative information requests, we present here the detailed analysis of three excerpts that represent the environments shown in **Table 1**. The first two excerpts (i and ii), respectively representing the topic and image-oriented requests, form a group that we call 'ecologically-fitted worry-indicative information requests', whereas the last excerpt (iii) refers to requests presented at a phase transition *within* the exam. That excerpt (iii) demonstrates the interactional work demanded to raise information re-

quests in less ecologically fitted environments.

Excerpt 1 is part of an ultrasound of a fetus presenting a diaphragmatic hernia, a condition that has affected the normal disposition of some of the fetus' organs, such as the stomach, heart, and lungs. The exam is performed by the resident doctor. We join the interaction around the end of the first phase of the scan, when the resident doctor has just finished taking all the measurements. It precedes the phase when the attending doctor is called to inspect the images taken by the resident thus far.

Excerpt 1: HMF_ECOOBST_edineia_DEISE_19_11_13_15m50V[7]

```
1       +(16.1)+      + (3.2)
   res +measures--+ +table with fetal measurements-->1.7
2 RES: quinhentos e vinte e oito gramas fecha bem
       five hundred and twenty-eight grams corresponds squarely
3      com a tua idade gestacional vinte e duas semanas
       to your gestational age twenty-two weeks
4      e quatro dias
       and four days
5      (0.7)
6 PWO: <certinho>
       <squarely right.DIM>
7      (3.9) + + (1.1)
   res     ->+ +searches image-->>
8 PWO: >tá na ponta do lápis< hh
       >((it))'s at the tip of the pencil< hh
9 RES: na po:nta
       at the tip
10 PWO: hh
11     (7.8) ((res keeps searching for images))
12 PWO: quinhentos e pouco gramas é um peso bom pro
       five hundred and a few grams is a good weight for
13     [caso dela?]
       [her case? ]
14 RES: [é: >nesse ] tempo é<
       [((it)) i:s >at this] age ((it)) is<
15     (0.8)
```

[7] In line 6, DIM stands for 'diminutive suffix'.

As the professional reaches the image of the table that presents the fetal measurements (line 1), she announces the fetal weight (line 2) and assesses it positively vis-à-vis the gestational age (lines 2-4), to which the PWO responds with an acknowledgment followed by an assessment concerning the precision of the information (lines 6, 8). While the professional continues performing the scan and keeps searching for images (line 11), the patient raises a worry-indicative information request regarding the topic just treated – *i.e.*, fetal weight. Although the doctor had positively assessed what that measurement meant regarding 'normality' (lines 2-4), the PWO returns to the topic by requesting confirmation of the positive assessment concerning the specificity of that case (lines 12-13) – *i.e.*, a fetus with a diaphragmatic hernia – which the physician confirms to be good (line 14). With that request, the PWO evidences that the earlier information and assessment (lines 2-4) do not suffice to inform about the normality of the fetus she is gestating – and that is known to present a malformation. The patient, therefore, reveals her agency in pursuing a more tailored assessment – *i.e.*, one that responds to the specific case of the fetal malformation in case (see also Ostermann (2021) on agency in women's health).

The 7.8-second silence (line 11), during which the doctor keeps searching for images, could have been used for transitioning to the next sequence. However, the pregnant woman uses it as an opportunity to raise her *ad hoc* concerns, possibly oriented to the relevance of the previous informing sequence. Notice that in that environment – *i.e.*, following up on a topic and action introduced by the physician – the patient's question is produced rather directly. By reformulating the weight in a more generalized way ("five hundred and a few grams" instead of the doctor's "five hundred and twenty-eight grams"), the pregnant woman manages to reopen the sequence. Another evidence for the ecological well-fittedness of this concern is the doctor's orientation to this concern: she starts her confirmation of the positive assessment solicited by the PWO in overlap with the end of the patients' turn (line 14). Given the immediately earlier access to the information about fetal weight, the physician can rule out the patient's concern straight away. The practice observed in our data is equivalent to the fitted-to-topic concerns method described by White (2018) in general practice.

The next excerpt illustrates how pregnant women orient to the images projected on the computer screen as an opportunity to introduce concerns, and how that specific ecology reflects on the design of their worry-indicative information request. The scan in **Excerpt 2** is performed with a 38-week PWO who has developed gestational diabetes and who had recently noticed considerable decreased fetal movement – an important, and frequently alarming sign regarding fetal vitality. To closely investigate the fetal movement, her obstetrician requested a Biophysical Profile assessment[8], which presents the same overall structure of obstetric and morphological scans, with the resident doctor performing the scan by herself to be later joined by the attending doctor.

The segment presented as **Excerpt 2** happens at the beginning of the scan.

Excerpt 2 – HMF_PERFIL_vivian_FERNANDA_22_10_13_0mV

```
1        +(48.7)                    + +(4.7)
     res +freezes image & measures + +unfreezes screen & searches image.->>
2  PWO:  ele mexeu daí
         he moved then
3        (.)
4  PWO:  (>não<) mexeu?
         (didn't) ((he)) move?
5        (0.5)
6  RES:  n:ão [tô olhando a mexidinha ↑dele]=
         ((I)) am [n:ot checking his ↑movement.DIM]=
7  PWO:       [eu não senti- (.) a::       ]
                  [I didn't feel- (.) o::h       ]
8  RES:  =eu tô olhando o líquido na real[idade.]
         =I'm checking the liquid ac[tually.]
```

[8] Biophysical Profile consists of an ultrasound scan that analyzes fetal well-being based on the assessment of five variables: fetal breathing movement (FBM); fetal heart rate (FHR); fetal movement (FM); fetal tone (FT), and amniotic fluid volume (AFV) (Manning, 2000).

```
 9 PWO:                                  [a: tá.] >↑não é porque<
                                    [o:h okay.] >↑no it's because<
10        e- >tipo assim< quando- (.) eu cada vez que eu fazia eco
          I- >kinda< when- (.) every time I had an ultrasound
11        eu sentia que ele mexia bastante n[é ]
          I used to feel that he moved a lot you kn[ow]
12 RES:                                     [mh]m:,
13        (0.5)
14 PWO:   °só >>se eu-<< (0.7) não tô sentindo de repente°
          °>just if I-< (0.7) °am not feeling it maybe°
15        (0.7)
16 PWO:   °agora°
           °now°
17        (3.9)
18 RES:   mas o líquido tá super bom.
          but the liquid is very good.
19 PWO:   é::
          i::s it
20        +(0.5) +
     res  +nods--+
```

To measure the amniotic fluid index (AFV), the resident doctor keeps the image frozen for 48 seconds. When she unfreezes the image and restarts moving the transducer, the image on the screen moves accordingly. In other words, the doctor's embodied motion of the transducer also generates a transition of images on the computer screen – *i.e.*, a type of 'movement', but between images. Thus, the movement projected on the screen is actually a consequence of the resident doctor's manipulation of the transducer.

Attentive to that motion on the screen, the PWO inquires about whether the fetus has moved (lines 2, 4), which evidences not only her alert orientation to what is projected on the screen but also to the very concern underlying that specific scan, *i.e.*, the scrutiny of fetal movement. Upon no immediate uptake by the doctor, the patient revises her request to change its polarity (line 4). The polar format of the request, regardless of its revision, makes a 'yes/no' response relevant, although making 'easier' the provision of negation in its reformulated version.

Instead of responding with a type-conforming answer[9], however, after a gap indicating that dispreference might be underway (line 5), the resident doctor provides a *non*-answer response. She accounts for the reason why she cannot provide the information about the movement at this point: she has been assessing another variable of the exam: the amniotic fluid (lines 6, 8). The non-answer response reveals the doctor's treatment of the patient's request as inapposite in terms of placement within the overall structure of the scan.

Non-answer responses are known to be dispreferred concerning the responses that fulfill the expectation generated by the question (Stivers & Robinson, 2006). In the context of this paper, though, we discuss how non-answer responses seem to be oriented to dealing with the patient's concern. In this sense, the dispreferred characteristic of non-answer responses can be challenged in medical settings. That is, despite being dispreferred in terms of the progressivity of talk, non-answer responses might prevent the aggravation of patients' concerns.

By withholding the (dis)confirmation of the movement, the doctor treats the PWO's request as a display of concern. Even though it might be possible for the doctor to verify if the fetus has already moved or not (in the sense of being visually accessible to her), there are problems involved in

[9] Type-conforming answers respond to the format proposed by the question (*e.g.*, producing a yes–no answer to a yes–no question) (Raymond, 2003).

responding to that question in a type-conforming way (*i.e.*, yes-no). It might be the case that the doctor has not seen any fetal movement so far, but that she might yet be able to see it a few seconds later – in case the fetus indeed moves. Thus, a *no* answer 'right then' could raise unnecessary concerns. On the other hand, a *yes* answer might not be technically adequate, since a single fetal movement *per se* is not definite proof of fetal vitality. The actual main evidence of vitality is the heartbeat, a factor that has not yet been assessed. As a result, the doctor's non-answer response stands as the least dispreferred as well as the most adequate one in that situation.

In line 9, the PWO responds with a change-of-state token (Heritage, 1984) and expands her response with an account for the request (line 2): *i.e.*, she used to feel that the fetus moved a lot during previous scans (lines 9-11). The doctor could have oriented to the response expansion provided by the PWO as 'fishing' for information[10] (Pomerantz, 1980) (line 14), given that she could have (dis)confirmed the patient's perception of the fetal movement. However, the doctor does not take the turn in adjacency. Instead, in line 18, she positively assesses the amniotic liquid situation – making her situated focus of scrutiny, as well as 'order' of the variables being assessed, socially shared with PWO. Such an assessment discloses a positive perspective practice[11]. In other words, despite being unable to immediately provide the information requested, the doctor can inform a positive finding of the variable currently under scrutiny, which is also an important factor in the fetal vitality assessment[12].

Two contingencies constrain the possibility of offering information about fetal movement in this segment: (a) the professional had started the scan by assessing a variable other than the main reason of the scan; and (b) the fact that the fetus is asleep (an aspect observed at a later moment in the interaction, thus not shown here) reduces mobility. Nevertheless, the PWO is oriented to fetal movement since the beginning of the interaction. Thus, at the moment she sees a 'movement' on the screen, she treats it *as being* an actual fetal movement, which could then settle the issue.

The direct design of the worry-indicative requests discussed in **Excerpts 1** and **2** display their relevance is attached to the immediate context where they are produced. Since those concerns 'fit in' what is happening 'here-and-now' in the interaction, they are not introduced with prefaces nor disjunctive markers. However, in **Excerpt 2**, the PWO's initiation of a new course of action generates the need for some accountability, which is dealt with by RES and PWO in lines 6-16. **Excerpt 2**, thus, shows a case in which a slot for the initiation of a worry-indicative inquiry seems less opportunistic, but rather contingently produced, than the first example.

Excerpt 3a (and **3b**) is similar to **Excerpt 2** as the pregnant woman again orients to the accountability of asking a question related to a long-time concern. This case, however, presents a worry-indicative information request whose content is unrelated to the topic and image situated in the interactional sequence where it emerges. Such 'unrelatedness' is observed by the amount of interactional work the patient does to launch a request.

The segment presented next is part of a fetal heart ultrasound, and it happens at the initiation of the closing phase of the scan. This is a 27-week gestation in which the expecting mother has developed gestational diabetes.

Excerpt 3a – HMF_ECOCARDIO_amanda_LUANA

```
1       (2.0)
2 DOC:  +°↓tá (.) então ↓assim° (2.0)
          °↓okay° (.) so  ((it's)) the follow↓ing(2.0)
        +>> measures--------------------------->
3       <em relação ao diabetes tudo direitinho (.) ↑°tá:°>
        <in relation to the diabetes everything alright.DIM (.) ↑°oka:y°>
4       (1.0)
5 DOC:  a diabete pode sobrecarregá o coraçãozinho do bebê:,+
        the diabetes might overload the baby's hear:t.DIM,
                                                    --->+
```

[10] The 'fishing for information' device, according to Pomerantz (1980), happens when a speaker presents their knowledge as fragmentary or uncertain and this format may induce the recipient to deliver an authentic version of the facts.
[11] 'Positive perspective display' (Ostermann *et al.*, 2017; Stivers & Timmermans, 2017) refers to some type of 'good news' within a 'bad news' sequence (Jefferson, 1988; Maynard, 2003).
[12] During the course of this interaction, the PWO was not informed that the scan assessed four other variables besides fetal movement.

```
 6        +(1.6) °mas (aqui pelo jeito com) o coração tá tudo
           (1.6) °but (here apparently with) the heart is
          +unfreezes image ------->
 7        direitinho.°=
          alright.DIM.°=
 8  PWO:  =eu só tenho uma dúvi[da]
          =I just have one quest[ion]
 9  DOC:                        [>en]tão< mais um
                                 [s]o one more
10        motivo pra tu te cui++dá né:?
          reason for you to take care of yourself ri:ght?
                          -->++freezes image & measures--->1.23
11  PWO:  uh [hum:.]
12  DOC:     [↑ã   ]
13        (.)
14  PWO:  quando eu fiz a: morfo:,
          when I did the: morpho: ((reduced for 'morphological')),
15  DOC:  ↑ã
          ↑uh
16        (0.5)
17  PWO:  dizia que um ventrículo era maior que o ↑outro
          ((it)) said that one ventricle was larger than the ↑other
18        >°isso é nor↓mal.°<
          >°is that normal?°<
19  DOC:  <ventrí:culo::> (.) cerebral?
          <ventricle::> (.) cerebral?
20  PWO:  ↓°nã:o acho que era do coração >eu não sei<°
          ↓°no: I think that ((it)) was of the heart >I don't know<°
21  DOC:  {{falsete} ↑não} o cora- eu de:i- dei uma olhada ali
          {{falsetto} ↑no} the hea- I ga:ve- gave ((it)) a look over there
22        ↓não o coraçãozinho tá proporcio↑nal
          ↓no the heart.DIM is pro↑portional
23        (2.2)+
     doc    -->+
```

The doctor is taking measurements with the frozen image when she initiates a transition sequence towards the examination closing (line 2), evidenced by the closing-implicative particle *tá* 'okay', followed by the conclusive *então* 'so', and the pre-announcement that some type of conclusion has been reached (line 3). While still busy with the concurrent exam-related activity of taking measurements, the doctor suspends her talk for two seconds (line 2), restarting it with a positive assessment of the scan vis-à-vis gestational diabetes (line 3). Upon no receipt from the PWO (line 4), the doctor elaborates her assessment by explaining the possible consequences of diabetes to the fetal heart (line 5). While unfreezing the screen, thus indicating the conclusion of the technical activity, the doctor produces another positive assessment of the fetus' condition (lines 6-7).

The patient orients to this activity transition as an oppor-

tunity to request information. She does so by first producing a 'pre-pre' (Schegloff, 1980), announcing that she has a question (line 8). In addition to framing what is to come, the use of a pre-pre also displays a careful, non-disruptive orientation. The PWO also minimizes the imposition of the request with the use of '*just* one' question. The doctor, on the other hand, does not immediately orient to the patient's pre-pre. Instead, in overlap with the end of the patient's turn, the physician uses the transition space between two phases of the exam to offer some advice to the patient (line 9-10) – characteristically produced by ultrasound professionals in closing sequences (Nishizaka, 2014).

In overlap with the PWO's acknowledgment of the advice (line 11), the doctor orients to a resumption of the abandoned sequence initiated by the patient using pre-pre (line 8). The patient starts a narrative account about the last morphologic ultrasound, which had shown that one 'ventricle' was larger than the other (lines 14, 17), the very concern underlying her request. In this sense, the narrative account provided in lines 14 and 17 lays the ground for what she will inquire next and justifies her concern is reasonable. Then, the PWO requests for an assessment concerning whether the discrepancy of the size of the ventricles is normal (line 18).

The missing specification of the specific organ the ventricle belongs to (*i.e.*, whether they are the *heart* or *brain* ventricles) generates a problem of intersubjectivity. The patient orients to the fact that this doctor is a cardiologist to inquire about the normality of the ventricle size, thus displaying her understanding that the diagnosis in the previous exam regarded the *heart* ventricles. By repeating the word 'ventricle' at a slower pace (line 19), followed by a repair initiation (*i.e.*, 'cerebral?'), the doctor displays trouble with the referent. Note, however, that the screening of brain ventricles is not part of the current ultrasound (which is specifically a fetal *heart* ultrasound). In line 20, the PWO disconfirms the doctor's candidate referent. Also of interest is how she designs the disconfirmation: by downgrading her epistemic authority (Heritage, 2012a; 2012b). The use of "I think" and "I don't know" exempts the patient from *claiming* expertise and thus offers more favorable grounds for 'other-correction'[13].

The doctor rules out the relation of the PWO is establishing with *heart* ventricles, explaining that she has checked and evaluated those specific ventricles as proportional (lines 21-22). The PWO, however, does not acknowledge the information provided by the doctor, who orients to the unresponsiveness as an indication of something problematic in her previous turn. The professional then explains the different types of ventricles, as follows:

Cont. Excerpt 3b – HMF_ECOCARDIO_amanda_LUANA

```
24 DOC:  +ººé que tem ventrículo cere↓bra:l também.ºº=
         °°it's because there's also ↓cerebra:l ventricle.°°=
         +searches image----->l.33
25 PWO:  =A: °↓tá:°
         =Oh °↓okay°
26       (.)
27 DOC:  ºº>é<ºº
         °°>yes<°°
28       (0.8)
29 DOC:  mas aí- eu olho o laudo aí (°contigo°) ººe vejo
         but then- I'll look at the report there (°with you°) °°and I'll check it
30       pra ti [(o que que é que tá dizendo°°)]
         for you [(what it is saying°°)]
31 PWO:         [mas se >tu tá<] dizendo que tá tudo ↑bem {{falsete}↑né:}
                [but if >you're] saying it's al↑right {{falsetto} o↑ka:y }
32       (0.5)
33 DOC:  {{falsete} ↑não é que tem algumas coisas ++ que:-
         {{falsetto} ↑no it's because there are some things tha:t
                                          -->++listens to heartbeat.-->
34       (2.6) que são as variações} mesmo. (.) é a natureza
         (2.6) that are the variations} really. (.) it's the nature
```

[13] See the "correction-invitation device" as described in Sacks (1992a, pp. 21-23 and380-381).

```
35          fazendo o tra++balho dela né:
            doing its job ri:ght
                      -->++freezes & measures--->>
36          (4.5)
37  DOC:    as variações do normal que a gente cha:ma.
            the variations within the normal as we ca:ll them.
38          (0.8)
39  DOC:    nem todo mundo é i↑gual né=
            not everybody is the ↑same right=
40  PWO:    =a: sim hh [(não)]
            =o:h yes hh [(no)]
41  DOC:    [mas to]do mundo é normal né?
            [but eve]rybody is normal right?
42  PWO:    sim.
            yes.
```

The doctor then explains the existence of *brain* ventricles, indicating that those could have been the source of the patient's inquiry and concern (and thus the focal point referred to in the previous scan). In line 25, the PWO produces a change-of-state token (Heritage, 1984), likely indicating unawareness of the existence of brain ventricles. Instead of leaving the patient with the concern about whether the fetal brain ventricle size is abnormal, the doctor offers to check the morphologic scan report results (lines 29-30). By introducing this offer with the use of the conjunction "but", she orients to the PWO's remaining concern. However, considering that she cannot immediately provide that information, she 'normalizes' size differences (see Bredmar and Linell, 1999) (line 33-41), which seems to positively reassure the patient and work as a sequence closing with a positive exit (Jefferson, 1988).

Following the pattern described by Nishizaka (2010, 2011b, 2014), the PWO in **Excerpt 3** shows orientation to the least disruptive opportunity (*i.e.*, between the end of the measurements and the closing initiation) to introduce her concern, here observed as a request concerning worry-indicative information. However, the disconnection of the concern in terms of the verbal and visuotemporal sequence reflects on the amount of interactional work the patient does to format her request to fit the overall structure of the scan: with a pre-pre, an account and only then the assessment request. It is carefully brought to the interactions to be non-disruptive and carefully allocated into transitional spaces.

7. Discussion

A comparison among the three types of worry-indicative information requests that comprise our collection shows that, within the context of moderate and high-risk pregnancy ultrasound scans, pregnant women do not always orient to 'transitory phases' to raise concerns, as observed elsewhere (Nishizaka 2010; 2011b; 2014). The analysis here reveals that pregnant women initiate worry-indicative information requests also in other environments, those that are oriented to the unfolding and emerging interactional and visuotemporal scenarios during the scans, tailoring the design of their requests to each of those environments.

In **Excerpt 1**, the pregnant woman reopens the sequence by straightforwardly introducing a concern that follows up the immediate topic. In **Excerpt 2**, the initial question is supported by a follow-up account. In **Excerpt 3**, by means of a pre-pre, the concern is presented as a delicate matter. Each of these ways to raise concern-indicative questions reflects the speaker's orientation to the sequential environment in which they are produced. In this sense, they are made reflexively relevant in terms of the accountability of the initiation of the specific action, especially because the initiation of 'concern-presentation' is not something that is systematically provided in the organizational 'interactional' structure of ultrasound scans in high- or moderate-risk pregnancies.

When oriented to the conversational topics and the images that become available on the screen, pregnant women produce *direct* worry-indicative information requests. In **Excerpt 2**, as discussed above, given that fetal mobility is under scrutiny, the PWO orients to the ephemeral movement seen on the screen to have her request dealt with 'there-and-then'. Had she postponed that question, the referent of her inquiry – an ephemeral image – could then be gone, and thus no longer be 'locally-and-temporally' relevant. Thus, it is the emergence of topic and image what generates a local relevance that prioritizes and thus easily accommodates a direct, short format of worry-implicative information requests. Since those are 'ecologically-fitted' to the ongoing conversational flow, they are not (and, in the case of **Excerpt 2**, *cannot afford to be*) introduced by prefaces such as pre-pres and pre-requests, nor accompanied by accounts.

Nevertheless, when there is no local relevance generated by either the current topic or the visuotemporal environment, pregnant women orient to 'fitting' their worry-implicative information requests within phase transitions of the scan. Those requests typically deal with some type of ongoing concern, one that might be driven by findings reported in previous scans; in other words, driven by existing concerns, *previous* to the current examination. Thus, pregnant women use phase transitions (such as between the measurement-taking and closing phases, as seen in **Excerpt 3**) to initiate worry-indicative requests.

The design of worry-implicative requests initiated in phase transitions – and, thus, outside topic and image-oriented, more ecologically-fitted environments – orients to the risk of disruption. In phase transitions, pregnant women skillfully (com)pose their requests, prefacing them with pre-pres, pre-requests, and accounts. However, the emergence of the topic or the image environments related to the concern creates the local relevance for requesting worry-implicative information so that pregnant women do not orient to them as disruptive actions.

The accounts provided by pregnant women, regardless of their sequential position (following non-answer responses (**Excerpt 2**), or prefacing requests (**Excerpt 3**), seem to work to justify the requests as relevant and to display orientation to the morality of worry (Nishizaka, 2017). In other words, the accounts legitimize the patients' presentation of requests as 'concern*able*'[14] matters that are worthy of medical attention, something that brings us to the discussion of a more 'applied' character of this study (Antaki, 2011).

The analysis also revealed the various ways professionals manage the constraints of responding to patient-initiated presentation of concerns in the multiactivity context of fetal ultrasound scans. As seen in **Excerpt 2**, non-answer responses (Stivers & Robinson, 2006) also work to deal with patient's concerns. However, the analysis also shows that the 'socially' dispreferred character of non-answer responses might be challenged in particular environments. The analysis demonstrates that despite being dispreferred in terms of interactional progressivity, non-answer responses might prevent the aggravation of patients' concerns. Hence, another way of managing patients' concerns in this context is by providing information that does not answer the request itself, but instead offers a positive assessment of something else that is also relevant to the current concern. Those assessments[15] work as positive perspective displays (Ostermann *et al.*, 2017; Ostermann & Frezza, 2017; Stivers & Timmermans, 2017), revealing the professionals' orientation to the provision of *some* positive reassurance when the sought information cannot be provided.

Among the contingencies that hinder professionals from providing an answer in this setting (such as restrictions imposed by the ultrasound equipment and restricted epistemic access), there is the fact that some information requests are upfronted, *i.e.*, they are produced *before* the professionals have been able to visually examine the matter inquired about, as **Excerpt 2** shows. Therefore, the claim in previous literature (Chazan, 2007; Mitchell, 2001; Taylor, 2008) that the number of questions that pregnant women ask 'hinders' the progress of fetal ultrasound exams cannot be sustained in the context investigated here. Instead, the source of the 'problem' might derive from the position (within the activity of scanning) in which requests are performed. When information requests are done too early in the scan, it becomes impossible for the professional to answer. To prevent inapposite allocation of requests in the interactions, ecographists could perhaps offer explanations about the overall structure of the scan at the beginning of the interaction, spelling out how the examination occurs along with its phases.

8. Final remarks

This paper, thus, joins this thematic issue on 'Conversation Analysis in Brazil and talk-in-interaction in Portuguese' by examining a still underexplored context in conversation analytic studies worldwide and lining up with other applied CA studies to health communication in the Brazilian scenario (see also Andrade, this issue). Beyond expanding the detailed description of how institutional talk in Brazilian Portuguese works, by addressing issues that are shown to be relevant to patients and health professionals in moderate- and high-risk fetal ultrasound interactions, this study offers insights with the potential of reaching the primary concern of CA *applied* to medical interactions: *i.e.*, "to educate physicians to provide more humane patient care" (Gill & Roberts, 2013, p. 576).

Besides observing medical interactional practices which can shed light on professionals' practice, these results might also potentially benefit patients. Previous interactional investigation of fetal ultrasound scans have shown that pregnant women tend to present their concerns as *reports*, an action which does not necessarily mobilize professionals' response (Nishizaka, 2010). In contrast, the data analyzed here disclose that, by raising concerns through worry-indicative information *requests*, pregnant women generate the sequential relevance for the professionals' responses, and thus are more successful in obtaining answers. Such a practice reveals patient agency in the context of obstetric ultrasound in moderate and high-risk pregnancy. Pregnant women in this context show not to depend solely on information volunteered by the health professionals. Instead, they skillfully manage to put their concerns forward and to mobilize doctors to deal with them.

[14] Alluding to Heritage and Robinson's (2006) concept of 'doctorable' concerns.
[15] "but the liquid is very good", Excerpt 2; and "the heart.DIM is pro↑portional", Excerpt 3a.

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APPENDIX

Transcript conventions

Participants' embodied conduct based on Mondada (2019)

+ + Descriptions of embodied conduct performed by the professionals are delimited between these symbols
--- indication of the activation and maintenance of certain embodied conduct
+---> The action described continues across subsequent lines
---->+ until the same symbol is reached.
>> The action described begins before the excerpt's beginning.
--->> The action described continues after the excerpt's end.

Jeffersonian (2004) Transcript Notation

Convention	Use
[text]	Indicates the start and end points of overlapping speech.
=	Indicates the break and subsequent continuation of a single utterance.
(# of seconds)	A number in parentheses indicates the time, in seconds, of a pause in speech.
(.)	A brief pause, usually less than 0.2 seconds.
. or down arrow	Indicates falling pitch or intonation.
? or up arrow	Indicates rising pitch or intonation.
,	Indicates a temporary rise or fall in intonation.
text-	Indicates an abrupt halt or interruption in utterance.
>text<	Indicates that the enclosed speech was delivered more rapidly than usual for the speaker.
<text>	Indicates that the enclosed speech was delivered more slowly than usual for the speaker.
◦	Indicates whisper, reduced volume, or quiet speech.
ALL CAPS	Indicates shouted or increased volume speech.
underline	Indicates the speaker is emphasizing or stressing the speech.
:::	Indicates prolongation of a sound.
hhh	Audible exhalation
.hhh	Audible inhalation
hhh	Laughter
(text)	Speech which is unclear or in doubt in the transcript.