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Configuring Presence in Simulated and Mobile Contexts

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Abstract

Following an action-based approach, we suggest that presence is actively constructed by participants in and through interaction with different communicative resources. We demonstrate that participants make presence relevant and consequential for each other through multiple means. We analyze the ways in which multimodal resources including gestures and prosody are used in interaction to mark parties' orientation to socially accomplished presence in two environments. First, we inspect how an imaginary plane is constructed in the 3-D simulator between the trainer and the trainee. Second, we discuss the properties of the emergency calls that make the need for help present to the call-taker/dispatcher, and how the oriented to presence of emergency is displayed by the call-taker/dispatcher. In all, we develop an action-based approach that can differentiate degrees of presence and their consequentiality for social agents.

Keywords--- 3D Air Traffic Control Simulator
Conversation Analysis, Contextual Configuration,
Emergency Communication, Imaginary Presence, Mobile
Presence

1. Introduction

We focus on the multimodal constitution of presence in social action and interaction. Already in 1992 Duranti and Goodwin [1] pointed out a need for a more dynamic view on the relationship between language and context. Through his notion of contextual configuration, Goodwin [2, 3] explores the way in which the social, cultural, material and sequential structures figure together in the organization of human action. We apply his work on the scrutiny of presence [4, 5, 6].

Goodwin defines contextual configuration as a local, interwoven set of language and material structures that frame social production of action and meaning. Through the focus on contextual configuration we can address the ways in which the current action is shaped by the actor's orientation to the surroundings. The contextual configuration is always dynamic; the shifting orientations change the resources available and transform the contextual configuration accordingly. As a

whole, this perspective opens up systematic study of the situated relationship between actor and context. It is also invaluable for the scrutiny of the uses of communicative media and technology as a salient aspect of social action [2]. This perspective can be applied to the study of the ways in which presence is accomplished by actors with the help of varying media and other semiotic resources.

Socially constructed presence can be relevant and consequential for social action. An actor can point the relevance of the presence of the person or the object for the ensuing action with the help of words or gestures. The recipient can then acknowledge and confirm the presence or let it pass and leave it unacknowledged. The relevant presence forms part of the taken-for-granted context for the interaction. Presence can further become consequential so that it recontextualizes the action in interaction so that parties' orientation to presence transforms what actually happens in interaction.

We will here apply this approach to the study of relevance and consequentiality of presence in two different contexts. We will first analyze the action formation in 3-D air traffic tower environment between a trainer and a trainee. We pay particular attention to the creation of "virtual plane" with the help of gestures and proxemics. In a videotaped instance of action, a virtual plane is created and made a tool for a pedagogic action in teaching planning of air traffic. The presence of imagined plane is created by multimodal means incorporating physical action to the semiotic resources of the 3-D simulator that has created a virtual space to which a virtual plane is set. In a sense, there is virtual object in virtual environment – a simulated object in a simulated environment. (i.e., not there, but presented as if it was...)

As a second case, we analyze the creation of need for help in the emergency call. We study the role of situated graphic details as a way to convey the sense of need for help. The graphic details change the mode of interaction and make the need for help present, thereby shifting the ongoing action opening up a new action trajectory allowing parties to depart start the cooperation for the dispatch of help.

2. Imaginary presence

In this section we consider how meaningful actions and presence are constructed in and through embodied multimodal interaction in an instructional setting. Particularly, we

investigate how participants, a trainer and a trainee, use gestures, body and material environment incorporating them to their verbal actions in order to make sense of the ongoing action and to guide each others to mark relevant real or imaginary present features. Gestures and proxemics provide cues for participants to structure the interaction and make visible features of the surroundings relevant and consequential for them.

The data analysis is motivated to look for such moments and sequences of pedagogical interaction where gestures seemingly contribute to the creation of sensible action as a form of presence. Particularly, the focus was on the sequences where *seeing* of something in the environment came crucial and consequential for the following actions. In such situations gestures of pointing and gazing were used as a core embodied resources with which actions produced in the level of talk were augmented, specified or even compensated and thereby they came as a focus of the analysis. Gestures are interpretative resources that provide cues about the status of presence. In all, three different types of pointing was identified 1) referential 2) imaginary creation 3) reminder. Here we focus on imaginary creation, in which a virtual object is made present, relevant and consequential for the pedagogic action.

Imaginary representations are complex social artifacts that rely on the use of a large array of social and semiotic resources,

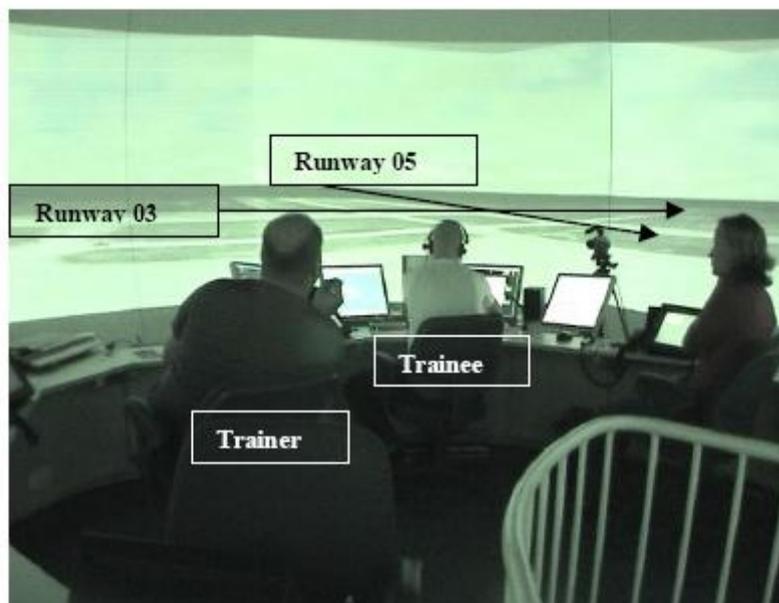
part of which derive from the technical 3-D environment. Apart from pure referential and usually singular pointing gestures that both the trainee and the trainer produce, a pointing gesture may be built up with several points that are in relation to each other. These pointings toward virtual environment do not though refer to actual objects (i.e. aircraft) in the airspace, but the ones that potentially will be in the pointed direction in the near future. In other words, in this category of points the referent is imagined and simulated, since it is not (yet) visible in the virtual space toward which the gesture is projected. However, the presence of referred object is made relevant for the ongoing action and consequential to subsequent actions by the participants. **Hence, the object (plane) is virtual, but present from the point of you of actions that participants take.** Following data extract depicts the type of points that contribute to the creation of imaginary presence of an object.

In the data example, an aircraft called Alfa zero one (A01) is going to land soon via runway zero five (05). In order to accelerate the use of the prior runway zero three (03) the trainer gives an advice to the trainee to extend plane's future landing point so that it crosses the prior runway smoothly without a delay. As a response the trainee delivers instructions to the aircraft A01 about its new, extended landing fix on the runway.

Extract 1, Touchdown point

ATCtraining_simu_130906_track07.avi; time 12:50

Description of the setting:



Abbreviations used in transcription:

TE= trainee

TR= trainer

A01= aircraft

text= duration of the gesture
illustrated in pictures

Transcription:

1 TE: ahhh
ähhh

2 (1.8)



① TR points to the simulation screen

3 TR: .hh °and° >there when it's landing ① over there
.hh °sit° >tossa ku se laskeutuu< ① tohon,

4 TR: (0.8) here it's better if you stretch
(0.8) tä(ä)llä niin kannattaa vetää se



② TR: moves the pointer to the right
TE gazes at strip board then simulation screen

③ Moving hand has reached its peak
TE's gazes follows

5 TR: ② the touchdown point a little ③ further here (.) so it['s
② laskeutumispiste tänne vähä ③ kauemmaks (.)°et s'[on,°
6 TE: [Yeah.
[Joo.



⑥ TR repeats back and forth movement on the screen
TE gazes at the strip board

- 11 TR: ⑥ =normally when it la[nds,
⑥ =normaalisti ku se la[skeutuu,
- 12 TE: [Alfa zero one, vacate runway
(0.6) zero five via (0.7) zulu one.
- 13 (1.5)
- 14 A01: Vacate runway zero five, (.) via zulu one.(0.5) alfa zero
one.

The conversation sequence illustrated above concerns the future touchdown point of a plane called Alfa zero one, which is coming to land soon. The very landing comes a topic of the conversation launched by the trainer when he utters “hh and there when it’s landing over there” in line 3.. While the trainer utters the words “over there (0.8) here” he starts a pointing gesture accomplished by laser pointer and directs and holds it toward the simulator screen (l. 3-4). The pointing is anchored to the certain spot in the simulation screen, namely to the route that the plane is coming to land creating presence for the imaginary plane in a virtual 3D space . At the time of the landing the plane will use the cross runway. This is rather exceptional procedure, since there is another runway for prior use. Thus, just a verbal description of the landing route incorporated to a pointing gesture suffice as a resource for them both to understand the referent of the talk. Trainer’s instruction on the management of the plane’s future landing continues in line 5, when he assists the trainee to guide the aircraft to extend its touchdown point on the runway. Simultaneously as the trainer utters the words “the touchdown point a little fur(her)” his hand makes a moving gesture to the right. The light spot of the laser pointer on the screen not only illustrates appropriate future landing spot for the plane but the wished future

movement of that plane. Trainee’s gaze is fixed at the strip board until the trainer says “touchdown point” and from there gaze follows the maneuver of the hand. The trainee confirms receiving and understanding the given instructions by overlapping follow up move, which he emphasizes with a nodding gesture.

In line 7 the trainer starts another pointing gesture on the screen and holds it during his whole next turn in line 8 (“Otherwise it is going to stop <there.>”). By his verbal somewhat contrastive declaration highlighted with a pointing he is able to represent possible not so desirable futures; the possibility that the aircraft descends behind the prior runway and causes delay on traffic management. The trainee follows the pointing with his gaze until the uttered word “stop” and turns his glance down to the strip board. The trainer continues the verbal declaration of the plane’s normal landing maneuver simultaneously sketching the movement of the plane with back and forth gesture accomplished with laser pointer on the screen (l. 10-11). It seems as if the movement of the pointer completed trainer’s clause that remains grammatically unfinished in line 10.

What the pointing gesture is replacing here is the idea of the newly landed plane moving across the prior runway which

in trainer's words *takes a hell of a long time* and then again this comes problematic in terms of fluent traffic management. He is then contributing reasons for taking certain actions to prevent the described situation. The creation of presence of the imaginary plane has been contributing to the pedagogical action. The trainer further repeats back and forth pointing movement on the screen synchronized with the talk "normally when it la[nds]" in line 11. All this time the trainee has gazed at the strip board, not the simulation screen where points appear. The trainee interprets that trainer's turn has come to its end and uptake the turn with overlapping talk in line 12. He starts to deliver taxing instructions to Alfa zero one (A01) ordering the plane leave the runway (05) via zulu one which locates behind the intersection of the two runways. This is exactly the way the trainee is able to solve a potential problem in runway use. This shows that the constructed presence of the imaginary plane has been consequential for the trainee's learning in practice. With this new target fix (Z1) the plane crosses the prior runway already in the air while it is landing and a rather slow ground roll across the prior runway can be prevented.

In the extract, pointing gesture works as a resource for spatial representation where the object of the description is imaginary since the plane is not yet there. However the preense of the plane is made relevant by highlighting certain features of the selected object. By creating a imaginary representation of an object the trainer can make a referent available and visible to other simultaneously as he projects potential changes in the air traffic. It is right here and now where potential problems in future air traffic management can be prevented. Hence, creation of imaginary presence of an object comes relevant and consequential for the action management and ordering. By imaginary creation the trainer is able to depict potential scenarios of the constantly changing air traffic situation and redirect trainee to react to these scenarios in a appropriate fashion.

3. Consequentiality of presence in emergency calls

It has already been pointed that mobile technologies afford new possibilities for people to act in the course of their

Extract 2, Man fell down p_113. IKOS 6.9.2006, 02:02.9

E= Emergency centre operator, C= client; caller (lines 1-51/130)

1. E: <Hätä>keskus:
<Emergency> centre:.

2. (0.2)

3. C: Ja (.) Tapani Lehikoinen päiväähh. .hhh
And (.) Tapani Lehikoinen hellohh. .hhh

spatiotemporally organized everyday life routines [7, 8, 9, 10, 11]. Notions like the third space or interspace aim at capturing the specificity of mobile action in time-space, and particular forms of mobile social presence. Mobile contextual configuration is a particular form of presence that arises out of a special kind of relationship to semiotic resources that affords a set of conditions for the emerging social action. Mobile communication provides contact between distant parties who are not limited to definite locations or stationary positions. Mobile contextual configuration allows communication between two (or more) potentially mobile actors. It forms a heterotopia, in which resources from distinct spatial settings become present, bringing together practical and symbolic elements from those settings [2]. Distant parties can join together through mobile channels and realize a joint action or project that simultaneously makes consequential semiotic resources from multiple settings. This heterotopic mobility allows a shift of focus between co-located semiotic fields and actions, and joint action with the distant party so that the relevance and consequentiality of presence of different parties varies in the course of mobile communication.

For instance, mobile messages and talk can be appropriated as a part of local interaction and mobile communication can be shared by taking turns in talking on a mobile phone between group members, or sharing text messages within a group [12]. The accomplishment of mobile action, however, requires the party to make the relevant frame of action and its changes recognizable so that the distant party can follow communication and understand "why that now" [13]. The heterotopic elements that display changes of framing of action can be found in mobile talk.

We will here address the issue of how emergency is made relevant and consequential for the operator in the course of a SOS call. The intermingling of semiotic resources is used for making relevant the emergency of the situation. In this case, the presence of emergency remains low until line 15 where the caller starts to change the frame of action from locating incident to describing the nature of the emergency. The call then proceeds routinely until line 21, where the caller utters "There's blood coming out of mouth". This graphic detail makes then the emergency present for the operator.

4. E: Päivää?
Hello?

5. (0.2)

6. C: <Jokioisille,>
<to Jokioinen,>

7. (.)

8. C: Leppävaarantie (.) kaheksan kaks, (0.2) ambulanssi.
Alderhill road (.) eighty two, (0.2) ambulance.

9. (.)

10.E: >Elikkä ↑Kylmäkos[°]ki.[°]
>That is ↑Kylmäkos[°]ki.[°]

11.C: Kylmäkoski.=

13.E: =Joo.
PRT
=Yes.

14. (0.6)

15.C: Mies tippu-hhh (.) tapuli-n pää-l[°]tä.[°]
Man fell downhh (.) from top of a sta[°]ck.[°]

16.E: =Joo-oh?
PRT
=Yes?

17. (1.2) ((breaths))

18.C: (([]))

19.E: [hrry [krhymmhh ((clears throat))

20. (.)

21.->C:>Verta< tulee suus[°]ta.[°]

At line 16 the operator responds with a minimal “yes?” [joo-o?] to the caller’s initial description of the emergency. The operator’s minimal response shows that he was starting to orient to the presence of emergency. The minimal information uptake did not however display any orientation to action. The presence of emergency was made relevant but not yet consequential for the further action. Instead there was space for the caller to make the emergency more present via contextual details of the incident.

At line 21, the caller describes the patient’s condition through a graphically detailed description “There’s blood coming out of mouth”. This description leans on the caller’s environmental resources and tries to bring something into the shared interactional space which is not directly available for the operator. The long pause emerges, when the operator orients to the potentiality of further relevant details of the presence of the emergency. After the pause, the operator displays that he has accepted the consequentiality of the emergence and he moves on to start writing down the address details to dispatch help. Paradoxically long pauses emerge when the call in fact moves on the action state, where the operator starts preparing the dispatching of help. Finally, from line 29 to 31 the high status

There’s >blood< coming from his mout[°]th.[°]

22. (3.2) ((C breaths))

**23.E: m:i- (0.2) Mikäs se on tota, (.)[°]>mä pistän;[°]
wha:- (0.2) >What is it erm,< (.)[°]>I put,[°]**

24. (1.2)

25.E: <[°]Jokioi[°]nen::hh? >

26. (1.0)

27.E: [°]#Joo:-o#?[°]

28. (0.6)

29.E: #Ja # (.) #ö# (0.4) >katuosote o-n,<
#And# (.) #ö# (0.4) >streetaddress is, <

30. (0.4)

31.C: Leppävaarantie (0.2) kahdeksan kaks.
Alderhill road (0.2) eight two.

32. (0.6)

of presence, which was accomplished by participants earlier, becomes consequential for the action in this sequence.

The change in the mode of communication is perspicuous. Before the graphic detail was told, the presence of the emergency was low and the operator oriented only to receiving further information, the status of emergency was weak; nothing indicated urgency, and the presence of emergency was not yet consequential for action. The graphic detail provided basis for a redirection of social action. It provided the presence of urgency that became consequential for the social action. In this way, we can notice that parties can orient to different degrees of presence. Though the caller was present to the call-taker from the beginning of the call, the caller had succeeded only establishing a routine relationship with the call-taker. The graphic detail shifted the relationship so that the emergency was made relevant and consequential. The presence of suffering had been established in a manner that was consequential for the dispatch of help.

In all, we can notice that parties can orient to different degrees of presence. The changes in the frame of action or the direction of communication may alter the status of presence for the participants. Furthermore, the presence has to be communicated and collaboratively achieved before it can become consequential for social action. The consequentiality of

the presence can be achieved only with the help of the concurrent high status of presence, when parties share understanding of the relevance of presence for the current and the subsequent action.

Discussion

Gestures, proxemics and properties of talk, such as lexical choices and prosody, can foreground aspects or entities as relevant for the current constitution of action, and simultaneously relegate other features to the background. Social action is always embedded in its spatio-material environment, deploying a multitude of socio-semiotic structures. This action based approach can also be applied to the study of presence.

Also presence is a socially achieved state that is accomplished via talk, gestures and proxemics. Presence will be achieved by foregrounding aspects or entities as relevant for the current constitution of action. Presence is thus thoroughly a social entity, and its existence does not as such depend on the ontological status of features that are made present for parties. Nonetheless, parties in interaction show in situ for each other how they there and then orient to presence, and whether and to which degree the presence is relevant and consequential for their social actions. In its socio-interactive existence presence is objective, observable and analyzable.

We have thus shown that presence does have degrees for participants. The parties have to first display their orientations to the presence. Through parties' orientation the presence becomes established relevant for the ongoing social action. The relevant presence is not yet necessarily consequential for the action. The consequentiality of presence has to be established separately with the help of a selected set of socio-semiotic resources that may lean on available technical resources. The consequential presence recontextualizes the social action as a part of the contextual configuration of social action. The consequential presence thus reshapes social action. Among others, the consequential presence can contribute to the formation of pedagogical action, as in our case of 3D air traffic control simulator, or in the establishment of emergency in the SOS call.

We will continue working on the detailed analysis of action formation, and pay attention to the techniques with the help of which the presence of objects is established for social agents. We note that both real and virtual objects have to be constructed to become relevant and consequential for the social agents. Further, we pay attention to the methods the participants can use to display the relevance and

consequentiality of presence for them and for the ongoing actions. The salience of action-based approach for the study of presents merits still further development.

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References

- [1] A. Duranti, C. Goodwin. *Rethinking Context: Language as an Interactive Phenomenon*. Cambridge: Cambridge University Press. 1992.
- [2] C. Goodwin. Action and embodiment within situated human interaction. *Journal of Pragmatics*, 32, 1489-1522. 2000.
- [3] C. Goodwin. Participation, stance and affect. *Discourse & Society*, 18, 53-73. 2007.
- [4] F. Scarpetta. Practices to display social presence: A study in a shared mediated environment. *PsychNology*, 6, 27-59. 2008.
- [5] A. Spagnoli, L. Gamberini. A place for presence. Understanding the human involvement in mediated interactive environments. *PsychNology*, 3, 6-15. 2005.
- [6] F. Biocca, C. Harms, J. K. Burgoon. Toward a more robust theory and measure of social presence: Review and suggested criteria. *Presence*, 12, 456-480. 2003.
- [7] A. Weilenmann. "I can't talk now, I'm in fitting room": Availability and location in mobile phone conversations. *Environment and Planning*, 35, 1589 – 1605. 2003.
- [8] I. Arminen. Social functions of location in mobile telephony. *Personal and Ubiquitous Computing*, 10, 319-323. 2006.
- [9] I. Arminen. Mobile time-space arena for new kinds of social actions. *Mobile Communication Research Annual*, 1, 89-108. 2007.
- [10] I. Arminen. Mobile communication society? *Acta sociologica*, 50, 431-437. 2007.
- [11] I. Arminen, A. Weilenmann. Mobile presence and intimacy – reshaping of social actions in mobile contextual configuration. *Journal of Pragmatics* [in press]. 2009.
- [12] A. Weilenmann, C. Larsson. Local use and sharing of mobile phones. In: B., Brown, N., Green, R. Harper (Eds.) *Wireless World: Social and Interactive Aspects of the Mobile Age*. London: Springer Verlag. pp. 92-107. 2002.
- [13] J. Cromdal, K. Osvaldsson, D. Persson-Thunqvist. Context that matters: Producing “thick-enough descriptions” in initial emergency reports. *Journal of pragmatics*, 40, 927–959. 2008.