EXPERIMENTAL AND PHENOMENOLOGICAL APPROACH TO DELAYS EFFECTS ON THE SENSE OF PRESENCE DURING A SOCIAL INTERACTION

Gaëlle GARIBALDI, Gunnar DECLERCK, Charles LENAY, Dominique AUBERT

utc Recherche
Costech
SORBONNE UNIVERSITES

BACKGROUND

ISPR : sense of presence as « *sense of being there* », « *we are together* », « *it is there* », in a "*real time experience*"

But **delays** remind the mediated aspect, and can impact the experience of a remote presence : *how do they affect the sense of presence* ?

Phenomenological issues

What does the Husserlian distinction between **presentation** and **representation** mean in the light of technical mediations ?

What is the role of **temporality**, and how Husserl's **retention-protention** can help to think the dynamic dimension of presence ?

• **Situated and embodied cognition :** organism-environment coupling through sensorimotor contingencies laws (Varela et al., 1993; O'Regan & Noë, 2001; Lenay, 2006)

▸ Association of a **perceptive field** with a **body-object**

• **Perceptual Crossing** (Auvray et al., 2009): mutual perception of perceptive activities during an interaction and **reciprocal awareness of being present for the other**

• **Synchronization** and **coordination** of actions as "proto-conversation" (Tomasello et al., 2005) through *highly dynamical processes* (Lenay et al., 2003; Murray & Trevarthen, 1985)

Hypothesis : The sense of presence (the experience of the other as being there "in person") emerges through the kind of perceptual activity deployed when we are confronted to another intentional activity, with a **constitutive reciprocity**

Delays will impact the sense of presence when they modify/prevent this type of interaction by disturbing the ability to perceive *the other's intentional activity*

METHODS

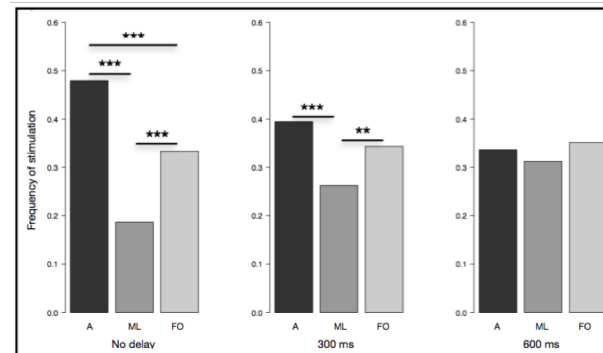Perceptual Crossing paradigm in minimalist conditions
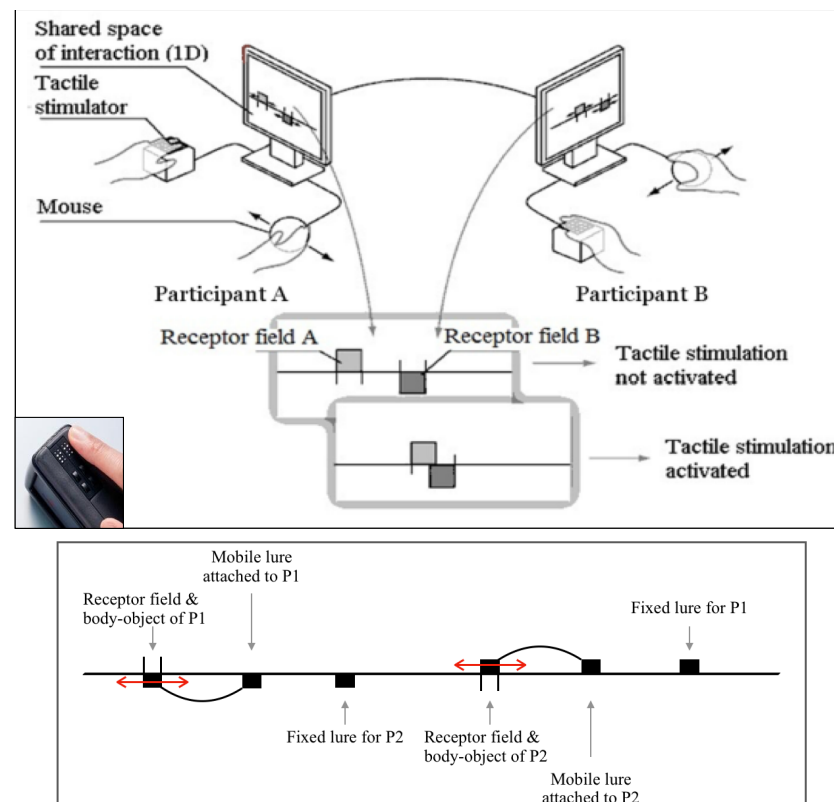
TASK

Discriminate and click on the other's avatar (A), avoiding the mobile lure (ML) and the fixed object (FO)

Participants : 28 students in pairs (13 girls and 15 boys) from 21 to 25 years-old
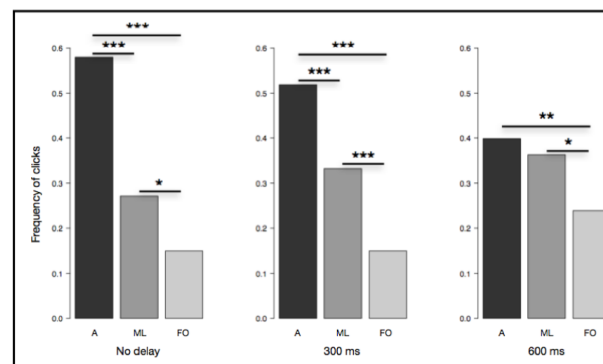
RESULTS

• **No delay :**
More stimulated by the other's avatar and more clicks on it

• **300 ms :**
Less stimulated by the avatar and more by the mobile lure, but still more clicks on the avatar

• **600 ms :**
No differences in stimulations between the 3 objects, but difference between clicks on moving objects and fixed objects

**Still discrimination mobile/ static object in 600 ms:**
depends on stimulations' dynamics, on qualitative properties

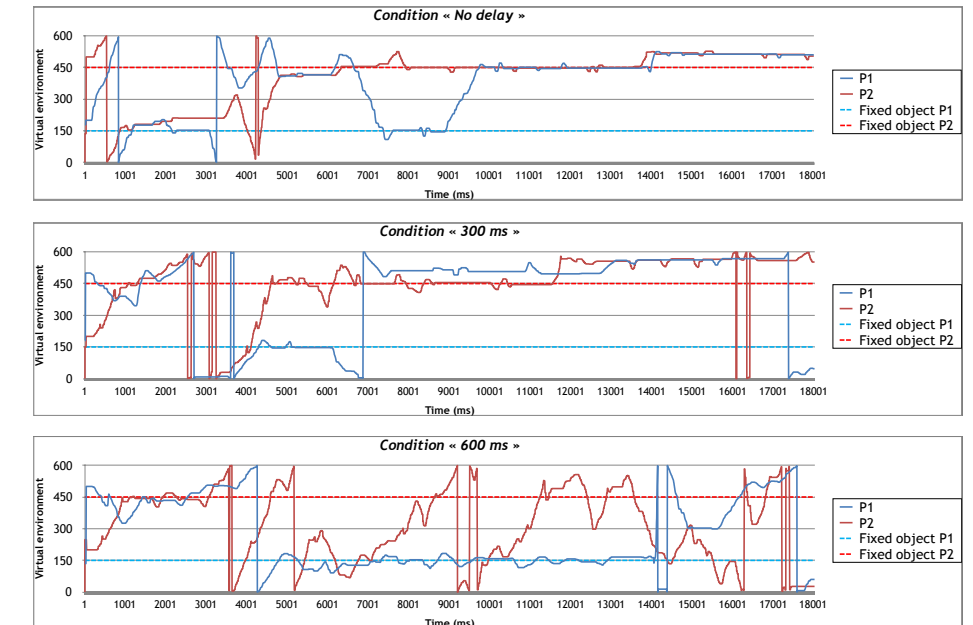**Increasing difficulties in stabilizing a Perceptual Crossing :**
uneasy to discriminate the other as being intentional, and to perceive the specific dynamics of a reciprocity

Answers to questionnaires :
impression of changes in the objects and environment sizes, sense of loneliness or disappearance of the other participant
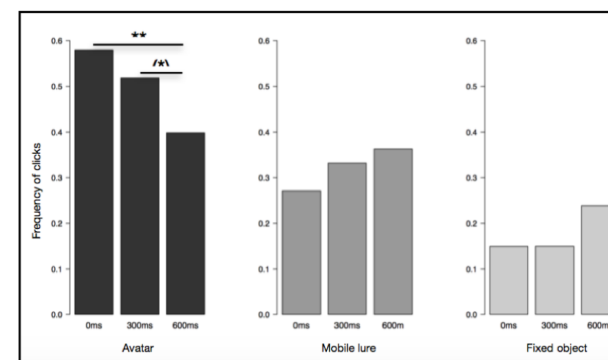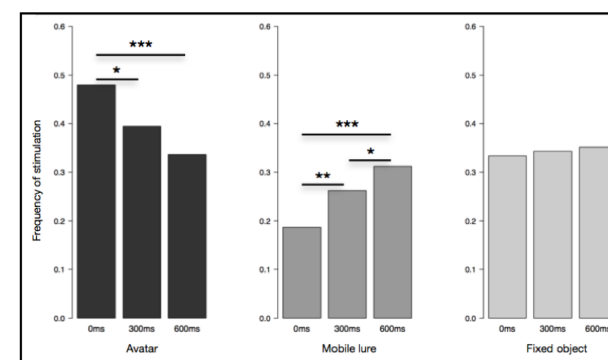
Perceptual trajectories

CONCLUSIONS

➡ **Invariants in sensory-motor cycles,** and not in the sensorial information, that enable to make sense of the sensations :
▸ **temporality of actions in the physical world** must be related to **temporality of avatars in the virtual environment** in order to create a dynamic *turn-taking* strategy constitutive of the *intersubjective experience* (Kojima et al., 2017)

➡ The **retention-protention process** is useful to think temporality of perceived sensations as constitutive of the object's properties (its *phenomenality*) :
▸ time delays have an impact on the phenomenalization of the other as another intentional subject, a *body acted by a subjectivity*

◉ Delays = **no more co-functioning** (Merleau-Ponty, 1964), but **rivalry** (Sartre, 1943) ;
The delay affects more the perception of the presence of others than objects.

Sense of presence through the perception of a phenomenon as **the trace of the other's presence**, and not only the presence of its trace.

Future work

Effects of the time delays' nature (delay on stimulation, action or transmission of information) depending on the nature of the presence (static, mobile or intentional).