

# Informing the Design of Deictic Behaviors of a Web Agent with Spoken and Sign Language Video Data

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Deixis refers to linguistic features that relate utterances to the circumstances of space and time in which they occur. Pointing gestures are regarded as indicating an object, a location or a direction, which is discovered by projecting a straight line from the furthest point of the body part that has been extended outward, into the space that extends beyond the speaker [1]. Pointing show complex relations between multiple modalities such as gaze, hand, torso orientation and language [2]. The form of pointing adopted provides information about how the speaker wishes the object being indicated to be regarded [1]. Few virtual agents endowed with deictic capabilities [3-5] have been designed from experimental data collected with the target application. Furthermore, few studies have compared deixis in speaking and signing users [6]. In this paper we focus on the specification of deictic behaviors to be displayed by speaking and signing web agents during a presentation task. A video corpus was collected in the context of the target application in order to study the deictic behaviors in both vocal and signed languages. We also describe the DIVA web agents that we use for web based presentations.

## 1 Collecting Video Data about Spoken and Signed Deictics

In order to compare spoken and signed deictic on the same application, one speaking subject and one signing subject were videotaped by 2 cameras while presenting a schema displayed on the wall (Fig. 1). They were asked questions eliciting deictic behaviors such as “Show me the teams of the department”. Preliminary analyses of the collected data revealed that simple deictics show some similarities between speaking and signing subjects. Yet, some differences are observed for complex deictics, such as the use of the dominated hand for the signing subject.

## 2 Deictic Behaviors in the DIVA Web Agents

The collected data can be used to specify deictic behaviors in web based presentation agents. DIVA stands for DOM Integrated Virtual Agents. DIVA agents are integrated with the DOM (Document Object Model) tree structure of web pages. The objectives are: 1) an open programming framework for easy development of new experimental

