

...evidence of the ways in which language and culture embody spatial frames of reference has also been found in studies linking gesture and conceptual metaphor. In Indo-European languages such as English and Spanish, time is typically conceptualized using two basic TIME IS SPACE metaphors—one in which the observer stands still while times pass by (e.g., “The end of the year is *coming up* on us soon”; and another in which the observer is moving through a landscape of times (e.g., “We’re *coming up* on the end of the year”) (Lakoff & Johnson 1980, 1999). However, in both metaphor systems the observer faces the future, while the past is behind the observer. Núñez and Sweetser (2006) have shown that for speakers of Aymara, who almost exclusively use a stationary version of the TIME IS SPACE metaphor, the past is in front and the future comes from behind. In Aymara, the orientation of the spatial frame of reference is reversed. Using videotaped interviews with bilingual Spanish and Aymara speakers both recounting Aymara legends and talking about their own communities’ immediate future, they demonstrate how speakers gesture to areas in front of them when referring to the past, while gesturing to future events with over the shoulder motions. Furthermore, the gestures reveal that more recent past events are closer to the speaker’s point of view than events in the more distant past. For example, as he contrasts ancient times with current events, an informant gestures by pointing outward and upward as opposed to pointing four times closer to his body. Together with their linguistic research on the Aymara conceptual metaphors for time, the Núñez and Sweetser research shows that the Aymara map the temporal frame of reference onto a viewer-centred frame of reference in an inverse direction to that found in English or Spanish.