has been suggested that more expansive gestures may be perceived as more prominent, and that this may lead to the idea that certain cultures gesture more than others (Müller 1998; Kita 2009; and see Kendon 2004b for methodological consideration of assessing gesture rates).

Many factors may be responsible for the described differences. Kendon (2004a; 2004b) suggests that the 'communicative ecology' of a given culture has to be taken into account to understand the cross-cultural differences.

6.3.1 Linguistic diversity

There are cross-cultural differences in what kind of information speakers of different languages express in speech and gesture when talking about the same event. In Japanese, for example, the action of swinging cannot easily be expressed in one word as in English. Speakers often use simple verbs like 'go' that do not encode the arc trajectory of the motion. When Japanese speakers describe a swing event they could, in theory, compensate in gesture for this lack of information in their vocabulary by displaying the arc trajectory visually. While Japanese speakers combined speech and gesture in this way, Kita and Özyürek (2003) also found a tendency for them to actually perform gestures that move in a straight line. English speakers, in contrast, who can readily express the shape of the trajectory with the word *swing*, also depict the arc trajectory in their gestures. So gesture does not always compensate for, but often parallels, linguistic
p. 156 packaging. This suggests that ↳ the form of the gesture can be influenced by the way information is expressed in a specific language.

The same seems to be true for syntactic structuring (Kita et al. 2007). In Turkish, the way an object moves (manner) and the path of motion are usually expressed in two separate clauses. When Turkish speakers express how something rolled down a hill, they make a rotating movement when they say 'it rolled', followed by a straight, slightly downward movement as they say and 'it went down'. In contrast, English speakers mostly conflate manner and path information in one gesture by making a rotational movement downwards while they say *it rolled down*. The information expressed in gesture is adapted to the way information is expressed in a specific language.

Kita (2009) suggests that these differences are a reflection of diversity in 'thinking-for-speaking' (Slobin 1996). It appears that certain aspects of linguistic typology in sentence packaging and lexicalization may have consequences for the structure of co-speech gesture.

6.3.2 Cognitive diversity

There are cross-cultural differences in how spatial information is conceptualized and expressed, and this kind of cognitive diversity is also reflected in gesture. When speakers express location and directions, they differ in how they anchor spatial relationships (Levinson and Wilkins 2006). Guugu Yimithirr speakers of Hopevale in Queensland anchor spatial relationships at all levels of scale with regard to the cardinal directions. Haviland (1993) reports two instances in which a Guugu Yimithirr speaker is describing how his boat flipped in a storm. The first time he is facing west. While he says, 'The boat was lifted up and starting to turn', he brings up his arms with the palms facing him and rotates them in a flipping motion forward from east to west. Two years later the speaker tells the same story in a different location facing north. He brings up his hands with the palms facing each other and rotates them again in a flipping motion from east to west (clockwise). The directionality of the flipping motion matched the absolute orientation of the incident, and the speaker modified his gesture to preserve the absolute orientation of the turning of the boat.

There are also cross-cultural differences in how an abstract concept like time is represented in gesture. Time tends to be represented in concrete spatial terms. So concepts like past and future are expressed in English