Children with severe cerebral palsy, i.e. non-speaking children with severely limited mobility, are restricted in many domains involved in the acquisition of language. This thesis describes the development and application of a specifically developed ‘Computer-based instrument for Low motor Language Testing’ (C-BiLLT) in order to reliably assess comprehension of spoken language in non-speaking children with severe cerebral palsy. Using the C-BiLLT, we investigated the relation between spoken language comprehension and motor type of cerebral palsy, MRI pattern and severity of brain lesions in children with severe cerebral palsy.