INTRODUCTION

Recent typological and crosslinguistic research has shown the need to place linguistic diversity at center stage in order to better understand the nature of the relationship between language and cognition (4) in normal as well as in pathological states. For instance, in the domain of space, languages are found to encode lexical and syntactic structures in strikingly different ways (2). With respect to the expression of motion languages are classified into: those expressing Manner in verb roots and Path in satellites (e.g., English: The mouse climbs up the tree to reach the cheese); and those lexicalizing Path in the verb leaving Manner implicit or peripheral (e.g., French: La souris monte sur le piédestal [en anglais: The mouse climbs up the step to reach the cheese]). Such typological properties strongly constrain the way in which speakers choose to encode in discourse different motion components (Path/Manner), thus raising questions concerning the relation between language and thought (3).

Recent research indicates that such language-specific properties not only constrain how speakers of different languages verbalize (4), but also how they represent motion beyond language use (5). Furthermore, it is suggested that such typological constraints have strong implications for the symptomatology of speakers with aphasia, who typically show lexical/syntactic dissociations (6-7). Despite a few crosslinguistic studies of aphasia (8-9), little is still known about universal vs. language-specific aspects of aphasia in language use and beyond (10).

The present study aims to determine the role of typological (language-related) vs. language-independent (universal/ syndrome-related) factors for cognition, in accounting for similarities and differences in the verbalizations, and the visual attention patterns of speakers with agrammatism (SWA) and controls (CS). More specifically, we are interested in investigating whether such language-specific factors can influence how different populations of typically distinct languages encode motion events and allocate visual attention when constructing their spatial representations.

METHOD

Experimental procedure

To maximize the relative role of language-independent and language-specific factors, we compared how several groups of speakers described motion events in a Production task involving animated cartoons presented visually (see Figure 1), coupled with an eye-tracking paradigm: English and French controls (N=40), English and French speakers with agrammatism (N=2). After they saw each stimulus, participants were asked to describe what had happened in the cartoon clips. The analysis examined the type of expression employed (Manner or Path), the linguistic means used (verbs (V) or other devices (OTH)), and the eye fixations to specific areas of interest in the clips (Aoi: Source (S), Goal (G), Path (P) and Manner (PM)).

RESULTS

Verbal measures:

French CS: Mainly one component information expressed:

• Path in the verb and no other information in the periphery. Some utterances contain no spatial information at all (SD0).

English CS: Systematically both Path and Manner expressed in the utterances. Typical pattern: M in the Verb, P or in Other Devices.

French SWA: Mainly one information expressed:

• Path in the verb and no other information in the periphery. Some utterances contain no spatial information at all (SD0).

English SWA: Mainly utterances expressing one component, in contrast to the typical pattern. Manner or Path in the verb or either only Path or no information at all in other devices.

DISCUSSION

• Verbal measurements: overall crosslinguistic differences in the structures used by controls resulting in more semantic density in English (Manner verbs with Path adjuncts) than in French (Path verbs, infrequent Manner/speece fig. 2).

• Speakers with aphasia: expressed less information in motion and lexicalized mostly Path/zero-component verbs without morphology in French (e.g. infinitive forms: c’est venir/tare role), is to ‘come- to do’/table) and in English: Path/goal adjuncts (down, top) without verbs; only Manner or only Path verbs mostly without tensed auxiliaries (running).

Qualitative comparisons: different compensatory strategies beyond apparent similarities. Both SWA preferred to produce simple utterances with low semantic density. They committed omissions for simplification, and relied on the universal component (Path) to some extent in both their verbalizations and fixations. However, omissions depended on the language spoken: more striking in French with the use of light verbs in order to avoid the lexicalization of any semantic information (e.g., faire douce gâuche ‘to do right left’, instead of traverser ‘to cross’), and the use of Path-only peripheral devices (top, down) in English with little M-verbs (see fig. 3).

• Eye-motion data: overall preference for Path, but significantly more and longer fixations on areas involving this component by the French participants as compared to the English controls. Participants with aphasia, as expected, follow the pattern of their respective language: less extensive Path fixations and linear processing of the events in English as compared to the French SWA pattern (see fig. 4 & 5).

Conclusion

• Typological factors constrain verbalizations in both language groups and in aphasia.

• Similarities between the two SWA groups for some involvement of language-independent factors (including syndrome-related) as well.

• Both language- and syndrome-related factors must be taken into account in aphasia research and in the study of the language-thought interface more generally as factors that can affect verbal and nonverbal performance, as well as compensatory strategies in significant ways.

Figure 1: upward motion event divided in different Aoi: Source (S), Goal (G), Path (P) and Manner (PM).