INTRODUCTION
Languages encode space onto lexical and syntactic structures in strikingly different ways [1]. 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 table to reach the cheese); and those localizing Path in the verb leaving Manner implicit or peripheral (e.g., French: Le souris monte sur le pied de la table [en courant]).

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 [2].

Recent research indicates that such language-specific properties not only constrain how speakers of different languages verbalize [3], but also how they represent motion beyond language use [4]. Other studies suggest that such typological constraints also affect the symptomatology of speakers with aphasia, who may show lexical/syntactic dissociations [5,6]. Despite a few crosslinguistic studies of aphasia (7,8), little is still known about universal vs. language-specific aspects of aphasia in language use and beyond [9].

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 behavioural response (i.e., verbalizations, eye-movements) of speakers with aphagmatism (SWA) and controls (CS).

More specifically, we are interested in investigating whether such language-specific factors can influence how different populations of typologically different languages encode motion events and allocate visual attention when constructing their spatial representations.

METHOD
Experimental procedure
To measure the relative role of language-independent and language-specific factors, the experiment was conducted in two 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 aphagmatism (SWA) and controls (CS).

In order to study whether such typological factors affect the localisation of speakers with aphasia, who may show lexical/syntactic dissociations [5,6]. Despite a few crosslinguistic studies of aphasia (7,8), little is still known about universal vs. language-specific aspects of aphasia in language use and beyond [9].

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Data coding procedure
The verbal data were transcribed in CHAT format (MacWhinney, 1995) and coded for semantic information, parts of speech, and utterance type. Data were coded with respect to semantic density (SD: the quantity of the information expressed in the utterances), pragmatic focus (Manner/Path information as identified in all parts of speech) and the eye fixations to specific areas of interest (AoI) of the clips: Manner (P+/M) vs. Path (P) areas.

RESULTS
French controls: Mainly one component expressed (SD1: fig.2), some Path/Manner encoding in the Verb (V), mostly Path in the Verb or in Other Devices (fig.3). Long Pfixations (fix. 6-9).

French agnamic: Some utterances with no spatial component expressed (SD0), but mainly one information expressed (SD1: fig.2): Path in the verb and no other information in the periphrasis (fig.3).

Expressive fixations going from Source to Goal several times (fig.4a). Long Path fixations (fix. 6-9). English agnamic: Mainly utterances expressing one component (SD1), in contrast to the typical pattern (fig.2). Manner or Path in the verb or either only Path or no information at all in other devices (fig.3). Linear fixations, following the performed motion, and both Path and Manner components equally (fig.4 & 6).

DISCUSSION
The results show:
- with respect to the 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).
- The speakers with aphasia expressed less information than controls. They mainly produced Path/zero-component verbs without morphology in French (e.g. definite forms as: the mouse to come to/to do table) and two patterns in English: Path/Goal adjuncts (down, top) without verbs; only Manner or only Path verbs mostly without tensed auxiliaries (running).
- With respect to the eye-movement data, we distinguish longer fixations on areas involving Manner or Path in English as speakers compared to the French controls.
- Participants with aphasia, however, seem to adapt the same global pattern of fixations: preference for Path overall and pick of Manner fixations between 2500 and 3000 milliseconds. Nevertheless, and despite the resemblances, French SWA’s Path fixations remained more extensive and of longer duration than the fixations of the English SWA.
- Finally, qualitative comparisons revealed different compensatory strategies beyond apparent similarities: both SWA preferred to express simple (Path) verbs with low semantic density. They both committed omissions, in order to simplify their responses, and relied on the universal constraint (Path) so as to extend the content of both their verbalizations and fixations. However, duration depended on the language spoken, analogous to French speakers with the use of light verbs in order to avoid the lexicalization of any semantic information (e.g., faire droite gauche ‘to do right left’, instead of traverser vers cross), and the use of Path-only peripheral devices (top down) in English with little Manner verbs.

In conclusion:
- Typological factors constrain verbalizations in both language groups and in aphasia.
- Similarities between the two SWA account for some involvement of language-independent factors (including syndrome-related).
- Both language- and syndrome-related factors must be taken into account in aphasia research and in the study of the language-thought interface in more generally as factors that affect (verbal and non-verbal) performance and compensatory strategies in significant ways.

REFERENCES

Figure 1. Example of an "upward" motion event stimulus, as divided in different areas of interest: Source (S), Goal (G), Path (P), and Manner (P+/M) AoI

Figure 2: Semantic density (SD) of the utterances

Figure 3: Information locus across populations

Figure 4: Gazepoint fixation of French (left), English (right-b)

Figure 5: Timeline of fixations: French (top), English (bottom)