VERBS OF MOTION AND SENTENCE PRODUCTION IN SECOND LANGUAGE

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The current study examines production of sentences in which verbs of motion were used. Participants that were either French or English native speakers produced sentences in their second language (L2). Importantly, English is said to be dominantly manner framed while French is dominantly path framed language. This means that in English verbs of motion mainly carry information about manner in which action is performed while path is described by the syntactic frame (e.g. John walked up the hill). In French verbs of motion describe the path of motion while the manner can be added by a prepositional phrase (e.g. John ascends the hill by walking). Sentence production was elicited using custom made pictures that showed the action and all arguments of the verb. The results indicated that speakers of either language use the structures of their first language to produce sentences in the second language. Because manner framed verbs are much more flexible in the type of syntactic frame they permit native English speakers were more successful in applying this strategy to French verbs. As path framed verbs are not as flexible French speakers made many errors trying to use English verbs as if they were path framed. In addition to the type of language another important characteristic for sentence production was animacy of the sentence subject.

Verbs are frequently examined in linguistic and psycholinguistic studies because of their syntactic complexity. They enter into complex relationships with other words in the sentence: each verb requires or permits the presence of other words called arguments. Therefore, it can be said that a verb determines the number and type of arguments within a verb phrase. For instance, the verb 'to give' requires a giver, a given, and a receiver and in order to have a grammatical sentence all three elements need to be present:

(1) I gave.*
(2) I gave a book.*
(3) I gave a book to John.

Additionally, verbs can have multiple meanings which are very often marked by a different argument realisation:

(4) John went home.
(5) The dinner went well.
(6) Pat went to school in Galway.

In the examples 4-6 verb 'to go' has different meanings: transition in space (4), unfolding of an event (5) and attendance (6). Given that verbs can have several meanings coupled with different argument realizations, the question is whether a separate lexical representation is needed for each meaning. In linguistics, to avoid having separate representation for each meaning a dichotomy of verb meaning was suggested proposing that the overall meaning of a verb is composed from its basic meaning (i.e. root) and an argument realization/syntactic frame (Levin & Rappaport Hovav, 2005; Goldberg, 2006). Examination of verbs and their argument realizations in English and French indicated that there are differences in pairings of

argument realizations and verbs between the two languages. For instance, while in English one could 'climb up/down' in French one can 'climb up', but has to 'descend':

(7) I climbed up the stairs
(8) I climbed down the stairs.
(9) J'ai monté les escaliers./(I climbed up the stairs)
(10) J'ai descendu les escaliers./(I 'descended' the stairs).

Talmy's typology of verbs of motion shows that verbs of motion tend to be either manner framed or path framed (Talmy, 1991). In manner framed structures, verbs of motion describe the manner of accomplishing the motion while the direction or path of action is added as a prepositional phrase (see 11). In the case of path framed structures, the verb gives the direction and the manner can optionally be added as an adverbial phrase (see 12). While English is dominantly manner framed French is dominantly path framed language. For instance, to describe the same event, the following realisation is used in French and English:

(11) Il va à l'école à pied./(He is going to school by foot)
(12) He is walking to school.

Studies of lexical representation of verbs in manner framed versus path framed languages indicated that monolingual speakers of manner framed languages represent manner and directed motion as a single conceptual event, while monolingual speakers of path framed languages represent events with minimal focus on manner of movement (Berman & Slobin, 1994; Slobin, 1996; 2000). However, not very much is known about lexical representation of verbs in bilingual speakers of manner and path languages (Pavlenko, 2005).

Having in mind above mentioned differences between French and English, the aim of the current study was to examine progress in learning verbs and their syntactic frames in L2. It was expected that the more advanced learners would have associated more verbs with compatible syntactic frames and therefore be more successful in sentence production. In addition, we compared the structure of incorrect sentence productions and the structure of syntactic frames that the same verb would have in L1.

Methodology

Participants

There were four groups of participants: (1) English native speakers with an upper intermediate level of French, (2) English native speakers with an advanced level of French, (3) French native speakers with an upper-intermediate level of English, (4) French native speakers with an advanced level of English. Each group included 10 participants whose proficiency level in the L2 corresponded to the levels defined by the Common European Framework of Reference for Languages: Learning, Teaching, Assessment (2001), i.e. B2 for upper-intermediate and C1 for advanced learners. Overall mean age was 29;8 years. All participants had spent some time in a country where the learned language was spoken.

Stimuli and procedure

Five verbs were selected in English (go, climb, play, pull, and jump) while to cover identical meanings six verbs were selected in French (aller, descendre, monter, jouer, tirer, sauter). Syntactic frames were selected for each verb and custom made pictures were produced to

represent all arguments of the selected syntactic frame. 38 pictures were constructed for each language and a further 15 pictures for practise trials. The verbs used in the practise session were not related to verbs used in the main part of the experiment. Participants were instructed in their L1 to describe presented pictures in L2 using a given verb which was named in L2. Previous to the experiment there was a practise session. In the main part of the experiment pictures were presented randomly. All sentence productions were recorded. In the end participants were asked to translate all sentences productions into L1 to ensure that they understood the pictures correctly.

Results

Results revealed that the English speakers were overall better able to produce correct sentences in L2 with a given verb than the French speakers [$F(1,39)= 29.096$, $p<0.001$ ($M_{fr}=0.37$; $M_{eng}=0.56$). In addition, L2 proficiency influenced accuracy in sentence production: advanced learners produced more correct sentences then learners with an upper-intermediate level [$F(1,39)=16.76$, $p<0.001$ ($M_{u-i}=0.39$; $M_{adv}=0.54$)]. Yet, there was a significant interaction between the language and the proficiency level [$F(1,39)=9.768$, $p<0.01$]. Post-hock analyses revealed significant difference in accuracy between the proficiency levels for English native speakers [$F(1,19)=22.16$, $p<0.001$ ($M_{u-i}=0.43$; $M_{adv}=0.69$)], but not for native speakers of French [$F(1,19)=0.57$, $p>1$ ($M_{u-i}=0.35$; $M_{adv}=0.39$)]. Further analyses indicated that the upper-intermediate learners of French and English were performing equally well: $F(1,19)=3.012$, $p>1$ ($M_{eng}=0.43$; $M_{fr}=0.35$). However, productions of advanced learners differed for the two languages: $F(1,19)=31.68$, $p<0.001$, ($M_{eng}=0.69$; $M_{fr}=0.39$).

In order to examine the source of the discrepancy in the performance of native speakers of English and native speakers of French difference in the production within the two levels of proficiency was analysed for each verb. Results indicated significant difference in production accuracy between native English speakers with upper-intermediate and advanced level of proficiency in French for all examined verbs (see Figure 1). However, for native speakers of French producing sentences in English difference between upper-intermediate and advance level of proficiency was significant for only 3 out of 5 verbs. A significant difference between the two levels of L2 proficiency was observed for verbs 'to go' [$F(1,18)=0.567$, $p<0.5$], 'to play' [$F(1,18)=1.433$, $p<0.5$], and 'to pull' [$F(1,18)=6.444$, $p<0.03$] while there was no significant difference for verbs 'to jump' [$F(1,18)=0$, $p>1$] and 'to climb' [$F(1,18)=0.053$, $p>1$] (see Figure 2).

In order to make sure that the native speakers of French who produced sentences in English as L2 understood the pictures and constructed sentences accordingly their translations of L2 sentences into L1 were analysed. It transpired that they had understood the pictures as well as the English speakers, but still had been unable to produce correct sentences in L2.

Discussion

Results revealed that L2 level of proficiency in French influenced sentence production while L2 proficiency in English influenced sentence production only for some verbs. In the case of two out of five presented verbs ('to jump' and 'to climb') proficiency level did not play a role in the sentence production. For English verb 'to jump', both upper-intermediate and advanced learners tended to use the same syntactic frame as for French verb 'sauter' (e.g. 'He is jumping above the pond' instead of 'He is jumping over the pond'). For the verb 'to climb'

participants relied on the same syntactic frame to describe different events. However, when translating those sentences into L1 they used altogether different verbs: 'monter (climb/go up)', 'grimper (climb up/creep up)', 'franchir (get over)', 'escalader (climb up/scale)', 'gravir (climb/mount)', 'aller en haut (go up)'. This tendency seems to show that L2 learners of English relied on the meaning of the verb rather than the meaning of the construction when trying to convey different meanings. They opted for use of specific verbs rather then modifying the meaning of a verb by combining it with a number of different syntactic frames. This tendency might have hindered their sentence production in English. Unlike French, English allows for extensive modification of verb meaning by compatible syntactic structures.
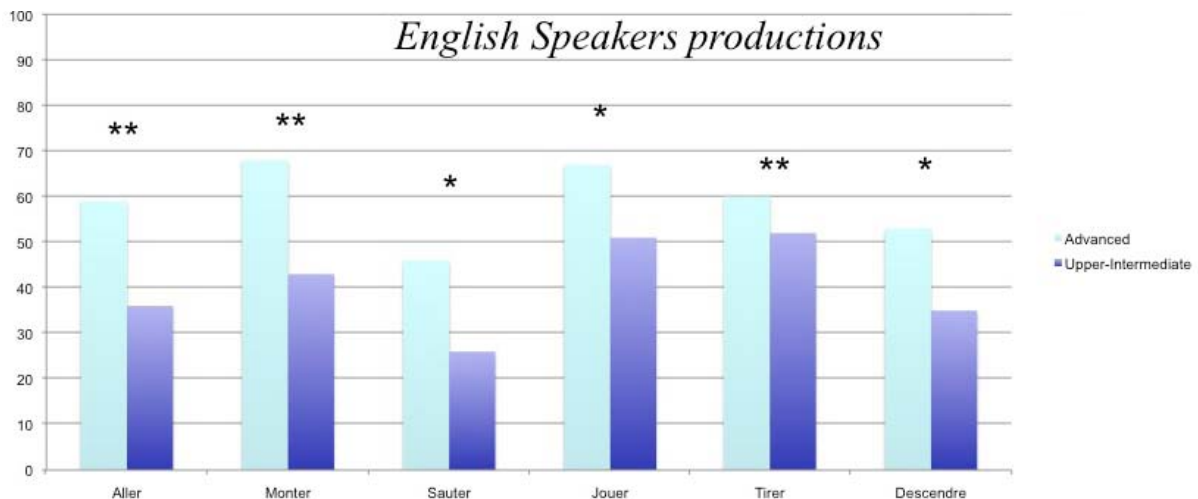

Figure 1: Percentage of correctly produced sentences in French by native speakers of English with upper-intermediate or advanced level of L2 (* p<0.05; ** p<0.01).
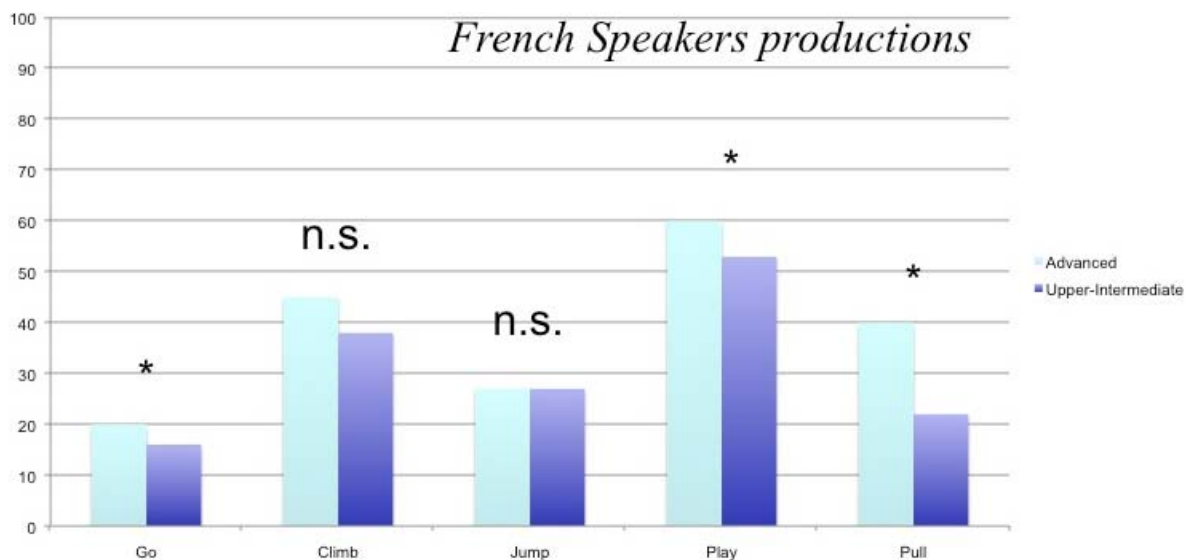

Figure 2: Percentage of correctly produced sentences in English by native speakers of French with upper-intermediate or advanced level of L2 (* p<0.05; ** p<0.01).

Further difficulty encountered by the L1 French speakers producing sentences in English was the problem of animacy. Sentences which required an inanimate subject (e.g. 'The books go

in the box') were quite often produced inaccurately. The strongest example of this tendency was the case in which the participants were expected to produce following sentence: 'The plant climbs up to the ceiling'. Many of them remarked that a plant does not climb and were confused as to what they were expected to do. And indeed, a plant does not climb in French. 'Monter', which is the main verb to be translation equivalent of 'climb', cannot be used with an inanimate subject. Similarly, when expected to produce 'The books go in the box', which has an equivalent translation in French 'Les livres vont dans la boite', the participants produced sentences with an animate subjects instead (e.g. 'I am going to the library'). This corroborates findings by Folli and Harley who described the animacy constraints for Italian verbs (Folli & Harley, 2005). Our findings suggest that like Italian, French, which is another Romance language, constrains the animacy of the sentence subject more than English.

In addition, analyses of L2 sentences produced by L1 French speakers revealed that where possible, they used the required verb as an auxiliary to be able to employ another main verb normally used in L1. Participants frequently used the verb 'to go' in the 'going to + verb-ing' construction to allow use of another verb of motion, as opposed to using 'to go' as the main verb modified by a syntactic frame. For example, instead of saying, 'The road goes up', not only did participants revert to an animate subject but they also used a different verb to describe the movement: 'I am going to climb the road'. In that way they could satisfy the requirements of the experiment to use the required verb 'to go', but also to follow the tendency of their native language, which is to use a path framed verb containing the directionality of the action in its meaning. This problem was only encountered by the native speakers of French producing sentences in English, but not by the native English speakers producing sentences in French. We suspect that this was the case because English as a manner framed language is much more flexible and does not constrain syntactic frames of a verb as much as French which is a path framed language. Our results revealed that it was easier for English speakers to use a path verb than for French speakers to use a manner verb, as manner is usually an optional argument in French (Berthaud, 2007).

With regards to the way verbs are represented in the bilingual mental lexicon our results suggest that although English verbs have translation equivalents in French and vice versa their lexical representations are possibly different. It is very likely that the lexical representation of English verbs includes verb root which is associated with a number of compatible syntactic structures. Similar lexical representation has already been described for German verbs (Antonijević & Kostić, 2009). On the other hand lexical representation of French verbs is likely to include verb root that describes motion direction and could be additionally modified by the manner of motion. In bilingual speakers lexical representation of English verbs might be associated with multiple representations of French verbs while lexical representation of a French verb might only be associated with its translation equivalent in English. As a consequence, when translating verbs native speakers of French would look for translation equivalents. However, when asked to use a particular verb in English that requires modification by a syntactic frame to convey the equivalent meaning they are frequently unsuccessful. Furthermore, we suspect that when learning English verbs native speakers of French tend to associate verbs in French with different verbs in English and not with the same verb modified by different syntactic frames. Further research in which participants will be allowed to freely choose verbs during L2 sentence production is necessary to support this claim.

Acknowledgements

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