CLAUSAL-PACKAGING OF PATH OF MOTION IN MANDARIN LEARNERS' ACQUISITION OF RUSSIAN AND SPANISH[*]

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ABSTRACT

Given that Mandarin is a verb-serializing language, Russian a satellite-framed language, and Spanish a verb-framed language, the current study examines Mandarin college students' acquisition of Russian and of Spanish to understand the strength of preferences for expression of Path in Mandarin on learners' foreign language acquisition in Taiwan, and whether there is any cross-linguistic difference between the acquisition of the two foreign languages. Utilizing data from oral narratives, the study focuses on the morphosyntactic and concatenation preferences in Mandarin, Russian and Spanish. First, Russian majors' morphosyntactic preferences demonstrate that Mandarin affects students' acquisition of Russian at the elementary level. However, learners' first language does not hold strength in the acquisition of Spanish. Second, deviations from learners' Mandarin were found and appear to be language-specific, in that elementary learners of Russian produced a lot more one-path-element clauses, and learners of Spanish rather preferred two-path-element clauses. The findings as a whole provide a deeper understanding of the various degrees of cross-linguistic transfer on Mandarin learners' acquisition of two typologically different foreign languages at two levels of proficiency.

Key words: motion event, path, foreign language acquisition, cross-linguistic study

1. INTRODUCTION

The packaging of Path and Manner of motion at the level of the clause has been discussed since the typological distinction between 'satellite-framed' languages and 'verb-framed' languages was proposed (Talmy 1985, 1991), in that the former incorporate motion with Manner in the main verb and express Path with a verb particle or a satellite, whereas the latter incorporate motion with PATH in the main verb and express Manner in the subordinated verb. Later, Slobin (2004:249) added a group of 'equipollently-framed' languages to the typology, where "[p]ath and manner are expressed by equivalent grammatical forms" and the typical construction type for verb-serializing languages is MANNER VERB + PATH VERB. Mandarin Chinese, as a verb-serializing language in both spoken and written discourse (Chen 2007; Chen and Guo 2009; Chui 2009; Huang and Tanangkingsing 2005; Slobin 2000, 2004), belongs to the equipollently-framed group. The use of manner-path verbs such as *fēi-chū* 'fly-exit' or manner-path-deictic verbs such as *fēi-chū-qù* 'fly-exit-out' are common in Mandarin oral narratives and daily conversations (Chui 2009, 2012).

Russian is a satellite-framed language and Spanish is a verb-framed language (Slobin 2004; Talmy 1985, 1991). Together with Mandarin, the three languages have their own language-specific lexicalization patterns for the expression of motion events, as illustrated by the following examples from Slobin (2004:224). The appearance of the movement of an owl was encoded by the manner-path serial verb *fēi-chū* in Mandarin, by *vy-skočila* 'out-jumped' – a manner verb with the path prefix *vy-* in Russian, and by the path verb *sale* 'exit' in Spanish.

Mandarin: Fei1-chu1 yi1 zhi1 mao1 tou2 ying1. (=Fly out one owl.)
Russian: Tam vy-skočila sova. (=There out-jumped owl.)
Spanish: Sale un buho. (=Exits an owl.)

"Cross-linguistic differences in surface forms and accompanying linguistic conceptualizations raise potential problems for L2 learners" (Brown and Gullberg 2011:81). Then, in foreign language acquisition, how do Mandarin learners of Russian and Mandarin learners of Spanish

acquire the two foreign languages with knowledge from two typologically different languages? Is there any acquisition difference between these two groups of learners? Within each group, is there any further difference between elementary and intermediate learners? None of these questions have as yet been well investigated, and they will be addressed in the current study.

Brown and Gullberg (2010, 2011, 2012, 2013) have done a series of research projects on L1-L2 influence in second language acquisition, based on the expression of Path and/or Manner in Japanese and English at the clause level. Brown and Gullberg (2010, 2011) focused on different path components and examined the performance of the same speakers in the L1 and L2. With regard to the lexicalization and verbal-adverbial concatenation patterns, the studies demonstrated "a strong influence of the L1 on the L2 and a more subtle influence of the L2 on the L1" (ibid 2011:90). Considering both Path and Manner, Brown and Gullberg (2012) found that not only did learners' L1 affect the acquisition of an L2, but also an L2 had an influence on L1, owing to learners' multicompetence. Finally, learners' established and emerging linguistic systems could become similar as a result of L1-L2 convergence (Brown and Gullberg 2013). Following this line of research, the present study investigates the morphosyntactic patterning of Path and the concatenation of the verbal and adverbial expressions of Path in Mandarin speakers' first language and their foreign languages of Russian and Spanish. The research questions include: What are the typical morphosyntactic patterns used in the Mandarin, Russian and Spanish expression of Path during speaking? How many path elements tend to be concatenated within a clause across the different languages? Do the typical usages in Mandarin transfer to learners' Russian or Spanish? If such is the case, to what extent and in what way do learners' Russian and Spanish follow the preferred patterns in Mandarin? Does the impact of such transfer differ at various levels of proficiency during acquisition? Is there any cross-linguistic difference between the acquisition of Russian and that of Spanish? The study contributes to the understanding of learners' emerging Russian/Spanish grammar of motion and the nature of the relationship between the established Mandarin and the emerging grammars in the learners' minds.

The next section is about the data and methodology used in the study. Section 3 discusses the morphosyntactic patterns and concatenation patterns in Mandarin and the two foreign languages; Section 4 investigates the morphosyntactic and concatenation patterns from learners' Russian and Spanish data vis-à-vis two proficiency levels. Based on the findings, Section 5 discusses the first language effect on foreign language acquisition, followed by the conclusion in Section 6.

2. DATA AND METHODOLOGIES

2.1 Participants

In this study, there were five groups of participants. Three of the groups were comprised of native speakers, the other two of learners. All of the participants were students at National Chengchi University (NCCU). Group 1 was comprised of five native speakers of Mandarin producing L1 Mandarin data; they were freshmen aged 18 or 19 in 2002. They neither majored in Russian or Spanish nor studied the two foreign languages at the university. Group 2 was comprised of five native speakers of Russian producing L1 Russian data, aged from 19 to 27, studying in a Chinese or an academic program at NCCU. Group 3 was five native Spanish speakers producing L1 Spanish data; they aged from 21 to 29, also studying in a Chinese or an academic program. The remaining two groups were learners with similar language backgrounds. They were Russian or Spanish majors at some point in time (1st, 2nd, 3rd, or 4th year) in their four years of college at NCCU during the 2012/13 academic year. They produced learners' Russian data and learners' Spanish data, respectively. The number of Russian participants and Spanish participants totaled twenty for each language, with five students from each year. They were all native Mandarin speakers aged from eighteen to twenty-two, studying Russian or Spanish as a foreign language in a non-immersion context with little or no knowledge of these two languages prior to entering college. To investigate whether proficiency levels would affect acquisition, the present study considers the Russian and Spanish majors in the first two years of college as

elementary learners and those in the third and fourth years as intermediate learners. The biographical and language usage data of the learners can be seen in Table 1.

Table 1. Biographical and language usage data of the learners

Mean age of exposure	Year 1	Year 2	Year 3	Year 4
Learners of Russian	17 (17-18)	18 (17-18)	18 (17-18)	19 (18-21)
Learners of Spanish	18	18	17 (16-18)	18 (17-18)

Mean hours of usage*/day	Year 1	Year 2	Year 3	Year 4
Learners of Russian	12 hrs (12-14)	12 hrs (12)	10 hrs (8-12)	8 hrs (6-8)
Learners of Spanish	11 hrs (9-12)	9 hrs (4-12)	13 hrs (11-20)	7 hrs (3-10)

*'Usage' refers to 'the use of the target foreign language in classes and after school'

2.2 Stimulus for L1 and L2 Production

To compare the data from the various language groups on a common basis, we elicited all of the spoken data from the same stimulus - a seven-minute-long cartoon episode of the 'Mickey Mouse and Friends' series. The soundtrack of the cartoon includes music and only a very small amount of dialogue. The episode contains numerous motion events: Mickey, Minnie, Pluto and a cow are holding a party at the beach, and eating and playing around, and then they have a fight with an octopus. Eventually, Mickey and his friends win. The oral narratives reflect native speakers' and learners' ability to express PATH of motion in real time.

2.3 Procedure

The participants across the five groups were not informed about our particular research interests. They were told that they were taking part in a study of storytelling and were paid for their participation. All of the participants were tested individually. First, each of them viewed the cartoon episode two times on TV or a laptop computer in a quiet classroom. Immediately afterwards the participant was led to another classroom and requested to retell the story to an adult listener, knowing that the listener had not viewed the episode. The participant sat on a classroom chair with no armrests, facing the listener who was about 3 feet away. Participants' narration in Mandarin, Russian, and Spanish was filmed by a visible video camera. Details about the duration of the narrations can be found in Table 2. With the participants' written consent, the spoken data were documented in the NCCU Spoken Corpus of Mandarin, the NCCU Learner Corpus of Russian, and the NCCU Learner Corpus of Spanish.

Table 2. Average duration of narration across the five language groups

L1 Mandarin speakers	L1 Russian speakers	L1 Spanish speakers
7 min. 17 sec. (4'20"-10'2")	6 min. (1'48"-11'55")	3 min. 50 sec. (1'37"-4'52")

	Year 1	Year 2	Year 3	Year 4
Learners of Russian	4 min. 33 sec. (2'15"-6'23")	6 min. 53 sec. (4'5"-11'30")	5 min. 54 sec. (4'8"-7'17")	7 min. 13 sec. (5'8"-11'55")
Learners of Spanish	1 min. 33 sec. (1'-2'35")	4 min. 01 sec. (2'31"-4'53")	3 min. 5 sec. (1'57"-5'59")	2 min. 10 sec. (1'58"-4'2")

2.4 Transcription, Segmentation, and Coding of Data

The Mandarin narratives were transcribed by graduate students with Mandarin as their first language. The storytelling in Russian and Spanish, as produced by native speakers and learners, was transcribed by graduate students majoring in either Russian or Spanish. All of the data were first

segmented into clauses, i.e., ''any unit that contains a unified predicate… (expressing) a single situation (activity, event, state)'' (Berman and Slobin 1994:660). Then, motion-event clauses containing path information were identified for further analysis. Table 3 indicates the occurrences across the five datasets.

Table 3. Motion events encoding Path across the five language groups

	L1 Mandarin	L1 Russian	L1 Spanish	Learners of Russian	Learners of Spanish
All motion clauses	146	135	79	117	87
Motion clauses encoding Path	115 (78.8%)	80 (59.2%)	56 (70.9%)	58 (49.6%)	51 (58.6%)

The total 360 path clauses were coded for (1) the lexical form of the motion verb, and (2) the adverbial elements encoding path information about the same motion event, including particles, adverbs, and adpositional phrases expressing location, source, goal, direction, etc. Different types of motion verbs were found in the three languages, including manner verbs (*yóu* 'swim'; *прыгать* 'jump'; *correr* 'run'), path verbs (*diào* 'drop'; *появляться* 'arise'; *entrar* 'enter'), and deictic verbs (*qù* 'go'; *идти* 'go/come'; *ir* 'go'). Language-specific types of verbs were the serial verbs in Mandarin Chinese which incorporate various motion components (*pǎo-chū-lái* 'run-exit-come'), and the PATH PREFIX + MOTION VERB type in Russian (*за-ходит* 'into-go'). For the calculation of path elements in each clause, the single occurrence of lexical path or deictic component, as well as the co-occurrence of these two components within the same verb, was considered as a 'one path element'; every occurrence of the adverbial trajectory components of a path was counted as a separate path element. Then, the addition of the number of the lexical path component and that of the separate path adverbials yields the total number of path elements per clause.

Finally, the data were analyzed by two separate coders of each language. On average, 95% agreement was reached on the identification of motion clauses and the coding for the lexical form of the motion verb

and the adverbial path elements for each language. In case of disagreement, data were further analyzed and a consensus was reached. Total agreement on coding of morphological and adverbial patterns across the five sets of data eventually was obtained.

3. CLAUSAL PACKAGING OF PATH IN L1 PRODUCTION: MANDARIN, RUSSIAN, AND SPANISH

In every language, lexical verbs and adverbials can be used to express Path in a single clause. That multiple adverbials can be stacked to provide more Path descriptions is, nonetheless, language-specific. Some languages allow the co-occurrence of several path components outside the verb, while others require a separate verb for each component (Slobin 2004). This section investigates the morphosyntactic preferences for the expression of Path and the stacking of path components in the three languages spoken by native speakers.

3.1 L1 Mandarin Production

The lexicalization and concatenation of path elements in L1 Mandarin can be illustrated by two examples. The clause in Example 1 is about Pluto hiding under a picnic table and the octopus pouncing up on top of it. The pouncing event is represented lexically by the serial manner-path-deictic verb *pū-shàng-qù* 'pounce-go up-go', encoding the manner *pū* 'pounce', the upward direction *shàng* and the deictic movement *qù* 'go'.[1]

(1)   ..ránghòu nà zhī... zhāngyú jiù **pū-**   le   **shàng-qù**
            then   that CL octopus   then   pounce PRF   go up-go
        'Then, the octopus pounces onto (Pluto).'

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[1] In Example (1), 'CL' refers to a classifier, and 'PRF' refers to a perfective morpheme.

In Example 2, the clause is about a sausage being dropped into the sea. The dropping event is expressed by the single path verb *diào* 'drop' and the adverbial phrase of GOAL *dào* 'to' *hǎi* 'sea' *lǐmiàn* 'in'.

(2)   ..nàge..   làcháng.. **diào   dào   hǎi   lǐmiàn**
           that   sausage drop   to   sea   inside
        'That..sausage..was dropped into the sea.'

There are 115 motion clauses conveying path information in the Mandarin dataset. As shown in Table 4, Mandarin speakers have two lexical preferences: (1) use of serial verbs (48.7%), among which manner-path-deictic verbs like *pǎo-chū-lái* 'run-exit-come' are the majority; and (2) use of single manner verbs accompanied by path adverbials (40%), such as the co-occurrence of the manner verb *diū* 'throw' and the path adverbial *dào hǎi lǐmiàn* 'into the sea'. Second, it is also common to convey path information outside the verb: 60.9% (70 clauses) of all of the 115 motion clauses realize different trajectory components of a path, including source, goal, and direction, among which the expression of Goal constitutes the majority (77.1%).

Table 4. Morphosyntactic expression of Path in L1 Mandarin

Verb types			Path adverbials		
Manner verb (with path adverbial)	46	40.0%	Source	4	5.7%
Path verb	9	7.8%	Goal	54	77.1%
Deictic verb	4	3.5%	Direction	12	17.1%
Path-deictic verb	10	8.7%	Total	70	100.0%
Manner-path verb	1	0.9%			
Manner-deictic verb	2	1.7%			
Manner-path-deictic verb	43	37.4%			
Total	115	100.0%			

Concerning the concatenation of path elements within the clause, the number of path elements in the verbal or adverbial form per clause was tabulated: As stated above, the single occurrence of lexical path or deictic component, as well as the co-occurrence of these two components in the same verb, was considered as 'one path element'; every occurrence of the adverbial trajectory components of a path was separately counted. Mandarin allows stacking path components outside the verb within a clause, yet the spoken data shows a strong preference by the speakers (80%) to mention a single path element per clause, either lexically (e.g. *pū-shàng-qù*) or adverbially (e.g. *diū + dào hăi lĭmiàn*). See Table 5.

Table 5. Number of path elements per clause in L1 Mandarin

1 path element	2 path elements	3 path elements	Total
92 (80.0%)	22 (19.1%)	1 (0.9%)	115

3.2 L1 Russian Production

"The Russian motion verb system encodes aspectual, directionality, manner, and path distinctions that are not encoded in English verbs" (Pavlenko 2010:49). The incorporation of path in a verb can be found in Example 3, as the Russian native speaker talked about a motion event involving Mickey Mouse going into the sea. The event is encoded lexically by the deictic verb *ходить* 'go' accompanied by the path prefix *за-*, and adverbially by the prepositional phrase of GOAL *в* 'into' *воду* 'water'.

(3)　　... Микки Маус　преспокойно　　**за-ходит　в　　воду**
　　　　Mickey Mouse extremely.calmly　into-go　　into water
　　　　'Mickey Mouse goes into the water extremely calmly.'

There are in total 80 motion clauses encoding Path in the L1 Russian dataset. 36.3% of all of the motion clauses are of the PATH PREFIX + MOTION VERB type like *за-ходит* 'into-go'; manner verbs taking path adverbials are also common (36.2%) like the co-occurrence of the manner verb *прыгать* 'jump' and the path adverbial *в* 'into' *воду*

'water'. Path/deictic verbs such as *возвращаться* 'return' still constitute a substantial portion (27.5%). Moreover, the use of path adverbials is 77.5% of all of the motion clauses. Among the total 62 path components, Goal (67.7%) was most commonly used. See Table 6.

Table 6. Morphosyntactic expression of Path in L1 Russian

Verb types			Path adverbials		
Manner verb (with path adverbials)	29	36.2%	source	9	14.5%
Path verb	18	22.5%	goal	42	67.7%
Deictic verb	4	5.0%	direction	11	17.7%
Path prefix-deictic verb	11	13.8%	Total	62	100.0%
Path prefix-manner verb	18	22.5%			
Total	80	100.0%			

Slobin (2004) noted that Russian, a satellite-framed language, expresses Path primarily in a wide range of adverbials; thus, more path segments per clause would be brought up for the discussion of a motion event. In our data, the occurrence of path adverbials in Russian is higher than that in Mandarin (77.5% vs. 60.9%). Moreover, Table 7 shows that as many as 42.5% of all clauses encode two path elements in Russian (cf. 20% in Mandarin), as exemplified by the co-occurrence of the lexical verb *у-бегать* 'away-run' and the adverbial phrase *от* 'from' *берега* 'the coast' within the same clause.

Table 7. Number of path elements per clause in L1 Russian

1 path element	2 path elements	Total
46 (57.5%)	34 (42.5%)	80

3.3 L1 Spanish Production

The use of path verbs is regarded as the typical pattern for the expression of PATH in verb-framed languages like Spanish (Slobin 2004;

Talmy 1985, 1991). As illustrated in Example 4, the Spanish native speaker said that the cow goes into the water. The motion event is expressed lexically by the path verb *entra* 'enter' and adverbially by the prepositional phrase of Goal *al* 'to the' *agua* 'water'.

(4)   ..la   vaca **entra al   agua**
        the   cow   enter to.the   water
      'The cow goes into the water.'

Besides path verbs, manner verbs, such as *saltar* 'jump' and *tirar* 'throw', could also be used to characterize certain types of motion events (Aske 1989; Naigles et al. 1998; Slobin 1996; Slobin and Hoiting 1994). Aske (1989) found that resultative events with a source or a definite endpoint, such as *to the house*, were described by path verbs, whereas events taking place at or in a single location, such as *in the house*, could be characterized by manner verbs. Slobin and Hoiting (1994) distinguished between boundary-crossing events and non-boundary-crossing events; the former would be described by path verbs and the latter by manner verbs. Similar results were also found in Naigles et al.'s (1998) study which was based on ten black-and-white line drawings of ordinary intransitive motion events and twelve colored dynamic videos of common intransitive motion events as stimuli. These findings suggest that the use of manner verbs is not a rarity. This is also borne out by our Spanish narrative data: While the use of path verbs and deictic verbs constitutes the majority (66.1%) of all the 56 motion events, a substantial portion of the clauses comprise manner verbs co-occurring with adverbial expression of Path (33.9%). See Table 8. More data in the future are needed to verify whether the occurrence has to do with specific types of motion events. Finally, just as in the case of the other two L1 languages, the occurrence of path adverbials is high (66.1%, 37 out of all the 56 clauses). Goal, again, is also the most frequently mentioned component in Spanish narration (70.3%).

Table 8. Morphosyntactic expression of Path in L1 Spanish

Verb types			Path adverbials		
Manner verb (with path adv)	19	33.9%	Location	4	10.8%
Path verb	25	44.6%	Source	4	10.8%
Deictic verb	12	21.5%	Goal	26	70.3%
Total	56	100.0%	Direction	3	8.1%
			Total	37	100.0%

Regarding the concatenation of path elements, Slobin (2004: 244) found that the description of path components in Spanish typically requires separate verb clauses, so that "V-language writers in the sample almost never used a motion verb with more than one ground…. V-language writers and frog story narrators prefer to provide ground information in scene-setting descriptions rather than in clauses with motion verbs." The statistics in Table 9 support the occurrence of less path information within a clause; most of the clauses include merely one path element encoded lexically or adverbially (67.9%)

Table 9. Number of path elements per clause in L1 Spanish

1 path element	2 path elements	Total
38 (67.9%)	18 (32.1%)	56

In summary, the three languages have their own language-specific lexicalization and concatenation patterns in narrative discourse. L1 Mandarin speakers encode Path primarily in a range of serial verbs comprising at least one path component and also utilize single manner verbs with path adverbials. Such typical patterns of usage are different from the common use of motion verbs with a path prefix, manner verbs, and path/deictic verbs in Russian, and also from the use of path/deictic verbs in Spanish. The lexical and adverbial expression of Path is predominant and most of the speakers mention the goal component across the three languages. Moreover, both Mandarin and Spanish prefer one path element per clause, while Russian tends to convey two path

elements. In the next section, the acquisition of Russian and that of Spanish by elementary and intermediate learners is examined to understand the strength of preferences for expression of Path in Mandarin on learners' foreign language acquisition.

4. CLAUSAL PACKAGING OF PATH IN LEARNERS' PRODUCTION: SPANISH AND RUSSIAN

With language-specific lexicalization and concatenation patterns across Mandarin, Russian and Spanish, how do learners develop the grammars of Russian and Spanish in the presence of knowledge from typologically different languages? Is there any difference in the Mandarin transfer between these two groups of learners, and between the elementary and the intermediate learners in each language group?

4.1 Learners' Russian Production

The Russian majors produced 58 path clauses. While the PATH PREFIX+MOTION VERB pattern was commonly used by native Russian speakers, rarely did the learners use it (see Table 10). Only three occurrences were found in the dataset: *при-йти* 'to-go/come on foot', *при-ехать* 'to-go/come by a vehicle', and *в-пасть* 'into-fall'. The rarity is probably due to the language-specificity and grammatical optionality of the use of path/deictic verbs. Grammatical optionality could open up possibilities for avoidance, underuse, or simplification in the development of L2 (Ortega 2009). For the use of manner verbs such as *бежать* 'run' and *гнаться* 'chase', the use of path/deictic verbs like *появляться* 'arise', and the PATH PREFIX+MOTION VERB pattern, the chi-square value does not indicate a significant difference between the Russian production at the elementary level and that at the intermediate level (χ^2 (2) = 0.080, p-value = 0.961). Finally, path adverbials, like *от* 'from' *берега* 'the coast' and *мимо* 'by the side of' *столба* 'the pole', predominate in the learners' data: 73.7% for elementary learners; 82.1% for intermediate learners. Despite the significant difference between these two groups of learners in the

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occurrence of path adverbials (χ^2 (2) = 12.100, p-value = 0.002), Goal such as *в* 'into' *воду* 'water', was mostly often heard, regardless of proficiency level.[2]

Table 10. Morphosyntactic expression of PATH in learners' Russian

Verb types	Years 1 and 2		Years 3 and 4	
Manner verb (with path adverbials)	9	47.4%	17	43.6%
Path verb	1	5.3%	7	17.9%
Deictic verb	8	42.0%	13	33.3%
Path prefix-deictic verb	1	5.3%	1	2.6%
Path prefix-path verb	0	0.0%	1	2.6%
Total	19	100.0%	39	100.0%

Path adverbials	Years 1 and 2		Years 3 and 4	
Source	1	7.1%	3	9.4%
Goal	13	92.9%	22	68.8%
Direction	0	0.0%	7	21.9%
Total	14	100.0%	32	100.0%

The concatenation patterns also do not differ between the two groups of Russian learners, as evidenced by the statistically insignificant chi-square value with respect to the distribution of one-path-element and more-than-one-path-element clauses (χ^2 (1) = 1.197, p-value = 0.274). See Table 11.

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[2] The standardized residuals are +/-3.2 for SOURCE, +/-1.5 for GOAL, and +/-2.1 for DIRECTION.

Table 11. Number of path elements per clause in learners' Russian

No. of path elements per clause	Years 1 and 2		Years 3 and 4	
One path element	14	73.7%	23	59.0%
Two path elements	5	26.3%	15	38.5%
Three path elements	0	0.0%	1	2.5%
Total	19	100.0%	39	100.0%

4.2 Learners' Spanish Production

Fifty-one path clauses were found in learners' Spanish production. Table 12 demonstrates that the use of path/deictic verbs, such as *volver* 'return', *caerse* 'fall' and *ir* 'go', is predominant with no statistically significant difference between the elementary and the intermediate learners (χ^2 (1) = 2.159, p-value = 0.142). As to the use of path adverbials, despite the higher 75.6% occurrence in the narratives of intermediate learners (cf. 66.7% in elementary Spanish), the two groups of learners consistently brought up the goal component most frequently in their storytelling (χ^2 (1) = 2.141, p-value = 0.143), such as *a* 'to' *la* 'the' *playa* 'beach' and *al* 'to the' *pulpo* 'octopus'.

Table 12. Morphosyntactic expression of Path in learners' Spanish

Verb types	Years 1 and 2		Years 3 and 4	
Manner verb (with path adverbials)	1	5.6%	7	21.2%
Path verb	6	33.3%	13	39.4%
Deictic verb	11	61.1%	13	39.4%
Total	18	100.0%	33	100.0%

Path adverbials	Years 1 and 2		Years 3 and 4	
Location	1	8.3%	0	0.0%
Goal	11	91.7%	25	100.0%
Total	12	100.0%	25	100.0%

The concatenation patterns are also comparable between the two groups of Spanish learners (χ^2 (1) = 0.205, p-value = 0.651). They demonstrate a preference to express two path elements in a clause: 61.1% in elementary students' production; and 54.5% in intermediate students' production. See Table 13.

Table 13. Number of path elements per clause in learners' Spanish

No. of path elements per clause	Years 1 and 2		Years 3 and 4	
One path element	7	38.9%	15	45.5%
Two path elements	11	61.1%	18	54.5%
Total	18	100.0%	33	100.0%

When comparing the production of Russian learners and Spanish learners, we found a higher occurrence of adverbial expression of Path than that of Goal. The difference between the two groups of students lies in the morphosyntactic and concatenation patterns. First, both elementary and intermediate learners of Russian prefer to use manner verbs together with path adverbials, and path/deictic verbs. The preference of both elementary and intermediate Spanish learners, on the other hand, is merely the use of path/deictic verbs. Another difference is the quantity of path information: Learners of Russian mostly produce a single path element in each clause, whereas learners of Spanish frequently produce two elements. Mandarin learners' acquisition of Russian and that of Spanish are not in complete alignment.

5. STRENGTH OF MANDARIN ON FOREIGN LANGUAGE ACQUISITION

In this section, native speakers' production is compared to learners' production in order to understand the strength of Mandarin preferences on Russian and Spanish majors' acquisition of the knowledge of a different linguistic system.

5.1 First Language Effect on Russian Learning

On the part of Russian learners, does their Russian production pattern look like L1 Mandarin or L1 Russian? The more it aligns with the first language production, the less native-like are the learners' Russian. First, native Mandarin speakers prefer to use serial verbs and manner verbs (see Table 4); however, learners of Russian use a lot more path/deictic verbs (see Table 10).[3] Second, learners do not resemble Russian native speakers, in that the PATH PREFIX + MOTION VERB pattern rarely occurs (the average 5.3% in learners' Russian and 36.3% in native Russian, see Tables 6 and 10). Finally, the preference for one path element per clause in elementary Russian production (see Table 11) aligns with learners' first language (see Table 5), without a significant difference between Mandarin and elementary L2 Russian (χ^2 (1) = 0.394, p-value = 0.530). Learners of Russian at an intermediate level, on the other hand, align with native Russians to produce a substantial number of clauses encoding more than one path element (χ^2 (1) = 6.808, p-value = 0.009).

5.2 First Language Effect on Spanish Learning

Then, on the part of Spanish learners, does their Spanish production pattern like L1 Mandarin or L1 Spanish? According to the narrative data produced by native Spanish speakers in Table 8, the use of manner verbs with path adverbials is nearly as frequent as that of path verbs and deictic verbs. Nevertheless, learners only prefer path/deictic verbs (see Table 12). In other words, given the distribution of the frequency of manner verbs and path/deictic verbs, the significant differences between L1 Mandarin and the two groups of Spanish learners (χ^2 (1)= 30.409, p-value = 0.000 for elementary learners; χ^2 (1) = 27.913, p-value = 0.000 for intermediate learners) provide evidence that L1 Mandarin with its prevalent use of manner verbs does not affect learners' acquisition of Spanish.

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[3] With regard to the use of manner verbs and deictic/path verbs, significant differences between L1 Mandarin and learners' Russian were found: χ^2 (1) = 5.286, p-value = 0.022 for elementary Russian; χ^2 (1) = 10.335, p-value = 0.001 for intermediate Russian.

With regard to concatenation patterns, the production of Spanish learners differs from that of Russian learners and reveals a deviation from the L1 Mandarin and L1 Spanish in the development of learners' foreign languages. First, both Mandarin and Spanish native speakers tend to encode one path element per clause, either lexically or adverbially (see Tables 5 and 9). Spanish learners, however, mostly express two path elements per clause. This preference for quantity is found to be the same for both elementary and intermediate learners (see Table 13). Significant differences were thus found between L1 Mandarin speakers and learners (χ^2 (1) = 13.824, p-value = 0.000 for elementary learners; χ^2 (1) = 15.279, p-value = 0.000 for intermediate learners), and between L1 Spanish speakers and learners (χ^2 (1) = 4.797, p-value = 0.029 for elementary learners; χ^2 (1) = 4.326, p-value = 0.038 for intermediate learners).

"[C]onsiderable L1→L2 transfer has been observed in adult bilinguals who learned L2 after puberty, both in lexical…and grammatical…domains" (Hohenstein et al. 2006). In the present study, the first language impact is only borne out by Mandarin learners' acquisition of Russian at the elementary level. Intermediate Russian production is more native-like. Such cross-linguistic transfer is not evident in learners' acquisition of Spanish, be it at the elementary or intermediate level. Spanish majors' morphosyntactic patterning conforms more to that in L1 Spanish, regardless of proficiency levels. The findings as a whole demonstrate various degrees of first language impact on learners' acquisition of Russian and of Spanish at two levels of proficiency. Finally, the Spanish majors appear to be developing the Spanish concatenation pattern in a way that is divergent from L1 Spanish. Then, learners' acquisition could be "more than the sum of the target input and the L1 influence" (Ortega 2009:141). More data are needed to testify as to the nature of this apparently divergent development.

6. CONCLUSION

Three typologically different languages were investigated in this study: Mandarin, a verb-serializing language; Russian, a satellite-framed language; and Spanish, a verb-framed language. Mandarin speakers'

acquisition of Russian and of Spanish was examined at two proficiency levels across the four years of study in college in Taiwan, to understand the ways in which learners develop their foreign languages with knowledge from two typologically different languages, and the strength of L1 Mandarin preferences for the expression of Path on learners' development of each of the foreign languages. By examining the morphosyntactic and concatenation preferences across the three L1 languages, the current study found that the distinct preferences in the three languages affect learners' acquisition of Russian and of Spanish in various ways. The acquisition data of Russian shows that the grammatical optionality of the Russian PATH PREFIX+MOTION VERB pattern opens up the possibility for avoidance and that learners' first language affects elementary learners to some extent. The acquisition data of Spanish, on the other hand, reveals that learners' first language does not affect their learning and that a deviation from the L1 Mandarin and L1 Spanish could occur in the development of learners' Spanish. The cross-linguistic findings provide evidence that the strength of first language on Mandarin learners' acquisition of Russian and that of Spanish does not hold the same; the first language influence is not universally true of all types of foreign-language learners.

In the future, more data are needed to confirm the various extent of Mandarin influence on the acquisition of Russian and Spanish at both elementary and intermediate levels of proficiency and to pursue the question as to why Mandarin influences the acquisition of Russian rather than that of Spanish. Moreover, learners' writing ability should also be examined to obtain a more complete picture of learners' production. Other semantic components of motion should also be examined for the complete understanding of learners' expression of Motion in Russian and Spanish. Cognitively, it is important to study whether the learners with linguistic transfer also undertake conceptual transfer (Daller et al. 2011; Jarvis 2000, 2011), which changes "a person's assessment of physical realities, social conditions and other real and imagined contexts" (Jarvis 2011:2). Finally, the ways in which learners' knowledge of a foreign language may affect performance in their first language can be studied to understand more about learners' multicompetence (Brown and Gullberg 2013; Cook 1991).

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中文人士學習俄語和西班牙語移動途徑之表達

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本文探討台灣大學生如何以俄語和西班牙語表達移動途徑,以瞭解母語對初級和中級外語學習者之影響,及探討學習俄語和西班牙語是否存有差異。本研究使用口語敘事語料分析三個語言在構詞、語法和數量上如何表達途徑。結果顯示俄語初級學習者受中文影響而多使用途徑動詞,但西班牙語學習者卻不受影響。此外,在子句範疇內俄語初級學習者大多表達一類途徑資料,而西班牙語學習者大多表達兩類。研究結果呈現不同面向的跨語言轉移。

關鍵字:移動事件、移動途徑、外語學習、跨語言轉移