L2 Acquisition of the Sequencing of Postnominal Adjectives in French by English-Speaking Learners[*]

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1. INTRODUCTION

This study, set within the framework of Generative approaches to Second Language Acquisition (GenSLA) (Rothman & Slabakova, 2018; Perpiñan et al., 2024), proposes an analysis of the knowledge of the placement and concatenation of postnominal adjectives in the grammar of English-speaking second language (L2) learners of French. Building on previous GenSLA studies (Stringer, 2013; Pettibone et al., 2021), it investigates whether English-speaking intermediate to advanced L2 learners of French are aware of ordering constraints when exposed to combinations of so-called 'Relational Adjectives' (RAs) (Bally, 1965) or 'Pseudo-Adjectives' (Bartning, 1980; Postal, 1969; Zribi-Hertz, 1972) with postnominal Qualifying Adjectives (QAs) (Cinque, 2010; Laenzlinger, 2005, 2011). To achieve this aim, we administered two types of experimental tasks - an Acceptability Judgment Task (AJT) and a Non-Forced Preference task (NFPT) - to 68 learners of French recruited in eight Australian universities as well as to a control group of 14 native speakers of French residing in Australia. RAs have not been clearly distinguished from QAs in previous research on L2 acquisition, but their non-predicative and non-scalar properties will help us sketch a more nuanced description of the L2 competence of learners of French about whether they hypothesize noun-raising and the type of noun-raising they hypothesize in their L2 interlanguage grammar. Given that the sequencing of two postnominal adjectives is never taught in foreign language classes or in any of the methods we have consulted, and, in fact, rarely encountered in authentic communication, the interest of the study is that the partial or complete acquisition (or not) of this property by L2 learners is more likely to reflect unconscious cognitive principles of acquisition, not accountable for by mere imitation or explicit instruction.
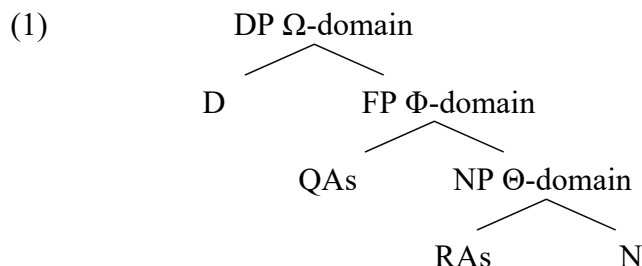
After a presentation of the syntactic framework and a brief review of the literature on the acquisition of the position and ordering of adjectives within the nominal phrase in SLA, we present the research questions, the methodology of the research, and the results of the survey, to conclude with a discussion of the results.

2. THEORETICAL BACKGROUND ON THE SYNTAX OF ADJECTIVES

Following Abney's (1987) DP hypothesis and current formalization of the nominal phrase, a tripartition of the DP is proposed in Laenzlinger (2011), as in (1):

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i.   the *Nachfeld*, the *n*-Noun Phrase level (NP/*n*P) consisting of the thematic domain ('Θ-domain') introducing the lexical and conceptual material, and higher up the merge position of RAs,

ii.   the *Mittelfeld*, the functional domain ('Φ-domain') containing the Num(ber)/Gen(der) Phrase(s) and Functional Projections (FPs) in which QAs are merged, and

iii.   the DP level ('Ω-domain'), the left periphery establishing the link with the wider reference by encoding quantification, specificity, and definiteness. Each level consists of potentially multiple projections.

(1)   DP Ω-domain

        D   FP Φ-domain

            QAs   NP Θ-domain

                     RAs   N

QAs are merged in dedicated FP projections within the Φ-domain. These categories are semantically ordered in a universal canonical order (Scott, 2002; Laenzlinger 2005, 2011; Cinque 1994, 2010 and s.o.).

(2)   The hierarchy of QAs: [Quantification Ordinal > Cardinal > Time] > [Subject-Oriented Epistemic > Subjective Comment > Evidential] > [Scalar Physical Property Size > Length > Height > Speed > Depth > Width] > [Measure Weight > Temperature > Wetness > Age] > [Non-Scalar Physical Property Shape > Colour > Origin > Material] (Laenzlinger, 2005: 650, adapted from Scott 2002)

Adjective Ordering Rules (AOR) imply that in a sentence like *Daniel likes nice small pink plastic flowers*, only one of the 24 possible orders of prenominal adjectives would be deemed idiomatic by native speakers of English.

    In this framework, three types of languages can be distinguished with respect to Direct Modification QAs (Cinque, 2010):

i.   In English/Germanic-type languages, all QAs are prenominal and follow the canonical order: A1>A2>NP. This is also the order of French prenominal QAs.

ii.   In Irish/Celtic-type languages, QAs are post-nominal in the same sequential order as the universal order: NP>A1>A2. This order results from cyclic NP-raising also accounting for the order which is sometimes observed with non-scalar QAs in French.

iii.   In Hebrew/Semitic-type languages, QAs appear post-nominally in a mirror image order to the canonical order of QAs: NP<A2<A1. This is the NP Roll-up movement accounting for the standard order of postnominal adjectives in French.

More precisely, there are four types of NP-derivation across languages:
    i.   Germanic-type: no NP-movement:

(3)   a.   a delicious red fruit
      b.   a round red table
      c. * a red round table

    ii.   Celtic-type: successive cyclic NP-movement:

(4)   cupán múr uaine   [Irish]
              cup   large green
              'a large green cup'   (Laenzlinger 2005:648)

    iii.   Semitic-type: successive Roll-up NP-movement:
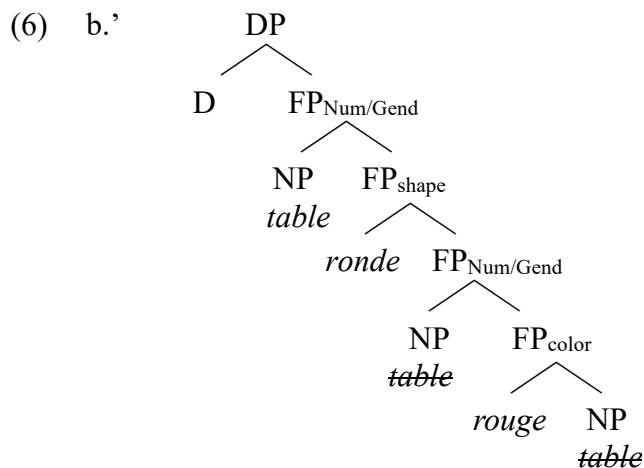
(5)   para švecarit xuma   [Hebrew]
              cow Swiss   brown
              'a brown Swiss cow'   (Shlonsky 2004:1485)

    iv.   Romance-type: mixed system with both cyclic NP-movement in (6b) and Roll-up NP-movement in (6a and c):

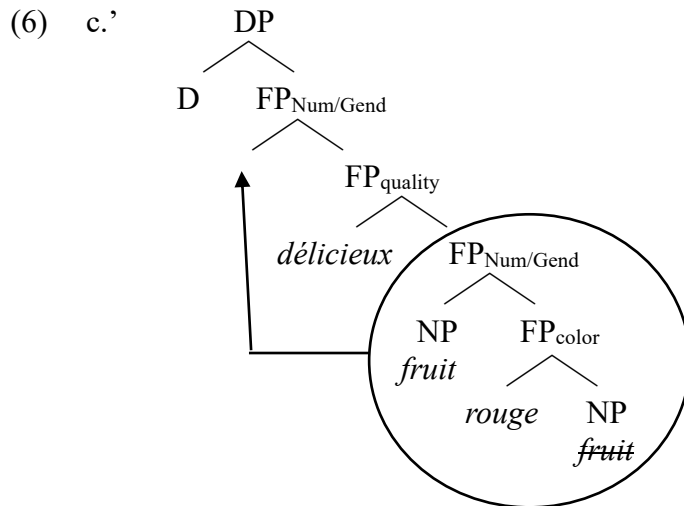(6)   a   une table ronde rouge   [French]
              a   table round red
              'a brown Swiss cow'
     b.   une table rouge ronde
              a   table red   round
              'a red round table'
     c.   un fruit rouge délicieux
              a fruit red   delicious
              'a delicious red fruit'
   d. * un fruit délicieux rouge
              a   fruit delicious red

The cyclic movement in (6b) is limited to the combination of non-scalar QAs as seen in the ungrammaticality of (6d) that combines a subject-oriented and a non-scalar adjective. The derivational analysis of (6b) and (6c) is provided below.

    In (6b'), the NP containing *table* moves cyclically to successive agreement (number and gender) adjective-related positions.

(6) b.'

    In (6c'), after the NP-movement to the first agreement position, the pied-piped FP$_{Num/Gend}$ containing *fruit rouge* raises to the second agreement position past *délicieux*.

(6) c.'

Following Sproat and Shih (1991) and Cinque (2010), direct modification must be distinguished from indirect modification/predication. In the French examples in (7), the adjective *fidèle* 'faithful' in the first nominal can be prenominal or postnominal. The contrast in (7b) shows that the adjectival phrase realizing secondary predication obligatorily occurs in a postnominal position, structurally in the specifier of RelativeP (Cinque, 2010) or PredP (Laenzlinger, 2011), which means that the NP *femme* in (7c) raises to a Number/Gender related position past Rel/PredP.

(7) a.   un fidèle   compagnon / un compagnon fidèle   [French]
           a faithful companion / a   companion faithful
           'a faithful companion'
     b.   un homme fidèle   à sa femme *vs.* * un fidèle   à sa. femme homme
           a man   faithful to his wife   *vs.*   a faithful to his wife   man
           'a man faithful to his wife'
     c.   une [FP-Num/Gend [NP femme] [RelP/PredP très joliment habillée [~~femme~~]]]
           a   woman   very nicely   dressed

Importantly, RAs must be distinguished from QAs. RAs (Bally, 1965 [1944]; Postal, 1969; Zribi-Hertz, 1972; Bartning, 1980; Bosque and Picallo, 1996; Demonte, 1999; Fradin, 2017), are denominal adjectives (e.g. *government > governmental, os > osseux, soleil > solaire*, etc.). Bally (1965) brings forth four (negative) syntactic criteria for the identification of RAs as opposed to QAs: non-gradability as in (8a), rigid placement (which is postnominal in French as in (8b) but prenominal in English), inability to be coordinated with QAs as in (8c), and restrictions on predicative use as in (8d).

(8) a. * une greffe très osseuse
           a   graft   very bone/bony
           '*a very bone graft.'
     b. * une osseuse   greffe
           a. bone/bony graft
           'a bone graft'
     c. * une greffe osseuse   et désastreuse
           a   graft bone/bony and disastrous
           '*a bone and disastrous graft'
     d. * Cette greffe est osseuse.
           This graft is bone/bony
           '*This graft is bone.'

As seen above, they are often realized as a nominal modifier in English (Rae, 2010). Since in Romance languages, RAs are obligatorily postnominal and non-predicative, they can only realize 'direct modification' of the noun, and therefore constitute the ideal testing ground to evaluate the knowledge of L2 learners of the order of postnominal adjectives.

Note that (9a-b) seem to be counterexamples to the criterion exemplified in (8d).

(9)   a.   Cette attaque est (typiquement) américaine.
           This attack   is (typically)   American
           'This attack is (typically) American.'
      b.   Quant aux   intérieurs, ils   ne   sont pas « *naturels* », mais construits
           As.for at.the interiors, they NEG are   not natural,   but   built
           tous dans un studio...   (Nowakowska, 2004:230)
           all   in   a studio…
           'As for the interiors, they are not "natural', but all built in a studio.'

In the former example, the RA turns out to be qualifying in the sense of American style, and in the latter, *naturels* is contrastively (and typographically) focused, which accounts for their predicative use.

Two types of RAs must be further distinguished. First, the Classifying-Adjectives (CAs) (e.g. *a solar panel*) have a classificatory function whose role is to create a subclass by restricting the domain of all potential types of objects denoted by the noun, as in (10).

(10)   une analyse {syntaxique/stylistique/métrique/comparative…} du   poème
          an   analysis {syntactic/stylistic/metrical/comparative…}   of.the poem
          'a {syntactic/stylistic/metrical/comparative…} analysis of the poem'

With the combination of two CAs, we observe a Set-Subset (or scope) relation, as in (11):

(11)   la   littérature française moderne vs. la   littérature moderne française
          the literature French   modern vs. the literature modern   French
          'Modern French literature' vs. 'French modern literature'

The adjective specifying the Set is closer to the noun than the adjective specifying the Subset whether prenominal in English or postnominal in French.

Second, the Thematic-Adjectives (TAs) express the argument roles of a predicative noun (e.g. *an American decision*) (Postal, 1969). When these are combined, there is a strict Thematic hierarchy among TAs (including circumstantials; Bartning, 1980; Bortolotto, 2016; Rae, 2010), as in (12) for English/Germanic:

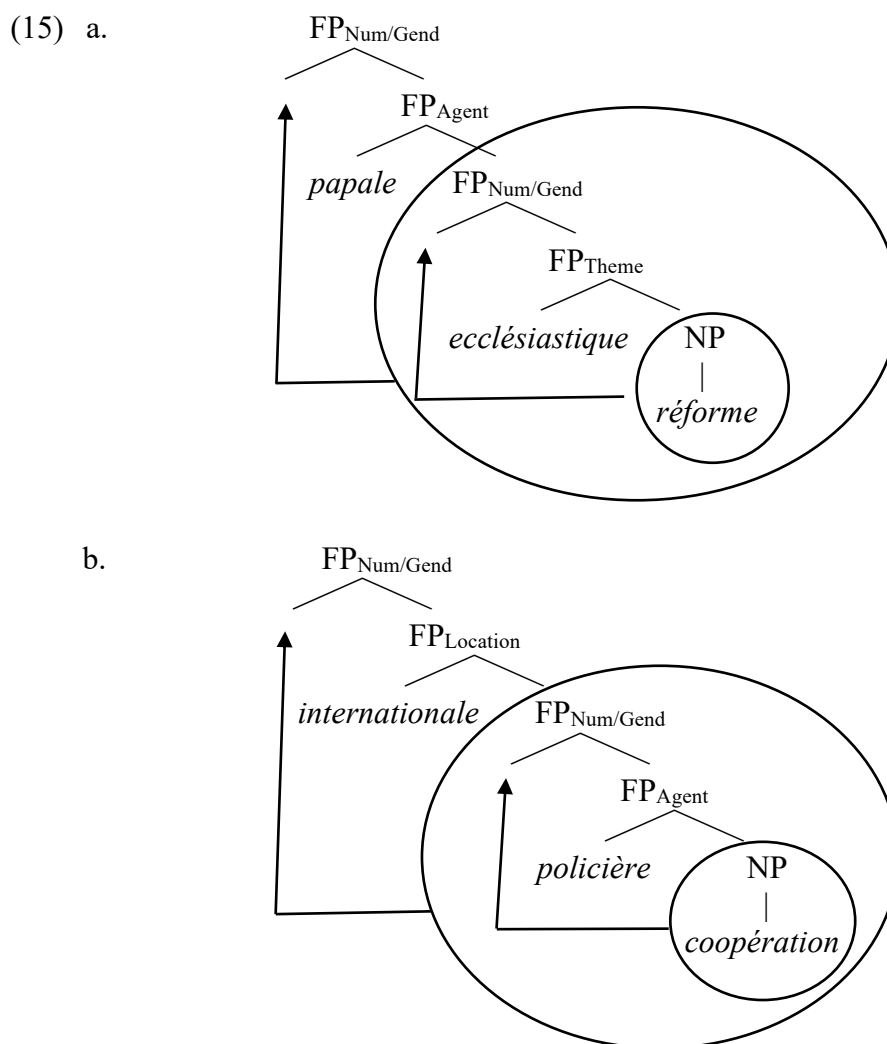(12)   TEMPORAL > LOCATION > AGENT > INSTRUMENT > THEME > NP

French and Romance languages show the reverse ordering of (12) in the postnominal domain in (13), as in Bortolotto (2016):
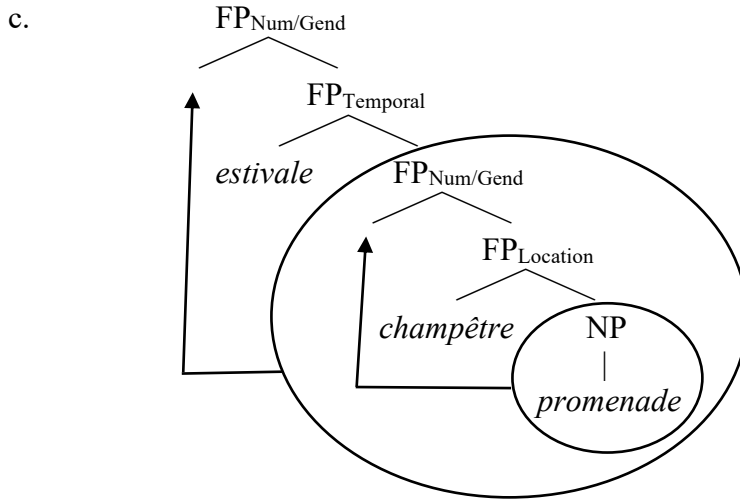
(13)   NP < THEME < INSTRUMENT < AGENT < LOCATION < TEMPORAL

This is illustrated in (14a-c) for French.

(14) a. la   réforme ecclésiastique papale   [THEME < AGENT]
          the reform   ecclesiastical papal
          'the Papal reform of the church'
      b. la   coopération policière internationale   [AGENT < LOCATION]
          the cooperation policing international
          'international police cooperation'
      c. une promenade champêtre estivale   [LOCATION < TEMPORAL]
          a   walk   rural   summer
          'a summer rural walk'

The fact that, in Romance languages, TAs are realized in the reverse order to English is a further indication of the Roll-up NP-movement within the lexico-thematic domain right above NP. The derivation of the order of postnominal TAs is illustrated in (15a-c).
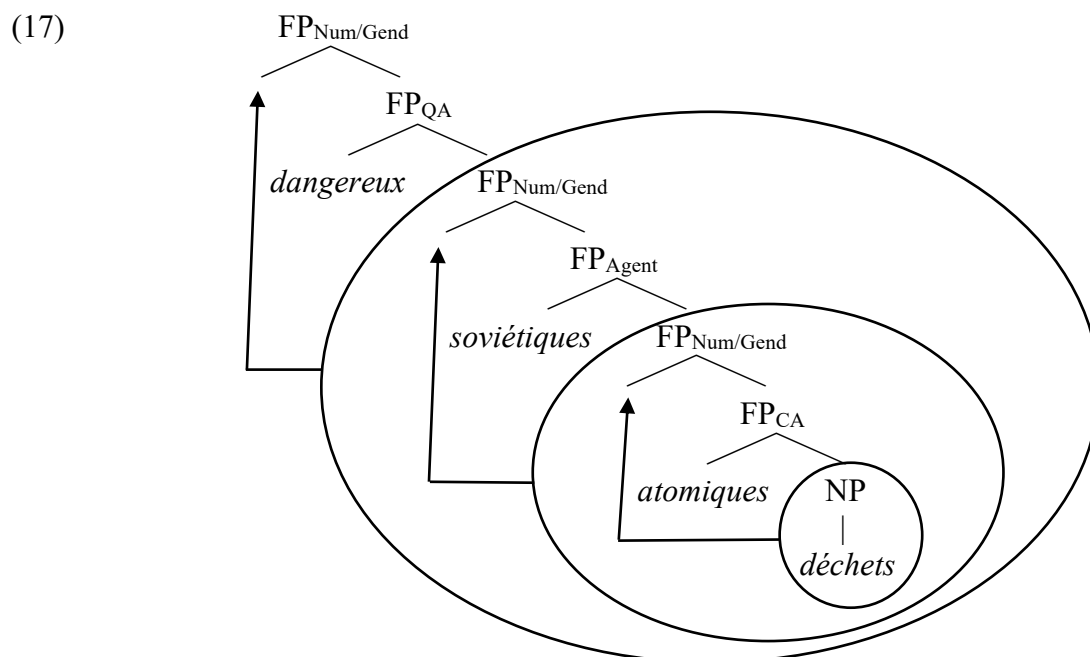
(15) a.

      b.

c.

Moreover, there are strict ordering restrictions on RAs in interaction with QAs (Bosque and Picallo, 1996; Demonte, 1999; Rae, 2010; Bortolotto, 2016): RAs appear closer to the noun than QAs and CAs appear closer to the noun than TAs, as shown below in (16a-d) for English (prenominal order) and French (postnominal order).

(16) a.   extensive$_{QA}$ Japanese$_{TA\text{-}AGENT}$ industrial$_{CA}$ fishing of whales
            = pêche industrielle$_{CA}$ japonaise $_{TA\text{-}AGENT}$ extensive$_{QA}$ des   baleines
              fishing industrial   Japanese   extensive of.the whales
      b.   dangerous$_{QA}$ Soviet$_{TA\text{-}AGENT}$ atomic$_{CA}$ waste
            = déchets atomiques$_{CA}$ soviétiques $_{TA\text{-}AGENT}$ dangereux$_{QA}$
              wastes atomic   Soviet   dangerous
      c.   blue$_{QA}$ solar$_{CA}$ panel
            = panneau solaire$_{CA}$ bleu$_{QA}$
              panel   solar   blue
      d.   Japanese $_{TA\text{-}AGENT}$ industrial$_{CA}$ waste
            = déchets industriels$_{CA}$ japonais $_{TA\text{-}AGENT}$
              wastes   industrial   Japanese

The base order of the structure is assumed to be such as in English, that is, QA<TA<CA<NP. More precisely, QAs merge in the Φ-domain according to the hierarchy in (2), TAs merge in the lexico-thematic domain above NP according to the Thematic hierarchy in (12), and CAs merge in the lexical N-zone occurring immediately above the NP-domain and below the thematic domain. This is the order found in Germanic/English without NP-movement. Since French shows the mirror image order, three steps of Roll-up NP-movement are assumed, as represented in (17) for (16b).

(17)

$FP_{Num/Gend}$

    FP_{QA}

dangereux $FP_{Num/Gend}$

        FP_{Agent}

    soviétiques $FP_{Num/Gend}$

            FP_{CA}

        atomiques   NP
                    |
                    déchets

3. REVIEW OF LITERATURE

Previous research has shown the topic of the L2 acquisition of the placement of one AP with respect to the noun to be largely uneventful: after strong initial L1 influence, adjectives, in accordance with available positive evidence, are rapidly placed in their correct position (Granfeldt, 2000, 2004, among others). The present research will confirm single adjective placement of unambiguously 'direct' modification Thematic adjectives (TA) as NP-raising over the adjective given that TAs are not susceptible to realize forms of secondary predication.

The topic of the L2 acquisition of adnominal concatenated adjectives has received much less attention: to the best of our knowledge, only two published articles on the topic within the framework of GenSLA. First, using a Forced Preference Task, Stringer (2013) studies the L2 acquisition of pre-nominal QAs in English by ESL learners from three L1 backgrounds: Arabic, Korean and Mandarin-Chinese. The learners were asked to indicate their preference (that is, choose between options A and B) about 40 audio-recorded test-sentences in English, pronounced with two alternative sequences of Qualifying adjectives. The results show that learners, whatever their L1, acquire the correct ordering of pairs of adjectives when these combine a gradable modifier (*value, size, age*) and a non-gradable one (*colour, nationality, shape*) (e.g. *nice blue car*) and show significant improvement correlated with their level of proficiency, but are unable to acquire the ordering of two gradable adjectives (e.g. *big old car*), whatever their language background or level of proficiency. This preliminary research, therefore, shows that if the order between gradable vs. non-gradable adjective types comes for free pre-nominally, more subtle ordering constraints among adjectives matched for gradability do not. The present research investigates the reverse situation, that is, acquisition of a language with post-nominal adjectives by speakers of a language with prenominal adjectives.

Secondly, within a study on the acquisition of the meaning and position of adjectives in Spanish, Pettibone et al. (2021) uses an Acceptability Judgment Task to ask advanced monolingual and multilingual English-speaking learners of Spanish and a control group of native speakers of Spanish to provide scalar judgements (that is, completely unacceptable, a bit odd, almost fine, completely acceptable) of 31 test-sentences that manipulated the placement of a single post-nominal Relational adjectives with respect to the noun, or the placement of two postnominal adjectives. For the concatenation of two adjectives, they use either combinations

of two Qualifying adjectives, or combinations of a Qualifying adjective and a Relational (Classifying) adjective. The results show that learners of Spanish in correlation with their level of proficiency increasingly prefer the mirror-image pattern of post-nominal adjectives to the English linear pattern (albeit post-nominally). However, it does not clearly distinguish between types of RAs (Classifying/Thematic), nor does it investigate pairs of RAs.

Their results on the relative ordering of adjectives give us an indication of the preference that occurs in the interlanguage of the learners for the mirror-image order but is unable to distinguish a syntactic account in terms of the movement involved (cyclic raising as opposed to Roll-up movement) from a semantic account in terms of the difference between what they call intersective (*nationality, colour, shape*) and non-intersective adjectives (*size, value*), with the intersective ones closer to the noun. Note that the latter distinction does not coincide entirely with Stringer's gradability factor, as, for instance, size adjectives are gradable but non-intersective.

4. RESEARCH QUESTIONS AND HYPOTHESES

The current proposal expands on previous research by clearly distinguishing different classes of adjectives (Qualifying vs. Relational, Classifying vs. Thematic), and the interaction between them. It also examines whether other morpho-syntactic (Θ- vs. Φ-domain), and semantic-pragmatic factors (Set-Subset relations and Thematic value) can affect the learners' knowledge of adjective concatenation.

Within a Full Transfer Full Access model (Schwartz and Sprouse, 1996, 2021), learners start with the initial specifications of their L1 and progressively acquire the specifications of the target L2 based on the positive evidence they are exposed to. By full transfer of the L1, the initial linear order of adjectives of native English speakers acquiring French will be the English AOR without NP-raising: QAs<TAs<CAs<NP. They will furthermore copy the merging site of distinct types of adjectives from their L1.

> Research question 1: Do intermediate to advanced English-speaking learners of French hypothesize NP-raising above the merging site of direct modification adjectives in L2 French?

In the acquisition of L2 French, learners must first realize that NP-raising to FPNum/Gend occurs. Importantly, the linear placement of an adjective after the noun does not irrefutably mean that the appropriate NP-raising has occurred unless 'direct' and 'indirect' modifications are clearly distinguished. So, they will only acquire NP-raising past adjectives when exposed to nouns placed before unambiguously direct modification adjectives, as opposed to indirect modification adjectives realizing a secondary predication akin to a reduced relative. As RAs can only express direct modification, they constitute incontrovertible proof to learners that such raising has occurred, and noticing such input will force them to restructure their L2 grammar accordingly.

Once learners have integrated NP-raising, two models are available in UG: either, as in the Irish/Celtic type, direct modification adjectives are ordered post-nominally in the same linear order as the AOR by cyclic NP-raising past each adjective: NP<QAs<TAs<CAs, or, as in the Semitic - and also preferably in the Romance - type, adjectives are ordered post-nominally in the mirror-image order to the AOR by successive Roll-up NP-movement: NP>CAs>TAs>QAs.

> Research question 2: Do learners hypothesize (i) cyclic NP-raising above each adjective, or (ii) Roll-up NP-movement with successive pied-piping of each adjective in their L2

grammar, to account for the post-nominal sequencing of QAs and RAs, or of CAs and TAs, in L2 French?

Even if the positive evidence of several postnominal adjectives is scarce, once NP-raising has been acquired and thanks to full access to UG, advanced level learners are expected to eventually restructure their grammar towards the syntax of the target language, that is, acquire full Roll-up NP-movement when exposed to sequences of postnominal direct modification adjectives in the mirror image order. Alternatively, it may depend on the level of proficiency or other independent variables of these learners who may possibly be at a stage when the Roll-up NP-movement only applies to certain sub-types of adjectives.

By full transfer of the L1, learners intuitively possess the knowledge of distinct RAs, and the Set-Subset or scope relations of CAs, as in (11), as well as the UG-constrained Thematic hierarchy of TAs, as in (12), from their native language.

Research question 3: Do learners of French correctly sequence pairs of similar RAs in their L2 grammar, whether two CAs or two TAs?

Even faced with scarce input, once it has been acquired, advanced level learners are again expected to eventually generalize the Roll-up NP-movement to these constructions as well and therefore sequence these RAs in the mirror-image order to the order of adjectives in their L1.

5. METHODOLOGY

5.1. Participants

Participants were a group of native-speakers of English learning French at eight Australian universities (n = 68) (henceforth the 'Learners') and a control group of native-speakers of French (n = 14) (henceforth the 'Natives'), all resident in Australia at the time of the survey. Learners were contacted in 2023 via recruitment notices posted on their French course learning platform, at the intermediate level B1/B2 (CEFR) or higher. Nine of these Learners declared themselves bilingual native speakers of English, seven with English as their main language and another language as a heritage language (Cantonese, Mandarin, Konkani, Macedonian, Bosnian). Two participants declared another language as their first language (Japanese, Italian) with English as their second native language and therefore have been removed from the current research focussed on English-first learners of French. For their part, the Natives were contacted by word-of-mouth and social media posts among teachers of French in Australia. This study was approved by the UNSW Research Ethics Committee (approval no. HC230015) on March 15, 2023.

Table 1 gives the number of years of instruction in the French language (Q1) for the 14 Natives (Mean = 22.57 years) and 66 Learners (Mean = 7.37 years) with a range of 1.8 – 17 years for Learners, indicating a wide spectrum of proficiency. Only four Learners declared having spent more than a year immersed in a French speaking country, while 16 had spent no time at all in such a country at the time of the survey.

Table 1. Descriptive statistics for Natives and Learners' background information Q1 and Q2

	Q1. Years of formal study of French			Q2. Time spent immersed in-country*			
	Mean	**SD**	**Range**	**a.**	**b.**	**c.**	**d.**
Natives (14)	22.57	11.68	12 – 61	0	0	0	14
Learners (66)	7.37	3.33	1.8 – 17	16	25	21	4

Note: *a. none, b. less than a month, c. less than a year, d. more than a year.

The self-proficiency score was the sum of self-evaluation scores in speaking, listening, and reading, each rated from 1 to 10. Table 2 indicates that the 14 Natives, on average, assessed their proficiency as 29.86/30 in French and 26.43/30 in English, while the 66 Learners estimated their proficiency as 20.38/30 in French and 29.76/30 in English. Finally, when asked to estimate their exposure to French on a scale from -3 (no French) to +3 (no English), Natives (Mean = -0.43) reported slightly more daily exposure to French than Learners (Mean = -1.48), arguably because of family or professional ties, yet, the overall answer showing negative exposure to French in both groups acknowledges that they are living in an English-speaking society.

Table 2. Descriptive statistics for Natives and Learners' Proficiency (Q3-4) and Exposure (Q5)

	Q3. Proficiency in French			Q4. Proficiency in English			Q5. Exposure to French		
	Mean	**SD**	**Range**	**Mean**	**SD**	**Range**	**Mean**	**SD**	**Range**
Natives	29.86	.53	28 – 30	26.43	2.24	24 – 30	-0.43	1.61	-2 – 2
Learners	20.38	3.51	12 – 30	29.76	0.72	26 – 30	-1.48	0.93	-3 – 1

5.2. Instruments

Participants responded anonymously to an electronic survey conducted on Qualtrics XM. No time limit was set for completing the survey once access had been granted, but participants had to provide an answer to each question to be allowed to move on to the next task.

After giving their consent to take part in the research, participants were asked to provide background information about their native language(s) and background in learning French (Q1-Q5 above). They then completed two separate metalinguistic tasks: an Acceptability Judgment Task (henceforth AJT) and a non-forced Preference Task (henceforth NFPT). To make sure all adjectives used in the tasks would be easily understood, all were chosen for their relatively high frequency of use (based on information from *Lexique.org,* New et al., 2004) and/or because they were transparent cognates of equivalent English modifiers.

The AJT contained 27 randomized test-items. Participants provided scalar judgments on a four-point scale going from *completely unacceptable* to *completely acceptable* on 18 test-sentences, half grammatical and half ungrammatical, mixed with nine irrelevant distractors (containing two clitic pronouns in alternate orders).[1] They were advised to trust their first impression and avoid going back on their answers. As in Pettibone et al. (2021), there was a four-point scale:

> *The sentence sounds…*
> - Option A: *completely unacceptable*
> - Option B: *a bit odd*
> - Option C: *almost fine*
> - Option D: *completely acceptable*

A confident 'correct' choice was scored +2, a 'correct' choice +1, an 'incorrect' choice -1, and a confident 'incorrect' choice -2.

First, to test NP-raising, the AJT tested six items combining an obligatorily postnominal TAs placed either before or after the event nominal they modified, as in (18a-b):

(18) a.   La **production électrique** augmente en hiver.
           The production   electric   increases in winter
           'The production of electricity increases in winter.'

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[1] All test-items are in the Appendix.

   b. * La **visuelle inspection** est la   première étape d'un diagnostic.
          The visual   inspection is the first   stage of a diagnosis
          'The visual inspection is the first step of a diagnosis.'

The TAs were: *électrique* 'electric', *cardiaque* 'cardiac' interpreted as Theme of their event nominal, *aérien* 'by air', *visuel* 'visual' as Instrument, *étudiant* 'student' (also a noun) and *russe* 'Russian' as Agent.

   Then, to test the knowledge of the ordering of postnominal adjectives, the AJT proposed 12 sentences with NPs containing a combination of a RA, either a TA as in (19a-b) or a CA as in (20a-b), and a QA – half of them in the grammatical mirror-image order NP+RA+QA and the other half in the ungrammatical English linear order *NP+QA+RA:

(19) a.   La police a   interdit   les **manifestations ouvrières violentes**.
            The police has forbidden the demonstrations labour.ADJ violent
            'Police has forbidden violent labour protests.'
      b. * Nous achetons un appartement en prévision de la **crise suivante économique**.
            We purchase an apartment   in prevision of the crisis next   economic
            'We are purchasing an apartment in prevision of the next economic crisis.'

(20) a.   Les **relations familiales tendues** sont mauvaises pour les enfants.
            The relations familial   tense   are bad   for   the children
            'Tensed family relationships are bad for the children.'
      b. * Apportez votre **livre   rouge scolaire**,   s'il vous plait.
            Bring   your book red   school.ADJ if it you pleases.
            Bring your red schoolbook, please.'

So, six TAs: *ouvrier* 'labour' (also a noun), *masculin* 'masculine' interpreted as Agent, *sanitaire* 'sanitary', *économique* 'economic' as Aboutness, and *nocturne* 'nocturnal', *quotidien* 'daily' as Temporal and six CAs: *familial* 'in relation to family', *scientifique* 'scientific', *solaire* 'solar', scolaire 'in relation to school', *légal* 'legal' and *électoral* 'electoral' were combined with 12 QAs: either predicative: *bleu* 'blue', *fréquent* 'frequent', *intéressant* 'interesting', *nécessaire* 'necessary', *rouge* 'red', *sérieux* 'serious', *tendu* 'tensed', *violent* 'violent', or non-predicative: *éventuel* 'eventual', *précis* 'precise', *spécifique* 'specific', *suivant* 'following'. To make sure the QAs were not interpreted by the Learners as secondary predication, the list of QAs contained both predicative and non-predicative adjectives.

   The second task, the NFPT, included 27 randomized items: 16 test-sentences and 11 fillers (consisting of sentences with two adnominal PPs in alternate order). Participants chose the sentence they preferred among pairs of sentences, with the option of a 'no-preference' choice:

   Which option seems the most natural to you?
   -   Option A: [Test sentence A]
   -   Option B: [Test sentence B]
   -   Option C: *Both are equivalent*.

A 'correct' choice was scored +1, an 'incorrect' choice -1, and a no-preference choice 0.
   In the NFPT, twelve pairs of test-sentences combined two RAs in alternate orders: four combined a CA and a TA (the CA/TA condition), as in (21a); four combined two CAs (the 2-

CA condition), as in (21b),[2] and four combined two TAs (the 2-TA condition), as in (21c). Additionally, there were four pairs of sentences with two QAs, but as it is not the core of the present argument, we focus exclusively on the combinations of 2-RA.

(21) a.   Pour recevoir nos publications, indiquez une **adresse {postale européenne/**
            To   receive our publications, indicate an address {postal European
            ***européenne postale}**.
            European   postal}
            'To receive our publications, indicate a European postal address.'

     b.   Je prendrai une **eau   {minérale gazeuse / *gazeuse minérale}**, s'il vous plait.
            I   will-take a   water {mineral   sparkling / sparkling mineral }   if it you pleases
            'I'll have a sparkling mineral water, please. '

     c.   Une **éruption {volcanique chilienne / *chilienne volcanique}** a   perturbé
            An eruption {volcanic   Chilian / Chilian   volcanic}   has disrupted
            les avions.
            the airplanes
            'A Chilean volcanic eruption disrupted airplanes.'

There were ten CAs: *central* 'central', *éducatif* 'educational', *gazeux* 'sparkling', *industriel* 'industrial', *militaire* 'military' (also a noun), *minéral* 'mineral', *nerveux* 'nervous', *nucléaire* 'nuclear', *postal* 'postal' and *secondaire* 'secondary', and 11 TAs: *cardiaque* 'cardiac', *spatial* 'spatial', *volcanique* 'volcanic' interpreted as THEME of the head noun, *manuel* 'manual' as INSTRUMENT, *américain* 'American' (used twice), *japonais* 'Japanese', *policier* 'police' (also a noun) interpreted as AGENT, and *européen* 'European', *chilien* 'Chilian', *international* 'international', *sous-marin* 'underwater' (also a noun) interpreted as LOCATION.

6. RESULTS

Statistical analyses and correlations were conducted on SPSS (Version 30) with a significance level of .05. The results of the AJT (NP/TA and RA/QA), normally distributed for Learners, were analysed with parametric tests (Independent and Paired sample t-tests), and the results of the NFPT, non-normally distributed, with non-parametric tests (Friedman and Mann-Whitney U test). We then conducted multiple linear regressions between independent variables and scores on the tasks. Data can be accessed upon request to the first author.

6.1. Results of the AJT with one adjective placed before or after the noun

The scores for the position of one Thematic adjective with respect to the noun are given in Table 4. Means are lower and SD and Range are higher for Learners than for Natives. NP/TA scores are normally distributed for the 66 Learners but not for the 14 Natives (Kolmogorov-Smirnov test: $D(66) = .193$, $p = .098$ and $D(14) = .292$, $p = .002$, respectively).
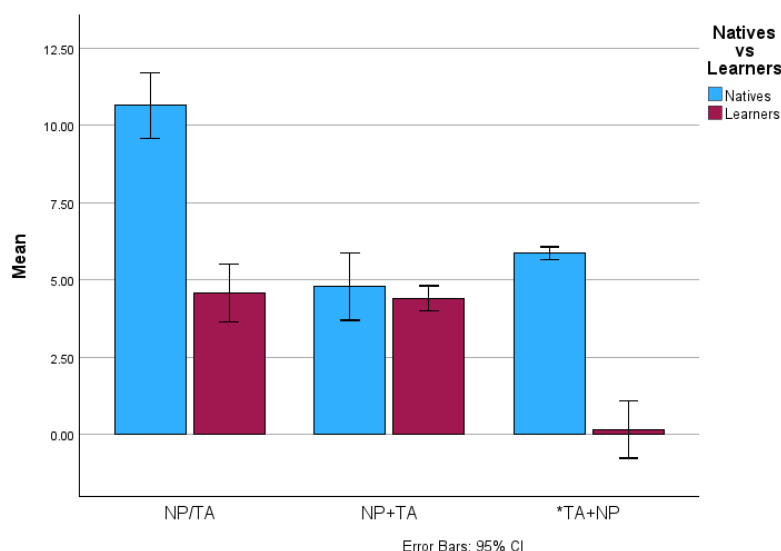
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[2] One test-item combining two CAs, *missile nucléaire / balistique* 'nuclear / ballistic missile', delivered random results by Natives and Learners alike and was therefore removed from the experiment, as, after re-evaluation both orders appear equally acceptable in French and in English (as in 11), as confirmed on Google N-gram (*balistique nucléaire* vs. *nucléaire balistique*, both attested at .0294 x 10^{-6} % in 2021). It was replaced by the average of the other test-items to maintain equivalence with the other conditions.

Table 3. Descriptive statistics on the results of the placement of one adjective (TA)

	Natives (n = 14)			Learners (n = 66)		
	Mean	**SD**	**Range**	**Mean**	**SD**	**Range**
NP/TA condition (6 test-items)	10.64	1.82	6.00 – 12.00	4.57	3.83	-3.00 – 12.00

As seen in Figure 1, overall positive Mean scores on the judgment of the six NP/TA items for Learners (in red) and Natives (in blue) show that both Learners and Natives implicitly know that TAs are postnominal.

Figure 1. Mean of NP/TA, NP+TA and *TA+NP configurations, with error bars, for 66 Learners and 14 Natives

A Pearson correlation analysis on Learners' data on their NP/TA scores revealed mutually significant weak correlation coefficients with the independent variables Q1 (Number of years of formal study) ($r(64) = .28$), Q2 (Time immersed in-country) ($r(64) = .24$) and Q3 (Self-assessed Proficiency in French) ($r(64) = .27$), but no correlation with Q4 (Self-assessed Proficiency in English) or Q5 (Exposure to French) for the 66 learners.

When comparing the groups of Natives and Learners, an Independent-Sample t-test (with a Levine test) revealed that Learners' scores on NP/TA were significantly lower than Natives' ($t(41.48) = 8.95$, $p < .001$, equal variance not assumed). However, as there was no significant difference between groups on their judgment of the grammatical NP+TA configuration ($t(78) = -.762$, $p = .224$, equal variance assumed), the source of the difference mostly lied in the failure of Learners to reject ungrammatical *TA+NP items ($t(70.11) = 11.97$, $p < .001$, equal variance not assumed). In fact, Learners' average scores on the latter condition proved not to be significantly different from chance, as shown in Figure 1.

Finally, taken individually, nine of the 66 Learners (13.64%) had a score of zero or less on the placement of one adjective, showing that they were either undecided or even preferred the prenominal position. These nine Learners were removed from subsequent investigation, given that participants who are not confident in the placement of one adjective with respect to the noun cannot be trusted on their judgment of the position of two adjectives postnominally. The scores on the evaluation of the combinations of two adjectives will therefore be presented with the 57 remaining learners.

6.2. Results of the AJT for combinations of postnominal RAs with QAs

As seen in Table 4, Means are lower and SD and Range are higher for Learners than for Natives. Overall RA/QA scores were normally distributed for both Learners and Natives (Kolmogorov-Smirnov test: $D(57) = .078$, $p = .200$, and $D(14) = .139$, $p = .200$, respectively).
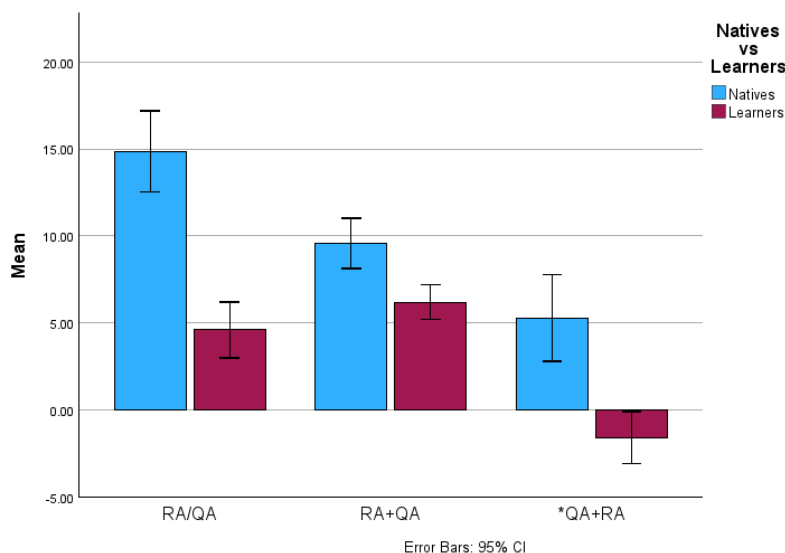
Table 4. Descriptive statistics on the results of the combination of two post-N adjectives

Items type in AJT	Natives (n = 14)			Learners (n = 57)		
	Mean	**SD**	**Range**	**Mean**	**SD**	**Range**
TA/QA condition (6 test-items)	7.64	2.62	2.00 – 11.00	2.02	3.99	-5.00 – 9.00
CA/QA condition (6 test-items)	7.21	2.91	2.00 – 12.00	2.60	3.11	-6.00 – 11.00
RA/QA condition (12 test-items)	14.86	4.03	7.00 – 21.00	4.60	6.03	-6.00 – 20.00

When looking at correlations between the independent variables (Q1 to Q5) and the scores on RA/QA, TA/QA and CA/QA among the 57 Learners, only weak (negative) correlations were identified between Q4 (Self-Assessed proficiency in English) and both overall RA/QA ($r(55) = -.26$) and CA/QA ($r(55) = -.27$), while a moderate (positive) correlation between Q3 (Self-Assessed proficiency in French) was identified with TA/QA ($r(55) = .32$), Q1, Q2, Q5 not correlated with anything.

Regarding the overall combination of RAs and QAs, as seen in Figure 2, both Learners (in red) and Natives (in blue) judged the French mirror-image order RA+QA more acceptable on average than the English linear order *QA+RA. Despite such overall positive results, 17 of the 57 Learners (29.82%), as opposed to none of the Natives, had an overall score of zero or less on the RA/QA ordering, showing inconclusive or incorrect judgments of acceptability by these Learners.

Figure 2. Mean of RA/QA, RA+QA and *QA+RA configurations, with error bars, for 57 Learners and 14 Natives
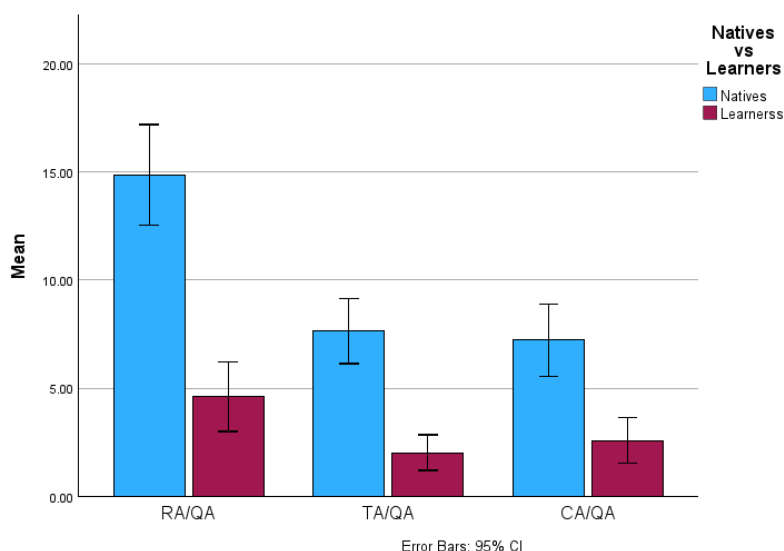

When comparing both groups of participants, an Independent-sample t-tests revealed significant differences between Learners and Natives in their overall RA/QA scores ($t(69) = 6.02$, $p < .001$, with equal variance assumed). This time, the difference was significant for both grammatical RA+QA and ungrammatical combinations *QA+RA ($t(69) = -3.22$, $p = .002$; $t(69)$

= -4.28, *p* < .001, respectively, equal variance assumed). In fact, as seen in Figure 2, the Learners, on average, incorrectly accepted the ungrammatical configurations, albeit less strongly than they accepted the grammatical ones.

Furthermore, as illustrated in Figure 3, the scores were positive independently of whether the RA in the combination was a TA or a CA. A Paired-sample t-test determined that the Mean acceptability scores of Learners did not differ significantly between the TA/QA and CA/QA conditions (*t*(57) = -1.10, *p* = .28).
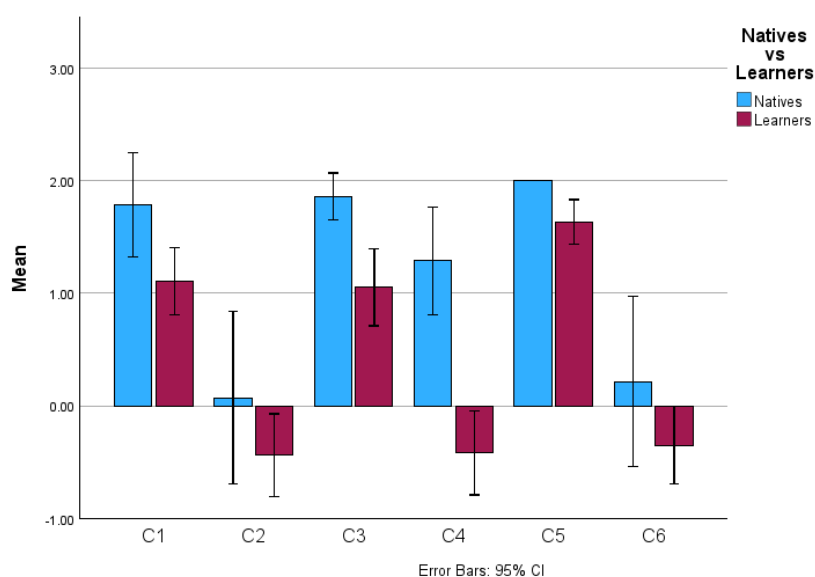
Figure 3. Mean of RA/QA, TA/QA and CA/QA with error bars, for 57 Learners and 14 Natives

Surprisingly, as seen in Figure 4, the Natives' results (in blue) on two of the ungrammatical items combining a CA and a QA: *C2 (Mean = 0.07) and *C6 (Mean = 0.21), in (22a,c) below, did not significantly differ from chance (One-Sample Wilcoxon Signed Rank tests, *p* = .414 and .870, respectively) while the third ungrammatical item *C4, in (20b) repeated in (22b) below, was correctly rejected by Natives (Mean = 1.28). An accommodation process seemed to be at play with these two ungrammatical CA/QAs combinations (22a and c) among some Natives.[3]

(22) a. * Des   **bases sérieuses scientifiques** renforcent nos conclusions. (C2)
              Some bases serious   scientific   reinforce our conclusions.
              'Serious scientific bases reinforce our conclusions.'
      b. * Apportez votre **livre rouge scolaire**,   s'il vous plait.
              Bring   your book red   school.ADJ if it you pleases.
              'Bring your red schoolbook, please.'
      b. * Cet   accord   nécessite un **contrat spécifique légal**. (C6)
              this.M agreement requires a contract specific   legal
              'This agreement requires a specific legal contract.'

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[3] Seven (for C2) and six (for C6) Natives got a negative score of either -1 or -2 (only one in each case for the latter). Yet, Google N-gram analyses had revealed clear differences between the two orderings in question: the ungrammatical order not being attested at all in their French corpus.

Figure 4. Mean of C1 to C6 with error bars, for 57 Learners and 14 Natives
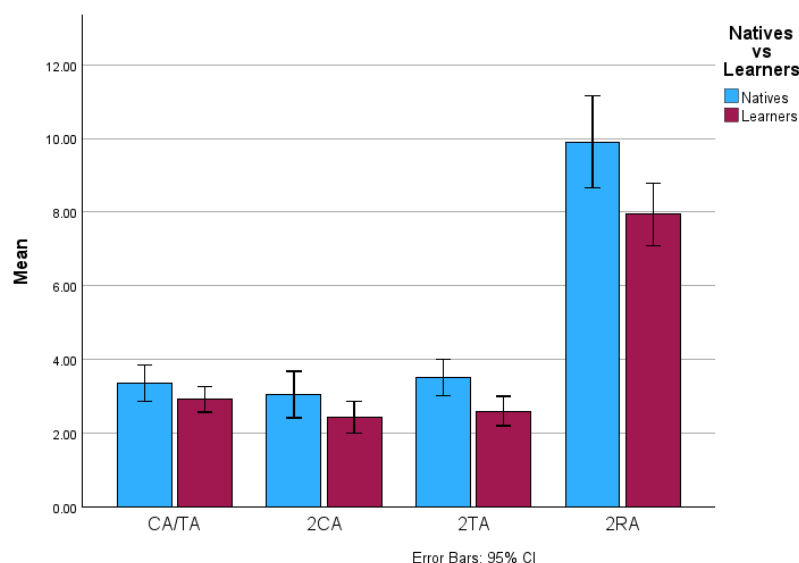

6.3. Results of the NFPT

As shown in Table 5 and Figure 5 below, both Learners (in red) and Natives (in blue) clearly preferred the French mirror-image order to the English linear order in the three conditions under investigation (CA/TA, 2-CA, 2-TA). All Mean scores are lower and all SD and Range higher for Learners than for Natives. A Kolmogorov-Smirnov (K-S) test showed that none of the variables was normally distributed, leading to the use of non-parametric tests.

Table 5. Descriptive statistics of the 2-RA conditions, with Kolmogorov-Smirnov (K-S) test of normality, for Natives and Learners

Items type in NFPT	Natives (n = 14)				Learners (n = 57)			
	Mean	**SD**	**Range**	**K-S test**	**Mean**	**SD**	**Range**	**K-S test**
CA/TA (4 items)	3.36	.84	2.00 – 4.00	p < .001	2.91	1.31	-2.00 – 4.00	p < .001
2-CA (4 items)	3.05	1.10	1.33 – 4.00	p = .002	2.43	1.63	-1.33 – 4.00	p < .001
2-TA (4 items)	3.50	.85	2.00 – 4.00	p < .001	2.60	1.51	-2.00 – 4.00	p < .001
2-RA (12 items)	9.90	2.15	5.33 – 12.00	p = .025	7.94	3.20	-1.33 – 12.00	p < .001

Figure 5. Mean of CA/TA, 2-CA, 2-TA, and total 2-RA combinations with error bars, for 14 Natives and 57 Learners

A Binomial test conducted on each 2-RA test-item separately (with the 'no-preference' option treated as missing value) revealed that the Learners' choices were all significantly distinct from chance (but see note 2). A Friedman test showed that there was no statistical difference across the three conditions among Learners ($Chi^2(2) = 2.58$, $p = .276$). When exploring possible correlations of these results with independent variables using a Spearman test, only Q4 (Self-Assessed proficiency in English) revealed a weak (positive) correlation with the scores on the 2-TA condition ($r(55) = .29$). Finally, when comparing Learners and Natives on each condition, a Mann-Whitney U test indicated a significant difference in Means between Natives and Learners in the overall 2-RAs condition ($z = -2.27$, $p = .023$), as well as on the 2-TA condition ($z = -2.24$, $p = .025$), but noticeably no significant difference was identified between both groups in the CA/TA and 2-CA conditions ($z = -1.03$, $p = .30$ and $z = -1.15$, $p = .25$, respectively).[4] So, Learners did not do significantly worse than Native on these two conditions.

Interestingly, focusing on the Learners' answers on each of the four test-items in the 2-TA condition, a Friedman test revealed a significant difference among the four test-items ($Chi^2(3) = 19.50$, $p < .000$). A Wilcoxon signed rank test with a Bonferroni correction revealed that the most difficult combination for Learners, F1: Theme/Instrument: *réanimation cardiaque manuelle* 'Manual cardiac resuscitation' (Mean = 0.35), elicited a significant difference with both F2: Theme/Agent: *exploration spatiale américaine* 'American space exploration' (Mean = 0.79) ($z = -3.00$, $p = .003$) and F3: Theme/Loc: *éruption volcanique chilienne* 'Chilian volcanic eruption', in (21c), (Mean = 0.88) ($z = -3.63$, $p < .001$), but none with F4: Agent/Location: *coopération policière internationale* 'international police cooperation' (Mean = 0.58) ($z = -1.45$, $p = .147$).

6.4. Results of multiple regression analyses

Multiple linear regression analyses tested the relationship between the results of the RA/QA conditions and the NP/TA condition (results on the placement of one adjective) alongside the

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[4] In one of the CA/TA test items (D1) *pêche industrielle japonaise* 'Japanese industrial fishing', Learners (Mean = 0.72) even got a better average score than Natives (Mean = 0.57): the TA was probably reinterpreted as a CA by some Natives: *Japanese fishing* would then be a type of fishing.

independent variables Q1 to Q4, against the scores received by Learners. The model accounted for 30.3% (R^2_{adj}) of variability of results on RA/QA combinations overall ($p < .001$), with NP/TA and (negative) Q4 (Self-Assessed proficiency in English) as significant predictors ($t(56)$ = 4.09, $p < .001$ and $t(56)$ = -2.75, $p = .008$, respectively). The model also accounted for 16.3% (R^2_{adj}) of variability of results on TA/QA ($p = .014$) with NP/TA and Q3 (Self-Assessed proficiency in French) as significant predictors ($t(56)$ = 2.44, $p = .018$ and $t(56)$ = 2.50, $p = .015$, respectively), as well as for 29.3% (R^2_{adj}) of variability of results on CA/QA ($p < .001$) with both NP/TA scores and (negative) Q4 (Self-Assessed proficiency in English) as significant predictors ($t(56)$ = 4.06, $p < .001$ and $t(56)$ = -2.81, $p = .007$, respectively). However, the model failed to predict any variability of results with 2-RA configurations.

7. DISCUSSION

As for the influence of independent variables on Learners' scores on the combinations of adjectives, one might have expected a greater influence of the number of years of instruction in French (Q1) or the Self-Assessed proficiency in French (Q3). Yet Q1 is not correlated with the combinatory results and Q3 only weakly correlated with - and predictor of - TA/QA. In that regard, some Learners underestimated their proficiency in French relative to their actual task performance. For instance, the two Learners (NN40 and NN67) who objectively achieved the highest scores in task 1, subjectively rated their proficiency in French in a way that placed them in the lower half of the scale in comparison to their peers. Self-Assessed proficiency therefore proves not to be a reliable measure of the actual proficiency of Learners. An objective measure of proficiency (such a cloze test) may be required in future research. Interestingly, weak correlations between the Self-Assessed proficiency in English (Q4) by these native speakers of English were also identified with scores on RA/QA and CA/QA (negatively) and even on 2-TA (positively).

To investigate whether L2 Learners of French hypothesize NP-raising (research question 1), 66 participants were asked to judge the acceptability of the position of one TA relative to the noun. These TAs being non-predicative, their post-nominal position cannot be explained as a form of secondary predication akin to a reduced relative, which could possibly have accounted for their rightmost placement. As the Learners' average score on this condition significantly differs from chance, it unambiguously supports an account in terms of NP-raising above the TAs. Nonetheless, Learners' acquisition is still ongoing as their average scores are significantly lower than those of Natives, primarily due to Learners' acceptance of ungrammatical sequences (albeit significantly less than they accepted grammatical ones).

The results of the NP/TA task, taken as a control of the learners' knowledge of the position of one adjective, allowed us to eliminate nine Learners whose scores were equal of below zero, hence showing uncertain or ungrammatical judgments on the placement of one adjective in the interlanguage of these learners, therefore not suitable for the study on the ordering of combination of two adjectives post-nominally.

To answer the research questions 2 and 3 as to whether L2 Learners have internalized an Irish-type grammar of adjective positioning (NP+A1+A2) characterized by the sequencing of adjectives in the same order post-nominally as the canonical AOR observed pre-nominally in English (A1+A2+NP) or a Semitic/Romance-type grammar (NP+A2+A1) with direct modification adjectives ordered in the mirror-image order to the AOR post-nominally, two tasks, AJT and NFPT, were administered to 57 participants. In the AJT, the participants were asked to evaluate the acceptability of 12 combinations of RAs and QAs post-nominally and, in the NFPT, to choose the option they preferred among 12 minimal pairs of sentences with alternating combinations of different types of RAs.

First, the AJT results showed that the grammatical mirror-image configuration was judged more acceptable than the ungrammatical English linear order by Learners and Natives alike, whether the RA was a TA or a CA, and whether the QA was predicative or not. There were again statistically significant differences in the scores between the two groups of participants, but no significant difference between the CA/QA and TA/QA conditions among Learners. These results, therefore, establish that Learners are acquiring the French syntax of postnominal adjectives: NP<RA<QA, with Roll-up NP-movement successively carrying each adjective one by one, and are implicitly aware of the distinction between RAs merged closer to the noun in the Θ-domain and QAs merged in the Φ-domain of the NP. This constitutes the main contribution of this research.

Secondly, the NFPT brought more subtle observations on the sequencing of 12 pairs of RAs in the CA/TA, 2-CA, and 2-TA conditions. There was no statistically significant difference among the three conditions for Learners. Importantly, with respect to the concatenation of CA/TA, the grammatical CA+TA order was preferred to the ungrammatical *TA+CA order. The latter result confirms that Learners are not only in the process of acquiring the French NP<RA<QA order but also may be acquiring the more subtle NP<CA<TA<QA order, in the mirror-image order to the ordering rules observed pre-nominally in English. As these ordering constraints are not explicitly taught in French L2 language courses, or mentioned in French textbooks, and are rarely encountered in authentic communication[5], the result supports the hypothesis that the merging of different types of adjectives in different Φ- vs Θ-domains, and even different zones within the Θ-domain closer and farther away from the root noun, are fundamental UG constraints on the acquisition process of an L2.

Focus on the results of the 2-TA and 2-CA conditions brought further observations in relation to research question 3. For 2-TA, the combination of contiguous roles on the scale: Theme/Instrument was the hardest whereas the concatenations of Theme/Location or Theme/Agent were significantly easier. These results may reveal the underlying effects of the crosslinguistic Thematic hierarchy (in 12): Temporal > Location > Agent > Instrument > Theme > NP. Apparently, the closest the thematic roles are to each other on the hierarchy, the harder it is for Learners to choose the correct option. This preliminary observation based on only four test-items will have to be confirmed in further research, but overall, the data on TA placement supports the hypothesis that the Thematic hierarchy, arguably part of UG, serves as an implicit cognitive constraint on Learners' interlanguage grammar.

The 2-CA condition may present idiosyncratic challenges as unambiguous ordering of two CAs depends on the constitution of a clear unique Set - Subset relationship as well as on familiarity with the domain of reference considered. For instance, in the expression *eau minérale gazeuse* ('sparkling mineral water') in (21b), 'mineral' would be understood as the Set and 'sparkling' (as opposed to 'still') the Subset in both French and English. As in Schlenker (2020), the observation that the Set must be closer to the noun than the Subset would be caused by an aversion to redundant information or triviality, evaluated from the inside out of the NP. Adding that the identification of the Subset within the Set, as a reflection of the order of Merge, could be UG constrained, following Bleotu and Roeper (2022), the link between the semantic scope and the syntax would then be cognitively grounded.

Interestingly, the difference in the Means between the groups of Learners and Natives both on the CA/TA and 2-CA conditions was revealed to be non-significant. Even though more data would be necessary to confirm this observation, this may have more to do with the

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[5] For instance, Google Ngram tells us that, in 2021, the combinations of RAs we proposed are, in many instances, not attested at all in their corpus, such as *cardiaque manuelle, éducatif secondaire*, or are barely attested, such as *minérale gazeuse* (0.18×10^{-6} %), while the individual words *cardiaque* ($1,476 \times 10^{-6}$ %), *manuelle* (167×10^{-6} %), *éducatif* (786×10^{-6} %), *secondaire* ($1,748 \times 10^{-6}$ %), *minérale* (245×10^{-6} %), *gazeuse* (175×10^{-6} %) are of course attested.

tendency noticed among our sampled Natives to accommodate ungrammatical orderings with CAs in the CA/QA condition of task 1, than with an exceptional performance by Learners. Such accommodation is unexpected as Google Ngram confirmed the clear preference of the grammatical orders over the ungrammatical ones. The accommodation process by Natives may be the consequence of the small number of test items, of our small sample of speakers (14), all proficient English-speakers resident in Australia and therefore potentially influenced by English and L1 attrition, of the written offline mode of our survey not controlling for prosody, of the possibility to reinterpret the link between a noun and an adjective as Classifying (as in *pêche japonaise* 'Japanese fishing' (see note 4) possibly reinterpreted as a type of fishing), of the 'noisy channel model' proposed by Gibson et al. (2013): a 'good enough' representation of the input making the ungrammaticality caused by change in word order appear grammatical, and/or of the consideration that the ordering constraints on CAs are rather a gradation of markedness than a strict categorical grammaticality issue.

Finally, multiple regression analyses revealed that the positioning of one adjective in the NP/TA condition was a significant predictor in explaining the variance of the overall RA/QA combination (as well as CA/QA, TA/QA) for our 57 Learners, which supports the hypothesis that NP-raising is a precondition to the correct ordering of two postnominal adjectives by subsequent Roll-up movement, but no significant relationship was detected with any of the 2-RA conditions, probably. The different types of tasks performed - AJT vs. NFPT - may account for the absence of correlation.

Note that other factors may contribute to the correct placement of Relational adjectives, such as the Thematic hierarchy in relation to their predicative noun, or the contextually determined Set – Subset relation, also hypothesized to be UG constrained.

8. CONCLUSION

Overall, the results of the present research on the acquisition of French L2 combinations of postnominal adjectives confirm that NP-raising occurs in French L2 (Granfeldt, 2000, 2004) and provides evidence that NP-raising is a precondition to correct ordering of RA/QA post-nominally. The results expand on the conclusion of the acquisition of Spanish L2 by English speakers (Pettibone et al., 2021) that the mirror-image order can be acquired without explicit instruction, based on minimal exposure to data, and therefore following Stringer's (2013) argument, does not require explicit instruction.

By distinguishing two types of Relational adjectives, CAs and TAs, in combinations with both predicative and non-predicative QAs, we demonstrate that learners are aware of distinct merging domains for distinct classes of adjectives within the extended NP domain and therefore the results provide a strong argument in favor of syntactic Roll-up NP-movement for their placement, and the acquisition of the order NP>RA>QA in French. Consequently, the intuitive hypotheses learners make in their French L2 interlanguage regarding postnominal adjective ordering can be argued to follow from universal UG and/or cognitive principles. The insufficient number of test-items concerning the various combination of 2-RA, thematic and classifying, will require a follow up study to establish the conclusions of a more solid footing.

REFERENCES

Abney, S.P. (1987) *The English Noun Phrase in its Sentential Aspect,* PhD Thesis, MIT, Cambridge, Mass.

Bally, C. (1965 [1944]) *Linguistique générale et linguistique française*, Éditions Francke, Berne.

Bartning, I. (1980) *Remarques sur la syntaxe et la sémantique des pseudo-adjectifs dénominaux en français*, Almkvist and Wiksell International, Stockholm.

Bleotu, A.C. & T. Roeper (2022) "The Recursive Set-Subset Ordering Restriction Overrides Adjective Ordering Restrictions: Evidence from Romanian 4-Year-Olds and Adults", in Y. Gong & F. Kpogo (eds) *BUCLD 46: Proceedings of the 46th Annual Boston University Conference on Language Development*, *Vol. 1*. Cascadilla Press, Somerville, MA, 62–75.

Bortolotto, L. (2016) *The Syntax of Relational Adjectives in Romance: A Cartographic Approach,* PhD Thesis, Università Ca' Foscari, Venezia.

Bosque, I & C. Picallo (1996) "Postnominal Adjectives in Spanish DP", *Journal of Linguistics* 32(2), 349–385.

Cinque, G. (1994) "On the Evidence for Partial N-Movement in the Romance DP", in G. Cinque, J. Koster, J.-Y. Pollock, L. Rizzi & R. Zanuttini (eds) *Paths towards Universal Grammar: Studies in Honor of Richard S. Kayne*. Georgetown University Press, Georgetown, 85–110.

Cinque, G. (2010) *The Syntax of Adjectives: A Comparative Study*, MIT Press, Cambridge, Mass.

Demonte, V. (1999) "El adjetivo: clases y usos. La posición del adjetivo en el sintagma nominal", in I. Bosque & V. Demonte (eds) *Gramática descriptiva de la lengua española*, *vol.1: Sintaxis básica de las clases de palabras.* Espasa, Real Academia Española, Colección Nebrija y Bello, Madrid, 129–215.

Fradin, B. (2017) "The Multifaceted Nature of Denominal Adjectives", *Word Structure* 10(1), 27-53.

Gibson, E., L. Bergen & S.T. Piantadosi (2013) "Rational Integration of Noisy Evidence and Prior Semantic Expectations in Sentence Interpretation", *Proceedings of the National Academy of Sciences* 110, 8051–8056.

Granfeldt, J. (2000) "The Acquisition of the Determiner Phrase in Bilingual and Second Language French", *Bilingualism: Language and Cognition* 3, 263–280.

Granfeldt, J. (2004) "Domaines syntaxiques et acquisition du français langue étrangère", *Acquisition et Interaction en Langue Étrangère* 21, 47–84.

Laenzlinger, C. (2005) "French Adjective Ordering: Perspectives on DP-Internal Movement Types", *Lingua* 115, 645–689.

Laenzlinger, C. (2011) *Elements of Comparative Generative Syntax: A Cartographic Approach*, Unipress, Padova.

New, B., C. Pallier, M. Brysbaert & L. Ferrand (2004) *"Lexique 2: A New French Lexical Database", Behavior Research Methods, Instruments, and Computers* 36(3), 516–524.

Nowakowska, M. (2004) *Les adjectifs de relation employés attributivement*, Wydawnictwo Naukowe AP, Krakow.

Perpiñán, S. & M.T. Putnam (2024) "Filler-Gap Dependencies in Bi- and Multilingual Grammars: Findings, Challenges, and Unknowns", *Second Language Research* 40(1), 3–17.

Pettibone E, A. Pérez-Leroux & G. Klassen (2021) "Old Grammars New (?) Scope: Adjective Placement in Native and Non-Native Spanish", *Languages* 6(22).

Postal, P. (1969) "Anaphoric Islands", in R.I.Binnick (ed.) *Proceedings of the Fifth Regional Meeting of the Chicago Linguistic Society*, University of Chicago, Department of Linguistics, Chicago, 205–239.

Rae, M. (2010) *Ordering Restrictions of Modifiers in Complex Nominals*, PhD Thesis, Università Ca' Foscari, Venezia.

Rothman, J. & R. Slabakova (2018) "The Generative Approach to SLA and Its Place in Modern Second Language Studies", *Studies in Second Language Acquisition* 40(2), 417–442.

Schlenker, P. (2020) "Inside out: A Note on the Hierarchical Update of Nominal Modifiers", *Glossa: A Journal of General Linguistics* 5(1), 60.

Schwartz, B.D. & R.A. Sprouse (1996) "L2 Cognitive States and the Full Transfer/Full Access Model", *Second Language Research* 12, 40–72.

Schwartz, B.D. & R.A. Sprouse (2021) "In Defense of 'Copying and Restructuring'", *Second Language Research* 37, 489–493.

Scott, G.J. (2002) "Stacked Adjectival Modification and the Structure of Nominal Phrases", in G. Cinque (ed.) *Functional Structure in DP and IP: The Cartography of Syntactic Structures*, Oxford University Press, Oxford/New-York, 91–120.

Shlonsky, U. (2004) "The Form of Semitic Noun Phrases", *Lingua* 114(12), 1465–1526.

Sproat, R. & C. Shih (1991) "The Cross-Linguistic Distribution of Adjective Ordering Restrictions", in C. Georgopoulos & R. Ishihara (eds) *Interdisciplinary Approaches to Language: Essays in Honor of Kuroda.* Kluwer Academic, Dordrecht/Boston, 565–593.

Stringer, D (2013) "Modifying the Teaching of Modifiers: A Lesson from Universal Grammar", in M. Whong, K.H. Gil & H. Marsden (eds) *Universal Grammar and the Second Language Classroom*, Springer, New York, 77–100.

Zribi-Hertz, A. (1972) "Sur un cas de construction pseudo-prédicative", *Recherches Linguistiques de Vincennes* 1, 159–168.

APPENDIX: TEST ITEMS

AJT	NP/TA	**Test-items with one Thematic adjective:**
A1	NP+TA	La production électrique augmente en hiver.
A2	*TA+NP	*Les cardiaques massages sont dangereux.
A3	NP+TA	L'université a autorisé la grève étudiante.
A4	*TA+NP	*Le gouvernement a condamné la russe attaque.
A5	NP+TA	Le transport aérien produit beaucoup de pollution.
A6	*TA+NP	*La visuelle inspection est la première étape d'un diagnostic.
	NP+TA/QA	**Test-items with a Thematic and a Qualifying adjective:**
B1	TA+QA	La police a interdit les manifestations ouvrières violentes.
B2	*QA+TA	*Les femmes dénoncent les violences fréquentes masculines
B3	TA+QA	Ce restaurant désinfecte sa cuisine tous les soirs par peur des contrôles sanitaires éventuels
B4	*QA+TA	*Nous achetons un appartement en prévision de la crise suivante économique.
B5	TA+QA	Les infirmiers accomplissent des tâches quotidiennes nécessaires.
B6	*QA+TA	*Nous avons fait une promenade intéressante nocturne.
	NP+CA/QA	**Test-items with a Classifying and a Qualifying adjective:**
C1	CA+QA	Les relations familiales tendues sont mauvaises pour les enfants.
C2	*QA+CA	*Des bases sérieuses scientifiques renforcent nos conclusions
C3	CA+QA	L'électricité est produite avec des panneaux solaires bleus.
C4	*QA+CA	*Apportez votre livre rouge scolaire, s'il vous plait.
C5	CA+QA	Chaque citoyen doit voter dans une zone électorale précise.
C6	*QA+CA	*Cet accord nécessite un contrat spécifique légal.

PT   NP+CA/TA   Pairs of sentences with a Classifying and a Thematic adjective:
D1   A. La pêche industrielle japonaise est prohibée en Antarctique.
      B. *La pêche japonaise industrielle est prohibée en Antarctique.
D2   A. *La défaite américaine militaire en Afghanistan a surpris tout le monde.
      B. La défaite militaire américaine en Afghanistan a surpris tout le monde.
D3   A. Pour recevoir nos publications, indiquez une adresse postale européenne.
      B. *Pour recevoir nos publications, indiquez une adresse européenne postale.
D4   A. *La France a effectué une explosion sous-marine nucléaire.
      B. La France a effectué une explosion nucléaire sous-marine.

NP+2-CA   Pairs of sentences with two Classifying adjectives:
E1   A. Comme boisson, je prendrai une eau minérale gazeuse, s'il vous plait.
      B. *Comme boisson, je prendrai une eau gazeuse minérale, s'il vous plait.
E2   A. *Je veux enseigner dans le système secondaire éducatif.
      B. Je veux enseigner dans le système éducatif secondaire.
E3   A. Le système nerveux central est atteint chez ce patient.
      B. *Le système central nerveux est atteint chez ce patient.
(E4) A. Un missile nucléaire balistique est en développement.
      B. Un missile balistique nucléaire est en développement.

NP+2-TA   Pairs of sentences with two Thematic adjectives:
F1   A. La réanimation cardiaque manuelle a sauvé un patient.
      B. *La réanimation manuelle cardiaque a sauvé un patient.
F2   A. *L'envoi de la fusée Artemis marque une étape de l'exploration américaine spatiale.
      B. L'envoi de la fusée Artemis marque une étape de l'exploration spatiale américaine.
F3   A. Une éruption volcanique chilienne a perturbé les avions.
      B. *Une éruption chilienne volcanique a perturbé les avions.
F4   A. *La lutte contre le crime dépend de la coopération internationale policière.
      B. La lutte contre le crime dépend de la coopération policière internationale.