

Unaccusativity in L2 Italian at the Lexicon-Syntax Interface

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1. Introduction

Based on the findings of some of the recent empirical studies into the properties of end-state second language (L2) grammars (Belletti et al., 2007; Sorace & Filiaci, 2006; Tsimpli & Sorace, 2006; among others), it has been proposed that purely syntactic properties can be completely acquired in the L2, whereas this may not be true for interface properties involving syntax and another domain external to the language faculty, such as discourse-pragmatics (Sorace, 2005; Sorace & Filiaci, 2006). Complete acquisition is also predicted for interface properties pertaining to syntax and another domain internal to the language faculty, such as semantics (Tsimpli & Sorace, 2006). These claims can be subsumed under the view known as the Interface Hypothesis. The two types of interface that are postulated by this hypothesis have come to be known as ‘external’ and ‘internal’ (White, 2006). The present paper investigates if the L2 acquisition of two phenomena relating to the internal, lexicon-syntax interface does indeed result in full attainment, as predicted by the Interface Hypothesis.

The phenomena under scrutiny are two unaccusative diagnostics in Italian: auxiliary selection and *ne*-cliticisation with intransitive verbs. The ultimate attainment of these two phenomena in L2 acquisition has been previously investigated in Sorace (1992, 1993a). Using the technique of Magnitude Estimation¹ (ME) (Bard et al., 1996), Sorace has shown that near-native adult speakers of Italian whose first language (L1) is English or French have intuitions about the syntactic and subtle lexical-semantic properties of the two phenomena which converge on those of native speakers. The study presented in this paper tests linguistic intuitions of highly proficient adult L2 learners of Italian with a different L1 and by means of a different methodology. Specifically, the L2 learners in question are native speakers of Croatian (or Serbian) and the task administered to them is a speeded acceptability judgement task. To our knowledge, this experimental technique has not been used for a similar purpose before. The study explores to what extent L2 learners of different L1 backgrounds are able to acquire the two unaccusative phenomena in Italian, thus testing the aspect of the Interface Hypothesis that predicts successful L2 acquisition of phenomena pertaining to internal interfaces.

Before we present the methodology and the results of the study, we provide the theoretical background necessary for understanding its different aspects. We end with a discussion of our experimental findings.

2. Theoretical background

2.1. Auxiliary selection and *ne*-cliticisation with intransitive verbs in Italian

Auxiliary selection and *ne*-cliticisation with intransitive verbs are well-known reflexes of the unaccusative/unergative distinction in Italian. While the former phenomenon refers to the choice of auxiliary in compound tenses, the latter refers to the pronominalisation of the quantified postverbal NP subject in the form of the clitic pronoun *ne* (‘of it, of them’), stranding a quantifier element, such as *molto*, *poco*, *alcuno*, *due*, *tre* (‘much/many, little/few, some, two, three’) (Burzio, 1986, p. 22). Generally speaking, unaccusative and unergative verbs behave differently with respect to the two phenomena: the former select *essere* (‘be’) and allow *ne*-cliticisation, while the latter select *avere*

¹ The subjects using this technique have to express numerical acceptability judgements relative to the first sentence they rate, the so-called modulus, while having a full range of positive numbers at their disposal.

(‘have’) and disallow *ne*-cliticisation. This generalisation holds for *ne*-cliticisation primarily in compound tenses, as Lonzi (1986) has shown that some unergative verbs do permit this phenomenon in simple tenses². Different behaviour of unaccusatives and unergatives regarding auxiliary selection and *ne*-cliticisation in compound tenses is illustrated in (1) and (2) respectively.

- (1) a. I turisti sono partiti/*hanno partito durante la notte.
 the tourists are left have left during the night
 ‘The tourists left during the night.’
 b. I ragazzi hanno gridato/*sono gridati a squarciagola.
 the boys have shouted are shouted at-the-top-of-their-voice
 ‘The boys shouted at the top of their voice.’
- (2) a. (Turisti), ne sono partiti molti durante la notte.
 tourists QCL are left many during the night
 ‘Tourists, many (of them) left during the night.’
 b. *(Ragazzi), ne hanno gridato molti a squarciagola.
 boys QCL have shouted many at-the-top-of-their-voice
 ‘Boys, many (of them) shouted at the top of their voice.’

As can be seen in (2), the quantified noun phrase in clauses with *ne*-cliticisation consists of *ne*, the quantifier and the optional quantified noun. The quantifier is typically placed in the immediately postverbal position as it refers to a focal element of information (Burzio, 1986). The quantified noun, if expressed, is placed in a detached position outside the clause as it refers to a topical element of information.

Sorace (1992, 2000, 2004) has shown that the syntactic behaviour of unaccusative and unergative verbs with respect to auxiliary selection and *ne*-cliticisation is not consistent across all lexical-semantic classes. Specifically, she has shown that, depending on inherent telicity and agentivity of the lexical verb, some lexical-semantic classes of intransitives select one of the two auxiliaries and (dis)allow *ne*-cliticisation with greater consistency than the others. Such systematic and orderly variation in consistency is what she calls gradience. To capture gradience in auxiliary selection, she proposes a model called the Auxiliary Selection Hierarchy (ASH) (Sorace, 2000). She suggests that the same model might apply to gradience in *ne*-cliticisation (Sorace, 2004). The model is given in (3).

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|--|--|
| (3) Change of location (CL) | Selection of <i>essere</i> / Compatibility with <i>ne</i> |
| Change of state (CS) | |
| Continuation of a pre-existing state (COS) | |
| Existence of state (ES) | |
| Uncontrolled process (UP) | |
| Controlled motional process (CMP) | |
| Controlled non-motional process (CNMP) | Selection of <i>avere</i> / Incompatibility with <i>ne</i> |

The model is actually a continuum consisting of seven lexical-semantic classes of intransitives. The two classes at the endpoints of the continuum, the so-called core verbs, encode telicity or agentivity, which correlate with unaccusative and unergative behaviour respectively, to the highest degree, whereas the five classes between the two extremes, referred to as peripheral verbs, encode the two properties to variable degrees. As a result of this, core verbs display invariable syntactic behaviour, whereas peripheral verbs exhibit different degrees of variability, depending on their distance from the core. The dividing line between unaccusative and unergative verbs is placed between existence of state and uncontrolled process verbs³.

² Bentley (2004) argues that there are principled reasons that could explain these cases, preserving the status of *ne*-cliticisation as a valid unaccusative diagnostic in Italian.

³ Such a partition between the two classes of intransitives holds specifically for Italian. In other languages to which the model has been shown to apply (see below), the line may be placed somewhere else along the continuum.

At a more concrete level, the model captures the fact that the acceptability of *essere* gradually decreases from the change of location towards the existence of state class, while the acceptability of *avere* decreases from the controlled non-motional process towards the uncontrolled process class. Also, the model captures the fact that the compatibility of the lexical verb with *ne*-cliticisation more or less gradually decreases from the unaccusative towards the unergative core. In a strict sense, however, the use of *ne*-cliticisation is grammatical in compound tenses only with the four unaccusative classes.

There is some evidence that gradience consistent with the ASH may characterise unaccusativity crosslinguistically. Systematic variation similar to that pertaining to the two unaccusative diagnostics in Italian has been experimentally established for unaccusative diagnostics in a number of languages, including auxiliary selection in French (Sorace, 1993b), auxiliary selection and impersonal passivisation in German (Keller & Sorace, 2003), preverbal and postverbal subjects, participial absolutes and bare plurals in Spanish (Montrul, 2005), postverbal subjects in Chinese (Yuan, 1999) and quantifier floating in Japanese (Sorace & Shomura, 2001). More evidence is needed, however, to determine whether the ASH gradience is a universal property of unaccusativity.

2.2. The relevant properties of Croatian

Auxiliary selection and the equivalent of *ne*-cliticisation are not instantiated in Croatian. Regarding auxiliary selection, although Croatian does have two auxiliaries which are used for the formation of compound tenses, *biti* ('be') and *htjeti* ('want'), these are used in different tenses, and not with different verbs within the same tense. Specifically, *htjeti* is used to form the so-called Future First, while different tensed forms of *biti* are used for all other tenses (Barić et al., 1995). The Croatian equivalents of the sentences in (1), in the past and future tense respectively, are given in (4) and (5).

- (4) a. Turisti su otišli tijekom noći.
tourists are left during night
'The tourists left during the night.'
b. Dječaci su vikali iz sveg glasa.
boys are shouted from all voice
'The boys shouted at the top of their voice.'

- (5) a. Turisti će otići tijekom noći.
tourists will leave during night
'The tourists will leave during the night.'
b. Dječaci će vikati iz sveg glasa.
boys will shout from all voice
'The boys will shout at the top of their voice.'

As for *ne*-cliticisation, it can be seen in (6) that postverbal quantifier can be used without pronominalising the topical noun in the form of a clitic, and that this applies to verbs with both non-volitional and volitional subjects, i.e. to both typically unaccusative and typically unergative verbs.

- (6) a. (Turisti), otišli su mnogi tijekom noći.
tourists left are many during night
'Tourists, many (of them) left during the night.'
b. (Dječaci), vikali su mnogi iz sveg glasa.
boys shouted are many from all voice
'Boys, many (of them) shouted at the top of their voice.'

The non-instantiation of auxiliary selection or the equivalent of *ne*-cliticisation in Croatian excludes the possibility of direct transfer of the L1 morphosyntactic properties in the process of acquiring the two unaccusative diagnostics in Italian on the part of Croatian-speaking L2 learners. What cannot be excluded in this process is that the learners might be transferring some of their L1's semantic properties related to unaccusativity. However, until it is determined what phenomena can serve as

unaccusative diagnostics in Croatian and whether these phenomena manifest the ASH gradience⁴, we cannot make specific predictions regarding this potential semantic transfer. In the present study, we will, therefore, assume that the L1 properties do not interfere with the process of acquiring the L2 properties in question in a significant way.

2.3. *Previous research into unaccusativity in mental grammars*

L2 acquisition of auxiliary selection and *ne*-cliticisation with intransitive verbs in Italian has been previously investigated in Sorace (1992, 1993a). By means of ME, Sorace elicited intuitions on the acceptability of the two auxiliaries and *ne*-cliticisation with different lexical-semantic classes of intransitives from native speakers, adult English-speaking L2 learners (ranging in proficiency from beginner to near-native) and adult French-speaking near-natives. She assumed an earlier version of the ASH, which consisted of separate hierarchies for unaccusative and unergative verbs. The Unaccusative Hierarchy contained two additional, paired, classes with respect to the unaccusative part of the current ASH: verbs with a transitive alternant and verbs with an unergative alternant. These classes were considered as the most peripheral. The Unergative Hierarchy differed from the unergative part of the current ASH in that the most peripheral class consisted of motional activity verbs with an unaccusative alternant instead of uncontrolled process verbs. The results of the study show that the intuitions of the non-native speakers about the two unaccusative diagnostics are compatible with those of the native speakers and that they are both consistent with the adopted model of gradience. However, the intuitions of all three groups of speakers about *ne*-cliticisation are less consistent with this model than those about auxiliary selection. More precisely, the speakers' judgements on *ne*-cliticisation associated with the two paired unaccusative and the three unergative classes do not follow the predicted trend. The sensitivity of the non-native speakers to the ASH gradience increases with their L2 proficiency and approximates that of the native speakers at the near-native level. Even at this level, however, the non-native judgements on auxiliary selection are less determinate than the native judgements.

The current version of the ASH was also adopted as a basis for investigating the properties of Spanish L2 grammars related to unaccusativity. In two separate studies, Montrul explored the representation and the processing of unaccusativity in Spanish by native speakers and adult English-speaking L2 learners, ranging in proficiency from (low) intermediate to advanced. In an acceptability judgement task based on the use of a 5-point ranking scale, Montrul (2005)⁵ tested the acceptability of four unaccusative diagnostics (preverbal subjects, postverbal subjects, participial absolutes and bare plural postverbal subjects) and passives in Spanish with different verb classes in the ASH, classified as core, less core and peripheral. She discovered that the greatest amount of variability in the judgements of both native and non-native speakers occurred with less core and peripheral verbs, as opposed to core verbs, suggesting the speakers' sensitivity to the ASH gradience. Similarly as in Sorace (1992, 1993a), less proficient L2 learners proved less sensitive to the gradience than more proficient ones. In an on-line probe recognition task⁶, Montrul (2004) investigated whether native and non-native speakers are sensitive to the difference in the syntactic configuration of unaccusatives and unergatives. According to the adopted GB analysis, this difference is instantiated in the fact that, contrary to the argument of unergatives, the argument of unaccusatives leaves a trace in the object position. Montrul assumed that non-core verbs vary with respect to the presence/absence of the trace in their syntactic configuration, which is not the case with core verbs. She discovered that the speakers responded to core unaccusatives and core unergatives with different speeds and that variability in their response times was confined to non-core verbs. Such a pattern was consistent with the predictions based on the ASH gradience.

⁴ Manifestations of unaccusativity are largely covert in Croatian. Among several phenomena that have been proposed as unaccusative diagnostics in Croatian and/or its closely related languages, Bosnian and Serbian, it seems to us that focus projection (Gođevac, 2000) and impersonal passivisation (Aljović, 2000) might indeed qualify as such (see Kraš, 2008 for details). However, the validity and reliability of these phenomena as potential unaccusative diagnostics yet needs to be established empirically.

⁵ Participants in this study were also English-dominant heritage speakers.

⁶ This task requires of participants to read sentences on a computer screen and decide whether a word (i.e. a probe) appears in the sentence.

Another study relevant for the present topic deals with properties of native grammars. Bard et al. (in press) investigated the effects of the ASH on the on-line processing of auxiliary selection in Italian. One comprehension experiment and two production experiments were conducted. In the former, adult native speakers read sentences containing core and peripheral intransitives with correct and incorrect auxiliaries while their eye movements were recorded. In the latter, the speakers read participles of core and peripheral intransitives aloud or produced them orally from corresponding infinitives while being primed or cued by visually presented correct and incorrect auxiliaries. The ASH effects were discovered in both types of experiment. In the comprehension study, core verbs were read faster when preceded by the correct than by the incorrect auxiliary. Similarly, in one of the production studies, participles from core unaccusative infinitives were produced faster after the correct than after the incorrect auxiliary.

To summarise, previous research using off-line and on-line measures has shown that L2 learners whose L1 is French and/or English, along with native speakers, are sensitive to the semantically-determined orderly variation captured by the ASH in auxiliary selection and (to a lesser extent) *ne*-cliticisation with intransitive verbs in Italian, as well as in several phenomena related to unaccusativity in Spanish. In the case of L2 learners, this sensitivity appears to be a function of L2 proficiency and becomes as robust as that of native speakers at the near-native level.

3. The present study

3.1. Question and hypothesis

The present study addresses the following question: can auxiliary selection and *ne*-cliticisation with intransitive verbs, two phenomena at the lexicon-syntax interface, be fully acquired in Italian as the L2? Assuming that the Interface Hypothesis makes correct predictions about the ultimate attainment of properties pertaining to internal interfaces, among which is also the lexicon-syntax interface, and taking into consideration the findings of previous L2 studies, we hypothesise that L2 learners will indeed prove successful in the acquisition of the two phenomena.

3.2. Participants

A total of 28 young adults participated in the study, among which 12 native and 16 non-native speakers of Italian. At the moment of testing, all the participants were residing in Italy, where they were following degree courses at Italian universities. All the native speakers were studying translation and interpreting in Trieste, while the non-native speakers were students of architecture ($n=6$), translation and interpreting ($n=4$), communication studies ($n=2$), diplomacy ($n=1$), electrical engineering ($n=1$), film studies ($n=1$), and modern languages and literature ($n=1$) in Bologna, Rome, Trieste and Venice. The majority of the non-native speakers were native speakers of Croatian, while three of them were native speakers of Serbian⁷.

All of the non-native speakers were regarded as adult L2 learners given that they were first exposed to Italian (in the classroom context in their home countries) and fully immersed in it typically after puberty⁸. Primarily as a result of prolonged immersion (its average length was six and a half years), they were all highly proficient (potentially near-native) in Italian. They satisfied two proficiency criteria: they scored above 75% in a non-standardised C-test (for procedure, see Klein-Braley & Raatz, 1984), used as a measure of general language proficiency⁹, and they proved able to converse with the experimenter, a highly proficient non-native speaker of Italian, in a native-like manner in terms of accuracy, fluency and lexical choice during the experiment, according to the experimenter's judgement. Details about the participants are provided in Table 1.

⁷ Serbian speakers were included in the study for practical reasons. The fact that everything we stated about Croatian in section 2.2 applies to Serbian as well provided the conditions necessary for their inclusion.

⁸ The age of first exposure to Italian was below puberty (i.e. 10) only for two subjects. Their responses in the experiment were included in the analysis as they were within the range of the other subjects.

⁹ The overall score of the L2 learners selected was still significantly lower than that of the native speakers, as the results of the independent-samples *t*-test show ($t = 4.139$, $df = 20.070$, $p < .05$).

Group	Age of testing		Age of first exposure		Age of immersion		Proficiency score (%)	
	Mean	Range	Mean	Range	Mean	Range	Mean	Range
L1	24.5	21-34	N/A	N/A	N/A	N/A	97.25	92-100
L2	25.38	21-30	15.44	10-19	18.88	15-24	90.63	79-99

Table 1. Information on the participants

3.3. Materials and procedure

As stated above, the experimental technique used was a speeded acceptability judgement task. This task yielded two dependent variables: acceptability judgements and response times. In acceptability judgements, we looked for evidence of knowledge of both aspects of the two phenomena under investigation, syntactic and lexical-semantic. In other words, we searched for evidence of sensitivity to the unaccusative/unergative distinction, as well as evidence of sensitivity to the ASH gradience, primarily in the form of the core/peripheral distinction. In response times, we only looked for evidence of knowledge of the lexical-semantic properties of the two phenomena. We assumed that consistency in the verb's syntactic behaviour would be directly proportional to the speakers' determinacy of judgement and response speed. In other words, we predicted that a more determinate judgement on the acceptability of a certain syntactic option would be accompanied by a shorter response time needed to make a decision on its acceptability.

There were 120 test items in the task, 64 on auxiliary selection and 56 on *ne*-cliticisation, and 100 distractors. The items were divided into four lists. In both test sets, there were sentences with each of the seven intransitive verb classes in the ASH. In the set on auxiliary selection, there were also sentences with transitive (T) verbs, considered as control items due to the fact that transitive verbs categorically select *avere*. There were four verbs per verb class. The same verbs were used in both test sets, but individual verbs were distributed in different lists in the two sets. By means of a Kruskal-Wallis test, we controlled for the overall lexical frequency of the eight verb classes. Information on the lexical frequencies of individual verbs was obtained from the lemmatised version of CoLFIS (*Corpus e Lessico di Frequenza dell'Italiano Scritto*, 'Corpus and Frequency Lexicon of Written Italian') (Bertinetto et al., 2005), a 3-million word corpus of contemporary written Italian.

There were two sentences per verb in each set. In both sets, the two sentences with the same verb contained very similar lexical material, but featured an important structural difference: in the set on auxiliary selection, the sentences differed in the choice of the auxiliary, and in the set on *ne*-cliticisation, they differed in the use of *ne*. The two types of sentence in the former and the latter set are illustrated in (7) and (8).

- (7) a. I bambini sono dormiti tranquillamente.
the children are slept peacefully
'The children slept peacefully.'
- b. Gli ospiti hanno dormito profondamente.
the guests have slept deeply
'The guests slept deeply.'
- (8) a. Ne hanno dormito molti nel pomeriggio.
QCL have slept many in-the afternoon
'Many (of them) slept in the afternoon.'
- b. Molti ospiti hanno dormito dopo il pranzo.
many guests have slept after the lunch
'Many guests slept after lunch.'

In the set on auxiliary selection, half of the sentences were acceptable (those with unaccusative verbs and *essere* and those with unergative and transitive verbs and *avere*) and half unacceptable. In the

set on *ne*-cliticisation, the correct auxiliary was used in all the sentences, so there were more acceptable than unacceptable sentences as only the sentences with unergative verbs and *ne* were unacceptable. The sentences with *ne* were marked in terms of word order and information structure compared to those without *ne*. The topical noun was not expressed in the sentences with *ne*, as the way the sentences were presented on the screen (see below) did not allow the use of commas, which would have been required if the topical noun had been used (see (2) above).

The task was computer-based and the programme used to implement it was SuperLab Pro 2.0. The sentences were presented word by word for 284 ms per word plus 17 ms per letter in the centre of a 14.4'' screen in black font against a white background. The subjects were required to make a binary decision on the acceptability of each sentence within four seconds. Each subject read the sentences in a different random order. The experimental session was preceded by a practice session.

The two types of data obtained in the task, acceptability judgements and response times, were analysed in a different way. The statistical analysis of acceptability judgements was conducted on the mean differences between the values obtained for each of the sentences in a pair of sentences with the same verb. In the set on auxiliary selection, these differences were obtained by subtracting the values of the group of subjects who had received the same list (i.e. experimental group) for the sentences with *avere* from the values for the sentences with *essere*, and in the set on *ne*-cliticisation, by subtracting the experimental group's values for the sentences with *ne* from the values for the sentences without *ne*. Among the values from the first set, positive values obtained in this way indicate a preference for the sentences with *essere*, and negative ones a preference for the sentences with *avere*. Among the values from the second set, positive values indicate a preference for the sentences without *ne* and negative ones a preference for the sentences with *ne*. The bigger the value, the stronger is the preference.

Individual response times were converted into Z-scores (for each set separately) and were subsequently analysed statistically. Positive values represent response times that are longer than average and negative ones response times shorter than average. Response times to grammatical sentences and those pertaining to ungrammatical sentences were analysed separately in order not to confine the effect of grammaticality and of the verb's lexical-semantic properties on response speed.

While response times were analysed statistically both by subject and by item, acceptability judgements were analysed only by item. The reason was that occasional missing values of acceptability judgements proved impossible to replace in the by-subject analysis. This was due to the type of data (dichotomous variables) and the fact that each subject judged only one item per condition¹⁰.

3.4. Results

In this section, we first present the results bearing on the acquisition of auxiliary selection and then those concerning the acquisition of *ne*-cliticisation. Mean differences between acceptability judgements on *essere* and those on *avere* of both subject groups with all lexical-semantic classes of intransitives and a class of transitive verbs are shown in Figure 1. Figure 2 shows a subset of these data, i.e. the values pertaining to intransitive verbs only, organised by syntactic class (unaccusative and unergative) and the status of the lexical-semantic class in the ASH (core and peripheral).

Figure 1 shows that both subject groups consistently prefer *essere* with unaccusative classes and *avere* with unergative classes. They also prefer *avere* with the class of transitive verbs. There is a highly significant main effect of syntactic class ($F(1,26) = 427.250, p < .001$) in an ANOVA with repeated measures conducted on the mean auxiliary preferences of both subject groups with unaccusative and unergative verbs, suggesting that the groups distinguish between the two syntactic classes of intransitives with respect to the auxiliary they select in compound tenses. The L2 learners, however, seem to prefer the correct auxiliary more strongly with unergatives than with unaccusatives, while the native speakers do that to a similar degree with both syntactic classes, which is reflected in a significant interaction between syntactic class and subject group ($F(1,26) = 28.451, p < .001$) in the ANOVA.

¹⁰ We believed that a higher number of test items per condition would render the task design too transparent to the subjects.

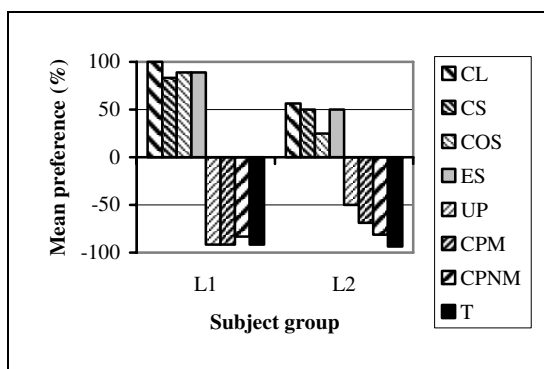


Figure 1. Auxiliary selection: acceptability judgements (all 8 verb classes)

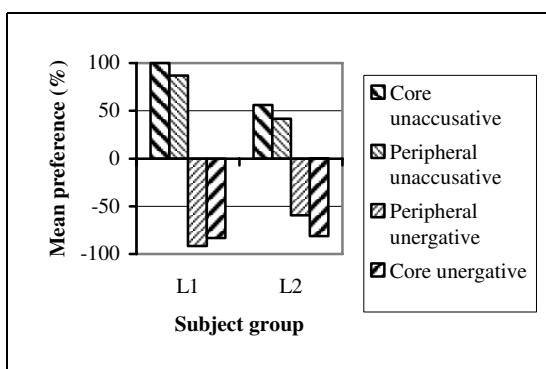


Figure 2. Auxiliary selection: acceptability judgements (core vs. peripheral verbs)

Figure 1 also shows that the two subject groups do not prefer the correct auxiliary to the same degree with all eight verb classes. A repeated-measures ANOVA conducted on the mean auxiliary preferences of both subject groups with different lexical-semantic classes of intransitives yields a highly significant main effect of lexical-semantic class ($F(6,21) = 67.203, p < .001$), suggesting that the groups distinguish between different lexical-semantic classes of intransitives in terms of the consistency with which they select one of the auxiliaries. However, somewhat unusually, the auxiliary preferences of the native speakers seem to reflect this difference in consistency to a lesser extent and in a way that is less consistent with the linear trend predicted by the ASH than those of the L2 speakers. This is reflected in a significant interaction between lexical-semantic class and subject group ($F(6,21) = 5.506, p < .05$) in the ANOVA. In Figure 2, it can be seen that the learners' preferences with core verbs appear stronger than those with peripheral verbs for both syntactic classes, while this can be said only for the native speakers' preferences for unaccusative verbs. However, the data do not contain statistical evidence for the ability of either group to distinguish between core and peripheral verbs. A two-way ANOVA conducted on the mean auxiliary preferences of both subject groups with core and peripheral unaccusatives and unergatives does not yield a significant main effect of the ASH status, but only a significant main effect of syntactic class ($F(1,24) = 374.808, p < .001$). The learners' judgements are overall less determinate than those of the native speakers, as indicated by a significant main effect of subject group ($F(6,21) = 6.678, p < .05$) in the ANOVA conducted on the mean values for different lexical-semantic classes.

The results of the analysis of response times complement in an important way the results of the analysis of acceptability judgements as they contain evidence for the subjects' sensitivity to the core/peripheral distinction. Here we present only the results pertaining to grammatical sentences as they are more revealing about the L2 learners' knowledge of the lexical-semantic properties of auxiliary selection. The analysis we present here includes values pertaining to both correct and incorrect responses. In a separate analysis, we have established that the exclusion of the values pertaining to incorrect responses does not yield appreciably different results. Figure 3 shows the response times to all lexical-semantic classes of intransitives and a class of transitive verbs. Figure 4 shows part of these data, i.e. the response times to intransitive verbs only, organised by syntactic class and the ASH status.

We can see in Figure 3 that both subject groups judge the acceptability of the correct auxiliary with different lexical-semantic classes of intransitives and the class of transitive verbs at different speeds. Differences in response times associated with different lexical-semantic classes of intransitives give rise to a significant main effect of lexical-semantic class ($F_1(6,156) = 4.548, p < .001$; $F_2(6,21) = 4.384, p < .05$) in a repeated-measures ANOVA conducted on the mean response times to different intransitive classes of both subject groups. In Figure 4, it can be seen that both subject groups judge the acceptability of the correct auxiliary more quickly with core than with peripheral verbs for both syntactic classes. In a two-way ANOVA conducted on the mean response times to core and peripheral unaccusatives and unergatives of both groups, there is a significant main effect of status ($F_1(1,26) = 13.910, p < .05$; $F_2(1,24) = 9.345, p < .05$) and no significant interactions or effects involving syntactic verb class or subject group. This suggests that both subject groups distinguish between core and

peripheral verbs within both syntactic classes in terms of consistency of auxiliary selection, and in a similar way. Recall that this piece of evidence, pointing to the sensitivity of both native and non-native speakers to the core/peripheral distinction and thus to the ASH gradience with regard to auxiliary selection, is missing from the judgement data.

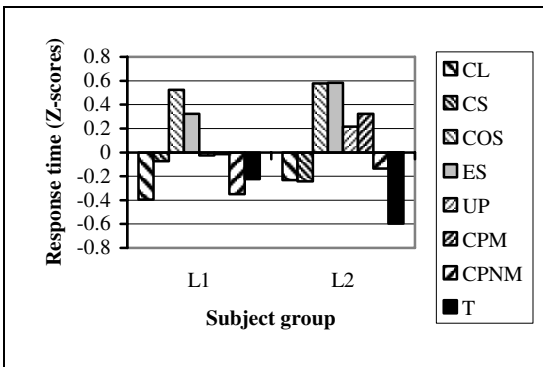


Figure 3. Auxiliary selection: response times (all 8 verb classes)

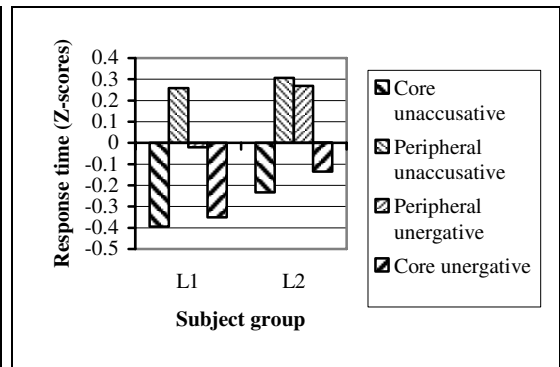


Figure 4. Auxiliary selection: response times (core vs. peripheral verbs)

We turn now to the aspect of the study concerning the knowledge of *ne*-cliticisation. Here we present only the results of the analysis of acceptability judgements, as the results of the analysis of response times do not contain evidence for the ability of the two groups to make lexical-semantic distinctions relevant for *ne*-cliticisation. We comment on this in the following section. Figure 5 shows mean differences between acceptability judgements on the sentences with *ne* and on those without *ne* of both subject groups with all lexical-semantic classes of intransitives. A smaller portion of the data pertaining to intransitive verbs only is shown in Figure 6, where it is organised in the same way as in Figures 2 and 4.

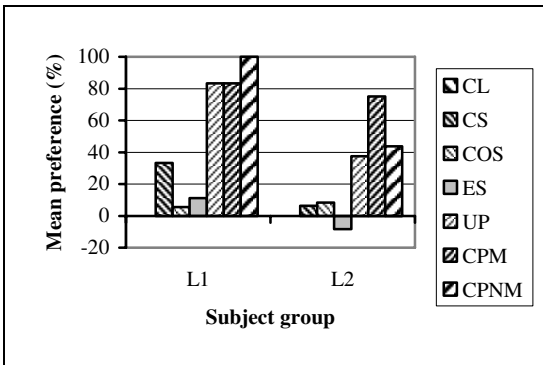


Figure 5. *Ne*-cliticisation: acceptability judgements (all 7 verb classes)

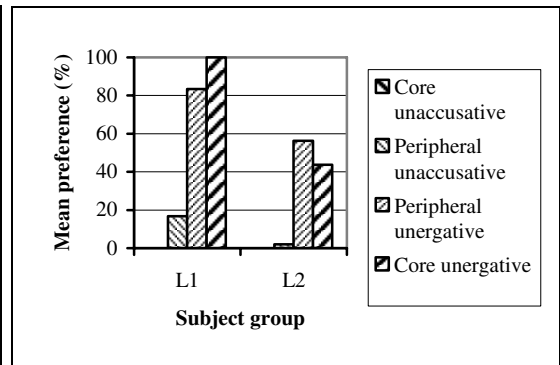


Figure 6. *Ne*-cliticisation: acceptability judgements (core vs. peripheral verbs)

Figure 5 reveals a predominant preference of both subject groups for the sentences without *ne* with different lexical-semantic classes of intransitives. This is suggestive of the speakers' sensitivity to the markedness of the sentences with *ne* in terms of word order and discourse structure. Exceptions to this general trend are both groups' judgements on change of location verbs, whose value equals zero, suggesting the absence of preference for either type of sentence with this verb class. Another exception are the learners' judgements on existence of state verbs, which indicate a preference for the sentences with *ne* with this verb class. It can also be seen in Figure 5 that both subject groups prefer the sentences without *ne* more strongly with unergative than with unaccusative classes. This is confirmed by a significant main effect of syntactic class ($F(1,26) = 73.675, p < .001$) in a repeated-measures ANOVA conducted on the mean differences between the judgements on the sentences with *ne* and those without

ne of both subject groups with unaccusative and unergative verbs. This suggests that the two subject groups distinguish between the two syntactic classes in terms of compatibility with *ne*-cliticisation.

Figure 5 also shows that the preferences of both subject groups for the sentences without *ne* vary in strength across different lexical-semantic classes of intransitives. In a repeated-measures ANOVA, conducted on the mean differences between the judgements on the sentences with *ne* and those without *ne* of both subject groups with different lexical-semantic classes of intransitives, there is a significant main effect of lexical-semantic class ($F(6,21) = 12.735, p < .001$). This suggests that the groups distinguish between different verb classes in the ASH in terms of their degree of compatibility with *ne*-cliticisation. However, the learners' judgements do not appear very consistent with the linear trend predicted by the ASH, as opposed to those of the native speakers, as Figure 6 shows. In this figure, we can see that the strength of the native speakers' preferences for the sentences without *ne* increases from the unaccusative towards the unergative core, which cannot be said for the learners' judgements. However, similarly to the judgement data on auxiliary selection, in these data there is no statistical evidence suggesting that the two groups distinguish between core and peripheral verbs within the two syntactic classes of intransitives. A two-way ANOVA conducted on the mean differences between the judgements on the sentences with *ne* and those without *ne* of both subject groups with core and peripheral unaccusatives and unergatives yields only a significant main effect of syntactic class ($F(1,24) = 62.626, p < .001$), but not a significant main effect of the ASH status. Another similarity with the data on auxiliary selection lies in the fact that the learners' judgements on *ne*-cliticisation are less determinate than those of the native speakers. This is indicated by a significant main effect of subject group in the ANOVA conducted with the values for the two syntactic classes ($F(1,26) = 11.300, p < .05$) and the one performed with the values for different lexical-semantic classes ($F(1,21) = 10.071, p < .05$).

To summarise, statistical evidence contained in acceptability judgements suggests that the L2 learners know that in compound tenses, unaccusatives co-occur with *essere* and *ne*-cliticisation, while unergatives are used with *avere* and not in combination with *ne*-cliticisation. Statistical evidence from response times additionally suggests that the learners know that there is a broad difference in the consistency of auxiliary selection between core and peripheral verbs in the ASH within both syntactic classes of intransitives. In these respects, the learners display native-like behaviour. The only difference between them and the native speakers concerns the fact that their intuitions about the properties in question are less determinate than those of the native speakers. Neither type of data contains statistical evidence for the knowledge of the native or the non-native speakers about different levels of compatibility of core and peripheral verbs with *ne*-cliticisation. Suggestive patterns pointing in this direction are, however, present in the native speakers' acceptability judgements. Based on the overall statistical evidence, we can conclude that, similarly to the native speakers, the learners have the knowledge of the syntactic aspect of both unaccusative phenomena and the lexical-semantic aspect of auxiliary selection.

4. Discussion

The goal of the present study was to find out whether auxiliary selection and *ne*-cliticisation with intransitive verbs, two phenomena at the lexicon-syntax interface, can be fully acquired in L2 Italian. Assuming that the Interface Hypothesis makes correct predictions about the ultimate attainment of phenomena relating to internal interfaces, and taking into consideration the findings of previous L2 studies, we predicted that complete L2 acquisition of these two phenomena should indeed be possible. This prediction was confirmed in the study as we obtained statistical evidence for the L2 learners' knowledge of the same aspects of the two phenomena as in the case of the native speakers.

Our findings are in line with the findings of previous studies showing that L2 learners with a different L1 background (French or/and English) are able to acquire syntactic and lexical-semantic properties of the same phenomena in Italian (Sorace, 1992, 1993a) and other unaccusative phenomena in Spanish (Montrul, 2004, 2005). Unaccusativity, as a phenomenon at the lexicon-syntax interface, thus seems to be acquirable in the L2. Numerous phenomena pertaining to the semantics-syntax interface in different languages have also been shown to be acquirable in the L2 (for a review of studies into some of these phenomena, see Slabakova, 2006). This suggests that the aspect of the Interface

Hypothesis predicting successful L2 acquisition of properties relating to internal interfaces is on the right track.

At a less general level, three findings of our study need to be commented on. The first one concerns the fact that the L2 learners in our study proved to have less determinate intuitions about the phenomena under investigation than the native speakers, even though they demonstrated clear knowledge of the lexical-semantic and/or syntactic properties of these phenomena. Recall that a similar finding was obtained in Sorace (1992), where the native and the near-native judgements on auxiliary selection differed in determinacy. We believe that such differences in determinacy, when accompanied by evidence for the learners' ability to make theoretically relevant distinctions pertaining to the phenomena in question to a statistically significant degree should not be interpreted as evidence for a non-native-like attainment of these phenomena. A somewhat lower level of determinacy might be a general property of L2 grammars, even those at the near-native level, resulting simply from the fact that these grammars develop and exist against the backdrop of another grammar, of which the learners are native speakers. However, this should not necessarily prevent the learners from having a thorough and detailed knowledge of certain L2 phenomena, which matches that of the native speakers. We believe that focusing on the qualitative aspect of the learners' grammars is particularly useful in relation to subtle linguistic phenomena, such as those exhibiting gradience or involving fine interpretive distinctions, as otherwise many important aspects of these grammars might be overlooked or underrated.

The second finding that deserves comment is the lack of statistical evidence in the acceptability judgements of both the native and the non-native speakers for their sensitivity to the core/peripheral distinction as a main component of the ASH gradience, the finding at odds with the judgements in Sorace (1992, 1993a), which clearly reflected gradience, at least in the case of auxiliary selection. We believe that the difference between our findings and Sorace's is primarily due to the fact that the judgements in the two studies were elicited by means of different methodologies, the former within a speeded task and the latter by ME. While ME allows speakers to decide on their own range and categories of judgement and to make as fine and as many distinctions of acceptability as they find necessary, the speeded technique allows them only to decide between two categories of judgement, which are set in advance: 'acceptable' and 'unacceptable'. This makes ME certainly more suited for eliciting acceptability judgements on gradient phenomena, such as the two investigated here. However, we believe that the speeded acceptability judgement task is still highly useful for investigating gradient phenomena as, in addition to acceptability judgements, it elicits response times, which have been shown to be a very good behavioural measure of linguistic gradience, not only in our study, but also in Montrul (2004) and Bard et al. (in press).

Finally, we wish to comment on the fact that the response times pertaining to *ne*-cliticisation did not prove revealing about the knowledge of the lexical-semantic aspect of this phenomenon on the part of either the native or the non-native speakers. Given that response times proved highly revealing about the same aspect of knowledge of auxiliary selection, we suspect that the main reason for this might be greater suitability of the ASH as a model of gradience in auxiliary selection than in *ne*-cliticisation. Evidence pointing in the same direction comes for Sorace (1992), where it was found that native and non-native judgements on *ne*-cliticisation were less consistent with the earlier version of the ASH than those on auxiliary selection. This might imply that the theoretical bases of the two phenomena are somewhat different, i.e. that the gradience which characterises them might not be determined by identical lexical-semantic factors. Such an assumption might prove useful in the theoretical investigation of these two phenomena, in which context gradience pertaining to auxiliary selection has received much more attention so far than that relating to *ne*-cliticisation (see Bentley & Eythórsson, 2003 and Legendre, 2007 for some recent proposals concerning auxiliary selection). It is our hope that psycholinguistic and developmental studies such as ours might contribute to changing this trend.

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