

JACOPO SATURNO
(Università degli Studi di Bergamo)

*Copular Structures In Initial Polish L2**

This contribution is devoted to the learners' processing of copular structures in the earliest stages of the acquisition of Polish as a foreign language. Within the VILLA project, 14 Italian L1 learners participated in a 14-hour Polish course under controlled input conditions and took part in a structured task designed to elicit copular structures. Target structures come in two syntactic types, which in turn are associated with different values of parameters such as frequency, morphosyntactic complexity, semantic scope, proximity to the learners' L1 and form-function association. The study aims to verify which parameters, if any, influence learner preferences in the choice of pronominal and nominal components as well as their accuracy in producing full target structures.

1. Introduction

The role of input is a crucial theme in Second Language Acquisition (SLA) studies, as it intuitively represents the main source of linguistic information allowing learners to structure and perfect their developing L2 system. At the same time, though, the way in which it is processed and the factors that affect acquisition success the most are still highly debateable questions (Carroll 1999; Flege 2009). This is partly because input is particularly difficult to control in an experimental framework, as everyone's learning experience is to a certain extent unique. Consequently,

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differential acquisition outcomes may simply derive from input that differs in amount or quality. This makes it hard to isolate the effect of input variables such as frequency, transparency, or salience, however operationalised.

With this in mind, several studies have resorted to artificial languages as a means to expose learners to fully controlled input (see Reber 1967; Hulstijn 1997; Yang / Givón 1997; Mueller 2006; Robinson 2005, 2010). However, such methodology may raise doubts as to the ecological validity of these studies, as artificial languages typically lack the complexity and idiosyncrasies which are characteristic of natural languages (Robinson 2010). Other studies, typically conducted with a longitudinal design (e.g. Perdue 1993; Giacalone Ramat 2003), simply resign from input control and rely on the assumption that learners will be exposed to ‘average’ input, especially over sufficiently long periods of time. This methodology, however, inevitably renders it problematic, if not impossible, to correlate learner output with the input received in a rigorous way. Others still, like Collins *et al.* (2009), base their input analysis on samples extracted from a relatively homogeneous context (in that case, classroom L2 Instruction).

While this approach may enjoy good ecological validity in the case of learners of intermediate and upper levels, it becomes problematic when attention is turned to another sensitive topic in SLA research, namely the very initial stages of L2 acquisition. In a rather circular manner, studying the strategies of input processing applied by learners confronted with a completely novel language may be illuminating with regard to the general mechanisms of input processing (Rast *et al.*, 2011; Perdue 2002). In order to do this, however, it is essential to have full control over the input, so as to correlate learner output with the relevant input parameters.

Two other difficulties typical of this field should also be mentioned. Firstly, as the means available to learners are usually too limited to produce any output, it is typically hard to analyse, or indeed even elicit utterances from initial learners (Grüter / Lieberman / Gualmini 2008). As a result, some studies on ‘early’ L2 acquisition in fact refer to relatively developed learner varieties. For the same reason, several studies concerned with the very early stages of acquisition have analysed learners’ skills through receptive tests or highly structured tasks, rather than by observing actual learner output in a semi-communicative context (Carroll 2004, 2012; Carroll / Widjaja 2013; Gullberg *et al.*, 2012; Henderson /

Nelms 1980). However, this approach hardly allows researchers to look into the structure and development of early learner varieties in the qualitative fashion typical of longitudinal studies. A second methodological difficulty regards the fact that since most of the languages which are typically studied in this field of research are relatively common, it is usually hard to find learners who have never had any exposure to the target language, however minimal.

To summarise, it would be highly desirable to investigate the development of an L2 from its very onset, with a natural target language and whilst retaining full control over the input. Precisely such is the methodological challenge undertaken by the VILLA project discussed below.

This paper aims to establish to what extent learners are able to extract regularities from the input and reproduce them in their output on the basis of statistical learning (Saffran / Newport / Aslin 1996). In this respect, Polish copular constructions appear as an ideal target structure in that they require that one of two alternative pronominal forms (the invariable demonstrative *to* or the personal pronouns *on*, ‘he’, and *ona*, ‘she’) is provided in association with the appropriate nominal form (the nominative and instrumental case).

The paper is structured as follows. Section 2 describes the experimental methodology, starting with an overview of the VILLA project in which the study is framed. We then turn to a description of the target structures considered, paying particular attention to those parameters which may be relevant for input processing. The last two sub-sections introduce the Question & Answer test and outline the research questions and hypotheses. Results are presented in section 3 and discussed in section 4. Finally, section 5 presents the conclusions of the study and suggests directions for future research.

2. *Experimental methodology and research questions*

2.1. *The VILLA project*

VILLA (*Varieties of Initial Learners in Language Acquisition*, Dimroth *et al.*, 2013) is a cross-linguistic, multi-national research project devoted

to the earliest stages of the acquisition of Polish. Its focus is on the correlation of fully controlled input with the learners' developing linguistic abilities. For this purpose, input was provided in the form of a 14-hour Polish course taught by a professional teacher (Rast 2008); output was observed through receptive tests (Shoemaker / Rast 2013), productive tasks (Saturno 2014, 2015a, 2015b) or a combination of the two (Hinz *et al.*, 2013; Rast 2015; Rast *et al.*, 2014). Tests were designed to measure phonological, morphological, syntactic and lexical development in L2 Polish over time, but also psychological and psycholinguistic characteristics of each learner.

VILLA was conducted in five different countries (Germany, the Netherlands, France, the United Kingdom and Italy), with native speakers of the corresponding languages as learners. In each country, the same experiment was repeated twice with different participants and under slightly different input conditions (see below).

Regarding the three objectives mentioned above, namely a) investigate the development of the L2 from its onset, b) employ a natural target language, and c) retain full control over the input, VILLA attempts to meet them in the following manner.

First, participants were carefully selected in such a way as to make sure that they did not have any experience of the Polish or any other Slavic language, in order to exclude that their processing strategies may be based on transfer from other known languages rather than from autonomous input processing. Wherever possible, students with prior knowledge of morphologically complex language¹ such as Latin, Greek or German were also excluded. All participants were linguistically naïve university students, i.e. with no specialist knowledge of linguistics, philology and related disciplines.

Secondly, input had to be as naturalistic as possible. To this end, it was provided in the form of a Polish course structured according to the communicative approach and spanning over a two-week period; the same instructor, a native speaker of Polish specifically trained for the purpose, moved around Europe and conducted the 10 courses in all of the five project countries, strictly following the same lesson plans. As is detailed

¹ For our purposes, a “morphologically complex language” is one that features a system of nominal cases.

below, this input does not match the average native varieties in several respects, but it is indeed close to the context of guided acquisition experienced by most beginner learners of Polish.

Finally, input had to be thoroughly controlled. For this purpose, all courses were audio- and video-recorded and the resulting tracks are currently being transcribed and morphologically annotated using ELAN (Brugman / Russell 2004) and CHAT/CLAN (MacWhinney 2000). In order to ensure the cross-linguistic comparability of the data, input parameters such as item frequency and lexical repertoire had to be kept constant across the editions of the project and were indeed monitored in real time during classes. A preliminary assessment of the transcriptions confirmed that differences across editions are indeed minimal.

In this article we focus on data elicited from 14 Italian learners at the University of Bergamo in September 2013, for which a transcription of the relevant input is available. This edition was structured according to one of the two input conditions distinguished in the VILLA project, namely the ‘form-based’ condition, which differs from the alternative ‘meaning-based’ condition by the use of corrective feedback (Ellis / Loewen / Erlam 2006) and input enhancement (Sharwood-Smith 1993), among which chiefly Focus On Form techniques (Doughty / Williams 1998).

Polish was chosen as the target language of the VILLA project for several reasons. First of all, as already anticipated, it is a relatively uncommon second language in the countries taking part in the initiative, which facilitated the task of recruiting absolute beginners. Second, from the typological point of view it differs from the participants’ native languages in several respects, among which we are particularly interested in morphological complexity. Nominal paradigms are determined by gender (masculine, feminine and neuter in the singular; virile and non-virile in the plural), animacy (animate vs. inanimate), number (singular and plural) and, crucially for our study, case. The seven values of the latter categories are illustrated in Table 1 for a masculine and feminine noun, *listonosz*, ‘postman’, and *dziewczyna*, ‘girl’. This paper is devoted to the opposition between the nominative (NOM) and instrumental (INS) case of masculine and feminine nouns; the shaded cells in the table denote the nominal forms which are not relevant for our work.

case	Masculine (M)	Feminine (F)
Nominative (NOM)	listonosz	dzieczyn-a
Genitive (GEN)	listonosz-a	dzieczyn-y
Dative (DAT)	listonosz-owi	dzieczyn-ie
Accusative (ACC)	listonosz-a	dzieczyn-ę
Instrumental (INS)	listonosz-em	dzieczyn-ą
Locative (LOC)	listonosz-u	dzieczyn-ie
Vocative (VOC)	listonosz-u	dzieczyn-o

Table 1. Polish nominal paradigm, singular

2.2. Copular structures in the VILLA input

As stated above, the VILLA input may be viewed as a natural² language variety close to that employed by teachers of L2 Polish at beginner level. As such, it is characterised by such traits as phonetic hyperarticulation, very slow speech rate, and the occasional inclusion of foreign words, all to the benefit of the learners' ability to segment and comprehend L2 speech. Due to the nature of the experiment, the range of lexical items and grammatical structures available was rather limited; their relative frequency, too, was likely to markedly differ from that found in native varieties of Polish. This last point is particularly well illustrated by the case of copular constructions.

The VILLA corpus considered here consists of 18,081 words; of these, 2,109 (12%) are instantiations of the copula verb *jest*, 'is'. In contrast, a query run on the spoken subcorpus (Pęzik 2012a) of the Polish National Corpus (Przepiórkowski *et al.*, 2012) resulted in a ratio of 0.00005³. This is evidently quite different from the value computed for the VILLA corpus. This striking difference is due to the fact that copular structures were among the linguistic features specifically targeted by the VILLA course.

² As opposed to studies based on artificial languages.

³ The query was run using the PELCRA search engine (Pęzik 2012b). The corpus numbers 1,524,696,745 occurrences, of which *jest* accounts for 24,599 tokens.

Interrogative sentence	Declarative sentence	Structure	Type
<i>kto to jest?</i> who[NOM] this is?	<i>to jest listonosz</i> this is postman[NOM] 'this is a postman'	<i>to jest N.NOM</i>	NOM-type (M)
<i>kto to jest?</i> who[NOM] this is?	<i>to jest dziewczyn-a</i> this is girl-NOM 'this is a girl'	<i>to jest N.NOM</i>	NOM-type (F)
<i>kim on jest?</i> who[INS] he is?	<i>on jest listonosz-em</i> he is postman-INS 'he is a postman'	PN.M <i>jest N.INS</i>	INS-type (M)
<i>kim ona jest?</i> who[INS] she is?	<i>ona jest dziewczyn-q</i> 'she is a girl'	PN.F <i>jest N.INS</i>	INS-type (F)

Table 2. Target copular structures

The copular structures considered in this paper are summarised in Table 2⁴. All information provided from now on only refers to their use in the controlled VILLA input, as that was the sole L2 source available to the VILLA learners and is therefore the only linguistic system which is relevant to the present study. Two main syntactic types may be distinguished. In NOM-type structures⁵, the invariable demonstrative *to* is supplied independently of referent gender and number, in both affirmative and interrogative sentences. The noun appears in the nominative form, represented by the bare consonant stem (-C) in the case of masculine nouns and by the ending -a for feminine ones. INS-type structures, in contrast, require the personal pronoun *on* 'he' or *ona* 'she'⁶, depending on the grammatical gender of the referent. Personal pronouns also specify referent gender in questions. The noun is provided in the instrumental case, instantiated by the endings -em (/ɛm/) and -q (/ɔw̃/) on masculine and feminine nouns respectively.

Regarding absolute frequency, NOM-type structures are three to four times more common than INS-type ones (Table 3). Moreover, the

⁴ For a full description of Polish copular structures, see Bondaruk (2013).

⁵ List of abbreviations: NOM = nominative, INS = instrumental, N = noun, PN = pronoun, M = masculine, F = feminine.

⁶ The neuter pronoun *ono*, 'it' does not appear in the VILLA input.

demonstrative *to* required by NOM-type structures appears to have a much wider semantic scope than either of the personal pronouns: while the latter only refer to human nouns, the referents of *to* also include a relevant proportion of inanimate objects.

structure	freq.	n. human referents	n. inanimate referents	human/total ratio
NOM-type (M)	428	290	138	68%
NOM-type (F)	356	238	118	67%
INS-type (M)	115	115	0	100%
INS-type (F)	113	113	0	100%

Table 3. Proportion of human and inanimate referents
by target construction

From a contrastive point of view, the personal pronouns *on* and *ona* have a direct equivalent in the learners' L1 (it. *lui*, 'he', and *lei*, 'she'; 1a and 1b). In contrast, a generic, invariable demonstrative such as *to* differs from Italian demonstratives in that the latter are inflected for gender and number (1c and 1d). The examples also show that the choice of the pronominal element does not affect the morphosyntactic structure of the Italian copular structure, which remains identical regardless of whether personal pronouns or demonstratives are selected. This is a consequence of perhaps the most obvious difference between the two languages in contact, namely that Italian, contrary to Polish, does not inflect nouns for case.

- (1) a. *lui* è *un* *pompier-e*
 he is a fireman(M)-SG
- b. *lei* è *una* *cuoc-a*
 she is a cook-SG.F
- c. *quest-o* è *un* *pompier-e*
 this-SG.M is a fireman(M)- SG
- d. *quest-a* è *una* *cuoc-a*
 this- SG.F is a cook-SG.F

We now wish to quantify the likelihood that case endings may be

associated with the appropriate meaning. Before that, however, it is necessary to identify which meaning can be most accessible to learners.

We cannot safely hypothesise an association between nominal endings and the case they encode in the target language (e.g. *-em* = INS.M) because that would imply that learners have already established a system of paradigms in which different word-forms correspond to different functions, which is not necessarily the case and has not been demonstrated. In fact, research on early learner varieties, such as the Basic Variety, has shown that “There is no inflection in the BV, hence no marking of case, number, gender, tense, aspect, agreement by morphology. [...] Occasionally, a word shows up in more than one form, but this (rare) variation does not seem to have any functional value: the learners simply try different phonological variants” (Klein / Perdue 1997: 311). For this reason, in hypothesizing potential form-function associations we will not considerer the linguistic category of case, as in for example ‘the ending *-em* corresponds to the instrumental case’. For the same reason, we will distinguish word-forms on the basis of their phonological realisation alone, as in ‘the noun should be supplied in its *-em* form’.

There is, however, a semantic category which refers directly to intrinsic characteristics of a referent, and is therefore surely accessible to even complete beginner learners. Since all lexical items considered in this study are human nouns, the grammatical category of gender is the direct equivalent of biological sex, which should be particularly evident and unambiguous. In fact, it has been shown that in the acquisition of nominal morphology, paradigms based on biological sex are formed relatively early (Chini 1995). For these reasons, the form-meaning association that we will try to quantify is one that links nominal endings with the meaning of ‘human referent’ of the relevant gender. The resulting index should provide a measure of learner’s preferences in the choice of inflectional ending when producing a noun of each gender.

To this end, we use a global ‘association’ index computed on the basis of the VILLA input as the product of two secondary measures: the ‘form > meaning’ index describes the likelihood that a word with a given ending (e.g. *-em*) may correspond to the specified meaning (e.g. ‘human masculine noun’). The ‘meaning > form’ index indicates the likelihood that the meaning in question may be expressed by a word with that ending

(Table 4)⁷. This approach is theoretically indebted to the frameworks of Natural Morphology (Crocco Galeas 1998; Wheeler 1993; Wurzel 1989; Dressler 1985, 1989), on the one hand and of the Competition Model (Kempe / MacWhinney 1998; MacWhinney / Bates, 1987), on the other hand.

	Target ending			
	-C (NOM M)	-a (NOM F)	-em (INS M)	-q (INS F)
a function (freq)	706	649	706	649
b form (freq)	5100	2438	398	372
c form+function (freq)	391	342	314	342
d Form > meaning (c/b)	8%	14%	79%	92%
e Meaning > form (c/a)	55%	53%	44%	53
f Association (d*e)	4%	7%	35%	48%

Table 4. Form/meaning association of nominal endings

It is evident that the association ratio is much higher for INS-type structures. This is mainly due to the form > meaning index, which represents the fact that the word-final clusters *-em* and *-q* are mostly found on the instrumental case of nouns; this, in turn, occurs almost exclusively with human nouns. Words in *-em* other than the INS form of masculine nouns include the numerals *siedem*, ‘seven’ and *osiem*, ‘eight’, as well as the 1SG form of several verbs, such as *jestem*, ‘I am’. Words in *-q* other than the INS form of feminine nouns are represented by the 3PL copula verb, *sq*, ‘(they) are’ as well as rare instances of adjectives inflected in the accusative case, e.g. *francusk-q*, ‘French-ACC.F’. The word-final clusters *-C* and *-a*, in contrast, occur in a wide variety of functions. First, *-C* is characteristic of the nominative case of all masculine nouns independently of their animacy, e.g. *kolor*, ‘colour’, *strażak*, ‘fireman’, as well as of

⁷ The form > meaning index is calculated as the number of words combining the target form and meaning, divided by the number of words expressing the target meaning; likewise, the meaning > form index is computed as the number of words combining the target form and meaning, divided by the number of words having the target form.

other case endings, such as the locative plural⁸ ending *-ch*, /x/ e.g. *Włoszech*, ‘Italy\LOC.PL’. If we go further, consonants occur in several verb endings, among which the most common is *-ć*, /tɛ/ characteristics of the infinitive, e.g. *lubić*, ‘to like’. Finally, numerous adverbs and function words also end in a consonant.

Regarding *-a*, this ending is typical of the nominative case of feminine human and inanimate nouns alike, e.g. *herbata*, ‘tea’, *aktorka*, ‘actress’. Further, this sound occurs in the nominative case of feminine adjectives, e.g. *brazylijska*, ‘Brazilian.NOM’, as well as the 3.SG form of several verbs, e.g. *zna*, ‘(he/she) knows’.

As a result, the NOM endings considered here are extremely common in the input. Regarding masculine *-C*, what’s more, it must be taken into account that this ending in fact is not represented by a single sound but rather by a whole class of sounds as diverse as /p, b, f, v, t, d, s, z, ts, dz, ɛ, z, tɛ, dz, ʃ, ʒ, ʃf, k, g, x, r, l, n, ɲ, m, w, j/, although voiced consonants will rarely be observed in word-final position because of phonological devoicing.

Regarding their distribution in the input, the two structures are used more or less interchangeably in all contexts, so that they are not functionally differentiated. Example (2), extracted from the teacher’s speech, shows that the two structures may be used to refer to the same entity in the same context.

- | | |
|-------------------------------------|----------------------------|
| (2) <i>A Karol, kim jest Karol?</i> | ‘And Karol, who is Karol?’ |
| <i>Karol jest strażakiem.</i> | ‘Karol is a fireman’ |
| <i>On jest strażakiem.</i> | ‘He is a fireman’ |
| <i>To jest strażak.</i> | ‘This is a fireman’ |

2.3. *The Question & Answer test*

This paper presents the results of the Question & Answer task (Hinz *et al.*, 2013), whose purpose is to describe a given character using the correct copular structure and the information supplied. The test is articulated as follows. Learners firstly see an icon indicating the gender of the character to describe (Figure 1, left). Then, they hear the question ‘who is

⁸ Although the VILLA input mainly include singular forms, several country names are *pluralia tantum* and accordingly follow the plural declension.

this/he/she?’, instantiated by an interrogative structure of either NOM-type (e.g. *kto to jest?* ‘who is this?’) or INS-type (e.g. *kim on jest?* ‘who is he?’, *kim ona jest?* ‘who is she?’). Finally, the nationality or profession of the target referent is shown (Figure 1, right). With few exceptions, all referents had been treated in the input and should have been familiar to the learners⁹. The learner’s task is to answer the question using the information provided and the syntactic structure required by the stimulus question (e.g. *on jest pilotem*, ‘he is a pilot’).



Figure 1. The question & answer test

The test comprises 36 target sentences, with target nouns equally distributed across gender. Learner output was digitally recorded and then phonetically transcribed in IPA using CHAT/CLAN (MacWhinney 2000). The test was administered twice, after 4:30 hours and after 10:30 hours of instruction, but only the first test time will be considered in this contribution.

Occurrences in which one or more elements (pronoun, copula verb or noun) were omitted have been excluded from the analysis. Pronominal and nominal elements were considered to have been correctly supplied if, taken in isolation, they matched the corresponding expected form. In contrast, copular structures as a whole were considered correct if both the pronominal and nominal forms matched the expected form. As this was not a vocabulary test, accuracy of nominal inflection was computed solely on the basis of the ending supplied, independently of whether or not the lexical item was correctly selected and of the phonological distance separating learner output from the expected target.

⁹ See Rast (2015) for a discussion of presence vs. absence of target items in the input.

2.4. Research questions and hypotheses

To start, we wish to verify whether or not learners were able to associate target pronouns and nominal endings with the corresponding referent gender. Regarding personal pronouns, we expect that this will indeed be the case, as pronouns always agree in gender with their referents; but because these are exclusively human (Table 3), gender coincides with biological sex, and as a result pronouns should be univocally associated with the appropriate value of both sex and gender. Furthermore, they perfectly match the corresponding pronouns of the learners' L1. This research question does not apply to *to* because it occurs in an invariable form.

Regarding nominal endings, we expect that the association with gender will be stronger for the instrumental case, as suggested by the association index presented above. In general, form-function associations should be fairly accurate for all endings, as in the inflectional paradigm of human nouns the endings in question are univocal with respect to gender (i.e. the M endings *-C* and *-em* always mark masculine nouns and the F endings *-a* and *-q* always mark feminine nouns).

Next, we wish to verify whether either of the two target syntactic types yield higher accuracy rates. Accuracy is a global measure which takes into account a) the pronoun supplied, b) the ending supplied, and consequently c) the combination of the two. That is to say, target structures are considered as being successfully processed only if both the pronominal and nominal forms are correctly supplied. Table 5 presents the four possible combinations of target pronominal and nominal forms. Ungrammatical alternatives are shaded in grey.

	NOM	INS
<i>to</i>	<i>to + NOM</i> (e.g. <i>to jest listonosz</i>)	<i>to + INS</i> (e.g. <i>to jest listonosz-em</i>)
PN	<i>PN + NOM</i> (e.g. <i>on jest listonosz</i>)	<i>PN + INS</i> (e.g. <i>on jest listonosz-em</i>)

Table 5. Combinations of target pronominal and nominal forms

This research question really regards the learners' ability to supply the correct nominal form in combination with the corresponding pronoun: errors, in other words, may depend on the incorrect selection of pronouns,

nominal endings, or both. Therefore, we may articulate this question into two further points:

2.1: pronominal forms. As stated above, the personal pronouns *on* and *ona* are perfectly univocal as to the gender of their referents. What is more, they have a direct equivalent in the learners' L1. The topic marker *to*, in contrast, refers to both animate and inanimate nouns and does not have a direct equivalent in the learners' L1. Due to this, we expect that learners will favour personal pronouns, sometimes overextending them to test items requiring *to*.

2.2: nominal forms. INS endings have a higher form-function association index than NOM endings: as a consequence, we expect that when asked to produce a target noun, learners should be more likely to produce it in its INS form, independently of the form required by the test item. This should translate into higher accuracy when the INS form is required, and potentially into overextension onto NOM forms when these are required instead. Naturally enough, we assume that learners will try to perform the task to the best of their abilities: what said above should not suggest that the form required by the test is completely irrelevant. The hypotheses put forward here are only aimed at identifying regularities in learners' deviant behaviour (errors), which we consider as a source of useful insights as to input processing in the learner variety.

Regarding our main research question, therefore, we expect a higher accuracy rate for INS-type constructions as opposed to NOM-type constructions. Such superior accuracy should be due not to a preference for INS constructions *per se*, but rather to the fact that they are composed of pronominal and nominal items which are favoured – independently of each other – for the reasons outlined above.

Comparable accuracy scores for NOM and INS targets, or a lack of overextension of INS onto NOM in pronouns and nominal endings, should constitute counterevidence to our general claim.

3. Results

Our first hypothesis stated that learners would be able to associate pronominal and nominal forms with the corresponding gender, independently of the structure required by the specific test item. Regarding

pronouns, results clearly show that the personal pronouns *on* and *ona* are almost always associated with the appropriate gender (Table 6: shaded areas indicate non-target responses). In contrast, the topic marker *to* is more evenly distributed between the two genders, as expected. This impression is indeed confirmed by a Fisher exact test¹⁰ ($p < 0.001$).

	on	ona	to
M	142	3	95
F	5	171	68

Table 6: Pronoun accuracy by gender

Similar figures are obtained for nominal endings (Table 7). Shaded cells denote improper gender associations: as can be seen, their value is much smaller than that of cells corresponding to appropriate gender associations. The relatively frequent non-target use of the feminine instrumental ending *-q* to denote masculine referents may appear as a partial exception: however, this may be because this ending is often attached to the derivational suffix *-k-*, which has been shown to be productive even at such early stages of acquisition (Saturno 2014b). A Chi-square test showed that the effect of gender on the distribution of endings supplied is indeed significant ($p < 0.001$).

		Ending Supplied			
		-C	-em	-a	-q
Referent gender	F	5	6	92	127
	M	64	134	7	24

Table 7. Nominal endings by gender

Our second research question was concerned with whether or not learners would show a particular preference for any pronominal or nominal form and for their combination, and consequently if any syntactic structure would result in a higher accuracy rate. Table 8 shows all combinations of pronominal and nominal forms observed in the data:

¹⁰ Statistical analyses were performed using R software environment (R Core team, 2014).

shaded cells indicate target-like structures. Percentages are computed on the basis of the total number of occurrences produced for each target construction¹¹.

Target structure												
Target ending	NOM-type M, n=119			NOM-type F, n=92			INS-type M, n=121			INS-type F, n=152		
	on	ona	to	on	ona	to	on	ona	to	on	ona	to
	-C	6%	—	34%	—	1%	3%	12%	1%	—	—	1%
-a	—	—	5%	3%	8%	47%	1%	—	—	—	26%	—
-em	13%	—	24%	—	1%	2%	74%	1%	—	—	2%	—
-q	1%	—	9%	—	13%	16%	9%	1%	—	1%	65%	—
other	—	—	8%	—	—	5%	2%	—	—	1%	5%	—

Table 8. Pronoun + nominal ending combination by target structure

A few observations can be made. The choice of the pronominal element (columns) is generally dominated by a single form, which corresponds to the expected response (*on*: 97%; *ona*: 98%; *to* (F): 73%; *to* (M): 80%). However, while *to* never overextends onto occurrences in which *on* or *ona* are required by the test, the reverse happens in roughly 20% of cases: such overextensions naturally count as incorrectly supplied occurrences of *to*. As a result, while accuracy scores for INS pronouns are close to 100%, the corresponding scores for *to* are significantly lower, as confirmed by a Fisher exact test (Table 9; p<0.001).

	correct	incorrect
INS-type	268	5
NOM-type	163	48

Table 9. Proportion of responses by target ending

¹¹ Note that the total number of occurrences for feminine nouns differs greatly from INS-type to NOM-type (152 vs. 92, respectively). This is due to a fault in the test design, resulting in 11 INS-type targets against 7 NOM-type targets for feminine referents.

A similar scenario of polarisation around the response required by the test item may be observed for nominal endings in INS-type constructions (-em: 75%; -q: 65%); again, a Fisher exact test showed that the corresponding proportion (-C: 40%; -a: 58%) is significantly lower in NOM-type constructions (Table 10; $p<0.001$). This reflects the fact that INS forms overextend to a considerable extent.

	correct	incorrect
INS-type	190	83
NOM-type	101	110

Table 10. Proportion of responses by target ending

In sum, it appears that both personal pronouns and instrumental endings are favoured by learners over *to* and nominative endings.

So far we have seen that an incorrectly processed structure may result from an inappropriate pronoun, an inappropriate nominal ending, or both. The figures just presented show that both kinds of error are indeed present in the data. Their relative influence on overall accuracy is slightly larger for pronouns ($\phi=0.33$) than for endings ($\phi=0.22$), which suggests that the difference in overall accuracy between INS-type and NOM-type structures depends primarily on the choice of pronouns and secondarily on the choice of nominal endings.

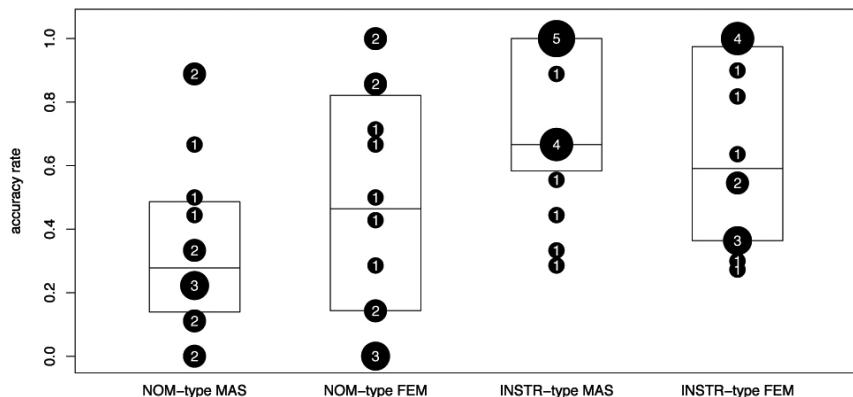


Figure 2. Accuracy rate as a function of target structure

These initial findings lead us to the next research question, namely whether any syntactic structures yield higher accuracy scores. Figure 2 plots response accuracy as a function of target construction. The area of the data points is proportional to the number of participants identified by the corresponding coordinates, which is indicated by the number inside the data point itself.

As can be seen, target structures present a varying degree of accuracy rates. A Fisher exact test performed on correct/incorrect responses by target construction showed that this difference is statistically significant (Table 11, $p < 0.001$). In greater detail, the four target constructions vary along two dimensions, namely gender and syntactic constructions. Regarding the former parameter, no student scored below 25% in INS-type structures, whereas several scored 0% in NOM-type structures. Furthermore, the average accuracy rate for INS-type structures is higher than for NOM-type structures. Regarding gender, it appears that the accuracy rate varies more markedly across the two syntactic structures with masculine rather than feminine nouns. In fact, separate Fisher exact tests showed significant variation by syntactic construction ($p < 0.001$, Table 12), but not by gender ($p = 0.41$; Table 13).

	correct	incorrect
<i>to -C</i> (NOM-type M)	41	78
<i>to -a</i> (NOM-type F)	43	49
<i>on -em</i> (INS-type M)	89	32
<i>ona -q</i> (INS-type F)	99	53

Table 11. Accuracy scores by target structure

	correct	incorrect
INS-type	188	85
NOM-type	84	127

Table 12. Accuracy scores by syntactic construction

gender	correct	incorrect	correct/total
M	130	110	54%
F	142	102	58%

Table 13. Accuracy scores by gender

4. Discussion

The results presented show that INS-type pronominal and nominal forms are produced with greater accuracy than NOM-type structures. The same is true with regard to full copular structures: INS-type structures occasionally overextend onto test items requiring a NOM-type structure, whereas the opposite never happens. In what follows, we will analyse learner errors in greater detail in order to identify possible causes for such trends. We will take masculine nouns as examples as these exhibit the widest variation across target structures (Table 14).

		Target structure					
		NOM-type M, n=119			INS-type M, n=121		
		<i>on</i>	<i>ona</i>	<i>to</i>	<i>on</i>	<i>ona</i>	<i>to</i>
	-C	6%	—	34%	12%	1%	—
	-a	—	—	5%	1%	—	—
Target ending	-em	13%	—	24%	74%	1%	—
	-q	1%	—	9%	9%	1%	—
	other	—	—	8%	2%	—	—

Table 14. Pronoun + nominal ending combination by target structure, masculine referents

In the INS-type structure, 97% of responses include the appropriate pronoun *on*; almost all errors therefore are due to the incorrect selection of the nominal ending. If we look in more detail at the alternative endings

produced we notice that only 2% were not instances of NOM or INS ending present in the input (“other”); 10% include a feminine ending (-*a*, -*q*) which may be attributed to incomplete association between form and gender. Of the remaining instances, 74% included the target-like INS ending -*em*, and 12% included the alternative NOM ending -C.

In contrast, when one considers the NOM-type structure, 20% of errors are due to incorrect pronoun selection, which we can attribute to the fact that the required form *to* does not have a direct equivalent in the learners’ L1. When it comes to the nominal forms produced in association with the required pronoun *to*, 8% of all forms fall in the “other” category; 14% show a feminine ending; and of the remaining masculine endings, only 34% come in the required NOM form, all others (24%) being in the INS form.

A question we might want to address is to what extent learner response is influenced by the syntactic structure of the stimulus question. We can assume that all our volunteer participants tried their best to follow the test instructions: nevertheless, the Question & Answer test probably exerted considerable pressure on the learner, in spite of its not being explicitly timed. Above all, it should be kept in mind that the results presented here were obtained after only 4:30 hours of exposure to a completely unknown language. In this respect, it is not unlikely that learners may have had difficulty in even retrieving the lexical item required by the test item, which was probably their first priority. Such a view is indeed suggested by VanPatten’s (2004; 1996) input processing principles, according to which meaning is processed before form, and by the empirical results supporting them (Han / Peverly 2007; Han / Liu 2013). Finally, the structure of the task may be easily confused with that of a vocabulary test – participants naturally were not told its actual objective. In sum, it does not seem unrealistic to think that under such demanding conditions, learner attention was primarily focused on retrieving lexical items, and that these, once accessed, should be produced in their most natural form, i.e. in the form which expresses most relevant information. Because of their proximity to the learners’ L1 and of form-function association, respectively, we argue that INS-type pronominal and nominal forms are a better candidate to this role than the competing NOM-type forms.

This said, we are now going to disregard the structure required by the

stimulus question and focus instead on the internal structure of learner response. First, there is a small proportion of output which is hard to account for in a systematic manner and which we are not going to consider here, as it involves all sorts of individual solutions to the communicative task (“other”). Second, in rare cases masculine nouns are marked as feminine nouns and vice versa, which can be attributed to imperfect form-function association. We have shown (2.2) that the association between case endings and referent gender is not perfectly univocal, as endings typical of one gender (e.g. NOM F -*a*) may mark specific noun forms of the opposite gender too (e.g. *listonosz-a*, ‘postman-GEN’). Most of the time, however, the gender of the pronoun and of the nominal ending as produced by the learner are appropriate to that of their referent, e.g. *on jest strażak*, ‘he(M) is fireman(M)[NOM]’. This is the kind of structures we are now going to look at in more detail. Interestingly, there is a considerable proportion of learner responses in which the ending supplied is appropriate in terms of gender, as we just said, but not of case. The proportion of responses accounted for by such ungrammatical structures are presented in Table 15. A Chi-square goodness-of-fit test performed on these data did not reveal significance ($\chi^2=6.8$, $df=3$, $p=0.08$), which leaves the question open as to whether the proportion of such kinds of error is influenced by the target construction.

NOM-type M, n=119	NOM-type F, n=92	INS-type M, n=121	INS-type F, n=152
24%	16%	12%	26%

Table 15. Proportion of responses with appropriate gender and incorrect case by target structure

This picture suggests that most deviant output might result from a somewhat independent choice of pronominal and nominal forms. In other words, personal pronouns are selected because they have a direct equivalent in the L1, INS-type endings because they are more closely associated with the desired meaning, i.e. referent gender, but in both cases the other component of the copular structure is not taken into account – there is no such thing as “agreement” between pronominal and nominal forms. Neither form (nominal or pronominal) is supplied because it is required by the other one to produce a structure which is grammatically

correct in the L2. INS-type structures would simply be favoured in learner output because of their fortunate combination of pronominal and nominal forms. In such a scenario, it is perhaps inappropriate to speak of acquisition of ‘copular structures’ of either NOM or INS type, as their components are produced independently of one another and of the resulting syntactic construction. Instead, learners create copulative structures of their own type, which in turn reflect the structure of the initial learner variety. On the one hand, the parallel between personal pronouns in the L1 and the L2 has been successfully spotted. On the other hand, morphological variability in L2 nouns has been noticed, but not yet accounted for in a systematic way. Nevertheless, the peculiar characteristics of the input make some forms (INS endings) more likely to be associated to meaning, and therefore employed by learners in a stressful test situation, hence a copular structure with personal pronouns and nominal forms modelled on that of the INS case found in the input. The reason why *to* should occur with NOM endings, and the personal pronouns *on* and *ona* with INS ones, is after all purely formal: in the absence of any functional differentiation in their use, it is a matter of mere grammatical correctness. If learners at such early stage are not yet able to identify the underlying grammatical rule or to comply with it, then their output will be inspired by functional principles derived from autonomous input processing. Among such principles, expressing referent gender appears to be a primary goal.

Some combinations of pronouns and case endings pose a problem, though, as they run contrary to the arguments presented so far. In *on jest strażak*, for instance, both the pronoun and the case ending are appropriate in terms of gender, yet the resulting sentence is ungrammatical. What’s more, the NOM ending employed here was hypothesised to be less strongly associated with the target meaning, and therefore disfavoured in output. It appears that learners can produce case endings of both types – not only the most prominent INS – but still they fail to select the form required by the test item. In other words, what they miss is not the ability to accurately express meaning, but rather morphosyntactic accuracy, which for our purposes we define as the ability to produce structures which are correct because pronominal and nominal forms appear in the association which is licensed in the input. Apparently they still have to take the crucial step which divides the “pragmatic mode” from the

“syntactic mode” (Givòn 1978), *i.e.* the stage in which utterances are composed of independent words from that in which they establish relations with each other. From a “syntactic mode” perspective, we might argue that as the first item produced in the copular structures considered here is invariably the pronoun, the nominal ending should agree with it, rather than the other way around. Producing accurate copular constructions then translates into producing the noun in the form required by its gender and by the pronominal form already supplied.

Such requirement does not regard form-function associations, as the two utterances in (3) do not contrast in meaning in any way. What distinguishes them is simply the fact that (3a) is present in the input, and (3b) is not. However, gender is appropriately expressed both by the pronoun and the nominal ending.

- (3) a. *on jest listonosz-em*
 he is postman-INS
 b. *on jest listonosz*
 he is postman[NOM]
 ‘he is a postman’

The fact that (3b) is not present in the input but was produced by learners undoubtedly adds witness to the autonomous nature of the language variety as an independent linguistic system, construed on the basis of the input received. To avoid the so-called “comparative fallacy” (Bley-Vroman 1983), it is imperative that learner output should not be interpreted against the target language, but as an autonomous system in its own right. In this perspective, it is not obvious that the NOM form is the basic, uninflected form, and the INS form is an inflected form. We have already mentioned that in early learner varieties such as the Basic Variety, words typically occur in one invariant form, which is selected on the basis of its prominence in the input. As Klein and Perdue (1997: 311) argue, “[the single invariant form of lexical items] corresponds to the stem, the infinitive or the nominative in the target language; but it can also be a form which would be an inflected form in the target language”. It may very well be that for specific lexical items in the VILLA input, this basic word-form may be modelled on the target language INS form, for various reasons connected with the relative prominence of the

contrasting forms¹². Conversely, other lexical items may model their basic word-form on the NOM form of the input. In this scenario, we cannot exclude that in the Question & Answer test, some learners may be simply producing the basic word-form of the lexical item required, which happens to be modelled on either target form of the test. Within the VILLA project, Hinz *et al.* (2013) investigated the same Question & Answer test considered here as performed by German and French learners, and indeed found that specific lexical items (e.g. *Norwegiem*, ‘Norwegian man’), were more accurately supplied in the INS form than others. This could be simply due to the fact that the form required by the test, although “inflected” (i.e. “non-nominative”) is in fact the basic word-form of the lexical item.

This is not to say that learners are not capable of developing morphosyntactic rules and generalising them. Hinz *et al.* (2013) also discuss a Grammaticality Judgement test, in which learners were asked to decide whether or not copular structures similar to those employed in the Question & Answer test were grammatically correct. Target sentences came in the form “proper noun + *jest*, ‘is’ + N”; the noun was inflected either as INS, which rendered the structure grammatical (e.g. *Dawid jest listonosz-em*, ‘Dawid is postman-INS’), or as NOM, which made it ungrammatical (e.g. *Dawid jest listonosz*, ‘Dawid is postman[NOM]’). Crucially, however, nominal endings across occurrences of the same lexical item in grammatical and ungrammatical sentences varied with respect to case but not to gender: in other words, the NOM M ending only contrasted with the INS M ending; the same applies to the feminine paradigm. The authors report that the mean accuracy rate after 4:30 hours of exposure was 69% for French learners and 80% for German learners, which is well above the mean scores of the Question & Answer production test (Table 11).

This study is not directly comparable to the present data, as target sentences included full Ns instead of pronouns and learners were speakers

¹² Valentini and Grassi (in press), for instance, note that the masculine INS ending *-em* causes the lexical stress to shift, which in the case of specific lexical items produces a stress pattern coherent with that of the corresponding cognate in Italian; e.g. NOM /'pilot/, INS /pi'lɔtɛm/; it. /pi'lɔta/, ‘pilot’. This in turn influenced the transparency of the word-form, as witnessed by participants’ higher scores in a first-exposure translation test. Other factors which might affect the choice of the Basic word-form include frequency and transparency (Hinz *et al.* 2013; Rast 2015).

of different L1s; it does, however, suggest that learners might be able to judge the grammaticality of copular structures according to a general rule.

Overall, it should not be forgotten that this study presented a transversal analysis, in which proportions were computed on the basis of all responses of all learners. Analysing results separately for each learner might prove illuminating, as that could tease apart those who already managed to identify a morphosyntactic rule from those who are still experimenting with their output. Indeed, discussing the Elicited Imitation test of the VILLA project, Saturno *et al.* (2015) found that after 9:30 hours of exposure to the input, a small proportion of learners managed to identify and correctly apply the rule which links case endings with syntactic functions, whereas others still applied a variety of non-target-like strategies to encode and retrieve meaning.

5. Conclusion

This study has shown that even in the earliest stages of acquisition, learners of a morphologically complex language can associate nominal endings with a relevant function (referent gender in our case) based on the regularities found in the input. We have shown that INS endings are favoured in learner output, which we justified in terms of form-function association strength. Learners also show a clear preference for personal pronouns, which has been ascribed to L1 influence.

Overall, INS-type copular structures were produced with significantly greater accuracy than NOM-type structures. Errors were shown to be due to pronoun selection, with personal pronouns overextending onto *to*, and/or ending selection. With regard to the latter, sometimes learners marked masculine nouns as feminine and *vice versa*, which may point to still imperfect association between nominal endings and gender. In other cases, learners produced endings appropriate with respect to gender, but not to case. This is the level of morpho-syntax proper, as the form in which one item occurs depends on the form of the other: more precisely, since in copular structures the pronoun always precedes the N, we may say that the form assumed by the N depends on that of the PN. The difference between the proportion of responses accounted for by such ungrammatical structures was not found to be statistically significant across target

constructions. Because of the limited size of our sample, however, the hypothesis will need to be tested again in a more extensive study.

We are left with the question of why learners produce non-target-like structures in which case endings are appropriate with respect to gender but not with respect to the pronoun supplied, i.e. in terms of morphosyntax.

It is however, a question which we leave open for further investigation in subsequent studies. The present work presented the results of a transversal analysis, which, however useful in identifying general trends, may not adequately account for some of the discrepancies highlighted so far. Future work will concentrate on individual processing strategies, so as to tease apart the various developmental stages which are inevitably merged together in a transversal design. In addition, an expansion of the present study will probe the effect of several factors which were not analysed here. These include input exposure (4:30 hs. vs. 10:30 hs.), to verify whether additional input contributes significantly to the shaping of a morphosyntactic system; individual variability, to verify whether or not error distribution differs significantly from one participant to the other; and lexical item, to verify whether specific lexical items are more likely to be produced in either form because of their relative prominence in the input.

For the time being, the results show that even after such minimal exposure as 4:30 hours, learners manage to be relatively accurate in producing target-like structures, especially if the form-function association is particularly evident as in the INS-type copular structures which were the object of this study.

Jacopo Saturno
Università degli Studi di Bergamo
Dipartimento di Lingue, Letterature e Culture straniere
piazza Verzeri, 1
24129 Bergamo
jacopo.saturno@unibg.it

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