Preservation of dual in six Slovenian dialects with respect to sentential function of the noun and the available dual forms in a paradigm

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Introduction: In Slovenian, there are several dialects that differ in terms of preservation of dual morphology in both noun and verb. The Proto-Indo-European language had dual, as did most of its descendants in which dual forms had already begun to disappear. For example, between 13th and 15th century, Old Russian dual was gradually unified with plural, first in oblique case and starting with nouns denoting natural pairs, but eventually also in nominative/accusative, numeral *two*, and personal pronouns (Sussex & Cubberly, 2006; Stepanov & Stateva, 2018). Based on diachronic data, Tesnière (1925) suggested the following general order of pluralisation of dual forms:

- **CASE**: locative > genitive > dative > instrumental > nominative/accusative;
- **GENDER**: feminine > neuter > masculine.

Background: There are several explanations for the gradual loss of dual. Most of them assume a decomposition of grammatical number so that categories become bundles of binary features. The set of features that make up the dual seems to be more marked compared to the plural according to various criteria, e.g., distribution or morphological form (cf. Greenberg, 1963: 94; Universals 34 and 35). These criteria are also reflected in language acquisition, typology, and use. For example, the dual is acquired by children later than the plural (Ravid & Hayek, 2003), the dual is less common than the plural across languages and its use generally declines in diachronic development (Corbett, 2000). Markedness can trigger changes that lead to reinterpretation and eventual unification of the marked dual forms with the unmarked plural forms (see, in particular, Nevins, 2011; Slobodchikoff, 2019; Stepanov & Stateva, 2018). In addition, mutual interference with other grammatical categories could also play a role, whereby only the number that distinguishes between multiple values of some other category would be retained (Ivanov, 1983).

In studying distribution of dual forms in Slovenian dialects, we follow the results of Jakop (2008), based on the Slovenian Linguistic Atlas (SLA; 1946-1999). During elicitations for SLA, informants had to translate a list of standard Slovene expressions into their dialect and, in some cases, to indicate the entire paradigm of translated expression (Benedik, 1999). The main drawback of the collected material is its non-homogeneity due to many years of collection and cooperation of several researchers, but also because of imprecise questions, methodology and transcription. As a result, Jakop (2008) was only able to use 10 out of 44 questions that would have otherwise been useful for studying dual. According to her results, dual noun forms in Slovenian dialects are best preserved in the masculine gender, namely in the nominative (96% of elicited nominal expressions for *brat* "brother"; N=275) and consequently in the accusative, which corresponds to the nominative. Dative forms are preserved only in 30% of elicited nominal expressions for *brat* "brother"; N=275); the genitive and locative forms have been pluralised in standard Slovene as well as in all the dialects. Some dialects have also partially lost dual morphology on the verb.

In this study we targeted the syntactic functions of subject and object because the dual forms are better preserved in the nominative and accusative than in the genitive, dative, locative and instrumental (Toporišič, 2000; Jakop, 2008; Marušič & Žaucer, 2021), and at the same time these syntactic functions allowed us to experimentally test the presumed influence of the use of

verbal dual forms (Tesnière, 1925) on the use of the dual on the noun. We posited two hypotheses: **H1:** speakers are more likely to replace the dual by the plural in dialects with fewer distinctive dual forms in a paradigm; **H2:** speakers are more likely to replace the dual by the plural on nouns in object position (does not agree with the verb) compared to nouns in subject position (agrees with the verb).

We tested these hypotheses in an online semi-spontaneous production experiment that included a *picture description task*. We focused on 6 dialects from those documented in Jakop (2008): 3 have retained the dual morphology on the verb (**A1-A3**), while 3 have partially lost it (**B1-B3**). Note that in A-group, nominal dual morphology was preserved either in all the paradigm (**A1, A2**) or only in the nominative/accusative case (**A3**) – as presented in table (1):

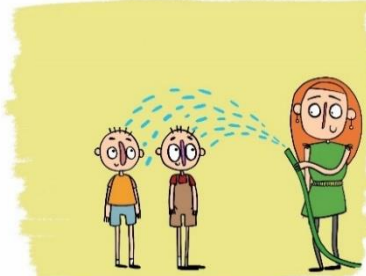| (1)	Group A			Group B		
Verb	**Noun**		**Verb**	**Noun**		
	Nom/Acc	**Oblique**		**Nom/Acc**	**Oblique**	
South Pohorje dialect (A1), Soča Valley dialect (A2)			Karst dialect (B1), North White Carniola dialect (B2), South White Carniola dialect (B3)			
+	+	+				
Upper Carniolan dialect (A3)			–	+	–	
+	+	–				

Materials included pictures that were accompanied by three given lemmas ordered from top to bottom: *noun→infinitive verb→noun*, which corresponded to the unmarked SVO word order in Slovenian so as to elicit 16 transitive verbs assigning the Agent and the Patient theta roles alternately to a target masculine and a filler feminine noun (balanced), in sets such as (2a-b). Each participants saw only one stimulus from a set. All participants additionally saw 32 control stimuli with a transitive verb, a masculine and feminine noun (balanced) in sg. or pl. (balanced).

(2)a. Malčka   špricata   teto   b. Teta   šprica   malčka
        $kid_{m.dual.nom.}$ $spray_{dual}$ $aunty_{f.sg.acc}$ $aunty_{f.sg.nom}$ $spray_{sg}$ $kid_{m.dual.acc}$
        'The kids spray a/the aunty.'   *'A/the aunty sprays the kids.'*

Participants: 140 adult Slovenian speakers (52 male; age=37.9, SD=11,4; M=36,0) were asked to describe the pictures using only the lemmas provided; the entire utterance was recorded. Replacing the standard lemma with dialectal equivalent was accepted.

The results were manually decoded. 1247 data points (target nouns that encoded participants referring to two entities) were subjected to statistical analysis. Table (3) shows the number of non-target (i.e., plural) nouns compared to the number of target (i.e., dual) nouns – and the ratio between the two depending on the dialect and noun sentential function. The results show that:

- verbal dual forms do occur in all the dialects,
- nominal dual forms are indeed relatively stable in all dialects (88% of production),
- congruent subject-verb agreement is obligatory (we did not register a single case of broken, e.g., *subject_dual-verb_pl* or *subject_pl-verb_dual* agreement),
- if pluralisation applies, it applies simultaneously for subject and verb.

(3)	Subject	Object	SUM
Group A	15/353 (4%)	45/386 (12%)	60/739 (8%)
Group B	50/260 (19%)	42/248 (17%)	92/508 (18%)
SUM	65/613 (11%)	87/634 (14%)	152/1247 (12%)

Right: *Plot crossing sentence function of target NP and presence of dual verbal morphology in a dialect. Estimates are given in terms of actual probabilities of non-target response (PL instead of DUAL). DU_SUBJ and DUAL_OBJ stand for probability of dual in the subject and object position, respectively.*
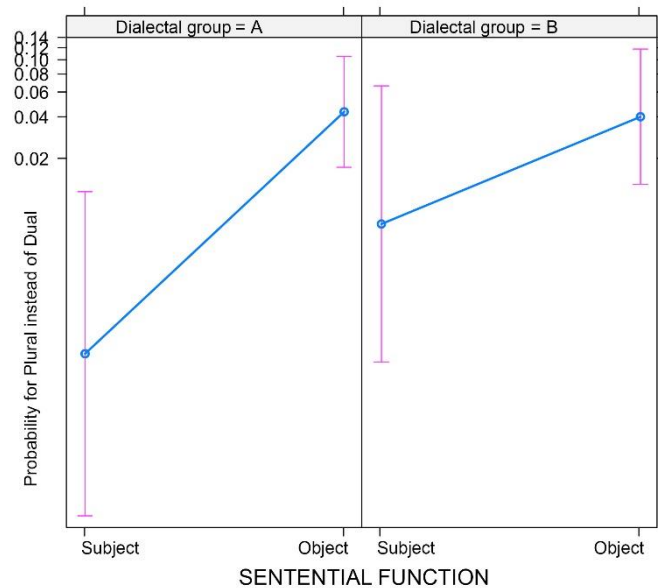
A breakdown by dialect groups revealed the following: **i)** the use of non-target plural on a verb is about 5-times higher in dialects *with partially lost* dual verbal morphology than in dialects *with entirely retained* dual verbal morphology (the difference is statistically significant: $\chi^2 = 40.97$, p<0.0001); **ii)** the use of non-target nominal plurals is about 2.4-times higher in dialects *with partially lost* dual verbal morphology than in dialects *with entirely retained* dual verbal morphology (the difference is statistically significant: $\chi^2 = 27.15$, p<0.0001); **iii)** in the dialects *with partially lost* dual morphology on the verb, the number of dual forms of the noun <u>does not depend</u> on its syntactic position; while in the dialects *with entirely retained* dual morphology on the verb the number of nominal non-target forms in the subject position <u>is lower</u> than in the object position (the difference is statistically significant: W=10.11, p<0.025). The dual morphology of the verb thus appears to play a supporting role in maintaining the dual morphology of the subject in accordance with so far unconfirmed assumptions (Tesnière, 1925).

Conclusion: Both hypotheses were confirmed: Speakers of dialects with more preserved dual forms use the dual more often (**H1**), and speakers use the dual form of the noun more often in subject position than in object position (**H2**). Thus, the use of the dual in Slovenian dialects is conditioned in two ways: The first factor is the number of existing dual forms (present in a dialect) and the second is the number of dual forms used in a sentence (as a result of agreement).

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