Explorations of the case and agreement systems of heritage Bosnian/Croatian/Montenegrin/Serbian

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Humboldt Universität zu Berlin, Kolloquium Slawistische Linguistik
12.12.2024

Leibniz-Zentrum
Allgemeine Sprachwissenschaft

Introduction

Goal:

- Present an overview of the current state of formal research on Bosnian/Croatian/Montenegrin/Serbian (BCMS) spoken as a heritage language (by second-generation speakers) in the context of German as a majority language, with a special focus on agreement and case.
- characterize the "vulnerability" of these phenomena in heritage grammars (e.g. they show properties such as loss of inflectional morphology, overmarking or overregularization, due to language contact at macrolevel (between two languages) and at microlevel (between two grammars in a single speaker's mind)).
- identify factors that affect agreement and case patterns;
- explore the causes of variation under language contact.

Outline

1. Heritage speakers

2. Heritage language grammar

3. Heritage BCMS
   - Previous studies
   - Agreement and case
   - Relative clauses

4. (Ideas about) methodology

5. Summary and outlook

Outline

Heritage speakers

- A heritage language speaker can be defined as in (1).

  (1) *A heritage language speaker* (for short, HS) is a simultaneous or sequential (successive) bilingual whose weaker language corresponds to the minority language of their society and whose stronger language is the dominant language of that society. (Polinsky 2018:9)

- Most important characteristics of heritage speakers (Polinsky 2018:9, Lohndal et al. 2019:4p.):
  - early bilinguals (simultaneous or sequential), heritage language acquired as L1
  - active speakers of a minority language
  - unbalanced relationship between the two languages
  - dominance of the language of their larger national community

Heritage speakers

- Differences from baseline/homeland language:[1]
    - transfer from the dominant language
    - attrition (erosion of acquired language)
    - innovation / divergent attainment

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[1]"[A] heritage speaker may simultaneously transfer the word order from their dominant language to the heritage language and lose a set of nominal paradigms under attrition while developing an innovative pattern of yes-no question formation" (Polinsky 2018:18).

Heritage Speakers

- Factors influencing proficiency (Polinsky 2018):
    - input
    - universal principles of language structure
    - age of acquisition (also sequential vs. simultaneous bilingualism)
    - speaker's age
    - socioeconomic status.

The status of heritage speakers and their grammars

- The grammar of heritage speakers as a system in its own right, as opposed to being treated as incomplete (see Domínguez et al. 2019 vs. Bayram et al. 2019; Cabo & Rothman 2012).

- Heritage speaker as a native speaker (Kupisch 2013; Rothman & Treffers-Daller 2014; Kupisch & Rothman 2018; Tsehaye et al. 2021; Wiese et al. 2021).

Importance of the study of heritage languages

- Importance of study (Lohndal et al 2019):
  - better understanding and modelling of language change
  - better understanding of language structures (lexical and functional)
  - interaction between grammatical modules (especially core syntax vs. other components).

Outline

Stable vs. vulnerable domains

Stable domains (Areas where HSs do well; Polinsky & Scontras 2020:5):

- aspects of phonetic and phonological competence
- lexicon
- tense and determiner systems
- A- and A-bar phenomena.

Stable vs. vulnerable domains

Vulnerable domains (Polinsky & Scontras 2020:6f.):

- Putnam et al.'s (2021) 5 major properties of heritage language morphology (**The Morphology Problem**):
    - (i) transparency and salience of forms and structures (e.g. one-to-one mapping of features and exponents),
    - (ii) overregularization (*buyed*, *bringed*) and overmarking (*dresseded*),
    - (iii) preference for analytical forms (e.g. case as suffix vs. a P+N combination),
    - (iv) avoidance of ambiguity and underspecification,
    - (v) minimal domains (shrinking of hierarchical and linear syntactic structure, smaller computational domains).

- Dependencies at a distance (**"The Distance Problem"**, Polinsky & Scontras 2020): antecedent-gap dependencies, binding of anaphors, agreement phenomena

- Null, unpronounced elements (**"The Silent Problem"**, Laleko & Polinsky 2017; Polinsky 2018): *pro*-drop, ellipsis

- One-to-many mappings between form and meaning (**"The Ambiguity Problem"**, Polinsky & Scontras 2020): scope taking

Stable vs. vulnerable domains

- My project will target all of the above:
    - **The Morphology Problem**: through studying phenomena like case and agreement
    - **The Distance Problem**: through relative clauses and agreement mismatches
    - **The Silent Problem**: through relative clauses and resumption
    - **The Ambiguity Problem**: through mismatches in grammatical/natural gender/number agreement

Towards a framework

Input and economy of online resources

- Two most common triggers of divergence of heritage speakers from the baseline grammar (Polinsky & Scontras 2020).
- Input:
  - amount and type of input (quality and quantity of input, how much and where the language is used e.g. only at home, in a wider community, over media, formally at school; register – only spoken or written)
  - relativized input (some material takes less input to be acquired; some material acquired earlier and thereby better retained; treshold effects)
  - input vs. intake
  - input needs to be quantified and operationalized
  - incipient changes in the input (whether change is present in the grammar of first-generation immigrants and hence in HS's input $\rightarrow$ acquisition; or not $\rightarrow$ reanalysis/innovation)

Towards a framework

Input and economy of online resources

- Economy of online resources
  - difficulties "with phenomena that impose relatively high cognitive demands" (Polinsky & Scontras 2020:11).
- *Interface Hypothesis* (Sorace & Filiaci 2006; Tsimpli & Sorace 2006; Sorace 2011)
  - *Internal* (syntax-semantics, syntax-phonology) vs. *external* interfaces (syntax-discourse, phonology-discourse); external ones are more problematic in adult L2 acquisition, L1 attrition and heritage language speakers (Sorace & Filiaci 2006; Tsimpli & Sorace 2006; Sorace 2011; Montrul & Polinsky 2011).
  - Predicts processing difficulties at the interfaces between grammatical modules, as they require more processing resources.
  - Polinsky & Scontras (2020) consider the processing difficulties as a driving force of grammatical change.
  - They argue that domains that will be most affected by processing pressures in heritage grammars are those that prove problematic for monolingual speakers as well (long-distance dependencies, recovery of missing information, ambiguity, low-frequency material are harder to produce and understand).
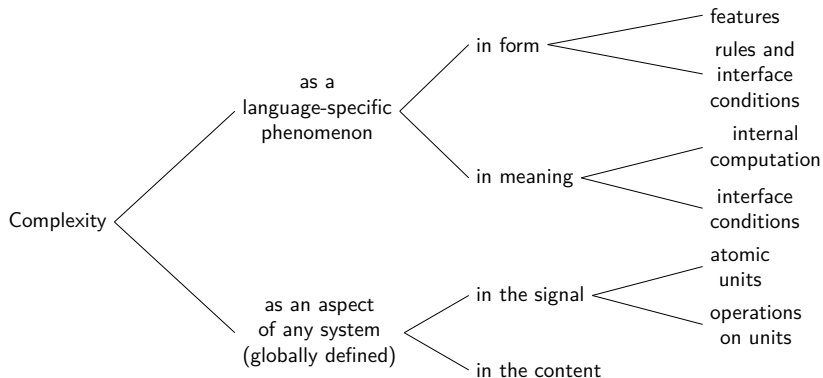
Towards a framework

Complexity

- As a notion in heritage language studies used mostly to indicate that heritage language grammars are somehow simpler in comparison to the monolingual baselines (problematic for public perception, pedagogical aspects, and further theoretical and experimental studies, Polinsky et al. 2024:3).
- Tends to be correlated with frequency, crosslinguistic distribution, and ease of acquisition, and can be diagnosed using them, but it is not always a one-to-one correlation.

Towards a framework

Complexity

- Better ways of looking at it suggested by Polinsky et al. (2024:9):

(2)

Complexity

- as a language-specific phenomenon
  - in form
    - features
    - rules and interface conditions
  - in meaning
    - internal computation
    - interface conditions
- as an aspect of any system (globally defined)
  - in the signal
    - atomic units
    - operations on units
  - in the content

Towards a framework

Complexity: an integrated approach

1. complexity of features
2. complexity of rules and computation
3. complexity of mapping

Towards a framework

1. Complexity of features

- Lohndal & Putnam (2021)'s 3 criteria for establishing complexity:
  - a. Number of syntactic features,
  - b. Number of functional projections,
  - c. Mapping from syntactic features to exponents (Lohndal & Putnam 2024:107).

- Requires a decompositional approach to the lexicon and a strict divide between syntax and morphophonology.

- In heritage grammars morphology may change in one of the following ways:

  (3)   Relative to a given baseline, a feature can (Lohndal & Putnam 2021)
  - a.   be retained in the same hierarchical position
  - b.   shift its hierarchical position
  - c.   be lost
  - d.   be (internally) restructured through
    - (i)   loss of (some) features
    - (ii)   reconfiguration of features

Towards a framework

2. Complexity of rules and computation

- Rinke et al. (2024:62): *derivational complexity* can be measured in terms of layers of embedding, number of movement operations, instances of merge

- D'Alessandro & Terenghi (2024) bring complexity in connection with markedness;

- Language change in contact shows a tendency toward unmarked (*monotonic*) systems (e.g. those whose all heads in a functional sequence show the same value). Complexity can thus be seen in terms of a bias towards monotonic systems.

- E.g. if a learner assigns a certain property to a particular syntactic head (e.g. *v*), they will assign this value to all comparable heads (D'Alessandro & Terenghi 2024:161 based on Roberts and Holmberg 2010:41).

- Reminiscent of Murphy and Puškar's (2018) *Uniform Order of Operations* whereby all operations on functional heads have to be carried out in the same order on all the heads in a derivation.

3. Complexity of mapping

- Rinke et al. (2024:62): multiple form-function mappings (e.g. allomorphy, homophony).

- Lohndal & Putnam (2021): *generalized exponence*, i.e. one exponent may be generalised and apply to more contexts compared to a given baseline, e.g. the same item may expone [present] and [past], or just [tense]. They offer an implementation in DM.

- Complexity can decrease (if fewer features are acquired and used and if this results in simpler mapping relations between features and exponents, e.g. with gender) and increase (if relationship between gender and inflection class becomes less transparent) (Lohndal & Putnam 2021).

Towards a framework

Examples:

- Rinke et al. (2024) argue that all of these factors affect the acquisition of European Portuguese as a heritage language. Moreover, they can work in concert to delay the acquisition of a particular item.

- E.g. the item *que* can function either as a complementizer or a relative pronoun; as such it is involved in subordination processes, which require greater degrees of syntactic complexity (layers of embedding and movement), but also multiple form-function mapping of *que* (homophony; its functioning as both complementizer and a interrogative/relative pronoun and an interrogative determiner).

Towards a framework

Examples:

- Hybrid agreement is a good candidate for a complex grammatical process:

  (4)   a.   This committee have decided.
        b.   *These committee has decided.

- The noun such as *committee* contains two different kinds of features (singular grammatical number and plural natural number); agreement operations need to make reference to both types of features. There are Agreement Hierarchy restrictions on what agreement targets may agree with what kind of features (if attributive agrees in natural number features, the predicate must do so as well (4b), but a mismatch in (4a) is allowed). Finally, the grammatical number feature maps onto morphology yielding a singular noun, while the natural number feature enables a plural interpretation.)

Summary

To summarise:

- There are certain aspects of heritage grammars that are more vulnerable, where variation is present and novel patterns may emerge (The Morphology Problem, The Silent Problem, The Distance Problem and The Ambiguity Problem).
- Input and economy of online resources are two major drivers of change.
- Change most often occurs at the interfaces between grammatical modules.
- Complexity of features, rules and computation and mapping affects the grammar of HSs.

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Studies of heritage BCMS

- For a good overview of state of the art on Croatian as a heritage language around the world, see Hlavac & Stolac (2021).

- Studies on BCMS as a HL from sociolinguistic perspectives: in the US (Savić 1995; Šipka 2017) in Canada (Petrović 2018) in Australia (Hlavac 2003) in Norway (Skaaden 2005) in Germany (Schlund 2006; Romić 2016; Hansen et al. 2013; Vuletić 2013; Vuletić Đurić 2016; Kresić Vukosav & Šimičić 2021) in Austria (Ščukanec 2021; Ščukanec et al. 2021).

- Few studies on formal properties of the grammatical system such as general innovative patterns (Hansen et al. 2013; Hansen 2018), case (Hlavac 2003; Jažić et al. 2023), agreement (Krstić 2020, 2022; Vuk 2021), verbal morphology (Arsenijević & Simonović 2020; Simić & Arsenijević 2024).

Roadmap

Case and agreement as vulnerable domains

- Agreement is one of the most challenging domains for theoretical modelling in BCMS due to great variation present within and across speakers (Wechsler & Zlatić 2003; Corbett 1979; Despić 2017; Puškar 2017; Arsenijević 2021).

- Data from BCMS have provided insights to interface-related issues:
  - whether agreement respects hierarchy or linearity (Willer-Gold et al. 2016; 2018),
  - whether agreement is a syntactic or a postsyntactic operation (Willer-Gold et al. 2016; 2018 vs. Murphy & Puškar 2018),
  - how different types of ϕ-features are represented and agreed with – privative/binary/hierarchical, bundled/separate, natural/grammatical (Wechsler & Zlatić 2003; Wechsler 2011; Arsenijević & Mitić 2016; Mitić & Arsenijević 2016; Despić 2017; Puškar 2017; Puškar-Gallien to appear *b*);
  - how mismatches such as Agreement Hierarchy are resolved (Puškar 2017);
  - what is the nature of gender resolution rules (Willer-Gold 2023; Adamson & Anagnostopoulou 2024)

Case and agreement as vulnerable domains

- Thus even in the baseline monolingual grammar a high degree of variability is present.

- Issue at syntax-morphology and syntax-semantics interface (*The Interface Hypothesis* predicts variation due to processing difficulties).

- Involves the issue of complexity of features (how are they different in heritage speakers?), complexity of operations (do the same restrictions apply, e.g. in Agreement Hierarchy or conjunct agreement) and complexity of mapping (e.g. is there loss of gender system, loss of case, how is it manifested?).

- Let us look more closely at all the grammatical factors that may contribute to the instability of case and agreement systems in BCMS.

Factors affecting agreement in (heritage) BCMS

preverbal/postverbal position of the NP

- Hansen (2018) provides some examples of S-V mismatches (5)-(6).
- See Willer-Gold et al. (2016); Murphy & Puškar (2018) for effects of word order on agreement.

(5) bila je svetsko prvenstvo u
be.PRT.F.SG AUX.3.SG world.N.SG.NOM championship.N.SG.NOM in
Zagrebu
Zagreb.M.SG.DAT
'The World championship was in Zagreb.' (Hansen 2018)
Baseline: *bil-o*.PRT.N.SG *je*.AUX.3.SG

(6) i na toj ruševini je satelitske
and on this.F.SG.LOC hulk.F.SG.LOC be.3.SG satellite.ADJ.F.PL.NOM
ovaj ahm antene .
this uhm antenna.F.PL.NOM
'and in this hulk there are /is, how do you call it, er, satellite dishe(s).'
(Hansen 2018)
Baseline: *su*.BE.3.PL *satelitske antene*.F.PL

Factors affecting agreement in (heritage) BCMS

canonical vs. non-canonical agreement controllers

- QNPs, conjoined NPs, hybrid nouns, nouns that belong to a declension class whose gender is not typical to that class (e.g. masculine -*a* nouns, feminine or masculine nouns ending in -*o*)

- Problematic even for monolingual speakers (Wechsler & Zlatić 2003; Despić 2017; Driemel & Stojković 2019; Puškar 2018).

- Analysed by Krstić (2020, 2022); Vuk (2021) for heritage speakers with majority German and Hungarian language.

- Major results for conjoined NPs: preference for default agreement over all other strategies; in case F and N are coordinated, F is preferred; F agreement more prominent in the presence of a F conjunct, unexpectedly high acceptance of split agreement.

Factors affecting agreement in (heritage) BCMS

case of the noun

- Polinsky (2008): speakers use nominative forms to retrieve gender based on declension class, which is harder to do if presented with a non-nominative noun.

- Restructuring in the case system will affect gender – hard to retrieve it from a noun used in "wrong" case.

Factors affecting agreement in (heritage) BCMS

bundled or separate representation of features

- Fuchs et al. (2015), Scontras et al. (2018): monolingual Spanish speakers represent and value number and gender separately and singular and plural are equally specified; heritage Spanish speakers represent and value the features as a bundle (tendency towards representational economy).

- Arsenijević & Mitić (2016) argue for a split representation of gender and number in BCMS, Vuk (2021) confirms some of these tendencies for heritage speakers.

- Jažić et al. provide examples like (7); nominal modifier agrees is in gender, but not in number and case:

(7) ...Jedna   ptica   sa | svojom | | bebe |
     one.F.SG.NOM bird.F.SG.NOM with her.own.F.SG.INS baby.F.PL
     'A bird with her babies''   (Jažić et al. 2023:11)
     Baseline: *sa svojim*.F.PL.INS *bebama*.F.PL.INS

animacy/humanness

- See Corbett (2006); Mitić & Arsenijević (2016); Puškar-Gallien (to appear*b*) for effects of animacy in agreement.
- Jažić et al. (2023:10) recorded examples like (8a):

(8) … Jedna   maca   koja   je   ugledala
     one/F.SG.NOM cat.F.SG.NOM who.F.SG.NOM AUX.3.SG see.PRT.F.SG

     lep -i   žut -i   leptir -∅
     beautiful-M.SG.NOM yellow-M.SG.NOM butterfly-M.SG.NOM
     'A cat which saw a beautiful yellow butterfly'   (Jažić et al. 2023:10)
     Baseline: ugledala lep-og.M.SG.ACC žut-og.M.SG.ACC leptir-a.M.SG.ACC

- HSs may simplify the grammar such that nouns lose their animacy properties, or some other process of re-semanticization takes place (c.f. Alexiadou et al. 2021 for Greek).

Factors affecting agreement in (heritage) BCMS

lexical category of agreement target

- According to Corbett's (1979) *Agreement Hierarchy* (attributive ≻ predicate ≻ relative pronoun ≻ personal pronoun), if an agreement controller has mismatching semantic and morphological features, the elements further to the right of the hierarchy will be more likely to show semantic agreement.
- See Wechsler & Zlatić (2003); Alsina & Arsenijević (2012); Despić (2017); Puškar (2017, 2018) for its effects in BCMS.
- Alexiadou et al. (2021) examine this effect for heritage Greek; DP-external targets conform to the Agreement Hierarchy, but DP-internal patterns seem to disobey it.
- Vuk (2021) examines it for heritage Croatian only for specific hybrid nouns such as collectives *deca* 'children', *braća* 'brothers', *gospoda* 'gentlemen', or nouns such as *tata* 'dad', *papa* 'pope', *kolega* 'colleague' and *sluga* 'servant', with which she did find instances of both semantic (M) and morphological F agreement in different contexts.

Factors affecting agreement in (heritage) BCMS

distance of agreement target to agreement controller

- Corbett's (2006:235) *Distance Principle* denotes a monotonic increase of the probability of semantic agreement, without intermediate decrease (i.e. once a switch to semantic agreement happens on a target, it is maintained on all targets to its right).

- Alexiadou et al. (2021) noticed deviations from it in heritage Greek DP-internal agreement.

gender markedness/default gender

- In BCMS it has been argued that F is the most marked gender and M and N can function as default in different contexts (see e.g. Arsenijević 2018, 2021; Puškar-Gallien to appear*a* or Kovačević et al. 2009; Velnić 2020 for evidence from acquisition).

Factors affecting agreement in heritage BCMS

age/order of acquisition

- Alexiadou et al. (2021); Łyskawa & Nagy (2020) notice differences between groups of heritage speakers of different age w.r.t. patterns they produce.

frequency:

- Vuk (2021) showed that frequency of the word has an effect on agreement in conjunction.

whether production, comprehension or processing are tested

- Production and comprehension argued to be more error-prone and less target-like in HSs than processing (Fuchs & Zeng 2024).

Factors affecting agreement in heritage BCMS

transfer from majority language

- Effects of overlapping gender systems are attested in bilinguals both in production and comprehension (Montrul et al. 2014; Scontras et al. 2018; Karkaletsou & Paspali 2021; Kupisch et al. 2022; Alexiadou et al 2021) and processing (Sá-Leite et al. 2020; Klassen et al. 2022; Fuchs & Zeng 2024).
- Vuk (2021): presence (German) or absence (Hungarian) of a formal gender system in the majority language no major effect on findings.
- Hansen (2018) notes examples like (9), where the demonstrative agrees with the head noun, while the intermediate adjective does not (presumably due to the interference from strong/weak nominal inflection patterns in German):

(9) ... i   kod nas   su   on-e   tursk-i
     ... and by 1.SG.GEN be.3.SG this.PL.ACC Turkish.M.PL.NOM
     krovov-e
     roof.M.PL.ACC
     '(... on our houses) there are those Turkish roofs'   (Hansen 2018)
     Baseline: *on-i*.M.PL.NOM *tursk-i*.M.PL.NOM *krovov-i*.M.PL.NOM

richness of case morphology

- BCMS has rich case morphology; 4 declension classes distinguishing between NOM, GEN, DAT, ACC, VOC, INS, (LOC).
- In languages with similar systems, some leveling has been noted (see Polinsky 2006; Łyskawa & Nagy 2020; Nagy & Petrosov 2024 for Russian), e.g. Polinsky (2006:220) argues for the following hierarchy in the case shift in heritage Russian in the US:

(10)   DAT → ACC → NOM → UNMarked

Factors affecting case assignment in (heritage) BCMS

richness of case morphology

- Jažić et al. (2023) record errors of NOM/ACC substitution (11), while Savić (1995:486) notes INS omission (replaced by NOM):

(11) Mačka   skače   na leptir -∅
      cat.F.SG.NOM jump.PRS.3.SG on butterfly.M.SG.NOM
      'The cat is jumping on the butterfly'   (Jažić et al. 2023:10)
      Baseline: *na leptir-a*.M.SG.NOM

(12) i   ovako maše   ruk -e
      and like.this waive.3.SG hand-F.PL.NOM
      'and waives (his/her) hands like this'   (Savić 1995:486)
      Baseline: *maše rukama*.F.PL.INS

- There is an ongoing change of case system in southern Serbian dialects under language contact (see e.g. Miloradović & Greenberg 2001); it would be instructive to compare findings from heritage BCMS with the systems found there.

Factors affecting case assignment in (heritage) BCMS

PP contexts

- Erroneous case assignment in PPs if a P can assign two different cases, e.g. LOC/INS (location) or ACC (direction), as in (13).
- Also noted by Savić (1995); Hansen (2018) in various contexts (see (17) below).
- Similar errors recorded for Russian by Polinsky (2006); Nagy & Petrosov (2024).

(13) ...Pala   njegova lopt-a   u jezer-u
      fall.PRTC.F.SG his   ball-F.SG.NOM in lake-N.SG.LOC
      'His ball fell into the lake.'
      Baseline: *u jezer-o*.N.SG.ACC

(14) ...Vidi   ribe   u kant-u
      see.PRS.3.SG. fish.F.PL.ACC in bucket-F.SG.ACC
      'Sees the fish in the bucket'   (Jažić et al. 2023:10)
      Baseline: *u kanti*.F.SG.LOC

animacy/humanness

- The effect of animacy and humanness is best observable in the NOM/ACC substitution (Jažić et al. 2023).
- Recall that BCMS Class 1 (M) and Class 2 (N) inanimate nouns exhibit NOM/ACC syncretism, and animate GEN/ACC syncretism.

(15)   Ja   imam   otac -∅   i   majku   i
       1.SG.NOM have.1.SG father-M.SG.NOM and mother.F.SG.ACC and

       starij -eg   brat -∅
       older-M.SG.ACC brat-M.SG.NOM

       'I have a father and a mother and an older brother.'
       Baseline: *oca*.M.SG.ACC, *brata*.M.SG.ACC   (Savić 1995:485)

transfer from majority language

- Effect of transfer from German (observed in Hansen et al. 2013; Jažić et al. 2023); a discrepancy between case assignment on nominal modifiers and the head noun, perhaps due to the nature of case marking in German, which is only visible on adjectives and determiners (see (8) above).

- However Alexiadou et al. (2021) found similar mismatches in heritage Greek with English as majority language, so maybe not (only) transfer?

Factors affecting case assignment in (heritage) BCMS

transfer from majority language

- Code-switching with unintegrated German nouns used in an NP:

(16)   I   ona   hoće   da   ganja | to |
        and 3.SG.F wantPRS.3.SG COMP chase.INF that.N.SG

        | schmetterling |
        butterfly(German)
        'And she wants to chase that butterfly (schmetterling)'
        (Jažić et al. 2023:12)

- Usage of case as assigned in German PP:

(17)   ehm gledaju   prvi   hrvatski.   HRT-jedan.
        erm   watch.3.PL first.M.SG.ACC Croatian.M.SG.ACC HRT.M.SG.ACC

        To   dobije   preko | taj | | kabel | .
        this get.3.SG via   this.M.SG.NOM(/ACC) cable.M.SG.NOM/(ACC)
        'erm, they watch First Croatian Television, HRT1. One gets it via cable.'
        Baseline usage: *preko toga kabla*.M.SG.GEN
        German translation: *über Kabel*.N.SG.ACC   (Hansen 2018)

Research questions

- Is there restructuring in features systems?
    - **Prediction:** If restructuring in gender occurs, F will be the best preserved one, N will be the most unstable one, while M will be the default.
    - **Prediction:** If restructuring in case occurs, DAT and INS will be the most vulnerable as oblique cases, ACC and GEN will be more robust and NOM will be the most preserved and used for substitution as unmarked case.

- Also: How do we distinguish btween substitution of one case with another vs. case loss? (See (3) above for a proposal by Lohndal & Putnam 2021).

Research questions

- How do properties [animate]/[human] affect agreement and case?
  - **Prediction:** They will contribute to conflicts in assigning formal and grammatical gender leading to mismatches in agreement between the nominal phrase and its agreement targets.
  - **Prediction:** Default M agreement will be used to resolve conflicts, in case both semantic and morphological agreement are possible, unless the conflict is with Class III nouns, which will tend towards F agreement in the plural.
  - **Prediction:** Restructuring in animacy will lead to ACC/NOM substitution, especially on M and N nouns.

Research questions

- Are ϕ- and case features represented (and valued) together or separately?
  - **Prediction:** Separate representation and valuation will be possible. Less proficient speakers will show effects of bundling of gender and number.

Research questions

- How does syntactic context (linear distance, word order) affect agreement and case assignment?
    - **Prediction:** NPs in postverbal position will trigger more non-canonical agreement patterns than those in preverbal position.
    - **Prediction:** In case of mismatches, more semantic agreement will be present on verbal predicates and coreferential pronouns than on nominal modifiers.
- In what ways does transfer from German affect agreement and case?
    - **Prediction:** Strong and weak inflection patterns in the nominal domain will affect DP-internal agreement;
    - **Prediction:** Contact-induced erroneous gender assignment will affect agreement on all levels.

Roadmap

Relative clauses as a vulnerable domain

- Relevant for all of the problematic aspects of HLs outlined above:
  - **The Morphology Problem** (agreement and case on relative pronouns),
  - **The Distance Problem** (long-distance dependencies),
  - **The Silent Problem** (omitted constituents, gaps and (optional) resumptives).
- Resumption as a topic combines several aspects of syntactic analysis: pronouns, case, agreement, pro-drop, animacy, anaphoricity, movement, ellipsis, relative clause types and clause size, restructuring.

Relative clauses as a vulnerable domain

BCMS has two basic types of relative clauses:

- those with a general pronoun *što*, which require resumptive pronouns (19).

(18)   *što relative clauses (Gračanin-Yuksek 2013:27)*

    a.   čovjek   što (*on)   puši
          man.M.SG.NOM that (*3.M.SG.NOM) smokes
          'a/the man that smokes/is smoking'   subject *što*-RC

    b.   čovjek   što *(ga)   Jan vidi
          man.M.SG.NOM that *(3.M.SG.ACC) Jan sees
          'a/the man that Jan sees'   DO *što*-RC

    c.   čovjek   što *(mu)   Jan pokazuje put
          man.M.SG.NOM that *(3.M.SG.DAT) Jan shows   way
          'a/the man that Jan is showing him the way'   IO *što*-RC

- *što*-clauses have been argued to involve no movement (Goodluck & Stojanović 1996), and as such be the first to be acquired (c.f. Gračanin-Yuksek 2013:30 who argues that the *što*-relative clauses may or may not involve movement).

Relative clauses as a vulnerable domain

BCMS has two basic types of relative clauses:

- those with the relative pronoun *koji*, which matches in case and ϕ-features with the head noun (19);

(19)　*koji-relative clauses (Gračanin-Yuksek 2013:26-27)*

    a.　čovjek　　　　koji　　　　　puši
       man.M.SG.NOM which.M.SG.NOM smokes
       'a/the man who smokes/is smoking'　　　　　　　　　　subject *wh*-RC

    b.　čovjek　　　　kojeg　　　　　Jan　　vidi
       man.M.SG.NOM which.M.SG.ACC Jan.NOM sees
       'a/the man whom Jan sees/is looking at'　　　　　　　DO *wh*-RC

    c.　čovjek　　　　kojem　　　　Jan　　pokazuje put
       man.M.SG.NOM which.M.SG.DAT Jan.NOM shows　　way
       'a/the man to whom Jan is showing the way'　　　　　IO *wh*-RC

- *koji*-clauses require no resumptive pronoun and have been argued to involve movement (and as such be acquired later, Goodluck & Stojanović 1996);

Relative clauses as a vulnerable domain

- Sometimes resumptives can be omitted, namely when the case/agreement form of the resumptive is syncretic to the case assigned to the head noun in the matrix clause c.f. (20b)-(20c).

(20)   *Optional resumptive (Gračanin-Yuksek 2013:29-30)*

    a. čovjek   [što sam   *(ga)   vidio] voli Ivu.
        man.NOM [that AUX.1.SG *(3.M.SG.ACC) seen] loves Iva.ACC
        'The man that I saw loves Iva.'

    b. Upoznao sam   čovjeka [što (ga)   Iva
        met.M.SG AUX.1SG man.ACC [that (3.M.SG.ACC) Iva.NOM
        obožava.]
        adores]
        'I met the man that Iva adores.'

    c. Dijete   [što sam   (ga)   vidio] voli Ivu.
        child.NOM/ACC [that AUX.1SG (3.N.SG.ACC) seen] loves Iva.ACC
        'The child that I saw loves Iva.'

Research questions

- *Što*-relative clauses disallow a resumptive with a relativized S, but require one with an O. Do HSs allow a S-resumptive?
  - **Prediction:** Yes (tendency towards salience; Polinsky 2018).
- Do heritage speakers use resumptive pronouns even when they are optional?
  - **Prediction:** Yes (tendency towards salience; Polinsky 2018).
- Are there agreement mismatches (between the head noun and the relative pronoun *koji*)?
  - **Prediction:** Mismatches will depend on the type of relative clause (restrictive vs. non-restrictive) and the case of the pronoun (Arsenijević & Gračanin-Yuksek 2016).
- Effects of transfer from German?

Roadmap

Data collection

- Phase 1: Collection of naturalistic production data and creating and annotating a corpus.
- Elicitation of spoken data using structured elicitation techniques (interviews, narratives) should give us a chance to identify new patterns.
- Phase 2: Experimental testing of specific research questions; to see how both monolinguals and heritage speakers deal with them and then compare. E.g.
  - Gender assignment based on the nominal ending
  - Agreement with coordinated noun phrases
  - Resumptive pronouns (overuse of subject pronouns, optionality of object pronouns)

Baseline

Appropriate baseline (Polinsky & Scontras 2020)

- child language learners
- diasporic variety spoken by first-generation immigrants
- speakers of different ages
- homeland monolingual speakers

I will sample

- homeland monolongual speakers (to assess the extent of current variation; corpus data and experimental data)
- first generation immigrants (to assess the variety that the heritage speakers acquire)
- second generation immigrants (to assess the heritage language grammar)
- speakers of different age:
    - adolescents (<18)
    - adults (>18)
- ideally also speakers of different proficiency levels in order to establish a continuum and map language change

Roadmap

Summary

- I have presented the beginnings of a project investigating the case and agremeent systems (and relative clauses) of heritage BCMS.

- These systems present vulnerable domains in heritage language grammars due to their intrface character, as well as integration of various aspects of complexity in their production and processing.

- As such, they represent a fertile ground for a systematic study in heritage populations with German as a majority language (which brings the effects of language transfer to the aspects above).

- In sum, the project (whose apects are) outlined above has two major contributions:
  1. to studies of (heritage language) bilingualism by providing new data and insights from BCMS (understanding how and why the heritage BCMS grammar differs from the monolingual baseline);
  2. to formal studies of morphosyntactic phenomena by extending the empirical domain to language contact situations through looking at heritage BCMS.

Relevance of the proposal

More specifically, formal linguistics bnenefits from

- Enrichment of insights into syntactic theory in the empirical and theoretical domain;
- exploration of the extent to which natural grammar can or cannot generate particular constructions;
- potential novel options for modeling these phenomena and language change and variation (problematic for Minimalism).

Relevance of the proposal

For general linguistics:

- Language change - novel forms in heritage languages, are they a result of language contact, relative proficiency or language-internal factors?
- Insights into interactions of grammatical modules;
- computation in linguistic domains of various sizes - from features to complex sentences with long-distance dependencies;
- contribution of data to open access.

Relevance of the proposal

For Slavistics:

- Bosnian/Croatian/Montenegrin/Serbian and their internal differences;
- dialectal continuum and language change;
- change in contact with other Slavic languages vs. in contact with a language from another family (German);
- providing data from BCMS to be compared and contrasted with heritage varieties of other Slavic languages for purposes of looking at universals.

Relevance of the proposal

For sociological and sociolinguistic issues:

- Effects of mixing language varieties and dialects on speakers' language skills (BCMS community includes a number of different dialects, so speakers can be exposed to other varieties in the communities than at home);

- the structure of the diaspora communities and attitudes towards their language, origins and culture;

- nationalism vs. unity an especially prevalent question in the homeland region;

- education (in language and culture).

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Proficiency testing

- Language background questionnaire
    - A tool that should provide an overview of both linguistic and extralinguistic factors affecting the speaker's language.
    - Intended: HeLEx questionnaire (Tomić et al. 2023).
- Lexical proficiency tasks
    - To be included in the project (e.g. lexical decision task, retrieving lexical items, written/cloze test, c.f. Polinsky 2018);
    - argued to be a good indicator of the general language proficiency (Montrul 2016; Polinsky 2018; Lloyd-Smith 2020).
- Grammar tasks
    - Sentence repetition task (SRT); hearing and correctly reproducing a sentence "...involves numerous cognitive processes, including storing the phonological form, parsing and storing parts of the sentence, accessing language knowledge in long-term memory, and encoding grammatical and phonological structures." (Stadtmiller et al. 2022:870)
    - LITMUS SRT for heritage BCMS speakers (Tomić et al. 2023)

Pilot study

Research questions:

- Is the three-gender system also present on heritage Serbian nouns?
  - Is there some reanalysis of certain types of gender? If so, what is it based on?
  - If reanalysis is present, which gender is the most susceptible to change?
- Factors that affect gender assignment/agreement?
- Do all elements in the nominal phrase show unified agreement with the N; are there mismatches in gender/number among the modifiers?
  - Do modifiers agree in wrong gender or number, or both? Can they show the correct gender, but an error in number or vice versa?
  - Can a noun be used in the wrong case, but modifiers still agree correctly in gender and number (c.f. (8))?
- Are there mismatches on other agreement targets, specifically verbs and coreferential pronouns?
- Is there transfer from the majority language?

Pilot study

Participants:

- Second-generation heritage BCMS speakers with German as a majority language.

Procedure:

- Online task.
- Proficiency test: HeLEx questionnaire (Tomić et al. 2023) and LITMUS sentence repetition task for heritage BCMS speakers (Tomić et al. 2023)
- Spoken elicitation: Multilingual Assessment Tool for Narratives (MAIN) (Gagarina et al. 2019).