Differential object–verb agreement is (fossilized) topic–verb agreement

1. Goal

The starting point of this paper is the claim made in É. Kiss (2005) that the apparently idiosyncratic gaps in Hungarian object–verb agreement are manifestations of the inverse agreement constraint (observed by Comrie (1980) in the Chukotko-Kamchatkan language family), prohibiting verbal agreement with an object that is higher in animacy (i.e., inherent agentivity) than the subject. It will be argued – relying on Marcantonio's (1985) and Nikolaeva's (1999a, 1999b, 2001) analyses of Obi-Ugric and Old Hungarian data – that verbal agreement with definite objects attested in present-day Hungarian derives from verbal agreement with objects functioning as secondary topics. The proposed analysis puts the inverse agreement constraint into a new perspective: what is constrained is not the relative animacy of the subject and the object as such but the relative animacy of the primary and secondary topics of a sentence. The proposed interpretation of the Hungarian facts might provide the missing motivation for differential object marking in other languages, e.g., Chukchi, as well. The proposal provides evidence for Givón's (1975) theory analyzing subject–verb and object–verb agreement as grammaticalized topic–verb agreement.

The paper is structured as follows: Section 2 discusses the empirical facts of object–verb agreement in Hungarian, pointing out how the gaps in agreement can be accounted for by the inverse agreement constraint. Section 3 reconstructs a hypothetical evolutionary road to object–verb agreement in Hungarian, based on Givón's (1975) theory of grammatical agreement, on Marcantonio's (1985) theory of the origin of Hungarian object–verb agreement, and on Nikolaeva's (1999a,b; 2001) analysis of object–verb agreement in Ostyak, a sister language of Hungarian. Section 4 argues that the proposed framework allows the reinterpretation of the seemingly ad hoc inverse agreement constraint as a discourse-motivated interface requirement.

2. Differential object–verb agreement in Hungarian

2.1. The definite conjugation

The Hungarian verb is known to have two agreement paradigms: a „subjective" or „indefinite" conjugation used in the case of intransitive verbs and verbs taking an indefinite object, and an „objective" or „definite" conjugation used in the case of verbs taking a definite object. For example:

(1) én   íro-k   (egy cikket)   'I write (a paper)'

     te   ír-sz   (egy cikket)   'you write (a paper)'

     ő   ír-Ø   (egy cikket)   '(s)he writes (a paper)'

     mi   ír-unk   (egy cikket)   'we write (a paper)'

     ti   ír-tok   (egy cikket)   'you write (a paper)'

     ők   ír-nak   (egy cikket)   'they write (a paper)'

(2) én   íro-m   a cikket   'I write the paper'

     te   íro-d   a cikket   'you write the paper'

     ő   ír-ja   a cikket   '(s)he writes the paper'

     mi   ír-juk   a cikket   'we write the paper'

     ti   ír-játok a cikket   'you write the paper'

     ők   ír-ják   a cikket   'they write the paper'

The types of objects eliciting the definite conjugation include, among others, nouns supplied with a definite article, possessive constructions,[1] proper names, 3rd person personal pronouns, reflexive pronouns (which have the morphological make-up of possessive constructions of the type 'my body', 'your body'), and demonstratives. Object clauses also trigger the definite conjugation, which is presumably due to their overt or covert pronominal head. Cf.

(3)a. (Én) ismere-m   a   cikket   /Pál cikkét   /Pált   /őket

      I   know-DEFO.1SG[2] the paper-ACC /Paul's paper-ACC/Paul-ACC /them

      /önmagamat   /azokat.

      /myself-ACC   /those-ACC

      'I know the paper/Paul's paper/Paul/them/myself/those.'

  b. (Én) ismere-m   (azt), amit   János   írt   erről.

     I   know-DEFO.1SG   that   which   John   wrote   this-about

     'I know what John wrote about this.'

  c. (Én) tudo-m   (azt), hogy János   írt   erről.

_____

I   know-DEFO.1SG that   that   John   wrote   this-about

'I know (it) that John wrote about this.'

The types of objects eliciting the indefinite conjugation include, among others, bare nouns, nouns supplied with an indefinite determiner, and indefinite and universal pronouns, e.g.:

(4)a. (Én) ismere-k   egy/néhány/sok /minden   híres   nyelvészt.

     I   know-INDEF.1SG a /some /many/every   famous linguist-ACC

     'I know a/some/many/every famous linguist.'

  b. (Én) ismere-k   nyelvészeket/valakit   /mindenkit.

     I   know-INDEF.1SG linguists-ACC/somebody-ACC /everybody-ACC

     'I know linguists/somebody/everybody.'

Bartos (2000) concluded on the basis of synchronic and diachronic considerations (Honti 1995, Rebrus 2000, etc.) that the definite conjugation is elicited by an object of the category DP. Apart from the 1st and 2nd person singular verb forms, containing portmanteau morphemes, the definite conjugation involves two agreement suffixes. The morpheme closer to the verb, represented by a *ja/e/i* element (subject to various assimilation processes in different contexts), is an object agreement suffix. Uralic comparative linguistics has shown this morpheme to be cognate with the reconstructed Proto-Uralic 3rd person singular personal pronoun (cf. Honti 1995). The subject agreement morpheme is null in 3rd person singular.

(5)a. íro-m   'write-DEFO.1SG'   b. ismere-m   'know-DEFO.1SG'

    íro-d   'write-DEFO.2SG'   ismere-d   'know-DEFO.2SG'

    ír-**j**a-Ø 'write-DEFO-3SG'   ismer-**i**-0   'know-DEFO-3SG'

    ír-**j**-uk 'write-DEFO-1PL'   ismer-**j**-ük   'know-DEFO-1PL'

    ír-**já**-tok 'write-DEFO-2PL'   ismer-**i**-tek   'know-DEFO-2PL'

    ír-**já**-k 'write-DEFO-3PL'   ismer-**i**-k   'know-DEFO-3PL'

However, the generalization that the definite conjugation, i.e., object–verb agreement, is elicited if and only if the verb has a DP object is contradicted by a set of further facts. Namely, a verb with a 3rd person subject taking a 1st or 2nd person object is in the indefinite conjugation:

(6)a. Ő ismer- Ø engem/minket /téged /titeket.

    he know-INDEF.3SG me /us /you$_{sg}$-ACC /you$_{pl}$-ACC

    'He knows me/us/you.'

  b. Ők ismer-nek engem/minket /téged /titeket.

    they know-INDEF.3PL me /us /you$_{sg}$-ACC /you$_{pl}$-ACC

    'They know me/us/you.'

    Bartos (2000) attempted to eliminate these exceptions by claiming that the 1st and 2nd person pronouns are indefinite, i.e., they are not DPs but NumPs – however, no independent semantic or syntactic evidence has been presented to support their indefiniteness. On the contrary, the minimal pair in (7a,b) provides crucial evidence against the NumP analysis of 1st and 2nd person pronouns. Sentences with a 1st person singular subject marginally allow a 1st person plural object (the optimal solution is to use a reflexive pronoun in such cases, as in (7c)). In such sentences, the verb must be in the definite conjugation (see (7a)), which clearly shows that it is not the 1st person pronoun that is indefinite in sentences like (6a,b); the use of the definite versus indefinite conjugation is determined by clause-level relations.

(7)a.?Én minket is belevesze-m a névsorba.

    I us-ACC also include-DEFO.1SG the namelist-in

    'I also include us in the list of names.'

  b.**Én minket is belevesze-k a névsorba.

    I us-ACC also include-INDEF.1SG the namelist-in

cf. c. Én magunkat is belevesze-m a névsorba.

    I ourselves-ACC also include-DEFO.1SG the namelist-in

    'I also include ourselves in the list of names.'

    There is also a further problem that the NumP analysis of 1st and 2nd person pronouns does not solve. Namely, 2nd person pronouns do elicit agreement on the verb if the subject is 1st person – but the agreement marker is different from that found in the definite paradigm used with 3rd person objects; it is a combination of *-l-*, a 2nd person agreement morpheme (an

allomorph of the 2nd person singular subject agreement marker of the indefinite paradigm), and -*k*, the 1st person singular agreement morpheme of the indefinite paradigm:

(8) Én) ismer-le-k   téged   /titeket.

    I   know-2O-1SG[3]   you$_{sg}$-ACC/you$_{pl}$-ACC

    'I know you.'

2.2. The inverse agreement constraint

As argued in É. Kiss (2005), the seemingly ad hoc gaps in Hungarian object–verb agreement (i.e., the lack of agreement with a 1st or 2nd person object if the subject is 3rd person, and the lack of agreement with a 1st person object if the subject is 2nd person) get a natural explanation if they are interpreted as manifestations of the inverse agreement constraint.

This constraint has been observed by Comrie (1980) in the verbal agreement system of the East-Siberian Chukchi, Koryak and Kamchadal. In these languages, the participants of events are ordered with respect to animacy/agentivity. The 1st person is seen as more animate than the 2nd person, the 2nd person is seen as more animate than the 3rd person, and in each person singulars are seen as more animate than plurals. In Chukchi, Koryak, and Kamchadal the V agrees both with its subject and with its object, and the relative animacy of the subject and object is constrained by the following principle:

(9) INVERSE AGREEMENT CONSTRAINT

    An object agreeing with a verb must be lower in the animacy hierarchy than the subject agreeing with the same verb.

As shown by Comrie (1980), Chukchi, Koryak and Kamchadal have two strategies to avoid a violation of the inverse agreement constraint. In case the object of a verb is more animate than its subject, (i) either an inverse morpheme is prefixed to the verb to indicate that the inverse agreement constraint is suspended;[4] (ii) or the verb only agrees with its subject, but not with its object, i.e., it behaves as if it were intransitive. In the latter case the verb is supplied with a

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[3] 2O-1SG stands for '2nd person object, 1st person singular subject'.

[4] A similar strategy has been described in several American Indian languages, among them Algonkin. In these languages, the verb appears either in a direct form or an inverse form, depending on whether its subject or object is more prominent in the hierarchy. The direct verb form is used when the subject is more prominent than the object (e.g., when the subject is in the 1st person, and the object is in the 3rd person). If the object is more prominent than the subject, then the verb is in the inverse form. In these languages subject and object pronouns are not marked morphologically, and their word order is also free. Their subject or object status depends on whether the verb is in the direct or inverse form.

detransitivizing morpheme, yielding a verb form analyzed by Bobaljik and Branigan (2006) as a spurious case of the antipassive construction of ergative languages. Chukchi always employs strategy (ii) in the case of a 2nd person subject acting on a 1st person object.

The three languages examined by Comrie all adopt the animacy hierarchy under (10), but they segment it differently.

(10) 1SG > 1PL > 2SG > 2PL > 3SG > 3PL

In Koryak, singular is more prominent than plural only in the 3rd person. Chukchi collapses the first four levels of the hierarchy, as follows:

(11) 1/2 > 3SG > 3PL

In Kamchadal, the hierarchy only has two levels:

(12) 1/2/3SG > 3PL

In Koryak, the subject agreement morpheme precedes the verb, and the object agreement morpheme follows it. The inverse agreement constraint is invoked in the case of the following subject-object combinations:

(13) a. 2nd person subject – 1st person singular object
      b. 2nd person subject – 1st person plural object
      c. 3rd person singular subject – 1st person singular object
      d. 3rd person singular subject – 1st person plural object
      e. 3rd person singular subject – 2nd person object
      f. 3rd person plural subject – any object

In the (a) and (c) cases, no object agreement morpheme is licensed (the verb has the agreement morphology of an intransitive verb, with both the prefix and the suffix agreeing with the subject). In the rest of the cases, the inverse agreement constraint is suspended by the inverse morpheme *ne-*.

Hungarian also observes the inverse agreement constraint, and avoids its violation by applying strategy (ii). Hungarian adopts the following version of the animacy hierarchy, collapsing both the two lowest levels, and the three intermediate levels of the hierarchy in (10):

(14)   1SG > 1PL/2 > 3

That is, the speaker-participant is at the top of the animacy hierarchy, the other participants of the discourse represent the intermediate degree of animacy, and those not participating in the discourse are the least animate.

Languages employing the inverse agreement constraint differ in their treatment of subject-object pairs representing the same degree of animacy. Hungarian allows verb–object agreement in the case of a 3rd person subject and a 3rd person object; hence the formulation of the Hungarian version of the inverse agreement constraint is supplemented with a caveat:

(15) INVERSE AGREEMENT CONSTRAINT (for Hungarian)
An object agreeing with a verb must be lower in the animacy hierarchy than the subject agreeing with the same verb, unless both the subject and the object represent the lowest level of the animacy hierarchy.[5]

Having no inverse verb forms, Hungarian avoids the violation of the inverse agreement constraint by blocking verbal agreement with an object that is more animate than the subject. The definite conjugation is ruled out in the case of the following subject-object combinations:

(16)   a. 3rd person subject – 1st/2nd person object
       b. 2nd person subject – 1st person object
       c. 1st person plural subject – 2nd person object

These are precisely the gaps in the definite conjugation, i.e., the cases when a definite object elicits the indefinite conjugation.

The inverse agreement constraint – correctly – does not rule out verb–object agreement in the case of a 1st person singular subject and a 2nd person object. As shown in (8), the Hungarian verb does agree with its object in this construction, however, the object agreement

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[5] (15) is more explicit than the original formulation of É. Kiss (2005), cited in (i):
(i) An object agreeing with a verb must be lower in the animacy hierarchy than the subject agreeing with the same verb, unless the subject represents the lowest level of the animacy hierarchy.

morpheme *-l-* is different from the *-ja/e/i-* agreement morpheme attested in the case of 3rd person objects. This is as expected if the object agreement morphemes were originally object pronouns cliticized to the verb, and the *-ja/e/i-* element is the descendant of a Proto-Uralic 3rd person pronoun. Although the etimology of *-l-* is uncertain, it is clearly cognate with the 2nd person subject agreement morpheme of the so-called *-ik* conjugation. The *-ik* conjugation is believed to be the descendant of a middle conjugation, where the *-l-* morpheme cross-referenced a 2nd person theme subject (in other words, a 2nd person D-structure object). Cf.

(17) én ese-m   'I fall-INDEF.1SG'
      te ese-**l**   'you fall-INDEF.2SG'
      ő   es-ik   'he fall-INDEF.3SG'

That is, when the object and the verb agree in Hungarian, they share a person feature; the morpheme *-ja/e/i-* agrees with a 3rd person object, whereas *-l-* agrees with a 2nd person object.

   In sum: the statement that the verb agrees with its DP object in person, provided the object is lower in the animacy hierarachy than the subject, or both of them represent the lowest degree of the animacy scale, yields an adequate description of object–verb agreement in Hungarian. However, it leaves the motivation for object-verb agreement, and for the constraints blocking it in certain cases unclear.

3. The origins of the definite conjugation

The proposal in É. Kiss (2005) to derive the gaps in the Hungarian definite conjugation from the inverse agreement constraint appears to be ad hoc because it does not link the inverse agreement constraint to any aspect of Universal Grammar. In fact, it does not link it to any other element of Hungarian grammar, either; nor can it motivate the appearance of the constraint in Hungarian by historical, areal or typological factors. As will be argued below, general linguistic considerations, a little known hypothesis concerning Hungarian diachronic syntax, as well as recent research into Ostyak, a sister language of Hungarian, suggest that Hungarian object–verb agreement is grammaticalized object-topic–verb agreement. In the light of this evidence the inverse agreement constraint, too, appears to be a requirement imposed on Proto-Hungarian syntax by the needs of information structure.

3.1. Givón's (1975) theory of verbal agreement

The idea that verb–object agreement, and verbal agreement, in general, is related to information structure goes back to Givón (1975). He argues that agreement morphemes appearing on the verb arose as topic-doubling pronominals in topic-shifting constructions, i.e., they marked the topic role of the cross-referenced arguments. Object agreement also played a role in signaling the relative topicality of internal arguments. When a language reanalyzed the topic constituent as the normal subject or object of the neutral, non-topicalized sentence pattern, it also reanalyzed subject-topic agreement as subject agreement and object-topic agreement as object agreement (Givón 1975, p. 151).

Givón's claim is based on evidence of various kinds. First, „the implicational hierarchy of the likelihood of verb agreement is governed by the universal hierarchy of topicality, i.e., the likelihood of various NP arguments being the topic of sentences" (Givón 1975, p. 152). That is, both eligibility for verb agreement, and eligibility for the topic role are determined by the same hierarchic relations, namely:

(18) a. HUMAN > NON-HUMAN

    b. DEFINITE > INDEFINITE

    c. MORE INVOLVED PARTICIPANT > LESS INVOLVED PARTICIPANT

    d. 1ST PERSON > 2ND PERSON > 3RD PERSON[6]

It also gives strong support to Givón's theory that the appearance of a topic-doubling pronoun and its reanalysis as subject agreement has been observed in various pidgin and creol languages, as well as in child language (cf. Gruber 1967 and Keenan 1974).

Givón demonstrated the rise of object agreement on related Bantu languages, representing various stages of the same diachronic process. Bantu languages have obligatory subject–verb agreement, and the subject agreement morpheme retains its pronominal function:

(19) **vi**kopo   **vi**-li-vunjika   'The cups broke.'

                 vi-li-vunjika   'They broke.'

An object pronoun can also be cliticized to the verb:

(20) ni-li-vunja   **vi**kopo   'I broke some cups.'

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[6] Givón (2011) shows Uto-Aztecan languages to be exceptions to the generalizations in (18), which, therefore, must be regarded as universal tendencies rather than absolute universals.

ni-li-**vi**-vunja   'I broke them.'

The object pronoun is obligatorily spelled out in the presence of a topicalized object:

(21) vikopo, ni-li-**vi**-vunja   'The cups, I broke them.'

Since only definite (or, at least, specific) noun phrases can be topicalized, some Bantu languages, e.g., Rwanda, have reinterpreted the object clitic as a definitizer for object nouns:

(22) a. ya-bonye umunhu   'He saw a man.'
      b. ya-**mu**-bonye umunhu   'He saw the man.'

   Givón's (1975) theory has recently been confirmed by data from two Balkan languages. Kallulli (1995, 2000, 2008) has demonstrated about direct object clitic doubling in Albanian and Greek that it serves to encode the topic status of the direct object. In these languages, the clitic-doubled object topic need not be either preposed or right-dislocated. A clitic-doubled object functions as a familiarity topic; it is [+given] and [-focus]. Thus focused objects, among them wh-objects and objects in all-new sentences, cannot be doubled (23). The object of a subject question, forming part of the presupposition, on the other hand, must be clitic-doubled in Albanian, and is strongly preferred to be clitic-doubled in Greek (24).

(23) a. Al: Kë/çfarë   (*e)   pe?   (Kallulli 2000, p. 220)
                [who/what].ACC it/him/her.CL saw-you
      b. Gr: Pjon/ti   (*ton/to)   idhes?
                [who/what].ACC it/him/her.CL saw-you
                'Who/what did you see?'

(24) a. Al: Kush *(e) pa   fëmijë-n? (Kallulli 2000, p. 220)
      b. Gr: Pios ?(to) ídhe to pedhí?
                who   it.CL saw   the child
                'Who has seen the child?'

Summarizing Givón's and Kallulli's claims: object clitic doubling may serve – or may have originally served – to indicate the topic status of the (possibly unmoved) object. Topical object – verb agreement may later be reanalyzed as definite object – verb agreement.

3.2. Marcantonio's theory of the origin of Hungarian verb–object agreement

Marcantonio (1985) hypothesizes a similar development in the Ugric branch of the Uralic family, which proceeded at different lengths in the sister languages of Hungarian, Vogul, and Ostyak. Marcantonio adopts the generally accepted view that the basic Proto-Ugric sentence was SOV, where the subject also functioned as the topic of the clause. She makes the assumption (to be questioned below) that verb–object agreement arose in OSV sentences; it served to encode that the carrier of the topic function was the object instead of the subject.[7] Since the topic was in most cases represented by a definite noun phrase, verbal agreement with topicalized objects later came to be reinterpreted as verbal agreement with definite objects.

Marcantonio reconstructed for Proto-Hungarian a diachronic process involving the following three stages:

1. Proto-Hungarian first marked the topic function of the object on the object by the suffix *-t* (which replaced the Proto-Uralic *-m*). Later the topical-accusative marker *-t* was extended to all direct objects, whether topic or not.

2. After the extension of *-t* (the present-day accusative suffix) to all direct objects, the topic function of objects came to be marked on the verb, i.e., topical object – verb agreement evolved.

3. Then Proto-Hungarian developed a topic position independent of grammatical functions, which rendered the marking of the topic role of the object by a verbal morpheme redundant. Consequently, the definite conjugation was reinterpreted as marking the definiteness of the direct object – irrespective of its discourse function.

Stage 1 and stage 2 of this process are attested in various present-day dialects of Vogul and Ostyak, which Marcantonio regards as evidence that the hypothesized process started in Proto-Ugric, and continued to evolve in all the daughter languages, but got stalled at earlier stages in some of them. Marcantonio's theory predicts that stage-1 Ugric dialects, which mark

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[7] Comrie (1977) formulated a similar insight: „if a special marker for definite/topic DO does not exist, the DO may easily be interpreted as a Subject. In this condition from a functional point of view, a special marker for definite DO only is a very efficient device: by coding both DO status and definiteness with one marker, the relatively unusual combination of definiteness and DO status can be immediately identified (Comrie 1977, p. 9, cited by Marcantonio (1985, p. 275)).

the topic role and/or the definiteness of the object by a suffix on the object, have no verb–object agreement. In stage-2 dialects, in which accusative marking is extended to all objects, on the other hand, the topic role of the object is encoded by a morpheme on the verb. The theory does not exclude the possibility of skipping stage 1, i.e., marking the topicality of the object on the verb also in lack of a generalized accusative suffix. This is what we attest in several Vogul and Ostyak dialects, among others in Vah Ostyak. Observe the following minimal pair cited by Marcantonio (1985, p. 274) from Gulya (1970):

(25) a. ku   rit   tus-Ø
        man boat take-PAST-INDEF.3SG
        'The man took a boat.'

     b. ku   rit   tus-t
        man boat take-PAST-DEF.3SG
        'The man took the boat.'

There are also Vogul dialects representing stage 1 of the change, where the accusative suffix *-m* or *-ma/me* only appears on definite objects:

(26) kwal: 'house.NOM/house.ACC';
      kwal-me: 'the house-ACC' (Collinder 1960, cited by Marcantio 1985, p. 285)

Bereczki's (1971) data suggest that Cheremiss also belongs to this type.

Marcantonio's theory explains why Steinitz (1950:75) assumed verbal agreement with definite objects in Ostyak to be optional. In dialects representing stage 2 of the change, a definite object elicits the indefinite conjugation in case it is not the topic but the focus of the clause.

Although Hungarian attained stage 3 of the change prior to the end of the 12th century, the beginning of the documented history of the Hungarian language, the first surviving texts still preserve relics of stage 2. Marcantonio cites several examples from 14th and early 15th century codices, collected by Bárczi (1958), in which either a topicalized indefinite object elicits the definite conjugation, or a non-topicalized definite object fails to elicit it. In example (27a) from the Bécsi [Vienna] codex, written around 1416, copied in 1466, the topicalized object *kit* 'whom' is indefinite, nevertheless the verb bears the *-e* object agreement suffix. In

example (27b) from the Jókai Codex (1370), the object, represented by a possessive construction, is definite but non-topic, and the verb bears the null 3rd person singular indefinite agreement suffix.

(27) a. **Kit**   Amasias kiral auag pap   gakorta **getrette**   (Bécsi Codex p. 214)

       whom   Amasias king or   priest   often   torture-PAST-DEFO-3SG

       'whom king or priest Amasias often tortured'

    b. es   ottan **ven**   **ysteny malaztnak**   **latasatt** (Jókai Codex p. 131)

       and   there take-INDEF.3SG divine grace-GEN   sight-ACC

       'and there he took the sight of God's grace'

That is, topicality occasionally still overrides definiteness in licensing object–verb agreement in 14th-15th-century Hungarian. In fact, we do not even have to go back to the 14-15th century to find examples of type (27a). Although object noun phrases supplied with indefinite determiners (including the [+specific] *bizonyos* and *egyes* 'certain') require the indefinite conjugation according to all grammars of Modern Hungarian, Peredy (2009) has found certain types of examples in the case of which speakers hesitate whether the indefinite or the definite conjugation is more appropriate, often accepting both, or preferring the definite conjugation. Interestingly, the examples in the case of which the unexpected definite conjugation is accepted, and even preferred, by the majority of speakers (up to 85% of them) all involve a topicalized [+specific] indefinite object, e.g.:

(28) a. Bizonyos   gyerekeket a   társasjátékok lekötik.   (Peredy 2009, (13c))

       ceretain   kids.ACC   the board-games absorbe-DEFO-3PL

       'Certain kids are absorbed by board-games.'

    b. Egyes   nőket   a   sötét ruhák öregítik.   (Peredy 2009, (15))

       certain women.ACC   the dark clothes make.look.old-DEFO-3PL

       'Certain women, dark clothes make look older.'

    As Peredy's data also confirm, Marcantonio's theory makes a number of correct predictions for the Ugric languages; nevertheless, it needs to be modified in certain respects. Firstly, the diachronic process outlined by her must have spanned a much longer period than

assumed by her. As pointed out by Rédei (1962), Hajdú (1966), Honti (1995; 2009), Csúcs (2001), etc., verb–object agreement is attested not only in the Ugric branch of the Uralic family, but also in Mordvin and the Samoyedic languages; what is more, the morpheme agreeing with 3rd person objects is also cognate in most of these languages. Hence the diachronic process reconstructed by Marcantonio must have started in the Proto-Uralic period, before 4000 BC.[8]

Secondly, and more importantly from our perspective, Nikolaeva's (1999a,b, 2001) research into Ostyak suggests that the discourse function and the syntactic environment of verb–object agreement is likely to have been somewhat different from that assumed by Marcantonio (1985); instead of marking the topic role of the object in OSV sentences, it could have marked the secondary topic role of the object in SOV sentences.

3.3. Object–verb agreement in Ostyak (Nikolaeva 1999a,b, 2001)

Nikolaeva's studies of Ostyak grammar and Ostyak information structure (1999a,b, 2001) have revealed that the coincidence of the subject and topic roles is obligatory in the Ostyak sentence. Whereas the subject is always topic, the object typically – though not necessarily – functions as focus. If the D-structure object (alone) is to be assigned the topic role, topic-subject identity is established by passivization. Citing Kulonen (1989), Nikolaeva (1999a, 2001) demonstrates that theme, benefactive, location, goal, and temporal arguments can equally be encoded as subjects of a passive construction. Passivization is obligatory if the D-structure subject is non-referential, hence not topicalizable – as shown by the following minimal pairs:

(29) a. tam   xu:j   xoj-na   an   wa:n-s-a
       this   man   who-LOC   not   see-PAST-PASS.3SG
       'Nobody saw this man.'

   b. *xoj   tam   xu:j   an   wa:nt-∂s   /wa:nt-∂s-li   (Nikolaeva 2001, (28a,b))
      who   this   man   not   see-PAST.3SG /see-PAST-DEFO.3SG
      'Nobody saw this man.'

(30)   a. (luw) juwan   re:sk-ə-s   (Nikolaeva 1999a, p. 58)

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[8] Keresztes (1999), however, claims that the morpheme clusters of the Mordvin definite conjugation are recent developments.

he   Ivan   hit-EP-PAST.3SG[9]

'He hit Ivan.'

b. juwan   xoj-na   re:sk-ə-s-a

Ivan   who-LOC   hit-EP-PAST-PASS.3SG

'Who hit Ivan?'

The northern Ostyak dialect described by Nikolaeva (1999a) employs differential verb–object agreement in SOV sentences – instead of the OSV assumed by Marcantonio (1985). OSV is practically non-existent in Ostyak. Nikolaeva (1999b) analyzed the word order of more than a thousand Ostyak transitive clauses, and found that SOV is general in them whether or not the sentence displays verb–object agreement. She summarized her data in the following table:

(31) Word orders attested for transitive clauses in Pápay (1906-1908):

	403 sentences without V-O agreement		611 sentences with V-O agreement	
	sentences	%	sentences	%
SOV(X)	329	81	199	32.4
SXOV	39	10	14	2
SOXV	35	9	155	25.5
OS(X)V	0	0	10	1.6
S(X)VO	0	0	7	1

36,5% of the transitive sentences displaying verb–object agreement contain a covert pro object; these are not included in the table.[10]

Although Nikolaeva's findings refute Marcantonio's (1985) claim concerning the syntactic environment of object–verb agreement, they confirm Marcantonio's basic insight that object–verb agreement originally encoded topic–verb agreement. As Nikolaeva (1999a,b, and especially 2001) convincingly demonstrates, verb–object agreement in Ostyak signals that the object in the SOV clause functions as a secondary topic rather than focus.

She defines secondary topic as follows:

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[9] EP abbreviates 'epenthetic vowel'

[10] Incidentally, the word order patterns in (31) suggest that the object not eliciting agreement, and the object eliciting agreement occupy different structural positions; the former is left-adjacent to the verb, whereas the latter is right-adjacent to the subject, i.e., the secondary object undergoes (mostly string-vacuous) movement into the left periphery - but this question is beyond the scope of this paper.

(32) SECONDARY TOPIC

an entity such that the utterance is construed to be about the relationship between it and the primary topic.

The secondary topic shares two basic properties of primary topics: it is associated with existential presupposition, and it is activated, i.e., its referent is already present in the discourse. Interestingly, the latter requirement is stronger for secondary topics than for primary ones. As Nikolaeva (2001) shows, for a constituent to be construed as a primary topic, it merely has to be known to the interlocutors, but need not necessarily be present in the domain of discourse, i.e., it can be a non-familiar aboutness topic. The secondary topic, on the other hand, nearly always has a referent that has been activated in the immediate context or situation, i.e., it is a familiarity topic. Nikolaeva proves the familiarity of secondary topics by comparing the activation status of agreeing and non-agreeing objects in texts collected by Pápay (1906–8). The proportion of objects evoked in the preceding context or in the situation of discourse is 87% in the case of agreeing objects, but only 11% in the case of non-agreeing objects.

(33) Activation status of the object

non-agreeing objects (412 clauses)		agreeing objects (677 clauses)	
activated	inactivated	activated	inactivated
46	366	561	116
11%	89%	83%	17%

52% of the agreeing objects analyzed as inactivated are, in fact, activated clause-internally: they have a possessor referentially bound by the subject/primary topic. For example:

(34) What did he do?

luw	kalaŋ-∂l	re:sk-∂s-li	/*re:sk-∂s	(Nikolaeva 2001, (45))
he	reindeer-3SG	hit-PAST-DEFO.3SG	/*hit-PAST.3SG	

'He$_i$ hit his$_{i/*j}$ reindeer.'

The contexts licensing object–verb agreement are exactly those that elicit object clitic doubling in Albanian and Greek according to Kallulli (2000). For example, if an Ostyak

sentence answers the question „What happened", i.e., if it is pragmatically an all-focus utterance, its object cannot agree, i.e., it cannot be construed as a secondary topic whether or not it has been activated previously:

(35) a. What happened?

  b. ma tam kalaŋ we:l-s-∂m /*we:l-s-e:m

   I this reindeer kill-PAST-1SG /kill-PAST-DEFO.1SG

   'I killed this reindeer.'

In focus structures where the object is part of the presupposition, it always elicits agreement:

(36) ma ta:l∂x ta:ta a:k∂t-l-e:m   /*a:k∂t-l-∂m anta to:ta

  I mushroom here collect-PRES-DEFO.1SG /collect- PRES-1SG not there

   'I collect mushrooms HERE, not THERE.'

  Whereas in Albanian only a direct object can elicit object clitic doubling, in Ostyak ditransitive constructions either the patient or the recipient can function as the secondary topic, eliciting agreement on the verb. In (37a) the patient is the secondary topic. (37b) contains no secondary topic and no object agreement. In (37c), the recipient is encoded as the caseless object-topic eliciting agreement.

(37) a. (ma) a:n Juwan-a ma-s-e:m

    I cup John-LAT give-PAST-DEFO.1SG

    'I gave the cup to John.'

  b. (ma) Juwan-a a:n ma-s-∂m

    I John-LAT cup give- PAST-1SG

    'I gave the cup to John.'

  c. (ma) Juwan a:n-na   ma-s-e:m   /*ma-s-∂m

    I John cup-LOC give- PAST-DEFO.1SG /give- PAST-1SG

    'I gave John a cup.'

If we combine Marcantonio's (1985) basic insight about the function of Hungarian object−verb agreement with Nikolaeva's (1999a,b, 2001) analysis of present-day Ostyak, we can formulate a more plausible hypothesis about the origin of differential verb-object agreement in Hungarian than Marcantonio's original proposal. The most uncertain element of Marcantonio's hypothesis, not supported by any evidence whatsoever, is the claim that object−verb agreement, encoding the topic function of the object, marked OSV sentences. OSV being practically non-existent in the Ugric languages, and most Uralic languages being strictly SOV, it seems much more likely that Proto-Hungarian displayed the same interaction of syntactic structure and information structure that has been preserved in Ostyak. Namely, the Proto-Hungarian sentence was also strictly SOV, and object−verb agreement served to mark the secondary topic role of the object. As shown by Nikolaeva (2001), activation, i.e., contextual or situational givenness is a strict requirement for secondary topics (stricter than for primary topics), hence the reanalysis of topical object − verb agreement as definite object − verb agreement was also a predictable development.

Naturally, the question arises to what extent we can rely in the reconstruction of Proto-Hungarian syntax on present-day Ostyak and Vogul, the sister languages of Hungarian. Ostyak and Vogul have not only geographically diverged less from Uralic mainstream than Hungarian but also grammatically. Thus they have preserved Proto-Uralic SOV, while Hungarian has developed a Top Foc V X* order. Various pieces of evidence suggest that they have preserved more of Proto-Ugric syntax, as well. The archaisms of the first Old Hungarian documents, representing relics of Proto-Hungarian soon disappearing from the language or surviving as non-productive linguistic fossils, usually have active, productive counterparts in Ostyak and Vogul (cf. É. Kiss 2011). For example,

(i) the morphologically unmarked object attested in a type of archaic Old Hungarian non-finite OV construction, soon to be replaced by VO with an accusative-marked object (as illustrated in (38a,b) by two subsequent translations of a Biblical sentence) is still the prevailing pattern in Ostyak and Vogul dialects, as shown in (37) above.

(38) a. [ọ̈ **kenček**   **meġńituan**] aianlanac   neki aiandokocat[11]
        their treasures-Ø unlocking   offer-INDEF.3PL him presents-ACC
        'unlocking their treasures they offer him presents'

---

[11] The fact that the definite object of a participial clause type could be morphologically unmarked in the 15th century, wheras the first surviving Hungarian text from the late 12th century already shows distinct indefinite and definite verbal paradigms casts some doubt on Marcantonio's claim that the definite conjugation arose after the generalization of accusative marking from definite objects to all objects.

b. [**megnytuan az ew kincheket**] adnak neki aiandokokat

    unlocking the their treasures- ACC give-INDEF.3PL him presents-ACC

(ii) In Old Hungarian, the interrogative particle -*e* of *yes-no* questions occasionally still occurs in clause-final position (39), as is typical in strict SOV languages (but in the majority of cases it already cliticizes to the verb). In Ostyak and Vogul it is still clause-final (40); in Hungarian, however, it stabilized as a verbal clitic by the end of the Old Hungarian period.

(39) Nemdè tǔ incab nagobbac vattoc azocnal **ė**?

    not you much greater be-2PL they-COMP Q

    'Are ye not much better than they?' (St Mathew 6, 26, Munich Codex 1416-1466)

(40) a. tit χujew-**ä** (Vogul) (Juhász 1991:501)

    here sleep-Q

    'Do we sleep here?'

    b. nèηem tŏttɛ ù.**totǎ** (Ostyak) (Juhász 1991:501)

    wife-1SG there was-Q

    'Was my wife there?'

(iii) Old Hungarian still had prehead participial relative clauses, derived by the gap relativization strategy (41). This pattern, too, became obsolate by the Middle Hungarian period, but it is the prevailing relative construction in Ostyak (42).

(41) es ueǵed az **[pro nekoḏ zoṛzoṭtem]** Coronat

    and take-IMP-2SG that you-DAT obtain-PASTPART-1SG crown-ACC

    'and take that crown that I obtained for you' (Kazinczy C. (1526-41), p. 34)

(42) **[(mä) tini-m-äm]** loγ (Nikolaeva 1999, p. 79)

    I sell-PASTPART-1SG horse

    'the horse I sold'

In view of the attested parallellisms between Proto-Hungarian relics and present-day Ostyak and Vogul, it is not a groundless assumption that Proto-Hungarian (at least in its earlier phase) shared the strict SOV order of its sister languages, with the subject functioning as primary topic. The hypothesized coincidence of the subject and topic roles presupposes the existence of a passive construction in the language. Although Modern Hungarian has no productive passive voice, in Old and Middle Hungarian texts the passive occurs frequently, as illustrated by example (43):

(43) keseruen **kynzathul**   uos cegegkel **werethul**
      bitterly torture-PASS-INDEF.2SG   iron nails-with thrust-PASS-INDEF.2SG
      'you are bitterly tortured, you are thrust with iron nails'

                          (Ómagyar Mária Siralom [Old Hungarian Mary's Lament], 1300)

These early Old Hungarian data suggest that SOV Proto-Hungarian must have had the means of topicalizing objects via passivization. In the resulting construction, the D-structure object participated in subject–verb agreement. Object–verb agreement, on the other hand, must have evolved in SOV sentences in which the object functioned as secondary topic, as attested in present-day Ostyak.

4. The inverse agreement constraint revisited

In the Proto-Hungarian strategy of sentence construction emerging from the above mosaic pieces, also the inverse agreement constraint has a natural place. According to the hypothesis outlined above, Proto-Hungarian was a topic prominent language in the sense that it was the argument associated with the primary topic function – whatever its thematic role – that was preposed to the left edge of the sentence, where it elicited agreement on the verb. (The verb might not have agreed with non-topic subjects; at least in Ostyak it bears default agreement in existential sentences – see Nikolaeva (1999a, p. 41).) Selection for the topic role is universally determined by hierarchies based on the relative animacy of arguments (those cited in (18) above), and this must have been the case in Proto-Hungarian, as well. If the selection of the primary topic violated the animacy hierarchy, e.g., when the theme or the location was topicalized instead of the agent, the verb was marked by a special – passive – suffix. The Proto-Hungarian sentence could also contain a secondary topic, which also evoked agreement on the verb. The secondary topic, represented by the theme or beneficiary construed as the object, had a semantically dependent, subordinate role with respect to the primary topic (cf.

the definition in (32)) – hence it is only natural that it also had to be less animate than the primary topic. This is what the inverse agreement constraint required. An object more animate than the primary topic could only be [+focus], not eliciting agreement.

By the end of the 12th century, the time of the first surviving coherent text, Hungarian had changed from SOV to Topic Focus V X*, and the topic function of both the primary and the secondary topics came to be encoded by movement into designated pre-focus positions (cf. É. Kiss 2011). Agreement between the primary topic and the verb grammaticalized as obligatory subject–verb agreement, whereas secondary topic–verb agreement grammaticalized as obligatory definite object – verb agreement. The inverse agreement constraint fossilized as a gap in definite object – verb agreement in the case of ˈ3rd person subject/1st or 2nd person object', and ˈ2nd person subject/1st person object' combinations.

The question whether the interpretation of the inverse agreement constraint as a constraint on the relative animacy of the primary and secondary topics can be extended to Chukchi, Koryak, and Kamchadal, as well, cannot be answered without detailed analyses of the relevant constructions of these languages. However, certain hints in the existing analyses suggest that object–verb agreement is related to the topicality of the object in these languages, as well. As shown by Comrie (1980) and Bobaljik and Branigan (2006), in the Chukchi active transitive clause the verb usually agrees both with the ergative subject and the absolutive object. A verbal prefix references the person and number of the subject, and a verbal suffix references the subject for an intransitive verb, and the object (or a combination of subject and object features) for a transitive verb. Chukchi also has an antipassive construction, where the verb is supplied with the detransitivizing suffix *-ine-*, the D-structure object bears oblique instead of absolutive case, and the verb fails to agree with it. Interestingly, in all the examples cited by Bobaljik and Branigan (2006), the object of an active clause, eliciting agreement, is translated as definite, whereas the object of an antipassive clause, not eliciting agreement, is translated as indefinite. Compare the following minimal pair, cited from Kozinsky et al. (1988, p.652):

(44) a. ʔaaček-a   kimitʔ-ən   ne-nłʔetet-ən
           youth-ERG load-ABS   3PL.SUB-carry-3SG.OBJ
           ' (The) young men carried away the load'

      b. ʔaaček-ət   ine-nłʔetet-γʔet   kimitʔ-e
           youth-PL(ABS) AP-carry-3PL.SUBJ   load-INSTR

' (The) young men carried away a load'

Since the agreeing object noun phrase in (44a) has no overt determiner, its definiteness must be computed on the basis of the object agreement morpheme on the verb, presumably marking its secondary topic status (the primary topic role being associated with the clause-initial subject).

In (45) the inverse agreement constraint blocks agreement between the object and the verb:

(45) ə-nan   γəm   Ø-ine- ł?u-ł?i
      he-ERG I (ABS) 3SG.SUB-AP-see-3SG.SUBJ
      'He saw me.' (cited from Skorik 1977, p.44)

The construction in (45) is called 'spurious antipassive' because, although the verb bears the -*ine*- prefix, and fails to agree with its object like in the antipassive voice, the object is preposed into preverbal position, it is assigned absolutive case, and the subject is ergative like in the active voice. The morphene -*ine*- appearently serves to mark the presence of a non-agreeing object. The object in (45), resembling the agreeing, post-subject, preverbal, absolutive object of example (44a) in relevant respects, fails to agree because of its relatively low animacy as compared to the subject.

If Chukchi object-verb agreement were definiteness agreement, it is unclear why it should be sensitive to the relative animacy of the the object. If, however, object-verb agreement is secondary topic –verb agreement, then the inverse agreement constraint orders primary and secondary topics according to a defining criterion of topicality, forbidding that an object more animate, i.e., more topical, than the primary topic be construed as secondary topic.

Various forms of differential object marking across languages, sensitive to notions such as animacy and specificity, are also likely to derive from requirements imposed on syntax by information structure – but their examination is beyond the scope of this paper.

References

Bartos, Huba (2000), Az inflexiós jelenségek szintaktikai háttere. In: Ferenc Kiefer (ed.), *Strukturális magyar nyelvtan II. Morfológia.* 653-761. Budapest: Akadémiai Kiadó.

Bárczi, Géza (1958), A tárgyas igeragozás használatának történetéből. *Magyar Nyelv* 54: 257-270.

Bereczki, Gábor (1971), *Cseremisz (mari) nyelvkönyv*. Budapest: Tankönyvkiadó.

Bobaljik, Jonathan and P. Branigan (2006), Eccentric agreement and multiple Case-checking. in: A. Johns, D. Massam, and J. Ndayiragije (eds.), *Ergativity: Emerging Issues*. 44-77. Dordrecht: Kluwer.

Collinder, Björn (1960), *Comparative Grammar of the Uralic Languages*. Stockholm.

Comrie, Bernard (1977), Subjects and direct objects in Uralic languages: a functional explanation of case-marking systems. *Etudes Finno-Ougriennes* 12: 5-17.

Comrie, Bernard (1980), Inverse verb forms in Siberia: Evidence from Chukchee, Koryak and Kamchadal. *Folia Linguistica* 1: 61-74.

Csúcs, Sándor (2001), Tárgyas ragozás az uráli nyelvekben. In: László Büky and Tamás Forgács (eds.), *A nyelvtörténeti kutatások újabb eredményei II. Magyar és finnugor alaktan*. 29-36. Szeged: Department of Hungarian Linguistics, University of Szeged.

É. Kiss, Katalin (2005), The inverse agreement constraint in Hungarian – a relic of a Uralic–Siberian Sprachbund? In: H. Broekhuis et al. (eds.), *Organizing Grammar. Linguistic Studies in Honor of Henk van Riemsdijk*. 108-116. Berlin: Mouton de Gruyter.

É. Kiss, Katalin (2011), From Proto-Hungarian SOV to Old Hungarian Top Foc V X*, to appear in Teresa Biberauer and George Walkden (eds.), *Syntax over Time: Lexical, Morphological and Information-Structural Interactions*. Oxford: Oxford University Press.

Givón, Talmy (1976), Topic, pronoun, and grammatical agreement. In: Charles Li and Sandra Thompson (eds.), *Subject and Topic*. 149-188. New York: Academic Press.

Givón, Talmy (2011), *Ute Reference Grammar*. Amsterdam: John Benjamins.

Gruber, Jeffrey (1967), Topicalization in child language. *Foundations of Language* 3, 37-65.

Gulya, János (1970), Aktiv, Ergativ und Passiv im Vach-Ostjakischen. In: Wolfgang Schlachter (ed.), *Symposium über Syntax der uralischen Sprachen*. Göttingen: Van den Hoock and Ruprecht.

Hajdú, Péter (1966), *Bevezetés az uráli nyelvtudományba*. Budapest: Tankönyvkiadó.

Honti, László (1995), Zur Morphotaktik und Morphosyntax der uralischen/finnisch-ugrischen Grundsprache. In: Heikki Leskinen (ed.), *Congressus Octavus Internationalis Fennougristarum.* Pars I. 53-82. Jyväskylä: Moderatores.

Honti, László (2009), Tűnődések tárgyas igeragozásunk kialakulásáról [Reflections on the evolution of our objective conjugation]. *Nyelvtudományi Közlemények* 106, 132-146.

Juhász, Dezső (1991), A módosítószók [Particles]. *A magyar nyelv történeti nyelvtana* [Historical grammar of Hungarian] I. ed. by Loránd Benkő, 501-513. Budapest: Akadémiai Kiadó.

Kallulli, Dalina (1995), *Clitics in Albanian*. University of Trondheim Working Papers in Linguistics 24.

Kallulli, Dalina (2000), Direct object clitic doubling in Albanian and Greek. In: Frits Beukema & Marcel den Dikken (eds.), *Clitic Phenomena in European Languages*. 209–248. Amsterdam: John Benjamins.

Kallulli, Dalina (2008), Clitic doubling, agreement, and information structure. The case of Albanian. In: Dalina Kallulli & Liliane Tasmowski (eds.), *Clitic Doubling in the Balkan Languages*. 227-255. Amsterdam: John Benjamins.

Keenan, Edward L. (1974), The functional principle: Generalising the motion of Subject of. In: M.W. LaGaly, R. Fox, and A. Bruck (eds.), *Papers from the Tenth Regional Meetings of the Chicago Linguistic Society*, 298-310.

Keresztes, László (1999), *Development of Mordvin Definite Conjugation.* Suomalais-Ugrilaisen Seuran Toimituksia 233. Helsinki: Suomalais-Ugrilainen Seura.

Kozinsky, Issac S., Vladimir Nedjalkov, & Maria S. Polinskaja (1988), Antipassive in Chuckchee: oblique object, object incorporation, zero object. In: Masayoshi Shibatani (ed.), *Passive and Voice*. Amsterdam: John Benjamins.

Kulonen, Ulla-Maija (1989), *The Passive in Ob-Ugrian*. Helsinki: Finno-Ugrian Society.

Marcantonio, Angela (1985), On the definite vs. indefinite conjugation in Hungarian: A typological and diachronic analysis. *Acta Linguistica Hungarica* 35: 267-298.

Nikolaeva, Irina (1999), *Ostyak*. Languages of the World/Materials 305. München: LINCOM Europa.

Nikolaeva, Irina (2001), Secondary topic as a relation in information structure. *Linguistics* 39: 1-49.

Pápay, József (1906–8), Északi-osztják nyelvtanulmányok [Northern Ostyak linguistic studies]. *Nyelvtudományi Közlemények* 36–8, 345–98; 52–79; 164–95; 258–75; 111–50; 313–29.

Peredy, Márta (2009) A stochastic account for the variation in Hungarian object agreement. Ms. Budapest: Research Institute for Linguistics of the Hungarian Academy of Sciences.

Rebrus, Péter (2000), Morfofonológiai jelenségek. In: Ferenc Kiefer (ed.), *Strukturális magyar nyelvtan II. Morfológia.* 763-949. Budapest: Akadémiai Kiadó.

Rédei, Károly (1962) Tárgyas igeragozásunk kialakulása [The evolution of our objective conjugation]. *Magyar Nyelv* 58, 421-435.

Skorik, Piotr Ja. (1977), *Grammatika chukotskogo jazyka, chast II: glagol, narechie, sluzhebnye slova* [Grammar of Chukchi, vol II: verb, adverb and auxiliary words]. Leningrad: Nauka.

Steinitz, Wolfgang (1950), *Ostjakische Grammatik und Chrestomatie mit Wörterverzeichnis*. Leipzig: O. Harrassowitz.

Szabolcsi, Anna (1986), From the definiteness effect to lexical integrity. In: Werner Abraham and Sjaak de Mey (eds.), *Topic, Focus and Configurationality*. 321-348. Amsterdam: John Benjamins.

Sources of examples:

Ómagyar Mária Siralom [Old Hungarian Mary's Lament]. 1195. *Az Árpád-kor magyar nyelvű szövegemlékei* [Hungarian-language texts of the Árpád-period] ed. by Loránd Benkő. Budapest: Akadémiai Kiadó, 1980.

Bécsi codex [Vienna Codex]. 1416-1435/1450. ed. by Gedeon Mészöly. Budapest: Magyar Tudományos Akadémia, 1916.

Jókai-kódex. 1370/1448. ed. by János P. Balázs. Budapest: Akadémiai Kiadó, 1981.

Kazinczy-kódex. 1526-1541. ed. by Zsuzsa Kovács. Budapest: Magyar Nyelvtudományi Társaság, 2003.

Müncheni kódex [Munich Codex]. 1416-35/1466. ed. by Antal Nyíri. Budapest: Akadémiai Kiadó. 1971.

Novum Testamentum sei quattuor euangeliorum volumina lingua Hungarica donata, Gabriele Pannonio Pesthino Interprete. 1536.