Patterns of affix borrowing in a sample of 100 languages

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Borrowing affixes may be rare compared to lexical borrowing, but it is not random. The current study describes regular patterns of affix borrowing in a database containing 649 borrowed affixes, challenging a number of previous claims about relative borrowability, in particular regarding inflectional categories. It is shown that borrowing affixes of all major nominal and verbal inflectional categories, including case markers and argument indexes, is well attested. Borrowing case markers, for instance, appears to be just as common as borrowing plural markers. By factoring in the "availability" for borrowing (i.e. whether a potential donor language has a relevant affix), it can be shown that nominal categories are far more frequently borrowed than verbal categories. Additionally, it is shown that sets of borrowed affixes often consist of interrelated sets of forms, e.g. forming paradigms, rather than being isolated forms from different morphosyntactic systems, in particular for the more tightly integrated inflectional subsystems. The frequency and systematicity by which inflectional affixes are borrowed calls for a reconsideration of the role of inflection in models of language contact.

Keywords: language contact, morphology, typology

1. What constrains affix borrowability?

Models of language contact rely heavily on statements about the relative ease or frequency by which different types of linguistic items are borrowed, typically expressed in "borrowing hierarchies", e.g. free forms > bound forms, or derivation > inflection. The differential manipulability in language contact expressed in such asymmetries is interpreted as reflecting aspects of the architecture of language: less easily borrowable forms apparently have inherent structural properties (e.g. being morphologically bound) or semantic/functional properties (e.g. expressing abstract, inflectional categories) that inhibit transfer from one language to another.

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Borrowing[1] affixes – in the sense of borrowing the morphological material of a bound form, along with its function, and applying it to native stems – plays a prominent role in many of these hierarchies, both in terms of affixes vs. stems and among different types of affixes, e.g. derivation vs. inflection.

However, to date no attempt has been made to objectively assess the relative frequency of (different types of) affix borrowing in a worldwide sample of languages. Weinreich's (1953) seminal study on language contact puts forward a set of hypotheses, some of which relate to affixes, based loosely on a number of case studies (see the very useful summary by Wilkins 1996). He does not attempt to quantify empirical data. The work of Yaron Matras and colleagues marks the beginning of more rigorous empirical testing of the borrowability of grammatical categories, including affixes. In particular, Elšík & Matras (2006) analyze a variety of borrowed grammatical categories in a sample of Romani languages, including some expressed by affixes. Additionally, a volume edited by Matras & Sakel (2007) presents case studies on grammatical borrowing in 27 languages from around the world. These case studies were produced following a standard questionnaire covering a range of grammatical domains, including morphology. Matras (2007) offers a partially quantitative analysis of these data.[2] These two studies propose a number of specific hypotheses about affix borrowability that will be tested in the current study. Gardani (2008) is the first study to focus on borrowed inflectional markers, in which the author uses a limited sample of 12 pairs of languages.

Explanations for asymmetries in borrowing grammatical categories in terms of semantic/functional properties of individual morphemes can be grouped under two themes. The first theme relates to the abstractness of the meaning or function expressed by a form, contrasting abstract grammatical functions, such as the marking of grammatical relations, with relatively concrete meanings carried by derivational markers, such as diminutives. This theme is evoked to explain why inflectional markers, especially contextual inflection such as structural case, are less easily borrowed than derivational markers. The second theme relates to affectiveness and other pragmatically relevant aspects of meaning. According to Matras (1998, 2007: 65–66), relatively easily borrowable forms carry meanings that involve uncertainty or unexpectedness, which reduces a speaker's assertive

1. The term "borrowing" is used here simply because it is the most widely used term with the longest tradition, even though it has obvious shortcomings compared to terms such as "transfer" (e.g. Myers-Scotton 2007) or "copying" (e.g. Johanson 1999).

2. The prose description of these 27 case studies as well as the outline of the questionnaire are published in Matras & Sakel (2007). However, the database on which quantitative results presented by Matras (2007) are based has not been published, and therefore Matras' (2007) results are not easily replicable.

authority. This in turn, according to Matras, affects a speaker's confidence and control over the distinction between the two languages he or she speaks to the effect that the expression of uncertainty or unexpectedness leads to code-switching. Examples include the relatively high susceptibility to borrowing of conditionality over other types of subordination, future tense over other tenses, and modality over aspect (but see Section 3.3.4).

The aim of the current study is to quantitatively investigate the relative borrowability of different types of affixes using a relatively large and world-wide sample, the AfBo (an acronym for Affix Borrowing) database (Seifart 2013). This database contains 649 affixes that were borrowed across a total of 100 language pairs, meaning AfBo language pairs have borrowed on average about six or seven affixes each. Compared to previous studies, using this database has two advantages. First, it allows us to focus on the semantic/functional properties involved in borrowability by keeping the major structural borrowability factor constant, namely the bondedness of forms (all affixes are bound). Second, by including all borrowed affixes for each of the languages, this dataset allows us to systematically study how the integration of forms into morphosyntactic subsystems affects borrowability.

Accordingly, the current study empirically investigates two types of hypotheses about affix borrowing. First, it empirically tests a range of claims on borrowability relating to inherent semantic-functional aspects of individual morphemes such as derivation > inflection, number > case, future > other tenses, etc. To assess the relative borrowability of individual categories such as plural, case, argument indexing, and tense marking more realistically, the current study factors in the fact that some categories (e.g. plural) are much more often marked by affixes in the languages of the world, and thus in potential donor languages, than others (e.g. object indexes). Second, this study tests a relatively new hypothesis (proposed by Seifart 2012) about sets of borrowed affixes, which relates to the structural integration of borrowed forms into morphosyntactic subsystems. This hypothesis states that once a number of affixes are borrowed, they tend to be morphosyntactically interrelated rather than sets of isolated forms.

The primary result of this study is a set of empirical statements about relative affix borrowability. In particular, it is shown that borrowing of some inflectional categories such as case marking and argument indexing is more common than previously assumed. It is also shown that borrowing interrelated sets of forms, rather than individual, isolated forms, is more common than previously thought, with some morphosyntactic subsystems, such as argument indexing, being particularly susceptible to borrowing interrelated sets.

It should be noted that the strength of the conclusions drawn from the investigation of the AfBo database depends directly on the quality of the descriptions that were used for building this database. It can be expected that future research

will revise some of the relevant information from AfBo. However, at this point there is no reason to believe that this will strongly affect the overall conclusions drawn from the AfBo database in its current form.

The article is structured as follows. Section 2 introduces the database used in the current study. Section 3 tests the relative borrowability of affixes of different types, e.g. derivation > inflection, and describes patterns within subtypes, e.g. the asymmetries in the borrowability of different case markers. Section 4 investigates morphosyntactic interrelatedness within sets of borrowed affixes, and Section 5 concludes this study by discussing the relevance of these findings for models of language contact.

2. Data and methods

2.1 Language sample

The database used in the current study includes 100 language pairs in which one language borrowed at least one affix from the other language, covering a total of 649 borrowed affixes.[3] The entire database, including detailed description of the borrowed affixes and exemplification of their use with native stems, is publicly available online at http://afbo.info/. This sample of languages includes, in principle, all cases of affix borrowing that have come to the author's attention between 2007 and 2013, meaning no attempt has been made to make the sample genealogically or areally balanced. If two or more pairs of languages or dialects are very similar in the aspects relevant here, only one pair has been included in the database, namely the language pair with the higher number of borrowed affixes. For instance, Chuvash (Turkic) affixes in Mari (Uralic) are included in the database, but excluded is the similar set of Chuvash affixes borrowed by the Mordvinian languages, which are closely related to Mari.

There is a clear bias in the language sample towards those language families and areas that have been best described linguistically, especially European/Western Eurasian and Asian languages. This is because detecting affix borrowing requires relatively detailed information not only on the recipient and donor languages, but also, crucially, comparative evidence from languages related to the donor language on the one hand and languages related to the recipient language

3. The current version of AfBo contains 101 languages, but for the analysis in the current article, one language was removed (Sumerian, with one potentially borrowed affix), yielding 100 languages and 649 affixes. Furthermore, a number of minor coding errors in AfBo were corrected. These corrections will be implemented in the next version of AfBo.

on the other hand, to prove that the affix is in effect borrowed and to determine the direction of borrowing.

Included in the sample are two languages that are often considered as "mixed languages", Gurindji Kriol from Northern Australia and Copper Island Aleut from the Commander Islands in the Bering Strait. Unlike other mixed languages, it is possible in these two cases to identify one language as having contributed some or most of the morphosyntactic framework as well as a substantial portion of the vocabulary. This language is identified as the recipient language (English for Gurindji Kriol and Aleut for Copper Island Aleut), while the other contributing language is identified as the donor language (Gurindji for Gurindji Kriol and Russian for Copper Island Aleut). For Gurindji Kriol, this follows Meakins' (2011a) analysis that (English-based) Gurindji Kriol borrowed Gurindji case markers. For Copper Island Aleut the situation is less clear, because most verbal inflection is in fact Russian. Note that in AfBo, Gurindji Kriol is the sixth most heavily affix-borrowing language in the sample, and Copper Island Aleut the ninth. Note also that the Spanish-based creole Chabacano that is included in AfBo was formed up to the 17th century with mostly Spanish morphological material while the affixes borrowed from Visayan languages included in AfBo entered the language much later, starting in the 19th century (Lipski 1992: 221, Steinkrüger 2003), i.e. affix borrowing was independent of the formation of the language as a creole.

Information on borrowed affixes was compiled by the author from a variety of sources, which are explicitly indicated for each case. Most information comes from published sources, especially descriptive grammars and other descriptive studies on, e.g., language contact or morphology. Different sources on the same language were consulted wherever possible. In many cases, important additional information – in some cases, all information – comes from personal communications from experts on the languages in question.

2.2 What counts as a borrowed affix?

Any morphologically bound form from a closed class counts as an affix in AfBo. By this definition, clitics are included as instances of affix borrowing, as long as they form a closed class, e.g. tense, evidentiality, or topic marking clitics. Potential doubts regarding whether a given form is bound or free are explicitly noted in the descriptions and often constitute reasons to consider such cases less reliable (see below). Furthermore, there must be a reasonable match of source-language function vs. recipient-language function in order to identify an affix as borrowed. Some forms are included here that might be considered suppletive, morphologically conditioned allomorphs because they fulfill the same function in different environments, but these cases are few. For instance, a plural marker used with

animate nouns and a plural marker used with inanimate nouns are counted as two borrowed affixes.

An affix is considered effectively borrowed only if it is used with at least some native stems, i.e. it is not considered borrowed if it only combines with equally borrowed stems to form complex loanwords. Examples of hybrid formations, combinations of borrowed affixes with native stems, are provided in the database for over 500 borrowed affixes. In the remaining cases, there are good reasons to believe that the affix is used on native stems, e.g. because original sources explicitly state that the form is used on native stems. In addition, a complete proof that a given affix is borrowed would ideally include (1) evidence that the borrowed affix was not present in the recipient language before contact, (2) evidence that the source form was present in the donor language at the time of contact, and (3) evidence that the similarity between source form and borrowed form is not coincidental. Even though the sources consulted for AfBo rarely, if ever, explicitly provide such complete information, the authors of these sources are often authorities in the language families concerned, which gives credibility to their judgments that a given form is borrowed.

2.3 Data coding

Data have been coded for a number of properties for comparative analysis. For the analyses presented in Section 3, borrowed affixes are categorized into 42 recurrent affix functions such as passive, augmentative, or dative case. These are grouped into 27 broader categories, such as valency-changing morphology, degree marking, or core case (see Table 1 in Section 3.1).

The study presented in Section 4 investigates affix interrelatedness in the 73 AfBo language pairs that borrow more than one affix. For this purpose, the borrowed affixes in each of these 73 language pairs were grouped into morphosyntactic subsystems and the overall number of borrowed affixes per subsystem is given (e.g. *three nominalizers that derive nouns from adjectives, two case markers, and one number marker*). Where possible, the overall number of forms in recipient language subsystems into which affixes were borrowed has also been determined (e.g., *three out of a total of five case markers are borrowed*).

The information on individual cases of affix borrowing varies in terms of reliability, either because information is lacking in available descriptions or because the descriptions themselves acknowledge uncertainties. The reliability of data is coded as high (66 cases), mid (31 cases), or low (4 cases) in the database. Most often this refers to uncertainty of the borrowed status, due to lack of explicit comparative evidence, or to uncertainty with respect to its status as an affix vs. a free form.

Data are given throughout as in the original sources, meaning no attempt at standardization of transcriptions, for example through transliteration, was made.

3. Properties of individual morphemes

3.1 Derivational vs. inflectional affixes

Perhaps the most often repeated claim about affix borrowing is that derivation is more easily and/or frequently borrowed than inflection, although to the best of my knowledge this claim has never been tested in a cross-linguistic sample of data. The rationale behind this claim is that inflectional morphology is tightly integrated and rule-driven – a rationale that also is applied to, e.g., inflectional classes – often with abstract meanings (or, rather, grammatical functions) and thus less separable and transferrable in language contact.

This claim is usually meant as a statement about cross-linguistic frequency of borrowing: across languages, derivational affixes are more frequently borrowed than inflectional affixes (see, e.g. Matras 2009: 212 and references therein). The preference for borrowing derivational morphology has also been claimed to constitute a language-internal implicational hierarchy: "No inflectional affixes can belong to the set of properties borrowed from a language unless at least one derivational affix also belongs to the set" (Moravcsik 1978: 112). Campbell (1993: 103) dismisses the validity of this claim, mentioning Bolivian Quechua plural borrowing (a category in fact close to derivation, see below) in the absence of derivational borrowing as a counterexample and referring to Heath (1978a) and Emeneau (1980) for further counterexamples. Detailed descriptions of counterexamples will be given in the following Section (3.2). The current section is concerned with determining the relative frequency of derivational vs. inflectional affix borrowing.

Both derivational and inflectional affixes may include heterogenous types of affixes, ranging from, e.g., adjectivizers to diminutives (derivation) and from comparative degree to subject indexing on verbs (inflection). To make predictions about differences in borrowability more precise, it is thus useful to divide inflectional categories into two types, inherent inflection and contextual inflection, following Booij (1996). Inherent inflection modifies the meaning of the word to which it attaches independent of the (syntactic) context (e.g. plural on nouns and tense on verbs), while contextual inflection is induced by obligatory syntactic government or agreement (e.g. accusative case on nouns or person agreement on verbs). Inherent inflection is thus less prototypically inflectional, and in a sense closer to derivation, and such affix categories are therefore also predicted to be more easily borrowable. Applying this distinction, Gardani, Arkadiev & Amiridze

(2015: 9) thus propose a refined scale as derivation > inherent inflection > contextual inflection. This is consistent with Myers-Scotton's 4M-model (Myers-Scotton 2002, 2007) which predicts increasingly lower likelihood of code-switching for three types of grammatical morphemes, with contextual inflection at the last stage, based on different access to these kinds of morphemes during language production. We return to this issue in Section 3.4, after presenting the empirical evidence for differential borrowability of affixes.

Table 1 summarizes the number of borrowed affixes per functional category among the 649 borrowed affixes from the AfBo database along with the total number of borrowed affixes per category. The column "Languages/category" indicates the number of languages that borrow at least one affix of that category. For internally structured categories, a breakdown is given (e.g., among affixes indicating degree, a total of 34 diminutive affixes are borrowed by 17 languages), or a reference to the section where the breakdown is given is provided. The rightmost column provides summarizing figures for functions classified as derivation, inherent inflection, and contextual inflection. Note that the figures for languages in this column do not add up from the figures in columns further to the left because many languages borrow affixes from various categories belonging to, for example, derivation. Note also that 89 affixes are not considered because they are not usefully characterizable as derivation vs. inflection.

These data allow us to objectively assess the relative frequency of borrowing different kinds of affixes. Regarding total frequency of borrowing derivational vs. inflectional affixes, of the 560 affixes considered here, 347 (62%) are derivational and 213 (38%) are inflectional, of which 145 belong to inherent inflection (26% of all borrowed affixes) and 68 to contextual inflection (12%). Regarding the number of languages that borrow at least one derivational vs. inflectional affix, 8 AfBo languages borrow only affixes that are not classified in Table 1. Of the remaining 93 languages, 68 (73.1%) borrow at least one derivational affix (possibly in addition to inflectional affixes) and 52 (55.9%) borrow at least one inflectional affix (possibly in addition to derivational affixes); 45 (48.4%) languages borrow at least one inherent inflectional affix (possibly in addition to others) and 16 (17.2%) languages borrow at least one contextual inflectional affix (possibly in addition to others).

A third way to assess the frequency of borrowing of derivational vs. inflectional affixes is to count the number of instances that derivational vs. inflectional categories are borrowed in a language, irrespective of how many affixes belonging to this category are borrowed, based on the counts in column "Languages/category" of Table 1. These figures indicate a total of 216 instances of borrowing one or more affixes from the categories identified in the column "Functional category". Among these, 139 (64.4%) are instances of borrowing from derivational categories and 77 (35.6%) instances of borrowing from inflectional categories. Among

Table 1. Derivational and inflectional affixes

	Functional category	Borrowed affixes	Languages/ category	Summary
1.	nominalizer[a]	142	39	**Derivation**: 67 languages, 347 affixes
2.	nominal derivation (misc.)	50	12	
3.	adjectivizer	46	21	
4.	diminutive (34/17) / augmentative (4/3)	38	18	
5.	verbal derivation (misc.)	21	9	
6.	valency change (Section 3.3.5)	16	10	
7.	verbalizer	11	8	
8.	ordinal numeral derivation (Section 3.3.7)	8	8	
9.	privative	7	7	
10.	other quantifier derivation (Section 3.3.7)	6	4	
11.	adverbializer	2	2	
12.	verbal TAM (Section 3.3.4)	51	17	**Inherent Inflection:** 45 languages, 145 affixes
13.	number (Section 3.3.1)	35	16	
14.	non-core case (Section 3.3.2)	29	12	
15.	degree: COMPA (8/8), SUPER (5/5)	13	8	
16.	definite/indefinite	10	5	
17.	topic /focus	5	2	
18.	verbal negation	2	2	
19.	subject/object indexing (Section 3.3.3)	60	10	**Contextual inflection**: 16 languages, 68 affixes
20.	core case (Section 3.3.2)	7	4	
21.	possessor indexing	1	1	
22.	numeral classifier	16	2	Not considered
23.	gender (human)	11	6	
24.	noun class (inanimate)	45	3	
25.	clause linking	1	1	
26.	clause-level TAM	9	5	
27.	relativizer/subordinator	7	5	

[a] Includes agent nominalizers (51 affixes/27 languages), abstract nominalizers (39/12), social group nominalizers (9/7), place name nominalizer (8/6), and miscellaneous other nominalizers (35/16).

these, 62 (28.7%) are instances of borrowing from categories of inherent inflection and 15 (6.9%) are instances of borrowing from categories belonging to contextual inflection.

On all of these counts, derivational affixes are thus more commonly borrowed than inflectional affixes, but far from overwhelmingly so: among the total number of borrowed affixes, 38% are inflectional, with similar results for the percentage of cases of borrowing at least one form from inflectional vs. derivation categories (35.6% inflection). A total of 55.9% of languages borrow at least one inflectional affix, compared to 73.1% that borrow at least one derivational affix. Given these figures, it seems exaggerated to call the borrowing of inflectional morphology "rare" compared to that of derivational morphology (e.g., Matras 2009: 212). Even the most prototypical inflectional categories, namely contextual inflection such as argument indexing and core case, comprise over 10% of all borrowed affixes, and are found in more than 15% of languages that borrow any affix at all. This suggests that the distinction between derivational and inflectional morphology is not as strong a predictor for the borrowability of affixes as previously assumed.

3.2 Borrowed inflectional affixes without borrowed derivational affixes

This section presents some data on inflectional borrowing in the absence of derivational borrowing, addressing the strongest claim in this context, namely that languages borrow inflectional affixes only if they also borrow derivational affixes. It is important to go into some detail here because descriptions of affix borrowing have to face a number of descriptive challenges regarding, e.g., the borrowed status of a given affix, in order to count as bona fide counterexamples. Following the classification of affixes as derivational, inherent or contextual inflection (Table 1), five languages in AfBo are attested that borrow contextual inflection but no derivation and no inherent inflection. These provide the strongest counterexamples to the above-mentioned claims. Furthermore, there are two languages that borrow contextual and inherent inflection, but no derivation. The sets of borrowed affixes in these seven languages will be discussed. A further 17 languages borrow inherent inflection but no derivation and no contextual inflection. Some of these are less clear counterexamples given the difficulty of distinguishing inflection from derivation (e.g. as derivational aktionsart vs. inflectional aspect; see also Section 3.3.4). Detailed descriptions of borrowed affixes in these 17 languages can be found in the AfBo database (Seifart 2013).

A much-cited case of inflectional borrowing is Ngandi (Ngandi), which borrowed two case suffixes from Ritharngu (Pama-Nyungan), as described by Heath (1978a, 1978b). Ngandi has been treated as a rare exception assuming that "in the three decades since Heath's findings were published, very few if any parallel cases have become known that show diffusion of nominal inflection markers" (Matras 2009: 215). (1) illustrates these two suffixes and their use with native Ngandi stems, also showing that they are polyfunctional, whereby some of the functions

(namely ergative and dative case marking) clearly belong to contextual inflection, while others (namely instrumental and purposive case marking) clearly belong to inherent inflection.

(1) Ngandi: Two borrowed case markers (Heath 1978b: 41–50)
   (a) *-ṯu* 'ergative/instrumental', e.g. *-mumbaʔ-ḏu* 'with axes', *awaṭuʔṇayi-ṯu* 'his dog [bit me]'
   (b) *-ku* 'genitive, dative, purposive', e.g. *ŋayi-ku* 'mine', *mawaŋguraʔ-gu* 'the bandicoot's'

While it is certain that Ngandi has borrowed inflection and reasonably clear that these case affixes are contextual inflection, the descriptive challenge consists of showing that no derivation has been borrowed, given that four further affixes may have been borrowed. However, the directionality of borrowing for those four affixes cannot be determined, and therefore they are not counted here. First, Ngandi may have borrowed two derivational adverbializers (called "compounding" elements by Heath 1978b: 121): *malk-* 'times', *bala-* 'side'. Second, Ngandi may have borrowed two further verbal derivation markers (called "comitative" by Heath 1978b: 83): *-baṭa-* 'applicative' (forming transitive or semantically transitive verbs with comitative objects from intransitive verbs), *-ṛi-* 'applicative' (forming transitive verbs with an object that denotes something transported from intransitive verbs of motion). If the direction of borrowing was also from Ritharngu to Ngandi, then Ngandi would not be a counterexample to the strong claim mentioned above, although it is still an example of borrowing contextual inflection.

Four languages are attested that borrow argument indexes in the absence of borrowing any other affixes. Argument indexes are clear instances of contextual inflection, at least if they can be used in addition to free subject/object noun phrases. The first of these languages is Bilin (Central Cushitic), which has borrowed eight object indexes from Tigre (Semitic) (2), as described by Appleyard (2007: 491).

(2) Bilin: Eight borrowed object markers (Appleyard 2007: 491)
   (a) *-law* 'first person singular object'
   (b) *-ka* 'second person singular masculine object'
   (c) *-ki* 'second person singular feminine object'
   (d) *-lu* 'third person singular masculine object'
   (e) *-la* 'third person singular feminine object'
   (f) *-na* 'first person plural object'
   (g) *-kum* 'second person plural object'
   (h) *-lom* 'third person plural object'

These forms are also attested in earlier descriptions such as Reinisch (1882), who did not recognize them as borrowed. Reinisch (1882: 38) also gives forms that distinguish gender in third person plural (masc. *-lom*, fem. *-län*), which do not appear in another source on Bilin, Hamde's (1986) grammar, as also noted by Appleyard (2007). Hamde (1986: 33, 49–54, 93–94) gives the same forms as Appleyard (2007), but without a clear explanation of their function and distribution. Hamde (1986: 48–52) mentions that these suffixes are borrowed from Tigre and notes that "we cannot escape the fact the Tigre is invading Bilin through such grammatical explainable aspects of the grammar" (Hamde 1986: 51), without giving further details. Regarding other potentially borrowed affixes, Hamde (1986: 51–52) mentions two "prefixes and phrases" that could be borrowed from Tigre, one translated as "as, that, is as", the other as "mismal, improper". He dismisses both as incorrect forms and also writes both separately, which suggests that they may be particles, if they are borrowed at all. Following Appleyard's (2007) description of Bilin morphology, it can be relatively safely asserted that Bilin is a clear case of borrowing contextual inflection in the absence of borrowing derivation (or inherent inflection).

Kwerba Kasonaweja, a Kwerbic language of Northwestern New Guinea, has borrowed three subject prefixes from Warembori (Austronesian/South Halmahera – West New Guinea subgroup). These are listed in (3) (data and analysis from Mark Donohue, personal communication, 2012).

(3) Kwerba Kasonaweja (Kwerba): Three subject prefixes.
  (a) *e-* 'first person'
  (b) *o-* 'second person'
  (c) *i-* 'third person'

Research on Kwerba Kasonaweja is still ongoing, but it appears that borrowed subject prefixes and native subject suffixes are used alternatively in Kwerba Kasonaweja. If borrowed prefixes are used on Kwerba Kasonaweja verbs, they are the only agreement marking on the verb, i.e. there is no double marking. There do not appear to be separate groups of verbs that behave one way or the other. Related Kwerba languages Kwerba Aurimi, Kwerba Isirawa, and Kwerba Samorokana have no subject prefixes, but South Halmahera languages related to Warembori do have these prefixes. According to current knowledge of the language there is no other borrowed morphology in Kwerba Kasonaweja. The three borrowed subject prefixes are the only monosyllabic (single-vowel) pronoun prefixes in the source language.

Two more languages that exclusively borrow contextual inflection (arguments indexes) serve here also to illustrate the special circumstances under which argument indexes are borrowed, namely phonetic chance similarity of argument indexes, as further discussed in Section 3.3.3. Firstly, Ingrian Finnish (Finnic) has

borrowed two tense and person marking suffixes from closely related Estonian (Finnic). This is shown in (4). See Riionheimo (2002, 2010) for detailed discussion on evidence for borrowing, based on regular phonological changes in Finnic.

(4) Ingrian Finnish: Two tense-person suffixes (Riionheimo 2002, 2010)
   (a) *-p* 'third person present', e.g. *maksa-a-p* 'it costs', *istu-u-p* 'he sits', *tullo-o-p* 'he comes'
   (b) *-si* 'past', e.g. *ve-i-si-mme* 'we took', *osta-si-it* 'they bought it', *jouta-si-mme* 'we were in time'

Secondly, G|ui G‖ana (Khoe-Kwadi, also known as Central Khoisan) has borrowed a single person suffix from closely related Shua Tshwa, as discussed by Güldemann (2004: 262, see also Voßen 1997). The identification of this form as borrowed is based on the fact that, in the sub-branch of Khoe-Kwadi languages that G|ui G‖ana belongs to, the regular reflex of the consonant in this form is *-m*, while in Shua-Tshwa's sub-branch all languages have *-b*. G|ui G‖ana is the only language of its sub-branch that has *-b*.

(5) G|ui G‖ana (Khow-Kwadi): A single person suffix (Voßen 1997: 244)
   -be 'first person dual', e.g. *hí.tsèbè* 'first person dual masculine pronoun'

We now move on to illustrate two languages that borrow contextual and inherent inflection, but no derivation. Sonqori (Turkic), spoken in the city of Sonqor in Iran, has borrowed five affixes from Kurdish (Iranian). Information and examples are from Bulut (2005, 2007, 2014), which are partially based on material presented by Buluç (1975). The borrowed affixes discussed here are attested in various Turkic languages belonging to the South Oghuz dialect group spoken in Iran and Iraq. Among these borrowed affixes are two object pronoun enclitics, i.e. contextual inflectional (6). Note that only these two are attested in currently available corpora, although it is very likely that other object pronoun enclitics of different person and number are also borrowed (Christiane Bulut, personal communication 2012).

(6) Sonqori: Two object pronoun enclitics
   (a) *=it* 'second person singular object', e.g. *almæ âllæm=it* (apple buy.AORIST.1SG=2SG.OBJECT) 'I will buy you an apple' (Buluç 1975: 183, Bulut 2007: 174)
   (b) *=şan* 'third person plural object', e.g. *yæyipt=şan* (eat.PERFECT.3SG=3PL.OBJECT) 'he has eaten them' (Buluç 1975: 183, Bulut 2007: 174)

Two further borrowed affixes are a comparative marker and a marker of specificity, both clearly inherent inflection (7).

(7) Sonqori: Two inherent inflection suffixes
   (a) *-tar* 'comparative', e.g. *çux-dar* (much/most-COMPARATIVE) 'more' (Bulut 2005: 254), "the copied morpheme +*tar* displays no combinatorial restrictions; it combines with Turkic and Iranian adjectives alike" (Bulut 2005: 253)
   (b) *-aka* ~ *-eke* ~ *-ækæ* 'definite, specific' (from Southern Kurdish, Gorani), e.g. *ušaġ-ækæ-le'* (child-SPECIFIC-PL) 'those children', *mincuġ-ækæ-re* (bead-SPECIFIC-ABLATIVE) 'of those pearls', *šê'r-eke-sin-ne* (poem-SPECIFIC-POSSESSOR-ABLATIVE) 'about that poem by him'. This suffix "attaches directly to Turkic noun stems and precedes plural, possessive or case suffixes" (Bulut 2005: 254). See also Kossmann (2011), who cites a Sorani source form from Blau (1980: 46, 63). This form is also borrowed into Southern Iraqi Turkman.

Finally, Sonqori has borrowed a bound emphatic marker which attaches at least to nouns and verbs (8). This form is not characterizable as either inflection or derivation, which makes Sonqori a less strong example for inflectional borrowing in the absence of derivational borrowing.

(8) Sonqori: One emphatic enclitic
   -iş 'also, even', e.g. *yėmēduviş* 'you have not even eaten', *ġēliş* 'come!', *ōḫiş* 'even an eye' (Buluç 1975: 182). This form "is in all probability a copy of the Kurdish enclitic […] which in southern Kurdish may be suffixed to either a nominal or a verbal form" (Bulut 2007: 175).

An additional, potentially borrowed suffix in Sonqori, *-i* 'indefinite' from Persian, "with similar function [as *-aka*, see Example (7)]" (Bulut 2005: 254), is "in all instances of our material […] attached to copied noun phrases" (Bulut 2005: 255), i.e. stems that are likewise borrowed from Persian. For this reason, this suffix is not included here, although there is some indirect evidence that "could prove that the copied unit +*i* is compatible with non Persian nouns" (Bulut 2005: 255).

Our final example here is Garifuna (Northern Arawakan), which borrowed two affixes from Carib (Cariban), one possessor prefix (contextual inflection), and one collective or plural suffix (inherent inflection) (9).

(9) Garifuna: One possessor prefix, one plural suffix
   (a) *i-* 'first singular possessor', e.g. *iuaku* 'my drink', *iúti* 'my share (of food etc.)' (Taylor 1956: 39)
   (b) *-gu* 'collective, plural', e.g. *níbirigu* 'my younger siblings', *numégegu* 'my (personal) belongings', *nibą́iagu* 'my grandchildren', *tibegu* 'her people' (Taylor 1959: 190–191)

Information on the complex history of Carib influence on Garifuna, including evidence for the borrowing of these two affixes, is provided by Taylor (1954, 1956, 1959, 1977), Taylor and Hoff (1980), Hoff (1986), de Pury (2001, 2005), and Escure (2004: 45–46, 2012); see also Grant (2010). Note that Escure (2004: 45–46) discusses a number of further affixes of putative Carib origin, in particular a nominalizing suffix *-un(i)*, and a large number of evidential particles (or suffixes) of which she discusses in particular *-ti* (hearsay), *-na* (uncertainty), and *-me* (deductive). However, no corresponding elements have been identified in Carib (Kalin'a, Galibi), the source language for Cariban material in Garifuna. For the evidential particles, Escure (2004: 45–46) cites similar looking forms from Hixkaryana as source forms (Derbyshire 1999: 53), but Hixkaryana is from a different branch of the Cariban family. Additionally, the Garifuna evidential particles are only attested in Escure's (2004: 45–46) material, and not mentioned in other sources. For the nominalizing suffix, Lokono/Arawak (the Arawakan language most closely related to Garifuna) *-n* (Pet 2011: 22–24 and passim) seems a likely cognate, which means the form would be native.

As mentioned above, 17 languages are attested that borrow inherent inflection, but no contextual inflection: Amuesha, Chantyal, Chinese of Línxìa/Hézōu, Dagur (one from Chinese, one from Evenki), Hasankeyf Arabic, Hungarian, Ilwana, Istro-Romanian, Karelian, Lithuanian Romani, Moghol, South Swahili, Sri Lanka Portuguese, Uru, Warndarang, Wayampi-Emerillon-Zo'é, and Western Neo-Aramaic of Ma'lūla. The categories most frequently borrowed among these are plural (see Section 3.3.1) and non-core case markers (see Section 3.3.2), which are both borrowed in six of these languages. Five of these languages have borrowed verbal tense-aspect-mood markers. Three of them are prefixes borrowed from Slavic languages, whose status as derivation vs. inflection is debated (see 3.3.4). As mentioned above, detailed descriptions of borrowed affixes in these 15 languages can be found in the AfBo database (Seifart 2013).

3.3 Differential borrowability within subsystems

The following sections provide details about patterns of affix borrowing within those affix categories that are (1) frequently borrowed and (2) internally structured, i.e. that contain a set of clearly definable values, such as different cases or different TAM values. The discussions of these categories in the following sections have three aims: first, these sections establish the borrowability of these categories, as against previous claims of the impossibility or rarity of borrowing, especially regarding case, person, and valency-changing affixes. Second, these sections discuss the relative borrowability of individual values within these categories (e.g. non-core case > core case; future > other tenses). Finally, these sections discuss

special circumstances surrounding the borrowability of individual categories, e.g. phonetic similarities between source and donor languages' forms. The discussion begins with the nominal inflectional categories number and case (3.3.1–3.3.2), then moves on to the verbal inflectional categories of argument indexing and tense-aspect-mood marking (3.3.3–3.3.4), then looks at verbal valency-changing affixes (3.3.5). Adjectival inflection degree marking is discussed in Section 3.3.6. Finally, Section 3.3.7 describes a category that has hitherto not been recognized as frequently borrowed, namely ordinal numeral formation. A comparative discussion of relative affix borrowability follows in Section 3.4.

3.3.1 *Number markers*

Plural affixes have long been recognized as a category relatively easily borrowed (Matras 2009: 212), and this has been linked to their status as clearly belonging to inherent inflection (Gardani 2012). Matras (2009: 212) claims that plural should be borrowed exceptionally frequently among inflectional morphology. Among AfBo languages, 17 languages borrow a total of 35 number affixes, and 15 of these have borrowed a total of 27 plural affixes (Table 2). Not included in this count is cumulative expressions of person and number in argument indexes; for that, see Section 3.3.3. Note also that Dagur is counted twice here for having borrowed three plural affixes from Evenki and one from Chinese. These figures suggest that borrowing number affixes, especially plural affixes, is indeed common, but not overwhelmingly so, when compared to other inflectional categories such as verbal tense-aspect-mood (18 languages) or even when compared to contextual inflectional categories such as case (14 languages) and argument indexes (10 languages).

Two of the 15 languages that borrow plural markers have also borrowed dual markers (Gurindji Kriol and Resígaro), and one language has borrowed a dual but not a plural marker (Ritharngu). The only language to borrow singular affixes is Maltese, which borrowed three suffixes from Sicilian that function as singulatives in Maltese (Borg 1994: 57, Borg & Azzopardi-Alexander 1997: 280, 291; see also Gardani 2008: 75, 2012: 81). The lower frequency of borrowing non-plural number values is no doubt related to the lower frequency of overtly marking these in languages in general, and thus does not reflect an intrinsically lower likelihood to borrow such forms (see Section 3.4).

A noteworthy finding is that six out of 17 languages in Table 2 borrow more than one number-marking affix, as further discussed in Section 4. Example (10) illustrates borrowed plural markers in Ilwana (Bantoid), which borrowed four plural suffixes from Cushitic languages. The exact source language is unknown (see Möhlig 1986: 279).

Table 2. Borrowed number markers

	Recipient language	Donor language	Affixes/ Language	Plural	Dual	Singular
1.	Moghol	Tajik	4	4		
2.	Ilwana	Cushitic	4	4		
3.	Resígaro	Bora	6	3	3	
4.	Dagur	Evenki	3	3		
5.	Gurindji Kriol	Gurindji	3	2	1	
6.	Kormakiti	Greek	2	2		
7.	Dagur	Chinese	1	1		
8.	Wayampi	Carib[a]	1	1		
9.	Hasankeyf Arabic	Aramaic	1	1		
10.	Uru	Aymara	1	1		
11.	Garifuna	Carib	1	1		
12.	Middle Mongolic	Turkic	1	1		
13.	Santa	Chinese	1	1		
14.	Albanian	Turkish	1	1		
15.	Sakha	Mongolian	1	1		
16.	Ritharngu	Ngandi	1		1	
17.	Maltese	Sicilian Italian	3			3
			Affixes/value:	27	3	3
			Languages/value:	15	5	1

[a] The marker has been borrowed from an intermediate Proto Carib language into a subgroup of Tupian languages including Wayampi, Emerillon, and Zo'é.

(10) Ilwana (Bantoid): Four plural suffixes (Möhlig 1986: 279)
- (a) *-ɛna* 'plural', e.g. *ŋgɔ́mɛna* 'drums' (*ngɔ́ma* 'drum'), *híɗɛna* 'roots' (*híɗa* 'root'), *bɔ́kwɛna* 'cheeks' (*bɔ́kɔ* 'cheek') (for discussion of a potential Cushitic origin and a potential collective meaning, see Mous 2003: 69)
- (b) *-ɪɾa* 'plural', e.g. *símbɪɾa* 'sticks' (*símbɔ* 'stick'), *sâ:pwɪɾa* 'palms of hand' (*sâ:pu* 'palm of hand'), *pâ:ŋgɪɾa* 'machetes' (*lupâ:ŋga* 'machete')
- (c) *-wakɪ* 'plural', e.g. *sî:ɾwakɪ* 'knives' (*sî:ɾu* 'knife'), *ɣɛ́ɾwakɪ* 'giraffes' (*ɣɛ́ɾɪ* 'giraffe')
- (d) *-imɔ* 'plural', e.g. *ɓánimɔ* 'branches' (*ɓána* 'branch'), *ɓábalimɔ* 'doors' (*ɓábala* 'door'), *ɲâ:limɔ* 'claws' (*ɲâ:la* 'claw')

3.3.2 *Case markers*

Borrowing bound case markers is nearly as common as borrowing plural affixes, with 14 languages doing so among AfBo languages (Table 3). This is in contrast to

claims about the rarity of borrowing nominal inflection markers, except plurals, implied in Matras (2009: 215–216). Matras (2007: 42) reports that "no borrowing of bound case markers is attested" in the sample of 27 languages he discusses.

Note that there is a descriptive challenge due to the fact that many case affixes that appear in Table 3 are described as polyfunctional in the original sources, as noted in the caption of Table 3. For instance, for Chantyal, two different markers are glossed as "comparative/temporal" by Noonan (2003: 319), and examples with both functions for both markers are attested in Chantyal (Noonan 2003: 320, Noonan & Bhulanja 2005: 8, 25, 32, 43, 49, 105, 169, 170, 186, 239, 240, 245). In this case, one affix was categorized as comparative and the other as temporal.

Since case systems often comprise a number of forms and many languages borrow more than one of these, case borrowing offers the possibility of investigating the relative borrowability of individual values within a single category. There are two types of differential borrowability that are of interest here.

First, case markers can be divided into those expressing contextual inflection, meaning core case categories such as nominative, accusative, ergative, and dative, which are governed by the valency frame of a predicate and which usually express arguments; and non-core cases, which express inherent inflection, the variety of meanings not governed by argument structure and which typically occur on adjuncts. Here, the prediction is that borrowing non-core case affixes should be more common than borrowing core case affixes. Indeed, only six contextual case affixes are borrowed across four languages, compared to 28 affixes for non-core case borrowed across 12 languages. However, dative case is among the most frequently borrowed affix categories, perhaps related to the fact that dative has an ambiguous position between core and non-core cases, where, e.g., dative beneficiaries are often non-core participants: there are four borrowed dative case affixes, like comparative case and terminative case, only surpassed by five borrowed ablative case markers. It is also not true that languages borrow a core case only if they also borrow a peripheral case, since two languages borrow core case affixes without having borrowed affixes for peripheral cases (Ngandi and Resígaro). Thus, borrowing core case affixes, as a prime example of contextual inflection, does not appear to be strongly dispreferred or impossible in comparison to the borrowing of peripheral case affixes.

Second, there may be hierarchical relations between individual case categories. For the expression of local relations, based on observations of both bound and free forms in Romani languages, Elšík and Matras (2006: 371; see also Matras 2007: 42, 2009: 160) propose the following hierarchies: peripheral local relations (e.g. 'between') > core local relations (e.g. 'on'); and separative (source) > directive > stative. If we reformulate the latter hierarchy as ablative > allative > (stative) locative, this hierarchy finds some support in the AfBo sample, where five languages

Table 3. Borrowed case affixes

	Recipient language	Donor language		7 core			10 locative			19 other peripheral case markers								
			Affixes/ lg	dat	erg	2. nom [a]	abl	all	loc	compa.	termi.	comit.	benef.	distr.	temp.	instr.	voc.	causal
1.	Gurindji Kriol	Gurindji	6	1	1		1	1	1	1								
2.	Northern Tajik	Uzbek	5	1			1		1	1[b]	1							
3.	Mari	Chuvash	4							1[c]				1			1	1
4.	Chantyal	Nepali	4					1[d]		1[e]					2[f]			
5.	Uru	Aymara	3					1[g]			1[h]		1					
6.	Middle Mongolic	Turkic	3			1					1	1						
7.	Ngandi	Ritharngu	2	1	1													
8.	Wutun	Tibetan	2				1							1				
9.	Warn-darang	Nunggu-buyu	2				1									1		
10.	Resígaro	Bora	1	1														
11.	Línxìa Chinese	Santa	1									1						
12.	Amuesha	Quechua	1										1					
13.	Ritharngu	Ngandi	1							1[i]								
14.	Moghol	Tajik	1				1											
	Languages/value			4	2	1	5	3	2	5	3	2	2	2	1	2	1	1

[a] secondary nominative [b] comparative/equative [c] modal/lative/comparative [d] allative/comitative [e] comparative/temporal (examples with comparative meaning) [f] one temporal, one comparative/temporal (examples with temporal meaning) [g] also stative location [h] terminative [i] semblativeh terminative
i semblative

borrow ablative, three borrow allative and two borrow locative affixes. This hierarchy is also supported by the fact that locative case affixes are only borrowed if either allative or ablative case affixes are borrowed.

As can be observed in Table 3, there are no apparent hierarchical or implicational restrictions on the borrowability of other peripheral case markers. This reflects the fact that these case categories comprise a diverse and heterogeneous set of meanings, with many of them also being polysemous.

3.3.3 *Argument indexes*

Matras (2007: 64) reports that bound person markers "occupy an entirely peripheral position in the borrowing behaviour of languages in [his] sample", along with bound case markers and bound tense markers. This is in stark contrast to the AfBo sample, in which borrowed affixes that cross-reference subjects or objects are

Table 4. Sets of borrowed argument indexes

	Recipient language	Donor lang.	# borrowed indexes	Affix function
1	Sebjan-Küöl Èven	Sakha	21	four entire paradigms of subject person-number indexes for four moods
2	Copper Island Aleut	Russian	13	two entire subject person-number indexes for two tenses, one gender affix
3	Bilin	Tigre	8	one entire paradigm of object person-number indexes
4	Uchur Èvenki	Sakha	6	one entire paradigm of subject person-number indexes for hypothetical mood
5	Kwerba Kasonaweja	Warem-bori	3	one entire paradigm of subject person-number indexes
6	Sonqori	Kurdish	2[a]	2SG and 3PL object person-number indexes
7	Cappadocian Greek	Turkish	2	1PL and 2PL subject person-number indexes
8	Megleno-Romanian	Bulgarian	2	1SG and 2SG subject person-number indexes
9	Ingrian Finnish	Estonian	2	3PL and PAST subject person-number-tense indexes
10	G|ui G‖ana	Shua Tshwa	1	1DU subject person-number index

[a] Only two object suffixes are attested in existing corpora, but probably more are used, maybe all six. Note also that forms encoding tense that are part of the person-marking system are included (Copper Island Aleut and Ingrian Finnish).

found in 10 languages, i.e. about 10% of languages that borrow any affix (Table 4), including many languages that borrow case or plural affixes.

Cases of borrowed argument indexes fall into two groups. In the first group, all forms of the respective sets in the recipient languages are borrowed (rows 1–5 in Table 4). Sonqori probably also belongs to this group, since it is likely that all six Kurdish object enclitics are used, even though only two of these are attested in existing corpora (Christiane Bulut, personal communication). In the remaining cases (rows 7–10), only one or two individual affixes, a minority of the members of the set, are borrowed. There are indications that the borrowing of these two groups may follow different historical pathways (Matras 2009: 214–215).

Concerning the first group, for three of the six languages, it is possible that person affixes were borrowed along with loan verbs, perhaps modals and auxiliaries first, and then spread to native stems. Sebjan Küöl Ėven and Uchur Ėvenki provide the clearest example of this, since borrowed person-number suffixes only occur after likewise borrowed mood suffixes, which function like auxiliaries and appear to have acted as "carriers" for argument indexes into the recipient language. Another effect of this process is that there are "chunks" of borrowed morphology in the recipient languages, an issue we will return to in Section 4.

In all languages of the second group, there is close phonological correspondence between corresponding markers in the donor and recipient language, either because the languages are closely related (Ingrian Finnish, G|ui G‖ana), or because of incidental phonological correspondences (Cappadocian Greek, Meglено-Romanian). The latter is reminiscent of borrowed Turkish argument indexes in Romani, as mentioned by Matras (2009: 214–215). It is an intriguing question why close phonological correspondence between donor and recipient language forms is so frequently observed among borrowed argument indexes, but not among any other type of borrowed affixes. An explanation must have to do with the tight paradigmatic integration of argument indexes, which constitute strictly closed systems of forms that function in strictly paradigmatic oppositions, which makes it difficult to add individual forms. Reliance on phonetic correspondences, including incidental ones, thus appears to be a strategy to allow borrowability of inflectional forms even in these cases.

3.3.4 *Tense-aspect-mood/modality affixes*

Tense-aspect-mood/modality (TAM) markers have also been reported to be only rarely borrowed (Matras 2007: 44), yet, again, appear to be frequently borrowed in AfBo languages. A total of 17 languages borrow a total of 51 TAM affixes (Table 5). Note that affixes that cumulatively express tense-aspect-mood/modality in argument indexes (such as in Copper Island Aleut, see Section 3.3.3) are not included in the counts presented in Table 5.

Table 5. Borrowed tense-aspect-mood affixes

			Aspect (12 lgs/42 aff's)					Mood/Modality (6/6)					Tense (3/3)
		Affixes/ language	perfective	perfect, accomplished, completed	repeated, iterative, habitual	iimperfective	other aspect	hortative, imperative	suggestive	happenstance	desiderative	hypothetical	future tense (3/3)
1.	Megleno-Romanian	10	10										
2.	Istro-Romanian	8	8										
3.	Quechua de Puno	8			1		7						
4.	Lithuanian Romani	5	5										
5.	Semelai	4				1	2[a]			1			
6.	South Swahili	2		1	1								
7.	Wutun	2	1								1		
8.	Guina-ang Bontok	2		1									1
9.	Malagasy < Swahili	1											1
9.	Malagasy < Malay	1		1									
10.	Hasankeyf Arabic	1		1									
11.	Mari	1			1								
12.	Siwi	1							1				
13.	Brahui	1											1[b]
14.	Sakha	1					1[c]						
15.	Kola Saami	1						1					
16.	Uchur Évenki	1										1[d]	
17.	Sri Lanka Portuguese	1						1					
	Languages/ Function		4	4	3	1	3	2	1	1	1	1	3
	Affixes/ Function		24	4	3	1	10	2	1	1	1	1	3

[a.] one for 'collective activity' and one for 'excessive agent/performer'; [b.] one form for present-future and imperfect; [c.] 'immediate precedence'

It has been noted that some TAM categories are borrowed far more frequently than others, suggesting that some meanings in this domain are more susceptible to being borrowed than others. Matras (2007: 46) proposes the following hierarchy: "modality > aspect/aktionsart > future tense > (other tenses)". This is for free as well as bound forms, and includes structural influence without borrowing of forms; the distinction between mood and modality in this context remains unclear, and will not be further addressed here. While AfBo data confirm the relative infrequency of borrowing tense, they yield different results with respect to the relative frequency of borrowing aspect and mood/modality categories. From Table 5, the following hierarchy clearly emerges: aspect > mood/modality > tense.

For individual values within these three broad categories (mood/modality, aspect, and tense), AfBo data confirm that within tense, the most borrowable value is future, which is the only one attested (three times). Within modality Matras (2007: 45) proposes the following hierarchy: obligation > necessity > possibility > ability > desire. AfBo provides weak evidence for the relatively high borrowability of obligation, as this is the only mood/modality category that is attested to be borrowed in more than one language.

No implicational hierarchies or claims about relative frequency have to my knowledge been proposed for the borrowability of different aspect or aktionsart categories, and none emerge from AfBo data either. This is also because the exact function of aspect marking in individual languages often remains unclear, and in any case is difficult to compare across languages. If one assumes that repeated, iterative and habitual can be grouped under imperfective, then all three aspect categories identified in Table 5 have been borrowed in four languages each. Note also that perfective affixes in Table 5 include a large number of prefixes borrowed from Slavic (22 affixes in 3 languages: Lithuanian Romani, Megleno-Romanian, Istro-Romanian), for which it is debatable whether they are inflectional.[4] However, even if these forms are excluded from counts, the hierarchy discussed above still holds: aspect (9 languages/19 affixes) > mood/modality (6/6) > tense (3/3).

3.3.5 *Valency-changing affixes*

Another affix category borrowed surprisingly often is that of valency-changing affixes, found in 10 languages (Table 6). This contradicts Matras (2007: 46), who states that "contact phenomena in the area of voice and valency are almost exclusively pattern-oriented," i.e. do not involve borrowed morphology. Among

4. Arguments against Slavic "perfective" prefixes (also called aktionsart or "inner aspect") being inflectional include the non-compositional meanings of derived forms and the restricted applicability to verb stems. These prefixes are separate from a distinct, clearly inflectional system of tense-aspect-mood suffixes.

borrowed valency-changing affixes, the following frequency hierarchy emerges: passive > causative > reflexive > (others). There are no strong implicational relations among these categories within languages. In fact, passives and causative borrowing appears to be almost in complementary distribution in AfBo languages.

Table 6. Borrowed valency-changing morphology

	Recipient lg.	Donor lg.	pass	caus	refl	appl	recp	*cat/lg*
1	Semelai	Malay	1	1		1		3
2	Tukang Besi	Indonesian	1					1
3	Malagasy	Banjar Malay	1					1
4	Santa	Chinese	1					1
5	Kurux	Hindi	1					1
6	Mari	Chuvash		1	1			2
7	Khanty	Komi Zyrian		1	3			2
8	Cappad. Greek	Turkish		1				1
9	Wutun	Tibetan				1		1
10	Chabacano	Visayan lgs.					1	1
		Languages/category:	5	4	2	1	1	

3.3.6 *Comparative and superlative*

Eight languages borrow comparative and/or superlative affixes, i.e. inherent inflection belonging to adjectives (Table 7). Matras (2007: 59) reports that in his sample, as well as in the sample of Romani dialects analyzed by Elšík and Matras (2006), superlative is more frequently borrowed than comparative. He seems to imply that these are also constrained by a language-internal implication, whereby superlative would only be borrowed if comparative was borrowed. Neither of these relations finds support in the AfBo data, which yield more frequent borrowing of comparative affixes, and five languages that borrow comparative but no superlative affixes. Note that three cases of comparative affix borrowing involve Iranian *-tar* (and cognate forms), an affix which was borrowed from Kurdish in Sonqori, from Makrān Baluchi in Brahui, and from Tajik in Moghol.

3.3.7 *Ordinal numeral derivation*

Numeral formation has hardly been discussed in the language contact literature, yet it is clearly a category that is relatively easily borrowed (see also Seifart 2015a: 529). Eight AfBo languages have borrowed affixes deriving ordinal numerals from native numerals (Kalderash Romani, with one from Romanian and one from Greek; Mari; Uchur Ėvenki; Chabacano; Sebjan Küöl Ėven; Torau; and Alabama, along

Table 7. Borrowed degree markers

	Recipient language	Donor language	Comparative	Superlative	*cat/lg*
1.	Moghol	Tajik	1	1	2
2.	Siwi	Libyan Arabic	1	1	2
3.	Khanty	Komi Zyrian	1	1	2
4.	Western Neo Aramaic/Ma'lūla	Arabic	1		1
5.	Sonqori	Kurdish	1		1
6.	Brahui	Makrān Baluchi	1		1
7.	Northern Tajik	Uzbek	1		1
8.	Mari	Chuvash	1		1
9.	Hungarian	Croatian		1	1
10.	Lithuanian Romani	Russian		1	1
		Languages/category:	8	5	

with Choctaw-Chickasaw). A possible motivation for the frequency of borrowing these categories is the well-known high probability of borrowing higher numerals. These might be borrowed along with ordinal numeral-deriving morphology, which then spreads to the lower native numerals. In addition, AfBo contains a number of affixes forming other kinds of numerals or quantifiers. An example is the "quantitative limiter" affix that Northern Tajik borrowed from Uzbek, as in *yak som-gina* 'one ruble more [e.g. more expensive, cheaper]', and an affix for collective numeral formation, as in *duttalamå* 'both of us', *čårtalamiš* '(with) all four' (Doerfer 1967). Another example is the multiplicative derivational suffix *-TA*, borrowed from Mongolic into Sakha, as in *biːr-diː-te* 'once' (Pakendorf 2015).

3.4 Summary: Asymmetries in borrowing affix categories

This section summarizes the findings about the borrowability of individual categories presented in the previous Section (3.3), beginning with asymmetries in the borrowability of affixes marking different values of the same feature (e.g. comparative vs. superlative for the feature degree), before moving on to discussing the borrowability of features or categories as a whole, such as case vs. number. Table 8 summarizes the findings regarding asymmetries in borrowing affixes for different (sets of) values of the same feature for all affixes that can be categorized into features with different values.

Table 8. Asymmetric borrowability for different values of the same feature, with indications of the total number of affixes borrowed and the total number of languages that borrow an affix

	Feature	Values
1.	diminution/augmentation	diminutive (34/17) > augmentative (4/3)
2.	number	plural (27/15) > dual (3/5) > singular (3/1)
3.	locative case	ablative (5/5) > allative (3/3) > locative (2/2)
4.	argument indexing	subject indexing (50/8) > object indexing (10/2)
5.	tense-aspect-mood/modality	aspect (34/13) > mood/modality (6/6) > tense (3/3)
6.	mood	obligation (2/2) > other mood (1/1)
7.	tense	future (3/3) > other tense (0/0)
8.	valency	passive (5/5) > causative (4/4) > reflexive (4/2) > applicative (1/1)/reciprocal (1/1)
9.	degree	comparative (8/8) > superlative (5/5)

Matras (1998; see also 2007, 2009) proposes that at least some asymmetries in the borrowability of different values of the same feature can be explained by differences in processing demands, whereby a relatively high processing cost more easily results in a breakdown of the language barrier. According to Matras, a higher processing cost arises when the expression of meanings is, e.g., more complex, or when it challenges a speaker's assertive authority. Of the asymmetries reported in Table 8, the relatively high borrowability of future tense marking is in accordance with such explanations, assuming, as Matras does, that the expression of a future event challenges a speaker's authority more than the expression of a present or past event; note in this context that, semantically, future is perhaps closer to mood than to tense. Matras (2007: 46) reports that mood/modality would be more borrowable than aspect marking, for similar reasons. This is at odds with AfBo data, in which aspectual categories are far more frequently borrowed than mood/modality.

It is very likely that the asymmetries summarized in Table 8, to a large extent, reflect asymmetries in overt marking by affixes in potential donor languages. For instance, one reason that plural affixes are more often borrowed than dual affixes is clearly the fact that many more potential donor languages provide for plural affixes compared to dual affixes, i.e. this asymmetry in borrowability reflects to a large extent an asymmetry in "availability".

To address this issue, Table 9 provides scores for "WALS availability", which refers to the percentage of languages for which chapters in the World Atlas of Language Structures Online (Dryer & Haspelmath 2013) report that they express these categories with bound morphology (affixes or clitics) rather than as free

forms or not at all.[5] Scores are provided for all categories (e.g. argument indexing), sub-categories (e.g. tense-aspect), or individual values (e.g. future) for which WALS provides values. The last column indicates adjusted borrowability scores, which factor in the likelihood that a corresponding form is provided by a potential donor language. This value can be understood as the likelihood that a given affix would be borrowed if all potential donor languages provided an affix that could be borrowed.

Table 9. Attested affix borrowing and "WALS availability"

	Function	Affixes	Languages	WALS-availability	Borrowing/Availability
1.	possessor indexing	1	1%	71%	0.01
2.	object indexing	10	2%	45%	0.04
3.	perfective-imperfective	2	2%	45%	0.04
4.	future	3	3%	50%	0.06
5.	verbal negation	2	2%	36%	0.06
6.	definite	1	1%	15%	0.07
7.	subject indexing	50	8%	75%	0.11
8.	passive	16	5%	43%	0.12
9.	verbal tense-aspect	16	10%	85%	0.12
10.	subject/object indexing	60	10%	78%	0.13
11.	plural	27	15%	75%	0.20
12.	case	38	14%	63%	0.22

5. "WALS availability" was calculated using the following information: inflectional marking of future/non-future distinction (Dahl & Velupillai 2013a), assuming that the great majority of these cases overtly mark the future value, rather than only the non-future value; possessor affixes vs. their absence (Dryer 2013a); verbal tense-aspect affixes vs. tone or no tense-aspect inflection (Dryer 2013b); distinction between imperfective and perfective signalled by morphological means, rather than being expressed periphrastically or not at all (Dahl & Velupillai 2013b), noting that the assumption is that perfective is overtly marked, rather than only imperfective; case expressed by affixes or clitics, rather than by other means, e.g. tone, stem change, or (non-cliticized) adpositions, or not at all (Dryer 2013c); plural expressed by affixes or clitics, rather than by other means, e.g. tone, reduplication, separate words, or not at all (Dryer 2013d); bound person indexing vs. its absence (Siewierska 2013a); negative affixes attached to the verb (Dryer 2013e); passive, meaning morphological marking of passive on the verb vs. its absence (Siewierska 2013b); and definite expressed by an affix on the noun, rather than a word or no indefinite article at all (Dryer 2013f). For the presence of affixal subject vs. object indexing WALS provides no data, so a different source was used (Siewerska & Bakker 2008). Note that for borrowed tense-aspect affixes, "perfective" prefixes borrowed from Slavic are excluded, in order to only include inflectional tense-aspect marking, as in the WALS chapters.

Table 9 shows that borrowability, in terms of numbers of languages that borrow an affix from a particular category, and worldwide frequency of expressing that category with an affix – a proxy for the likelihood that a potential donor language includes an affix that could be borrowed – are highly correlated (a Spearman correlation test indicates a strong positive correlation, $R = 0.72$, that is highly significant with a two-tailed p-value of 0.01), indicating that the probability of borrowing an affix is strongly determined by whether it belongs to a category that is likely to be expressed by affixes.

However, since the correlation is not perfect, the comparison between attested borrowing and WALS-availability sharpens our understanding of affix borrowability. For instance, plural affixes are truly more borrowable than subject indexing, as both categories are just as likely to be marked by affixes in the languages of the world (75% WALS availability), but plural affixes are borrowed almost twice as often. On the other hand, passive affixes appear to be more borrowable than their attestation in only 5% of AfBo languages might suggest, given the low frequency of passive affixes in the languages of the world (43% WALS availability). From this, three groups of affixes emerge as distinctly borrowable: rows 1–6 with low (corrected) borrowability scores of 0.01–0.07, rows 7–10 with mid borrowability scores of 0.11–0.13, and rows 11–12 with high borrowability scores of 0.20–0.22.

Leaving aside the first group, which contains a mixed set of mostly very poorly attested affix types, Table 9 allows us to recognize a homogenous group in terms of borrowability scores (between 0.11 and 0.13), which includes all major verbal inflectional categories: argument indexing, passive, and tense-aspect marking. This group is clearly distinct from the major nominal inflectional categories, plural and case, which have (corrected) borrowability scores about double that of this group. Contrary to previous claims about the relatively high borrowability of plural affixes compared to case affixes, these two come out as practically equally borrowable. Note that gender, as another major nominal inflectional category, could not be included here because it was not consistently coded in AfBo, although it does occur, e.g. as part of cumulative expression with argument indexing.

The findings presented in Table 9 thus suggest that affix borrowability is not only determined by properties of affixes themselves, but also strongly determined by properties of the stem to which affixes attach, in particular in terms of part of speech (see further discussion in Section 5).

4. Morphosyntactic Subsystem Integrity

4.1 Paradigmatic and syntagmatic interrelatedness

The previous sections investigated semantic/functional properties of individual morphemes that constrain affix borrowing. The following sections investigate a constraint on affix borrowing that applies to sets of two or more borrowed affixes in one language, meaning it applies to the relationship between the borrowed affixes rather than properties of affixes themselves. This is important for two reasons. First, languages very often borrow entire sets of affixes, rather than just one single affix: 73 out of the 100 language pairs contained in AfBo borrow more than one affix and 64 borrow more than two. Second, to a greater degree than free forms, affixes are often more or less tightly integrated in morphosyntactic subsystems, e.g. case or tense marking systems.

Seifart (2012) proposes that sets of borrowed affixes tend to consist of internally interrelated affixes rather than being isolated, non-interrelated forms, based primarily on data from Resígaro, and to some extent Sebjan-Küöl Èven, Chabacano, Warndarang, Ngandi, and Ritharngu. In the current section, this proposal will be tested using the 73 language pairs contained in the AfBo database that borrow two or more affixes. The specific hypothesis to be tested is provided by the Principle of Morphosyntactic Subsystem Integrity (PMSI) (Seifart 2012: 475):

(11) Borrowing of paradigmatically and syntagmatically related [affixes] is easier than borrowing of the same number of isolated [affixes].

In this context, "paradigmatically related" affixes are those that are used interchangeably in the same slot of the morphological template of a given word class, e.g. a dative vs. accusative case marker, a first person vs. second person subject marker, or a past vs. future tense marker. Paradigmatic relatedness is characteristic of prototypically inflectional markers but can also be observed in, e.g., positive-negative marking systems (12). Borrowed forms in the examples in this section are in boldface. For further details on the languages discussed in this section see the respective entries in Seifart (2013):

(12) Persian *ba-/bi-* in Azari (Dehghani 2000: 97)
  (a) ***ba****-ädäb* 'polite' vs. ***bi****-ädäb* 'impolite'
  (b) ***ba****-savad* 'literate' vs. ***bi****-savad* 'illiterate'

Other sets of derivational affixes are often only weakly interrelated, but still form structured sets. An example are Spanish "characterizing suffixes" in Quechua (13), which, according to Muysken (2012: 385) "almost operate in paradigmatic opposition [expressing] a series of related meanings [...]: profession, typical behaviour,

personal propensity, remarkable physical characteristic, resemblance, affective negative, pejorative, affective positive, endearment, diminutive".

(13) Spanish "characterizing suffixes" in Quechua
  (a) *-dor* 'profession', e.g. *michi-**dor*** 'shepherd'
  (b) *-iru* 'profession', e.g. *yamt-**iru*** 'firewood gatherer'
  (c) *-nyentu* 'behaviour/propensity', e.g. *mallaq-**nyentu*** 'hungry'
  (d) *-liju* 'behaviour/propensity', e.g. *mancha-**liju*** 'easily scared'
  (e) *-itu* ~ *-ita* 'diminutive', e.g. *pishq-**ito*** 'little bird'

The second way in which affixes may be interrelated is by syntagmatic relations, i.e. if they regularly co-occur according to morphosyntactic rules of the language. Syntagmatic relatedness is much rarer and harder to detect in the data and descriptions, but it can be observed, e.g., in Kormakiti (Cypriot) Arabic, where gender-number suffixes (borrowed from Greek) only occur together with a likewise borrowed diminutive suffix: *payt-**u-i*** 'little house', *payt-**u-kkya*** 'little houses', *mišl-**u-a*** 'little ladle', *mišl-**u-es*** 'little ladles' (Borg 1985: 125–126). Other examples of syntagmatic interrelatedness include Russian past tense, feminine, and first person singular suffixes (or enclitics) in Copper Island Aleut, e.g. *ayxacā=**l=a=ya*** (start-PAST-FEM-1SG) 'I started' (Golovko & Vakhtin 1990: 108); and Bora classifiers and number markers in Resígaro (14).

(14) Bora classifiers and number markers in Resígaro (Seifart 2012: 484)
  (a) *ókóniigi*
    'burning, fire'
  (b) *ókóniigi-**huú***
    fire-CL.TUBE
    'rifle'
  (c) * *ókóniigi-**hi***
    fire-PL
  (d) *ókóniigi-**huúú-hi***
    fire-CL.TUBE-PL
    'rifles'

There are also instances of discontinuous pairs of syntagmatically related affixes. For instance, the Zamboangueño Chabacano reciprocal suffix *-han* (borrowed from Visayan languages) occurs only in combination with the borrowed verbalizer prefix *man-*, as in ***man**-kwénto-**han*** 'to tell each other'. Another example is Russian *bez-* 'without' in Yiddish, which "seems to be limited to constructions with *-ńik* [also from Russian] in pejorative vocabulary" (Weinreich 1958: 378), e.g. ***bez**-buš-**ńik*** 'shameless person'.

The effect of the PMSI is that borrowed affixes form "chunks" in the morphosyntax of the recipient language, affecting a small number of subsystems, leaving others unaffected. Accordingly, the pattern in Warndarang (Figure 1) is predicted to be the preferred one, while the one in Ritharngu (Figure 2) is predicted to be the dispreferred one.

3 out of 8 noun class prefixes borrowed	2 out of 6 case suffixes borrowed
ŋa- 'masc. sg/place name nouns'	***-wala*** 'ablative'
ŋi- 'feminine singular/some faunal nouns'	***-miri*** 'instrumental'
yiri- 'dual'	*-ñiyi* 'allative'
yili- 'paucal'	*-ni* 'purposive'
wulu- 'plural'	*-yaŋa* 'locative'
(ŋ)a- 'indefinite/non-human class I'	
wu- 'non-human class II'	(other subsystems unaffected)
ma- 'non-human class III'	

Figure 1. Interrelated affixes borrowed from Nunggubuyu in Warndarang (Heath 1978a, 1980a)

-kaʔ 'kin-term dyadic dual'
-ʔmayʔ 'negative' suffixed to verbs or other constituents
-bukiʔ postposition 'only' (rarely used)
-ʔwañjiʔ 'semblative case'

Figure 2. Isolated affixes borrowed from Ngandi in Ritharngu (Heath 1978a, 1980b)

4.2 Overall interrelatedness

From the annotation of affix interrelatedness in AfBo, it can be shown that of the 649 borrowed affixes contained in AfBo, 531 are morphosyntactically interrelated with at least one other borrowed affix. The percentage of interrelated affixes among the sets of borrowed affixes is on average 76% for the 73 AfBo language pairs that have two or more attested borrowed affixes (Table 10). In 28 of these language pairs, all of the borrowed affixes are interrelated, in 35 language pairs, 90% or more of the borrowed affixes are interrelated, and in 63 language pairs, 50% or more of the borrowed affixes are interrelated.

Table 10. Heaviness of affix borrowing and interrelatedness

Heaviness of borrowing	Mean interrelatedness	Lowest interrelatedness
24 borrowed affixes (27 language pairs)	63%	0%
58 affixes (26 language pairs)	79%	40%
9 or more borrowed affixes (22 language pairs)	88%	50%
Total (73 language pairs)	**76%**	–

From Table 10, the following specific predictions emerge: (1) if five or more affixes are borrowed, at least some of them will be interrelated; and (2) if nine or more affixes are borrowed, at least half (i.e. five) of them will be interrelated. According to the PMSI, it is thus dispreferred to borrow non-interrelated affixes. However, such cases are also attested, even though the figures in Table 10 show that they are the exception rather than the rule: for instance, Mari has the highest number of non-interrelated affixes in one language, namely six (out of a total of 12 borrowed affixes), and two languages have five non-interrelated borrowed affixes: Sakha (total of 14 borrowed affixes) and Kalderash Romani (total of 11 borrowed affixes). For Ritharngu, see Figure 2.

The PMSI thus captures a descriptive fact about affix borrowing: sets of borrowed affixes tend to be interrelated, accounting for some data that are left unaccounted for by predictions about borrowability that are based on properties of individual morphemes. For instance, the prediction that derivation is more frequently borrowed than inflection predicts that borrowing a case affix is rare, but it cannot predict which other affix is likely to be borrowed once a case affix is borrowed. The PMSI is consistent with the general tendency to avoid the restructuring of tightly integrated morphosyntactic subsystems in language contact, as its effect is that (1) only a few morphosyntactic subsystems are affected by borrowed affixes; and (2) affected subsystems may be affected to a high degree, possibly made up mostly or only of borrowed affixes. The PMSI thus shows how this tendency prevails in situations of heavy contact-induced change, namely the borrowing of entire sets of affixes.

4.3 Different effects on different subsystems

As can be expected, some morphosyntactic subsystems are more likely to attract interrelated borrowed affixes than others. Tables 11–14 summarize the proportions of (paradigmatically related) borrowed affixes in different types of morphosyntactic subsystems, namely classifier/noun class systems (excluding

gender exclusively used for humans, which is coded separately in AfBo), verbal derivational subsystems, argument indexing systems, and case marking systems.

Table 11. Interrelatedness of borrowed affixes in classifiers/noun class systems

	Recipient lg.	Donor lg.	Classifier type	# borrowed affixes	Subsyst. size	% borrowed
1	Resígaro	Bora	noun class	40	41	98%
2	Manange	Nepali	numeral classifiers	1	1	n.a.
3	Assamese	Tibeto-Burman	numeral classifiers	17	17	100%
4	Ndunga-le	Lingala	noun class prefixes	4	4	100%
5	Warnda-rang	Nunggubuyu	noun class	3	8	37.5%

Table 12. Interrelatedness of borrowed affixes in some verbal derivational subsystems[a]

	Recipient lg.	Donor lg.	Subsyst.	# borr. affixes	Subsyst. size	% borrowed
1	Megl. Romanian	Bulgarian	aktionsart prefixes	10	13(?)	76.9%
2	Quechua de Puno	Aymara	aspect, direction	8	?	?
3	Istro Ro-manian	Croatian	aktionsart prefixes	8	8(?)	100%(?)
4	Lithuanian Romani	Russian	aktionsart prefixes	6	6(?)	100%(?)
5	Khanty	Komi Zyrian	valency (REFL/ CAUS/INTRANS)	5	?	?
6	Arvanitic Albanian	Greek	prepositions used as preverbs	5	8	62.5%
7	Semelai	Malay	aspect prefixes	4	4	100%
8	Cho'ol	Spanish	bound adverbial particles	3	?	?
9	Wutun	Tibetan	"verb complements"	3	20	15%
10	Semelai	Malay	middle/ causative prefixes	2	2	100%
11	Semelai	Malay	applicative suffix	1	1	n.a.

[a] For borrowed valency-changing affixes, see also Table 6 in Section 3.3.5.

Table 13. Interrelatedness of borrowed affixes in argument indexing systems[a]

	Recipient lg.	Donor lg.	# borrowed indexes	# indexes in recip. lg.	% borrowed
1	Sebjan Küöl Ėven	Sakha	21	21	100%
2	Copper Island Aleut	Russian	13	13	100%
3	Bilin	Tigre	8	8	100%
4	Uchur Ėvenki	Sakha	6	6	100%
5	Kwerba Kasonaweja	Warembori	3	3	100%
7	Sonqori	Kurdish	2[b]	6	(>)33%
8	Cappadocian Greek	Turkish	2	6	33%
9	Megleno-Romanian	Bulgarian	2	6	33%
6	Ingrian Finnish	Estonian	2	?	?
10	G|ui G‖ana	Shua Tshwa	1	?	?

[a] See also Table 4 in Section 3.3.3.
[b] Only two object suffixes are attested in existing corpora, but probably more are used, maybe all six.

Table 14. Interrelatedness of borrowed affixes in case marking systems[a]

	Recipient language	Donor language	# borrowed case affixes	Total # case affixes in recipient lg.	% borrowed
1	Gurindji Kriol	Gurindji	6	6	100%
2	Northern Tajik	Uzbek	5	6	83%
3	Warndarang	Nunggubuyu	2	5	40%
4	Mari	Chuvash	4	11	36%
5	Uru	Aymara	3	9	33%
6	Ngandi	Ritharngu	2	7	29%
7	Wutun	Tibetan	2	7	29%
8	Middle Mongolic	Turkic	2	7	29%
9	Amuesha	Quechua	1	4	25%
10	Línxìa Chinese	Santa	1	4	25%
11	Chantyal	Nepali	4	22	18%
12	Moghol	Tajik	1	7	14%
13	Resígaro	Bora	1	13	8%
14	Ritharngu	Ngandi	1	14	7%

[a] See also Table 3 in Section 3.3.2.

Table 15 summarizes the average proportions of borrowed affixes in different types of subsystems. It is difficult to draw conclusions about verbal derivational

systems, because these are of diverse types, including valency-changing affixes, tense-aspect-mood affixes, etc. The difficulty is increased by the uncertainty about the overall size of the systems and the paradigmatic interrelatedness of affixes in some cases. Noteworthy are the high proportions of interrelated borrowed argument-indexing affixes: in half of the languages, the set of argument indexes is entirely borrowed. For the remaining languages, there are special circumstances that may explain why individual affixes, but not all of them, were borrowed: in four cases, there are close phonological correspondences between the donor and recipient language forms, either because the languages are closely related (Ingrian Finnish, G|ui G‖ana) or because of incidental correspondence (Cappadocian Greek, Megleno-Romanian). In the fifth language, Sonqori, only two object enclitics are attested in existing corpora, but probably more are used, maybe all six. The high proportion of borrowed affixes in argument indexing systems contrasts in particular with the low proportion of borrowed affixes in case marking systems. This can be taken to reflect the tighter paradigmatic integration of argument indexes when compared to case markers: it is clear that individual case categories, especially non-core cases, can be added more easily to a given case system when compared to argument indexes that operate in strictly paradigmatic opposition of a small set of values, typically person and number.

Table 15. Summary of interrelatedness in different morphosyntactic subsystems

Subsystem	Languages	Average number of interrelated affixes	Average proportion borrowed in subsystem
case markers	14	2.5	34%
argument indexes	10	6.1	75%
verbal derivation	29	2.5	(79%)
classifiers/noun class	5	(13)	(87%)

4.4 Summary: Interrelatedness in sets of borrowed affixes

In summary, the previous sections have shown that there is a tendency towards interrelatedness among sets of borrowed affixes across different types of morphosyntactic subsystems in a sample of 73 language pairs that borrow two or more affixes. Cases like Ritharngu, which borrow only unrelated affixes, thus turn out to exhibit a relatively rare pattern of affix borrowing. Comparison of interrelatedness in different inflectional subsystems suggests that more tightly integrated subsystems, such as argument indexes, display a stronger tendency to include interrelated borrowed affixes than less tightly integrated subsystems, such as case marking systems. Note that among the subsystems with the highest proportion of borrowed

affixes are those of the two mixed languages included in this study, Copper Island Aleut (Golovko & Vakhtin 1990, Sekerina 1994, Thomason 1997) and Gurindji Kriol (McConvell & Meakins 2005, Meakins 2011a, 2011b). As argued in Seifart (2012) and Evans (2016), these languages represent natural extensions of the PMSI by dividing etymologically distinct sets of morphological material precisely along the lines of tightly integrated morphosyntactic subsystems.

5. Summary and conclusion

This article has presented an empirical study on the borrowability of affixes. In particular, it has looked at the differential borrowability of different types of affixes, based on inherent semantic-functional properties of individual morphemes, and the interrelatedness of sets of affixes. From a methodological point of view, it has been shown that it is possible and fruitful to quantitatively study outcomes of language contact, even for relatively rarely borrowed features such as inflectional affixes, to uncover regular patterns and tendencies. The current study supplied reliable figures on the borrowability of inflectional and derivational categories that control for two important potentially confounding factors: first, bondedness, i.e. the fact that free forms are more likely to be borrowed than bound forms; and second, "availability", i.e. the fact that a given category may be more frequently borrowed than another due to the simple fact that it is expressed with affixes relatively frequently in the languages of the world.

Regarding inherent semantic-functional properties of individual morphemes, the current study supports the often repeated but never before quantitatively tested claim that derivational affixes are more likely to be borrowed than inflectional affixes, and that, within inflectional affixes, inherent inflection is more likely to be borrowed than contextual inflection. However, the current study has also shown that borrowing inflectional affixes, including contextual inflection, is not as rare as previously assumed. Borrowing of all major nominal inflectional categories is well attested, and – against previous claims – borrowing case markers is roughly as frequent as borrowing plural markers. Within verbal inflectional categories, argument indexing, tense-aspect marking, and passive are all about equally well attested.

Figures adjusted for "availability" showed that borrowing nominal inflection is considerably more frequent than borrowing verbal inflection, suggesting that the part of speech of the stem to which affixes attach is a strong predictor for affix borrowability.

The current study also established differential borrowability for a range of individual "values" of inflectional features such as dative vs. ablative case, comparative

vs. superlative degree, and future vs. non-future tense. In this context, some previous claims were confirmed (e.g. future > other tense values), while others received no support (e.g. aspect > modality, not vice versa). However, it remains unclear to what extent these observed differential borrowabilities reflect asymmetries in "availability": the strong correlation between "availability" and borrowability observed for some categories in the current study suggests that some other differential borrowabilities, e.g. future > other tense values, are also at least partially due to the fact that the more frequently borrowed values are also the ones that are more frequently overtly marked.

The current study has also shown that in addition to inherent semantic-functional properties of individual morphemes and the parts of speech of the stems, affix borrowability is also influenced by morphosyntactic interrelatedness of affixes. Specifically, the integration of affixes into morphosyntactic subsystems facilitates borrowing sets of interrelated affixes over borrowing sets of individual, isolated forms from different morphosyntactic subsystems.

The overall conclusion from this study is that borrowing inflectional affixes from all major nominal and verbal inflectional categories is more frequent than previously assumed and that it is structured by a number of regular patterns. One clearly observable pattern within inflectional affix borrowing is that nominal categories are more frequently borrowed than verbal categories. Another is that borrowing partial and sometimes even complete sets of interrelated inflectional affixes, rather than sets of isolated forms, is more frequent than has been supposed in the past. These findings call for a reconsideration of the borrowability of inflectional affixes in models of language contact, suggesting that it should be accounted for within a model of language contact (Thomason 2015) rather than treating it as a rare exception (Matras 2015).

The challenge here lies in accounting for a historical process that may lead to borrowing inflectional affixes. Unlike derivational affixes, inflectional affixes such as argument indexes and case markers are only rarely observed to attach to native (i.e. matrix language) stems in code-switching (Myers-Scotton 2007). Consequently, they are usually not initially borrowed as part of complex loanwords (the exception being "parallel system borrowing" described by Kossmann 2010) and spread to native stems only at a later stage, as often happens with derivational affixes. How, then, do we account for the attested borrowing of inflectional affixes reported in the current study? It seems that an account of this will have to be complex, acknowledging various possible historical pathways. For instance, Meakins' (2011b) analysis of linguistic practices over the past decades that led to the formation of Gurindji Kriol showed how an ergative case marker entered the language through insertional code switching. On the other hand, for Resígaro,

which borrowed a dative case marker, the available evidence suggests that code switching played no role (Seifart 2015b).

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Abbreviations

1	1st person	INSTR	instrumental
2	2nd person	PAST	past
3	3rd person	PL	plural
CL	classifier	SG	singular
COMPA	comparative	SUPER	superlative
DISTR	distributional	TEMP	temporal
DU	dual	VOC	vocative
FEM	feminine		

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