

From Synchrony to Diachrony: Topic Saliency and Cross-Linguistic Patterns of Agreement*

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Abstract

Recent advances in Optimality theoretic syntax are characterized by attempts toward a unified approach to linguistic typology and language-internal variation. On the other hand, studies in synchronic (sociolinguistic) variation have long recognized and articulated the obvious link between language variation and historical change. Yet these domains of research continue without much reference to the relation between synchronic typology and diachronic change. This paper attempts to bridge the long-standing gulf between synchronic typology and diachronic (morpho)syntax. The agreement systems in Bantu languages provide an excellent empirical tool for such an attempt, because the historical source of agreement—the notion of ‘topic salience’—is quite transparent in the synchronic grammars. Furthermore we observe variation in the agreement properties across the Bantu family that suggests a path of diachronic change. I argue that the system of universal, violable constraints in OT enables us to provide a unified approach to synchrony and diachrony by situating the variation in a diachronic context within a single typological space.

1 The Nature of Morphosyntactic Variation and Change

One of the most significant contributions in the study of typology and linguistic universals represented by the work of Joseph Greenberg is a deeper understanding of the relation between synchrony and diachrony of language. Greenberg’s work on diachronic typology (e.g. Greenberg 1969, 1978) recognizes the inseparability of synchronic typology and historical change. The global view of language one finds in Greenberg’s work in diachronic typology is succinctly characterized by Croft, Denning, and Kemmer (1990:xiii):

The unification of diachrony and synchrony found in diachronic typology results from a transcendence of the abstraction of the language state. Synchronic typology, like other varieties of synchronic analysis, examines states or systems of grammatical structures such as the word order combination Subject-Verb-Object (SVO) and Noun-Genitive. Diachronic typology “dynamicizes” the synchronic model by reinterpreting synchronic language states as stages in a diachronic process. One then analyzes the transitions between states or stages and the stability and frequency of occurrence of sequences of stages. So-called “exceptions” to synchronic universals, such as a combination of SOV and Noun-Genitive word orders, usually turn out to be unstable transitory stages in a more or less gradual diachronic process.

This view of the relation between synchrony and diachrony asserts that synchronic states are highly variable, but the variability and complexity of synchronic states in a typology of grammatical structure can be systematically accommodated once such synchronic variation is appropriately placed in historical context. In variation studies, that linguistic change is always preceded by social, dialectal, or register variation is a fundamental notion since the beginning of modern sociolinguistic theory (Labov 1966). Labov (1994) argues explicitly that through the study of language variation, it is possible to observe linguistic change in progress. Although synchronic variation can be observed independently of historical change—that is, not all instances of synchronic variation lead to change, Labov’s view of language, too, nonetheless points towards the idea that synchrony and diachrony of language are inextricably linked.

The tendency observed by typologists that cross-linguistic variation arises during historical change, and variationists’ view that synchronic variation is indeed the source of historical change are particularly transparent in the agreement systems of Bantu languages. In what follows, I outline the relation between synchrony and diachrony that is evident in Bantu agreement systems to motivate the line of inquiry pursued in the present work.

1.1 Evolution of Agreement Systems

According to typologists, agreement systems evolve from a topic construction, in which a full (morphologically unreduced) pronoun is used to refer to the topic NP anaphorically. The anaphoric pronoun is then reduced to a clitic-like element, though still retaining the pronominal content. It is then further reduced to a morphologically dependent affix, with the subsequent loss of the pronominal content to a mere agreement marker. The evolution of subject agreement can thus be characterized schematically as in (1) (adapted from Givón 1979).

(1)	Topic pronoun		Clitic pronoun		Subject agreement
	<u>The man</u> , <u>he</u> came	⇒	<u>The man</u> <u>he</u> -came	⇒	<u>The man</u> <u>he</u> -came
	TOP PRO		TOP PRO		SUBJ AGR

Givón (1979) argues that “grammatical agreement is fundamentally a topic related phenomenon, arising from anaphoric pronominalization in topical discourse contexts” (p.185).

As we will see in the course of the discussion, topicality as the source of agreement morphology is quite clearly articulated in Bantu head-marking morphology. Yet many of the syntactic analyses of present-day Bantu agreement systems fail to recognize the role of topicality. The aim of this paper is therefore to examine the variation in the patterns of argument linking across Bantu languages, and argue that once we recognize the crucial role topicality plays in the grammars of these languages, we can provide a principled account of the variation observed in subject agreement and a set correlating facts, which would otherwise be treated independently of the system of agreement.

The discussion in this paper proceeds as follows. In the remainder of this section, I briefly outline some observations about Bantu subject agreement. In section 2 I motivate the two-fold systems of agreement observed across Bantu, topic vs. subject agreement. Crucial evidence comes from the construction referred to as ‘subject-object (S-O) reversal’, in which the topical object triggers what looks like “subject” agreement, which I will argue to be ‘topic agreement’. In section 3, I lay out some cross-linguistic facts that correlate with the variation in the properties of the head-marking morphology. These include the presence/absence of non-topical subjects and presence/absence of different types of reversal constructions. In section 4, I motivate two types of topic in Bantu, external and internal topic. These types of topic will show distinct formal and discourse properties. Section 5 proposes a formal model in which topicality plays a central role in Bantu agreement systems.

1.2 Agreement in Bantu

Bantu languages are characterized primarily as head marking languages, and the subject and object markers on a verb cross-reference the verb’s arguments by agreeing in person, number and gender, of which there are (typically) 16 classes. However, Bresnan and Mchombo (1987), whose detailed study of the head-marking morphology focuses on Chicheŵa subject and object markers, show conclusively that the Chicheŵa object marker (OM) is unambiguously topic-anaphoric, while the subject marker (SM) is ambiguous between anaphoric and grammatical agreement. That is, the object marker functions as a pronominal argument, hence in complementary distribution with a *clause-internal* object NP. They also observe that the facts about object marking in Chicheŵa do not automatically extend across the whole Bantu family. For example, Swahili requires object marking for definite objects (originally noted by Bokamba 1981; also Wald 1979); in the Imithupi dialect of Makua studied by Stucky (1981, 1983), the OM is obligatory for the human classes (classes 1 & 2) even when the overt object NP is not topical (see Morimoto 2000 for most recent discussion of these facts). These cross-linguistic data can be viewed as various stages of the gradual loss of the inflectional morphology and rise of positional

licensing for objects.

A closer look at subject marking in other Bantu languages also reveals that facts in those languages diverge from the findings reported by Bresnan and Mchombo on Chicheŵa. Bresnan and Mchombo (p.778) note that in Dzamba, although all arguments inside VP can be questioned in situ, as in (2b), the subject cannot be questioned in its initial position, as shown by the ungrammaticality of (2c). In order to question the subject, a relative clause must be used, as shown in (2d).

- (2) a. ó-Nebo a-imol-aki ó-Biko e-kondo loo mé. Dzamba
'Nebo told Biko a story/tale today.'
- b. ó-Nebo a-imol-aki **nzányí** e-kondo loo mé?
(lit.) 'Nebo told who a story today?'
- c. ***nzányí** a-imol-aki ó-Biko e-kondo loo mé?
'Who told Biko a story today?'
- d. ó-Moto ó-wimol-aki ó-Biko e-kondo loo mé **nzányí**?
(lit.) 'The person who told Biko a story today is who?'

Based on such data, Bresnan and Mchombo speculate that unlike Chicheŵa, in which the subject can be questioned in its initial position, in Dzamba, all subject NPs must necessarily be grammaticized topics. They further note, citing Bokamba (1981), that Dzamba has 'nominal pre-prefixes' which are obligatory on definite NPs. In example (2), we see the pre-prefix ó- (e.g. ó-Nebo, ó-Biko). Such pre-prefixes are obligatory on subjects. This supports their hypothesis that all subjects are obligatorily grammaticized topics.

These data from Dzamba immediately raise a number of questions regarding the exact nature of the prefix agreeing with the preverbal NP. Is the agreement prefix a subject marker, being ambiguous between grammatical and anaphoric agreement like Chicheŵa? If so, how do we ensure that in these Dzamba-type languages the preverbal NP is always topical? Or is it always a topic-anaphoric pronoun agreeing with the subject, like the Chicheŵa object marker? Note that this preverbal agreement marker is different from the Chicheŵa object marker in one important respect: unlike the object marker, the subject marker is obligatorily present in every finite clause. Thus, one obvious consequence of this analysis is that the overt preverbal NP must always be outside the minimal clause nucleus containing the verb. Is there evidence that the preverbal NP is always dislocated? Each of these possibilities about the nature of this prefix has been either assumed or discussed explicitly. The possibilities for different analyses prompted by these questions implicate diverging empirical consequences, for any claim about the properties of the agreement morphology in a given language in turn offers a particular analysis for a larger domain in the syntax of the language.

A third alternative which has not been thoroughly explored is that this prefix which agrees with the preverbal NP, typically the subject, is in fact not marking a subject per se, but it is marking a topic. This view of the agreement morphology makes a range of predictions that need to be tested. Most crucially, not only does this view predict that we find no non-topical element triggering agreement with the prefix in question, but it also predicts that a non-subject topical element should also trigger agreement. A subset of Bantu languages including Dzamba allow precisely this configuration. The construction has been referred to as subject-object reversal, in which the canonically postverbal object appears preverbally, and triggers "subject" agreement. An illustrative example is given in (3) from Dzamba (Bokamba 1979:11). The prefix AGR agrees with the preverbal NP, as indicated by the arrow.

- (3) Í-nz-eté (**ngó**) i-kpét-él-éki óPetelo bâzi wââbo. Dz. S-O reversal
 trees TOP AGR-cut-APPL-PAST Peter woman here
 ↑
 ‘(As for) the trees, Peter cut for some women here.’ (Bokamba 1979:11)

The (optional) morpheme *ngo* marks the topic, indicating that the preverbal NP is indeed topical. The postverbal NP in reversal receives the contrastive focus interpretation, suggesting that postverbal position—either sister to V or adjoined to VP—is a designated focus position. In the present work it will be shown that that is indeed the case for the majority of Bantu languages, with the parametric choice between the position immediately adjacent to V or adjoined to VP.

The other languages mentioned above that share the topical nature of the preverbal NP consistently exhibit this subject-object inversion construction. One exception is Sesotho. Setawana (or Setswana)¹ also requires the preverbal NP to be topical but does not allow subject-object reversal (cf. Demuth and Mmusi 1997).

Concentrating on subject marking in Bantu languages, in the next section I argue that what has uniformly been taken to be the subject marker in Bantu languages in fact represents two types of agreement system: subject versus topic agreement. I provide evidence for this claim and explore the empirical consequences and theoretical implications. Once we examine other parts of the grammar of these languages, it becomes clear that previous analyses of S-O reversal are untenable, because they encounter difficulty providing a coherent picture of Bantu grammar.

2 Topic Agreement: Evidence from Subject-Object Reversal

A subset of Bantu languages exhibits subject-object (S-O) reversal, illustrated in (4) from Kinyarwanda (Kimenyi 1980).²

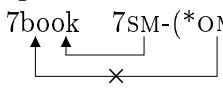
- (4) a. Umuhuûngu a-ra-som-a igitabo.
 1boy 1-PRES-read-ASP 7book
 ‘The boy is reading the book.’
- b. Igitabo ki-som-a umuhuûngu.
 7book 7SM-PRES-read-ASP 1boy
 (lit.) ‘The book is reading the boy.’
 (‘The book is being read by the boy.’) Kinyarwanda

The examples are often translated as either cleft or passive sentences; unlike the passive, however, S-O reversal requires no verb morphology, which generally indicates demotion or promotion of arguments, or some relation change in the argument structure.

One of the most notable characteristics of S-O reversal is that the preverbal NP (patient) triggers agreement on the verb. In (4a), the class 1 prefix *a-* on the verb agrees the logical subject *umuhuûngu* ‘boy’. In the reversal sentence in (4b), the prefix is class 7, agreeing with the logical object (*igitabo* ‘book’) in preverbal position. This agreement pattern is more clearly indicated in (5). As shown, unlike the more familiar left-dislocation, the object marker agreeing with the fronted patient is never present in S-O reversal.

¹Setawana and Setswana are considered to be two varieties of the same language.

²Some of the data presented in this section have been generously provided by Alexandre Kimenyi for Kinyarwanda and Juvénal Ndayiragije for Kirundi. Tones are omitted for any examples elicited via email communication.

- (5) Igitabo ki-som-a umuhuûngu. reversal
 7book 7SM-(*OM)-PRES-read-ASP 1boy

 (lit.) ‘The book is reading the boy.’
 (‘The book is being read by the boy.’)

The fact that the preverbal patient in reversal apparently triggers subject agreement has led researchers in early work to analyze S-O reversal as involving inversion of grammatical relations (e.g. Bokamba 1976, 1979, 1985, Kimenyi 1980, 1988, Morimoto 1999): the patient (object) is fronted to the subject position and assumes the subject function and agent (logical subject) is postposed to the VP-internal object position. This GF reversal analysis is somewhat analogous to the analysis of inversion in other languages: English, Chicheŵa, and Chishona, for example, exhibit inversion of the theme subject and locative complement (e.g. *Out of the bushes appeared a giant bear*; cf. Bresnan and Kanerva 1989, Harford 1990, Bresnan 1994); Sesotho and Setswana additionally allow inversion that involves (intransitive) unergative predicates (e.g. equivalent of *In the field are grazing the cattle*; see Machobane 1995, Demuth and Mmusi 1997, Lødrup 1999). In these constructions, the preverbal locative is analyzed as the grammatical subject and the logical subject in postverbal position as object, inducing a true grammatical relation change; see Morimoto (1999) for an earlier OT account of all three language types including the Kirundi/Kinyarwanda type with agent-patient reversal. The postverbal agent in S-O reversal has also been analyzed not as an object but as a demoted argument (e.g. *chômeur* in Kimenyi’s (1980) analysis in Relational Grammar).

Recent work within the Principles and Parameters approach has analyzed S-O reversal as involving raising of the object to some functional projection usually reserved for the subject (e.g. SpecIP in Kinyalolo (1991), SpecTP in Ura (1996), Ndayiragije (1999)) and verb raising (to I or T). The logical subject either remains in its VP-internal position (cf. Kinyalolo, Ura) or raises to a specifier of FocusP above VP (cf. Ndayiragije). The latter (FocusP) alternative is intended to capture the focalization effect of this construction, as also widely attested in SV languages in general.

It will become clear in the discussion that it is not necessary to assume that S-O reversal involves true inversion of grammatical relations between the agent and patient, as has been argued for locative inversion in other languages (e.g. Chicheŵa, English, Sesotho, Setswana; see the references cited above). I show that there are several advantages for not adopting such an analysis, and that the alternative analysis pursued in the present work which crucially relies on the grammaticized notion of TOPIC enable us to explain a broader range of related facts. Although in my analysis I assume that there is no actual GF “reversal”, I will continue to refer to this construction as S-O reversal for descriptive purposes.

2.1 Lack of Evidence for Grammatical Relation Change

The argument that S-O reversal cannot involve GF alternation comes from a series of syntactic tests for subjecthood. A number of syntactic tests used by Bresnan and Kanerva (1989) and Bresnan (1994) to argue that locative inversion in Chicheŵa involves GF reversal all fail to apply to S-O reversal. Here I consider VP attribution, gapping in coordinate structure, and subject-to-subject raising.

VP attribution

Bresnan (1994) shows that Chicheŵa has a non-finite verb that can be used to modify NPs, as in (6) (Bresnan, p.93 ex (58)).

- (6) a. m-sodzi [VP w-ó-ík-á nsómbá pa m-pando] Chicheŵa
 1-fisherman 1-ASC.INF-put-FV 10.fish 16 3-chair
 ‘a fisherman putting fish on the chair’
- b. nsómbá [VP z-ó-ík-í-ídw-á pá m-pando]
 10.fish 10-ASC.INF-put-PASS-FV 16 3-chair
 ‘fish being put on a chair’

In both active and passive examples in (6), the subject is attributed by the modifying VP. In Chicheŵa locative inversion, Bresnan (p.94, ex (59)) shows that the inverted locative subject can also be attributed, providing evidence for the subject status of the inverted locative:

- (7) m-nkhalangó m-ó-khaál-á mi-kângo Chicheŵa
 18-9.forest 18-ASC.INF-live-FV 4-lion
 ‘in the forest where there lives lions’ Bresnan (1994:93–94)

In Kirundi, there is no construction analogous to VP attribution like one found in Chicheŵa. The closest construction is one in which a verbal complex is used to modify NPs, as shown in (8).

- (8) a. Uyo muhungu, [VP á-maze ku-gur-a ico gitabo], a-a-ciye a-ja muhira
 that boy 3s-finish INF-buy-ASP that book he-PST-cut he-go home
 ku-gi-soma.
 INF-it-read
 ‘The boy, having bought the book, went home to read it.’
- b. Ico gitabo, [VP kí-maze ku-gur-u-a], ki-a-ciye ki-soma Yohani.
 that book it-finish INF-buy-PASS-ASP it-PAST-cut it-read John
 ‘The book, having been purchased, was read by John.’

In this construction, S-O reversal is also acceptable:

- (9) Ico gitabo, [VP kí-maze ku-gur-u-a], ki-a-ciye ki-soma Yohani.
 that book it-finish INF-buy-PASS-ASP it-PAST-cut it-read John
 ‘The book, having been purchased, read John.’

The Kirundi sentences in (8)–(9), however, are not quite the same as the Chicheŵa examples in (6)–(7): according to Ndayiragije (p.c. 5/25/00), the Kirundi counterparts are traditionally referred to as a ‘conjunctive clause’. *a-maze ku-gur-a* in (8) translates to “once he/she has finished buying” or “after having bought”.³ Thus, these conjunctive clauses are better analyzed as clausal adjuncts. Unlike the Chicheŵa attributive VP, the Kirundi counterpart does not contain an associative morpheme which derives the gerundive form of the verb. This also suggests that these conjunctive clauses are not modifying N, as in the attributive VP in Chicheŵa. This construction, therefore, does not show that there is subject control.

³Such conjunctive clauses are clearly distinguished from relative clauses by the position of the grammatical high tone: the former is indicated by a high-tone on the first syllable of the verbal complex (in the brackets), while the latter is identified by a high tone on either the final or the penultimate syllable of the finite verb, depending on the length of the word. Thanks to Juvénal Ndayiragije for information and discussion on this point.

Extraction out of coordinate constituents

Extraction out of coordinate constituents is used to distinguish among grammatical functions. The generalization that holds for English (and other languages in the works cited above) is that “subject gaps at the top level of one coordinate constituent cannot occur with any other kind of gap the other coordinate constituent” (succinctly stated in Bresnan 1994:98; cf. Williams 1977, Gazdar 1981, Falk 1983, Woolford 1987). This is illustrated by the English example in (10), from Bresnan (1994:98, exs (71)–(72)).

- (10) a. She’s someone that ___ loves cooking and ___ hates jogging. (S-S)
 b. She’s someone that cooking amuses ___ and jogging bores ___. (O-O)
- (11) a. *She’s someone that cooking amuses ___ and ___ hates jogging. (O-S)
 b. She’s someone that cooking amuses ___ and I expect ___ will hate jogging.
 (O-embedded S)

Bresnan (1994) shows how the inverted locative in locative inversion (e.g. *Out of the bushes appeared a monster*) observes the same constraint with respect to extraction from coordinate constituents, thereby providing evidence that the inverted locative is the grammatical subject (Bresnan 1994:98, exs (73)–(74)):

- (12) a. That’s the old graveyard, in which ___ is buried a pirate and ___ is likely to be buried a treasure. (subj-subj)
 b. That’s the old graveyard, in which workers are digging ___ and a treasure is likely to be buried ___. (nonsubj-nonsubj)
- (13) a. ??That’s the old graveyard, in which workers are digging ___ and they say ___ is likely to be buried a treasure. (nonsubj-subj)
 b. That’s the old graveyard, in which workers are digging ___ and they say ___ is buried a treasure. (obl-embedded subj)

This test has been used to test for subjecthood in other languages as well (cf. Joshi 1993 for Marathi, Kroeger 1993 for Tagalog), as this allows us to distinguish between subjects and non-subjects. In Bantu languages, however, we observe no such asymmetry: one conjunct with a subject gap can be coordinated with another with a non-subject gap, as shown in (14). As we see in the translation, the English counterpart is ungrammatical in (14b).

- (14) a. Yohani ni we ___ a-kunda ku-iruka ___ a-ka-anka ku-soma.
 John is him S 1SM-PRES.like INF-run S 1SM-ka-hate/refuse INF-read
 ‘John is the one who ___ likes running while/but ___ hates reading.’
- b. Yohani ni we umwarimu a-kunda ___ ___ a-ka-anka ku-soma.
 John is him teacher 1SM-pres-like O S 1SM-ka-hate INF-read
 *‘John is the one that the teacher likes ___ but ___ hates reading.’ Kdi.

This test fails to show anything about grammatical functions in Bantu languages for obvious reason: whenever there is a gap, the subject/object agreement morphology on the verb functions as topic-anaphoric agreement. Hence there can never be a real gap in the coordinate structure.

Subject-to-subject raising

Kirundi and Kinyarwanda have no raising predicate such as *seem*, *expect*, and *likely*. The construction in (15) from Kinyarwanda (Kimenyi, p.c, 6/19/00) which involves a modal verb is apparently taken to be putative raising (Kimenyi 1980; also p.c, 6/19/00).

- (15) Abaana ba-shobor-a ku-nywa amata. Putative raising
children 2SM-can-IMPERF to-drink milk
'The children can drink milk.' Krw

This construction allows negation on each verb, indicating that it involves bi-clausal structure—that is, each predicate belongs to a distinct f-structure nucleus. Example (16a) is raising with negation on the modal and (16b) has negation on the lower verb.

- (16) a. Abaana nti-ba-shobor-a ku-nywa amata. Raising
children NEG-2SM-can-IMPERF to-drink milk
'Children cannot drink milk.'
- b. Abaana ba-shobor-a ku-ta-nyw-a amata.
children 2SM-can-IMPERF to-NEG-drink milk
'Children can [not drink] milk.' Krw

Kimenyi (1980) shows that in this construction, S-O reversal is possible. In Kimenyi's (1980) Relational Grammar analysis, this is taken to be evidence for the subject status of the preverbal reversal NP.

- (17) Amata a-shobor-a ku-nywa abaana. reversal
milk 6-drink-IMPERF to-drink children
'The milk can be drunk by children.' Krw

It can be shown, however, there is an analysis of these putative raising data which is perfectly consistent with the analysis that involves no GF reversal. In a parallel structure approach like Lexical-Functional Grammar (LFG; Bresnan 1982, 2001b Dalrymple et al. 1995), grammatical functions are not defined configurationally, but are assigned through lexical mapping of predicate-argument structure to grammatical functions.

In short, the standard tests for subjecthood illustrated above all fail to show that the preverbal reversal NP is the grammatical subject.

2.2 Preverbal Reversal NP must be a Core Function

As the preverbal reversal NP triggers agreement, the agreeing NP must always be a core function. This becomes more obvious in reversal when there is a possibility of non-subject occupying this position (such as an oblique argument). For example, the oblique argument *n'íikárámu* 'with a/the pen' in (18a) cannot undergo reversal without being promoted to direct object, as shown by the ungrammaticality of (18b). When 'the pen' is advanced to a direct object by adding the applicative morpheme *-iish-*, as in (19a), reversal becomes grammatical (19b).

- (18) a. Úmwáalímu a-ra-andik-a n' íkárámu. (oblique)
 teacher 1SM-PRES-write-ASP with pen
 'The teacher is writing with a pen.'
- b. *N' íkárámu i-ra-andik-a úmwáalímu. *reversal
 with pen SM(it)-PRES-write-ASP teacher.
 'The pen is being written with by the teacher.' Kinyarwanda
- (19) a. Úmwáalímu a-ra-andik-iish-a íkárámu. (advanced obl)
 teacher 1SM-PRES-write-INST-ASP pen
 'The teacher is writing with a pen.'
- b. Íkárámu i-ra-andik-iish-a ímwáalímu. √reversal
 pen SM(it)-PRES-write-INST-ASP teacher
 (lit.) 'With the pen writes the teacher.'

The contrast in the grammaticality of (20) and (21), again, from Kinyarwanda (Kimenyi 1980:141), makes the same point: reversal of an unadvanced oblique NP 'with much sorrow' is ungrammatical (20), while the advanced oblique can be reversed (21).

- (20) a. Úmwáana y-a-rir-aga n' âgahiinda keênshi. (obl)
 child 1SM-PST-cry-ASP with sorrow much
 'The child was crying with much sorrow.'
- b. *N' âgahiinda keênshi k-a-rir-aga úmwáana. *reversal
 with sorrow much SM(it)-PAST-cry-ASP child
 (lit.) 'With much sorrow cried the child.' Kinyarwanda
- (21) a. Úmwáana y-a-rir-an-aga âgahiinda keênshi. (adv. obl)
 child SM(he)-PST-cry-MANN-ASP sorrow much
 'The child was crying with much sorrow.'
- b. Agahiinda keênshi k-a-rir-an-aga úmwáana √reversal
 sorrow much SM(it)-PST-cry-MANN-ASP child
 (lit.) 'With much sorrow was crying the child.'

If the preverbal reversal NP is not the grammatical subject, but it must be a core function and triggers agreement, it could only bear the object function. Then an obvious question is, what is the nature of the agreement prefix that allows this fronted object to agree with it?

2.3 Information Structure

One of the salient characteristics of S-O reversal often noted in the literature is that the preverbal patient is topical, relatively old information, and the postverbal agent receives a contrastive focus reading.⁴ The question-answer pair in (22) from Kirundi illustrates this point: in the *wh*-question in (22a), the topic is the preverbal NP *abavyeyi* 'parents'. In the answer to the question in (22b), the topic is preverbal, and the newly introduced focus *New York* is postverbal. (22c)

⁴This is also true of other argument reversal constructions mentioned above, such as locative inversion in Chicheŵa (cf. Bresnan and Kanerva 1989), Sesotho, and Setswana (e.g. Demuth and Mmusi 1997), as well as English (Bresnan 1994).

would be pragmatically infelicitous as the answer to (22a), as *New York* is necessarily interpreted as a topic and *abavyeyi* ('parents') as focus.

- (22) a. Abavyeyi ba-ba he? (parents = topic)
 parents 2-live.IMPERF where
 'Where do your parents live?'
 b. Abavyeyi ba-ba i New York. (parents = topic)
 parents_{TOP} 2-live.IMPERF in New York
 '(My) parents live in New York'
 c. #New York ha-ba-mwo abavyeyi. (NY = topic)
 New York_{TOP} 16-live.IMPERF-LOC parents
 (lit.) #'In New York live my parents.' Kirundi

The question in (23a) is formed in reversal (which apparently has an echo-reading), and the postverbal NP *so* 'your father' receives a focus interpretation. The appropriate answer to the question, given in (23b), is in the reversal construction where the postverbal NP *maama* 'my mother' is contrastively focused, and the topic (the bound pronoun) is coreferential with *umuvinyu* 'wine'.

- (23) a. Umuvinyu u-a-nyo-ye so? (father = focus)
 wine 3s-PAST-drink-PERF your.father_{FOC}
 'Is it your father who drank the wine?' (echo-reading)
 b. Oya, u-a-nyo-ye maama. (mother = focus)
 No (pro)_{TOP} 3s-PAST-drink-PERF my.mother_{FOC}
 'No, my mother (not my father) drank it (wine).' Kirundi

These question-answer pairs thus show that the preverbal position is reserved for a topical element, while the postverbal position is for focused constituents.

There is also morphological evidence for the topical status of the preverbal reversal NP. According to Bokamba (1979), the topical status of the preverbal NP in reversal is optionally marked by a topic marker (also in Lingala and Likila according to Bokamba 1979), as illustrated in (24) (Bokamba 1979:11). The (optional) morpheme *ngo* marks the topic.

- (24) Í-nz-eté (**ngó**) i-kpét-él-éki óPetelo bâzi wââbo. Dz. S-O reversal
 trees TOP SM-cut-APPL-PAST Peter woman here
 ↑
 '(As for) the trees, Peter cut for some women here.'

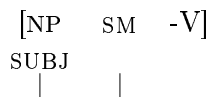
Earlier analyses (e.g. Bokamba 1979, Kimenyi 1980, 1988, Morimoto 1999) have assumed that there is true grammatical relation change, but they provide little evidence for the grammatical function status of the reversal arguments. Kimenyi (1980), for example, proposes that S-O reversal is a type of subjectivization process akin to passive: the non-agent argument canonically realized as a non-subject is realized as subject, and the logical subject is demoted. The demotion analysis is supported by the observations that the postverbal agent cannot be relativized, passivized, clefted or pronominalized. These are taken to be standard diagnostics for termhood within Relational Grammar adopted in Kimenyi's work. Kimenyi, however, admits that the preverbal NP lacks the properties of the usual subjects apart from agreement.

Whaley (1996) examines the properties of the S-O reversal construction observed by Kimenyi in further detail. He observes that the lack of the term properties of the postverbal agent, such

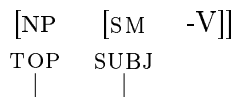
as its inability to undergo relativization, passivization, cleft, and pronominalization, is due to its specialized discourse function as contrastive focus. Relativization, passivization, and pronominalization all require the target NP to be topical. Cleft in Kinyarwanda is built on relativization. Thus, these facts can be explained without any reference to the grammatical function status.

Whaley’s main contribution which is pertinent to the present discussion is his proposal about two types of topic. Whaley analyzes the preverbal reversal NP to be a topic, and the verbal prefix which agrees with the preverbal NP as the grammatical subject. The preverbal NP and the subject prefix are in anaphoric relation. This contrasts with grammatical agreement in which the preverbal NP is analyzed as the grammatical subject, and the prefix as agreement without the pronominal content. These agreement relations are represented in (25) (Whaley, p.356). The non-reversal SVO sentence type represents the grammatical agreement relation between the subject NP and the prefix. The reversal sentence, on the other hand, represents the anaphoric agreement relation between the preverbal reversal topic and the agreement prefix on the verb. Thus, the subject prefix on the verb is the pronominal argument which the topic is coindexed with. This analysis is closely modeled on the theory of discourse functions developed by Bresnan and Mchombo (1987) within LFG.

(25) a. grammatical agreement



b. anaphoric agreement



Furthermore, Whaley argues that the preverbal topic in S-O reversal is distinct with the dislocated topic: the former is referred to as the inner topic, and the latter as the outer topic. Whaley notes three observable differences between dislocation and reversal: (i) while the dislocated topic is separated the rest of the clause by a pause, the reversal topic is not; (ii) while the particle referred to by Kimenyi (1980) as the ‘action-focus marker’ *ra* on the verb is obligatorily present in dislocation, it is obligatorily absent in reversal; (iii) while dislocation of NP out of an embedded clause is permitted, fronting of the reversal topic of the embedded clause to the left-peripheral position of the matrix clause is not. These are important observations that will be returned to for a fuller discussion in the present work.

In terms of the discourse functions of the reversal arguments, I adopt the basic insight of Whaley’s analysis, and analyze the preverbal patient as bearing a TOPIC function. Instead of associating the TOPIC anaphorically with the grammatical subject, I analyze the preverbal TOPIC to be functionally associated with the grammatical object; the agreement prefix on the verb is a topic marker, not a subject marker in languages like Kirundi and Kinyarwanda, to be elaborated further. Moreover, I will further explore the distinction made by Whaley between the ‘inner topic’ and ‘outer topic’ and provide further empirical support. Here, I will briefly note a few points that are left unresolved by Whaley’s analysis.

First, Whaley’s analysis of the reversal TOP implicitly makes a three-way distinction in terms of the structural position of preverbal NP. The first preverbal position is the position for subject, which must be internal to the minimal clause nucleus according to the diagram in (25a). The second position is the topic position for the preverbal patient of reversal. This must be external to the clause nucleus according to the diagram in (25b): otherwise the topic would locally bind the pronominal argument on the verb. The third position is the one for the outer topic, the dislocated NP. However, Whaley provides no evidence for these structural positions, particularly the first two. Secondly, Whaley’s analysis makes it unclear what the grammatical function of the postverbal agent is, as according to his proposal, it could not be the grammatical subject or a demoted oblique.

The basic insight about the topical nature of the preverbal reversal NP, and the issues raised by Whaley’s analysis, together with the lack of positive evidence for the predominant view that

the preverbal NP in reversal is the grammatical subject, all seem to point toward the idea that these reversal languages display *topic* agreement which is synchronically distinct from *subject* agreement observed in other, non-reversal, Bantu languages.

3 Cross-Linguistic Variation in Agreement Properties

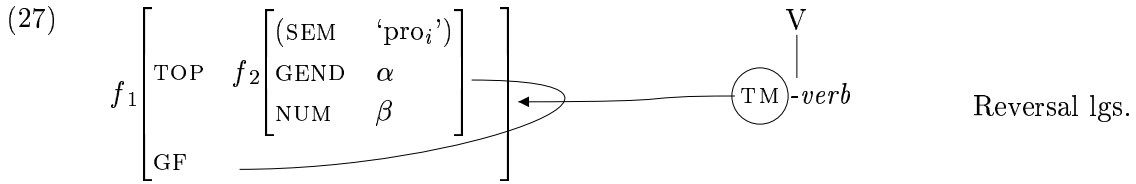
Based on the previous discussion, in the remainder of this paper I explore the idea that Bantu languages generally exhibit threefold systems of argument coding: *role-based head-marking*, *salience-based head-marking*, and *positional licensing* (only for objects).

S-O reversal languages employ salience-based topic marking: the agreement prefix encodes the most topical, but not necessarily the highest, argument. For now, we can capture this property of the topic agreement by assuming a lexical entry like that in (26). These functional schemata specify that there is some feature structure (f_1) that contains a grammaticized discourse topic TOP, whose value is another feature structure (f_2). This inner feature structure contains the information specified by the TM, gender and number. The optional semantic content SEM = ‘pro’ abbreviates two feature structures, one with ‘pro’, which represents a TM functioning as a pronoun, and the other without ‘pro’, representing a TM as grammatical agreement. These instantiations are represented by the feature structure in (27).

(26) Lexical entry of the topic marker (TM)

$$\begin{aligned} \text{TM-: } V_{infl} \quad (f_1 \text{ TOP}) &= f_2 \\ &(f_2 \text{ GEND}) = \alpha \\ &(f_2 \text{ NUM}) = \beta \\ &((f_2 \text{ SEM}) = \text{‘pro’}) \end{aligned}$$

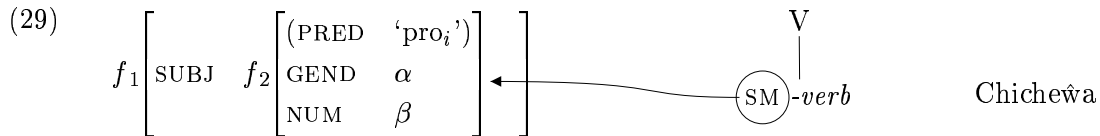
The curved line from TOP to GF in the f-structure in (27) indicates that the TOPIC is associated with one of the argument selected by the predicate (realized as a core GF). This is ensured by the extended coherence condition of LFG (Bresnan 2001b, chapter 4), which requires that grammaticized discourse functions TOPIC and FOCUS be associated with one of the argument functions selected by the predicate.



Non-reversal languages like Chicheŵa employ role-based subject marking: the subject marker encodes the highest argument in the argument hierarchy. Thus, the lexical entry may contain the information shown in (28). Here the SM specifies that there is some feature structure (f_1) that contains a SUBJ, whose value is identified with another feature structure (f_2). The information included in the inner f-structure is identical to that of the TM in (26). The f-structure in (29) shows the instantiations of these functional schemata.

(28) Lexical entry of the subject marker (SM)

$$\begin{aligned} \text{SM-: } V_{infl} \quad (f_1 \text{ SUBJ}) &= f_2 \\ &(f_2 \text{ GEND}) = \alpha \\ &(f_2 \text{ NUM}) = \beta \\ &((f_2 \text{ SEM}) = \text{‘pro’}) \end{aligned}$$



Now the above representations of the TM and SM assume a number of analytical steps. The f-structure representation in (27), for example, assumes that one of the arguments will have topic prominence, and this information must somehow be accessible to the predicate-argument structure and is used to link this argument to a topic function, which is realized via topic agreement TM. To model these steps, we need a theory of argument-structure linking that takes into account prominence information. This will be taken up in the next section. In the remainder of this section, I present some empirical support for the two-fold systems of argument linking across the Bantu family.

Wh-subject

One piece of evidence that languages like Chiche\~{w}a with no S-O reversal display subject rather than topic agreement comes from the fact that *wh*-questioning of subjects in situ is possible. *Wh*-phrases are inherently focus, given that they are new information. If the agreement system in the language is salience-based and requires the agreeing NP to be topic, then it would not allow a *wh*-element to agree. We see below that the grammatical example in Chiche\~{w}a (30) would be bad in reversal languages like Kinyarwanda (31) and Dzamba (32).

(30) (Kodí) **chíyâni** chi-ná-ónek-a?
 Q what(7) SM(7)-PAST-happen-INDIC
 ‘What happened?’ Chiche\~{w}a *wh*-subject in situ

(31) ***Nde** y-a-som-ye igitabo?
 who SM-PAST-read-ASP book
 ‘Who read the book?’ Krw *wh*-subject in situ

(32) ***Nzányí** ó-wimol-aki ó-Biko e-kondo lcc mé?
 ‘Who told Biko a story/tale today?’ Dz. *wh*-subject in situ
 (Bokamba 1981)

These data thus provide support for the distinct agreement properties in these languages.

Verb-object idioms

The second piece of evidence for the role- vs. salience-based agreement system comes from the behavior of the objects in verb-object idioms. Some illustrative examples of verb-object idioms are given in (33) from German.

- (33) a. etwas unter den Teppich kehren
 ‘to sweep something under the rug’
- b. jemanden über den Tisch ziehen
 ‘to pull someone over the table’ (= to cheat on someone)
- c. das Kind mit dem Bade ausschütten
 ‘to throw the baby with the bath water’
- d. jemanden in die Pfanne auen
 ‘to hit someone in the pan’ (= to criticize someone behind their back)

The objects in these idiomatic expressions are non-referential. As such they can never be topic. So if we can passivized these idiomatic expressions and make the objects into passive subjects and maintain the idiomatic interpretation, then it would show that the language allows non-topical, non-referential subjects. Now, we know that German has a non-referential expletive subject *es*, as in *es regnet* ‘it is raining’. And we see in (34) that the objects in these verb-object idioms can be passivized subjects without losing the idiomatic interpretation.⁵

- (34) a. Etwas wurde unter den Teppich gekehrt.
 ‘Something got swept under the rug.’
- b. Jemand wurde über den Tisch gezogen.
 ‘Someone got pulled over the table.’
- c. Das Kind wurde mit dem Bade ausgeschüttet.
 ‘The baby got thrown with the bath water.’
- d. Jemand wurde in die Pfanne gehauen.
 ‘Someone got hit in the pan.’

In Chicheŵa, we also find verb-object idioms, as exemplified in (35a). The grammaticality of (35b) shows Chicheŵa allows the objects of verb-object idioms to be passivized.

- (35) a. Chifukwá chá mwáno wâke Mavútó tsópáno a-ku-nóng’ónez-a bôndo.
 because of rudeness his Mavuto now SM-PRES-whisper.to-INDIC knee
 ‘Because of his rudeness, Mavuto is now whispering to his knee (= feeling remorse).’
- b. Bôndo li-ná-nóng’onez-ědw-a.
 knee(5) SM(5)-PAST-whisper.to.PASS-INDIC
 ‘The knee is whispered to (= the remorse was felt).’ Bresnan and Mchombo (1987:763)

None of the Bantu languages under discussion has idiomatic subjects analogous to those found in English. Chicheŵa, however, has a few proverbs that are used as fixed expressions, exemplified in (36).

⁵Thanks to Barbara Stiebels for her assistance with these examples.

- (36) a. Kalulu a-na-mu-omba maondo.
 Hare SM-PAST-OM-knock knees
 ‘The hare knocked him in the knees.’
 (= He has stiff knees which cannot bend.)
- b. Njovu i-na-ponda-po.
 Elephant 9SM-PAST-step-LOC.ENCL
 ‘The elephant stepped on it (hence rendered it dysfunctional).’ Chicheŵa

In such expressions, the subjects are presumably non-referential just as in idiomatic constructions such as *John’s goose is cooked* (= ‘John is in big trouble.’), and *The cat has got John’s tongue* (= ‘John can’t speak.’); hence these subjects cannot be topical. These data therefore show that subjects in Chicheŵa need not be topical or even referential. This is not true of reversal languages, as illustrated in (37) from Kirundi.

- (37) a. Yohani a-a-ra-hend-ye umunwa.
 John 1SM-PAST-AF-cheat/mislead-PERF mouth
 (lit.) ‘John cheated/misled the mouth.’
 (= ‘John ate almost nothing.’)
- b. *Umunwa u-a-ra-hend-u-ye (na Yohani).
 mouth SM-PAST-AF-cheat/mislead-PASS-PERF by John
 (lit.) ‘The mouth was cheated/misled (by John).’
 (= ‘Almost nothing was eaten (by John).’) Kdi

The data in (37) are consistent with those of another reversal language, Dzamba (32), which allows the agreeing preverbal NP to be topic.

Other non-referential Subjects

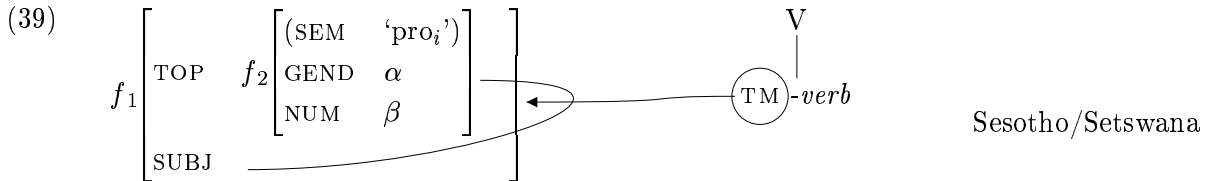
First, the negative quantifier *nobody* is expressed by ‘not a person’ where ‘not’ is apparently a negative copula *nta* (= *nti* ‘NEG’ + *-a*), as illustrated in (38a) from Kirundi. In an embedded clause, the negative copula is *ata* (= *a-ta-a* where the first *a* is expletive), as in (38b).⁶

⁶Kirundi (and presumably Kinyarwanda) lack any lexical item equivalent to *nobody/no one*. *no one*, for example, is expressed as *not even one* as in sentences like (i)–(ii).

- (i) Nta na umwe a-a-ri mu nzu.
 NEG.COP even one 1SM-PAST-be in house
 ‘It was not even one (who) was in the house.’
 (= ‘There was no one in the house.’)
- (ii) Nta na umwe Yohani a-a-bon-ye.
 NEG.COP even one John 1SM-PAST-see-PERF
 (lit.) ‘It was not even one (that) John saw.’
 (= ‘John saw no one.’)

- (38) a. Nta muntu a-a-somye iki gitabo.
 NEG person 1SM-PAST-read.PERF this book
 ‘(It’s) not the/a person who read this book.’
- b. Umwarimu a-a-vug-ye ko a-ta muntu a-a-somye iki
 teacher 1SM-PAST-say-PERF that expl-NEG person 1SM-PAST-read.PERF this
 gitabo.
 book
 ‘The teacher said that no one (had) read the book.’ Kdi

Facts in Sesotho and Setswana are the same as those of the reversal languages (Demuth and Machobane, p.c. June, 2000). However, in a study of inversion construction in Bantu, Demuth and Mmusi (1997) show that Sesotho and Setswana do not allow S-O reversal. These facts suggest that in Sesotho and Setswana, the preverbal NP that is cross-referenced by verb agreement must be subject, and it must also be topic. The agreement marker in these languages must then encode the highest argument which is also topical (= *salience-based subject marking*). The f-structure in (39) shows that the TOPIC function is always associated with SUBJ. In a more articulated theory of argument linking (to be discussed below), SUBJ in the f-structure represents the linking of the highest argument to the abstract case feature Nominative, which is realized via the agreement morphology.



To summarize, in this section I have presented some facts that provide support for the idea that Bantu languages display two types of agreement: topic vs. subject agreement. Topic agreement languages like Kirundi and Kinyarwanda allow either the highest or the lower argument to be linked to the topic agreement morphology. This explains why in S-O reversal the preverbal reversal NP triggers agreement, and why we find no non-topical subjects in these languages. Other topic agreements like Sesotho and Setswana require the agreeing NP to be topic, and also require it to be the highest argument.

4 Two Types of Topic

Up to this point, I have assumed the grammaticized discourse TOPIC to be a function that can be realized through argument linking, and analyzed S-O reversal as one type of topic construction. All of the Bantu languages under discussion display the kind of topicalization in which the topicalized NP is clearly outside the minimal clause (S/IP) and requires a resumptive pronoun. In this section I show that the topic in the left-dislocation construction is distinct both formally and pragmatically from the reversal topic. Based on the data on left-dislocation, I propose that there are two types of topic in Bantu: the topic that is morphologically realized via topic agreement is the Internal Topic (I-TOP); the clause-external topic that requires a resumptive pronoun is the External Topic E-TOP.

4.1 Internal vs. External Topic

The two types of topic, Internal and External Topic, have been motivated for a number of languages, including Mayan (Aissen 1992, 1999), Russian (King 1995), Malay (Alsagoff 1992), and Bulgarian (Jäger 2002). In Bantu languages, Whaley (1996) also observes that dislocated topics and topics of subject-object reversal are structurally distinct. According to earlier studies, the internal and external topic are distinct in terms of their formal and discourse properties, as summarized in (40).

(40) Characteristics of external and internal topics

	EXTERNAL TOPIC	INTERNAL TOPIC
*Position	E(xpression) node (Mayan, Russian)	SpecCP (Mayan) IP-adjoined (Russian)
Bind argument?	no	yes
Resumptive pronoun?	yes	no
Island constraint?	no	yes
Discourse status	new topic (Mayan)	continuing topic (Mayan)
Definite?	yes	yes
*Embedding?	no (Mayan, Russian)	yes (Mayan, Russian)

*The facts are different in Bantu.

Going down the table in (40) for properties of the E-TOP, the familiar dislocated topics in left-dislocation, we see that in both Mayan and Russian, E-TOPs are positioned outside the basic clause schema, represented under the E(xpression) node above CP. The E node is restricted to the main clause, and correspondingly, E(xternal)-TOPICS are only allowed in the main clause. An E-TOP need not bind any element in a sentence: in LFG, it need not be functionally associated with a particular GF in the main clause although it can be coreferent with a GF. In Russian, the external topic typically requires a resumptive pronoun that is coreferential with the topicalized constituent. It is also frequently noted that external topics are not subject to island conditions (e.g. extraction out of a relative clause). Aissen (1992), for example, shows that an E-TOP can be coreferential with a (null) pronoun inside a relative clause. According to Aissen (p.c. 4/10/00), the function of an E-TOP is to establish a new topic; it may be a switch topic if there is already some other topic in prior discourse. The definiteness requirement of the E-TOP suggests that it is at least known to the hearer or else has been previously established in the discourse although it may be newly (re-)introduced to the current discourse.

I-TOPs, on the other hand, are inside the clause or clausal extension, IP(-adjoined) or CP, represented under CP in Aissen's work for Mayan (p.47) and under IP in King's work for Russian (pp.202, 206). In contrast to E-TOP, I-TOPs are not only assigned the discourse function, but are also functionally identified with one of the GFs selected by the predicate. Thus, there is no resumptive pronoun inside the clause which is coreferential with the topic. I-TOPs are also subject to island constraints. While E-TOPs are new topics, I-TOPs are often continuing topics. The I-TOP must also be definite, as is the case with any type of topic across languages (e.g. Givón 1976). Unlike E-TOPs which are restricted to the main clause, I-TOPs can appear in an embedded clause.

4.2 External Topic in Bantu

Structural Position: The type of topic I refer to as the external topic (E-TOP) in Bantu is the topic in left-dislocation as exemplified in (41), from Kinyarwanda (Kimenyi 1980:120). The

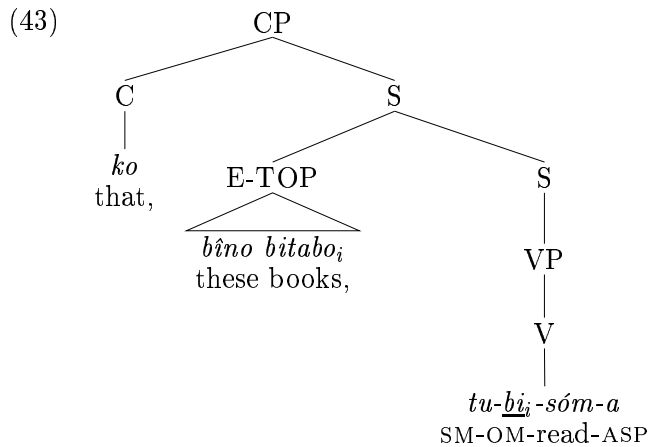
dislocated object is in boldface. The canonical position for the topicalized object is indicated by ‘___’ for expository purposes.

- (41) **bîno bitabo_i**, úmwáalimu a-ra-shaak-a ko tu-*(b_i)-sóm-a ____i.
 these books teacher SM-PRES-want-ASP that SM-OM-read-ASP
 (lit.) ‘**These books**, the teacher wants that we read them.’ Krw

In (41), the object in the embedded clause is topicalized to the left of the main clause with a coreferential pronoun. Moreover, as with the Russian and Mayan E-TOPs, the topic in Bantu dislocation need not be functionally identified with a particular GF in the clause but can be coreferential with a pronoun. One important difference between S-O reversal and left-dislocation is that in the former, the topical object triggers topic agreement; reversal object does not trigger object agreement. In left-dislocation, a clause-initial topical object is anaphorically associated with the bound pronominal, and the subject stays in its canonical preverbal position.

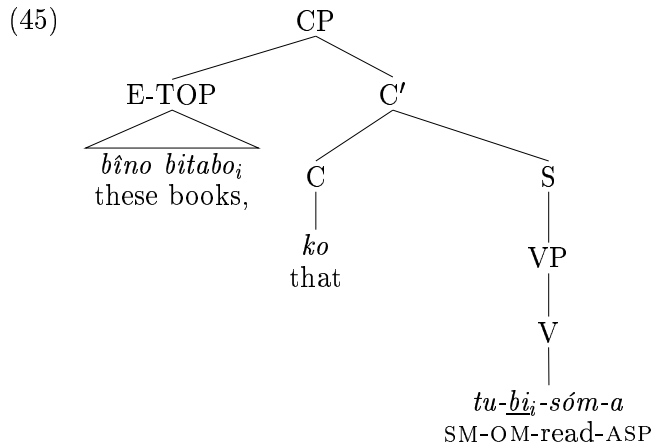
Unlike the Russian and Mayan E-TOP, which are based-generated in a position above CP, the E-TOP in Bantu may occur inside an embedded clause, following the complementizer *ko* ‘that’. This clearly indicates that the E-TOP is positioned inside CP. The relevant part of the sentence in (42) is structurally represented in in (43).

- (42) Úmwáalimu a-ra-shaak-a ko **bîno bitabo_i**, tu-*(b_i)-sóm-a.
 teacher SM-PRES-want-ASP that these books SM-OM-read-ASP
 (lit.) ‘The teacher wants that, **these books**, we read them.’ Krw



The example in (44) shows that the topicalized NP can also appear before the complementizer, showing that the E-TOP can also be positioned in SpecCP (45).

- (44) Úmwáalimu a-ra-shaak-a, **bîno bitabo_i**, ko tu-*(b_i)-sóm-a.
 teacher SM-PRES-want-ASP these books that SM-OM-read-ASP
 (lit.) ‘The teacher wants, **these books**, that we read them.’ Krw



Grammatical Functions of E-TOP: As we saw earlier in section 2.2, the preverbal reversal NP that we now call the I-TOP must be a core function. The E-TOP, on the other hand, has no such restriction. This is exemplified by the dislocation of an adverbial element (46a) and a locative oblique (46b). We see in (46b), left-dislocation of a locative argument requires a resumptive pronoun *h(a)* ‘there’.

- (46) a. **Mu gitóondo**, yohaáni a-rá-kor-a.
 in morning John 1SM-FOC-work-IMPERF.
 ‘In the morning, John works.’ (Kimenyi, p.193)
- b. **kuú ntebe**, ábâana ba-ra-h-iica-ye.
 on chair children 2SM-FOC-there-sit-IMPERF
 ‘On the chair, the children are sitting.’ (Kimenyi, p.192)

Multiple E-TOPs vs. One I-TOP: As the I-TOP is realized morphologically by linking mechanism, it is restricted to only one per clause. On the other hand, there can be multiple E-TOPs:

- (47) a. Igitabo, Mudúga, abâana, y-a-rá-ki-bá-ha:ye
 7book 1Muduga 2children 1-FPST-FOC-7-2-give
 ‘The book, Muduga, (to) the children, he gave it to them.’
- b. Mudúga, igitabo, abâana, ...
- c. Mudúga, abâana, igitabo, ...
- d. Abâana, Mudúga, igitabo, ...
- e. Abâana, igitabo, Mudúga, ... Kdi

The verb morphology indicates that the I-TOP is *Mudúga* (class 1). According to Sabimana (1986), the semantic difference among these orderings of LD topics is minimal, if there is any difference at all. There is, however, a pragmatic difference in that LD topics are always emphatic or contrastive, while non-dislocated NPs in SVO sentences and passive sentences do not have these functions.

Pragmatic Function: In Bantu languages, free pronouns are reserved for emphasis or contrast, and only bound pronominals express topic-anaphoricity. This is demonstrated clearly by Bresnan (In Press b, Forthcoming) in her discussion of Chicheŵa pronominals. Kimenyi (1980, Chapter 8) also notes this function of free pronouns in Kinyarwanda. Kimenyi provides

a number of examples in which free pronouns are used as LD topics. Illustrative examples are given in (48). Here, the free pronoun *bô* in (48a) and *byô* in (48b) (underlined) each refers to the dislocated NP that immediately precedes it. This shows that the E-TOP is compatible with the function of the free pronoun, namely, emphasis or contrast.

- (48) a. Abahuûngu ba-ra-kin-a, abakoômwa, bô, bá-r-fig-a.
 boys 2-FOC-play-ASP girls they 2-FOC-study-ASP
 ‘The boys are playing, (but) the girls, they are studying.’
- b. Íkárám z-a-buz-e áriko ibitabo, byô, bi-ri hâno.
 pens they-FOC-miss-ASP but books they they-be here
 ‘The pens are missing, but the books, they are here.’ (Kimenyi, p.174)

This characterization of E-TOP is analogous to that given by Aissen on Mayan external topics. In Mayan an external topic can be new, contrasting it with an old topic. These different types of topic motivated in other languages are also distinguished structurally; and other structurally distinct properties of these topics are predicted to follow.

Extraction: There is yet another difference between E-TOP and I-TOP: while a clause-initial E-TOP can be out of an embedded clause, Kirundi & Kinyarwanda do not allow reversal out of a tensed clauses (also pointed out by Ndayiragije 1999:420 for Kirundi). Thus, left-dislocation in (49) is acceptable, while reversal across a tensed clause shown in (50) is ungrammatical in Kirundi/Kinyarwanda. The reversal topic in (50) is in boldface. The canonical position for the topical patient of reversal is indicated by ‘—_i’.

- (49) bîno bitabo_i, úmwáalimu a-ra-shaak-a ko tu-bi_i-sóm-a.
 these books teacher SM-FOC-want-IMPERF that SM-OM-read.REL-IMPERF
 ‘These books_i, the teacher wants that we read them_i.’ Kdi

In (50b), the reversal takes place inside the embedded clause. In (50c), the reversal patient appears clause-initially, and both the logical subject of the matrix verb *Yohani* and that of the embedded verb *Poso* are in postverbal position. In (50d), the logical subject of the embedded clause remains in the preverbal position and the reversal topic is clause-initial, placing *Yohani* to postverbal position.⁷

- (50) a. Yohani a-a-vuze ko Poso a-a-zanye imodoka.
 John 1-PAST-say.PERF that Poso 1-PAST-buy.ASP car
 ‘John said that Poso bought a car.’
- b. Yohani a-a-vuze ko **imodoka** i-a-zanye Poso.
- c. ***Imodoka_i** i-a-vuze Yohani ko —_i i-a-zanye Poso.
- d. ***Imodoka_i** i-a-vuze Yohani ko Poso a-a-zanye —_i. Kdi

Now the ungrammaticality of (50c,d) may be due to the fact that the postverbal focused NP *Yohani* is not in VP-adjoined focus position: assuming that the embedded clause is sister to the matrix verb, the focused constituent cannot be adjoined to VP. However, placing *Yohani* clause-finally does not improve the grammaticality (51a); nor can we keep *Yohani* in the preverbal position and allow the reversal topic to appear in clause-initial position, triggering agreement on the matrix verb as in (51b).

⁷All the reversal examples in (50) are attested as grammatical in Dzamba (cf. Bokamba 1979:13).

- (51) a. ***Imodoka_i** i-a-vuze ko Poso a-a-zanye —_i Yohani.
 b. ***Imodoka_i** Yohani i-a-vuze ko —_i i-a-zanye Poso.

Note that the sentence (51b) would be grammatical if the matrix verb agrees with *Yohani*: in that case, however, the reversal topic *imodoka* is necessarily interpreted as a dislocated topic (Ndayiragije, p.c, 7/3/00).

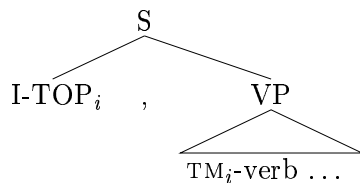
4.3 The Structure of Internal Topic

The above data on E-TOP and the contrast between the E-TOP and I-TOP in terms of their structural positions suggest that the I-TOP must always be internal to the minimal clause (S/IP). In addition, Sabimana (1986:88) provides examples like that in (52) which shows that the reversal topic can be right-dislocated. Note that the topic marker agrees with the right-dislocated patient *i-n-ká* ‘the cow’.

- (52) Y-a-tânze Mudúga, i-n-ká.
 9-FPAST-donate Muduga A-9-cow
 ‘It is Muduga who donated it, the cow.’ Kdi

Examples like that in (52) suggests that the I-TOP need not be positionally licensed. What is interesting to note in the example (52) is that the right-dislocated (reversal) topic is the object, but it does trigger the presence of the anaphoric object pronoun (as a topic marker)). This suggests that unlike the left-dislocated E-TOP, the right-dislocated topic is clause-internal. Based on facts like (52), then, we can assign the structure in (53) for the I-TOP. The comma indicates unfixed ordering of I-TOP and VP.

- (53) Structure of I-TOP



Given the c-structure of the right-dislocated I-TOP, both the preverbal and right-dislocated I-TOP have the identical f-structure, as illustrated in (54) for sentence (52).

- (54)
$$\left[\begin{array}{ll} \text{SEM} & \text{'donate } \langle x, y \rangle \text{' } \\ \text{SUBJ} & x \text{ ["muduga"] } \\ \text{OBJ} & y \text{ [] } \\ \text{I-TOP} & \text{ ["cow"] } \end{array} \right]$$

The clause-internal structure of I-TOP, either on the left or right of VP, is consistent with the observation that while there can be multiple left-dislocated topics, right-dislocated topic is restricted to one (Kimenyi 6/21/00). Multiple RD topics like that in (55), therefore, are unacceptable.

- (55) *Umugabo y-a-ya-mu-haa-ye, **amafaraanga, umugóre.**
 man 1SM-PAST-IT-1SM-give-PERF money woman
 ‘The man gave it to her, the money, (to) the woman.’ Krw

argument structure and argument structure alternations. LDG provides a means of systematically deriving the ARGUMENT HIERARCHY, in which argument roles are strictly ordered, from the ‘Semantic Form’ (SF). The SF is a level of representation that serves as the interface between morphosyntactic structure and semantics on the one hand, and semantic structure and conceptual structure on the other. It includes the semantic information of a lexical item in the form of a set of lexically-decomposed primitive predicates, as well as the information that is relevant for deriving the argument structure of the predicate. The argument structure is derived by means of λ -abstraction of the argument variables in the SF, as shown in (58).

(58)	Semantic Form	
a.	sleep: λx	SLEEP(x)
b.	kiss: $\lambda y \lambda x$	KISS(x,y)
c.	give: $\lambda z \lambda y \lambda x$	{ACT(x) & BECOME POSS(y,z)}

The λ -abstracted argument roles are assigned ABSTRACT CASE FEATURES [\pm hr] (“there is a/no higher role”) and [\pm lr] (“there is a/no lower role”) for their positions in the argument hierarchy, as illustrated in (59). These features determine the pattern(s) of argument linking. Additionally, in the current approach internal topic can be seen as a grammaticized discourse function (cf. Bresnan 2001b), with a feature specification, that is licensed by agreement.

(59)	Theta Str	Semantic Form
a.	sleep: λx [–hr] [–lr]	SLEEP(x)
b.	kiss: $\lambda y \lambda x$ [+hr] [–hr] [–lr] [+lr]	KISS(x,y)
c.	give: $\lambda z \lambda y \lambda x$ [+hr] [+hr] [–hr] [–lr] [+lr] [+lr]	{ACT(x) & BECOME POSS(y,z)}

The abstract case features are then linked to structural case features, which may be realized as morphological case, agreement, or by position (60). Linking of the abstract case to structural case is achieved by unification of compatible features.

(60)	Nominative/Absolutive (NOM/ABS)	[–hr]
	Accusative (ACC)	[+hr]
	Ergative (ERG)	[+lr]
	Dative (DAT)	[+hr, +lr]

According to these feature classifications of structural cases, Nominative is the least marked case, and Dative the most marked. Linking of the abstract case to structural case is achieved by unification of compatible features, yielding three canonical case patterns for an accusative and ergative system, as shown in (61).

(61)	a. Intransitives	b. Transitives	c. Ditransitives
	λx	$\lambda y \quad \lambda x$	$\lambda z \quad \lambda y \quad \lambda x$
	[-hr]	[+hr] [-hr]	[+hr] [+hr] [-hr]
	[-lr]	[-lr] [+lr]	[-lr] [+lr] [+lr]
ACC-system:	NOM	ACC NOM	ACC DAT NOM
ERG-system:	ABS	ABS ERG	ABS DAT ERG

For intransitive predicates, the sole argument is encoded by the features [-hr, -lr]—there is no higher or lower role, and these features are compatible only with the Nominative case. For transitive predicates, x is the higher role and is specified as [-hr, +lr]—there is no higher role, and there is a lower role. In an accusative system, the argument will be realized by NOM, and the lower argument, specified as [+hr, -lr] (there is a higher role and no lower role), is realized by ACC. In an ergative system, the higher role maps to ERG, and the lower role to ABS. For ditransitive predicates, the medial argument in the SF is specified as [+hr, +lr]—there is a higher role and a lower role, the most marked specifications, and is mapped to Dative.⁸

5.2 Topicality Hierarchy

Just as arguments are ranked according to the argument hierarchy, they are ranked according to the topicality hierarchy. It is necessary to distinguish what I call *topicality salience* and *discourse prominence*, as defined in (62).

- (62) a. **Topic Salience:** Arguments are ranked according to topicality. An argument that is discursively most prominent is also the most salient in terms of topicality. In the absence of such an argument, by default the nominative argument will be most salient.
- b. **Discourse Prominence:** Any element that can bear a stress can be discourse-prominent. It may be topical or focal.

There can be at most one argument that is most salient in terms of topicality, while there can be multiple constituents that are discourse-prominent. Givón (1976), for example, notes that subjects in many languages, such as Mandarin, Malagasy, and also Kinyarwanda, must be either definite or generic (see also Keenan 1976, Li and Thompson 1976). This property is reminiscent of dislocated topics, which, according to Givón, are universally restricted to be definite or generic (also see Alsagoff 1992:192, Lambrecht 1994, Birner and Ward 1998). Malagasy is an VOS language, and the nominative NP is placed sentence finally. However, like most verb-initial languages, the position for discourse-prominent constituents is clause-initial.

Even in so-called subject-prominent languages such as English, which tolerate indefinite, non-referential subjects, subjects are nonetheless overwhelmingly definite and referential (pp.154–155). In English, continuing topic is generally expressed as a subject, but the new topic (discourse-prominent) is expressed in a left-dislocated position. For example in an answer to the question in A below, B would be more natural than B', as shown in (63), where *they* (family) is established information:

⁸Other non-canonical case patterns (e.g. passive and antipassive, one of the arguments being lexically marked) are also possible under this theory of argument linking, and have been rigorously discussed in earlier work (cited at the beginning of this section) with a wide range of cross-linguistic data.

- (63) A: Where does your family live?
 B: They live in N.Y.
 B': #My family, they live in N.Y. left-dislocation

On the other hand, as a continuation of the above exchange, if B wanted to mention where his/her cousin lives as opposed to his family, then an utterance like that of B' in (63) becomes most felicitous. In this context, *cousin* in (64) is introduced as a new topic contrasting with the old topic *family*.

- (64) B: (Now) my cousin, he lives in Chicago.
 B': #(Now) he lives in Chicago, my cousin.
 B'': (Now) my cousin lives in Chicago. (OK with appropriate intonation)

Thus, dislocated topic is used as a new/contrastive topic, while the old topic tends to be expressed as a topic of topicalization or the subject in a non-dislocated subject construction. Birner and Ward (1998) make a similar pragmatic difference between English dislocation and topicalization based on a large number of corpus data.

I assume therefore that topic salience is universally part of the argument linking domain. To be consistent with the system of abstract case feature specifications for arguments in LDG, I represent topic salience by a binary feature $[\pm ht]$, as shown in (65a,b). $[-ht]$ states that “there is no argument that is higher in topic salience”, and specifies the element in highest topic salience. Conversely, $[+ht]$ states that “there is an argument that is higher in topic salience”. These features form a universal scale as shown in (65c), which I refer to as the TOPICALITY HIERARCHY.

- (65) **Topicality hierarchy**
- a. $[-ht]$: Topically salient
 - b. $[+ht]$: Topically non-salient
 - c. Universally $[-ht] > [+ht]$

In terms of these feature specifications, topic-prominence languages can be said to link $[-ht]$ to subject; subject-prominence languages, on the other hand, link $[-hr]$ to subject. Because $[-hr]$ gets the feature $[-ht]$ by default when context identifies none of the arguments as topically salient (or non-salient), subjects tend to be cross-linguistically default topic.

5.3 Deriving the Patterns of Argument Linking

In the present discussion, I concentrate on the morphological realization of I-TOP and subject. Constraints concerning the exact syntactic position of arguments and E-TOP are formulated in terms of alignment. See, for example, Sells (2001b) and Morimoto (2001a, 2002a) for recent discussion and application of alignment constraints on syntactic positioning.

The key idea in the analysis is simple: assuming that the input consists of a language-independent representation of predicate-argument structures like those shown earlier in (58) with minimal amount of feature specification for the argument hierarchy, variation in the agreement systems across and within Bantu languages can be derived in a principled manner by interaction of faithfulness and markedness constraints.

The two types of agreement systems in Bantu, topic agreement vs. subject agreement, and the presence of S-O reversal in the subset of topic agreement languages are essentially about (i) whether arguments are realized morphologically according to the topicality hierarchy or accord-

ing to the argument hierarchy, (ii) if we have the former, which one of the arguments is allowed to be realized for its topicality in the morphology or syntax; and (iii) what form of expression is cross-linguistically preferred for grammatical expression of topicality. In S-O reversal languages such as Kirundi and Kinyarwanda, either one of the core arguments in a transitive predicate is morphologically encoded according to topicality. In Sesotho and Setswana, only the highest argument is encoded morphologically for its topicality. In Chicheŵa both arguments predicate are realized morphologically according to the argument hierarchy. In order to encode the topicality of the lower argument, the highest argument is demoted through passivization.

Morphological encoding of arguments and/or topicality can be ensured by the input-output faithfulness constraints given in (66).

(66) Input-Output Faithfulness

- a. $\text{MAX}(-\text{ht})_M$: Realize $[-\text{ht}]$ feature in the morphology. (Satisfied by SM/OM in the TM position.)
- b. $\text{MAX}(-\text{hr})_M$: Realize $[-\text{hr}]$ feature in the morphology. (Satisfied by SM.)
- c. $\text{MAX}(+\text{hr})_M$: Realize $[\text{+hr}]$ feature in the morphology. (Satisfied by OM.)
- d. $\text{DEP}(-\text{ht})$: The topic salience feature $(-\text{ht})$ realized on a particular argument must also be present on that argument in the input.

Bresnan (2001a) observes that bound pronominals encode topic anaphoricity, while free pronouns need not. Banatu languages, for example, employ both bound and free forms of personal pronouns, but the latter are reserved for contrastive/emphatic use (Morimoto 2000, Bresnan 2001a). This can be viewed part of the more general hierarchy discussed by Silverstein (1976), in which pronouns are more prominent on a topicality or animacy scale than a full NP. Thus, bound pronouns are topically more salient than free pronouns, and free pronouns are topically more salient than NPs:

(67) Bound Pro > X⁰ Pro > NP

increased dispreference for encoding the lower argument according to its topicality in the morphology noted above in terms of the harmonic alignment of the topicality hierarchy introduced earlier in (65) and a binary hierarchy of forms of expression, Pronouns > NP, as shown in (68).⁹ For expository purposes, I represent $(-\text{ht})$ “topically salient” simply as TOP and $(+\text{ht})$ “topically non-salient” as $\sim\text{TOP}$ in the following harmonic alignment.

- (68) a. H_1 : Pronoun/TOP \succ Pronoun/ $\sim\text{TOP}$
 b. H_2 : NP/ $\sim\text{TOP}$ \succ NP/TOP

The harmonic alignment in (68) states the universal tendency of the relation between the function (topicality) and forms of expression in terms of relative markedness: the expression of a topical referent by use of a pronoun is less marked than the expression of a non-topical referent by a pronoun (H_1). Conversely, the expression of a non-topical referent by use of a full NP is less marked than the expression of a topical referent by a full NP (H_2). The constraint subhierarchies turn these statements into markedness constraints, given in (69).

⁹For harmonic alignment, see Aissen (1999b) and subsequent work in Sells (2001a).

(69) a. C_1 : *Pronoun/*sim*TOP \gg *Pronoun/TOP

b. C_2 : *NP/TOP \gg *NP/ \sim TOP

In the analysis, I refer to these constraint subhierarchies with respect to the expression of objects. For clarity, the constraint subhierarchy in C_1 will therefore be written as *om/ \sim T(op) \gg *OM/T(op), and C_2 as *NP_{Oj}/T(op) \gg *NP_{Oj}/ \sim T(op).

The use of the TM rather than SM or OM excludes some types of NPs (e.g. non-referential NP, non-topical NPs, *wh*-subjects) from being licensed by this morphology. The TM is therefore more restricted in its use than the SM and OM. In this sense, the use of topic agreement is the marked option compared to the use of agreement to cross-reference specific grammatical functions. Topic agreement seems to be marked also in the sense that when the object NP is a topic and triggers the agreement in the TM morphological position, there is no one-to-one correspondence between form and function: the object function must be licensed by the corresponding verb morphology in the appropriate morphological position in the verbal complex (SM-TENSE-OM-verb). When the object triggers topic agreement in S-O reversal, the topical object is preverbal, and what looks like an OM assumes the morphological position in the verbal complex that is normally designated for the SM. Thus, neither the syntactic position nor the verb morphology uniquely identifies its morphosyntactic function of this topical object. The relative markedness of topic agreement can be expressed as a markedness constraint against topic marking, given in (70).

(70) Markedness of topic marking

*TM: Avoid topic marking.

Rankings

The following tableaux show the constraint violations for three types of input in the three language types. The overall picture of the rankings is depicted in (71).

(71)

1.	MAX(-ht) _M (66a)	6.	*NP _{Oj} /T \gg	7.	*NP _{Oj} / \sim T (69b)
2.	MAX(-hr) _M (66b)	8.	*TM (70)		
3.	MAX(+hr) _M (66c)	9.	DEP(-ht) (66d)		
4.	*OM/ \sim T \gg	5.	*OM/T (69a)		

Reversal languages: 1 \gg 2 \gg 6 \gg 7 \gg 4 \gg 3 \leftrightarrow 5 \gg 8 \gg 9

Sesotho type: 1 \gg 2 \gg 6 \gg 7 \gg 4 \gg 5 \gg 3 \gg 8 \gg 9

Chicheŵa type: 4 \gg 5 \gg 9 \gg 8 \gg 6 \gg 2 \gg 1 \gg 7 \gg 3

As we see, the rankings that derive reversal and Sesotho type languages are almost identical. In both language types, faithfulness on topic salience and the highest role introduced in (66a,b) are among the highest-ranked constraints. The high-ranking faithfulness constraint on topic salience ensures the existence of topic agreement in these language types. In both, the constraint against a topic marker (*TM) is among the lowest-ranked.

But the minimal difference in the rankings of the two language types is a crucial one: in reversal languages, the faithfulness constraint preferring the morphological realization of the lower role (66c) is ranked between a markedness subhierarchy (4 \gg 5). In Sesotho type languages, the ranking of constraints 3 and 5 in (71) is reverse: MAX(+hr)_M is below both constraints in the subhierarchy 4 \gg 5. This minimal difference yields different optima for the input containing a topical object, resulting in the presence of S-O reversal in reversal languages and absence thereof in Sesotho type languages. As we will see below, even in reversal languages, the fourth-ranked

faithfulness constraint $\text{MAX}(+hr)_M$ does not strictly dominate one of the markedness constraint (ranked 5), so that there is optionality between S-O reversal and the passive, an alternative construction used to express topical objects. The left-and-right arrow between constraints 3 and 5 in (71) indicates the stochastic ranking of the two constraints that are close enough to overlap and rerank.

In Chicheŵa type languages, the constraint subhierarchy against morphological marking of the object $4 \gg 5$ is further promoted to the top of the constraint hierarchy. The constraint against addition to the topic salience feature $\text{DEP}(-ht)$ and one against topic agreement are also promoted far up near the top. The faithfulness constraints are in turn demoted lower in the hierarchy.

Note also that we observe gradual demotion of $\text{MAX}(+hr)_M$ from the reversal type to the Sesotho type, and to the Chicheŵa type. This is supported in the domain of object agreement in canonical SVO sentences. Some Bantu languages exhibit ‘differential object marking’, in which only some objects are cross-referenced by the verb morphology due to their semantic and pragmatic features (Bossong 1985): for example, animate objects are more likely to trigger agreement than inanimate objects; similarly, definite objects are more likely to trigger agreement than indefinite/non-specific objects. The systematic variation both across and within individual Bantu languages suggests the loss of morphological marking for the lower role and rise of the positional licensing (Morimoto 2002b). Among the most progressive in the loss of object agreement is Chicheŵa, in which the morphological marking of the lower role has been lost completely, and the OM functions solely as an anaphoric pronoun (cf. Bresnan and Mchombo 1987). This is correctly characterized by the high ranking of the constraint subhierarchy against the object agreement morphology and the low ranking of $\text{MAX}(+hr)_M$.

Based on the proposed constraint rankings, we might also speculate what might have led to the disappearance of S-O reversal in the majority of Bantu languages and subsequent—or perhaps simultaneous—loss of topic agreement and shift to the more general system of argument coding, subject agreement. Within the proposed system, we might interpret this change as the promotion of the markedness constraints on the morphological expression of objects as well as the promotion of the constraint against topic marking.

The tableaux in (72)–(74) show constraint evaluation for the input in a discourse-neutral context. The (simplified) input contains a transitive predicate and its arguments with minimal feature specifications. As the feature for topic salience $[-ht]$ is assumed to be universally in the input, in a discourse-neutral context, it is not assigned to any particular role, but is assigned to one of the arguments arbitrarily. As we will see below, given the system of constraints, it is assigned to the highest argument by default. This characterizes the general assumption that the subject is usually the default topic. Thus in the evaluation of the candidate set for the discourse-neutral input, $[-ht]$ is assumed to be assigned to whichever argument that triggers topic marking, and there is no $\text{MAX}(-ht)_M$ violation. On the other hand, since the $(-ht)$ feature is arbitrarily assigned to one of the argument in the output, this means that one argument will always have the extra feature that is not assigned in the input. This incurs a DEP violation introduced in (66d), which states that the topic salience feature $(-ht)$ assigned to a particular argument in the output must also be present on that same argument in the input.

In (72), all except candidate a and d are ruled out by the high-ranked faithfulness constraints $\text{MAX}(-ht)$ and $\text{MAX}(-hr)$: as stated in (66a), $\text{MAX}(-ht)$ is satisfied by the TM agreeing with the topically salient argument (the argument with the $(-ht)$ feature); $\text{MAX}(-hr)$ is satisfied by either the TM or SM agreeing with the highest argument. Candidate d incurs the fatal violation of $*\text{OM}/\sim\text{T}$, the constraint against morphological marking of a non-topical object, because the topic salience feature $(-ht)$ is assigned to the highest role, so the lower role is topically non-salient. Yet, it has the OM on the verb. Candidate a, the SVO sentence with the topic marker is thus rendered optimal.

(72) Reversal Language (discourse neutral)

Input: [-ht] x: [-hr] y: [+hr]	MAX(-ht) _M	MAX(-hr) _M	*NP _{Oj} /T	*NP _{Oj} /~T	*OM/~T	MAX(+hr) _M	*OM/T	*TM	DEP(-ht)
a. \Leftarrow Su _x [-ht] TM _x -verb Oj				*		*	...	*	*
b1. Su _x [-ht] SM _x -verb Oj	*!			*		*	...		*
b2. Su _x SM _x -verb Oj[-ht]	*!		*			*	...		*
c. Oj _y [-ht] TM _y -verb Su		*!					...	*	*
d. Su _x [-ht] TM _x -OM-verb Oj				*	*!		...	*	*
e1. Su _x [-ht] SM _x -OM-verb Oj	*!			*	*		...		*
e2. Su _x SM _x -OM-verb Oj[-ht]	*!		*				...	*	*
f. Su _y [-ht] TM _y -verb-PASS Obl _x		*!				*	...	*	*
g. Su _y [-ht] SM _y -verb-PASS Obl _x	*!	*				*	...		*

In Sesotho type languages candidate a is also rendered optimal, as the ranking of the crucial constraints for the given input is the same as that of the reversal type.

(73) Sesotho type (discourse neutral)

Input: [-ht] x: [-hr] y: [+hr]	MAX(-ht) _M	MAX(-hr) _M	*NP _{Oj} /T	*NP _{Oj} /~T	*OM/~T	*OM/T	MAX(+hr) _M	*TM	DEP(-ht)
a. \Leftarrow Su _x [-ht] TM _x -verb Oj				*			*	*	*
b1. Su _x [-ht] SM _x -verb Oj	*!			*			*		*
b2. Su _x SM _x -verb Oj[-ht]	*!		*				*		*
c. Oj _y [-ht] TM _y -verb Su		*!				*		*	*
d. Su _x [-ht] TM _x -OM-verb Oj				*	*!			*	*
e1. Su _x [-ht] SM _x -OM-verb Oj	*!			*	*				*
e2. Su _x SM _x -OM-verb Oj[-ht]	*!		*			*			*
f. Su _y [-ht] TM _y -verb-PASS Obl _x		*!					*	*	*
g. Su _y [-ht] SM _y -verb-PASS Obl _x	*!	*					*		*

In Chicheŵa, the constraint hierarchy *OM/T \gg *OM/~T is further promoted to the top of the hierarchy and eliminates candidates c, d, and e1/2: candidates d and e1 violates the top constraint of the hierarchy *OM/T \gg *OM/~T, because the topic salience feature (-ht) is assigned to the higher argument and therefore makes that argument topically salient; yet in d and e1 the lower argument is also cross-referenced by the co-occurring object agreement. Candidate c and e2 violates the lower constraint of the subhierarchy, because in c, the topically salient lower role triggers the topic agreement (= formally the OM). Candidate e2 has (-ht) assigned to the lower role; although this feature is not MAXed morphologically (by the agreeing TM), it nonetheless indicates that the lower role is topically salient. And this argument co-occurs with the agreement OM. Among the remaining candidates, the constraint against topic marking penalizes candidates a and f. Candidate b2 is eliminated by *NP_{Oj}/T, the constraint against topical object to be realized (in the object position) as a full NP. Between the remaining candidates b1 and g, b1 is rendered optimal because it faithfully represents the (-hr) argument

by subject marking, while the passive candidate in g does not.

(74) Chicheŵa type (discourse neutral)

Input: [-ht] x: [-hr] y: [+hr]		*OM/~T	*OM/T	DEP(-ht)	*TM	*NP _{Oj} /T	MAX(-ht) _M	MAX(-hr) _M	*NP _{Oj} /~T	MAX(+hr) _M
a.	Su _x [-ht] TM _x -verb Oj			*	*!				*	*
b1.	☞ Su _x [-ht] SM _x -verb Oj			*			*		*	*
b2.	Su _x SM _x -verb Oj[-ht]			*		*!	*			*
c.	Oj _y [-ht] TM _y -verb Su		*!	*	*			*		
d.	Su _x [-ht] TM _x -OM-verb Oj	*!		*	*				*	
e1.	Su _x [-ht] SM _x -OM-verb Oj	*!		*			*		*	
e2.	Su _x SM _x -OM-verb Oj[-ht]		*!	*		*	*			
f.	Su _y [-ht] TM _y -verb-PASS Obl _x			*	*!			*		*
g.	Su _y [-ht] SM _y -verb-PASS Obl _x			*			*	*!		*

The tableaux in (75)–(77) represent the input where the topic salience feature (–ht) is assigned to the highest argument. The result of the constraint evaluation is identical to that obtained in the constraint evaluation for the discourse-neutral input, because in that context, the constraint system optimally selects the subject as the default topic. The only difference is the pattern of the violations MAX(–ht)_M and DEP(–ht).

In (75) that represents reversal languages, any candidate in which the subject does not trigger topic marking violates the highest-ranked MAX(–ht)_M constraint. Only two candidates, a and d survive. Candidate d fatally violates *OM/~T because the topically non-salient object co-occurs with object agreement. The Sesotho type follows the same pattern, as illustrated in (76).

(75) Reversal Language (topical subject)

Input: [-ht] x: [-hr] y: [+hr]		MAX(-ht) _M	MAX(-hr) _M	*NP _{Oj} /T	*NP _{Oj} /~T	*OM/~T	MAX(+hr) _M	...	*OM/T	*TM	DEP(-ht)
a.	☞ Su _x [-ht] TM _x -verb Oj				*		*	...		*	
b1.	Su _x [-ht] SM _x -verb Oj	*!			*		*	...			
b2.	Su _x SM _x -verb Oj[-ht]	*!		*			*	...			*
c.	Oj _y [-ht] TM _y -verb Su	*!						...	*	*	*
d.	Su _x [-ht] TM _x -OM-verb Oj				*	*!		...		*	
e1.	Su _x [-ht] SM _x -OM-verb Oj	*!			*	*		...			
e2.	Su _x SM _x -OM-verb Oj[-ht]	*!		*				...	*		*
f.	Su _y [-ht] TM _y -verb-PASS Obl _x	*!	*				*	...		*	*
g.	Su _y [-ht] SM _y -verb-PASS Obl _x	*!	*				*	...			*

(76) Sesotho type (topical subject)

Input: [-ht] x: [-hr] y: [+hr]		MAX(-ht) _M	MAX(-hr) _M	*NP _{Oj} /T	*NP _{Oj} /~T	*OM/~T	*OM/T	MAX(+hr) _M	*TM	DEP(-ht)
a.	Su _x [-ht] TM _x -verb Oj				*			*	*	
b1.	Su _x [-ht] SM _x -verb Oj	*!			*			*		
b2.	Su _x SM _x -verb Oj[-ht]	*!		*				*		*
c.	Oj _y [-ht] TM _y -verb Su	*!	*				*		*	*
d.	Su _x [-ht] TM _x -OM-verb Oj				*	*!			*	
e1.	Su _x [-ht] SM _x -OM-verb Oj	*!			*	*				
e2.	Su _x SM _x -OM-verb Oj[-ht]	*!		*			*			*
f.	Su _y [-ht] TM _y -verb-PASS Obl _x	*!	*		*			*	*	*
g.	Su _y [-ht] SM _y -verb-PASS Obl _x	*!	*					*		*

In Chicheŵa, the only two constraints that make a difference in the constraint evaluation in (74) and (77) are low-ranked and do not play a crucial role in selecting the optimal output. The result is therefore identical.

(77) Chicheŵa type (topical subject)

Input: [-ht] x: [-hr] y: [+hr]		*OM/~T	*OM/T	DEP(-ht)	*TM	*NP _{Oj} /T	MAX(-ht) _M	MAX(-hr) _M	*NP _{Oj} /~T	MAX(+hr) _M
a.	Su _x [-ht] TM _x -verb Oj				*!				*	*
b1.	Su _x [-ht] SM _x -verb Oj						*		*	*
b2.	Su _x SM _x -verb Oj[-ht]			*!		*	*			*
c.	Oj _y [-ht] TM _y -verb Su		*!	*	*		*	*		
d.	Su _x [-ht] TM _x -OM-verb Oj	*!			*				*	
e1.	Su _x [-ht] SM _x -OM-verb Oj	*!					*		*	
e2.	Su _x SM _x -OM-verb Oj[-ht]		*!	*		*	*			
f.	Su _y [-ht] TM _y -verb-PASS Obl _x			*!	*		*	*		*
g.	Su _y [-ht] SM _y -verb-PASS Obl _x			*!			*	*		*

Finally, the tableaux in (78)–(82) represent the input where (-ht) is assigned to the lower argument. The optimal candidate will therefore be one with a topical object. In reversal languages, topical object is expressed either in S-O reversal or in the passive (see, for example, Kimenyi 1980, 1988). I assume that in the other language types, passive effectively bring the lower argument to the foreground (= topical) position by demoting the agent to the oblique status.

The constraint evaluation for reversal languages, shown in (78), yield two optima: the reversal candidate in c and the passive candidate in f with the TM. The top-ranked faithfulness constraint MAX(-ht)_M eliminates all except for candidates c and f. These remaining candidates both violate the next-highest constraint MAX(-hr)_M: in candidate c, the subject is postverbal and does not have the cross-referencing verb morphology; in candidate f, the passive is expressed as an oblique argument and does not trigger verb agreement.

Crucially in this language type, the next two constraints, $\text{MAX}(+hr)_M$ and $*\text{OM}/\text{T}$ are assumed to be closely ranked in stochastic ranking (cf. Boersma 1997, 1999, Boersma and Hayes 2001, Bresnan and Deo 2001b, Bresnan, Dingare, and Manning 2001c, Jäger 2002, among others). The dotted line indicates that these constraints float, and the ranking can swap at some constraint evaluation. The reversal candidate (c) is rendered optimal when $\text{MAX}(+hr)_M$, the faithfulness constraint on the morphological expression (+hr) ranks above $*\text{OM}/\text{T}$, the markedness constraint against expression of topically salient object by agreement. If the former ranks below the latter, the passive candidate prevails. Indeed, according to Juvenal Ndayiragije (p.c. 2000) and Alexandre Kimenyi (p.c. 2000), these constructions are used quite freely in Kirundi and Kinyarwanda.

(78) Reversal Language (topical object)

Input: [-ht] x: [-hr] y: [+hr]	$\text{MAX}(-ht)_M$	$\text{MAX}(-hr)_M$	$*\text{NP}_{O_j}/\text{T}$	$*\text{NP}_{O_j}/\sim\text{T}$	$*\text{OM}/\sim\text{T}$	$\text{MAX}(+hr)_M$...	$*\text{OM}/\text{T}$	$*\text{TM}$	$\text{DEP}(-ht)$
a. $\text{Su}_x[-ht] \text{TM}_x\text{-verb Oj}$	*!			*		* ...		*	*
b1. $\text{Su}_x[-ht] \text{SM}_x\text{-verb Oj}$	*!			*		* ...			*
b2. $\text{Su}_x \text{SM}_x\text{-verb Oj}[-ht]$	*!		*			* ...			
c. $\text{Oj}_y[-ht] \text{TM}_y\text{-verb Su}$		*				... *		*	
d. $\text{Su}_x[-ht] \text{TM}_x\text{-OM-verb Oj}$	*!			*	*	... *		*	*
e1. $\text{Su}_x[-ht] \text{SM}_x\text{-OM-verb Oj}$	*!			*	*	... *			*
e2. $\text{Su}_x \text{SM}_x\text{-OM-verb Oj}[-ht]$	*!		*			... *			
f. $\text{Su}_y[-ht] \text{TM}_y\text{-verb-PASS Obl}_x$		*				* ...		*	
g. $\text{Su}_y[-ht] \text{SM}_y\text{-verb-PASS Obl}_x$	*!	*				* ...			

In addition, S-O reversal is not possible with all predicate types. Predicate types for which the lower argument outranks the higher argument in terms of animacy resist reversal, as illustrated in (79)–(80).

- (79) a. Urushiinge ru-ra-joomb-a umwaana. [-hr] < [+hr] [anim]
 needle it-AF-pierce-ASP child inan-human
 ‘The needle will pierce the child.’
- b. *Umwaana a-joomb-a urushiinge. *reversal
 child he-pierce-ASP needle Krw
 ‘The child will be pierced by the needle.’
- (80) a. Akayabu ka-a-ra-fyese umuhungu. [-hr] < [+hr] [anim]
 cat it-PAST-AF-lick:PERF boy anim-human
 ‘The cat licked the boy.’
- b. Umuhungu a-a-fyese akayabu. *reversal
 boy he-PAST-lick:PERF cat Kdi
 *‘The boy was licked by the cat.’

In these examples, the higher argument outranked by the lower argument in animacy: inanimate subject and human object in (79); and animate subject and human object in (80). In such cases, the only available expression of the information structure in these utterances is

the passive.¹⁰

Sesotho type languages are obtained when the stochastic ranking of $\text{MAX}(+hr)_M$ and $*OM/T$ is fixed, and the latter strictly dominates the former, as shown in (81). Thus in Sesotho type languages, there is no optionality, and only the passive construction is available to express the topic salience of the lower argument.

(81) Sesotho type (topical object)

Input: [-ht] x: [-hr] y: [+hr]		$\text{MAX}(-ht)_M$	$\text{MAX}(-hr)_M$	$*NP_{Oj}/T$	$*NP_{Oj}/\sim T$	$*OM/\sim T$	$*OM/T$	$\text{MAX}(+hr)_M$	$*TM$	$\text{DEP}(-ht)$
a.	$Su_x[-ht] TM_x\text{-verb } O_j$	*!			*			*	*	*
b1.	$Su_x[-ht] SM_x\text{-verb } O_j$	*!			*			*		*
b2.	$Su_x SM_x\text{-verb } O_j[-ht]$	*!		*				*		
c.	$O_j y[-ht] TM_y\text{-verb } Su$		*				*!		*	
d.	$Su_x[-ht] TM_x\text{-OM-verb } O_j$	*!			*	*			*	*
e1.	$Su_x[-ht] SM_x\text{-OM-verb } O_j$	*!			*	*				*
e2.	$Su_x SM_x\text{-OM-verb } O_j[-ht]$	*!		*			*			
f. \rightarrow	$Su_y[-ht] TM_y\text{-verb-PASS } Obl_x$		*					*	*	
g.	$Su_y[-ht] SM_y\text{-verb-PASS } Obl_x$	*!	*					*		

(82) Chicheŵa type (topical object)

Input: [-ht] x: [-hr] y: [+hr]		$*OM/\sim T$	$*OM/T$	$\text{DEP}(-ht)$	$*TM$	$*NP_{Oj}/T$	$\text{MAX}(-ht)_M$	$\text{MAX}(-hr)_M$	$*NP_{Oj}/\sim T$	$\text{MAX}(+hr)_M$
a.	$Su_x[-ht] TM_x\text{-verb } O_j$			*!	*			*	*	*
b1.	$Su_x[-ht] SM_x\text{-verb } O_j$			*!				*	*	*
b2.	$Su_x SM_x\text{-verb } O_j[-ht]$					*!		*		*
c.	$O_j y[-ht] TM_y\text{-verb } Su$		*!		*		*			
d.	$Su_x[-ht] TM_x\text{-OM-verb } O_j$	*!		*	*			*	*	
e1.	$Su_x[-ht] SM_x\text{-OM-verb } O_j$	*!		*				*	*	
e2.	$Su_x SM_x\text{-OM-verb } O_j[-ht]$		*!			*		*		
f.	$Su_y[-ht] TM_y\text{-verb-PASS } Obl_x$				*!		*			*
g. \rightarrow	$Su_y[-ht] SM_y\text{-verb-PASS } Obl_x$						*	*		*

In the Chicheŵa type faithfulness for topic salience $\text{MAX}(-ht)$ is demoted, and the constraint subhierarchy penalizing the morphological realization of object $*OM/\sim T \gg *OM/T$ is promoted to the top of the constraint hierarchy. This means that the reversal candidate is eliminated early, along with others that contain object agreement (either as a TM or OM). Among the remaining candidates, a and b1 violate the third-ranked $\text{DEP}(-ht)$ constraint. As noted earlier, this constraint penalizes the presence of $(-ht)$ on the argument output despite the absence of that feature on the same argument in the input. The input specifies $[+hr]$ as topically salient, but candidate a and b1 specify $[-hr]$ as topically salient. Between candidate b2 and the passive

¹⁰See Morimoto (2001b) for the discussion and outline of this analysis of these data. The relevant animacy constraints proposed in Morimoto 2001b can be integrated in the present analysis without major modification.

candidate in g, b2 is eliminated by *NP_{Oj}/T, as the lower argument, specified as topically salient, is expressed as an object NP syntactically.

6 Concluding Remarks: Implications for Diachronic Change

The key idea explored here is that in a subset of Bantu languages, the notion of discourse topic is deeply grammaticized in the form of head-marking morphology. This observation can be easily dismissed if we only examine a small set of relevant facts. But once we look elsewhere in the grammar of these languages, we discover a range of correlating facts that can only fall into place by the correct analysis of the head-marking morphology.

The present analysis brings to light the way in which topic salience plays a direct role in the patterns of argument in synchronic Bantu grammars. The variation across the Bantu family in agreement systems can be systematically derived through interaction of violable, universal constraints. The OT analysis thus relates the synchronic states of the agreement systems to the path of diachronic change in a straightforward manner, by enabling us to characterize them in a single typological space.

Meeussen (1967:120) describes that Proto-Bant had a construction analogous to S-O reversal (and locative inversion), as illustrated in (83)–(84). These data suggest that the system of topic agreement already existed in Proto-Bantu.

(83) a. nkíma jí-íji buéngé búá-mítí
 S (exp) SM-V O (theme)
 ‘The monkey knows the (cleverness of) trees.’

b. buéngé búá-mítí bú-íji nkíma
 O (theme) SM-V S (exp)
 ‘The monkey knows the (cleverness of) trees.’

(84) a. njogɔ jí-ákújide mu-duj Meeussen (1967:120)
 S (exp) SM-V LOC
 ‘The elephant died in the river.’

b. mu-duj mu-ákújide njogɔ
 LOC SM-V S (exp)
 ‘In the river (there) died an elephant.’

From the diachronic perspective, the relative markedness topic agreement (as opposed to subject agreement) motivated in the present work and the analysis in which topicality is integrated into the linking domain nonetheless together lead us to speculate that there must have been an earlier diachronic process where topic agreement developed from a more general system of linking in which all arguments could be licensed, presumably prior to the evolution of the Bantu family. In fact, given the reconstruction of Proto-Bantu as a system of topic agreement, it is possible that there was never a historical stage in which a full topic construction was gradually reduced to topic agreement. Although it is only a speculation at this point, this way of interpreting the synchronic data casts doubt on Givón’s claim of evolution of agreement depicted earlier in (1).

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