

An Optimality Account of Argument Reversal*

Yukiko Morimoto
Stanford University

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Introduction

This paper examines argument reversal constructions, as exemplified by the English locative inversion examples in (1).

- (1) a. In the cart sat a young woman who wore driving gauntlets and a wide shade hat, trimmed with red poppies. [*O Pioneer*]
- b. From the trees came the sound of steady dripping upon the drifted leaves under them ... [*Far from the Madding Crowd*]

In earlier LFG work on locative inversion, the grammatical function (GF) alternation of the theme argument (SUBJ \leftrightarrow OBJ) and locative (OBL \leftrightarrow SUBJ) was explained by (underspecified) intrinsic role classifications in Lexical Mapping Theory (LMT)¹ that constrain argument-function mapping. Bresnan and Kanerva (1989) and Bresnan (1994), for example, show that English and Chicheŵa locative inversion is allowed only with a theme-locative argument structure and proposed feature decompositions of grammatical functions that allow locative to alternate between subject and oblique and theme between subject and object, but specify agent as non-objective so that inversion involving (active) unergative predicates is not allowed (also see Perez (1983), Harford (1990) on locative inversion in Chishona).

Other works on locative inversion and presentational focus constructions (e.g. *there stood a young girl in front of the building selling flowers*) on languages other than English and Chicheŵa, however, have reported that a wider range of verb classes is allowed in these inversion constructions (Machobane 1995, Demuth 1990, Demuth and Mmusi 1997, Lødrup 1999). Demuth and Mmusi (1997), for example, present comparative data on inversion constructions from Bantu languages and show that Sesotho and Setswana allow not only a theme-locative argument structure in presentational focus but also allow agent of an unergative verbs to be in the focus (object) position. To account for these additional data, they suggest that agent and theme must be intrinsically underspecified in these languages. Other works that make use of underspecification of agent to solve the problem of agentive object in LMT include Arnold (1994) for the mapping of agent to object in inverse voice and Lødrup (1996) in the study of Norwegian existentials and resultatives.

While underspecification analyses explain a broad range of inversion data, what is not captured is the generalization that agentive objects (or patientive subjects) are cross-linguistically marked, as pointed out by Lødrup (1999). Moreover, reversal constructions like those in (1) are unique and distinct from other relation-changing processes in that there is no overt morphology to indicate demotion or promotion of grammatical functions, suggesting that these constructions are primarily discourse-driven. This relation between morphosyntactic and pragmatic markedness in inversion then should also be reflected in any analysis of inversion.

In this paper, along with the discussion of English locative inversion, I present additional data from the Bantu language Kinyarwanda which shows agent-patient reversal (as would be rendered in English as *the book read a boy*). Adopting the notion of violable constraints in Optimality Theory (OT; cf. Prince and Smolensky (1993), Archangeli and Langendoen (1997), Kager (1999) for a general overview of the theory), I show that argument reversal is a way of expressing a particular prominence relation among arguments, and that how languages express the relative prominence of arguments is constrained by an interaction of constraints on information structure and argument linking. This line of research has been pursued in recent OT work on presentational

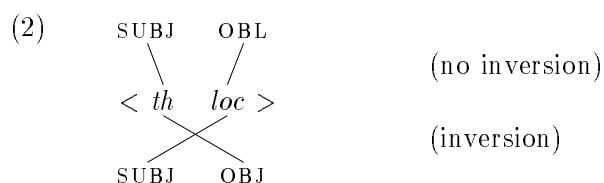
¹For earlier works and further development of Lexical Mapping Theory, see Bresnan and Moshi (1990), Bresnan and Zaenen (1990), Alsina (1992, 1996, 1997), Alsina and Mchombo (1993) and references cited therein.

focus constructions by Lødrup (1999). What I show in addition is that both types of constraints can be derived systematically using the harmonic alignment of universal markedness scales developed in OT.

Section 1 presents the formal characteristics of English locative inversion. In section 2, I present data on inversion constructions (argument reversal as well as presentational focus) from Bantu languages, drawing on Demuth and Mmusi’s work on Setswana and data from Kinyarwanda, and show cross-linguistic variation on verb classes that appear in inversion constructions. After briefly discussing the information structures of inversion constructions (section 3), in section 4 I present an OT analysis of argument reversal.

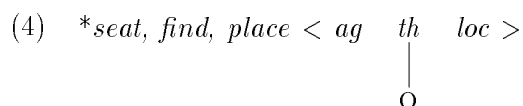
1 English Locative Inversion

Bresnan (1994) posits a single constraint that English locative inversion is restricted to predicates with the theme-locative argument structure: “Locative inversion can occur just in case the subject can be interpreted as the argument of which the location, change of location or direction expressed by the locative argument is predicated” (p.80).² The argument structure of locative inversion is schematically shown in (2).



The constraint stated above on locative inversion is reflected in the following data. First, transitive verbs where the highest argument is agent do not allow locative inversion (3). The argument structure and function mapping is schematically represented in (4).³

- (3) a. *Among the guests of honor seated my mother my friend Rose.
 b. *In this rainforest can find a lucky hiker the reclusive lyrebird.
 c. *On the table was placed Susan a tarte Tatin.



Second, not all intransitive verbs allow locative inversion. This is shown by the contrast between the (a) and (b) examples in (5)–(7) and the corresponding argument structures in (8) for the (a) examples and in (9) for the (b) examples.

²In the present discussion, I exclude inversion of non-locative elements in English (e.g. *Seated opposite him was McPherson, waiting for gossip, wondering, hoping* (Birner and Ward 1998:170)), which is restricted to *be*, for reasons discussed in Bresnan (1994).

³All the examples and (slightly modified) a-structure representations in this section are from Bresnan (1994).

- (14) a. We fought for these rights in these very halls.
 b. These rights were fought-for in these very halls.
 c. *In these halls were fought-for these rights.

- (15) *(be) fought-for < (ag) goal (th) loc >
 |
 O

As shown above, all the ungrammatical examples can be accounted for by positing the constraint that only the theme-locative argument structure (as in (2)) is allowed in the English inversion construction (also in Chicheŵa; cf. Bresnan and Kanerva (1989)).

Bresnan and Kanerva (1989) and Bresnan (1994) for both English and Chicheŵa show that the inverted locative in locative inversion is the grammatical subject, and the inverted theme is the grammatical object. Similarly in Sesotho and Setswana, Demuth and Mmusi (1997) have argued that the inverted locative is the grammatical subject and the postposed element occupies the object position. Although the grammatical function status of the inverted elements in inversion constructions is not uncontroversial for Bantu languages (see, for example Perez (1983) for Shona), there seems to be clear evidence for the subject and object status of inverted locative and theme respectively in the languages considered here. In this paper, I will not discuss this issue further and will treat the preverbal NP in inversion as the grammatical subject and postverbal NP as the object.

In the next section, I present cross-linguistic data on inversion in the Bantu languages Setswana (the facts extend to Sesotho), drawing mainly on Demuth and Mmusi's (1997) work, and Kinyarwanda. I also include presentational focus constructions with expletive subjects to show that the same conditions hold across these different but related constructions.

2 Variation in Inversion Constructions

2.1 Sesotho and Setswana

As in English and Chicheŵa, Sesotho and Setswana also permit inversion of theme-locative arguments. Demuth and Mmusi also show that these languages additionally allow reversal with intransitive unergative predicates that take an optional locative argument, as shown in (16a). A similar example is provided by Machobane (1995:132), shown in (16b).

- (16) a. Mó-le-fátshé-ng gó-fúla di-kgomó. (agent-locative reversal)
 18-5-country-LOC 17SM-graze 10-cattle
 'In the country are grazing the cattle.'
- b. Monyako hó-tsoéts-é uená.
 3:doorway 17SM-spit-PERF you
 'On the doorway spit you.'

Such intransitive unergative predicates with an optional locative argument are allowed in the presentational focus construction as well, whereas the English equivalent is unacceptable as shown in the literal translation (Demuth 1990:241).

- (17) Hó-ful-á li-pére ma-símó-ng. (expl V agent-locative)
 17SM-graze-M 10-horses 6-fields-LOC
 (lit.) ‘There are grazing horses in the field.’

The presentational focus construction (or reversal) is not permitted, however, with simple transitive predicates, as illustrated in (18) (Demuth & Mmusi p.14):⁴

- (18) a. *Gó-ét-ela ba-símané kokó. (*expl V agent-theme)
 17SM-visit-APP 2-boys 1a:grandmother
 (lit.) ‘There are visiting boys the grandmother.’
- b. *Gó-kwál-éla kokó lo-kwío.
 17SM-write-APP 1a:grandmother 5-letter
 (lit.) ‘There is writing the grandmother a letter.’

In short, the facts presented here on Sesotho/Setswana allow inversion with unaccusative and intransitive unergative, but not active transitive predicates.

2.2 Kinyarwanda

Kinyarwanda exhibits a different pattern from English/Chicheŵa and Sesotho/Setswana with respect to conditions on reversal and presentational focus constructions. First, Kinyarwanda does not allow presentational focus with any two-argument verbs, as shown by the contrast between the ungrammatical (a) examples in (19)–(20) involving two arguments, and the grammatical (b) examples with a single argument. Although example (19) is not comparable to the Setswana example in (17), given Kimenyi’s (1980) claim that the presentational focus construction is possible only with single argument verbs, I am assuming here that data like (17) is also unacceptable in Kinyarwanda.⁵

- (19) a. *Ha-ra-andik-a úmwáana n’íírámu. (*expl V agent-inst)
 it-PRES-write-ASP child with.pen
 (lit.) ‘It/there writes the child with a pen.’
- b. Ha-ra-andik-a úmwáana. (expl V agent)
 it-PRES-write-ASP
 (lit.) ‘It/there writes the girl.’
- (20) a. *Ha-ra-som-a umukoóbwa igitabo. (*expl V agent-theme)
 it-PRES-read-ASP girl book
 (lit.) ‘It/there reads the girl the book.’
- b. Ha-ra-som-a umukoóbwa. (expl V agent)
 it-PRES-read-ASP girl
 (lit.) ‘It/there reads the girl.’

⁴Demuth and Mmusi show that intransitive verbs whose sole argument is agent are also allowed in the presentational focus construction.

⁵All the examples from Kinyarwanda are taken from Kimenyi (1980) unless indicated otherwise.

On the other hand, Kinyarwanda allows reversal of all argument structure types we have been concentrating on in our discussion: theme-locative (21), agent-locative (22), and agent-theme (23). Although not shown here, Kinyarwanda also allows reversal with predicates that take optional oblique arguments other than locative (e.g. instrument, manner) if they are advanced by applicative (see Kimenyi 1980:141).⁶

- (21) a. Umupira w-a-togo-tse ku musozi. (theme-locative)
 ball SM-PST-roll-ASP on hill
 ‘The ball rolled down the hill.’
- b. Umusozi w-a-togo-tse-ho umupira. (reversal)
 hill SM-PST-roll-ASP-LOC ball
 (lit.) ‘The hill rolled-down the ball.’
- (22) a. Umúnyéeshuûri y-a-gii-ye kw’iishuûri. (agent-locative)
 student SM(he)-PAST-go-ASP to.school
 ‘The student went to school.’
- b. Kw’iishuûri ha-a-gii-ye umúnyéeshuûri. (reversal)
 to.school SM(it)-PAST-go-ASP student
 (lit.) ‘To school went the student.’
- (23) a. Umuhuûngu a-ra-som-a igitabo. (agent-theme)
 boy SM(he)-PRES-read-ASP book
 ‘The boy is reading the book.’
- b. Igitabo cyi-ra-som-a umuhuûngu. (reversal)
 book SM(it)-PRES-read-ASP boy
 (lit.) ‘The book is reading the boy.’
 (‘The book is being read by the boy.’)

In sum, Kinyarwanda allows reversal with even a wider range of verb classes than Sesotho/Setswana, although it does not allow presentational focus with two-argument verbs.

2.3 Summary

Table 1 summarizes the cross-linguistic variation of inversion constructions presented above.

⁶The examples in (21) are generously provided by Alexandre Kimenyi (p.c., June 1999). Note that in (21) both ‘ball’ and ‘hill’ belong to the same noun class, so the subject marker is *w-* in both non-reversal and reversal sentences.

Construction	Argument Structure	English	Sesotho/ Setswana	KRW
Reversal	loc-S V th-O	✓	✓	✓
Expletive subject	expl V th-O loc-OBL	✓	✓	*
Reversal	loc-S V ag-O	*	✓	✓
Expletive subject	expl V ag-O loc-OBL	*	✓	*
Reversal	th-S V ag-O	*	*	✓
Expletive subject	expl V ag-O ₁ th-O ₂	*	*	*
Expletive subject	expl V th-O	✓	✓	✓
	expl V ag-O	*	✓	✓

Table 1: Inversion Constructions

We can state some descriptive generalizations that emerge from the cross-linguistic comparison of the inversion constructions in table 1. First, in English, the generalization seems to be that an agentive object is not allowed in these constructions: reversal or presentational focus is possible only with theme-locative arguments. The marked association of agent to object has been characterized by an explicit constraint against agentive objects in recent OT literature (e.g. Legendre, Raymond, and Smolensky 1993, Aissen 1998, Lødrup 1999, Sells 1999a).

At the other extreme is Kinyarwanda, which allows argument reversal with all three argument structure types. However, the presentational focus construction is allowed only with single argument verbs. This might be a reflection of a constraint that expletive subjects are generally dispreferred: an expletive subject is allowed only when there is no other argument to fill the subject position.

In Sesotho and Setswana, as observed by Demuth and Mmusi (1997), argument reversal is not possible when both agent and patient are present (i.e. active transitive predicates). As discussed earlier, Demuth and Mmusi also show that the presentational focus construction is not possible in Sesotho and Setswana with active transitive predicates where both agent and patient in postverbal position. They claim that the ungrammaticality of (18) is not due to a constraint on thematic structure; rather, the examples are ruled out because agent and theme compete for the focus position (immediately postverbal). So the agent cannot be postposed when the theme is already present. At this point, I do not have a better explanation to offer. In the rest of the paper, I will restrict the discussion to argument reversal, although the analysis of reversal should extend to expletive focus constructions without major modification.

3 Information Structure

Inversions such as those in (1) have been identified as carrying a discourse function of presentational focus (e.g. Rochemont 1986, Rochemont and Culicover 1990, Bresnan 1994). According to Culicover and Rochemont (1983), “presentational focus” represents information that has not been introduced into the discourse, although in later work (e.g. Rochemont 1986), focus is interpreted as an element that is not old information, or newer relative to topic. In other works, relative discourse newness is taken to be the key to explaining the discourse structure of inversion constructions (e.g. Birner 1994, Birner and Ward 1998). I will not discuss in detail the exact nature of focus in argument reversal constructions, but the previous studies on all the languages considered here all identify some type of focusing effect of the postposed element.

In English and Chicheŵa, the postposed subject in locative inversion is presentationally focused but can also be used as contrastive focus (Bresnan and Kanerva 1989); in Kinyarwanda and a

neighboring language Kirundi (which also has agent-patient reversal), the postposed argument receives focus (Kimenyi 1980, 1988, McGinnis 1999), and is said to be in the unmarked focus position (postverbal). The same is true for Sesotho and Setswana, and at least for Sesotho/Setswana and Chichewa, there is clear evidence from phrasal phonology and word order patterns that the postposed element in inversion constructions is in the object position (Demuth and Mmusi 1997, Bresnan and Kanerva 1989).

The preposed element in argument reversal, on the other hand, is said to be topical, or relatively old information and more salient (e.g. Birner and Ward 1998)—that is, the information is either already evoked in prior discourse or inferable from the context. The topic-hood of the preposed element can be identified by the following characteristics: (i) it cannot appear in *wh*-questions or clefts (in English), in which the questioned or clefted element is focus, and (ii) it can be relativized (and the relativized element is always topic). These facts can be explained if we assume that the preposed element in reversal bears a TOPIC function (cf. Bresnan and Mchombo 1987).

In my analysis, I will draw mainly on the characterization of the discourse structure in argument reversal observed by Birner and Ward, and assume that the postposed element is focus, relatively new information, and the preposed element is topic, relatively old information in the reversal construction. A more fine-grained distinction of focus and the discourse effect of reversal with different verb classes (e.g. unaccusative vs. unergative) might turn out to be more desirable in future work.

4 Optimality Account

This section presents an OT analysis of the cross-linguistic variation on reversal discussed in sections 1 and 2. The core of my analysis builds on the argument put forward by Aissen (1998) and further developed by Arstein (1998) that markedness expressed in terms of the harmonic alignment of universal scales plays a central role in explaining various morphosyntactic phenomena such as the active-passive and direct-inverse oppositions, and accusative-ergative splits in ergative languages. I argue that argument reversal arises as a consequence of an interaction between argument structure and information structure expressed in terms of markedness constraints.

4.1 Input, GEN, and Candidates

The INPUT in OT is assumed to be universal, according to “richness of the base” (Smolensky 1996). In OT syntax, the INPUT is taken to consist of a predicator and its argument(s), and other morphosyntactic and semantic information in a language independent form (Bresnan To appear, Bresnan 1998). The generator GEN provides all possible linguistic forms of language made available by Universal Grammar. Here I take a candidate to be a pair of an f-structure and a c-structure, though only selected information is given for clarity and compactness.

4.2 Constraints

In establishing a set of constraints needed to account for the present data, I first show that the morphosyntactic markedness of inversion constructions that exhibit non-canonical linking patterns can be expressed through harmonic alignment of two universal scales, the relational hierarchy and the thematic hierarchy. In addition, I extend the notion of harmonic alignment to functional realization of discourse information to represent the generalization that subjects tend to be old(er)/familiar information cross-linguistically. The systematic derivation of the constraints on linking and information structure is shown in (24).

(24) Universal Scales	Harmonic Alignment	Constraint Hierarchies
Su > Nsu	Su/Pa > Su/Pp	C ₁ *Su/Pp ≫ *Su/Pa
Pa > Pp	Nsu/Pp > Nsu/Pa	C ₂ *Nsu/Pa ≫ *Nsu/Pp
[-NEW] > [+NEW]	Su/[-NEW] > Su/[+NEW]	C ₃ *Su/[+NEW] ≫ *Su/[-NEW]

Su: Subject, Nsu: Non-Subject, Pa: Proto-Agent, Pp: Proto-Patient

Harmonic alignment of the universal scales, shown in the middle column in (24), is one in which the highest element on one scale aligns with that of the other. The marked alignment of the two scales is derived by reversing a sub-hierarchy of harmonic alignment and prefixing the avoid operator “*”, shown in the last column in (24). Each of the constraint hierarchies in C₁–C₃ constitutes a sub-hierarchy which is universally fixed, although the elements in a given sub-hierarchy can be interpolated with other constraints. The top-most alignment in each constraint sub-hierarchy generally figures more prominently in the OT grammar.

The top-most constraints in C₁ (*Su/Pp) and C₂ (*Nsu/Pa) disprefer patientive subject and agentive non-subject respectively. The constraint which will be crucial for English—that agentive objects are to be avoided—is expressed by the latter. In Sesotho and Setswana, agentive object is permitted in reversal involving intransitive unergative predicates, as in (16), but not with simple transitive predicates where patient is subject. This generalization can be expressed by local conjunction of two linking constraints (*Su/Pp & *Nsu/Pa): co-occurrence of patientive subject and agentive non-subject is banned. Local conjunction, first proposed by Smolensky (1995), is designed to rule out the ‘worst of the worst’ case: marked structures (e.g. agentive objects, patientive subjects) are admitted in a grammar, but not when they co-occur in the same domain.⁷ The restriction in Sesotho and Setswana stated above represents the ‘worst of the worst’ case. Marked linking of argument to function without a morphological mark (e.g. passive, inverse, or case morphology) is penalized by local conjunction of the linking constraints, conjoined with a constraint against zero marking “*∅” (cf. Aissen 1998). These linking constraints are stated in (25). I omit the constraint against patientive subject (*Su/Pp) as it does not, by itself, play a crucial role.

(25) **Linking Constraints**

- a. [*Su/Pp & *Nsu/Pa] & *∅ (abbreviated as *Su/Pp & *Nsu/Pa): Penalize the co-occurrence of Proto-Patient realized as subject and Proto-Agent realized as non-subject without a morphological mark.
- b. *Nsu/Pa: Penalize a Proto-Agent that is realized as a non-subject.

Importantly, locally conjoined constraints universally outrank single constraints. It follows that, in the present context, co-occurrence of patientive subject and agentive object is universally worse than having an agentive object alone. This predicts that if a language allows reversal with transitive predicates, as in Kinyarwanda, it must also allow reversal with intransitive unergative predicates. The reverse, however, is not necessarily true: Sesotho and Setswana allow the latter but not the former.

The constraint in (26) expresses the generalization that subjects tend to be old(er) information cross-linguistically. This constraint captures the observation that a (presentationally) focused element appears postverbally and belongs in object position in inversion constructions (e.g. Bresnan

⁷For formal definition of local conjunction, see Smolensky (1995:4).

1994, Demuth and Mmusi 1997).

(26) **Information Structuring Constraint**

*Su/[+NEW]: Penalize subjects that represent new information (or “subjects cannot be new information”).

In addition, we will need constraints that derive the basic clause structure and positioning of discourse prominent elements (topic and focus). In the present discussion, I adopt the alignment constraint TOPIC-LEFT (Sells 1999b), and omit other constraints that give us the phrase structures in the languages considered here for simplicity.⁸

(27) TOPIC-LFT: Topic aligns left in the clause (count from left for number of violations).

The two subject constraints in (28) are needed to constrain alternative competing structures that could represent input information. The subject constraint in (28a) is familiar in other frameworks such as LFG.⁹ Variants of the constraint in (28b) have been proposed elsewhere in the OT literature (e.g. Grimshaw 1997, Grimshaw and Samek-Lodovici 1998, Lødrup 1999).

(28) a. SUBJECT: Every predicate must have a subject.

b. *EXPLETIVE: Avoid expletive subject.

The faithfulness constraint in (29) ensures that the optimal candidate faithfully represents the discourse information (newness) in the input (cf. Choi 1999, Legendre et al. 1993, Sells 1999a).

(29) FAITH(PROM): The prominence levels (e.g. neutral; discourse-prominent (topic or focus)) in the input must be faithfully represented in the output.

Of these constraints, again the crucial interaction in the evaluation will be between the linking constraints in (25) and the discourse constraints in (26) and (27).

4.3 Deriving the Cross-Linguistic Variation in Argument Reversal

The crucial ranking differences among the three language types considered here are shown in (30a). In English, the constraint against agentive non-subjects (*Nsu/Pa) outranks the discourse constraints. The effect of this is that, for example, even when agent is focus (= discourse prominent and new information), it will not be realized as object. This will incur a violation for *Su/[+NEW], but since it is lower-ranked the violation is not fatal. On the other hand, when a non-agent (proto-patient or other non-protoroles like locative) is topical, the discourse constraint TOPIC-LEFT will force it to be left-most, provided that *Nsu/Pa is not violated.¹⁰

In Sesotho/Setswana, the discourse constraints rank below *Su/Pp&*Nsu/Pa but above the single constraint *Nsu/Pa. Thus these languages allow an agent to be realized as object when it is relatively new information, but do not allow co-occurrence of a patientive subject and agentive

⁸For recent development of OT constraints on word order, see Costa (1997, 1998), Grimshaw (1997), Grimshaw and Samek-Lodovici (1998), Samek-Lodovici (1998a, 1998b), and Sells (1998, 1999b).

⁹This subsumes the markedness constraints {*OBL \gg *OBJ \gg *SUBJ} which say that the preferred expression of an argument is as subject (cf. Butt, Dalrymple, and Frank (1997) for a similar approach).

¹⁰More precisely, the inverted locative fills an IP-adjoined position since SpecIP is reserved for nominal categories (see Bresnan 1994).

object even when the patient is topical. Note that this does not mean patientive subject and agentive non-subject are banned all together, as these languages certainly have passive. However, the passive corresponds to a different input (with a different prominence relation of arguments), and for that input, the optimal output would be one in which agent is realized as a demoted or suppressed argument. In Kinyarwanda, the discourse constraints outrank both linking constraints. The effect is that any argument which is new information must be in immediately postverbal focus position.

(30) a. **English:**

*Su/Pp&*Nsu/Pa \gg *Non-Su/Pa \gg {*Su/[+NEW], TOPIC-LFT}

b. **Sesotho/Setswana:**

*Su/Pp&*Nsu/Pa \gg {*Su/[+NEW], TOPIC-LFT} \gg *Non-Su/Pa

c. **Kinyarwanda:**

{*Su/[+NEW], TOPIC-LFT} \gg *Su/Pp&*Nsu/Pa \gg *Non-Su/Pa

The tableau in (31) represents the input {ag = Focus, pt = Topic} and a set of candidates generated by GEN. The subscript *T* for Topic and *F* for Focus in the candidate set indicate that the argument associated with *T/F* is discourse-prominent; those without *T/F* are discourse-neutral. In (31), the high-ranking linking constraint *Nsu/Pa prefers agent to be realized as subject, even though that would violate the discourse constraint *Su/[+NEW]. Agent-patient reversal (candidate (b)) is therefore ruled out, and the optimal output is object topicalization (c). In Sesotho/Setswana, shown in (32), agent-patient reversal is ruled out by *Su/Pp&*Nsu/Pa. Respecting TOPIC-LFT, a topical patient will be topicalized to initial position. Moreover, because *Nsu/Pa is lower-ranked than the discourse constraint, the focal agent will be realized as object. The optimal candidate is (i), which gives a sentence like *the book, there reads a girl*.¹¹ On the other hand in Kinyarwanda, shown in (33), both linking constraints are lower-ranked than the discourse constraints, which place the topical element in initial position and force the focal element to be non-subject. The resultant form is reversal (b). Note also in passing that if the input contains agent and patient that are both discourse neutral (no topic or focus), in all the languages here the candidate in (j) will win: it faithfully represents the prominence level of the input (neutral) and violates no lower-ranked constraint.

¹¹This is not yet verified empirically.

(31) No agent-theme reversal in English

Input: ag = Focus, pt = Topic

	FAITH(PROM)	SUBJECT	*Su/Pp&*Nsu/Pa	*Nsu/Pa	*Su/+NEW	TOPIC-LFT	*EXPLETIVE
a. [IP ag _F -S [VP V pt _T -O]]					*	2!	
b. [IP pt _T -S [VP V ag _F -O]]			*!	*		0	
c. □ [IP pt _T -O [IP ag _F -S [VP V]]]					*	0	
d. [IP pt _T -O [IP ag-S [VP V]]]	*!					0	
e. [IP pt _T -O [IP ag-S [VP V]]]	*!					0	
f. [IP expl [VP V ag _F -O pt-O]]	*!			*			*
g. [IP expl [VP V ag _F -O pt _T -O]]				*!		3	*
h. [IP ∅ [VP V ag _F -O pt-O]]	*!	*		*			
i. [IP pt _T -O [IP expl [VP V ag _F -O]]]				*!	*	0	*
j. [IP ag-S [VP V pt-O]]	*!*						

(32) No agent-theme reversal in Sesotho/Setswana

Input: ag = Focus, pt = Topic

	FAITH(PROM)	SUBJECT	*Su/Pp&*Nsu/Pa	*Su/+NEW	TOPIC-LFT	*EXPLETIVE	*Nsu/Pa
a. [IP ag _F -S [VP V pt _T -O]]				*!	2		
b. [IP pt _T -S [VP V ag _F -O]]			*!		0		*
c. [IP pt _T -O [IP ag _F -S [VP V]]]				*!	0		
d. [IP pt _T -O [IP ag-S [VP V]]]	*!				0		
e. [IP pt _T -O [IP ag-S [VP V]]]	*!				0		
f. [IP expl [VP V ag _F -O pt-O]]	*!					*	*
g. [IP expl [VP V ag _F -O pt _T -O]]					3!	*	*
h. [IP ∅ [VP V ag _F -O pt-O]]	*!	*					*
i. □ [IP pt _T -O [IP expl [VP V ag _F -O]]]					0	*	*
j. [IP ag-S [VP V pt-O]]	*!*						

(33) Agent-patient reversal in Kinyarwanda

Input: ag = Focus, pt = Topic

		FAITH(PROM)	SUBJECT	*Su/+NEW	TOPIC-LFT	*EXPLETIVE	*Su/Pp&*Nsu/Pa	*Nsu/Pa
a.	[<i>IP</i> ag _F -S [<i>VP</i> V pt _T -O]]			*!	2			
b. □	[<i>IP</i> pt _T -S [<i>VP</i> V ag _F -O]]				0		*	*
c.	[<i>IP</i> pt _T -O [<i>IP</i> ag _F -S [<i>VP</i> V]]]			*!	0			
d.	[<i>IP</i> pt _T -O [<i>IP</i> ag-S [<i>VP</i> V]]]	*!			0			
e.	[<i>IP</i> pt _T -O [<i>IP</i> ag-S [<i>VP</i> V]]]	*!			0			
f.	[<i>IP</i> expl [<i>VP</i> V ag _F -O pt-O]]	*!				*		*
g.	[<i>IP</i> expl [<i>VP</i> V ag _F -O pt _T -O]]				3!	*		*
h.	[<i>IP</i> ∅ [<i>VP</i> V ag _F -O pt-O]]	*!	*					*
i.	[<i>IP</i> pt _T -O [<i>IP</i> expl [<i>VP</i> V ag _F -O]]]				0	*!		*
j.	[<i>IP</i> ag-S [<i>VP</i> V pt-O]]	*!*						

For predicates with agent and locative arguments, the result of the constraint evaluation will be the same as transitive predicates for English, shown in (34): an agentive object will be avoided, and the winning candidate is one that represents topicalization of the locative argument. In Sesotho/Setswana, the high-ranked *Su/Pp&*Nsu/Pa is not relevant for the candidates that are shown here.¹² So the discourse constraints come to be decisive; the optimal form is reversal of agent and locative (b), thereby making the focused agent the non-subject and the locative, the older information, the subject. The situation in Kinyarwanda is the same as the earlier tableau for agent-patient reversal. The reversal construction (b) is the winning candidate.

¹²Of course, by ‘freedom of analysis’ (Kager 1999), other candidates (e.g. the candidate set in the earlier tableaux) can be evaluated here as well, but they would all violate a high-ranking faithfulness constraint that requires that the input argument role be faithfully represented, though omitted in the present discussion.

(34) No agent-locative reversal in English

Input: ag = Focus, loc = Topic

	FAITH(PROM)	SUBJECT	*Su/Pp&*Nsu/Pa	*Nsu/Pa	*Su/+NEW	TOPIC-LFT	*EXPLETIVE
a. [IP ag _F -S [VP V loc _T -OBL]]					*	2!	
b. [IP loc _T -S [VP V ag _F -O]]				*!		0	
c. □ [IP loc _T -OBL [IP ag _F -S [VP V]]]					*	0	
d. [IP loc _T -OBL [IP ag-S [VP V]]]	*!					0	
e. [IP loc _T -OBL [IP ag-S [VP V]]]	*!					0	
f. [IP expl [VP V ag _F -O loc-OBL]]	*!			*			*
g. [IP expl [VP V ag _F -O loc _T -OBL]]				*!		3	*
h. [IP ∅ [VP V ag _F -O loc-OBL]]	*!	*		*			
i. [IP loc _T -OBL [IP expl [VP V ag _F -O]]]				*!		0	*
j. [IP ag-S [VP V loc-OBL]]	*!*						

(35) Agent-locative reversal in Sesotho/Setswana

Input: ag = Focus, loc = Topic

	FAITH(PROM)	SUBJECT	*Su/Pp&*Nsu/Pa	*Su/+NEW	TOPIC-LFT	*EXPLETIVE	*Nsu/Pa
a. [IP ag _F -S [VP V loc _T -OBL]]				*!	2		
b. □ [IP loc _T -S [VP V ag _F -O]]					0		*
c. [IP loc _T -OBL [IP ag _F -S [VP V]]]				*!	0		
d. [IP loc _T -OBL [IP ag-S [VP V]]]	*!				0		
e. [IP loc _T -OBL [IP ag-S [VP V]]]	*!				0		
f. [IP expl [VP V ag _F -O loc-OBL]]	*!					*	*
g. [IP expl [VP V ag _F -O loc _T -OBL]]					3!	*	*
h. [IP ∅ [VP V ag _F -O loc-OBL]]	*!	*					*
i. [IP loc _T -OBL [IP expl [VP V ag _F -O]]]					0	*!	*
j. [IP ag-S [VP V loc-OBL]]	*!*						

(36) Agent-locative reversal in Kinyarwanda

Input: ag = Focus, loc = Topic

	FAITH(PROM)	SUBJECT	*Su/+NEW	TOPIC-LFT	*EXPLETIVE	*Su/Pp& *Nsu/Pa	*Nsu/Pa
a. [IP ag _F -S [VP V loc _T -OBL]]			*!	2			
b. □ [IP loc _T -S [VP V ag _F -O]]				0			*
c. [IP loc _T -OBL [IP ag _F -S [VP V]]]			*!	0			
d. [IP loc _T -OBL [IP ag-S [VP V]]]	*!			0			
e. [IP loc _T -OBL [IP ag-S [VP V]]]	*!			0			
f. [IP expl [VP V ag _F -O loc-OBL]]	*!				*		*
g. [IP expl [VP V ag _F -O loc _T -OBL]]				3!	*		*
h. [IP ∅ [VP V ag _F -O loc-OBL]]	*!	*					*
i. [IP loc _T -OBL [IP expl [VP V ag _F -O]]]				0	*!		*
j. [IP ag-S [VP V loc-OBL]]	*!*						

For predicates with the theme-locative argument structure, reversal is the optimal form in all three language types: neither of the linking constraints will be relevant since they refer only to the functional realization of Proto-Agent and that of Proto-Patient where Proto-Agent is also present.

(37) Theme-locative reversal in English

Input: pt = Focus, loc = Topic

	FAITH(PROM)	SUBJECT	*Su/Pp& *Nsu/Pa	*Nsu/Pa	*Su/+NEW	TOPIC-LFT	*EXPLETIVE
a. [IP pt _F -S [VP V loc _T -OBL]]					*!	2	
b. □ [IP loc _T -S [VP V pt _F O]]						0	
c. [IP loc _T -OBL [IP pt _F -S [VP V]]]					*!	0	
d. [IP loc _T -OBL [IP pt-S [VP V]]]	*!					0	
e. [IP loc _T -OBL [IP pt-S [VP V]]]	*!					0	
f. [IP expl [VP V pt _F O loc-OBL]]	*!						*
g. [IP expl [VP V pt _F O loc _T -OBL]]						3!	*
h. [IP ∅ [VP V pt _F O loc-OBL]]	*!	*					
i. [IP loc _T -OBL [IP expl [VP V pt _F -O]]]						0	*!
j. [IP pt-S [VP V loc-OBL]]	*!*						

(38) Theme-locative reversal in Sesotho/Setswana

Input: pt = Focus, loc = Topic

	FAITH(PROM)	SUBJECT	*Su/Pp& *Nsu/Pa	*Su/+NEW	TOPIC-LFT	*EXPLETIVE	*Nsu/Pa
a. [IP pt _F -S [VP V loc _T -OBL]]				*!	2		
b. □ [IP loc _T -S [VP V pt _F O]]					0		
c. [IP loc _T -OBL [IP pt _F -S [VP V]]]				*!	0		
d. [IP loc _T -OBL [IP pt-S [VP V]]]	*!				0		
e. [IP loc _T -OBL [IP pt-S [VP V]]]	*!				0		
f. [IP expl [VP V pt _F -O loc-OBL]]	*!					*	
g. [IP expl [VP V pt _F O loc _T -OBL]]					3!	*	
h. [IP ∅ [VP V pt _F -O loc-OBL]]	*!		*				
i. [IP loc _T -OBL [IP expl [VP V pt _F -O]]]					0	*!	
j. [IP pt-S [VP V loc-OBL]]	*!*						

(39) Theme-locative reversal in Kinyarwanda

Input: pt = Focus, loc = Topic

	FAITH(PROM)	SUBJECT	*Su/+NEW	TOPIC-LFT	*EXPLETIVE	*Su/Pp& *Nsu/Pa	*Nsu/Pa
a. [IP pt _F -S [VP V loc _T -OBL]]			*!	2		*	
b. □ [IP loc _T -S [VP V pt _F O]]				0			
c. [IP loc _T -OBL [IP pt _F -S [VP V]]]			*!	0			
d. [IP loc _T -OBL [IP pt-S [VP V]]]	*!			0			
e. [IP loc _T -OBL [IP pt-S [VP V]]]	*!			0			
f. [IP expl [VP V pt _F -O loc-OBL]]	*!				*		
g. [IP expl [VP V pt _F O loc _T -OBL]]				3!	*		
h. [IP ∅ [VP V pt _F O loc-OBL]]	*!						
i. [IP loc _T -OBL [IP expl [VP V pt _F -O]]]				0	*!		
j. [IP pt-S [VP V loc-OBL]]	*!						

4.4 English Locative Inversion

Returning to the earlier data on English locative inversion presented in section 1, I illustrate how the current proposal of argument reversal accounts for the core cases, and also point out remaining problems. First, inversion involving transitive predicates like the example in (40) is ruled out by *Nsu/Pa, as the agent *Susan* is realized in the object position.

- (40) *On the table was placed Susan a tarte Tatin. (= (3c))
 *[*IP loc_{T-S}* [*VP V_{pass} ag_{F-O}₁ pt-O₂*]]

Second, the contrast in acceptability between the (41a) and (41b), again, follows from the high-ranking *Nsu/Pa constraint. (41a) represents an inversion of theme and locative, the winning candidate in (37b), whereas (41b) involves inversion of agent and locative which corresponds to the losing candidate in (34b).

- (41) a. Among the guest was sitting my friend Rose. (= (5a))
 [*IP loc_{T-S}* [*VP V pt_{F-O}*]] (= (37b))
 b. *Among the guest was knitting my friend Rose. (= (5b))
 *[*IP loc_{T-S}* [*VP V ag_{F-O}*]] (= (34b))

Third, in the passive where the agent is suppressed and theme argument is the highest argument, locative inversion is possible since *Nsu/Pa is not relevant.

- (42) Among the guests of honor was seated my mother. (= (10a))
 [*IP loc_{T-S}* [*VP V_{pass} pt_{F-O}*]] (= (37b))

There are two sets of data that are not captured by the analysis.¹³ One is the fact that locative inversion is not possible in the passive when an oblique agent is present (cf. (12)). In the way the constraint system is set up, the structure in (43) is ruled out by *Nsu/Pa. However, we do not want to rule out an oblique agent of passive all together in English. In fact in a fuller analysis, we assume a different input for passive in which agent is non-prominent (as opposed to discourse-neutral or discourse-prominent): an optimal output for that input is one in which a non-prominent agent is realized as a demoted argument (oblique) or suppressed. With that in mind, (43) is allowed in principle in the present approach: the inversion is between the theme and locative, and the agent will be realized as an oblique.

- (43) ??Among the guests of honor was seated my mother by my friend Rose. (12a)
 [*IP loc_{T-S}* [*VP V_{pass} pt_{F-O} ag-OBL*]] (not ruled out)

There might be an alternative explanation, however, for these cases. Speakers I have consulted with seemed to find locative inversion with a passive verb containing a phrase other than an

¹³In addition, Levin and Rappaport-Hovav (1995:224) present an example of inversion with a predicate which normally selects an agent, as below:

- (i) On the third floor worked two young women called Maryanne Thomson and Ava Brent, who ran the audio library and print room.

According to Bresnan (1994), this is a case in which the lexical argument structure of the agentive verb is overlaid by a theme-locative predication in the presentational focus construction. Verbs in such examples are thus not used in a sense of manner of motion but to locate the non-locative argument or characterize the scene.

oblique agent (e.g. temporal adverbial phrase, purpose clause) equally bad.¹⁴ This suggests that the unacceptability of examples like (43) is due to conditions other than the thematic structure—perhaps due to the stative interpretation of locative inversion or other semantic conditions that may need to be taken into account. Such restrictions can be made explicit in a fuller system of constraints.

Another set of data that remains unaccounted for in my analysis is an inversion in which the highest argument is goal (cf. (14)), as there is no explicit constraint against having a goal as direct object in the constraint system proposed here.

- (44) *In these halls were fought-for these rights. (= (14c))
 [_{IP} loc_{T-S} [_{VP} V-prep go-O]] (not ruled out)

Conclusion

This paper has provided further support to the idea that parameterized intrinsic classifications of roles (e.g. [-o] or underspecified in LMT) are better viewed as violable constraints which interact with constraints on discourse structure. It further demonstrates that the morphosyntactic markedness and pragmatic markedness of inversion constructions can be related and expressed through harmonic alignment of universal scales. Cross-linguistic variation on reversal can thus be derived by relative ranking of these universal constraints without recourse to language-particular stipulation on lexical properties. Much further work is needed, however, to explain a broader typology of argument reversal constructions.

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Department of Linguistics
Stanford University
Stanford, CA 93405-2150
morimoto@csli.stanford.edu