

Information focus in relational clause structure

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1 Focus-oriented split intransitivity: a markedness paradox¹

Cross-linguistic studies of the recent decades have discovered a variety of split case marking systems, which mix nominative-accusative (S=A vs. P) and ergative-absolutive (A vs. S=P) groupings of core participant roles.² The range of factors known to condition such splits in different languages includes the semantic nature of NP, its actual semantic role in the situation, tense/aspect/mood, and the grammatical status of the clause (Dixon 1994: 70-110). This paper discusses another type of case marking split, not mentioned in the classical overviews of split systems (Silverstein 1976; Comrie 1989: 129-135, 185-199; Dixon 1994: 70-110; Harris & Campbell 1995: 240-257; Van Valin 1990; and references therein), namely, splits conditioned by *focus structure* (in the sense of Lambrecht (1994)).

This phenomenon can be preliminary illustrated by two sets of examples from two unrelated languages, Dogon (1) and Tundra Yukaghir (2). Each of these languages has a nominal marker (η in Dogon and $-le(\eta)$ in Tundra Yukaghir) that subsumes three functions: it marks *information focus* (examples (a)-(b) in both sets), *P* (examples (b)-(c)) and *nominal predicate* (examples (d)). In what follows, I use the complex functional label F|P to denote such morphological markers; here F stands for “focus”, or, to be more precise, for a language-specific grammatical counterpart of focus (see §2.1 for further details).³

- (1) a. *mi dele η yele*
my brother F|P came
'MY BROTHER came.' (Sumbatova 1999: 528)
- b. *wo gaw η ebe*
he onion F|P bought
'He bought ONION.' (Sumbatova 1999: 528)
- c. *wo η baane ge bende*
he F|P father DEF hit
'FATHER beat him.' (Sumbatova 1999: 529)
- d. *nnde yaa yele ge mi dele η*
man yesterday came REL my brother F|P
'The man who came yesterday IS MY BROTHER.' (Sumbatova 1999: 528)

- (2) a. ... *qahime-leŋ* *kelu-l*
 raven-F|P came-SF
 ‘... A RAVEN came.’
- b. *met* *ten'i n'awn'iklie-leŋ* *tojore-meŋ*
 I here polar.fox-F|P chase-PF.1|2SG
 ‘I have been chasing A POLAR FOX here.’ (Maslova 2001: 8/134)
- c. *nime-le* *aq* *pajp* *wie-nun*
 dwelling-F|P only woman make-HAB(AF)
 ‘Only WOMEN install dwellings.’ (Krejnovič 1982: 210)
- d. *taŋ* *tett'ie* *leml'e-leŋ*
 that rich.man headman-F|P
 ‘That rich man WAS THE HEADMAN.’ (Maslova 2001: 6/33)⁴

These markers are incompatible with A, i.e., the information focus on A is expressed *without* overt nominal marker (examples (1c), (2c)), or, to put it the other way round, A takes unmarked case form independently of its locus in the information structure. Thus, S is encoded as A (null marker) or as P (F|P marker) depending on its information-structure role: $S_T=A$ & $S_F=P$, where T stands for topic and F for focus, cf. (2a) and (3).

- (3) *qad'ir* *apanala:* *me-kelu-j*
 DP old.woman AFF-come-ST(3)
 ‘The old woman CAME.’ (Maslova 2001: 1/251)

Structurally, this pattern resembles canonical *split intransitivity* (active/inactive) systems, which distinguish active ($S_A=A$) and inactive ($S_P=P$) S participants, yet here the split is determined not by the semantic role of S, but by its information-structure role (T vs. F). It can be referred to as *focus-oriented split intransitivity*.

At first sight, this type of split looks like a direct grammatical manifestation of the long noted discourse-pragmatic similarities between A and S, on the one hand, and P and S, on the other: A and S are the most likely *topics* of their clauses, and S and P are the most likely sites for introducing new referents; these similarities are commonly invoked to account for cross-linguistic distribution of case marking systems, including split systems conditioned by *topic-worthiness* of NPs (Chafe 1976, 1987; Comrie 1989: 127-129; Dixon 1994: 84-85; 207-213; Du Bois 1987; Payne 1997: 141-142). In Dogon and Tundra Yukaghir, the split is conditioned not by the inherent predisposition of NP towards one or another information-structure role, but by its actual locus in this structure, yet the distribution of marking patterns remains essentially the same: topical elements follow the nominative-accusative pattern, and focal elements, the ergative-absolutive pattern. It seems, therefore, that the existence of focus-oriented splits can be construed as a strong piece of evidence in favor of the hypothesis that language-specific marking patterns can be shaped by discourse-pragmatic factors, more specifically, by statistical correlations between semantic and pragmatic statuses of NPs (Comrie 1989: 127-129; Givón 1979; Bybee and Hopper 2001; Du Bois 1987; Haspelmath 1999, 2002; Hawkins 1994; Jäger forthcoming).

On the other hand, this hypothesis is commonly taken to imply that the resulting marking patterns must conform to the well-known correlation between low frequency (functional markedness) and formal markedness (the amount of morphological material),

ultimately motivated by the economy principle (Haiman 1983; Du Bois 1987). Then, the same considerations that have been invoked in the preceding paragraph to account for focus-oriented splits entail a false prediction: *focal* As are expected to be at least as morphologically marked as other, more frequent, constellations of participant roles and pragmatic roles, but in focus-oriented split systems they are *less marked* than focal Ps and Ss (see (1c) and (2c)). It is intuitively clear that the incompatibility of overt F markers with A is intrinsically related to the morphological alignment of F with P, which, in its turn, seems to be motivated by a higher frequency of this constellation of parameters. This observation suggests that somewhat embarrassing *exceptions* from the well-documented and apparently well-motivated correlation between low frequency and formal markedness can emerge as a byproduct of the same mechanism that brings about this correlation in the first place (or, to be more precise, by one of such mechanisms).

The rest of this paper falls into two parts. Section 2 is a case study of focus-oriented split intransitivity, which reveals two properties of this system in Tundra Yukaghir: a strong correlation between the grammatical encoding of focus (F) and the semantic macro-role of P, and *differential* use of the F|P marker for encoding of P_T. In Section 3, I attempt to show that this clustering of properties is not accidental and can be straightforwardly accounted for under the hypothesis that focus-oriented split patterns emerge as a result of *default role interpretation* of information-structure markers. This section also proposes a specific mechanism of the emergence of focus-oriented splits, which is formalized in the framework of Bidirectional Optimality Theory (Blutner 2000); in particular, it is shown that the markedness paradox in focus-oriented split systems can be analyzed as a particular case of the *emergence of the unmarked* in the sense of (McCarthy & Prince 1994).

2 A case study: packaging variants in Tundra Yukaghir

2.1 Terminological and notational conventions

Following Lambrecht (1994), I will use the term *focus structure* to refer to different mappings between the propositional contents of a contextualized clause and its *pragmatic articulation*. There are three basic types of pragmatic articulations, *topic-focus*, *focus-presupposition*, and *thetic*. The topic-focus articulation singles out one discourse referent (*topic*), *t*, and the information conveyed by the clause (*focus*) is construed as information *about t*. Hence, the focus includes all components of the clause except for the expression referring to *t* (topic expression) (Strawson 1964; Kuno 1972; Reinhart 1982; Gundel 1988; Lambrecht 1994; *inter alia*). In the focus-presupposition articulation, the information conveyed by the sentence is contained within one nominal constituent (*narrow focus*), whereas the remainder of the clause is construed as its *pragmatic presupposition* (Chafe 1976; Prince 1978; Lambrecht 1994; *inter alia*). In the thetic articulation, the whole clause is presented as the focus (Kuno 1972; Sasse 1987; Shibatani 1990: 262-264; Lambrecht 1994). In what follows, I refer to all components of pragmatic foci as *focal* elements; similarly, the notion of *topical* element subsumes topics proper and nominal elements of pragmatic presuppositions.

A morphosyntactic construction can but need not impose a unique focus structure on its propositional contents. Generally, the information-structure semantics of a construction can be described as its *focus set* (Reinhart 1996), i.e., the set of substructures

that *can* be interpreted as focus in appropriate discourse contexts. For example, the focus set $\omega(S_F)$ of the S_F construction in Tundra Yukaghir (exemplified in (2a) above) contains two elements: \underline{S} (focus-presupposition articulation), and $\underline{S+V}$ (thetic articulation). The focus-presupposition reading is exemplified in (4), the thetic reading, in (2a).⁵

- (4) ... *jukuol-e-l-dajut* *pon'a:-l*
 small-0-ANR-DST:F remain-SF
 ‘... only THE YOUNGEST ONE remains.’ (Maslova 2001: T1/306)

Packaging variants of a *propositional* structure π are constructions imposing different constraints on the potential focus set of π . In the context of the present paper, the notion of packaging variant does not cover variations in linear-intonational structure which often constrain the focus set of a clause, i.e., two clauses that differ *only* in constituent order and/or in stress pattern are taken to instantiate the same packaging variant. For example, in the S_T construction of Tundra Yukaghir (exemplified in (3)) S can precede or follow the verb, yet this construction is taken to constitute a single packaging variant. This implies that many languages have *unmarked* packaging variants, where the focus set contains all possible substructures of π . For instance, the basic clause structure in Russian is unmarked in this sense: e.g., the focus set of a simple intransitive clause (such as *Vas'a prišol* ‘Vasja came’) includes all possible substructures of π , $\{\underline{V}, \underline{S+V}, \underline{S}\}$, and the actual pragmatic articulation can be expressed by modifications in linear-intonational structure, i.e., in constituent order and/or stress pattern (Padučeva 1985: 109-119). This paper is concerned only with simple *monoclausal* packaging variants; these packaging variants cannot be described in terms of canonical voice oppositions, since they do not involve demotion of core participants to clause periphery. In this sense, the elements of the paradigm do not differ in *syntactic* markedness, that is, the formal markedness relations within the paradigm of packaging variants are limited to presence vs. absence of overt morphological markers.

Since the discourse-pragmatic semantics and distribution of packaging variants are language-specific, it seems somewhat misleading to describe their elements directly in terms of universal pragmatic roles. Generally, the relation between “topic” and “focus” as elements of language-specific constructions and their language-independent pragmatic counterparts resembles the relation between the participant roles A, S, P and genuinely *semantic* case roles (like agent and patient). Therefore, this paper adopts a similar notational convention for pragmatic roles: the labels T and F refer to language-specific grammatical counterparts of “topic” and “focus”, whereas these terms themselves are reserved for components of actual pragmatic articulations of contextualized linguistic expressions. Adopting Lambrecht’s (1994) notion of information structure as a component of grammar, T and F can be referred to as *information-structure roles*.

2.2 *Distribution of packaging variants*

Tundra Yukaghir has no *unmarked* packaging variants, i.e., any clause structure constrains the focus set in one or another way. There are two intransitive packaging variants, S_T and S_F , and three transitive packaging variants A_F , P_F and $A_T P_T$. Packaging variants without nominal F (i.e., S_T and $A_T P_T$) can be subsumed under the general category of F-neutral constructions.

The focus set of a packaging variant generally contains more than one element, with the only exception of A_F construction; see (6i). However, the *distributions* of possible focus readings among discourse occurrences of packaging variants are strongly skewed towards one element of the focus set, that is, each packaging variant encodes one focus structure significantly more frequently than other elements of its focus set. The most frequent element of the focus set is referred to here as *default focus interpretation* of a packaging variant and is shown in boldface in the descriptions of focus sets. The focus sets of Tundra Yukaghir packaging variants are shown in (5)-(6), where X stands for any peripheral constituent and parentheses indicate optional elements.

- (5) i. $\omega(S_F) = \{\underline{S}, \underline{\mathbf{S+V}}\}$
 ii. $\omega(S_T) = \{\underline{\mathbf{(X+)}V}, \underline{S+V}\}$
- (6) i. $\omega(A_F) = \{\underline{\mathbf{A}}\}$
 ii. $\omega(P_F) = \{\underline{P}, \underline{\mathbf{P+V}}, \underline{P+A+V}\}$
 iii. $\omega(A_T P_T) = \{\underline{X}, \underline{(X+)}V, \underline{\mathbf{P(+X)+V}}, \underline{A(+X)+V}\}$

The two possible readings of S_F construction are illustrated by (2a) and (4). The A_F construction is exemplified in (2c). The sentence (2b) exemplifies a predicate-focus encoded by the P_F construction. The following examples illustrate two other possible readings of this construction, \underline{P} (7a) and $\underline{P+A+V}$ (7b).⁶

- (7) a. e, *met-ek n'ie-mele*
 Intj 1sg-F call-PF.3SG
 'Yes, she is calling ME (not you).' (Maslova 2001: T1/313)
- b. *ma:rquo-d'e mit uo korel bun'i-l-ŋin' l'e-mle*
 one-AT 1pl child ogre kill-ANR-DAT AUX-PF.3SG
 'An ogre is going to kill our only son.' (Maslova 2001: T6/86)

The relevant functions of F-neutral constructions are exemplified in (3) and (8):

- (8) a. *tuj tude uo-hane tude emd'ie-n' tadi-m*
 this 3SG child-LOC 3SG brother-DAT give-PT.3SG
 'She (topic=A) gave her child (P) to her brother.' (Maslova 2001: T1/101)
- b. *tang peldudie-ha l'e-l-ha met t'umuot'ie [...]*
 that old.man-LOC be-1|2SG-DS 1SG uncle
kode-ŋin' tadi-l'el-u-m.
 person-DAT give-INFR-0-PT.3SG
 'While I lived at that old man's, I(topic=P) was given to someone in marriage by my uncle (A).' (Maslova 2001: T9/11)

The choice of packaging variant is uniquely determined by the pragmatic articulation if precisely one component of propositional structure is focal: if it is a core participant, then the appropriate nominal F construction is obligatory; if it is the verb, then the F-neutral construction is the only option. The broad focus including P/S and V ($\underline{P+V}$ and $\underline{S+V}$) can

be encoded by two packaging variants: S_F and S_T for intransitive clause and $A_T P_F$ and $A_T P_T$ for transitive clause.

The choice of packaging variant for broad focus structures is affected by two discourse-pragmatic factors. Firstly, if the clause introduces a *new discourse-prominent* referent, this referent is likely to be encoded as F (see (2a) and (2b)). If S/P does not refer to a discourse-prominent referent (9a) or its referent is already present in the world of discourse (8a), then the F-neutral construction is more likely to be chosen.

- (9) a. *e, ma:rqall'eha t'a:j-le lawi:-t'e-kodi-l'el-ŋa*
 Intj together tea-F|P drink-VEN-HCR-INFR-PT.3PL
 'They probably went to drink tea together.' (Maslova 2001: T1/346)
- b. *emd'e-pul-gi arej t'aj-le par-nu-mle*
 brother-PL-3 DP tea-F|P cook-PROG-PF.3SG
 '(Suddenly they saw that) their brother WAS PREPARING TEA.' (Maslova 2001: T1/171)

Thus, P_T subsumes two distinct classes of NPs: NPs low in discourse prominence and NPs referring to accessible referents.

Secondly, the nominal F constructions signal some sort of contrast between the situation being described and context-based expectations (Krejnovič 1982: 214-16). This parameter refers not to the role of NP, but to the situation as a whole. For example, the situation described in (9b) contradicts the expectations of the protagonists (and, presumably, of the listeners) because its primary participant (A) has been killed by the protagonists, not because he is expected to cook something other than tea (P). In this case, then, the unexpectedness of the situation overrides the obviously low discourse prominence of P and triggers the P_F construction. On the other hand, since the default focus of S_T construction is $(X+)V$, the S_F variant can be required to override the default interpretation in most discourse contexts, so mostthetic sentences are in fact encoded by the S_F construction. This factor is irrelevant for transitive clauses, since the default focus of both F-neutral and P_F constructions contains P. As a result, predicate-focus transitive clauses with focal Ps can be freely encoded by the P_T construction.

To sum up, the discourse functions of F are not limited to encoding of narrow and contrastive foci, as seems to be more common for morphological focus markers in other languages. Moreover, the default focus interpretation of P_F and S_F constructions is a broad focus structure (predicate-focus andthetic respectively). This is reflected in a strong statistical correlation between F and P, which can be demonstrated by the following preliminary text counts:

- (10) a. $A_T P_T \sim$ ca. 65% (of finite transitive clauses)
 $A_T P_F \sim$ ca. 35%
 $A_F P_T \sim$ less than 1%
- b. $S_T \sim$ ca. 90% (of finite intransitive clauses)
 $S_F \sim$ ca. 10%

The distribution of transitive packaging variants (10a) implies that more than 97% of F elements of transitive clauses are Ps. If intransitive clauses are taken into account, more than 75% of all nominal Fs correspond to (semantic) Ps.

On the other hand, most core participants (including Ps) are encoded as Ts, that is, F functions as a semantically marked option. Quite predictably, the information-structure role T correlates with A semantic role. However, since many focal Ps are encoded as Ts, this correlation is not as strong as might be expected: ca. 60% of all T expressions refer to A participants (this estimate includes A-like participants of intransitive clauses).

2.3 *Encoding of packaging variants and distribution of nominal markers*

Packaging variants are most consistently distinguished by the form of the finite verb. In the S_T construction, the verb takes the suffix *-j(e)* (glossed as ST in examples), followed by person suffixes; the S_F form of verb takes the suffix *-l* (SF) and no person suffixes. In the A_TP_F and A_TP_T constructions, the verb agrees with A in person; there are two different sets of person markers, glossed as PF and PT in examples, which consistently distinguish these packaging variants (these markers are shown in boldface in (7) and (9)). The A_F verb form contains no person markers, so the absence of person suffixes serves as a (null) marker of A_F construction.

A nominal F-element usually takes the immediately preverbal position. For A_F, this position is obligatory; S_F and P_F can be separated from the verb (see (7b)), but cannot occur postverbally. T-elements can occur in any linear position, but the postverbal position is significantly less frequent. In the A_TP_T construction, the constituent order indicates the topic expression: it occurs either in the clause-initial position or (much less frequently) in the postverbal position. If the topic referent is recoverable from the discourse context, the clause contains no topic expression; see (8) and (9a).

As described in §1, A_T, A_F and S_T take *unmarked* case form, that is, this form is linked to two strongly correlated meanings, T and A. More specifically, A takes this form independently of its information-structure role, and S_T, independently of its semantic macro-role (A or P).

The case form of S_F and P_F depends on inherent semantic properties of NP. More specifically, NPs fall into three classes, which can be referred to as *basic*, *anaphoric*, and *specific* (Maslova 2003). The F|P marker *-le(ŋ)* introduced in §1 is compatible only with *basic NPs*, i.e., NPs construed as providing only *basic semantic categorization* of potential referents. This class comprises primarily lexical NPs without attributive modifiers and quantifiers (see (2b)), yet some modified nouns can be encoded as basic and some highly semantically specific nouns can be encoded as specific. Demonstrative determiners are irrelevant for this grammatical distinction. The class of *anaphoric NPs* includes third-person personal pronouns, proper names, and possessive NPs; they are incompatible with overt focus markers and remain unmarked in the F role (see (7b)).⁷ Finally, all other NPs are classified as *specific* and take another F marker, *-(e)k*, in the S_F and P_F roles (7a).

The case form of P_T is determined by a typologically uncommon system of *differential case marking*. First, a third-person P_T takes the unmarked case form if A is a speech act participant (locutor); the first and second person pronouns take a specialized P_T marker in the same environment:

- (11) a. **met ama:** *me-pun'-mek*
 1sg father AFF-kill-PT.2SG
 ‘You have killed my father.’ (Maslova 2001: T2/40)
- b. *uguney mit-ul mer-ed'ite-mk*
 right 1pl-P AFF-save-2PL
 ‘It's good that you have saved us.’ (Maslova 2001: T1/459)

If A is a non-locutor, P_T must take an overt case marker, namely, the F|P marker *-le(η)* for basic NPs (see (9a)) and one of the locative markers, *-hane*, for non-basic NPs (see (8a)). Thus, an unmarked non-locutor NP is interpreted as P if the clause contains a first or second person pronoun in the unmarked form and/or the corresponding cross-reference suffix on the verb (see (11a)), and as A/S otherwise. Cross-linguistically, differential P marking is commonly conditioned by the person parameter (locutor vs. non-locutor), yet it seems quite unusual that the case form of P depends on the person of A. This type of differential case marking can be referred to as *globally conditioned* P marking (Silverstein 1976), in contrast to more common *locally conditioned* case marking systems, where the case form of NP is determined solely by its own inherent properties (Dixon 1994: 83-86; Comrie 1989: 129-135; Aissen 1999).

The nominal F markers have different distributions: *-(e)k* is constrained to F elements, and *-le(η)* can encode P independently of its information-structure role; this difference may be motivated by the inherent properties of NPs which condition the choice between these markers. Recall that P_T can encode both accessible discourse referents and NPs low in referentiality and/or discourse prominence (§2.2). Since low discourse prominence usually implies basic semantic characterization, this distinction correlates with that between basic and non-basic NPs. This means that the T vs. F can be neutralized in the P_T construction only for NPs low in referentiality and/or prominence, whereas accessible discourse references cannot be encoded by F markers in the P_T role.

In spite of this difference, both overt F markers are linked to both meanings. On the one hand, the P-marking function *-le(η)* is limited to environments where core participants are not discriminated by the clause-level context; in the context of a locutor A, it can only be used in the P_F construction (see example (2b)). On the other hand, *-(e)k* can also be said to function as a P-marker, since it is incompatible with A and thus unambiguously identifies the focused NP as P.

3 Disambiguation of A and P and the emergence of focus-oriented splits

3.1 Information-structure markers and default role interpretation

The hypothesis of discourse basis of focus-oriented split intransitivity (§1) implies that the statistical distribution of focus structures in discourse can shape the paradigm of morphosyntactic roles available in a language (here the term “morphosyntactic role” is intended to refer to any conventionalized pairing between structural and/or morphological properties and semantic values).

This is a particular case of a more general hypothesis which states that statistical correlations between two semantic scales can lead to the emergence of morphosyntactic roles corresponding to *clusters* of correlated values of these scales, or to put it the other

way round, that the cross-linguistic recurrence of such morphosyntactic roles is determined by universal correlations between certain semantic scales (e.g., animacy and agentivity). The basic intuition behind this hypothesis is that the speakers would tend to avoid constructions with redundant morphological material; this tendency is ultimately motivated by *economy* (Haiman 1983; 1985). More specifically, if some meaning can be expressed by two constructions, one of which is more formally marked than the other, than the latter is likely to be preferred (provided, of course, that it is likely to be interpreted as intended). Now if two meanings strongly correlate with each other in discourse, and one of these meanings (*source* meaning) is expressed anyway, then the other (*target* meaning) is likely to be *inferred* by the listener in absence of overt marking, simply because it is most likely in the context of the source meaning. I will use the term *default interpretation* to refer to this mechanism of interpretation.

The notion of default interpretation has been commonly invoked to account for *differential case marking* systems, where the source meaning is an inherent property of NP and the target meaning is its participant role (Comrie 1989; Dixon 1994); in such systems, the overt case marker of a participant role (e.g., ACCUSATIVE) is absent if the NP carries the source meaning (e.g. INANIMATE) and present otherwise. This type of default interpretation produces expected *markedness* patterns, since the source meaning is a component of the lexical meaning of NP and is not marked morphologically; as a result, positively correlated values of parameters correspond to the absence of overt markers. In addition, the case markers retain their participant-role semantics, i.e., the absence of the source meaning (e.g., ANIMATE) can hardly be interpreted as a meaning *expressed* by the marker of the target meaning (ACCUSATIVE).

The situation becomes more complicated if the source meaning is *not* an inherent part of the semantics of NP, and thus must be expressed to serve as the basis for default interpretation of the target meaning. One important implication of this situation is that the resulting morphosyntactic roles turn out to express both the source and the target meanings; in other words, once the relation between the source meaning and the target meaning is *conventionalized* in a language, the source-target asymmetry is bound to become less transparent and, eventually, disappear. The most famous and widespread class of such morphosyntactic roles are “subjects”, which obviously correspond to both “T” and “A” in the notations adopted here. A similar situation is attested for the morphosyntactic roles corresponding to *negatively* correlated values of semantic parameters, where the target meaning is marked only in absence of the source meaning: e.g., in differential P marking systems based on referentiality (definiteness), the marker of DEFINITE P *signifies* both meanings (Comrie 1989: 133-136). There is, however, an important difference between morphosyntactic roles corresponding to the presence vs. absence of the original source meaning. In the former case, the resulting morphosyntactic role can encode one value (say, A in the case of subject) even if the other (T) is absent; if “T” and “A” are represented by different NPs, these NPs *compete* for the subject role. In the latter case (exemplified above by definite Ps), the encoding is used only if *both* values are present.

Let us now consider the Tundra Yukaghir focus-oriented split system from this point of view; in a nutshell, this system contrasts two markers, which correspond to two semantic oppositions and can be denoted as $C_{T|A}$ and $C_{F|P}$. The basic question I am interested in at the present point is this: assuming that this complex opposition emerges

by virtue of default interpretation of one parameter on the basis of the other, which one is the *source* parameter? It can be easily observed that both markers follow the complex distribution pattern characteristic of the *presence* of the source meaning:

1. $C_{T|A}$ can encode “A” in the absence of the “T” meaning (in the A_F constructions) and “T” in absence of the “A” meaning (in the S_T constructions where S corresponds to P semantically and in the P_T construction due to the differential P marking).
2. $C_{F|P}$ can encode “P” in the absence of the “F” meaning (in the P_T constructions) and F in absence of the “P” meaning (in the S_T construction where S corresponds to A semantically).

The distribution of $C_{T|A}$ cannot indicate the source parameter, since “A” and “T” exhibit what can be informally referred to as “bidirectional” correlation: most As are Ts and most Ts are As. The distribution of $C_{F|P}$ is more revealing, since “F” in Yukaghir is a functionally marked (=relatively infrequent) information-structure role for *all* core participants, including Ps (§2.2). This implies that the participant role P cannot serve as a source for default interpretation of information-structure role as F. In contrast to this, F is a natural source for default P interpretation, since most Fs are Ps (§2.2). Thus, the distribution of $C_{F|P}$ strongly suggests that the source meaning in the F|P cluster is the information-structure role.

It can be hypothesized, then, that focus-oriented splits emerge as a result of default role interpretation of information-structure roles. For the source meaning “T”, the possibility of default role interpretation directly follows from the universal correlation between topic and A, which is confirmed for Tundra Yukaghir by the statistical data presented in §2.2. For the information-structure role F, however, this possibility is conditioned by its language-specific semantics. The point is that F (that is, the grammatical counterpart of nominal focus in a specific language) is often constrained to the narrow focus of focus-presupposition articulation and the so-called contrastive focus. Yet these pragmatic functions are quite infrequent in actual discourse and do not seem to show any significant correlations with any participant role; thus, there can be no default role interpretation associated with F marking; indeed, morphological F markers do not, as a rule, serve as a basis for role interpretation. This is a manifestation of another important implication of the fact that the potential source parameter is not an inherent part of propositional contents but something that has to be *encoded* in order to serve as the basis for default interpretation of the target parameter. In this case, the relevant statistical correlation is not the correlation between purely *semantic* parameters, but the correlation between the *language-specific* grammatical counterpart of the source parameter, on the one hand, and the target parameter, on the other.

In the case of information-structure roles, the attested cross-linguistic variation reflects the multitude of pragmatic statuses of NPs which do not fit the prototypes of “topic” or “focus”. In particular, some discourse-prominent components of broad foci can be subsumed under the same information-structure role as narrow foci. As a result, this information-structure role turns out to correlate with P, as shown for Tundra Yukaghir by the data described in §2.2. I assume that this correlation constitutes a necessary prerequisite for the emergence of focus-oriented split patterns. Whereas there seem to be no sufficient data on discourse functions of F-marking in Dogon (Vladimir

Plungian, p.c.), this assumption is indirectly corroborated by other cross-linguistic evidence. More specifically, the association of focus marking with P marking is more common for *positional* Fs, which tend to cover a broader range of discourse functions than morphological focus markers. For example, in Setswana (Bantu) focal elements must appear postverbally, which is a pragmatically neutral position for Ps; the postverbal F position is accessible for focal Ss, but not for As, exactly like the F|P markers in Tundra Yukaghir and Dogon (Van Valin 1995: 516-517).

To sum up the discussion so far, the focus-oriented split intransitivity is hypothesized to emerge if both information-structure roles strongly correlate with participant roles and serve as source meanings for default role interpretation. Since the information-structure role is not an inherent property of NP, the source meaning itself has to be expressed to form the basis for interpretation of the target meaning. Hence, the mechanism of default role interpretation in Tundra Yukaghir, and, presumably, in Dogon, is likely to be triggered by the *nominal markers* that express the T vs. F distinction (that is, \emptyset vs. $-le(\eta) \sim -(e)k$ in Tundra Yukaghir and \emptyset vs. η in Dogon respectively), rather than by these information-structure roles as such.

Under this hypothesis, the markedness paradox described in §1, that is, the incompatibility of overt F markers with A in transitive clauses, can be interpreted as a resolution of the *conflict* between the information-structure semantics of this marker and its default role interpretation. A convenient and concise framework for modeling such conflicts is given by the *Bidirectional Optimality Theory* (Blutner 2000; Jäger forthcoming). In the spirit of Optimality Theory (OT) (Prince and Smolensky 1993), the distribution of language-specific information-structure markers can be described in terms of violable *faithfulness constraints* like (12) (cf. Legendre et al. 1993 for a similar constraint type):

- (12) a. $T \leftrightarrow C_T$
 b. $F \leftrightarrow C_F$

The violability of these faithfulness constraints implies that the speaker can choose between two options (C_T vs. C_F) for encoding of any NP, independently of its actual information-structure role; the faithful option will be preferred *unless* it violates one or more stronger constraints. The speakers' knowledge about the discourse correlation between information-structure roles and participant roles, which allows them to rely on the information-structure marker for default role interpretation, can be represented in the form of the following *harmony constraints*:⁸

- (13) a. $T \Rightarrow A$
 b. $F \Rightarrow P$

The basic idea of bidirectional OT is that the competing coding options are first evaluated with regard to their possible *interpretations*: informally, if a certain coding option is likely to trigger a wrong semantic interpretation, it will be ruled out by the interpretation-based evaluation. Now assume that a NP carries the information-structure role F, so its encoding is subject to the constraint (12b). If the intended participant-role interpretation is P, the C_F encoding successfully passes the interpretation-based evaluation by (13b) and

is favored by (12b), that is, the information-structure meaning of C_F and its default role interpretation are not in conflict. The optimal output is a P_F construction with the C_F marker on P. In intransitive clauses, disambiguation of participant roles is not an issue (Comrie 1989: 124-126), so the C_F option passes the interpretation-based filter independently of the semantic macro-role of S and emerges as the optimal output by virtue of (12b).

In contradistinction to this, if the intended participant-role interpretation of F is A, the C_F encoding will trigger a wrong (P) role interpretation by virtue of (13b); as a result, this option is ruled out by the interpretation-based evaluation. Although the remaining candidate (C_T) violates the faithfulness constraints (12), this is irrelevant since the faithful option did not pass the interpretation-based filter. The resulting output is an A_F construction where F is encoded by C_T . Thus, the C_F marker on A is blocked by the default role interpretation of F.

3.2 *Differential P marking*

As described in §2.3, Tundra Yukaghir combines locally conditioned P marking (for locutor pronouns) with globally conditioned P marking, where the role of unmarked non-locutor NP can be disambiguated by its clause-level context. Strikingly, a very similar situation is observed in Dogon, which exhibits a typologically common type of locally conditioned P marking based on animacy and referential status, subject to a considerable intragenetic variation (Culy 1995). In the Tommo So dialect of Dogon, the F marker *-ŋ* in its P-marking function is used only with personal pronouns, proper names, and some kinship terms (Plungian 1995: 12-13). In the country variety of Donno So, it applies to *animate definite* Ps of monotransitive verbs and is more likely for human Ps than for other animate Ps. Thus, the default A interpretation is conventionalized for NPs high in animacy and referentiality. Donno So also features globally conditioned P_T marking for animate indefinite NPs: the P marker does not occur (i) if A and P are discriminated by the agreement on the verb, i.e., if A is a speech act participant and/or differs from P in number or otherwise (ii) if A is represented by a NP that would require overt marking in the P role (i.e., by a definite animate NP). Apart from this, P need not be marked if the participant roles are disambiguated by the propositional contents of the clause (Culy 1995).

Thus, the purely P-marking function of F markers is limited to environments where A and P cannot be distinguished by their inherent properties and/or clause-level context. In the framework introduced in §3.1, this distribution is straightforwardly accounted for as a result of competition between two coding options for P_T (C_F and C_T). Since the incompatibility of C_F with A is discussed in §3.1, we can consider only the competition between two candidates, which can be represented as follows:

- (14) a. A- C_T & P- C_T
 b. A- C_T & P- C_F

In (14a), both NPs are encoded as Ts, so the harmony constraints (13) are inapplicable; indeed, (13a) would imply that both NPs correspond to A, which is impossible. In this situation, the discrimination of A and P relies on other grammatical and/or semantic clues. If the clause contains sufficient information for disambiguation of participant roles,

(14a) passes the interpretation-based evaluation and is chosen as optimal since it does not violate the faithfulness constraints. Otherwise, the unfaithful option (14a) is selected as optimal by the interpretation-based filter, so the faithfulness constraints are irrelevant.

The situation in Tundra Yukaghir is obviously more complicated than this, since the set of available options for P_T encoding includes oblique (locative) case marking (§2.3). This option violates the constraint $T \leftrightarrow C_T$ and an additional universal constraint on oblique encoding of core participants ($*P=OBLIQUE$), but does not violate $F \leftrightarrow C_F$. As it seems, the major motivation for this type of encoding is incompatibility of anaphoric NPs with overt F markers (§2.3); for such NPs, the participant role cannot be disambiguated by means of F marking, and thus an oblique marker is required. On the other hand, the locative marking is also preferred for specific NPs, which are encoded by $-(e)k$ in the P_F role (§2.3). Thus, the distribution of case markers in Tundra Yukaghir demonstrates the following constraint ranking:

$$(15) \quad T \leftrightarrow C_T, F \ \& \ \text{specific} \leftrightarrow -(e)k > *P=OBLIQUE > F \ \& \ \text{basic} \leftrightarrow -le(\eta)$$

As described in §2.3, the difference in the relative ranking of two faithfulness constraints associated with overt F markers, on the one hand, and $*P=OBLIQUE$, on the other, may be motivated by the difference in actual discourse-pragmatic functions of constructions with basic and specific NPs in the P_T role: the ranking in (15) ensures that accessible discourse-prominent referents are not encoded by an F marker unless this marking is justified by their information-structure role.⁹

3.3 *The markedness paradox revisited*

The model proposed in §3.2 implies that the differential P_T marking is an inherent property of focus-oriented split systems: the mechanism of default role interpretation of information-structure markers is inapplicable if both core participants carry the same marker, so the faithful (C_T) encoding for P_T can emerge as optimal if the clause contains other disambiguating clues. A natural question, then, is why this system doesn't license *differential A_F marking* as well, that is, why the C_F encoding of A_F is disallowed in all contexts.

In order to answer this question, let us compare both coding options with C_F marking on A:

- (16) a. $A-C_F \ \& \ P-C_T$
 b. $A-C_F \ \& \ P-C_F$

In contrast to the faithful encoding of F-neutral structures (14a), the faithful encoding of the A_F structure (16a) contains *different* information-structure markers on A and P. In this case, then, the harmony constraints will trigger the wrong role interpretation, so the faithful candidate is ruled out by the interpretation-based evaluation; this situation is discussed above. Thus, the only possible option is (16b).

Now assume that (16b) passes the evaluation-based filter because A and P can be disambiguated by their inherent properties and/or by the clause-level context. Under this assumption, the option (14a) is also acceptable, since A and P can be disambiguated on the basis of the same information as in (16b). Both competing candidates violate the

faithfulness constraints (12): in (16b), P_T carries the C_F marker, and in (14a), A_F takes the C_T form. Thus, the faithfulness constraints cannot select the optimal candidate. What becomes relevant in this situation is that C_T is a phonological null, that is, in effect, the absence of overt marker. As a result, the least marked of the two candidates is evaluated as optimal due to the universal *markedness constraint* that penalizes overt case markers, *STRUC_C (Aissen 1999), or, informally, on the basis of economy considerations. The limited relevance of this constraint in evaluation of coding options for the least frequent focus structure can be taken as an instance of the *emergence of the unmarked* (McCarthy & Prince 1994). It turns out, then, that the markedness paradox outlined in §1 results from the interaction of several factors, all of which are ultimately motivated by economy, namely, formal unmarkedness of T, default role interpretation, and avoidance of overt case markers.

3.4 *Synchrony and diachrony in the emergence of focus-oriented splits*

The mechanism outlined in this section is essentially synchronic, that is, it accounts for the emergence of focus-oriented case marking patterns as a result of selection of optimal coding options in the course of actual communication. In the model adopted here, this is reflected by the fact that the regular association between the information-structure markers and participant roles emerges *in absence* of any faithfulness constraints that would link C_T and C_F to A and P respectively and thus penalize violations of this correspondence. The marking pattern emerges solely due to the harmony constraints (13), which simply capture the relevant properties of the distribution of focus structures in discourse. In this form, this mechanism is likely to produce stochastic (rather than deterministic) effects, that is, it motivates a higher *probability* of unfaithful candidates in environments where the default role interpretation of an information-structure role differs from the intended role interpretation (rather than absolute constraints on the faithful encoding of such focus structures). In contradiction to this prediction, the C_F marking of A_T and the C_T marking of P_T are invariably blocked by Tundra Yukaghir grammar in all contexts, with the only exception of F-neutral construction with a locutor pronoun in the A role.¹⁰

It seems plausible to hypothesize, however, that the proposed synchronic mechanism is likely to trigger the diachronic process of *conventionalization* of the emergent pairings between information-structure markers and their default participant role interpretations. Informally, each expression where C_F marker is used to encode P leads to *entrenchment* of this form-meaning pairing and thus further increases the likelihood of this encoding (Croft 2000: 32, 73-74; Langacker 1987: 59); more generally, every actually occurring clause where the output of the synchronic mechanism of evaluation is determined by the default role interpretation of information-structure markers (rather than by their information-structure meanings) slightly strengthens their link to their default role interpretations and weakens their link to the information-structure meanings (i.e., the original faithfulness constraints).¹¹ Eventually, this process can bring about a conventionalized (or “grammaticalized”) focus-oriented split attested in Tundra Yukaghir.

Notes

1. The approach proposed here is to a large extent inspired by discussions with Joan Bresnan and Gerhard Jäger. I am grateful to Tanya Nikitina for her comments on an earlier version of this paper.
2. As usual, A and P are Actor and Undergoer of a transitive event, and S is the sole core participant of an intransitive event, which can be either Actor or Undergoer (Van Valin 1990: 226). In this paper, these labels are used in their “semantic” sense, i.e., they are taken to be uniquely determined by propositional (predicate-argument) structure.
3. Abbreviations: ANR – action nominalizer, AF – A-focus, AFF – affirmative, AT – attributive, DAT – dative, DEF – definite, DP – discourse particle, DS – different-subject, DST – distal pronoun, F – focus, HAB – habitual, HCR – hypocoristic, INFR – inferential, LOC – locative, PF – P-focus, PL – plural, PROG – progressive, PT – P-topic, REL – relative, SF – S-focus, SG – singular, ST – S-topic, T – topic, VEN – venitive.
4. Note that references to the collection of texts (Maslova 2001) specify not the page number, but the text number followed by the sentence number after slash.
5. Observant readers will notice that the F form of demonstrative pronoun exemplified in (4) is not covered by the description proposed here; this is an idiosyncratic F form, which follows the same distribution pattern as the F marker *-(e)k* described §2.3.
6. The encoding of F in these examples is described in §2.3.
7. The lack of overt F markers on focal anaphoric NPs obviously creates an additional markedness paradox; this issue is outside the scope of the present paper.
8. Formally, these constraints differ from what is called “harmony constraints” or “harmonic alignment” in other works in the OT framework (cf. Aissen 1999; Bresnan 2001). This use of the term is justified by the fact that these constraints correspond to essentially the same type of cross-linguistic phenomena (Haspelmath 2002).
9. To some extent, this formal opposition correlates with an information-structure distinction not discussed in the present paper, namely, the distinction between focal Ps proper and “secondary topics” (Nikolaeva 2001).
10. The situation in Dogon seems less obvious (Vladimir Plungian, p.c.), but I have no data to pursue this issue.
11. As shown by Jäger (forthcoming), such links between synchronic bidirectional evaluation and language evolution can be elegantly modeled in the stochastic OT framework.

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