

## Grammatical relations, agreement, and genetic stability

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### Abstract

Languages vary in whether or not primary grammatical relations (PGRs) are sensitive to information from clause-level case or phrase structures. This variation correlates with a difference between verb agreement systems based on feature unification and systems based on feature composition. The choice between different PGR and agreement principles is found to be highly stable genetically and to characterize Indo-European as systematically different from Sino-Tibetan. Although the choice is partially similar to the Configurationality Parameter, it is shown that Indo-European languages of South Asia are nonconfigurational due to areal pressure but follow their European relatives in PGR and agreement principles.\*

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## 1. Introduction

Recent research has adduced growing evidence that grammatical relations are neither universal across languages nor homogenous across constructions within individual languages (e.g. Kachru et al. 1976, Van Valin 1981, Durie 1987, Bhat 1991, Lazard 1994, Dixon 1994, Palmer 1994, Kibrik 1997, Dryer 1997, Bickel, in press, etc.). However, as in other fields of typological inquiry, diversity entails neither random distribution nor unlimited variation. Indeed, much of the literature assumes that there are only three fundamental kinds of primary grammatical relations, largely following the received typology of morphological alignment, i.e. the accusative vs. ergative vs. active trichotomy. Using the by now standard abbreviations, the fundamental types are then defined as the sets  $\{S,A\}$  and  $\{S,O\}$ , reflecting accusative and ergative alignment, respectively. Active alignment is reflected by  $\{S_A,A\}$  and  $\{S_O,O\}$  relations, defined as grammaticalized versions of the actor and undergoer roles in both intransitives and transitives. In this paper, I propose that apart from role alignment, another principled source of variation is whether or not the definition of grammatical relations includes information provided by morphological and/or phrase-structural properties of NPs, and that this variation is genetically stable to a remarkable degree. In exploring this, I limit myself to what Sasse (1982) and Palmer (1994) call PRIMARY GRAMMATICAL RELATIONS (abbreviated in the following to PGR), i.e. to what typically corresponds to the subject or the absolute PIVOT (cf. Dixon 1994, Van Valin & LaPolla 1997).

The argument proceeds contrastively: I first show that in Sino-Tibetan the definition of PGRs is systematically dissociated from NP properties (Section 2), whereas in Indo-European this definition makes essential reference to properties of NPs like case or phrase-structural position (Section 3). In Section 4, I produce evidence that this distinction correlates typologically with a difference in agreement systems: agreement through FEATURE UNIFICATION in Indo-European vs. agreement through FEATURE COMPOSITION in Sino-Tibetan. Section 5 shows that although the differences in grammatical relations and agreement systems bear some similarity to the Configurationality Parameter, they do not correlate with it typologically: Indo-European languages of South Asia are nonconfigurational like other languages in this area, while in terms of PGR and agreement systems they pattern with their relatives in Europe. In Section 6, I interpret this finding in a broader context, sketching the outlines of a general theory of genetic stability: features that are genetically stable concern design principles in the syntax-semantics interface while areal features are limited to purely (morpho)syntactic choices in grammatical organization such as case alignment, phrasal branching direction, or configurationality. Section 7 summarizes the

findings, suggests some general hypotheses derived from them and discusses a number of implications for current issues in typological, theoretical, and historical linguistics.

## 2. Grammatical relations in Sino-Tibetan

While many Sino-Tibetan languages, most notably Mandarin Chinese (Li & Thompson 1976, LaPolla 1993) and Meithei (also known as Manipuri, cf. Bhat 1991, Chelliah 1997), have no constructions that are constrained to specific grammatical relations, some languages of this family, especially from its Bodic and Kuki-Chin branches, do have such constructions and show clear evidence, therefore, for strictly syntactic notions of PGRs. Lhasa Tibetan (Bodic), for example, has internal-head relative constructions which restrict the role of the relativized NP to that of S or O; the A-argument of a transitive clause cannot be relativized on (Mazaudon 1978). The same situation obtains in Belhare, a representative of the Kiranti sub-branch of Bodic (Bickel, in press):<sup>1</sup>

- (1) a. maʔi khiu-ʔ-na misen niu-t-u-ga iʔ  
 human [3SG.S-]quarrel-NPT-ART know-NPT-3[SG]O-2[SG.A] Q  
 ‘Do you know the person who is quarreling?’
- b. ŋka asen pepar in-u-ŋ-na mann-har-e.  
 1SG yesterday cigarette buy-3[SG]O-1SG.A-ART [3SG.S-]finish-TEL-PT  
 ‘The cigarettes that I bought yesterday are used up.’
- c. tombhira-ŋa wa seiʔ-s-u-na chitt-he-m.  
 lynx-ERG chicken [3SG.A-]kill-TR.PERF-3[SG]O-ART find-PT[3SG.O]-1PL.A  
 ‘We found the chicken that the lynx had killed.’  
*Impossible:* ‘We found the lynx that had killed the chicken.’

The projection of arguments into the S, A and O roles proceeds along the standard linking principles assumed in most theoretical frameworks (e.g. Foley & Van Valin 1984, Givón 1984b, Bresnan & Kanerva 1989). One commonly shared view is that experiencers outrank stimuli for the choice of A (or ‘subject’, for that matter) over O (or ‘object’) in syntax, and this also holds for Belhare. Thus, in an INVERSION clause such as in (2a), the experiencer (*han* ‘you’) is assigned the syntactic A role despite the fact that the experiencer is not marked as ergative and does not trigger verb agreement as would be the standard with other bivalent predicates (2b):

- (2) a. han iṅa lim-yu i? (\*lim-ka)  
 2[SG] beer [3SG.S-]be.delicious-NPT Q be.delicious-NPT:2SG.S  
 ‘Do you like the beer?’ (literally, ‘is the beer delicious to you?’)
- b. han-na tombhira kii-t-u-ga i?  
 2[SG]-ERG lynx fear-NPT-3[SG]O-2[SG.A] Q  
 ‘Are you afraid of the lynx?’

This role assignment correctly predicts the behavior of the experiencer argument in internal-head relative clauses. Since these constructions are restricted to head NPs in S or O role, experiencers cannot be relativized on (3a). Instead, an alternative construction based on participles is used (3b):

- (3) a. \*maʔi lim-ʔ-na he-na caĩ?  
 person [3SG.S-]be.delicious-NPT-ART which-ART TOP  
 ‘Which one is the man who likes [the beer]?’
- b. iṅa ka-lim-ba maʔi he-na caĩ?  
 beer ACT.P-be.delicious-M person which-ART TOP  
 ‘Which one is the man who likes [the beer]?’

The participial construction is, in turn, restricted to {S,A} arguments. Therefore, it is incompatible with relativization on the stimulus argument (*iṅa* ‘beer’) (4a), which counts as an O argument just like a patient (4b). Only S (4c) and A (4d) arguments can be relativized on by *ka*-participles:

- (4) a. \*ka-lim-ba iṅa  
 ACT.P-be(come).delicious-M beer  
 ‘delicious beer’
- b. \*ka-ten-ba dhol  
 ACT.P-beat-M drum  
 ‘the drum that [one] beats’
- c. asenle ka-pikga-ba maʔi  
 lately ACT.P-fall.down-M person  
 ‘the man who fell down lately’
- d. tombhira ka-kit-pa maʔi  
 lynx ACT.P-fear-M person  
 ‘the man who is afraid of the lynx’

This is confirmed by another construction that relies on an {S,A} pivot, viz. same subject con- verbs: the experiencer is again projected onto the A role and is therefore the only possible choice

as PGR, cf. (5a). The expression *hakliūa luma* ‘to feel sweat, be hot’ is constructed following the same inversion pattern as the one discussed before, cf. (5b):

- (5) a. [ $\emptyset_i$  hakliūa lu-sa]                      thaŋŋ-har-e-ŋa<sub>i</sub>.  
           sweat        perceptible-CONV:SS    go.up-TEL-PT-[1SG]E[S]  
           ‘I started to climb up in the heat.’ (literally, ‘with the heat being perceptible’)
- b. ŋka hakliūa lus-e.  
    1SG sweat        [3SG.S-]feel-PT  
    ‘I was/got hot’ or ‘I felt/got sweaty.’

Thus, case-marking is irrelevant in this language for the assignment of arguments to the PGR. This is confirmed by other constructions that are sensitive to grammatical relations. Control constructions with *nus-* ‘may, be permitted’, for example, only allow control of the embedded S or O argument.<sup>2</sup> The controllee cannot be in A role. Therefore, a sentence like the following cannot be understood as ‘you may tell him/her’ and is incompatible with ergative case on *han* ‘you’ in the embedded clause:

- (6)        [(han<sub>i</sub>(\*-na)) (un-na)    lu-ma]    nui-ka<sub>i</sub>.  
           2[SG](-ERG) 3[SG]-ERG    tell-INF    may-NPT:2SG.S  
           ‘You may be told.’

The stimulus argument can be controlled (7a), whereas this is impossible for the experiencer (7b):

- (7) a. [ŋka  $\emptyset_i$  su-ma]    nu-yu<sub>i</sub>.  
       1SG        sour-INF    [3SG.S-]may-NPT  
       ‘I like [the beer] sour.’ (literally, ‘[the beer] may be sour [to] me.’)
- b. \* [ $\emptyset_i$  iŋa su-ma]    nui-ʔ-ŋa<sub>i</sub>.  
       beer sour-INF    may-NPT-[1SG]E[S]  
       ‘I like [the beer] sour.’ (literally, ‘to me, [the beer] may be sour.’)

The reason for this is that, as before, the experiencer counts as a regular A and the stimulus as a regular O, despite the fact they follow inversion patterns in simple clauses.

The irrelevance of case-marking for semantics-to-syntax linking is further confirmed by POSSESSIVE OF EXPERIENCE constructions (Bickel 1997b), where the experiencer is realized as a

possessive prefix on an experiential noun in what Matisoff (1986) calls a PSYCHO-COLLOCATION:

- (8)        n-ris                    kaʔ-yu.  
              2SG.POSS-anger   [3SG.S-]come.up-NPT  
              ‘You will get angry.’ (literally, ‘your anger will come up.’)

As expected, those constructions that are restricted to {S,O} arguments ban the experiencer, while those that are restricted to {S,A} arguments accept it as the PGR argument. Thus, in control constructions, the experiencer cannot be cross-indexed on the main verb (9a), while in con-verb constructions, it qualifies for the relevant reference identity constraint (9b):

- (9) a.    \*n<sub>i</sub>-ris                    kat-ma            n-nui-ʔ-ni-ga<sub>i</sub>.  
              2SG.POSS-anger   come.up-INF   NEG-may-NPT-NEG-2[SG.S]  
              ‘You shouldn’t get angry.’ (literally, ‘you should not have your anger come up’)
- b.    a-ppa<sub>i</sub>                    la-har-e,                    uŋ, u<sub>i</sub>-ris                    kas-saʔ  
              1[SG]POSS-father [3SG.S-]return-TEL-PT Q   3[SG]POSS-anger come.up-CONV:SS  
              ‘My father went back angrily, didn’t he?’ (literally, ‘with his anger coming up’)

A grammatical version of (9a) would treat *ris* ‘anger’, which is in S function, as the controlled argument and would therefore have the matrix verb in a third person singular form:

- (10)        n-ris<sub>i</sub>                    kat-ma            n-nui-ʔ-ni<sub>i</sub>.  
              2SG.POSS-anger come.up-INF [3SG-]NEG-may-NPT-NEG  
              ‘You shouldn’t get angry’ (literally, ‘your anger should not come up.’)

Detailed syntactic analyses of other Sino-Tibetan languages with grammatical relations are rare, but recent work on Lai Chin, a representative of the Kuki-Chin group spoken in Western Burma, shows that the relative constructions of this language are sensitive to grammatical relations (Lehmann 1996, Peterson 1998, Van-Bik & Kathol 1999). One relative construction, based on what has come to be known as the Stem 1 form (glossed here as ‘Σ1’), is restricted to {S,A} arguments, another, based on Stem 2 (‘Σ2’), to O arguments. (11a) exemplifies relativization on S, (11b) or A, and (11c) on O:

- (11) a. a-tla: mi: thil  
 3SG.S-fall:Σ1 NZR clothes  
 ‘the clothes that fell down’
- b. thil a-bat mi: law thlaw pa:  
 clothes 3SG.A[-3SG.O]-hang.up:Σ1 NZR farmer M  
 ‘the farmer who hung up the clothes’
- c. Tsew maŋ ni? a-ba? /\*a-bat mi: thil  
 C. ERG 3SG.A[-3SG.O]-hang.up:Σ2 3SG.A[-3SG.O]-hang.up:Σ1 NZR clothes  
 ‘the clothes that Ceu Mang hung up’

Arguments that are encoded as possessors of experience qualify as A in relative constructions (12) in the same way as experiencers that are represented by ergatives in a canonical transitive case frame (13):<sup>3</sup>

- (12) a. law thlaw pa: a-luŋ ka-ro:k.  
 farmer M 3SG.POSS-heart 1SG.S-break:Σ1  
 ‘The farmer is disappointed with me.’
- b. a-luŋ ka-ro:k mi: law thlaw pa:  
 3SG.POSS-heart 1SG.S-break:Σ1 NZR farmer M  
 ‘the farmer who is disappointed with me’
- (13) a. law thlaw pa: ni? a-ka-tha?y.  
 farmer M ERG 3SG.A-1SG.O-know:Σ2  
 ‘The farmer knows me.’
- b. a-ka-thay mi: lawthlaw pa:  
 3SG.A-1SG.O-know:Σ1 NZR farmer M  
 ‘the farmer who knows me’

Thus, the morphological make-up of NPs is again irrelevant for the way arguments are mapped into PGRs. Note that within Sino-Tibetan, the alignment type of the PGRs, i.e. the choice between {S,A} and {S,O}, varies considerably across constructions and languages, but what is constant is the principle that case-marking is irrelevant for PGR definitions. This is radically different in Indo-European, to which we turn to in the following section.

### 3. Grammatical relations in Indo-European

As has been emphasized by Sasse (1982) and Palmer (1994), the traditional notion of SUBJECT incorporates not only syntactic aspects, but also morphological and/or positional aspects. Since this notion was developed in and for Western Indo-European languages, it is no surprise that morphological and syntactic information appear to conspire in the definition of PGRs in these languages, often in the form of an equivalence of NOMINATIVE CASE and SUBJECT (cf. e.g. Reis 1982 on German, Fried 1994 on Czech). Many Indo-European languages of South Asia, however, feature morphological ergativity, and from this one might expect them to dissociate their PGR definitions from morphology, by manifesting, as is often the case in ergative languages, syntactic accusativity (Anderson 1976, Dixon 1994). In the following, I produce evidence that despite this difference in case alignment, Indo-Aryan languages typically follow the same principle as their European relatives: throughout the Indo-European family, PGRs are typically sensitive to NP properties, i.e. to information from case-marking and/or phrase-structural positions. The only difference is that instead of NOMINATIVE alone, ERGATIVE too is sometimes an essential ingredient of the PGR definition. What is still excluded is accusative, dative and oblique marked arguments even if their semantic role would qualify them as PGRs. Thus, in a role pair <experiencer, stimulus>, for example, the experiencer maps into the PGR only if it is associated with a certain NP property, e.g. if it appears in nominative or ergative case. The mapping is blocked if the experiencer is not associated with this property. This is in striking contrast to what we found in Sino-Tibetan, where PGR mapping is insensitive to all case-marking.

One example for this contrast comes from verb agreement. Just as in other Indo-European languages, the Nepali verb agrees with the S or A argument if this argument is in the nominative (14a). Apart from this, the verb also agrees with A arguments in the ergative (14b):

- (14) a. ma            patrikā            kin-chu.  
           1SG.NOM newspaper:NOM buy-1SG.NPT  
           ‘I buy the newspaper.’
- b. mai-le        patrikā            kin-ẽ.  
           1SG-ERG newspaper:NOM buy-1SG.PT  
           ‘I bought the newspaper.’

An experiencer qualifies as an agreement trigger if the argument is in the nominative (15a), but not if it is in the dative (15b). Note that this difference obtains even if the rest of the clause has

the same structure, with the stimulus argument encoded by the same postposition *saṅga* ‘with, in the company of’:

- (15) a. ma bhut saṅga ḍarā-ẽ.  
 1SG.NOM ghost with fear-1SG.PT  
 ‘I was afraid of the ghost.’
- a. ma-lāī bhut saṅga ḍar lāg-yo (\*lāg-ẽ).  
 1SG-DAT ghost with fear feel-3SG.PT feel-1SG.PT  
 ‘I was afraid of the ghost.’

This is not so in Sino-Tibetan languages that have agreement. Dolakhāe Nepālbhāṣā (previously known as Newar), for example, has inversion constructions similar to the one in (15b), but dative case does not block agreement with the {S,A} argument (Genetti 1994):

- (16) thau-ta gibiṅ ma-gyāt-ki.  
 REFL-DAT nothing NEG-fear-1SG.NPT  
 ‘I wasn’t afraid at all.’

In Belhare, another Sino-Tibetan language that has inversion constructions like Nepali, the experiencer does not trigger agreement (cf. (2a) above), but this is an idiosyncrasy of the construction that is not due to case-marking: absolutive (zero-marked) NPs are in this language perfect triggers of agreement if they are in O role (2b). That the formal marking of NPs is indeed irrelevant is confirmed by the fact that even possessors of experience can trigger agreement (17a). The same is true of Lai Chin (17b):

- (17) a. ŋka hale ekchumma hani-niūa ka-tiu-s-ik-kha.  
 1SG before sash 2PL.POSS-mind 1SG.O-spend-TR.PERF-2[PL.A]-PERF  
 ‘Before, you liked me for my sash.’
- b. an-luṅ an-ka-riʔn.  
 3PL.POSS-heart 3PL.A-1SG.O-suspicious:Σ2:CAUS  
 ‘They [are ready to] suspect me.’ (lit., ‘they let themselves suspect me’)

The Nepali agreement rule illustrated by (14) and (15) above reflects a general characteristic of Indo-Aryan syntax (Bickel & Yādava 1999): oblique experiencers are banned in these languages from serving as PGRs. In control constructions, for example, the controllee can be an experiencer {S,A} argument only if it is associated with nominative or ergative case in a corre-

sponding finite clause. This is illustrated in (18) by Nepali data, but the same pattern holds for Hindi (Klaiman 1979, Davison 1985, Hook 1990) and Maithili (Bickel & Yādava 1999). To make the structure of the examples more explicit, the controllee ( $\emptyset$ ) in the infinitival clause is glossed by its associated case-marker.

- (18) a. Rām-le us-lāī<sub>i</sub> [ $\emptyset_i$  na-ḍarāu-na] bhan-yo.  
 R.-ERG 3SG-DAT NOM NEG-fear-INF tell-3SG.PT  
 ‘Ram told him/her not to be afraid.’
- b. Rām-le us-lāī<sub>i</sub> [ $\emptyset_i$  Harī-lāī na-tarsāu-na] bhan-yo.  
 R.-ERG 3SG-DAT ERG H.-DAT NEG-frighten-INF tell-3SG.PT  
 ‘Ram told him/her not to frighten Hari.’
- c. \*Rām-le us-lāī<sub>i</sub> [ $\emptyset_i$  ḍar na-lāg-na] bhan-yo.  
 R.-ERG 3SG-DAT DAT fear NEG-feel-INF tell-3SG.PT  
 ‘Ram told him/her not to be afraid.’

Note that this pattern is independent of the semantics involved. Both nominative and dative experiencer constructions express experiences that are semantically controllable to the extent that they allow negative (but not affirmative) imperatives,<sup>4</sup> cf. *na-ḍarā hai!* [NEG-fear-2MH.IMP PTCL] ‘don’t be afraid!’ and *timī-lāī ḍar na-lāg-os hai!* [2MH-DAT fear NEG-feel-3SG.IMP PTCL], literally ‘fear may not be noticeable to you!’. Despite this semantic similarity, dative experiencers are incompatible with control constructions.

With regard to the case-sensitivity of control constructions, Indo-Aryan languages follow their Western relatives, although of course in those languages the ergative does not play a role. What is common is that the PGR in control constructions systematically excludes dative-marked experiencers. In German, for instance, experiencers can be controlled (19a) only if they are assigned nominative case as in (20a). Dative case on an experiencer, by contrast, blocks the control constructions (19b), even if the experiencer is the single argument (S) of the verb as shown in (20b):

- (19) a. Sie hoff-te [ $\emptyset_i$  in Kalifornien nie zu frier-en].  
 3SG.F.NOM hope-3SG.PT NOM in C.:DAT never to feel.cold-INF
- b. \*Sie hoff-te [ $\emptyset_i$  in Kalifornien nie kalt zu sein].  
 3SG.F.NOM hope-3SG.PT DAT in C.:DAT never cold to be:INF  
 ‘She hoped not to feel cold in California.’

- (20) a. Sie            frier-t.  
3SG.F.NOM   feel.cold-3SG.NPT
- b. Ihr            ist            kalt.  
3SG.F.DAT   be:3SG.NPT   cold
- ‘She feels cold.’

The same principle is evidenced by participial relative constructions. In Section 2 we noted that in Sino-Tibetan participial constructions with an {S,A} pivot, experiencers qualify as A irrespective of their morphological marking (cf. the examples in (3b) and (12) above). This is radically different in Indo-European, both in the East and in the West. Where participial constructions are limited to {S,A} arguments, as they are in German and Marathi, dative experiencers cannot be relativized on, in minimal contrast to nominative experiencers. (21) shows this for German, (22) for Marathi (Pandharipande 1990 and p.c.), where the a-examples illustrative dative and the b-examples nominative experiencers:

- (21) a. Dem            Lehrer            schmeck-t    Bier.  
ART:M.SG.DAT   teacher(M):SG.DAT                    be.tasty-3SG.PT   beer(N):SG.NOM
- ‘The teacher likes beer.’ (lit., ‘to the teacher, beer is tasty’)
- a´. \*der            Bier            schmeck-end-e            Lehrer  
ART:M.SG.NOM   beer(N):SG.NOM   be.tasty-ACT.P-M.SG.NOM   teacher(M):SG.NOM
- ‘the teacher who likes beer’
- b. Der            Lehrer            mag            Bier.  
ART:M.SG.NOM   teacher(M):SG.NOM   like:3SG.PT   beer(N):SG.NOM
- ‘The teacher likes beer.’
- b´. der            Bier            mög-end-e            Lehrer  
ART:M.SG.NOM   beer(N):SG.NOM   like-ACT.P-M.SG.NOM   teacher(M):SG.NOM
- ‘the teacher who likes beer’
- (22) a. mulgī-lā        sāḍī            āvaḍ-te.  
girl(F):SG-DAT   saree(F):SG.NOM   please-F.SG.NPT
- ‘The girl likes the saree.’
- a´. \*sāḍī            āvaḍ-ṇārī            mulgī  
saree(F):SG.NOM   please-ACT.P:FsNOM   girl(F):sNOM
- ‘the girl who likes the saree’
- b. to   mulgā            ghar            pāha-to.  
DEM   boy(M):SG.NOM   house(M):SG.NOM   see-M.SG.NPT
- ‘That boy sees the house.’

- b'. ghar                      pāha-ṅārā                      mulgā  
 house(F):SG.NOM    see-ACT.P:M.SG.NOM    boy(M):SG.NOM  
 'the boy who sees the house'

Case-sensitive PGRs are further evidenced by what has been variously called *accusativus* or *nominativus cum infinitivo*, SUBJECT RAISING or EXCEPTIONAL CASE-MARKING. I adopt here Frajzyngier's (1995) term MATRIX-CODING which does not imply the specific theories of case or movement associated with these other concepts. The construction involves a PGR argument that is assigned case in the matrix but semantic role in the subordinate clause. As before, the relevant PGR systematically excludes experiencer arguments if they are associated with dative case in corresponding independent clauses, but not if they are associated with nominative or ergative case. The following examples from Hindi (Bickel & Yādava 1999; also cf. Kachru et al. 1976), Czech (Fried 1994) and German, respectively, involve dative<sup>5</sup> and accusative matrix-coding:

- (23) a. un=ko<sub>i</sub>              maĩ=ne              [∅<sub>i</sub>    ḍar-ā              hu-ā]              pā-yā.  
 3SG.OBL=DAT 1SG.OBL=ERG NOM fear-P.SG.M AUX-P.SG.M find-PT.SG.M
- b. \*un=ko<sub>i</sub>              maĩ=ne              [∅<sub>i</sub>    ḍar lag-ā              hu-ā]              pā-yā.  
 3SG.OBL=DAT 1SG.OBL=ERG DAT fear feel-P.SG.M AUX-P.SG.M find-PT.SG.M  
 'I found him afraid.'
- (24) a. Už    jsem                      vidě-l-a    Petra<sub>i</sub> [∅<sub>i</sub>    běže-t].  
 already AUX:1SG.PRES see-PT-SG.F P:ACC NOM run-INF  
 'I have seen Peter run.'
- b. \*Vidě-l-a    jsem                      Petra<sub>i</sub> [∅<sub>i</sub>    najednou přskoči-t].  
 see-PT-SG.F AUX:1SG.PRES P.:ACC DAT suddenly jump.over-INF
- c. Vidě-l-a    jsem                      [jak    Petrovi najednou přskoči-l-o].  
 see-PT-SG.F AUX:1SG.PRES COMP P.:DAT suddenly jump.over-PT-SG.N  
 'I have seen Peter suddenly go nuts.'
- (25) a. Sie              sah              ihn<sub>i</sub>              [∅<sub>i</sub>    müde werd-en].  
 3SG.F:NOM see:3SG.PT 3SG.M:ACC NOM tired become-INF  
 'She saw him getting tired.'
- b. \*Sie              sah              ihn<sub>i</sub>              [∅<sub>i</sub>    schwindel-n].  
 3SG.F:NOM see:3SG.PT 3SG.M:ACC DAT feel.dizzy-INF
- c. Sie              sah,              [dass ihn              schwindel-te].  
 3SG.F:NOM see:3SG.PT COMP 3SG.M:DAT feel.dizzy-3SG.PT

‘She saw that he felt dizzy.’

Apart from passive versions of accusative or dative matrix-coding, nominative matrix-coding (‘subject-to-subject-raising’) is less common in Indo-European. In most Indo-Aryan and Slavic languages the construction is absent. In German, examples parallel to English *seem*-constructions are not constrained by any grammatical relation, and it is doubtful whether they qualify as matrix-coding at all (cf. Reis 1982). If an Indo-European language does grammaticalize nominative matrix-coding, however, {S,A} arguments associated with dative case are again excluded from qualifying as PGR. This is illustrated by the Indo-Aryan language Maithili (Yādava 1999). The construction involves finite subordination (as in Balkan languages, cf. Lazard 1998:84) and is subject to the by now familiar constraint (Bickel & Yādava 1999): the matrix-coded PGR argument in the lower clause must be associated with nominative case as in (26a) (Maithili has no ergative). Dative-marked arguments, whether S (26b) or O (26c), are excluded:

- (26) a. Harī-jī<sub>i</sub> lag-ait ch-aith [je  $\phi_i$  bimār bha-je-t-āh].  
 H.-H.NOM seem-IP AUX:PRES-3H.NOM COMP NOM sick be-TEL-FUT-3H.NOM  
 ‘Hari seems to become sick.’
- b. \*Harī-jī<sub>i</sub> lag-ait ch-aith [je  $\phi_i$  khuśī bhe-l-ainh].  
 H.-H.NOM seem-IP AUX:PRES-3H.NOM COMP DAT happy be-PT-3H.NNOM  
 ‘Hari seems to have been happy.’
- c. \*Harī-jī<sub>i</sub> lag-ait ch-aith [je tū  $\phi_i$   
 H.-H.NOM seem-IP AUX:PRES-3H.NOM COMP 2MH.NOM DAT  
 nahī dekh-l-ah-unh].  
 NEG see-PT-2MH.NOM-3NH.NNOM  
 ‘\*Hari seems to you have seen.’

An apparent exception from this pattern is found at the Western fringe of Indo-European, in Icelandic (Andrews 1982, Zaenen et al. 1990, among others). In this language, non-nominative experiencer arguments qualify as PGR in control and matrix-coding constructions:<sup>6</sup>

- (27) a. Ég<sub>i</sub> vonast til [ $\phi_i$  að vanta ekki peninga].  
 1SG.NOM hope:1SG.PRES.MP for ACC COMP lack:INF not money:NOM  
 ‘I hope not to lack money.’ (Zaenen et al. 1990:106)
- b. Hann telur mig [ $\phi_i$  vanta peninga].  
 3SG.F:NOM believe:3SG.PRES 1SG:ACC ACC lack:INF money:NOM  
 ‘He believes me to lack money.’ (Andrews 1982:464)

However, as noted by Van Valin & LaPolla (1997:358f) and others, the difference between Icelandic and other Indo-European languages correlates with a difference in word order: non-nominative PGRs in Modern Icelandic have evolved together with a restriction of such arguments to preverbal position (Kossuth 1978). While nominative case is no longer a reliable guide to syntactic function, another NP property, viz. phrase-structural position is and effectively demarcates what Lazard (1994:112-14) calls the *sujet structural* of this language as distinct from its *sujet morphologique*. This is confirmed by a look at agreement in this language. The verb agrees with the nominative NP only if it is also the structural subject (28a); otherwise, it defaults to third singular (28b). While this constraint is compulsory with first and second person NPs, there appears to be some synchronic variation in the case of third persons (28c) (Faarlund 1998:161):

- (28) a. Ég hjælpaði þeim.  
1SG.NOM help:1SG.PT 3PL.DAT  
'I helped them.'
- b. Honum leiðist við.  
3SG.DAT dislike:3SG.PRES.MP 1PL.NOM  
'He doesn't like us.'
- c. Mér leiðist / leiðast þeir.  
1SG.DAT dislike:3SG.PRES dislike:3PL.PRES 3PL.NOM  
'I don't like them.'

Grammaticalization of phrase-structural positions as the formal correlates of grammatical relations is of course also the situation in Modern English, and it is also the general rule throughout the Romance languages. Under one analysis, phrase structure is also relevant for agreement in Hindi. However, unlike in Icelandic, English and the Romance languages, the relevant issue here is not the position of the agreement-triggering NP in the clause, but rather whether or not the NP is immediately dominated by a (cliticized) postposition. If it is, agreement is blocked. The verb agrees with whatever bare argumental NP has the highest role in the clause, be it in A (29a) or O role (29b); if both arguments are PPs, the verb defaults to third singular masculine (29c).

- (29) a. laṛkā roṭī khā-e-ga  
boy:SG.NOM bread(F):SG.NOM eat-3SG-FUT.SG.M  
'The boy will eat bread.'
- a. laṛke =ne roṭī khā-yī.  
boy:SG.OBL =ERG bread(F):SG.NOM eat-PT.SG.F  
'The boy ate bread.'

- c. laṛke =ne bālikā =ko uṭhā-yā.  
 boy:SG.OBL =ERG girl:SG.OBL =DAT raise-PT.SG.M  
 ‘The boy lifted up the girl.’

Such an analysis requires that an object like *aktres* in (30a) be analyzed as a copredicate rather than an argument (Gair & Wali 1989) and that *Dillī* and *Kalkatte* in (30b) be taken to be adverbial rather than argumental NPs, on the account that they are in oblique case (triggered by the optional goal-marking postposition *ko*):

- (30) a. Rām =ne Sitā =ko aktres banā-yā (\*banā-yī).  
 R.:SG.OBL =ERG S. =DAT actress:SG.NOM make-PT.SG.M make-PT.SG.F  
 ‘He made Sita an actress.’
- b. Rām =ne Nīnā =ko Dillī / Kalkatte (=ko)  
 R.:SG.OBL =ERG N.:SG.OBL =DAT D.(F):SG.OBL K.(M):SG.OBL =to  
 bhej-ā (\*bhej-ī).  
 send-PT.SG.M send-PT.SG.F  
 ‘Ram sent Nina to Delhi/Calcutta.’

It is equally possible, however, to analyze Hindi agreement in terms of case features: under this view, advanced in particular by Kachru et al. (1976) and T. Mohanan (1994), the verb agrees with whatever nominative NP has the highest role. The analyses are descriptively equivalent, and for our current purposes it does not matter which one is preferred on theoretical grounds. What is important, however, is that under both conceptions, Hindi agreement is sensitive to a property of argumental NPs: either to their case features or to their immediate phrase-structural environment.

The generalization that can be made over Indo-European PGRs is that they are sensitive to some NP property, either morphological case or the phrase-structural environment. In other words, wherever constructions in these languages are constrained by a notion of PGR, this relation typically excludes arguments with certain case markers or certain phrase-structural properties even if their semantic role would qualify them as PGRs. As in Sino-Tibetan, experiencers take generally precedence over stimuli in PGR mapping, but in Indo-European this mapping is usually blocked if the experiencer is not associated with a language-specific NP property. Note that while these NP properties are defined morphosyntactically, it is likely that they reflect semantic properties of clause-level constructions (cf. Croft 1993, Goldberg 1995, Fried 1998). I will take up this suggestion in Section 6.

In terms of semantic saliency and discourse topicality, dative experiencers are certainly as prominent as their ergative or nominative counterparts, but in Indo-European this is not sufficient for their projection into PGRs. Claims to the contrary, which postulate true DATIVE SUBJECTS in this family (e.g. Klaiman 1979, Davison 1985, T. Mohanan 1994), are usually based on tests that on closer inspection prove not to pick out exclusively the PGR as a SYNTACTICALLY defined notion but rather aspects of topicality or semantic role superiority. Converbs (also known as ‘conjunct participles’, ‘adverbial participles’, ‘gerunds’), for example, are often said to be constrained to subject coreference and are then used to show that experiencer datives satisfy the subject condition. Tested against a broader range of data and using natural discourse evidence, however, converbs have been extensively shown not to be syntactically limited to PGR identity in many Indo-European languages (see Haspelmath 1995, summarizing findings on French and English, Růžička 1982 and Weiss 1995 on Russian and other Slavic languages, Schumacher 1977 on Hindi, Pandharipande 1990 on Marathi, Bickel & Yādava 1999 on Nepali and Maithili). The same observation holds for reflexives in many languages of this family. Although it is frequently taken as a crucial test for subjecthood, reflexivization relies more on semantic and pragmatic conditions than on grammatical relations. This has been extensively demonstrated by Timberlake (1980) for Russian and recently by Čmejrková (1998) for Czech. Under certain conditions even an indirect object can control reflexivization, as in the following literary Russian example (Timberlake 1980:254):

- (31)      Každ-omu<sub>i</sub>            na ét-om            svet-e            svoja<sub>i</sub>  
 everybody-M.PL.DAT on DEM-M.SG.LOC world(M)-SG.LOC POSS.REFL:F.SG.NOM  
 mera                    polož-en-a            (sud'b-oj).  
 limit(F):SG.NOM set-PASS.P-F.SG.NOM fate(F)-SG.INSTR  
 ‘For each person his own limit in this world has been set (by fate).’

A similar, equally literary example from Hindi is quoted by Hook (1990:331):

- (32)      Sultān=ne    Rehān=ko<sub>i</sub>    apne<sub>i</sub>    pad=se            haṭā-kar    use  
 S.:OBL=ERG R.:OBL=DAT REFL post(M):OBL=ABL remove-CONV 3SG.DAT  
 Badāyū=kī      jāgir                    de-kar      udhar ravānā  
 B.OBL=GEN.SG.F civil.service(F):SG.NOM give-CONV there departed  
 kar-di-yā.  
 make-BENEF-PT.SG.M  
 ‘The sultan removed Rehan from his (Rehan’s) office and, giving him the Badayun *jāgir*, sent him there.’

Nepali (Yadava 1992), Albanian (Faarlund 1998) and Modern Greek (Dixon 1994:138, note 34) even allow reflexives in ergative or nominative case function (Nepali example):

- (33)     āphai-le<sub>i</sub>   Rām-lāī<sub>i</sub> barbād gar-yo.  
           REFL-ERG R.-DAT   spoiling do-3SG.NPT  
           ‘Ram got himself spoiled.’

Germanic languages, too, typically allow their reflexives to be bound by oblique arguments, but this is usually possible only under specific semantic and pragmatic conditions, e.g. the condition that the antecedent has a higher semantic role than the reflexive (Kuno 1987, Jackendoff 1992, Van Valin & LaPolla 1997). This is illustrated by English in (34). Corresponding German data is discussed by Eisenberg (1989:192), Icelandic data by Maling (1990):

- (34)     Many people have talked with Mary<sub>i</sub> about herself<sub>i</sub>.

Against this background, it seems futile to base claims about subject properties of dative experiencers on reflexivization or converbial coreference. By contrast, those constructions which exhibit a robust, tightly grammaticalized PGR sensitivity, i.e. control, matrix-coding and participial constructions, demonstrate that PGRs exclude oblique-marked experiencers throughout Indo-European.

#### 4. A typological correlate: verb agreement systems

The differences in type of PGRs discussed in the preceding are not isolated features. In the languages under review, there is at least one typological property that follows suit, and this is the type of constraints imposed on agreement systems (Bickel 1997a, 1999a). The choice in NP-sensitivity of PGRs appears to be mirrored by the principles underlying verb agreement systems: languages with NP-sensitive PGRs base their agreement system on a mechanism of FEATURE UNIFICATION, while languages with NP-independent PGRs rely on mechanisms of FEATURE COMPOSITION, which allow for relations between verbal and nominal features beyond simple referential equation.

If agreement operates by feature unification, the features represented by target and trigger must merge into a single referential expression. This is indeed a general restriction found

throughout Indo-European. To be sure, there are well-known cases in Indo-European, especially in Slavic (Corbett 1983), where the verb appears to DISAGREE in certain features with its subject. A general characteristic of these cases is that the features registered on the verb do not add information, but reflect instead varying ways of constructing the path of feature inheritance within the agreement trigger. While in Standard Russian, a comitative cannot contribute plural agreement features unless the head of the agreement triggering NP is plural as well (35a), other East Slavic varieties, such as Belorussian, allows this (35b).

- (35) a. Oni (\*on) s sestroj poš-l-i v tèatr.  
 3PL.NOM 3M.SG.NOM with sister(F):SG.INSTR PFV:go-PT-PL to theatre  
 ‘He went with sister to the theatre.’
- b. Brat z sjastruju pajš-l-i ŭ tèatr.  
 brother(M):SG.NOM with sister(F):SG.INSTR PFV:go-PT-PL to theatre  
 ‘Brother went with sister to the theatre.’ (Corbett 1983: 96)

In both cases, the semantic result is the same: verb agreement reflects the overall number of participants. The difference is solely a matter of feature inheritance between the comitative PP and the agreement triggering NP. Similar variation is also common in Indo-Aryan. In Nepali, for instance, there is some leeway in whether or not the PP *hāmīharu madhye* ‘among us’ in the following example contributes its plural feature to the agreement triggering NP *ek jana* ‘one person’ or not. This is true even if the PP is elliptically elided because it is apparent from the context:

- (36) (hāmīharu madhye) ek jana āu-nch-a / āu-nch-āũ.  
 1PL among one person(SG):NOM come-NPT-3SG come-NPT-1PL  
 ‘One of us will come.’

However, if the PP is extraposed into the postverbal afterthought position, it can no longer ‘pipe’ its features back into the agreement system:

- (37) ek jana āu-nch-a, / \*āu-nch-āũ, hāmīharu madhye.  
 one person(SG) come-NPT-3SG come-NPT-1PL 1PL among  
 ‘One will come, one of us.’

Thus, while the agreement system can draw features from the pragmatic context, they must be able to propagate through the triggering NP and cannot be removed from it.

Spanish shows another well-known pattern of disagreement (cf. Jelinek 1984):

- (38) a. Los español-es bebe-mos mucha cerveza.  
 ART:M.PL spaniard(M)-PL drink-1PL.PRES much beer  
 ‘We Spaniards drink a lot of beer.’
- b. Los español-es bebé-is mucha cerveza.  
 ART:M.PL spaniard(M)-PL drink-2PL.PRES much beer  
 ‘You Spaniards drink a lot of beer.’

Here, disagreement results from systematic ellipsis of the pronouns *nosotros* ‘we’ and *vosotros* ‘you (pl.)’, which are much longer and prosodically heavier than the monosyllabic forms in the singular (*yo, tú*). As a result of this, Spanish disagreement is impossible with any other person (39a). Also note that the structure can only have an apposition-like interpretation and is therefore incompatible with question words, as shown by (39b):

- (39) a. \*El español beb-o mucha cerveza.  
 ART:SG.M spaniard drink-1SG.PRES much beer
- b. \*¿Quién bebéis cervéza?  
 who:SG drink-2PL.PRES beer

It seems plausible that, if we concede some variation in the precise paths of feature inheritance and allow for ellipsis under specific conditions, agreement is based on feature unification even in Belorussian, Nepali, and Spanish. This is quite different in those Sino-Tibetan languages that have agreement systems. Such systems are based on different principles, explored in detail in Bickel (1999a). Structures like (39) are not only grammatical but have a distinct semantic interpretation in these languages (Belhare examples):

- (40) a. masiŋ=cha siŋ-taŋŋ-e thaũ-?-ŋa.  
 old.woman=even wood-plant-LOC climb-NPT-[1SG]E[S]  
 ‘Even as an old woman I climb trees.’
- b. sati khar-e-iga?  
 who(SG) go-PT-2PL  
 ‘Who of you went?’

(40a) is a regular appositional construction, which is compatible with all person and number combinations. It corresponds to what Hale (1983) calls an ‘unmerged’ or ‘predicative’ interpretation of NPs. Appositional agreement has the result that there is no need for an adposition or case marker like English *as* in languages like Belhare. (40b) is an instance of the standard way of

expressing part-whole relationships, where the use of a genitival attribute (*hanikḡaha*) as in English ('of you') would in fact be ungrammatical and where there is no 'among' construction available as in the Nepali example (36). Appositional and partitional constructions in Sino-Tibetan languages do not violate a putative feature matching principle but instead positively rely on such mismatches: features from the NP ('F<sub>N</sub>') are combined together with features marked on the verb ('F<sub>V</sub>') to form 'F<sub>V</sub> as F<sub>N</sub>' (APPOSITIONAL) (40a) and 'F<sub>N</sub> of F<sub>V</sub>' (PARTITIONAL) (40b) relations. Thus, what is proscribed in Indo-European languages is used here as a systematic CONSTRUCTIONAL DEVICE. Some Sino-Tibetan languages carry this further and use specific agreement relations for a larger domain of expressions. As noted in Section 2, Lai Chin experience constructions are based on psycho-collocations, involving a possessor of experience prefixed to an experiential noun. If there is also a specific stimulus argument involved, this is coded by a regular intransitive agreement marker (Bickel 1999a):

- (41) (kay ma?) an-luŋ ka-riŋ.  
 1SG DEM 3PL.POSS-heart 1SG.S-suspicious:Σ1 (lit., 'green')  
 'They suspect me.' (literally, 'their heart is suspicious *re* me')

Although from an Indo-European point of view one is tempted to understand such constructions as 'I [make] their heart suspicious', the Lai verb is clearly intransitive. Transitive constructions would be compatible with ergative case on *kay ma?* 'I' and the Stem 2 form (*riŋ*). Both options are ungrammatical in examples like (41). The structure of (41) is different: what the verbal agreement marker indexes is not actor argument but the person WITH REGARD TO WHOM the psycho-collocation holds, i.e. the stimulus *kay ma?* 'I'. Thus, a better approximation of the semantic structure of (41) is 'their-heart with-regard-to-me<sub>i</sub> me<sub>i</sub>-suspicious', where agreement consists in establishing a relation ('F<sub>N</sub> *re* F<sub>V</sub>') between the features F<sub>N</sub> of the psycho-noun (*anluŋ* 'their-heart') and the verbal features F<sub>V</sub> encoded by the conjugational prefixes (*ka-* 'I').

Notice, however, that agreement in languages like Belhare and Lai Chin is not recruited for combinatorial types of agreement constructions alone, but also for standard argument-predicate constructions, where an NP merges referentially with the features encoded by the verb form. This is IDENTIFICATIONAL ('F<sub>N</sub> = F<sub>V</sub>') agreement. As a result of this possibility, NPs in these languages cannot be analyzed as always being adjuncts or appositions, as has been argued for radically head-marking languages by von Humboldt (1836) and many others since (e.g. Mithun 1985, Van Valin 1985, Bresnan & Mchombo 1987, Baker 1996).<sup>7</sup>

While the languages we looked at in the preceding are from two families only, there is cursory evidence that the type of PGR and the type of agreement system found in a language correlate with each other to a typologically significant degree. Languages that allow other than identificational relations between agreement triggers and targets also typically have grammatical relations that are dissociated from case and phrase structure. This is illustrated by Warlpiri and other Australian languages, where agreement can realize an appositional, i.e. ‘ $F_N$  as  $F_V$ ’ (42a), as much as an identificational, i.e. ‘ $F_N = F_V$ ’ (42b) relation (Hale 1983, Simpson 1991).

- (42) a. puyukuyuku-puru =kula=lpa=rlipa=nyanu      yapa    nya-ngkarla.  
 fog-WHILE                    =NEG=IPFV=1PL.I.S=REFL      person    see-IRREALIS  
 ‘We<sup>d</sup> can’t see each another as persons when it’s foggy.’
- b. nyiya-ku =ka=npala=rla                    warri-rni nyumpala-rlu?  
 what-DAT    =PRES=2DU.A=3SG.IO    seek-NPT    2DU-ERG  
 ‘What are you<sup>d</sup> looking for?’

As predicted, neither phrase-structural position nor nominal case-marking correlates with the PGR in this language: the phrase structure of Warlpiri is flat and does not discriminate argument roles. Case-marking cross-cuts the PGR that is relevant, among other things, for switch-reference constructions. As demonstrated by Simpson & Bresnan (1983), these constructions are sensitive to notions of subject and object irrespective of case-marking. Clauses marked by *-karra*, for instance, must have their {S,A} argument controlled by the {S,A} argument in the matrix clause. This condition can be satisfied by an ergative (43a) or an absolutive (zero-marked) NP (43b), and even by S-arguments that represent the ‘whole’ of the part expressed by an absolutive NP (43c):

- (43) a. ngarrka-ngku =ka    purlapa    yunpa-rni [karli      jarnti-rninja-karra].  
 man-ERG                    =PRES    corroboree sing-NPT      boomerang trim-P-SS  
 ‘The man is singing a corroboree while trimming a boomerang.’
- b. ngarrka =ka    wirnpirli-mi [karli      jarnti-rninja-karra].  
 man                    =PRES    whistle-NPT      boomerang trim-P-SS  
 ‘The man is whistling while trimming a boomerang.’
- c. Waku-jarra =lpa=rna    kankarlu-jarri-ja      [wirnti-nja-karra].  
 arm-DU                    =PT=1SG.S    high-INCHOATIVE-PT      dance-P-SS  
 ‘I raised my arms while dancing’ (literally, ‘I rose [in my] arms, while dancing’)

Notice that the matrix clause in example (43c) illustrates a partitional ( $F_N$  of  $F_V$ ) agreement relation, similar to the one found in the Belhare example (40b).

The counter-correlation between NP-sensitive PGRs and agreement by unification is less easily tested. Tagalog, for example, appears to correlate its PGR directly with an NP-marker, viz. *ang* (Kroeger 1993), and behaves thus much like Indo-European. Verb agreement is not known to make use of feature composition, but the system is very limited anyway: it is optional and restricted to a plural vs. non-plural distinction. Those Austronesian languages that show more comprehensive agreement systems, on the other hand, do not seem to associate PGRs (if any) with a specific noun marker or phrase-structural position (Lichtenberk 1983, Durie 1987, Himmelmann 1996), unless one adopts Chung's (1998:80-85) analysis of Chamorro which argues for a 'verb plus object' ('VP') constituent in phrase structure. If one does, the prediction is borne out insofar as Chamorro agreement is not reported to allow for other than identificational relations between trigger and target. However, I will not further explore here the universal validity of the prediction (cf. Section 7.1) but instead elaborate on the difference between Sino-Tibetan and Indo-European languages.

## 5. Configurationality

Ever since Hale's seminal 1983 paper on Warlpiri, dissociations of PGRs or, for that matter, of any grammatical relation, from phrase structure as well as deviations from feature-merger in agreement have been analyzed as the result of NONCONFIGURATIONALITY. The term (NON)CONFIGURATIONAL is currently used in two rather distinct ways,<sup>8</sup> depending on the theoretical decision whether grammatical relations are axiomatically defined by phrase structure (as in transformational theories) or whether they are defined in some other format of representation (as in virtually all other theoretical frameworks). In the transformationalist view, languages are configurational if they have grammatical relations, specifically, a SUBJECT – OBJECT ASYMMETRY; if they nevertheless show the surface effects of nonconfigurationality (as is the case in Warlpiri), these are taken to result from specific constraints on what may appear in core argumental NP positions (e.g. Jelinek 1984, Speas 1990, Baker 1996, Chung 1998, Pensalfini, in press). Under the alternative view, configurationality is defined more narrowly by the relevance of overt phrase structure for grammatical relations, i.e. by the presence of grammatical relations that are irreducibly and systematically connected to an independently motivated phrase structure on the level of the clause (e.g. Hale 1983, K.P. Mohanan 1983/84, Simpson 1991, Austin & Bresnan 1996,

Nordlinger 1998). The differences between Sino-Tibetan and Indo-European, as explored in the preceding sections, obviously do not correlate with a choice in ‘deep’ configurationality as understood in transformational theories, since representatives of both families show clear evidence for grammatical relations. However, the question remains whether the differences relate to ‘overt’ (non)configurationality, i.e. to a systematic (ir)relevance of clause-level phrase structure for grammatical relations. Sino-Tibetan languages are evidently non-configurational since their PGRs are dissociated from any NP properties, including their position in the clause. Those Indo-European languages where PGRs are sensitive, as in English, Icelandic or Romance, to the position of NPs in the clausal phrase structure rather than to morphological case (as in German, Czech or Nepali), are evidently configurational. The test cases are those Indo-European languages which have PGRs that are sensitive to an NP vs. PP distinction (Hindi) or to case features (other languages): are they, too, configurational on the clause level, differentiating subject and object by phrase structure? As we will see in the following, the answer is ‘no’ for at least some of these languages. This is sufficient to show that choices in PGR and agreement type are not necessarily tied to configurationality.

### 5.1. Word order and constituent flexibility

Indo-Aryan, including Hindi, and Slavic languages show clear signs of non-configurationality in dissociating clausal phrase structure from grammatical relations. A first piece of evidence comes from the fact that word order is by and large free of any syntactic constraint to begin with. It cannot therefore correlate with syntactic notions such as grammatical relations.

Indo-Aryan languages follow the general South Asian model of a flat clausal phrase structure (Mohanan & Mohanan 1994; cf. K.P. Mohanan 1982 for details on a Dravidian and Chelliah 1997 or Bickel, in press, on Sino-Tibetan languages): the order of NPs in a clause responds to what was called FUNCTIONAL SENTENCE PERSPECTIVE in the Prague School and is not restricted by purely formal rules as in English. While the internal structure of NPs is relatively fixed and does not allow discontinuity, clausal sub-constituents such as the CP in a [<sub>IP</sub> [<sub>CP</sub> COMP (NP\*) VP]] structure are not limited to an internal configuration and can be discontinuous: under appropriate pragmatic conditions, elements of an infinitival clause constituent can intersperse with matrix dependents (Mohanan & Mohanan 1994). This is illustrated by the following examples from Hindi (*op. cit.*, 13):

- (44) a. Ilā=ne      Mohan=se      Rām=kā      sāmān      kamre=mē  
 I.:OBL=ERG M.OBL=INSTR R.:OBL=GEN luggage:SG.NOM room:SG.OBL=in  
 rakh-ne=ko      kah-ā.  
 keep-INF.OBL=DAT tell-PT.SG.M
- b. Mohan=se      Rām=kā      sāmān      Ilā=ne      kamre=mē  
 M.OBL=INSTR R.:OBL=GEN luggage:SG.NOM I.:OBL=ERG room:SG.OBL=in  
 rakh-ne=ko      kah-ā.  
 keep-INF.OBL=DAT tell-PT.SG.M
- ‘Ila told Mohan to put Ram’s luggage into the room.’

While Indo-Aryan NPs do not in general allow discontinuity, this is different in some Slavic languages which appear to represent the typological extreme of nonconfigurationality in Indo-European. Colloquial Russian, for example, is famous for allowing attributive adjectives and other NP subconstituents to split away from their heads (Zemskaja 1983):

- (45) a. My      bel-ye      tože      načn-ëm      nosi-t'      kolgotk-i.  
 1PL.NOM white-F.PL.ACC also begin-1PL.NPT wear-INF stocking(F)-PL.ACC  
 ‘We also will begin to wear white stockings.’
- b. Ja      ogurec      kupi-l-a      bol'sh-oj.  
 1SG.NOM cucumber(M):SG.NOM buy-PT-SG.F big-M.SG.NOM  
 ‘I bought a big cucumber.’

In this regard, Colloquial Russian is very similar to Warlpiri, the prototypical nonconfigurational language. In the same vein, Russian has no expletive subjects and argument drop is common in colloquial speech. The same observations hold for Indo-Aryan languages.

While these findings suggest that some Indo-European languages are indeed nonconfigurational, word order freedom has been argued by Hale (1989) and Speas (1990) not to be criterial on its own. The same could perhaps be said about argument dropping, which is, apart from a handful of Northwestern European languages, almost universal. Let us therefore look at a further, less controversial piece of evidence.

## 5.2. Coreference constraints

Evidence for or against configurationality is often based on data about pronominal coreference (Speas 1990, Kroeger 1993, Baker 1996, Chung 1998, etc.). The underlying reason is that in configurational languages, constraints on pronominal coreference are assumed to simultaneously

involve notions of grammatical relations and clausal constituency — indeed, the relation between the two is taken to be so intimate that it is easiest to define coreference constraints in terms of a unifying notion like C[CONSTITUENT]-COMMAND that generalizes over grammatical relations and phrase structures (Chomsky 1981, Reinhart 1983). From a functional perspective, the fundamental and probably universal principle constraining pronominal coreference is that a pronoun must be more rhematic than its antecedent within the same sentence.<sup>9</sup> If this constraint can be captured by a notion like c-command, this suggests that the theme-rheme articulation is grammaticalized in the same phrase structure that also encodes grammatical relations. This is what it means, from a functional point of view, for a language to be configurational.

In English, for example, the immediately postverbal position is systematically less rhematic, i.e. more topical, than subsequent PP-positions (Givón 1984a, Thompson 1990, Van Valin & LaPolla 1997). Therefore, a pronoun in this position cannot be coindexed with a lexical PP constituent (44a) (Reinhart 1983). Only the reverse arrangement in (44b) allows coreference:

- (46) a. I'll give him<sub>\*i,j</sub> three thousand for Ben<sub>i</sub>'s car.  
 b. I'll give Ben<sub>i</sub> three thousand for his<sub>i,j</sub> car.

Notice that the NP-PP sequence is grammatically tied to a rhematic increase. Stressing *him* in (46a) marks it as contrastive, but it does not override its thematic value vis-à-vis the PP. Therefore, coreference is still bad. What is crucial for configurationality is that this NP position can be filled only by the direct object, i.e. this position is inherently linked to a grammatical relation. Notice, however, that it is not the grammatical relation *per se* which is responsible for the coreference pattern in (46). If the PP is put into a left-detached, ad-sentential position, coreference is possible in both cases since the rhematicity constraint only holds within a closed sentential theme-rheme unit:

- (47) a. For his<sub>i,j</sub> car, I'll give Ben<sub>i</sub> three thousand.  
 b. For Ben<sub>i</sub>'s car, I'll give him<sub>i,j</sub> three thousand.

As a result of this, it is possible (though not of course necessary) to capture the constraint against coreference in (46a) in terms of c-command (under Reinhart's 1983 definition), where the object c-commands a PP within the same sentence but not a PP that is left-adjoined to the sentence.

In Indo-European languages of South Asia, pronominal coreference constraints are also based on relative rhematicity degrees, but the status of NPs or PPs in the sentential theme-rheme ar-

tication is independent of their grammatical relation. Rhematicity typically follows the principle of Functional Sentence Perspective and thus shows a strong increase from left to right. Pronominal coreference is possible, therefore, as long as the antecedent precedes the pronoun in the same sentence. This is illustrated by the following examples from Hindi (Mahajan 1994, Dayal 1994):<sup>10</sup>

- (48) a. Rām=ne Mohan=ko<sub>i</sub> us=kī<sub>i,j</sub> kitāb laūṭā d-ī.  
R.OBL=ERG M.OBL=DAT 3SG.OBL=GEN:SG.F book(F):NOM return give-PT.SG.F
- b. Rām=ne us=kī<sub>\*i,j</sub> kitāb Mohan=ko<sub>i</sub> laūṭā d-ī.  
R.OBL=ERG 3SG.OBL=GEN.SG.F book(F):NOM M.OBL=DAT return give-PT.SG.F  
'Ram returned his book to Mohan.'
- (49) a. Maī=ne Mohan=kī<sub>i</sub> kitāb us=ko<sub>i,j</sub> (hi) laūṭā d-ī.  
1SG.OBL=ERG M.OBL=GEN.SG.F book(F):NOM 3SG.OBL=DAT FOC return give-PT.SG.F
- b. Maī=ne us=ko<sub>\*i,j</sub> Mohan=kī<sub>i</sub> kitāb laūṭā d-ī.  
1SG.OBL=ERG 3SG.OBL=DAT M.OBL=GEN.SG.F book(F):SG.NOM return give-PT.SG.F  
'I returned Mohan's book to him.'

The phrase-structural positions that are relevant for Functional Sentence Perspective and thereby for pronominal coreference constraints can be filled by any grammatical relation: both the sequence IO-DO as in (48a) and (49b) and the sequence DO-IO as in (48b) and (49a) allow coreference if (and only if) the antecedent is less rhematic than the pronoun. Indeed, as long as the rhematicity condition is met, the pronoun can even be in A-function. However, agents universally have a strong intrinsic bias toward high topicality, especially when they are expressed by pronouns (cf. DuBois 1987, among others), and using them in rhematic position requires overt focusing that overrides this bias:

- (50) Mohan=kī<sub>i</sub> kitāb us=ne<sub>i,j</sub> hi dekh-ī.  
M.:OBL=GEN.SG.F book(F):SG.NOM 3SG.OBL=ERG FOC see-PT.SG.F  
'HE saw Mohan's book.'

The same is possible in Maithili (Y.P. Yādava, p.c.) and Nepali (C.M. Bandhu, p.c.), respectively:

- (51) a. Rām-ak<sub>i</sub> bhāī-kē u<sub>i,j</sub> he dekh-l-ak.  
R.-GEN brother-DAT 3NH.REM:NOM FOC see-PT-3NOM  
'HE saw Ram's brother.'

- b. Rām-ko<sub>i</sub> nayā̃ kitāb usai-le<sub>i,j</sub> ma-lāī di-yo.  
 R.-GEN new book:NOM 3SG:FOC-ERG 1SG-DAT give-3SG.PT  
 ‘HE gave me Ram’s new book.’

These possibilities would violate the c-command condition in a configurational language. Like the object, the English subject is grammatically bound to a phrase-structural position that is inherently more thematic than subsequent positions in the same sentence. Therefore, the subject cannot function as the rheme or comment in a sentence, unlike the Indo-Aryan subject which is free to appear in virtually any position in the sentential theme-rheme unit. As noted before for the object, stressing the pronoun *he* in the English translation of (50) or (51) puts it into contrastive focus but this does not override its thematic value (cf. Van Valin & LaPolla 1997:225). As a result, coreference is still ruled out: *HE<sub>\*i,j</sub> saw Mohan<sub>i</sub>’s book*. This difference confirms the earlier finding that unlike English, languages like Hindi, Maithili or Nepali are nonconfigurational: the data on pronominal coreference does not warrant postulation of a c-command relation that generalizes over phrase structures and grammatical relations.<sup>11</sup>

From the examples in (48) through (51) it appears that the coreference constraint could be stated in terms of linear precedence, as suggested by K.P. Mohanan (1982, 1983/84) for the Dravidian language Malayalam. Yet, word order is but one way of modulating the theme-rheme articulation. Another way is focusing by means of emphatic particles such as Hindi *hi*, Mathili *he* or by emphatic diphthongization in Nepali. In the preceding examples such particles appear in the immediately preverbal position (cf., e.g. (50) and (51)), the default position for the most rhematic constituent. However, such particles can be used in other positions as well. This allows cataphora, as in the following version of the Hindi example in (48b):

- (52) Rām=ne us=kī<sub>i,j</sub> hi kitāb Mohan=ko<sub>i</sub> lautā d-ī.  
 R.:OBL=ERG 3SG.OBL=GEN.SG.F FOC book(F):SG.NOM M.OBL=DAT return give-PT.SG.F  
 ‘Ram returned his book to Mohan.’

## 6. Genetic stability

Let us take stock of what we have found so far. The principles of NP-sensitive PGRs and unificational agreement characterize Indo-European languages in both Europe and South Asia, i.e. in sub-branches that are at the genetic and geographical extremes of this family. The principle of NP-sensitive PGRs has not gone unnoticed in this family: it is received wisdom that although in

Proto-Indo-European cases were much more independent from verbs, the nominative has always played a privileged role as a guide to the SUBJECT (cf., e.g. Sasse 1982 for a summary statement). Sino-Tibetan languages are systematically different in this regard. They have either no PGRs or PGRs that are strictly separated from NP properties. Their agreement systems, if any, typically allow for other than identificational relations between trigger and target. These principles hold true for families such as Kiranti and Kuki-Chin, which are only very distantly related (Matisoff 1991) and which are spoken in quite different geographical and linguistic areas: one (Kiranti) is spoken in the Nepalese Himalayas and takes part of the South Asian Sprachbund, while the other (Kuki-Chin) belongs to the South East Asian area and is spoken in Burma. This suggests that, at least in the two language families surveyed here, the principles governing PGR and agreement systems are genetically stable in the sense of Nichols (1992, in press), i.e. they are typological features which are better predicted by genetic affiliation than by geographical location. The data also suggest that PGR and agreement systems are at the same time unstable areally, i.e. they are not prone to diffuse across genetic boundaries in a Sprachbund. In this regard, they are different from patterns like DATIVE EXPERIENCER CONSTRUCTIONS or DIFFERENTIAL OBJECT MARKING<sup>12</sup> (Bossong 1985, 1998a, 1998b). These patterns are fairly stable throughout Indo-European, being more rare only in Western Europe. At the same time, however, both patterns easily spread to adjacent families, notably to Sino-Tibetan and Dravidian languages of South Asia. PGR and agreement systems, in contrast, do not as easily spread across genetic boundaries.

### 6.1. Areally vs. genetically stable features

The high genetic stability and strong resistance to areal diffusion of PGR and agreement principles in Indo-European and Sino-Tibetan is the more remarkable as the South Asian Sprachbund exerts high areal pressure in other domains of grammar (Masica 1976). Together with other families, Indo-European and Sino-Tibetan languages of this area show strong convergence in a large set of structural features: for instance, as argued in the Section 5, most languages have a nonconfigurational clause structure, regardless of their genetic affiliation. Further, most of the languages in this area have a left-branching phrase structure, ergative case alignment, and, with few exceptions (Ebert 1993, 1999), rely on nonfinite converbial chaining in clause linkage. In intensive contact zones between Indo-European and Sino-Tibetan, such as in the Nepalese Himalayas, convergence is an ongoing process. This is the most striking in the case of Nepali and

Belhare. As a result of political domination for about 150 years, Belhare speakers are virtually all bilingual in Nepali and their discourse is replete with code-switching, idiom calques and on-the-fly borrowing of grammatical items from Nepali (Bickel 1999b). Nepali, in turn, has been subject to strong Sino-Tibetan substratum influence over many centuries by a constant (and ongoing) process of language shift. In spite of this, Belhare and Nepali still differ fundamentally from each other in terms of PGR and agreement principles.

Why are PGR and agreement principles genetically stable and resistant against diffusion whereas most other choices in morphosyntactic typology are better predicted by geography than by descent? For the most part, the morphosyntactic features that easily spread in contact zones concern the inventory of morphosyntactic units and the form of their markers, e.g. whether case-marking follows ergative or accusative alignment, whether there are inversion constructions or not, or what kind of clause linkage techniques the language offers. If combinatorial constraints are involved, they are of a purely formal nature, deciding, for example, on the direction of phrasal branching, or on the rigidity of clausal phrase structure. To know about such constraints, speaker and hearer need not pay attention to what is being conveyed in a specific utterance. For example, if a language is left-branching and has, therefore, postpositional phrases, pre-nominal genitives, verb-final clauses, etc., this ordering constraint holds irrespective of the semantics of the individual PPs, NPs and IPs that are used in a given utterance. Likewise, if a language is configurational, the mutual ordering of arguments in phrase structure and theme-rheme articulation is determined rigidly across meanings. This type of combinatorial constraint is not sensitive to the interface of syntax with semantics. There are other constraints, however, which manifest precisely this kind of interface sensitivity. I call these constraints *INTERFACE CONSTRAINTS*, defined as combinatorial constraints which include in their definition information about both the kind of grammatical unit to which they apply and about a grammatically restricted part of their semantic content. I propose, as a universal hypothesis, the following principle:

- (53) Interface constraints are genetically more stable and more resistant against areal diffusion than the form and inventory of grammatical units.

Interface constraints are abstract principles that regulate the basic mechanisms of a grammar and have no easily detectable reflex in either form or meaning. As such, they are much less transparent and therefore less attractive for borrowing and less persistent in substratum influence than purely formal patterns or overtly marked expression techniques (cf. Heath 1978, Johanson

1992). Principles of PGR and agreement systems are instances of just such interface constraints and the following shows why.

## 6.2. Interface constraints

The difference between Indo-European and Sino-Tibetan agreement systems is tied to different design principles in the interface between the syntactic agreement structure and the semantic relation that the referential features in this structure enter. The general form of such constraints is the following:

(54) General form of reference-based interface constraints (on agreement):

Morphosyntactic units A and B can combine in a clause iff a syntactically defined subset of referential features in A and B are in a specific relationship with each other, understood as a relation of identity, partition, apposition, regard (or other).

Note that the subset of agreement features is syntactically defined: constraints on agreement are different from purely semantic compatibility conditions which require that combined units ‘make sense’ in some possible conceptualization (as when e.g. *to bark* requires a canine referent or a squirrel as agent). Constraints on agreement are not purely formal either, however, since unlike constraints on, say, phrasal branching direction, they make reference to content, viz. to referential features. This double-sidedness is what makes them interface constraints. Reference-based interface constraints are different in Indo-European and Sino-Tibetan. In Indo-European they are limited to identity relations, whence agreement is possible only if the referential features in the triggering NP can be successfully unified with or ‘matched by’ those of the targeted verb form. In Sino-Tibetan, the constraint subsumes a set of several different relations, viz., depending on the language, ‘=’ (identity), ‘of’ (part of) or ‘*re*’ (‘with regard to’). In order to terminologically fix this difference in constraint design, I propose INTEGRATIVE as a label for Indo-European type constraints, and ASSOCIATIVE for Sino-Tibetan type constraints.

PGRs too concern constraints on the syntax-semantics interface. Their relevance lies in imposing a constraint on how grammatical units can be put together in a specific construction. Like reference-based interface constraints, constraints involving PGRs are not purely formal since they are sensitive to the content of the units to be combined, specifically, to the semantic roles in these units. The constraints are not purely semantic, however, since only a syntactically defined

subset of this content is relevant: the relevant content cannot be reduced to semantics because a PGR like '{S,A}' or '{S,O}' neutralizes the distinction between agentive and patientive arguments in intransitive but not in transitive constructions (Foley & Van Valin 1984). The general form of role-based interface constraints is the following:

(55) General form of role-based interface constraints (on various constructions):

Morphosyntactic units A and B can combine iff there is an argument  $\alpha$  in A and/or B such that  $\alpha$  participates in a specific PGR, understood as a syntactically defined set of semantic roles.

An {S,A} constraint on a control construction, for instance, ensures that an infinitival clause is combined with a control verb only if the clause contains a (deleted) argument whose semantic role can be mapped into the {S,A} PGR and which is referentially coindexed with the controller argument of the control verb (e.g. the undergoer in jussive and causative verbs; cf. Van Valin & LaPolla 1997:540-60). Likewise, an {S,A} constraint on verb agreement ensures that an NP can combine with a verbal form in an agreement construction only if the NP bears a semantic role that can be mapped into the {S,A} PGR.

What is crucial for such constraints is of course how semantic roles are mapped into PGRs, and it is precisely here, in the principles of semantics-to-syntax linking, that PGRs were found to vary along genetically stable ways. The variation consists in this: in the ASSOCIATIVE interface type of Sino-Tibetan, arguments are mapped into PGRs solely on the basis of information from the predicate: choosing *limma* 'to find tasty' or *kitma* 'to fear' in the Belhare example (2) determines a semantic role pair <experiencer, stimulus> and from this we can predict, by applying a universal role hierarchy, that the experiencer is mapped into A, the stimulus into O; the fact that *limma* associates with an inversion construction, but *kitma* with an ergative construction, is irrelevant. In the INTEGRATIVE interface type of Indo-European, it is precisely information from such constructional choices on the clause level which is essential in semantics-to-syntax mapping. The experiencer in a <experiencer, stimulus> predicate like Nepali *dar lagnu* 'to feel fear' or *darāunu* 'to fear' is mapped, as we saw in Section 3, into the PGR only if it is associated with a specific NP property (here nominative or ergative case) on the clause level, and in our example this is so only with *darāunu* 'to fear'.

It has recently been argued (Goldberg 1995; Fried 1998, 1999) that the NP properties ('argument roles' in Goldberg's terminology) with which predicate-level arguments ('participant roles') associate do not reflect arbitrary, lexically governed choices, but follow abstract schemes

of event framing on their own: they are ADDED TO, rather than DERIVED FROM predicate-level information. The dative-nominative frame of inversion constructions, for instance, follows a ‘Be-falling’ scheme which has different semantic entailments and pragmatic implicatures than the ‘Action’ scheme associated with nominative-accusative or ergative-absolutive frames (Fried 1998; also cf. Croft 1993). This holds for both Indo-European and Sino-Tibetan. The difference is whether information from such schemes is or is not relevant for linking: in Sino-Tibetan, this information is irrelevant for linking, while in Indo-European it is relevant. Indeed, in some Indo-European languages, PGR mapping even seems to be reducible to information from clause-level NP frames defined by phrase structures or cases. Such reductions have been proposed for English by Chomsky (1965) in terms of a phrase-structural ‘frame’ and for German by Reis (1982) in terms of a nominative-based clause structure. Fried (1999) develops this substantially further by anchoring PGR mapping in the semantic content of such frames rather than in their formal manifestation. Whether or not such reductions are successful in Indo-European languages, the claim advanced here is that they are impossible IN PRINCIPLE in Sino-Tibetan languages because in these languages only predicate-level roles count for linking.

## 7. Conclusions and prospects

The main empirical finding of this paper is that the choice between integrative vs. associative PGR and agreement constraints is genetically stable and resistant to areal diffusion in Indo-European and Sino-Tibetan. Further, languages with integrative constraints are found to be either configurational or nonconfigurational, depending on which NP properties (phrase structural positions or cases) are referred to by PGRs. Languages with associative constraints, by contrast, are nonconfigurational throughout, i.e. they always dissociate phrase structure from grammatical relations. In the remainder, I will propose a set of universal hypotheses derived from these findings (7.1) and discuss their implications for a number of current issues (7.2).

### 7.1. Universal hypotheses

The present findings suggest a pair of typological hypotheses for further exploration on a world-wide scale:

- (56) a. If a language has integrative PGR constraints, it has an integrative agreement mechanism (agreement by feature unification), and vice-versa.
- b. If a language has dissociative PGR constraints, it has a dissociative agreement mechanism (agreement by feature composition), and vice-versa.

As discussed in Section 4, hypotheses (56a) and (56b) seem to be tentatively confirmed by a look at Austronesian and Australian languages, at least as far as the implication from PGR to agreement type is concerned. Notice that the distinction between the integrative and associative interface type is assumed here to be discrete. This is what one finds when comparing Sino-Tibetan and Indo-European. It is possible, however, that on a global scale, the difference will turn out to be gradual rather than discrete. If such is the case, a language is the more integrative (and the less associative) the more (the less) it has constructions with NP-sensitive PGRs and the more (the less) agreement is limited to identificational agreement.

The difference between associative and integrative constraints concerns the mechanism of the syntax-semantics interface, and as argued in Section 6, it lies in the very nature of this that the distinction has no systematic correlates in the inventory and form of individual constructions. However, the two types of interface design tend to develop specific surface concomitants that apparently ease their functioning (and that may be taken as diagnostics of the design type). First, since in languages with integrative constraints, clause-level NP frames and verbal argument structure are simultaneously relevant for PGRs, these languages tend to have case-markers, such as a nominative, that cover the same range of semantic roles as verbal agreement markers. As a result, both formal markers are in many, but by no means all, Indo-European languages reliable guides to each other and to PGRs. In languages with associative constraints, there is usually no tendency for case and agreement markers to cover the same ground. Instead they fully exert their potential to carve up semantic roles on their own. In Belhare, for example, the ergative case expresses a generalized effector role which includes agents, instruments and causes regardless of their animacy; A-agreement on the verb, by contrast, is limited to animate agents (Bickel 1999a). Second, as mentioned in Section 4, languages with integrative agreement constraints tend to have special adposition-based expressions for the relations between NPs and verbal agreement markers, e.g. *as*, *of* or *with regard to* in English. Such expressions are superfluous in languages with associative constraints. Notice, however, that while there is no structural need for them, such expressions are not incompatible with associative agreement. Indeed, a close relative of Belhare,

Athpare, seems to have borrowed a postposition for ‘among’ relations from Nepali (cf. Ebert 1997:116).

Another hypothesis that the present findings suggest concerns genetic stability in a universal perspective:

- (57) The choice between integrative and associative interface constraints is genetically very stable and strongly resistant to areal diffusion.

This hypothesis is falsified if there are languages which completely switch from one interface type to the other under areal pressure or which switch back and forth between types in a time span that is considerably shorter than the age of Indo-European or Sino-Tibetan. So far I have not come across either instance. Notice that the hypothesis does not preclude a change between types per se. After all, pre-proto Indo-European and Sino-Tibetan are likely to have been so radically different from their respective modern descendents that the original unity of these families with other languages is no longer detectable; nothing is ABSOLUTELY stable in language history (cf. Nichols, in press, for discussion).

## 7.2. Implications

The findings of this paper have major implications for typological, theoretical, and historical linguistics.

With regard to typology, the findings confirm Austin & Bresnan’s (1996) claim that configurationality is an areal feature and has less predictive power for other typological features than is usually assumed. Specifically, configurationality does not fully correlate with the choice in interface constraints as discussed here. The implicit motivation for the Configurationality Parameter appears to lie in the old Humboldtian insight that languages differ in the weight they attribute to NPs as the arguments of the verb. Instead of assessing this weight through the role of phrase structure in grammar, it may prove to be more fruitful typologically to recast syntactic weight in terms of interface constraints. Under such an approach, the syntactic relevance of NPs derives from their role they play in the design of interface constraints: high relevance in languages with integrative constraints, low relevance in languages with associative constraints. This is further explored in a pilot study (Bickel 1999b), which suggests that despite strong convergence in discourse style, Nepali (integrative type) discourse is characterized by a significantly higher NP

density than Belhare (associative type) discourse, i.e. Nepali speakers tend to construct more clauses with overt argumental NPs than Belhare speakers.

The theoretical implications concern the theory of argument linking. A standard assumption in linking theories of both functionalist and formalist persuasion is that grammatical relations are mapped from information contained in the predicate lexeme. This has recently been challenged by a number of studies, again across a wide variety of analytical frameworks (e.g., Croft 1993, 1998, Borer 1994, Goldberg 1995, Levin & Rappaport Hovav 1996, Fried 1998 among others), which argue that clause-level event construal and NP frames contain crucial information for linking on their own that cannot be reduced to predicate-level lexical entries. The findings presented in this paper suggest that languages vary typologically in this regard. Clause-level constructional frames and event construal, such as experiencer inversion or psycho-collocations, are ignored in associative languages and do not play any role in their linking mechanism. Such languages (e.g. Belhare or Lai Chin) fully comply with the traditional view of linking. If a language has integrative PGR constraints (e.g. English or Nepali), by contrast, linking algorithms cannot be fully reduced to predicate-level information unless constructional frames are built into lexical entries, e.g. by lexical diacritics distinguishing inversion verbs from others (e.g. English *to please* vs. *to like*, Nepali *ḍar lagnu* vs. *ḍarāunu* ‘to fear’). This, however, misses significant generalizations about constructional frames and their specific event semantics. It seems more fruitful to assume that in integrative languages clause-level information feeds directly into the linking mechanism, or, as argued by Fried (1998, 1999) for Czech and English, that it is even the sole source of PGR linking. From a universal perspective, the difference between associative and integrative linking types is best captured if grammatical theory provides representations for both clause-level and predicate-level information, much in the spirit of Goldberg (1995). PGRs can then draw, in typologically variable ways, from either or both levels.

In historical linguistics, the present findings have implications for our understanding of syntactic change. One observation that has since long dominated theorizing in this domain is that case and word order rigidity appear to be in a roughly complementary distribution so that loss of either triggers strengthening of the other (for a recent statement along these lines, see Kiparsky 1997). The observation is especially well-supported by data from Romance and Germanic. Under the view developed here, this diachronic pattern is a natural effect in a language family with integrative interfaces where PGRs are intrinsically tied to case or phrase structure. The effect reflects a tendency to REPAIR deviations from the link between PGRs and one NP property (case) by replacing it by another NP property (phrase-structural position). However, the findings pre-

sented here let one predict that no such repair is ever set off in a language family like Sino-Tibetan where PGRs and NP frames are independent from each other to begin with. Indeed, while Chinese lost what is reconstructed since Karlgren (1920) as case, word order in this language is far less strictly tied to argument role than one is inclined to expect from an English point of view (Tao 1996). These different developmental patterns confirm the diachronic persistence of the differences between Indo-European and Sino-Tibetan grammar.

## Notes

<sup>1</sup> Abbreviations in interlinear glosses: A ‘most agentive argument of transitive verb’, ACC ‘accusative’, ACT ‘active’, ART ‘article’, AUX ‘auxiliary’, BENEF ‘benefactive’, CAUS ‘causative’, COMP ‘complementizer’, CONV ‘converb’, DAT ‘dative’, DEM ‘demonstrative’, DU ‘dual’, ERG ‘ergative’, E ‘exclusive’, F ‘feminine’, FOC ‘focus’, FUT ‘future’, GEN ‘genitive’, H ‘honorific’, I ‘inclusive’, IMP ‘imperative’, INF ‘infinitive’, INSTR ‘instrumental’, IP ‘imperfective participle’, IPFV ‘imperfective’, LOC ‘locative’, M ‘masculine’, MH ‘mid-honorific’, MP ‘medio-passive’, N ‘neuter’, NEG ‘negative’, NH ‘non-honorific’, NHUM ‘non-human’, NNOM ‘non-nominative’, NOM ‘nominative’, NPT ‘non-past’, NZR ‘nominalizer’, OBL ‘oblique case’, P ‘participle’, PERF ‘perfect’, PASS ‘passive’, PL ‘plural’, POSS ‘possessive’, PRES ‘present’, PT ‘past’, Q ‘interrogative’, REFL ‘reflexive’, REM ‘remote’, S ‘single argument of intransitive verb’, SG ‘singular’, SS ‘same subject (S or A)’, TEL ‘telic (Aktionsart)’, TOP ‘topic’, TR ‘transitive’, O ‘most patientive argument of transitive verb’,  $\Sigma$  ‘stem form (in Chin)’. Elements in square brackets are entailed by paradigm structure without being overtly marked. In example sentences ‘=’ signals a clitic boundary.

<sup>2</sup> Note, incidentally, that this contradicts Dixon’s (1994:136f) claim that control constructions with ‘might’ and similar verbs universally involve an {S,A} pivot.

<sup>3</sup> On stimulus agreement in (13), see Section 4 below and, for a more extensive discussion, Bickel (1999a).

<sup>4</sup> I am grateful to Matt Shibatani for bringing this question to my attention, and to Yogendra Yadava for further discussion. The third person imperative of Nepali (in *-os*) has an optative value but it belongs morphologically to the same paradigm as regular imperatives.

<sup>5</sup> Following a general trend throughout Indo-European and its immediate neighbors, Indo-Aryan languages have DIFFERENTIAL OBJECT-MARKING (Bossong 1985, 1998a, Lazard 1994), assigning the same case to a high-empathy O-argument in monotransitive clauses as to the recipient argument in ditransitive clauses. I label this case DATIVE, but nothing crucial hinges on this terminological choice.

<sup>6</sup> The same holds for gapping in coordination (‘conjunction reduction’), which in other Germanic languages such as German does not allow oblique experiencers as either controller or controllee; cf., among others, Reis (1982), Sasse (1982) or Van Valin & LaPolla (1997:353-61).

<sup>7</sup> See Bickel (1999a) for further discussion of this. For detailed arguments against a Humboldtian analysis of Australian languages with similar case and agreement systems as Lai Chin and Belhare, see Simpson (1991), Austin & Bresnan (1996) and Nordlinger (1998).

<sup>8</sup> Johanna Nichols (p.c.) reminds me that a third definition concerns the presence of any type of a syntactically rigid phrase structure regardless of grammatical relations; see Section 5.1 below.

<sup>9</sup> See Reinhart (1983) for a survey of earlier like-minded approaches and Van Valin & LaPolla (1997:223-30) for another elaboration of the same idea in terms of ‘focus domain’ instead of relative sentential rhematicity degrees. The concept of rhematicity degrees is introduced and discussed by Firbas (1966). In the following discussion I limit myself to constraints on pronominal coreference outside the domain of reflexivization. It follows from Neo-Gricean principles that a pronoun cannot be coindexed with a noun if there is a more explicit reflexive that would overtly signal this coindexing (Levinson 1991, Huang 1994).

<sup>10</sup> Gurtu (1992:75) claims that examples like (48b) are grammatical, in contradiction to (Dayal 1994:235). This variation in grammaticality judgements probably derives from whether or not *uskī* ‘his/her’ is felt as being implicitly focused (perhaps as being used contrastively) and thereby rhematic. As we will see below in example (52), adding an emphatic particle like *hi* (*uskī hi*) makes (48b) grammatical for all speakers I consulted.

<sup>11</sup> As noted at the outset, it is still possible to postulate configurationality in a more abstract representation of clause structure, but this needs additional conceptual machinery. In Mahajan’s (1994) approach, the Hindi binding patterns are accounted for by A-movement (argument shift) without ‘reconstruction’. This is refuted by Dayal (1994), who proposes to add a VP-internal precedence condition to the Binding Theory — a move that is theoretically problematic and empirically in conflict with (52) below. More importantly, neither Mahajan’s nor Dayal’s approach explains the effects of focus marking. Notice that even if these effects could be explained by additional theoretical constructs (e.g. by stipulating a ‘focus phrase’ that would block the subject NP from c-commanding the object in 50 and 51), it becomes the more unattractive to assume deep configurationality the less languages show overt configurationality

— despite the seeming elegance of having only one format of representation for both grammatical relations and phrase structure.

<sup>12</sup> cf. Note 5.

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