

ON CASE TRANSMISSION IN POLISH CONTROL AND RAISING CONSTRUCTIONS*

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ABSTRACT

According to standard assumptions of most generative theories, both Chomskyan and non-Chomskyan, raising and so-called Exceptional Case Marking constructions, but not control constructions, should allow for case transmission, i.e., the identity of the grammatical case between the higher element (raised element, controller), and the lower element (trace/copy, controlled PRO). This prediction is not fulfilled for Polish, a language in which case transmission is allowed from subjects, whether they are raised elements or controllers, but not from other arguments. The aim of this article is to propose an account of such troublesome data. The analysis, building on earlier observations by Hudson (1998) concerning similar facts in Icelandic and Ancient Greek, is couched within Head-driven Phrase Structure Grammar, a modern generative non-Chomskyan formal framework (Pollard and Sag 1987, 1994).

1. Introduction

In accordance with standard GB (Government and Binding; Chomsky 1981, 1986) and standard HPSG (Head-driven Phrase Structure Grammar; Pollard and Sag 1987, 1994) assumptions, Polish raising constructions exhibit 'case transmission', as in (1)-(2) below, where the adjective introduced by the lower verb agrees in case with the subject of the higher verb.^{1,2}

* This article presents a revised and simplified version of an analysis first proposed in Przepiórkowski (1999a). For comments on the current version, I am grateful to Katarzyna Rączka, Beata Trawiński, the audience of the syntax session at the 34th Poznań Linguistic Meeting, as well as an anonymous *PSiCL* reviewer.

¹ Example (2) illustrates the quirky case agreement of adjectival forms with the arguably accusative numeral subject in Polish; cf., e.g., Przepiórkowski (1999a, 2000, 2004).

² Note that there are no ECM (Exceptional Case Marking) constructions (also called Acl constructions, raising to object) in Polish, so all Polish raising examples in this article always involve raising to subject.

- (1) Janek zaczął być miły.
Janek-NOM started be-INF nice-NOM
'Janek started to be nice.'
- (2) Pięć dziewcząt zaczęło być miłych/miłe.
Five-ACC girls-GEN started be-INF nice-GEN/nice-ACC
'Five girls started to be nice.'

According to standard assumptions of either theory, control constructions should not allow for a similar case transmission. This prediction is only partially fulfilled in Polish: case transmission is not observed in object control constructions (cf. (3)-(4)), where the adjective occurs in instrumental case, as it always does when the subject is PRO (cf. (5)), but it is still observed in subject control constructions, contrary to expectations (cf. (6)-(7)).

- (3) Janek kazał Tomkowi być miłym/*miłemu.
Janek ordered Tomek-DAT be-INF nice-INS/nice-DAT
'Janek ordered Tomek to be nice.'
- (4) Janek uczył synka być grzecznym/*grzecznego.
Janek taught son-ACC be-INF polite-INS/polite-ACC
'Janek taught his sonny to be polite.'
- (5) Być miłym to być głupim.
be-INF nice-INS Pred be-INF stupid-INS
'To be nice is to be stupid.'
- (6) Janek chce być miły.
Janek-NOM wants be-INF nice-NOM
'Janek wants to be nice.'
- (7) Pięć dziewcząt chce być miłe/miłych.
five-ACC girls-GEN wants be-INF nice-ACC/nice-GEN
'Five girls want to be nice.'

Such examples are discussed by Franks (1995), but no worked-out solution is proposed, and the tentative solutions he proposes suffer from a number of drawbacks, as Franks himself notes.

The aim of this paper is to propose an HPSG account of such data, which builds on standard HPSG assumptions concerning case assignment and the control-raising dichotomy. In particular, we follow Hudson's (1998) suggestion, made on the basis

of Icelandic and Ancient Greek, that the two properties which are assumed to jointly differentiate between raising and control should actually be decoupled:

1. the raised element, unlike the controlling element, is assigned no semantic role by the raising verb (this is an HPSG analogue of GB's Theta-criterion);
2. the raised argument is structure-shared with its base position (an HPSG analogue of GB's movement or chain formation), while the controller is only co-indexed with the controlled element.

We argue that, in Polish, subject control constructions, but not object control constructions, involve structure-sharing. We show how this explains the facts (1)-(7) above and we further support this analysis with cross-linguistic data. We formalise the account by extending the standard HPSG assumptions and analyses by a simple non-configurational parochial Control Principle for Polish.

The analysis we put forward is couched within Head-driven Phrase Structure Grammar (HPSG; cf., e.g., Pollard and Sag 1987, 1994, Ackerman and Webelhuth 1998, Levine and Green 1999, Webelhuth et al. 1999, Borsley and Przepiórkowski 1999, Flickinger and Kathol 2001, Przepiórkowski et al. 2002, Sag et al. 2003), a (i) linguistic formalism with sound logical foundations (Richter 2000), and a (ii) generative non-transformational highly lexicalised theory of syntax (and other grammatical levels) couched within this formalism.

2. Background

In this section, we present important background information about the predicate case marking in Polish (§2.1), as well as more or less standard HPSG assumptions regarding case marking (§§2.2-2.3), and raising and control constructions (§2.4).

2.1. Predicative case in Polish

Generally, there are two possibilities for the case of adjectival and nominal predicates: such predicates either agree in case with the phrases they predicate of, or else they occur in instrumental case. The distribution of the agreeing/instrumental case is a complex matter (cf., e.g., Pisarkowa 1965, Przepiórkowski 1999a, 2001, and references therein). For example, in (8)-(9) only the agreeing option seems to be available, in (10) both are acceptable, while in (11) only the instrumental is well-formed.

- (8) Janek jest pijany
Janek-NOM is drunk-NOM
'Janek is drunk.'

- (9) Pięć domów zostało wczoraj zburzone/
zburzonych.
five-ACC houses-GEN Aux-3.SG.NEUT yesterday destroyed-ACC/
destroyed-GEN
'Five houses were destroyed yesterday.'
- (10) Pamiętam go pijanego/pijanym.
remember-I him-ACC drunk-ACC/drunken-INS
'I remember him drunk.'
- (11) Być miłym / *miły to być głupim/*głupi.
be-INF nice-INS nice-NOM Pred be-INF stupid-INS/nice-NOM
'To be nice is to be stupid.'

Przepiórkowski (1999a) argues that, in general, the syntax always makes both options available, i.e., that (10) is really a typical case, while the choice between the agreeing case and the instrumental is influenced by other factors. In particular, only the instrumental is available in (11) because what is being predicated of, the big PRO, does not have a morphological case, so case agreement is not possible.

On the other hand, in examples like (8)-(9), both options are in principle available, as can be seen from the behaviour of nominal predicates, which normally occur in the instrumental (cf. (12)) but in some pragmatically justified situations may occur in the agreeing nominative case (cf. (13)),³ or on the basis of long distance cases, where both options are accessible (cf. (14)).

- (12) Jesteś prezydentem/świnia.
you are president-INS/pig-INS
'You are a/the president/a pig.'
- (13) Jesteś świnia!
you are pig-NOM
'You are a swine!'
- (14a) Jan wydaje się szczęśliwy/??szczęśliwym.
Jan-NOM seems happy-NOM/happy-INS
'Jan seems happy.'

³ Note that (12)-(13) involve the so-called pro-drop, i.e., although the subject is not realised overtly, it is present in the syntactic structure and bears nominative case.

- (14b) Jan chce wydawać się szczęśliwy/?szczęśliwym.
Jan-NOM wants seem-INF happy-NOM/happy-INS
'Jan wants to seem happy.'
- (14c) Jan chce spróbować wydawać się ?szczęśliwy/szczęśliwym.
Jan-NOM wants try-INF seem-INF happy-NOM/happy-INS
'Jan wants to try to seem happy.'
- (14d) Jan bał się nawet chcieć spróbować wydawać się ??szczęśliwy/
szczęśliwym.
Jan-NOM feared even want-INF try-INF seem-INF happy-NOM/
happy-INS
'Jan was afraid to even want to try to seem happy.'

2.2. Predicative Case in HPSG

According to standard HPSG assumptions, predicates (incl. predicative adjectives) have the following schematic lexical structure:⁴

- (15)
$$\left[\begin{array}{l} \textit{word} \\ \text{SUBJ } \langle \text{XP}[\text{CONT } \boxed{0}] \rangle \\ \text{HEAD } [\text{PRD } +] \\ \text{CONT } \text{P}(\boxed{0}, \dots) \end{array} \right]$$

That is, predicates are lexical structures (structures of type *word*) marked as predicates ([PRD +]), subcategorising for a subject (XP) and introducing a semantic predicate (cf. *P*) whose argument (perhaps one of several arguments, in case the predicate subcategorises for complements) is the semantic content of that subject (cf. the variable $\boxed{0}$).

For example, a simplified lexical entry for the nominative adjectival wordform *miły* 'nice' is given below:

⁴ For the sake of cross-theoretical readability, we present here a simplified version of HPSG structures and analyses.

- (16)
$$\left[\begin{array}{l} \text{word} \\ \text{PHON } \langle \text{mity} \rangle \\ \text{SUBJ } \langle \text{NP}[\text{CONT } \boxed{0}] \rangle \\ \text{HEAD } \left[\begin{array}{l} \text{adjective} \\ \text{CASE } \textit{nom} \\ \text{PRD } + \end{array} \right] \\ \text{CONT } \textit{nice}'(\boxed{0}) \end{array} \right]$$

Now, the generalisation regarding the predicative case marking in Polish discussed in the previous section may be formalised as follows:

- (17)
$$\left[\begin{array}{l} \text{SUBJ } \langle \text{XP}[\text{CASE } \boxed{1}] \rangle \\ \text{HEAD } \left[\begin{array}{l} \text{PRD } + \\ \text{CASE } \boxed{2} \end{array} \right] \end{array} \right] \rightarrow (\boxed{1} = \boxed{2}) \vee (\boxed{2} = \textit{ins})$$

According to this implicational principle, for any cased ($[\text{CASE } \boxed{2}]$) predicate ($[\text{PRD } +]$) subcategorising for a cased subject ($[\text{SUBJ } \langle \text{XP}[\text{CASE } \boxed{1}] \rangle]$), the case of the subject must agree with the case of the predicate ($\boxed{1} = \boxed{2}$), or else the case of the predicate must be instrumental ($\boxed{2} = \textit{ins}$).

The wordform *mity*, whose lexical entry is given in (16) above, actually must – in order to satisfy the above principle – have the following structure:

- (18)
$$\left[\begin{array}{l} \text{word} \\ \text{PHON } \langle \text{mity} \rangle \\ \text{SUBJ } \langle \text{NP}[\text{CASE } \textit{nom}] \rangle \\ \text{HEAD } \left[\begin{array}{l} \text{adjective} \\ \text{CASE } \textit{nom} \\ \text{PRD } + \end{array} \right] \\ \text{CONT } \textit{nice}'(\boxed{0}) \end{array} \right]$$

Before we can illustrate the background HPSG assumptions introduced so far, we need to have a look at the lexical entry for the predicative copula:

- (19)
$$\left[\begin{array}{l} \text{word} \\ \text{PHON } \langle \text{być} \rangle \\ \text{SUBJ } \langle \boxed{1} \rangle \\ \text{COMPS } \langle \left[\begin{array}{l} \text{SUBJ } \langle \boxed{1} \rangle \\ \text{CONT } \boxed{2} \\ \text{HEAD } \text{PRD } + \end{array} \right] \rangle \\ \text{HEAD } \textit{non-finite} \\ \text{CONT } \boxed{2} \end{array} \right]$$

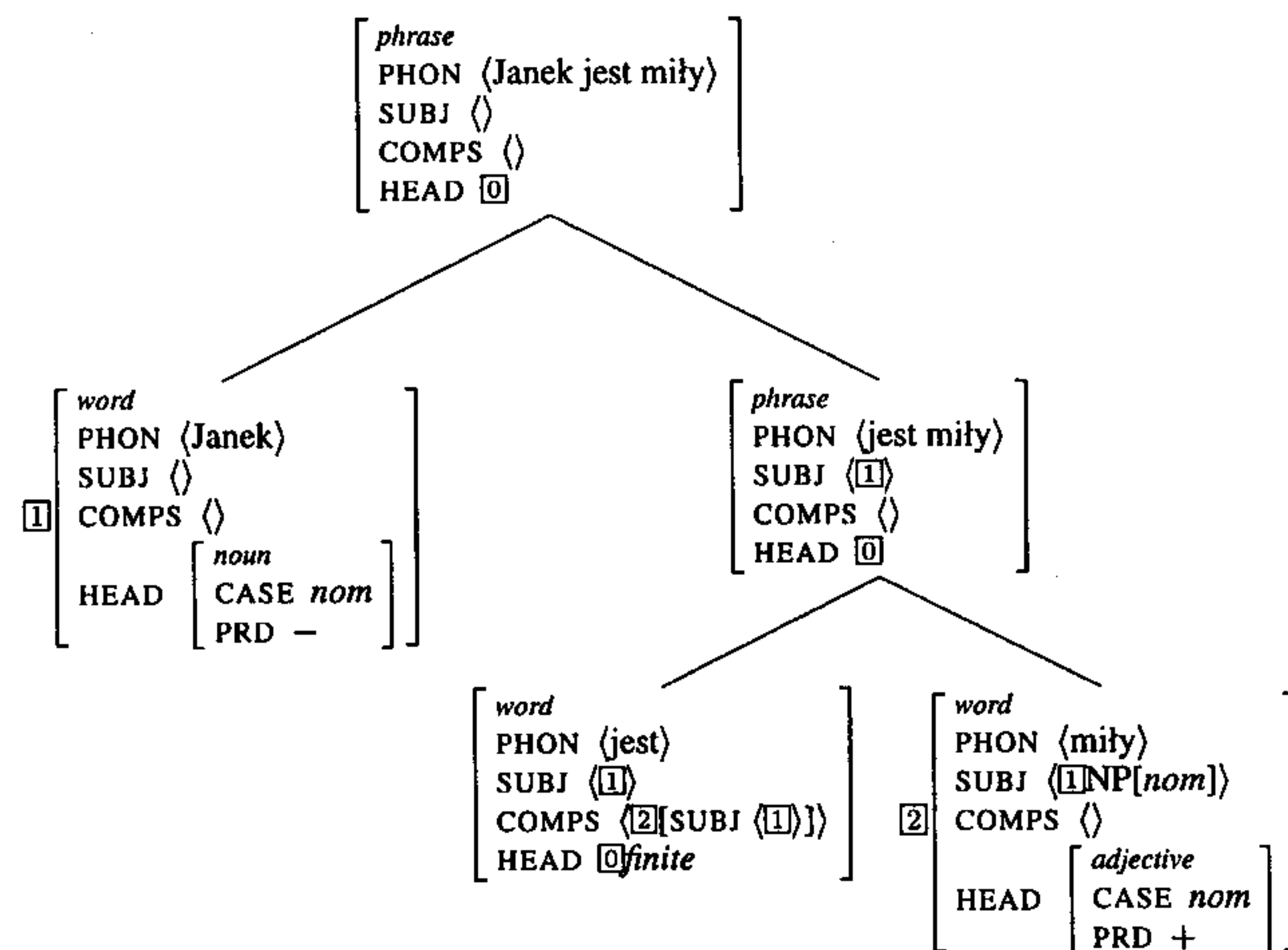
According to this lexical entry, the infinitival form of the predicative copula *być* 'to be' is really a raising verb (cf. section 2.4): its subject ($\boxed{1}$) is structure-shared with

the subject of its complement (also $\boxed{1}$). Moreover, the predicative copula is a semantically vacuous verb: its semantic content ($\boxed{2}$) is just the content of its predicative complement (again, $\boxed{2}$).

These background assumptions are illustrated in Figure 1, which shows the syntactic structure of sentence (20):

- (20) Janek jest mity.
Janek-NOM Copula nice-NOM
'Janek is nice'

Figure 1. The structure of (20)



Finally, let us briefly consider example (10), repeated below.

- (10) Pamiętam go pijanego/pijanym.
remember-I him-ACC drunk-ACC/drunken-INS
'I remember him drunk.'

Without going into detail about the HPSG approach to adjunction, let us note that, in the process of adjunction of a predicate to a verb's projection, one of the arguments of

the verb is identified (structure-shared) with the unrealised subject of the predicative adjunct, similarly to the structure-sharing of the subject of the copula and the unrealised subject of the copula's predicative argument. In the case of (10), the subject of the predicative adjective is structure-shared with the accusative object of *pamiętam*, i.e., it bears accusative case and, via (17), the predicative adjective itself may occur either in the accusative or in the instrumental. (10) illustrates both possibilities.

2.3. Case assignment in HPSG

One important aspect of the structure in Figure 1 that does not follow from the assumptions introduced above is that the subject and, hence, the agreeing adjective must occur in nominative case.

Together with Przepiórkowski (1999a, b), we assume the following principles of grammatical case assignment:⁵

- (21) grammatical case is assigned (checked) at the level of the argument structure of words;⁶
- (22) in case of raising, when an argument occurs at a number of argument structures of different verbs, case is assigned at the highest argument structure on which the argument occurs;
- (23) the following syntactic case assignment principles hold for Polish (among others):
 - (a) for subjects of finite verbs:
 - (i) assign the nominative to NPs;
 - (ii) assign the accusative to Numeral Phrases;
 - (b) for subjects of non-finite verbs:
 - (i) assign null case (cf. Chomsky and Lasnik 1995);

⁵ For the sake of brevity, we will not formalise these assumptions here. For discussion, justification and formalisation, the reader is referred to Przepiórkowski (1999a).

⁶ Assuming the setup of Bouma et al. (2001), there are two related attributes roughly corresponding to the concept of argument structure: ARG-ST (argument structure) and DEPS (dependents). The values of ARG-ST are the same for different forms of a lexeme, i.e., ARG-ST represents 'deep arguments', while the values of DEPS may differ for different forms, e.g., they differ for different voices. Given this setup, case principles presented here should be formalised at the level of DEPS, while principles related to raising and control, including constraints proposed in section 3, should be formalised at the level of ARG-ST. See Przepiórkowski and Rosen (2004) for a more careful formalisation.

- (24) null case cannot be morphologically realised.

Now in example (20), the Predicative Case Marking principle (17) interacts with the above case assignment principles in the following way:

- since *jest* 'is' is a finite verb, its nominal subject is assigned nominative case (cf. (23ai));
- the lexical entry for *jest* forces structure-sharing of its nominative subject with the (unrealised) subject of its predicative complement;
- as a result, the subject of the predicative complement, *mily* 'nice', bears nominative case;
- according to (17), this predicative complement must then occur in the nominative or in the instrumental (cf. (12)-(14));
- in (20), the complement occurs in nominative case, thus satisfying all the relevant principles.

According to the same principles, if the predicative copula is the non-finite form *być*, then:

- the subject of *być* is assigned null case (cf. (23b(i)));
- this subject is, again, structure-shared with the subject of the predicative complement, so also the subject of the predicative complement of *być* has null case;
- the overtly realised predicative complement cannot agree in case with its null case subject because null case cannot be realised morphologically;
- hence, according to the Predicative Case Marking principle (17), the overt predicative complement must occur in the instrumental (cf. also (11) above):

- (25) *Być* *mitym/*mity*.
 be-INF nice-INS/nice-NOM
 'To be nice.'

2.4. Raising and control in HPSG

The final piece of background needed before we can present an analysis of case transmission in Polish concerns the HPSG treatment of raising and control.

The two structures below schematically represent lexical entries of raising and control verbs.

(26) Raising (to subject), e.g., *seem*:

$$\left[\begin{array}{l} \text{word} \\ \text{SUBJ } \langle \boxed{1} \rangle \\ \text{COMPS } \langle \text{VP} \left[\begin{array}{l} \text{SUBJ } \langle \boxed{1} \rangle \\ \text{CONT } \boxed{2} \end{array} \right] \rangle \\ \text{CONT } \mathbf{P}(\boxed{2}) \end{array} \right]$$

(27) Subject control, e.g., *want*:

$$\left[\begin{array}{l} \text{word} \\ \text{SUBJ } \langle \text{NP} \left[\begin{array}{l} \text{INDEX } \boxed{0} \\ \text{CONT } \boxed{1} \end{array} \right] \rangle \\ \text{COMPS } \langle \text{VP} \left[\begin{array}{l} \text{SUBJ } \langle \text{INDEX } \boxed{0} \rangle \\ \text{CONT } \boxed{2} \end{array} \right] \rangle \\ \text{CONT } \mathbf{P}(\boxed{1}, \boxed{2}) \end{array} \right]$$

Note the two differences between these schematic lexical entries:

- although in both structures the verb syntactically subcategorises for two arguments, i.e., the subject (the value of the attribute SUBJ) and a complement (the value of COMPS), semantically, the raising verb is a one-argument predicate (cf. $\mathbf{P}(\boxed{2})$), while the control verb is a two-argument predicate (cf. $\mathbf{P}(\boxed{1}, \boxed{2})$);
- in the raising structure, the subject of the verb is structure-shared with the subject of the complement, i.e., both subjects are in fact the same object (cf. $\boxed{1}$); in case of control, on the other hand, only the structure-sharing of the indices is forced (cf. $\boxed{0}$), although – importantly for the analysis below – nothing in the theory really precludes the structure-sharing of the whole subjects.⁷

Analogous differences can be observed between ECM verbs, treated as raising-to-object verbs in HPSG, and object control verbs:

(28) ECM (raising to object), e.g., *expect*:

$$\left[\begin{array}{l} \text{word} \\ \text{SUBJ } \langle \text{NP}[\text{CONT } \boxed{0}] \rangle \\ \text{COMPS } \langle \boxed{1}, \text{VP} \left[\begin{array}{l} \text{SUBJ } \langle \boxed{1} \rangle \\ \text{CONT } \boxed{2} \end{array} \right] \rangle \\ \text{CONT } \mathbf{P}(\boxed{0}, \boxed{2}) \end{array} \right]$$

(29) Object control, e.g., *force*:

$$\left[\begin{array}{l} \text{word} \\ \text{SUBJ } \langle \text{NP}[\text{CONT } \boxed{0}] \rangle \\ \text{COMPS } \langle \text{NP} \left[\begin{array}{l} \text{INDEX } \boxed{0} \\ \text{CONT } \boxed{1} \end{array} \right], \text{VP} \left[\begin{array}{l} \text{SUBJ } \langle \text{INDEX } \boxed{0} \rangle \\ \text{CONT } \boxed{2} \end{array} \right] \rangle \\ \text{CONT } \mathbf{P}(\boxed{0}, \boxed{1}, \boxed{2}) \end{array} \right]$$

In HPSG, as in GB, these two differences between raising and control are assumed to be strongly correlated. In one version of GB, this correlation is a theorem of the interaction of Theta criterion (which implies the case filter), Move ff and the properties of PRO. On the other hand, in HPSG, this correlation is stipulated via the Raising Principle:⁸

(30) The Raising Principle (Pollard and Sag 1994: 140)

Let E be a lexical entry whose argument structure list L contains an element X not specified as expletive. Then X is lexically assigned no semantic role in the content of E if and only if L also contains an argument of the form [SUBJ <X>].

Unlike other HPSG principles, the Raising Principle is a generalisation about lexical entries (i.e., about *descriptions* of grammatical objects rather than about grammatical objects themselves) and, for this reason, its formal status has been controversial ever since its conception.

3. An HPSG account of case transmission

Given the standard and independently needed HPSG assumptions stated in the preceding section, the complete account of Polish case transmission facts is contained in the following two principles, parochial to Polish:

(31) Subject Control with Structure-Sharing (Polish):

$$\left[\begin{array}{l} \text{word} \\ \text{SUBJ } \langle \boxed{1} \text{NP}[\text{INDEX } \boxed{0}] \rangle \\ \text{COMPS } \langle \text{VP} \left[\begin{array}{l} \text{SUBJ } \langle \boxed{2} \text{INDEX } \boxed{0} \rangle \end{array} \right] \rangle \end{array} \right] \rightarrow \boxed{1} = \boxed{2}$$

⁷ This is made clear in Pollard and Sag (1994: 140, fn. 40), which foresees the kind of analysis presented below.

⁸ This principle is slightly simplified and modified here for the sake of compatibility with the rest of the current article.

(32) Object Control without Structure-Sharing (Polish):

$$\left[\begin{array}{l} \text{word} \\ \text{SUBJ } \langle \text{XP} \rangle \\ \text{COMPS } \langle \boxed{1} \text{NP}[\text{INDEX } \boxed{0}], \text{VP}[\text{SUBJ } \langle \boxed{2}[\text{INDEX } \boxed{0}] \rangle] \rangle \end{array} \right] \rightarrow \boxed{1} \neq \boxed{2}$$

The basic generalisation expressed by these principles is that, in Polish, subject control always involves structure-sharing (cf. (31)), just like raising does, while object control never involves structure-sharing (cf. (32)).⁹ More precisely, (31) says that, whenever the subject of a verb is co-indexed with the subject of a VP complement of that verb, those two subjects are in fact the same element (they are structure-shared). On the other hand, according to (32), whenever an NP complement of a verb is co-indexed with the subject of a VP complement of that verb, this NP complement and the subject of the VP complement are in fact two different objects (they are not structure-shared).

Note that, perhaps contrary to expectations, those two principles do not violate the Raising Principle (30): the latter is a constraint on lexical entries, while principles (31)-(32) are grammatical principles, i.e., constraints on grammatical structures.

The following subsection (§3.1) illustrates this analysis with a couple of examples, while the ensuing subsection (§3.2) provides some cross-linguistic support for this account.

3.1. Examples

Let us consider the subject control example (6), repeated below, whose syntactic structure is given in Figure 2.¹⁰

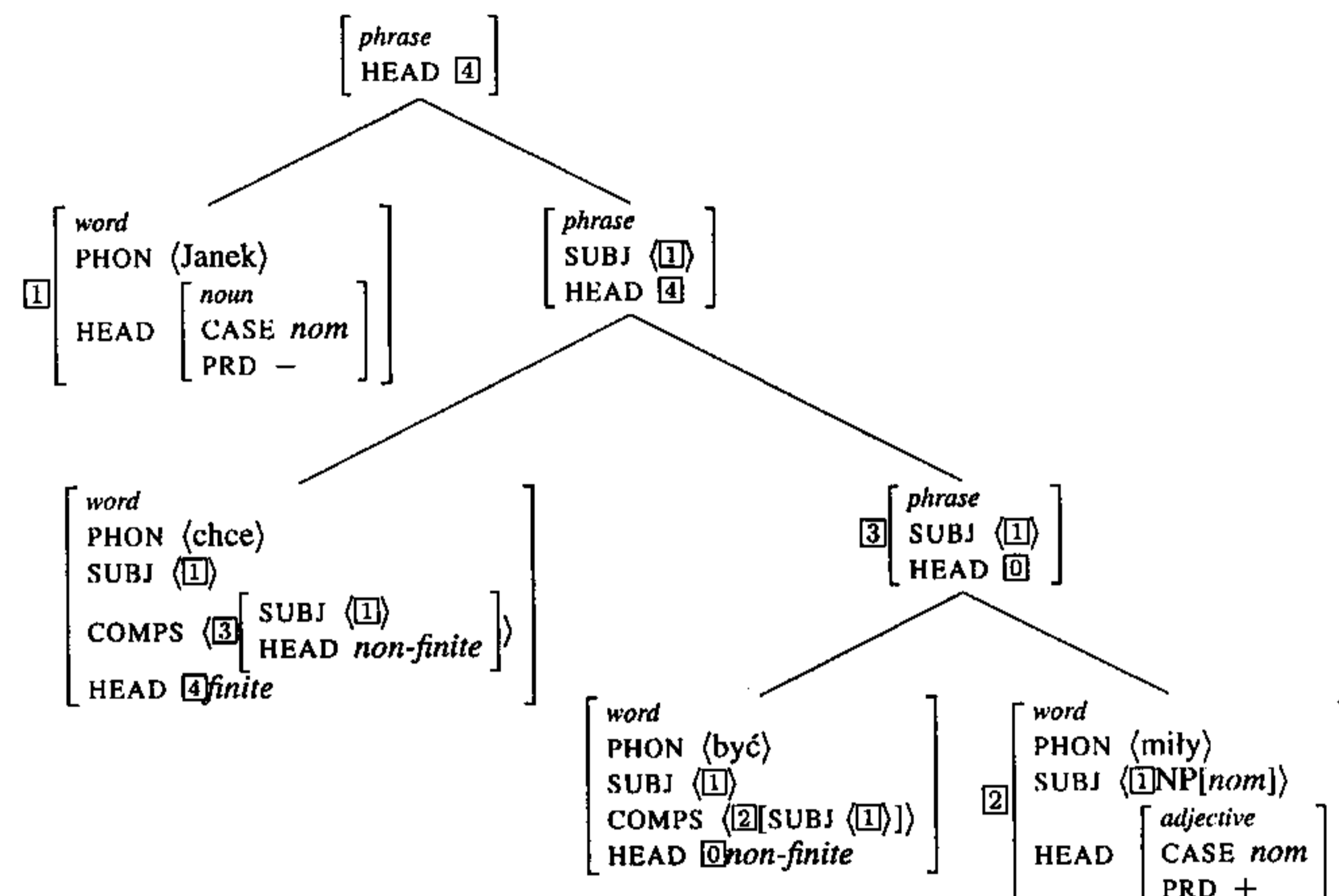
(6) Janek chce być miły
 Janek-NOM wants be-INF nice-NOM
 'Janek wants to be nice.'

The relevant aspects of this analysis are:

- lexically, *chce* 'wants' is a subject control verb, with a lexical entry satisfying the schematic structure in (27);
- the word *chce* is turned into a 'raising' (structure-sharing) verb courtesy of Subject Control with Structure-Sharing principle (31);

- as a result, *chce* structure-shares its subject, $\boxed{1}$, with the subject of its complement, *być miły* 'be nice';

Figure 2: The structure of (6)



- the subject of *być miły* is structure-shared with the subject of the verb *być* (this follows from the way arguments are realised in HPSG, i.e., from the so-called Valence Principle);
- the subject of *być* is structure-shared with the subject of its predicative complement, *miły* 'nice', courtesy of the lexical entry for the predicative copula (cf. (19) above);
- as a result, *chce*, *być* and *miły* structure-share their subjects;
- according to the HPSG case assignment principles assumed here, case is assigned on the highest argument structure on which this subject occurs (cf. (22)), i.e., at the level of the argument structure of *chce*;
- hence, it is nominative (cf. (23a(i)));
- according to the Predicative Case Marking principle (17), the predicative adjective must either be in the nominative or in instrumental case;

⁹ The notions 'subject' and 'object' should be understood here as 'deep subject' and 'deep object'; cf. fn. 6.

¹⁰ In Figures 2 and 3 below, empty SUBJ and COMPS are omitted.

- in the case of the case transmission example (6), the case of the predicative adjective is in nominative case, but instrumental case is also (perhaps marginally) possible:

(33) ?Janek chce być miłym.
 Janek-NOM wants be-INF nice-INS

Let us now turn to the object control example (3), where case transmission is illicit.

(3) Janek kazał Tomkowi być miłym/*miłemu.
 Janek ordered Tomek-DAT be-INF nice-INS/nice-DAT
 'Janek ordered Tomek to be nice.'

The HPSG structure for this sentence, satisfying the assumptions and principles presented above, is given in Figure 3.

Let us, again, consider the most relevant aspects of this analysis.

- *kazał* 'ordered' is a 3-argument (subject + 2 complements) object control verb;
- the Object Control without Structure-Sharing principle (32) guarantees that the subject of *być* 'to be' is not structure-shared with the object of *kazał*;
- only the copula *być* and the predicative adjective *miły* 'nice' structure-share their subjects;
- case is assigned on the highest argument structure, i.e., at the level of *być* (cf. (22));
- hence, the subject of *być* is assigned null case (cf. (23b(i)));
- and, via (17), the predicative adjective is assigned instrumental case (if it were assigned null case, it could not be overtly realised; cf. (24));
- i.e., case transmission is not possible.

3.2. Cross-linguistic support

The account presented above is, in a sense, uninspiring: it consists in postulating two simple language-specific principles (31)-(32), which determine when control verbs behave syntactically as if they were raising verbs. No deep principles are discovered, no properties of Universal Grammar are invoked, no sweeping cross-linguistic generalisations are proposed.

In fact, cross-linguistic data do provide support for this language-specific analysis: it turns out that case transmission in control construction is subject to rich cross- and intra-linguistic variation that does not seem to follow from any deep principles of Universal Grammar.

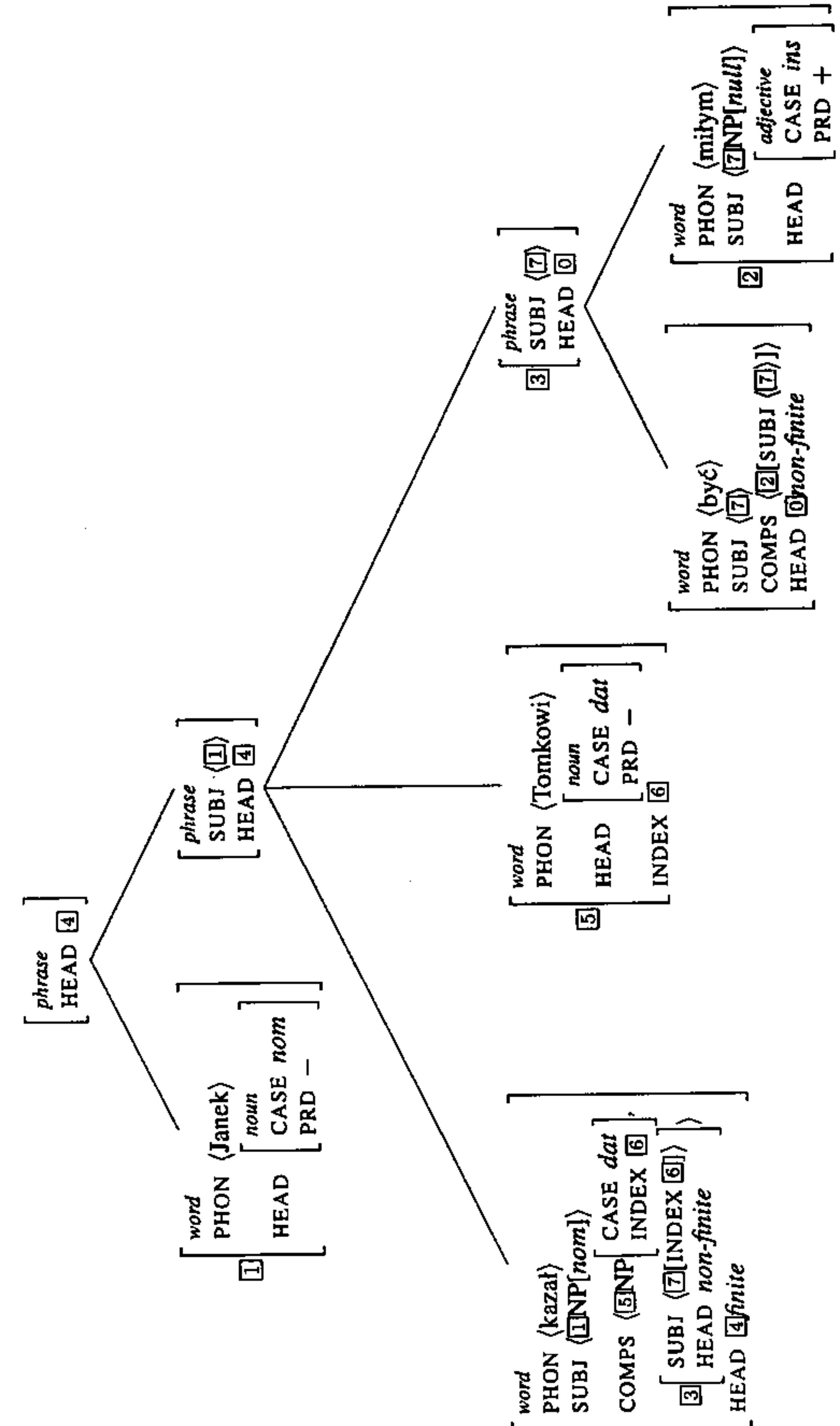


Figure 3. The structure of (3)

3.2.1. Icelandic and Ancient Greek

Hudson (1998, 2003), on the basis of Icelandic data such as (34)-(35), as well as on the basis of similar Ancient Greek attested examples, reaches the following generalisation: object control in these languages is ambiguous between structure-sharing and no structure-sharing.

(34) Ég bað hann að vera góðan/góður/*góðum.
I asked him-ACC to be good-ACC/good-NOM/good-DAT
'I asked him to be good.'

(35) Hann skipaði honum að vera góðum/góður/*góðan.
he ordered him-DAT to be good-DAT/good-NOM/good-ACC
'He ordered him to be good.'

In both (34) and (35), the predicative adjective may agree in case with the object of the finite verb. Just as in the case of the subject control in Polish, this case agreement is a symptom of structure-sharing: e.g., in (34), the subject of *vera* 'be' is structure-shared with the object of *bað* 'asked' and it is realised as the accusative form *hann* 'him'. The subject of *vera* 'be' is at the same time the subject of the predicative adjective, and the accusative form of that adjective, *góðan* 'good', is a result of the predicate-subject agreement.

On the other hand, in both examples the predicative adjective may alternatively occur in nominative case, which is the default case of predicative adjectives, cf. (36) below, superficially similar to the instrumental of predication in Polish, but analysed by Hudson (1998) as being a result of agreement with the nominative PRO.

(36) Að vera kennari/*kennara er mikilvaegt
to be teacher-NOM/teacher-ACC is important
'It is important to be a teacher.'

Thus, Hudson (1998) concludes, Icelandic object control structures are structurally ambiguous between structure-sharing (resulting in overt case agreement) and no structure-sharing (resulting in agreement with the nominative PRO).

Perhaps surprisingly, nothing needs to be said in HPSG to predict this sort of ambiguity. Control verbs, by virtue of their lexical entries, force the structure-sharing of INDEX values of the relevant subjects, but nothing in the theory precludes the full structure-sharing of the subjects. In fact, this is why we need the Object Control without Structure-Sharing principle (32) for Polish: exactly to preclude such 'accidental' full structure-sharing.

3.2.2. Lithuanian

A curious pattern of case marking of predicative adjectives is discussed by Timberlake (1988: 190-191). In four out of five kinds of Lithuanian infinitival constructions that Timberlake (1988) considers, including various subject control constructions and dative object control constructions, there are in principle two options for the case of the predicative adjective, i.e., case agreement or instrumental case, with the preference for one or the other. For example, "[w]ith a nominative [subject; A.P.] controller and a semantically rich governing predicate, instrumental is slightly preferred to agreeing case":

(37) Ji nusprendė būti ?kantri/kantria.
she-NOM decide be patient-NOM/patient-INS
'She resolved to be patient.'

Just as in the case of the Icelandic object control, nothing needs to be said about such cases.

However, when the controller is an accusative object, only the instrumental of predication is possible:

(38) Tai dar labiau mane vertė būti *atsargi/atsargiu.
this still more me-ACC make be careful-ACC/careful-INS
'This even more made me be careful.'

Apparently, in such cases only the non-sharing structure is possible, i.e., a principle similar to (32), precluding the incidental structure-sharing, is needed. Curiously, when the case of the accusative controller changes to the genitive under negation, both structure-sharing and no structure-sharing options are available again:

(39) Negali jo priversti būti pasiruošusio/pasiruošusiu.
not-able him-GEN force be prepared-GEN/prepared-INS
'You can't force him to be prepared.'

As Timberlake (1988) notes, this is "a fact which suggests the difference between agreeing case and instrumental is not due to any structural difference inside the infinitive complement". It seems, thus, that the parochial Lithuanian principle responsible for the lack of agreement in examples such as (38) should refer to accusative case:

(40) Object Control without Structure-Sharing (Lithuanian):

$$\left[\begin{array}{l} \text{word} \\ \text{SUBJ } \langle \text{XP} \rangle \\ \text{COMPS } \langle \text{[1]NP} \left[\begin{array}{l} \text{CASE } \textit{acc} \\ \text{INDEX } \text{[0]} \end{array} \right], \text{VF} \{ \text{SUBJ } \langle \text{[2][INDEX [0]]} \rangle \} \end{array} \right] \rightarrow \text{[1]} \neq \text{[2]}$$

3.2.3. Czech

As discussed by Przepiórkowski and Rosen (2004), Czech case transmission facts are more complicated than either Polish or Lithuanian facts. In Czech, as in Polish, subject control and raising (to subject) constructions involve case transmission, i.e., the Subject Control with Structure-Sharing principle (31) applies to this language. Similarly, just as in Polish, there is no case transmission in the case of dative controllers. However, unlike in Polish (cf. (4) above), in case of accusative object controllers, case transmission is optional, cf. (41), unless the accusative controller is a numeral phrase, in which case the transmission is obligatory, cf. (42).¹¹

(41) Marie přiměla Honzu přijít střízlivý/střízlivého.
 Marie urged Honza-ACC come-INF sober-NOM/sober-ACC
 'Marie urged Honza to come sober.'

(42) Marie přiměla pět pacientů přijít svlečených/*svlečení/
 *svlečené.
 Marie urged five-ACC patients-GEN come-INF naked-GEN/naked-NOM/
 naked-ACC
 'Marie urged five patients to come naked.'

The ambiguity of (41) follows the HPSG approach to control, just as it did in case of the relevant Icelandic and Lithuanian examples. What needs to be accounted for is the obligatory structure-sharing in (42) and the obligatory lack of structure-sharing with dative controllers. The two parochial principles below formalise these observations:

(43) Dative Object Control without Structure-Sharing (Czech):

$$\left[\begin{array}{l} \text{word} \\ \text{SUBJ } \langle \text{XP} \rangle \\ \text{COMPS } \langle \text{[1]NP} \left[\begin{array}{l} \text{CASE } \textit{dat} \\ \text{INDEX } \text{[0]} \end{array} \right], \text{VF} \{ \text{SUBJ } \langle \text{[2][INDEX [0]]} \rangle \} \end{array} \right] \rightarrow \text{[1]} \neq \text{[2]}$$

(44) Accusative Numeral Object Control with Structure-Sharing (Czech):

$$\left[\begin{array}{l} \text{word} \\ \text{SUBJ } \langle \text{XP} \rangle \\ \text{COMPS } \langle \text{[1]NP} \left[\begin{array}{l} \textit{numeral} \\ \text{CASE } \textit{acc} \\ \text{INDEX } \text{[0]} \end{array} \right], \text{VF} \{ \text{SUBJ } \langle \text{[2][INDEX [0]]} \rangle \} \end{array} \right] \rightarrow \text{[1]} = \text{[2]}$$

4. Conclusion

In this article, we have proposed a formal account of case transmission in Polish. The account is trivial in the sense that it consists in positing two relatively simple principles which allow for the realisation of subject control verbs as syntactically raising verbs and forbid such realisation in case of object control verbs. It turns out that the interaction of these two principles with the independently motivated HPSG accounts of case marking and with the relevant lexical entries for raising verbs, control verbs and predicative elements, correctly predicts the case transmission facts in Polish.

The account presented above does not make any recourse to deep principles of Universal Grammar or even to the typological properties of any given language. The cross-linguistic data mentioned above, as well as further Icelandic and Ancient Greek data discussed by Andrews (1971, 1982, 1990), Hudson (1998, 2003), and others, show that there is a great deal of cross- and intra-linguistic variation that does not seem amenable to any elegant and principled account, but which still need to be taken care of by any comprehensive grammar.

It should be noted that the type of analysis proposed here is possible because of how HPSG handles control and raising: although there is an important semantic difference between the two types of verbs, i.e., the difference in the number of arguments of the semantic predicates that the two classes of verbs introduce, raising verbs syntactically are a special case of control verbs: by requiring the structure-sharing of an argument and the unrealised subject of another argument, a raising verb requires the structure-sharing of all substructures of these subjects, including the indices. Note that this type of analysis cannot be easily carried over to theories, such as various versions of Principles and Parameters (Chomsky 1981, 1986, 1995), which assume widely different structures for raising and control constructions. In our opinion, the fact that the standard HPSG assumptions make the account of the troublesome cross-linguistic case transmission data so trivial reflects the essential correctness of the basic set of HPSG assumptions.

¹¹ Note that, in Czech, the non-agreeing predicative case is nominative, with instrumental being a much more restricted option. Also, Czech numeral phrases in nominative and accusative positions agree with genitive adjectives, unlike in Polish, where they may agree with either genitive or accusative forms, cf. (2), (7) and (9) above.

REFERENCES

- Ackerman, F. and G. Webelhuth. 1998. *A theory of predicates*. Stanford, CA: CSLI Publications.
- Andrews, A. D. 1971. "Case agreement of predicate modifiers in Ancient Greek." *Linguistic Inquiry* 2. 127-151.
- Andrews, A. D. 1982. "The representation of case in modern Icelandic." In Bresnan, J. (ed.), *The mental representation of grammatical relations*. Cambridge, MA: The MIT Press. 427-503.
- Andrews, A. D. 1990. "Case structures and control in Modern Icelandic." In Maling, J. and A. Zaenen (eds.), *Modern Icelandic syntax*. New York: Academic Press. 187-234.
- Borsley, R. D. and A. Przepiórkowski (eds.). 1999. *Slavic in Head-driven Phrase Structure Grammar*. Stanford, CA: CSLI Publications.
- Bouma, G., R. Malouf, and I. A. Sag. 2001. "Satisfying constraints on extraction and adjunction." *Natural Language and Linguistic Theory* 19, 1. 1-65.
- Chomsky, N. 1981. *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, N. 1986. *Barriers*. Cambridge, MA: The MIT Press.
- Chomsky, N. 1995. *The minimalist program*. Cambridge, MA: The MIT Press.
- Chomsky, N. and H. Lasnik. 1995. "Principles and parameters." Chomsky (1995). 13-127.
- Flickinger, D. and A. Kathol (eds.). 2001. *Proceedings of the 7th international conference on Head-driven Phrase Structure Grammar*. Stanford, CA: CSLI Publications.
- Franks, S. 1995. *Parameters of Slavic morphosyntax*. New York: Oxford University Press.
- Hudson, R. 1998. "Functional control with and without structure-sharing." In Siewierska, A. and J. J. Song (eds.), *Case, typology and grammar*, volume 38 of *Typological Studies in Language*. Amsterdam: Benjamins. 151-169.
- Hudson, R. 2003. "Case agreement, PRO and structure sharing." *Research in Language* 1. Forthcoming.
- Levine, R. D. and G. Green (eds.). 1999. *Studies in contemporary phrase structure grammar*. Cambridge: Cambridge University Press.
- Pisarkowa, K. 1965. *Predykatywność określeń w polskim zdaniu*. Wrocław: Zakład Narodowy im. Ossolińskich.
- Pollard, C. and I. A. Sag. 1987. *Information-based syntax and semantics*, volume 1: *Fundamentals*. Stanford, CA: CSLI Publications.
- Pollard, C. and I. A. Sag. 1994. *Head-driven Phrase Structure Grammar*. Chicago, IL: Chicago University Press/CSLI Publications.
- Przepiórkowski, A. 1999a. Case assignment and the complement-adjunct dichotomy: A non-configurational constraint-based approach. Ph. D. dissertation, Universität Tübingen.
- Przepiórkowski, A. 1999b. "On case assignment and 'adjuncts as complements'." In Webelhuth et al. (eds.). 231-245.
- Przepiórkowski, A. 2000. "Predicative case agreement with Quantifier Phrases in Polish." In Okrent, A. and J. Boyle (eds.), *The proceedings from the main session of the Chicago Linguistic Society's thirty-sixth meeting*, volume 36-1. Chicago, IL: Chicago Linguistic Society. 343-354.
- Przepiórkowski, A. 2001. "Case and agreement in Polish predicates." In Franks, S. et al. (eds.), *Annual workshop on formal approaches to Slavic linguistics: The Bloomington meeting 2000*. Ann Arbor. 257-273.
- Przepiórkowski, A. 2004. "O wartości przypadku podmiotów liczebnikowych." *Biuletyn Polskiego Towarzystwa Językoznawczego LX*. Forthcoming.
- Przepiórkowski, A., A. Kupść, M. Marciniak, and A. Mykowiecka. 2002. *Formalny opis języka polskiego: Teoria i implementacja*. Warsaw: Akademicka Oficyna Wydawnicza EXIT.
- Przepiórkowski, A. and A. Rosen. 2004. Czech and Polish raising/control with or without structure sharing. Manuscript, Polish Academy of Sciences and Charles University, Prague.
- Richter, F. 2000. A mathematical formalism for linguistic theories with an application in Head-driven Phrase Structure Grammar. Ph. D. dissertation, Universität Tübingen.
- Sag, I. A., T. Wasow, and E. M. Bender. 2003. *Syntactic theory: A formal introduction*. 2nd ed. Stanford, CA: CSLI Publications.
- Timberlake, A. 1988. "Case agreement in Lithuanian." In Barlow, M. and C. A. Ferguson (eds.), *Agreement in natural language: Approaches, theories, descriptions*. Stanford, CA: CSLI Publications. 181-199.
- Webelhuth, G., J.-P. Koenig, and A. Kathol (eds.) 1999. *Lexical and constructional aspects of linguistic explanation*. Stanford, CA: CSLI Publications.