

Verb-Subject Order in Polish¹

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1. Introduction

In recent years, studies of flexible word order in various languages have increasingly used information from text counts as a basis for both discovering and documenting discourse factors that govern or correlate with different word orders (cf. Givón, ed. 1983; Sun and Givón 1985, Givón 1988, 1989; Myhill 1984, 1985, 1986; Payne 1987). In this paper we continue this tradition in an examination of the factors that govern the order of subject and verb in Polish. Some of the results of this recent work are at odds with earlier views. The "standard" view, associated originally with the Prague School (cf. Firbas 1966, 1974), is that, at least in Slavic languages though widely assumed to be more or less universal, given or thematic information tends to occur earlier than new or rhematic information. An increasing number of studies (e.g., Givón 1988; Payne 1987), however, show that in at least some languages, the opposite principle seems to be at work. In such languages, nominals with previous reference in the text, particularly the immediately preceding text, more often **follow** the verb. It is important, therefore, to apply a methodology similar to Givón's to a Slavic language, to try to resolve this apparent contradiction. Givón (1988: 250, 1989: 224) cites results from Rybarkiewicz (1984) which suggest that Polish does conform to his principle by which nominals with more recent previous reference tend to follow the verb.² The question then is how to reconcile the Givón-Rybarkiewicz claims with the claims of the Prague School.

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We examine below a variety of factors that correlate with the order of subject and verb in Polish. Among other things, we show that it is oversimplistic to simply contrast SV order with VS order: clauses in which the subject follows the verb but is itself followed by other material exhibit very different discourse properties from clauses in which the subject occurs at the end of the clause. We argue that neither the traditional theme-rheme view nor Givón's view can alone adequately account for the properties of postverbal subjects in Polish. We also show that the order of subject and verb varies with the position of other material in the clause: the subject tends to occur on the opposite side of the verb from other material, particularly nominals (objects, oblique noun phrases, and prepositional phrases). What this suggests is that the order of subject and verb is determined, not only by the discourse properties of the subject, but also by the discourse properties of other elements in the clause.

2. Data base

The text that forms the basis for the conclusions of this paper is Pajewski (1978), a book popularizing the history of the Polish-Turkish wars. This text was chosen for its simple and cohesive style as well as for its concreteness. Although there is a certain amount of variation among authors in terms of the SV/VS variation in Polish, this text seems to be relatively typical.³ Only clauses with overt subjects and finite verbs were examined. Relative clauses, questions, and quotations were ignored.

Both orders of subject and verb are common in the text; out of 429 clauses, 260 (or 61%) are SV and 169 (or 39%) are VS. Table 1 gives a breakdown of these orders by clause type.

Examples (1) to (7) illustrate each of the seven types of main clauses listed in Table 1.

Lexical subject, verb other than *być*, object not clause or quotation:

(1) SV

Bitwa trwała do zmroku.
battle.NOM continued till dusk.GEN
'The battle continued till dusk.' (p. 95)

Table 1. Distribution of SV vs. VS by clause type

	SV	VS
In main clause:		
Lexical subject, verb other than <i>być</i> 'be', object not clause or quotation	182	131
Lexical subject, verb other than <i>być</i> 'be', nominal clause or quotation as object	26	0
Lexical subject, <i>być</i> plus Pred structure	18	22
Pronominal subject	4	11
In subordinate clause:		
In nominal clause	20	2
In adverbial clause	10	3
Total	260	169

(2) VS

Lewe skrzydło nieprzyjacielskie zajmowali Tatarzy.
left wing.ACC enemy.ADJ occupied Tartars.NOM
'The left wing of the enemy occupied Tartars.' (p. 94)

Lexical subject, nominal clause or quotation as object:

(3) SV

Sobieski obliczał, że w jego tylko dobrach zabito i uprowadzono 30 tysięcy ludzi.
Sobieski.NOM counted that in his only estate.LOC
killed.NONFIN and taken.away.NONFIN 30 thousand people.GEN
'Sobieski counted that in his estate alone 30 thousand people were killed or taken into captivity.' (p. 146)

Lexical subject, *być* plus Pred structure:

(4) SV

Rzeczpospolita była bezsilna.
republic.NOM was powerless
'The republic was powerless.' (p. 163)

- (5) VS
Duże były też straty materialne.
 large were also losses.NOM material
 'There were also large material losses.' (p.146)

Pronominal subject:

- (6) SV
On to w roku 1683 poprowadził armię
 he.NOM EMPH in year.LOC led army.ACC
padyszacha pod Wiedeń.
 padishah.GEN to Vienna.ACC
 'In 1683 he led the Padishah's army to Vienna.' (p. 134)
- (7) VS
Cieszyła się ona dużym rozgłosem i powodzeniem.
 enjoyed REFL she.NOM large renown.INSTR and success.INSTR
 'She enjoyed large renown and success.' (p.245)

A number of generalizations can be drawn from Table 1. First, when the object is a clause or quotation, the subject invariably precedes the verb in the text examined. Second, VS order is less common in subordinate clauses ($p < .01$).⁴ Whether this difference is because there is a stronger syntactic preference for SV in subordinate clauses or because the discourse conditions under which VS occurs arise less often in subordinate clauses is not clear; a larger number of subordinate clauses than occur in this sample would have to be investigated to answer this question. VS seems to be particularly common when the predicate is *być* 'be', though this difference is not large and falls just short of statistical significance. Finally, although the number of pronominal subjects in this text is small, VS order is significantly more common when the subject is pronominal ($p < .025$).⁵

In what follows, we will restrict attention to the first type of clause in Table 1, those in which the subject is lexical, the verb is one other than *być* 'be', and the object is not a clause or quotation. We will further distinguish two types of VS clauses, those in which the subject occurs at the end of the clause, and those in which the subject is non-final, being followed by an object or adverbial expression. We will refer to the former as VS, the latter as VSX. That is, VS and VSX share the property that the subject follows the verb, but differ in that VSX clauses have material following the subject, as in (8).⁶

- (8) *29 maja 1453 r. zdobyli Turcy Konstantynopol.*
 29 May 1453 conquered Turks.NOM Constantinople.ACC
 'On May 29, 1453, the Turks conquered Constantinople.' (p.22)

We will show that the discourse conditions in which these two types of postverbal subjects occur are very different. Of the 131 clauses with postverbal subjects listed in Table 1, 106 are VS (in this special sense in which the subject is final) and 25 are VSX. The relative frequency of the three types of clauses was therefore SV=58%, VS=34%, and VSX=8%. These three types of clauses were further examined for a number of different parameters. Fifty-two clauses of each sort were examined for these parameters. This means that additional instances of VSX were collected beyond those listed in Table 1.

3. Discourse properties of the subject

3.1 Previous reference

The first parameter we examined involves whether the subject introduces a new referent into the text or refers to something that has already been mentioned. We distinguish two ways in which a nominal might be referred to previously in a text. A direct previous reference involves a nominal in an earlier clause with the same denotation as the nominal in question; it need not be an identical lexical item (although it might be), as long as the denotation is the same. An indirect previous reference is related to the nominal indirectly by one of the following relationships: (1) group-member, member-group, e.g. *armia* — *żołnierze* 'army — soldiers'; (2) part-whole, whole-part, e.g. *Kraków* — *Polska* 'Cracow — Poland'; (3) separate parts of the same entity, i.e. part-part, e.g. *lewe skrzydło* 'left wing — center'; (4) entity-derivative, derivative-entity, e.g. *prezydent* — *prezydencki* 'president — presidential'; (5) set-member, member-set, e.g. *sztućce* — *widelec* 'cutlery — fork'; (6) participants, agents, "function holders" of a process, activity, institution, or organization, e.g. *szkoła* — *uczeń* 'school — student', *Turcja* — *Turcy* 'Turkey — Turks'; (7) typical concomitants, e.g. *głód* — *pragnienie* 'hunger — thirst', *zima* — *chłód* 'winter — cold'; (8) generalization-instantiation, e.g. *klęska* — *trzęsienie ziemi* 'disaster — earthquake'; and (9) anaphoric expression, e.g. *ten fakt* 'this fact', *ta okoliczność* 'this

Table 2. *Previous reference of subject by clause type*

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Previous reference in preceding 20 clauses	40	78%	50	96%	24	46%
Previous direct reference in preceding 20 clauses	20	38%	35	67%	7	13%
Previous reference in the immediately preceding clause	17	33%	21	41%	8	15%

coincidence', *rezultaty* 'the results'. In the case of this last category, anaphoric expression, the previous reference might be a whole sentence.

Table 2 gives relevant data on previous reference for each of the three orders. The data for previous reference is calculated in three different ways. The first line is based on previous reference in the preceding 20 clauses, where the expression **previous reference** includes both direct and indirect previous references, as discussed above. The second line is based on previous direct reference in the preceding 20 clauses, where the expression **previous direct reference** refers to the stricter sense of previous reference in which the denotations of the two nominals are identical; these clauses are a subset of those included on the first line. The third line is based on previous reference in the immediately preceding clause; these clauses are also a subset of those included on the first line. Each of the percentage figures in Table 2 represents the percentage among the 52 clauses with the given order; for example, the figure "78%" on the first line indicates that 78% (40 out of 52) of SV clauses have a previous reference in the preceding 20 clauses.

It can be seen from Table 2 that VS clauses and VSX clauses are completely different with respect to preceding reference. Only 13% of subjects of VS clauses have equivalent (direct) antecedents in the preceding 20 clauses, and less than half involve previous reference even in the broad sense that includes both direct and indirect antecedents. On the other hand, VSX clauses almost always have a subject with previous reference in the preceding 20 clauses, even more often than SV clauses do. Clearly, we must distinguish VS from VSX. We cannot simply say that postverbal subjects tend to involve new participants in the discourse; this is not true for postverbal subjects which are followed by further material. The data for previ-

Table 3. *Referential distance of subject by clause type*

	SV	VSX	VS
Mean referential distance	6.83	3.69	13.04
Mean referential distance for subjects with previous reference in preceding 20 clauses	2.88	3.04	6.59

ous reference in the immediately preceding clause is similar; such is most common with VSX clauses and least common with VS.⁷

3.2. Referential distance

Similar results can be obtained by using Givón's measure of referential distance, i.e. counting the number of clauses back to the previous reference (with 20 used as the maximum, even in cases when there is no previous reference).⁸ Table 3 shows that while VS clauses exhibit the highest mean referential distance (13.04), VSX exhibit the lowest (3.69), while SV is intermediate between the two (6.83).⁹

These differences are largely due to clauses in which the subject had no previous reference in the preceding 20 clauses. This is shown by the last line of Table 3: while the mean referential distance for clauses in which there is a previous reference (in the broad sense) in the preceding 20 clauses is still higher for VS clauses, there is little difference between SV and VSX, with SV now showing a slightly lower mean referential distance. What this means is that the difference in mean referential distance between SV clauses and VSX clauses (line 1 of Table 3) is due entirely to the fact that the subject in VSX clauses almost always has a previous reference in the preceding 20 clauses. In other words, the SV and VSX clauses differ only in terms of previous reference vs. no previous reference, rather than in terms of the actual distance to the preceding referent.

3.3 Grammatical function of previous reference in preceding clause

When we examine the grammatical function of a nominal in the immediately previous clause which has the same reference as the subject of the current clause, we again find a difference between the three kinds of clauses. Table 4 shows that if we restrict attention to subjects with a previ-

Table 4. Grammatical function of previous reference in preceding clause

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Previous reference in preceding clause is oblique/predicate	1	6%	11	52%	0	0%
Previous reference in preceding clause is subject, object, or entire clause	16	94%	10	48%	8	100%
Total	17	100%	21	100%	8	100%

ous reference in the immediately preceding clause, it is more common to employ VSX order as opposed to either SV or VS if the nominal in the preceding clause is an oblique or a part of a predicate expression in that clause, rather than being the subject, the object, or the entire clause ($p < 0.05$). The percentage figures in Table 4 represent the percentage among just those clauses in which the subject has a previous reference in the immediately preceding clause.

The examples in (9) and (10) illustrate this difference between VSX clauses and the other two orders. Example (9) illustrates a VSX clause where the subject is an oblique in the immediately preceding clause. This situation arises significantly more often among VSX clauses than among SV or VS clauses. Example (10) illustrates an SV clause where the previous reference to the subject (the previous reference here involving a link of the indirect sort, that of father to son) is also the subject in the immediately preceding clause.

- (9) *Z Chocimia można było szachować*
 from Chocim.LOC can.NONFIN was hold.in.check.INF
Stefana i przeciwdziałać jego wrogim przedsięwzięciom.
 Stefan.ACC and counteract.INF his hostile undertakings.DAT
Duże również znaczenie miała ta twierdza jako
 large also significance.ACC had this fortress.NOM as
osłona kraju przed najazdami tatarskimi.
 shield.NOM country.GEN against raids.INSTR Tartar.ADJ
 'From Chocim one could hold Stefan in check and counteract his hostile undertakings. This fortress had also a large significance as the country's defense against Tartar raids.' (p.49)

- (10) *Śmierć znalazł w wezbranych nurtach rzeki gdzieś*
 death.ACC found in rising waters.LOC river somewhere
koło Aleppo. Syn jego Ertogrul, sławiony w
 near Aleppo.GEN son.NOM his Ertogrul.NOM praised in
starych kronikach jako potężny władca, zdobył
 old chronicles.LOC as powerful ruler.NOM achieved
na czele swych koczowników prawie niezależne
 at head.LOC his nomads.GEN almost independent
stanowisko.
 position.ACC
 'He found his death in the rising waters of the river somewhere near Aleppo. His son Ertogrul, praised in the old chronicles as a powerful ruler, achieved as the chief of his nomads an almost independent position.' (p.7)

It is not obvious why VSX clauses are different from the other two clause types in this respect. However, what obliques and predicate expressions appear to have in common is that they tend not to be topical. What this means is that subjects of VSX clauses are apparently *less* topical in the *preceding* clause than are subjects of SV or VS clauses. As discussed below, this bears a striking similarity to a claim Siewierska (1987) makes about Polish clauses with postverbal subject pronouns.

3.4 Subsequent reference

The studies in Givón, ed. (1983) have shown that it is important to examine not only previous reference in texts, but also subsequent references. Table 5 gives data for the three kinds of clauses on whether there is a reference in the subsequent text. The first line of Table 5 indicates the number of cases in which there is a reference in the immediately following clause; the second line indicates the number of cases in which there is a reference in one of the three following clauses. The percentage figures indicate percentages among the 52 clauses with the given order; for example, the first line indicates that 60% (or 31 out of 52) of SV clauses have a subject whose reference is the same as some nominal in the immediately following clause.

The three clause types differ less with respect to this parameter. None of the differences in Table 5 between the three clause types is statistically significant.¹⁰

Table 5. *Reference in subsequent clauses*

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Reference in next clause	31	60%	21	40%	29	56%
Reference in one of next three clauses	34	65%	38	73%	36	69%

Table 6. *Length of subject*

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Subject is complex (contains genitive, prepositional, appositive, or coordinated phrases)	20	38%	1	2%	21	40%
Subject is more than one word but not complex	12	23%	2	4%	18	35%
Subject is one word	20	38%	49	94%	13	25%
Total	52	100%	52	100%	52	100%
Average number of words in subject	3.0		1.2		3.2	

4. Grammatical/semantic properties of subject

4.1 Length of subject

Of the factors examined so far, all except those isolated in Table 1 involve the preceding or following discourse context. It is worth examining other parameters, however, that involve grammatical or semantic properties of the clause in question. Table 6 shows that VSX order differs from the other two orders in that the subject in such clauses tends to be short ($p < .001$).

Example (11) illustrates VS order with a complex subject, while (12) illustrates a typical VSX clause with a one-word subject, *muzułmanie* 'Muslims'.

- (11) *Od jego imienia pochodzi powszechnie używana*
 from his name.GEN derives commonly used
nazwa imperium osmańskiego lub ottomańskiego
 name.NOM empire.GEN Osman.ADJ or Ottoman.ADJ
 'From his name derives the commonly used name of the Osman
 or Ottoman empire.' (p. 7)
- (12) *Dość wcześnie weszli muzułmanie w kontakt*
 relatively early entered Muslims.NOM in contact.ACC
z Turkami, przybyłymi z wielkich
 with Turks.INSTR coming from great
stepów azjatyckich.
 steppes.GEN Asian
 'Muslims entered in contact with Turks, coming from the great
 Asian steppes, relatively early.' (p. 6)

The high frequency of one-word subjects in VSX clauses may be viewed in either of two ways. On the one hand, the length of a noun phrase correlates with its predictability; the fact that subjects in VSX clauses are shorter than subjects in SV and VS clauses fits in with the fact that such nominals more often have previous reference in the preceding text and thus are more predictable. Alternatively, the tendency for longer subjects to avoid internal position in VSX order may be an instance of the general tendency in language for more complex constituents to avoid positions internal to clauses (cf. Dryer 1980).

4.2 Humanness of subject

A second factor correlated with clause type is whether it is human or not, illustrated in Table 7. This table shows that subjects of VSX clauses are

Table 7. *Humanness of subject*

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Human	30	58%	46	88%	27	52%
Nonhuman	22	42%	6	12%	25	48%
Total	52	100%	52	100%	52	100%

Table 8. *Proper vs. common nouns*

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Proper names	18	35%	36	69%	6	12%
Common names	34	65%	16	31%	46	88%
Total	52	100%	52	100%	52	100%

human significantly more often than are subjects of SV or VS clauses ($p < .001$). Again, this difference coincides with the high predictability of subjects in VSX clauses. Human nominals tend to reappear more often in a text and are therefore more predictable.

4.3 Proper vs. common nouns

A third property of subjects that correlates with clause type is whether the noun is a proper noun or a common noun. Table 8 shows that subjects in VSX clauses are proper names more often than are subjects in each of the two other types of clauses ($p < .001$). This again fits in with the predictability of subjects in VSX clauses.

4.4 Length of subject vs. proper/common nouns

Although the high percentage of proper names in VSX clauses seems to support the predictability explanation of the tendency for subjects in VSX clauses to be one word, a comparison conducted within each lexical category renders some support to the second explanation, namely that there is a tendency for longer constituents to avoid sentence internal position. The relevant figures are represented in Table 9.

Table 9 shows that there is a strong tendency for proper name subjects to be one word: 87% of the proper name subjects are one word, but only 31% of common name ones are. However, if we focus on each category separately, clear differences between the VSX clauses and the two other orders emerge. Within the proper names category, the subjects in VSX clauses are one word significantly more often than in the two other orders combined ($p < .05$)¹¹. Within the common names category, the subjects in VSX clauses are also one word significantly more often than the two other

Table 9. *Length of subject vs. proper/common nouns*

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Proper name						
One word	13	72%	35	97%	4	67%
More than one word	5	28%	1	3%	2	33%
Total	18	100%	36	100%	6	100%
Common name						
One word	7	21%	14	88%	9	20%
More than one word	27	79%	2	12%	37	80%
Total	34	100%	16	100%	46	100%

orders combined ($p < .001$). Hence, the facts represented in Tables 7 to 9 can be taken to support the hypothesis that both factors, the predictability of the subject nouns and the tendency for the complex constituents to avoid sentence internal position, contribute separately to the observed frequency of one-word subjects in VSX clauses.

5. Properties of constituents other than the subject

5.1 Initial/final nonsubject nonverbal material

Focusing on the discourse, syntactic, and semantic properties of subjects in the three kinds of clauses can obscure the role of the properties of other constituents in the clause. The three clause types differ with respect to the frequency with which material **other** than the subject and verb occurs at the beginning of the clause or at the end of the clause, as illustrated in Table 10. As in previous tables, the percentage figures indicate the percentage of clauses with the property stated among clauses of the given order; for example, the figure 42% on the first line indicates that 42% (or 22 out of 52) of SV clauses have some nonsubject nonverbal initial material.

The first line of Table 10 shows that initial material occurs with greater frequency in VSX and VS clauses than in SV clauses ($p < .001$). What this means is that true verb-initial order is infrequent: either the subject or something else tends to precede the verb. Conversely, the second line of Table 10 shows that all clauses with SV order contain postverbal material.

Table 10. *Nonsubject material*

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Some nonsubject nonverbal initial material	22	42%	48	92%	47	90%
Some nonsubject nonverbal final material	52	100%	52	100%	0	0%

The other two cells on the second line of Table 10 are both determined by definition: there can be no VS clauses with final nonsubjects or VSX clauses without a final nonsubject. But since neither VS nor VSX clauses can be verb-final, and since all of the clauses with SV order contain postverbal material, we see that verb-final order is not attested in this set of 156 clauses. Hence both verb-initial and verb-final order appear to be uncommon, indicating an apparent tendency to avoid placing the verb at the beginning or end of the clause. Among clauses containing only a subject and a verb in our sample, only VS order is attested; our sample contains 5 clauses of this sort.¹² This suggests that the tendency to avoid placing the verb at the end of the sentence may be stronger than the tendency to avoid placing the verb at the beginning of the sentence.

The tendency to avoid placing the verb at the beginning or end of the clause influences the order of subject and verb. In a clause containing a subject and another nonverbal element, the verb will tend to occur medially, with the subject occurring on the opposite side of the verb from the other element. In other words, there is a tendency towards SVX or XVS order. While in some cases the choice between SVX and XVS may reflect the discourse properties of the subject, it is likely that it will often reflect the discourse properties of the nonsubject. In other words, if the discourse properties of an element other than the subject or verb is such that it precedes the verb in a given clause, the subject will tend to follow the verb. Conversely, if the properties of such an element are such that it follows the verb in a given clause, the subject will tend to precede the verb. Hence, the fact that there is a tendency to place a subject on the opposite side of the verb from other material means that to some extent the position of the subject may depend on the discourse properties of that other material rather than on the discourse properties of the subject itself. As a result, any account of

the position of the subject that appeals only to the discourse properties of the subject is likely to be inadequate.

5.2 Grammatical function of clause-initial material

The three clause orders also differ with respect to the grammatical or semantic function of preverbal material other than the subject and verb. Table 11 shows that in VSX and VS clauses, preverbal material is more often nominal, while in SV clauses this is generally not the case. The percentage figures indicate percentage among clauses containing preverbal nonsubject material.¹³

In the majority of SV clauses with preverbal material, the preverbal material is a temporal adverbial or a conjunction. In the majority of VS and VSX clauses, the preverbal material is nominal. VSX clauses differ from VS clauses in that preverbal temporal adverbials are more common in the former ($p < .001$). The basic generalization that can be drawn for the two more common clause types, SV and VS, is that a nonsubject nominal in a clause tends to occur on the opposite side of the verb from the subject: such nominals tend **not** to occur preverbally in SV clauses, but **are** common preverbally in VS. We discussed a similar generalization in the preceding section, but we can now say that this generalization applies particularly strongly with **nominal** elements rather than temporal adverbials, other adverbs, and conjunctions. The examples in (13) to (15) illustrate some of the more common types of SV and VS clauses in Table 11.

Table 11. *Clause-initial material other than subject and verb*

No. of clauses where initial material includes	SV		VSX		VS	
	No.	%	No.	%	No.	%
Object	0	0%	12	25%	7	15%
Oblique	2	9%	17	35%	28	60%
Nominal predicate	0	0%	0	0%	2	4%
Temporal adverbial and none of the above	13	59%	18	38%	4	9%
Other adverb and none of the above	1	5%	1	2%	4	9%
Conjunction and none of the above	6	27%	0	0%	2	4%
Total	22	100%	48	100%	47	100%

- (13) SV with preverbal temporal adverbial and postverbal object
W drugiej połowie XI stulecia sultani seldżuccy
 in second half.LOC 11th century.GEN sultans.NOM Seljuk.ADJ

TEMPORAL

SUBJECT

władali już wielkim państwem, które obejmowało
 ruled already large state.INSTR which encompassed
 VERB OBJECT

Persję, Mezopotamię, Syrię i dużą część
 Persia.ACC Mesopotamia.ACC Syria.ACC and large part.ACC

Azji Mniejszej.

Asia.GEN Minor

'In the second half of the 11th century, the Seljuk sultans already ruled over a large state, encompassing Persia, Mesopotamia, Syria, and a large part of Asia Minor.' (p. 6)

- (14) VS with preverbal object

Tym pokojowym tendencjom przeciwdziałal energicznie
 this peaceful tendencies.DAT counteracted actively

OBJECT

VERB

legat papieski, kardynał Julian Cezarini.
 envoy.NOM papal cardinal.NOM Julian Cezarini.NOM

SUBJECT

'The papal envoy Cardinal Julian Cezarini actively counteracted these peaceful tendencies.' (p.13)

- (15) VS with preverbal oblique

Od południa, od Bałkanów i Dunaju,
 from south.GEN from Balkans.GEN and Danube.GEN

OBLIQUE

wzmagal się napór Turków.
 increased REFL pressure.NOM Turks.GEN
 VERB SUBJECT

'From the south, from the Balkans and Danube, the Turkish pressure increased.' (p.10)

It should be noted that the above generalizations do not take into account the VSX clauses. The situation with this less frequent type of clause is a little bit more complex as the majority of these clauses contain two non-

subject nominals. One of these nominals follows the subject, the other tends to occur preverbally. Examples (16) and (17) illustrate two VSX clauses with preverbal material.

- (16) VSX with preverbal object

Większą część swej jazdy wysłał Sobieski
 bigger part.ACC his cavalry.GEN sent Sobieski.NOM
 OBJECT VERB SUBJECT

w stronę Lwowa, rozkazując jej rozpędzać
 in direction.ACC Lwow.GEN ordering her disperse.INF
 OBLIQUE

czambuły tatarskie.

forays.ACC Tartars.ADJ

'Sobieski sent the bigger part of his cavalry towards Lwow with the order to disperse the Tartar forays.' (p.140)

- (17) VSX with preverbal oblique

Na Bałkanach zawładnęli Turcy Moreą
 in Balkans.LOC conquered Turks.NOM Morea.INSTR
 OBLIQUE VERB SUBJECT

(Peloponez) oraz znaczną częśćią Albanii, podbili
 Peloponez and substantial part.INSTR Albania.GEN subdued
 OBJECT

Bośnię i Hercegowinę.

Bosnia.ACC and Hercegovina.ACC

'In the Balkans, the Turks conquered Morea (Peloponez) and a substantial part of Albania, and subdued Bosnia and Hercegovina.' (p. 22)

5.3 Grammatical function of clause-final material

The three types of clauses do not differ significantly in terms of the grammatical or semantic function of final postverbal nonsubjects. By definition, VS clauses do not contain such material. The data for SV and VSX clauses is given in Table 12.

With both SV and VSX clauses, the final material generally includes a nominal, either an object or an oblique. SV clauses differ somewhat from VSX clauses in that the final material is less often an object with VSX

Table 12 Clause-final Material other than Subject and Verb

No. of clauses where final material includes	SV		VSX	
	No.	%	No.	%
Object	21	40%	13	25%
Oblique	24	46%	36	69%
Nominal predicate	2	4%	0	0%
Temporal adverbial (with none of the above)	3	6%	3	6%
Other adverb (with none of the above)	2	4%	0	0%
Total	52	100%	52	100%

clauses than with SV clauses, but this difference falls short of statistical significance.¹⁴

5.4 Discourse properties of postverbal nonsubjects

Most of the clauses examined that are SV or VSX contain a postverbal non-subject nominal. But the two kinds of clauses differ strikingly with respect to whether that postverbal nonsubject nominal has a previous reference in the immediately preceding clause, as shown in Table 13. The percentage figures indicate the percentage of clauses of the given sort among clauses containing postverbal nonsubject nominals.¹⁵

Table 13 shows that 10 out of the 47 postverbal nonsubject nominals in SV clauses do have a previous reference in the preceding clause, while none out of 49 postverbal nonsubject nominals in VSX clauses do. Example (18) illustrates one of the SV clauses where the postverbal nonsubject nominal (*kraju* 'the country') was referred to in the preceding clause.

Table 13. Previous reference to postverbal nonsubject

	SV		VSX	
	No.	%	No.	%
Previous reference to postverbal nonsubject nominal in preceding clause	10	21%	0	0%
No previous reference to postverbal nonsubject nominal in preceding clause	37	79%	49	100%
Total with postverbal nonsubject nominal	47	100%	49	100%

- (18) *Nowa wyprawa wojenna, niepopularna na Węgrzech,*
 new expedition.NOM military unpopular in Hungary.LOC
miała najgorętszych przeciwników w Polsce.
 had most.ardent opponents.ACC in Poland.LOC
Zjazd piotrkowski w sierpniu 1444 r., wobec
 congress.NOM Piotrków.ADJ in August.LOC 1444 y. in.view.of
trudnej sytuacji wewnętrznej, wzywał króla
 difficult situation.GEN domestic summoned king.ACC
do kraju.
 to country.GEN
 'The new military expedition, unpopular in Hungary, had its most ardent opponents in Poland. In August 1444, in view of the difficult domestic situation, the Piotrków congress summoned the king to come back to the country.' (p. 14)

It is not clear how to explain this pattern. One possible interpretation of this is that VSX clauses are used to background subjects relative to another (postverbal nonsubject) nominal which is thus highlighted. The possibility that the special function of VSX clauses is to background the subject is also supported by the tendency for the subjects in VSX to be less often present in the next clause as compared with the subjects of SV clauses (cf. footnote 10).

6. Properties of verb

6.1 Semantic class of verb

A final class of factors determining the order of subject and verb is the properties of the verb. The clearest generalization is that VS order is common with **presentative** verbs, i.e. verbs which denote the commencement of a process, event, state or institution, or the occurrence or lasting of an event or period, or the coming into being or into appearance of an entity, or the existence of an entity at a specific place or time. This order is also common with what we call **participant removal verbs**, i.e. ones which signal the removal of a participant, such as *milczeć* 'was silent', *zginąć* 'died violently', *poleć* 'died in a battle', and *umrzeć* 'died'. Table 14 gives the frequency of these two kinds of verbs among the three types of clauses.

Table 14. *Semantic class of verb*

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Presentative verb	4	8%	2	4%	18	35%
Participant-removal verb	0	0%	0	0%	6	12%
Total	52	100%	52	100%	52	100%

Nearly half (24 out of 52, or 46%) of the verbs in VS clauses belong to one of these two classes. Example (19) illustrates a VS clause with a presentative verb.

- (19) *Lecz oto nadbiegli dalsi napastnicy.*
 but EMPH came.running further attackers.NOM
 'But then more attackers came running.' (p.271)

Example (20) illustrates an SV clause with a presentative verb *przybył* 'arrived'.¹⁶

- (20) *Natomiast oddział najemników, werbowany*
 on.the.other.hand detachment.NOM hirelings.GEN recruited
przez Piotra Wapowskiego, przybył na Węgry już
 by Piotr Wapowski.ACC arrived in Hungary.ACC already
po klęsce warneńskiej.
 after defeat.LOC Varna.ADJ
 'On the other hand, the detachment of hirelings recruited by
 Piotr Wapowski didn't arrive in Hungary until after the defeat at
 Varna.' (p. 14)

Presentative verbs are clearly a major factor determining the use of VS order. But this association between presentative verbs and VS order is not found with VSX clauses. Again this shows clearly a functional difference between VS and VSX clauses. It also shows that presentational position is specifically clause-final, rather than just postverbal position.¹⁷

It should be stressed that we cannot infer from Table 14 that subjects of presentative verbs generally follow the verb in Polish. The data in all our tables (except Table 1) is based on 52 clauses of each of the three types. As noted above, the frequency of these three types in the original text examined was 260 SV, 106 VS, and 25 VSX. If we take these ratios as typical, and if we take the percentages in Table 10 as typical, this would lead us

to expect to find in the original text 21 instances of presentative SV clauses, 1 instance of a presentative VSX clause, and 33 instances of presentative VS clauses. While the majority of presentative clauses in this extrapolated data are VS, the difference is not a large one: 33 presentative VS clauses vs. 22 presentative SV/VSX clauses. At best this allows us to estimate the relative frequency of VS vs. SV/VSX among presentatives as only 60%. Hence we cannot say that subjects of presentative verbs generally follow the verb in Polish.

6.2 Presentativeness and predictability

We showed in Section 3.1 and 3.2 that VS and VSX clauses differ with respect to the referential properties of the subject in that subjects of VSX clauses more often have a previous reference in the preceding text. One question that might arise is whether this difference might be due entirely to the fact observed in the preceding section, namely that VS clauses involve presentative or participant-removal verbs more often than VSX clauses do: it might be that presentative verbs take subjects that do not have a previous reference more often than other verbs. It is therefore useful to see whether the differences discussed in Sections 3.1 and 3.2 with respect to previous reference still obtain if we exclude from our calculations clauses with presentative or participant-removal verbs. We show in this section that removing clauses with such verbs does not alter our conclusions.

The figures in Tables 15 and 16 are calculated in the same way as those in Tables 2 and 3 earlier in the paper, except that we have excluded clauses with presentative or participant-removal verbs.

Table 15. *Previous reference of subject by clause type (clauses with presentative or participant-removal verbs excluded)*

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Previous reference in preceding 20 clauses	39	81%	48	96%	12	50%
Previous direct reference in preceding 20 clauses	19	40%	34	68%	3	13%
Previous reference in the immediately preceding clause	15	31%	20	40%	4	17%
Total	48	100%	50	100%	27	100%

Table 16. Referential distance of subject by (clause type clauses with presentative or participant-removal verbs excluded)

	SV	VSX	VS
Mean referential distance	6.06	3.74	12.68
Mean referential distance for subjects with previous reference in preceding 20 clauses	2.85	3.06	5.30

The figures in Tables 15 and 16 are quite similar to those in Tables 2 and 3. They show that even after removing clauses with presentative or participant-removal verbs, VS and VSX are still clearly distinct in that subjects of VS clauses are much less predictable than subjects of VSX clauses.¹⁸ For example, the second line of Table 15 shows that while 68% of VSX clauses have subjects with a direct previous reference in the preceding 20 clauses, only 13% of VS clauses do. Similarly, Table 16 shows that while the mean referential distance for subjects of VSX clauses is 3.74, the mean referential distance for subjects of VS clauses is 12.68. As in Tables 2 and 3, SV clauses are intermediate between VS and VSX clauses with respect to the various measures. In short, the overall differences between VS and VSX clauses with respect to previous reference are not due to the fact that VS clauses more often involve presentational or participant-removal verbs.

6.3 Transitivity of verb

The semantic property of presentativeness correlates with the transitivity of the verb, since presentative verbs are generally intransitive. Table 17 gives data specifically for the association between the three clause types and the transitivity of the clause.

Table 17. Transitivity of clause

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Intransitive	22	42%	22	42%	38	73%
Transitive	30	58%	30	58%	14	27%
Total	52	100%	52	100%	52	100%

Table 18. Clauses with verbs that are not presentative or participant-removal

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Intransitive	18	38%	20	40%	16	57%
Transitive	30	63%	30	60%	12	43%
Total	48	100%	50	100%	28	100%

As would be expected, VS clauses are intransitive more often than SV and VSX clauses ($p < .01$). But as we might expect from the pattern for presentative verbs in Table 14, there is no transitivity difference between SV and VSX clauses. On the other hand, this difference between VS clauses on the one hand, and SV and VSX clauses on the other, is largely attributable to the frequency of presentative and participant-removal verbs in VS clauses. Since all of the presentative and participant-removal verbs in Table 14 are intransitive, we can compute that the three types of clauses do not differ significantly with respect to the frequency of intransitive verbs that do not belong to one of these two classes, as shown in Table 18.

Although VS clauses still exhibit the largest proportion for intransitive verbs in Table 18, the differences between VS clauses and the other two clause types is much smaller than in Table 17 and is not statistically significant. Hence the difference between VS clauses and the other two clause types in Table 17 with respect to the transitivity of the verb is largely attributable to the frequency of presentative and participant-removal verbs in VS clauses.

6.4 Aspect of verb

A final relevant property of the verb is aspect. As in other Slavic languages, Polish makes a grammatical distinction between perfective and imperfective verbs. A breakdown for these two kinds of verbs for the three clause types is given in Table 19.

The verb in VSX clauses is perfective significantly more often than with either SV clauses ($p < .001$) or VS clauses ($p < .05$). The fact that the frequency of imperfective verbs is highest for SV clauses is in harmony with observations others have made regarding the relationship between aspect and word order in other languages, such as Hopper's (1979) observation of

Table 19. Aspect of verb

	SV		VSX		VS	
	No.	%	No.	%	No.	%
Perfective verb	29	56%	45	87%	35	67%
Imperfective verb	20	38%	5	9%	14	27%
Verb lacking contrast	3	6%	2	4%	3	6%
Total	52	100%	52	100%	52	100%

a correlation between durative aspect and SV order in Old English. On the other hand, the difference between SV and VS clauses is not statistically significant in our data, and the fact that VSX clauses exhibit perfective aspect significantly more often than VS clauses in Polish involves a difference that goes beyond the kind of difference Hopper observed for Old English.

7. Discussion

7.1 Summary of results

We have shown in this paper that the original question of what governs the order of subject and verb in Polish is an overly simple question, since there are two types of clauses with postverbal subjects, VS and VSX, which exhibit very different properties. Most importantly, while subjects of VS clauses tend to be less predictable than subjects of other clauses, including SV clauses, subjects of VSX clauses tend to be more predictable than other clauses, again including SV clauses. We have shown that subjects of VSX clauses differ from subjects of VS clauses in a number of other respects: they are more often human; they are more often short; and when they have a previous reference in the preceding clause, they tend to be less topical in that clause. We have also shown that VSX clauses differ from VS clauses in other respects: VSX clauses more often have initial temporal adverbials; and VS clauses more often have presentative or participant-removal verbs.

In some ways, the differences between VS and VSX clauses that we have discussed might seem surprising: why should a final X element make such a difference? We have shown the answer to be that the critical variable

is not the order of subject and verb, but rather the contrast between clause-final position and earlier positions in the clause. The properties of VS clauses that we have discussed reflect the significance of final position in the clause; subjects of VS clauses occur in this position while subjects of VSX clauses do not. The properties of VSX clauses reflect the fact that the medial position in a clause is usually reserved for short predictable constituents.

7.2 VSX and postverbal pronouns

It is worth drawing attention to a number of ways in which the properties of VSX clauses we have discussed here resemble properties which Siewierska (1987) attributes to clauses with postverbal subject pronouns, as in (21).

- (21) *Powrócił on przed niedawnym czasem z*
 came.back he before not.too.long time.INSTR from
niewoli tureckiej i znów dzierżył buławę
 captivity.GEN Turkish and again held baton.ACC
polną koronę.
 field.ADJ Crown.ADJ
 'He came back not too long ago from Turkish captivity and held again the Crown Field baton.' (p. 114)

First, we have shown that subjects of VSX clauses very often consist of a single word; clearly subject pronouns also have this property. Second, we have observed that subjects of VSX clauses are highly continuous in the sense of more often having previous reference in preceding clauses; again this is clearly true of postverbal subject pronouns as well. Third, Siewierska observes (p. 151) that postverbal subject pronouns are not separated from the verb by anything other than a clitic; only two of the 52 VSX clauses in our sample have anything between the verb and the subject. Fourth, Siewierska notes that postverbal subject pronouns very often have antecedents in the previous clause which are nontopical in that clause. Siewierska describes postverbal subject pronouns as indicating a switch of topic; the fact that they occur as subjects in the current clause suggests that they are now topics, even if they were not such in the preceding clause. We have shown a somewhat analogous result for subjects of VSX clauses: if they have an antecedent in the preceding clause, that antecedent is an oblique or part of a predicate expression significantly more often than is the case with

antecedents of subjects of SV or VS clauses. In both cases — the postverbal subject pronouns that Siewierska examined and the subjects of VSX clauses that we examined — an antecedent in the preceding clause was often non-topical. Finally, and perhaps most significantly, while Siewierska does not explicitly distinguish what we have called VSX and VS clauses, various points suggest that the clauses she discusses with postverbal subject pronouns are VSX. For one thing, the three examples she cites with postverbal subject pronouns are all VSX. She furthermore mentions an infrequent class of clauses containing what she calls “final subject pronouns”, in which the subject pronoun occurs at the end of the clause. These pronouns, unlike the pronouns that are the focus of her paper, are stressed and display characteristics more typical of preverbal pronouns. This suggests that VSX clauses and clauses with postverbal subject pronouns are probably instances of the same general phenomenon.

7.3 Theme-rheme order vs. highly predictable postverbal nominal

Let us turn now to the question with which we began this paper. Is it possible to reconcile the traditional claim of theme-rheme order as the unmarked order in Slavic languages with Givón's claim that postverbal nominals universally tend to be more predictable in the sense of having closer previous references in the preceding text? Although there are various possible interpretations of the theme-rheme distinction, the traditional claim would nevertheless seem to predict that postverbal subjects should have a higher mean referential distance than preverbal subjects, while Givón's claim predicts that postverbal subjects should have a lower mean referential distance. But because VSX clauses in Polish exhibit very different properties from VS clauses, it is clear that either claim would be mistaken as a **general** claim about postverbal subjects. We have seen that subjects in VSX clauses tend to be more predictable, while subjects in VS clauses tend to be less predictable. In other words, the properties of VS clauses conform to the traditional claim, while the properties of VSX clauses conform to Givón's prediction.

There seems to be little way to reconcile the properties of VSX clauses with the traditional claim: these clauses tend to have subjects which are more predictable and hence presumably more thematic than subjects of SV clauses. It should be noted, however, that VSX clauses are noticeably less frequent than VS clauses. Over samples from six authors, the average fre-

quency of the three clause types (see footnote 3) is SV 65.7%, VSX 5.8%, and VS 28.5%. In other words VS is about five times more common than VSX. Hence, the category that includes the majority of postverbal subjects conforms to the traditional claim. Furthermore, we observed above that VSX clauses resemble clauses with postverbal subject pronouns. But Siewierska (1987) observes that the latter type of clause is most frequent in expository written Polish, as opposed to novels and (probably) spoken Polish. Since our study has been based entirely on nonfictional written Polish, this suggests that VSX may be even less frequent in other genres of Polish than in the texts we examined.

While the properties of VSX clauses provide support for Givón's claim, there are a couple of reasons why they provide only limited support for this claim. First, while it is the case that subjects of VSX clauses are more “continuous” in the sense that they exhibit a lower mean referential distance than the other two clause types (cf. Tables 2 and 3), they are **less** continuous in the sense that they exhibit an apparent tendency to be referred to less often in the immediately subsequent clause (cf. Table 5), though this tendency fell short of statistical significance; but in so far as there is a trend, it is in the opposite direction from what Givón's claim predicts. Second, since SV order is much more common than VSX order, there is no basis for saying that nominals with low referential distance tend to follow the verb.

Turning to VS clauses, we have seen that the properties of these clauses support the traditional claims regarding theme-rheme order. Is there any way to reconcile the properties of these VS clauses with Givón's claim? Givón (1988: 266-271) admits that what he calls existential-presentative clauses in many languages offer an apparent counterexample to his claim, but offers a possible historical explanation of why these clauses behave the way they do. Since we have seen that almost half of the VS clauses in our data employ presentative or participant-removal verbs, the question arises whether the properties of VS clauses in Polish can be explained away in the same way. The answer is apparently that they cannot.

Givón's argument is based on presentative clauses containing a verb ‘be’ or ‘have’ preceding the subject, as in the English there-construction, in which an indefinite subject follows a verb ‘be’:

(22) *There's a man at the front door.*

Givón argues that the verb in such constructions has lost its verbal properties, and that the verb (or, in the case of English, *there* plus the verb) has been grammaticized as a marker of referential indefinite subject constructions. Whatever the merits of this as an explanation for the properties of constructions like the one in (22), it cannot explain the Polish facts since the clauses we are describing as presentative are ones like (23), in which the verb is not 'be' or 'have', but a "normal" verb carrying all the typical tense and agreement markers as well as lexical stress, and one whose semantics involves a participant coming onto the scene.

- (23) *Lecz oto nadbiegli dalsi napastnicy.*
 but EMPH came.running further attackers.NOM
 'But then more attackers came running.' (p.271)

Nor is there any obvious way in which Givón's explanation could be extended to account for presentative cases like these.

8. Conclusion

Although we have demonstrated that a variety of different factors correlate with the choice between the three types of clauses, SV, VS, and VSX, a lot remains to be done before we have a clear understanding of Polish word order. First, our study is based on the writings of a single author. Study of different individuals, of other forms of written Polish, and especially of spoken Polish, is clearly required. Second, while we have demonstrated a number of significant differences between the three types of clauses, we have not attempted to address in any way the difficult problem of predicting which of the three types will be used in a given context. Third, although we have shown that many of these factors correlate with the choice of clause order, some of these correlations may be epiphenomenal: since many of these factors correlate with each other, some of the correlations between factors and clause order may be artifacts of two separate correlations, the first being a correlation between a real factor and clause order, the second being a correlation between a real factor and an epiphenomenal factor.¹⁹

A final way in which this study falls short of being a complete account of Polish word order is that it is limited to a study of textual factors that correlate with the different orders. However, it is likely that these textual factors are, at best, indications of cognitive factors that really underlie the dif-

ferent orders (cf. Givón 1989: 216; Tomlin 1987). Only a methodology like experimental psycholinguistics, which directly examines such cognitive factors, would be able to demonstrate what really underlies the word order alternations.

Notes

1. The work of this paper began while both authors were associated with the University of Alberta.
2. Rybarkiewicz's results are presented in terms of Givón's measure of **referential distance**, the mean distance in clauses back to a previous reference in the text. Givón reports that in Rybarkiewicz's data, postverbal subjects have a mean referential distance of 3.1, while preverbal subjects have a mean referential distance of 6.5. Rybarkiewicz's paper is an unpublished paper cited by Givón (1988, 1989) which we have not seen.
3. The following table illustrates the relative frequency of the three types of clauses to be discussed in this paper, SV, VSX, and VS, in the excerpts from our primary source, Pajewski (1978), and five other written sources. One hundred clauses with lexical subjects were examined from each of the five sources. In each case, the 100 clauses consisted of 5 blocks of 20 consecutive clauses, each block taken from different parts of the source. Still to be investigated are the sources of the observed variation in the frequency of the three clause types and the question of to what extent the conclusions of this paper can be generalized to other authors or to spoken language.

Table A. Comparison of primary source with five other authors' percentages of three clause types among clauses with lexical subjects

	SV	VSX	VS
Primary source (as percentage)	58	8	34
Source 1 (popular history)	71	3	26
Source 2 (popular history)	76	0	24
Source 3 (adolescent novel)	74	2	24
Source 4 (biography)	63	1	36
Source 5 (biography)	52	21	27
Mean	65.7%	5.8%	28.5%

4. Throughout this paper, the citations of levels of statistical significance are based on the Chi-Square test with Yate's correction. Where we say that a given difference is not statistically significant (not sig) later in the paper, we mean that it is

not significant at the .05 level using the Yate's correction. Where we cite a difference between one clause type and the other two clause types, in most cases, we have computed the difference between the one clause type and each of the other two clause types separately, so that all our tables are 2x2. In those rare cases where we have computed the difference between one clause type and the two others combined, it is so indicated.

The Chi-square test showing that VS order is less common in subordinate clauses is based on Table B, which collapses the data in Table 1.

Table B

	SV	VS
In main clause	230	164
In subordinate clause	30	5

5. Siewierska (1987: 149) found that postverbal subject pronouns are more common than preverbal subject pronouns in a set of expository and biographical texts. However, she found the reverse to be the case in a novel and short stories.
6. Some of these VS and VSX clauses have material preceding the verb and/or intervening between the verb and the subject. Similarly SV clauses may have material preceding the subject, following the verb, or intervening between the subject and verb.
7. The significance levels of the differences between the three types of clauses for the three categories in Table 2 are given in Table C.

Table C

	SV vs. VS	SV vs. VSX	VSX vs. VS
Previous reference in preceding 20 clauses	p < .01	p < .01	p < .001
Previous direct reference in preceding 20 clauses	p < .01	p < .01	p < .001
Previous reference in the immediately preceding clause	not sig.	not sig.	p < .01

8. The broad (direct and indirect) sense of previous reference was assumed in computing the levels for referential distance.
9. The significance levels of the differences between the three types of clauses for the three categories in Table 3 are given in Table D.

Table D

	SV vs. VS	SV vs. VSX	VSX vs. VS
Mean referential distance	p < .001	p < .02	p < .001
Mean referential distance for subjects with previous reference in preceding 20 clauses	p < .05	not sig.	not sig.

10. Although none of the between-clauses contrasts in Table 5 are significant when tested by Chi-square with Yate's correction, the SV vs. VSX contrast on the first line is significant when tested by simple Chi-square ($p < .05$). The fact that it just misses the significance level suggests that there may be some tendency for the subjects in SV clauses to be present in the next clause more often than is the case with the subjects in VSX clauses. On the other hand, we do not find this apparent trend when we consider reference in any of the next three clauses, as on the second line of Table 5.
11. The contrasts for Table 9 were calculated differently from other tables. Since the frequencies in some of the cells in this table are very low, the contrasts here are between VSX and SV/VS combined, rather than between VSX and each of the two other orders separately.
12. Three of these five clauses contain just the verb and subject. The other two contain pronouns between the verb and subject, one an object pronoun, the other oblique.
13. The category oblique includes prepositional phrases and noun phrases functioning as neither subject nor object. The category of clauses that contain an object includes two VSX clauses that contain both an object and an oblique; these two clauses are not included with the clauses containing an oblique, in order that no clause be counted in more than one category.
14. If this difference is a real one (i.e. if it falls short of statistical significance only because of the small size of our sample), then the effect of this difference would be that SVO clauses are much more common than VSO clauses, especially since VSX clauses are much less common than SV clauses (the original sample outlined in Table 1 contains 182 SV clauses, but only 25 VSX clauses). We discuss the relationship between clause type and the transitivity of the verb below.
15. The difference in Table 13 between SV and VSX clauses with respect to whether there is a previous reference to the postverbal nonsubject nominal in the preceding clause is statistically significant ($p < .01$).
16. A possible explanation for the use of SV order in (20) is that the sentence presupposes that the detachment of hirelings arrived, and primarily asserts that the arri-

val took place after the defeat at Varna; this is unlike (19) where the fact that the attackers came running is the primary assertion.

17. This difference between VS on the one hand and SV and VSX on the other is statistically significant ($P < .01$).
18. The significance levels of the difference between the three types of clauses for the three categories in Table 15 are given in Table E. The significance levels of the differences between the three types of clauses for the three categories in Table 16 are given in Table F.

Table E

	SV vs. VS	SV vs. VSX	VSX vs. VS
Previous reference in preceding 20 clauses	$p < .001$	$p < .05$	$p < .001$
Previous direct reference in preceding 20 clauses	$p < .05$	$p < .01$	$p < .001$
Previous reference in the immediately preceding clause	not sig.	not sig.	$p < .05$

Table F

	SV vs. VS	SV vs. VSX	VSX vs. VS
Mean referential distance	$p < .01$	$p < .02$	$p < .001$
Mean referential distance for subjects with previous reference in preceding 20 clauses	$p < .05$	not sig.	$p < .05$

19. Myhill (1984, 1985, 1986) illustrates a methodology for teasing out these distinctions, but his method would require a larger sample than the one we have used here.

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