ASPECTS OF VALENCY AND DEPENDENCY GRAMMAR

by A.G. Bell

University of Auckland

Conventions:

S → subject
CE → extensive complement (S_a)
A → adjunct (Adv, pS, etc.)
M → modifier
Q → qualifier
P-... -P → discontinuous verbal group
⇒ → transformation/ alternative

= S → appositional subject
CI → intensive complement (S_n)
[( )] → denotes 'rankshift'
H → head
* → non-sentence/ not a transform
≠ → not equal to
pS = prepositions + nouns

I The Preeminence of the Subject

One of the initial theoretical assumptions of Helbig's dependency grammar is the preeminence of the verb "als Festpunkt des Satzes" (Helbig, 1965). For German this is a valid approach to sentence analysis however Helbig adds: "Es ist eine notwendige Folge diesser Konzeption, dass das Subjekt seine Vorrangstellung gegenüber den anderen Mitspielern einbusst." He argues for the "struckturelle Gleich-stellung aller Mitspieler" with examples such as:

Die Hauptstadt Frankreichs ist Paris ⇒
Paris ist die Hauptstadt Frankreichs
Das ist ein Erfolg ⇒ *Das bedeutet einen Erfolg*
ich friere ⇒ *mich friert*

These sentences are proof however, not of the structural equality of the C- elements (= Mitspieler), but of their equivalent meaning or distribution of information. Structurally these are in fact examples of the subject's preeminence as a C- element, which seems to differentiate it qualitatively from other such items.

The most obvious special feature of the S(=subject) is the concord established between it and the verb — concord of number *(er schwimmt / sie schwimmen)* and of person *(er schwimmt / ich schwimme)*. In English the normally initial position of S before the verb seems to indicate its governance of verb concord rather than vice versa, and even in German inverted word order the number and person of the verb are *intuitively* at least a reflection of S rather than a governance of it. In a T-G grammar the number and person markers of the subject will more probably be the initial elements in a transformation to select verb concord. (Chomsky 1957, Gleason 1965)

If the C-element of a structure containing a 'copulative' verb *(sein, werden, etc.)* is regarded as an independent item and not as a 'discontinuous verbal lexeme', the interchangeable nature of S and C holds only for a third person verb (which is of course the majority of cases). Although these verbs require concord of S and C where number is marked, possible transformations show S by agreement of person —

er ist der König Frankreichs ⇒
Der König Frankreichs ist er
ich bin der König ⇒
Der König bin ich.

The transforms serve to establish the point: S and C appear as interchangeable only because both are usually third person, but are differentiated when transformations establish the deep structure.

II The Subject Obligatory

Thus S should be regarded as qualitatively different from other C- elements, and therefore not be treated in the valency system. This suggests also that it must be an obligatory element. Both these assertions are contrary to the Leipzig Group's theory and practice. They postulate the category of valency to account for such 'subjectless' verbs as:

A   mich friert, mir ist warm.
B   hier wird getanzt; ihm wird geholfen.
C   es donnert; es regnet Asche.

For classes A and B it would be possible to use their (questionable) analysis   for such 'exceptions' as *ich gebe die Karten*, where *ihm* is said to be "stets mitgedacht" (Helbig, 1966) Such an explanation has more formal basis in this case than in Helbig's example, as is shown in the possible transformations of A and B:

> *mich friert* ⇒ *es friert mich*
> *hier wird getanzt* ⇒ *es wird hier getanzt*

A and B and similar types could thus be regarded as exceptions, whose deep structure is revealed as including a normal S item in transformation.Omission depends on the occurrence of some item other than S in initial position.

The Leipzig Group analyse this use of *werden* in *es/hier wird getanzt* in an interesting manner (Helbig, Schenkel, 1967). It is taken as valency 2 - one valency filled by the past participle, the other by either *es*, or an Adv or pS. This is justifiable given the assumption: "so wird auch das unpersönliche Pronomen nur dann als Mitspieler gerechnet, wenn es durch ein Substantiv (bwz. einen anderen Mitspieler) substituierbar ist" (Helbig, Schenkel, 1967). There seems little difference between *es geht mir gut* and *es wird getanzt*, *es friert mich* as far as possible substitutions for *es* are concerned. To count *hier* as a C- element (*hier wird getanzt*) and not *es* in *es wird dunkel* (⇒ *der Himmel wird dunkel?)* seems anomalous: *es* should be a valency in both cases. If *hier wird getanzt* is taken as the exceptional "elimination transformation", *es* would be the obligatory S item in the sentence in all cases, except these.

The feature of the omitted subject can thus be recognised as a limited exception to the obligatory S, occuring only with certain verbs and treated with those verbs as an "Abweichung" at Step II or III. This avoids the necessity for setting up almost two parallel grammars on the basis of these much less frequent 'subjectless' sentences, − a complicated procedure which Kufner (1962) follows. As has been shown Helbig is not self-consistent in the analysis of verbs. In Droescher (1969) sentences without subject are treated as passive transformations of active sentences (*Man tanzt heute = Heute wird getanzt*), which does not explicitly cover cases such as *mich friert*.

For these cases two transformations seem necessary, first a passive then an elimination transform. In outline, the passive transformation would be in a form such as −

> *man* + Vact + A/NP ⇒ *es* + Vpass + A/NP
> (*man tanzt heute* ⇒ *es wird heute getanzt*
> *man hilft ihm* ⇒ *es wird ihm geholfen*).

The elimination transformation for these examples could be —

$$es + Vpass + A/NP \Rightarrow A/NP + Vpass$$

(es wird heute getanzt = heute wird getanzt
es wird ihm geholfen = ihm wird geholfen)

For active sentences, the cases are more varied, but a transformation of the following form deals with many examples —

$$es + Vact + NP \Rightarrow NP + Vact$$

(es friert mich ⇒ mich friert)

Further study and particularization could probably collapse these transformations into simple rules to deal with all cases.

III Valency ϕ, and "es" as subject

It is taken as accepted, then, that there is no subjectless sentence in the general presuppositions of the grammar.   There still remains the problem of the Leipzig Group's treatment of *es* as valency ϕ in the situations described above.

Scott, Bowley, et al. (1968) distinguish three uses of English *it* as subject, which are parallelled by German *es* :

1.   As referring subject *(Das Buch leigt auf dem Tisch. Es ist sehr interessant.)* : this does not concern the present discussion.

2.   As substitute subject *(es ist gut, dass er kommt)*, plus appositional ('true') subject, "=S". A wide range of items can occur at appositional =S : subordinate clauses of all types: introduced by W-words *(wer,* etc.) *dass* or *zu* plus infinitive. This function of *es* can be established by a transformation eliminating *es* and moving the appositional subject to replace it: roughly —

$$es + P(+C) (+A) + =S \Rightarrow =S + P (+C) (+A)$$

a) S   P   =S   S   P
    es   kommen   Leute   Leute   kommen

b) S   P   C^J =S
    es   ist   gut   [nach Hause zu kommen]   ⇒

            S   P   C^J
    [*Nach Hause zu kommen*]   *ist   gut*

    S   P   =S   A   S   P   A
c) *es   sind   vier Männer   dort*   ⇒   *vier Männer   sind   dort.*

                              A   P   S
                     ⇒   *dort   sind   vier Männer*

                              A   P   S   C^J
                     *   *dort   sind   es   vier Männer*

Note that *es* and the appositional S do not occur in immediate sequence (c), except with a change of meaning. Some concept of a category scale type is useful to explain the occurrence of clauses as valencies, both here and at other points in the dependency grammar. Thus clauses could be regarded as 'rankshifted' substitutes for word or group items.

As *substitute* S, therefore, *es* should be regarded as valency ϕ, but in no case could this produce a *verb* ϕ because =S must be present in these cases.

3.   *es* as non-referring subject. All three types of 'subjectless' clauses occur in this category —

A   es friert mich
B   es wird getanzt
C   es donnert

(The *es* will be taken as obligatory, in accordance with the argument in 'B' above.)
Helbig et al. give 'es' no valency unless it is replaceable by a noun or some other C- element — hence

d   *es schneit*   (ϕ)
e   *es regnet Asche*   (1)
f   *es wird dunkel*   (1)
but   g   *es wird getanzt*   (2)

The discrepancy between the treatments of (f) and (g) has already been questioned:

		A	P	?C[1]		S	P	A	?C
h		hier	wird	getanzt	$\Rightarrow$	es	wird	hier	getanzt
but not	i	S	P	?C		A	P	S	?C
		es	wird	getanzt	*$\Rightarrow$	hier	wird	es	getanzt

Es and *hier* are obviously different in function, as illustrated by these transformations. In (h) a transform is necessary in order to establish the nature of verb agreement, while in (i) a similar transformation adds an extraneous item without analysing the depth structure. That is, in (i) the deep structure is explicit, in (h) it is shown only in transform. Thus, with Helbig I would regard *es* in this structure as a valency: but, in opposition to him, as an obligatory valency (i.e. not replaceable by *hier*). The exceptions would be handled in relation to the limited number of verbs with which they can occur (*tanzen, singen*, etc.), and at Step II or III of the analysis.

For types A (*es friert mich*) and C (*es hagelt*) it seems necessary to recognize *es* as a valency even on the criterion of whether it can be replaced by a noun. Most of these verbs can occur with S other than *es*:

es friert mich — Mensch und Tier frieren   (Grebe, 1966)
es hagelt — Asche regnet auf uns. Die Schläge hagelten nur so

Possible, if marginal, transformations show the functions of both *es* and the second C- element in the sentence:

	S	P	c^E	A				
j	es	regnet	Steine	auf	uns	$\Rightarrow$		
			S	P	c^E	A		
			der Himmel	regnet	Steine	auf uns		
k	S	P	=S	A				
	es	regnen	Steine	auf uns	$\Rightarrow$			
			S	P	A			
			Steine	regnen	auf uns			

---

1. The past participle treated here in Helbig's terms.

$$l \quad \begin{array}{ccc} S & P & C^E \\ es & regnet & Steine \end{array} \quad \Rightarrow \quad * \quad \begin{array}{cc} S & P \\ Steine & regnen \end{array}$$

In (j) and (l) *Steine* must be read as Sa or extensive complement (C^E), becuase of the lack of concord with the verb, and because *es* can be replaced by a noun with no concord alteration (j), but not by *Steine* (l). In sentence (k) *es* is substitute subject, and therefore valency ϕ, as shown by the possible transform.

Clearly then —

1. *es* in these constructions can be replaced by a noun;
2. it accepts C^E not =S with verb agreement with *es* not the C^E.

In these cases, and because of the possibility of such occurrences with most verbs of this nature, *es* should always be recognized as a full valency. Four theoretical and practical conclusions are important:

1. S is an obligatory element, excepting certain environments to be specified at Steps II or III for the few verbs concerned.
2. *es* is always full valency, except where transforms establish that it is substitute subject for =S. So there is no *verb* valency ϕ.
3. Sentences such as *hier wird getanzt* should be handled under the head verb (*tanzen*), which would be within the verbal group and therefore not itself a valency —

$$\begin{array}{cccc} & P\text{-} & A & \text{-}P \\ S & (M) & & (H) \\ es & wird & hier & getanzt \end{array}$$

This would facilitate treating such exceptions by introducing them only for the few *head* verbs concerned (*helfen, tanzen, singen* etc.).

4. S, because an obligatory valency, could be discounted at Step I. But it would need the same structural analysis at II and *semantic* analysis at III. It is to be expected that verbs such as *regnen, frieren,* etc., where the variety of items at S_n is very limited, would probably form a grammatico-semantic group. Typically, therefore —

> An analysis of *tanzen* would include possible 'subjectless' transforms, with structural and semantic restrictions on other initial items (e.g. Adv, pS).

A (very) tentative analysis of *regnen* could be:

I   *regnen*$_1$ (2), (3)

II   *regnen* → S_n (S_a), (adv / $_pS_a$)

III S_n → (1) *es*   *Es regnet*

              (2) - anim. if S_n = plural S   *plus* oblig. directional *her*   or

                        or mass word   *hin*   both

                     Steine regnen   *vom Himmel*

                     Asche regnet   *auf uns*   *vom Himmel auf uns*

Note: (2) only possible if oblig. directional extant   * *Steine regnen*

                                                 * *Asche regnet*

             (3) if S_n has meaning "place above" S_a and directional *her* required

$$\begin{array}{lll} \textit{Der Himmel} & \textit{regnet} & \textit{Steine} \\ \textit{Die Wolken} & \textit{regnen} & \textit{Asche} \end{array} \quad \textit{auf uns / herab.}$$

$S_a \rightarrow$ -anim. only possible if $S_n = es$

Es regnet Asche
Steine

otherwise S_a and adv/prep S_a defined in selection rules of (2) and (3).

This makes it clear that in its 'exceptional' (semantically 'figurative') uses *regnen* has valency 2 obligatory or even valency 3. It can have valency 1 only when *es* is the subject.

'RANDBEMERKUNGEN'

IV   Werden, Sein, etc.

The treatment of such verbs as *sein, haben,* the modals, etc. is not yet fully worked out in dependency grammar. As noted above, the Leipzig Group handle all uses of *werden* under valency 2 except the cases whose occurrence as valency 1 has already been disputed. It seems useful to make a distinction here between 'full' verb and 'auxiliary' verb, based entirely on the structural criterion of whether the verb collocated with a non-finite verb form or with some other item. This would eliminate difficulties over the place of infinitives without *zu* and participles in the valency system, perhaps by use of a modifier-head-qualifier relationship   (Scott, Bowley 1968).

$$\begin{array}{ll} \text{M} & \text{H} \\ \textit{er ist} & \textit{gekommen} \\ \text{M} & \text{H} \\ \textit{es wird} & \textit{getanzt}\ ^2 \\ \text{M} & \text{H} \\ \textit{er hatte} & \textit{gegessen} \\ \text{M} & \text{H} \qquad\ \text{M} \qquad \text{M} \\ \textit{es war} & \textit{getan} \quad\ \textit{worden}\ \ \textit{sein} \end{array}$$

Obviously, complex verbal groups could lead to unnecessary complication, and especially for the practical purpose of second language teaching, the auxiliary / full verb distinction is powerful. The auxiliary uses would be differentiated from the full verb —

ich muss gehen   /   ich muss fort.

This distinction has advantages over the alternative treatment as 'discontinuous verbal lexemes' (Droescher, 1969) and lacks certain of its disadvantages. To regard any item collocating with *sein* as a discontinuous lexeme does not do justice to the diversity of such items — adjective, noun, adverb. Nor does it differentiate them from a 'fixed' item such as rad*fahren*, which is similarly treated.

Helbig treats the nominal, adjectival, verbal and adverbial items after *werden* etc. as full valencies (Helbig, Schenkel, 1967). The classification used by Scott, Bowley, et al (1968) labels such items C^I and A — 'intensive complement' for nominals and adjectivals, 'adjunct' for adverbials. *One* such item is obligatory for these verbs. This treatment of items as C^I lends itself to closer analysis of the concord relationship with S (number) —

$$\begin{array}{llll} \text{S} & \text{P} & \quad \text{C}^I \\ \textit{Der Mann} & \textit{war} & \textit{gut / ein Lehrer} \end{array}$$

---

2. Valency 1 (*tanzen* + *es*); not 2 as in Helbig (*werden* + $\overset{1}{es}$ + $\overset{2}{tanzen}$)

Concord with nouns at C^I is obligatory (and usually marked). The differentiation between adjective C^I and adverb A can be made on the possibility of a transformation to attributive position:

$$der\ Mann\ war\ krank\ \Rightarrow\quad der\ kranke\ Mann$$
$$der\ Mann\ war\ draussen\ *\Rightarrow\quad der\ draussene\ Mann$$

The characteristic distinction between C^I and C^E (extensive complement $-S_a$) is the possibility of concord as against that of a passive transform. For German, accusative case for C^E is also a marker. *haben* is in half-way position between C^E and C^I —

$$er\ besitzt/hat\ einen\ Hund.$$

Thus in very general terms *sein, werden*, etc. would have valency 2, requiring C^I or A. Because *aussehen, scheinen* ($\neq$ *leuchten*) etc. also collocate with C^I, the distinction of *sein* and *werden* as verbs with auxiliary or full functions seems doubly powerful.

V 'Separable Verbs'

The classification of so-called separable verbs (*rad/fahren, aus/sehen, in Kraft treten*) is also problematical. Helbig and Schenkel (1967) make an arbitrary if logical distinction between verbs with :

a.   preposition (*an/haben, unter/gehen*) - no valency; and
b.   adjectives, nouns or adverbs (*warm/stellen, darüber/springen*) - a valency.

The boundary would obviously be hard to fix — should one differentiate *eintreten* and *hereintreten?* —and it seems better to treat both types as discontinuous lexemes within the verbal group. The best test for valency ϕ or valency one of an item would be to classify according to characteristic and position – cf. the difference in English —

$$he\ ran\ it\ down\quad /\quad he\ ran\ down\ it.$$

Scott Bowley et al. (1968) treat such 'separable prefix' items as qualifiers within the verbal group, not as *prepositions*, etc. preceding a noun. Compare two possible structures and their meanings for:

S	P	P⌒A⌒H		S	H⌒P⌒Q	C
we	dispense	with care		we	dispense with	care

Such a treatment would bring the analysis of the verbal group parallel to that of the NG in Hallidayan terms. Both would consist of modifier-head-qualifier:

M	H	Q
der grosse Mann		mit dem Hund

	M	Q	H	M
das Gesetz	wird	in Kraft	getreten	sein

Treating 'separable prefixes', etc. in this way is not generally in line with the normal definition of the M-H-Q relation. The modifier is usually defined as preceding and the qualifier as following the head item, but the complex nature of word order in the German verbal group suggests that for German the relations would be better specified as above. Alternative analyses would be:

Maux	Mx	H	Minf
es wird	in Kraft	getreten	sein

where   Maux   = auxiliary
               Minf   = infinitive etc., etc.
and   Mx   = separable prefix, etc

or   M   H   Q
    es wird   in Kraft getreten   sein

Here all preceders of the head are modifiers, all items following are qualifiers, and the head is regarded as complex. Neither of these two latter analyses seems to have the advantages of the first, but it must be noted that the first analysis would require a redefinition of Hallidayan terms and usage.

When items of this kind are analysed as Q within the verbal group, the VG is left free to take valencies in the normal fashion; A being in this case an optional valency —

	S	P-(H)	A	-P(Q)
m	er	tritt	in das Zimmer	ein

	S	P	C	
n	er	betritt	das Zimmer	

There is of course no difference between the valency of A in (m) and C in (n), although one is optional and the other obligatory. Palmer puts forward a similar suggestion for analysing such items as *take care of, set fire to, make up one's mind* (Palmer, 1965) stating that they may be treated "reasonably as single units". The argument for such analysis is strengthened in German by the fact of the qualifier's end position before non-finite verb forms.

BIBLIOGRAPHY

Chomsky, N., 1957. *Syntactic Structures.* The Hague, Mouton.

Droescher, W.O., 1969. "German Verb Types". *Lingua, 24.*

Gleason, H.A., 1965. *Linguistics & English Grammar.* New York, Holt Reinhart & Winstone.

Good, C., 1967. "Anmerkungen zu einem terminologischen Thema und einer Regel", *Deutschunterricht für Ausländer* 6.

Grebe, P., 1966. *Der Grosse Duden – Grammatik.* Mannheim.

Halliday, M.Z.K., 1967. "Notes on Transivity and Theme". *Journal of Linguistics* 3.

Helbig, G., 1965. "Der Begriff der Valenz als Mittel der strukturellen Sprachbeschreibung und des Fremdsprachenunterrichts". *Deutsch als Fremdsprache* 2.

Helbig, G., 1966. "Untersuchungen zur Valenz". *Deutsch als Fremdsprache* 3.

Helbig, G., 1967. "Zur Umgebungsanalyse deutscher Verben". *Wissenschaftliche Zeitschrift (KMU)* 16.

Helbig, G. & Schenkel, W., 1967. "Listen zur Valenz deutscher Verben". *Deutsch als Fremdsprache* 1-4.

Kufner, H.L., 1962. *The Grammatical Structures of English and German.* Chicago. Chicago U.P.

Palmer, F.R., 1965. *A linguistic Study of the English verb.* London, Longmans.

Schenkel, W., 1969. "Satzmodelle für den Fremdsprachenunterricht". *Deutsch als Fremdsprache* 1.

Scott, F.S. Bowley, C.C. et al., 1968. *English Grammar.* Auckland, Heinemann.