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From Japanese to General Linguistics: Starting with the *Wa* and *Ga* Particles

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0. Introduction

This paper presents the results of our long lasting research on two Japanese particles *wa* and *ga*. These particles have been studied at great length in Japan since the beginning of the Meiji Period (1868-1912). We show that whenever a constituent with *wa* or *ga* particle appears in an utterance, it must not necessarily be recognised either as a SUBJECT (with *ga*) or as a TOPIC (with *wa*). Indeed, (a) *ga* particle can refer to many other syntactic constituents than the SUBJECT itself (namely such as Location, Cause etc) and (b) *wa* particle cannot systematically be explained as a marker of TOPIC only. The meanings of *wa* and *ga* particles are related also to their position in the sentence and to intonation markers.

Furthermore, we intend to present the theory we developed during the two following periods : in the 1970s (functional approach) and in the 1990s (logic-based generalisation of the functional theory sketched previously). First, analysing the complex relations which are marked in Japanese utterances by *wa* and *ga* particles and then extending our observations and hypotheses to many linguistic discourse-dependent categories in different languages (such as mediative modality, aspect, tense, quantification, etc.), we elaborated a general theory of information validity¹ of linguistic utterances.

Lastly, we proposed a systematic treatment of the SUBJECT, TOPIC and FOCUS in a unified theoretical framework. This enabled us to explain the identifying and selective roles the Japanese *wa* and *ga* particles (described

¹ We use the term “information” to refer to the content of utterances seen as semantic situations and the term “meta-information” to point to everything that is related to the presentation of information (semantic contents) in discourse. Most widely, in linguistics what we call meta-information is simply referred to as information.

rather intuitively in the first period of our research) play in the discourse.

1. Theoretical Assumptions

In the tradition of *kokugogaku* (Japanese Language Studies), even after the introduction of Western linguistic theories, there is still a trend in Japan consisting in seeking first of all idiosyncratic features of Japanese grammar (those features which are designed to highlight the clear differences between Japanese and other types of languages). Indeed, we also think that it is possible to build more than one *general* theory (or model) of language starting with any language, and that the resulting theories will most probably differ from one another. Just recall that – despite the presumed *universal* framework – the fundamental differences between two generative syntactic theories (Chomsky’s constituency-based syntax and Saumjan’s application-based syntax) inevitably reflected the differences between English (positional syntax) and Russian (flexional syntactic markers).

It has been shown that functional linguistics can be formalised using set-theoretical modelling techniques². The recurrent tenet of functionalist approaches is supported by the fact that some linguistic structures can be seen as co-occurring (“present” in expressions, named as *syntagmatic*) and the others as virtual (“absent” from expressions, named *paradigmatic*). Let us reword this notional dichotomy³ in the following way: (a) structures which co-occur in the same expression are *explicit* whereas (b) structures which must be inferred or completed by cognitive processes are *implicit* (context-dependent). It is well known that the context-dependency of speech is fundamental for explaining the partiality of linguistic expressions. Consequently, it constitutes the foreground of the bi-dimensional nature of linguistic structures. There is much evidence that during communication processes, natural languages exhibit various context-dependent characteristics. Thus, in our approach, we extend the notions of paradigmatic structures because we consider that, in a similar way to syntagmatic structures, the former can also be organised in hierarchical layers. Because the syntagmatic relations are characteristic of co-occurring structures, the paradigmatic relations cannot be defined but with respect to the former. The representations of paradigmatic structures when used in

bigger linguistic units may combine with the representations of syntagmatic structures. Let us call the former *paratactic* and the latter *syntactic expressions* (constructs).

In our approach, we also take advantage of the concept of “privative opposition” (one term of which is *marked* and the other – *unmarked*) proposed by Structuralists and used in order to distinguish between primary and secondary functions of grammatical categories (Jakobson, and many other Functional Structuralist linguists). As Givón T. (1995, p. 9) put it: “*the notion of markedness entered structural linguistics via the Prague School, initially as a refinement of Saussure’s concept of the valeur linguistique in binary distinctions. The Pragueans noted that binary distinctions in phonology and grammar were systematically skewed, or asymmetrical. One member of the contrasting pair acted as the ‘presence’ of a property, the other as its ‘absence’*”. Let us emphasize also that the unmarked term of an opposition is more context-dependent than the marked term and is therefore likely to express more numerous secondary functions.

2. *Wa, Ga* and Other Similar Particles

For modern linguists, *wa* and *ga* particles constitute one of the most interesting and arduous problems of Japanese grammar, but these particles cannot be explained properly without taking into account the other particles that belong to the same classes of morphemes that *ga* and *wa* represent; i.e., “case” particles (*kaku-joshi*) and “concordance” particles (*kakari-joshi*), also called more recently “collection” particles (*toritate-joshi*). We will draw attention to the fact that in the structure of the Japanese language some grammatical morphemes refer to *contiguity* (case particles) whereas others refer to *similarity* (concordance particles). Therefore, the Japanese theory of kernel grammar should take into account not only syntagmatic (actual, *in praesentia*) relations but also paradigmatic (virtual, *in absentia*) relations. In this paper, we argue that in Japanese (and in all other languages) at least in simple sentence structures, SUBJECTS, OBJECTS, TOPICS and FOCUSES seem to be at the same time the result of both *syntagmatic* organisation of discourse and *paradigmatic* mappings between virtual (implicit) concept representations. Let us emphasize that whenever a constituent with *wa* or *ga* particle appears, it should not automatically be recognised either as a SUBJECT (with *ga*) or as a TOPIC (with *wa*). Indeed, (a) the *ga* particle can refer to many syntactic functions (such as Object, Location etc) other than the SUBJECT itself and (b) the *wa* particle cannot systematically be explained as a marker of TOPIC only.

² Cf. Pogonowski J. (1979)

³ Cf. De Saussure F., the founder of the classical structural linguistics.

European grammars are based upon a sentential predicate structure (with obligatory SUBJECT) whereas, in Japanese, since there is no morphological agreement between SUBJECT and PREDICATE, the SUBJECT constituent is optional and the Predicate is the only obligatory constituent of the sentence. Of course, it is always possible to supply the SUBJECT of the sentence mentally, but the fact that two different morphemes may be placed after the SUBJECT is the cause of many interpretation problems. The advocates of the generative trends in linguistics consider *wa* as a marker of the TOPIC and *ga* as a marker of the SUBJECT. However, this interpretation is not satisfactory because it introduces a deletion rule concerning the *ga* particle before the *wa* particle (i.e.: *ga* + *wa*).

Furthermore, we assume that this interpretation fails to explain other possible meanings of the Japanese *wa* and *ga* particles. The particle *ga* can refer to more than one syntactic function (such as that of OBJECT or LOCATION in Space or Time, etc.), and the particle *wa* can also be attached either to a SUBJECT or to a TOPIC. As a matter of fact, we can observe the same opposition between *wa* and *ga* when they are attached to SUBJECT, OBJECT and other kinds of phrases

2.1. Concordance Particles as Membership Markers

Generally speaking, the concordance particles are markers of *reflexive and analogical identity* in the set-theoretical sense. The figure below (Fig.1) shows how some of these particles can be classified according to the criterion of “being the member of a selected element of virtual set”.

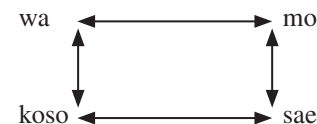
	reflexive identity	analogical identity
simple membership	<p>は a wa</p> <p>indication</p>	<p>も a mo</p> <p>comparison</p>
membership and inclusion	<p>こそ a koso</p> <p>insistence</p>	<p>さえ a sae</p> <p>concession</p>

Fig. 1. Concordance particles as membership markers

The meanings of {*wa*, *mo*, *koso*, *sae*} particles as *membership* markers are as follows :

- (1) ***wa* – indication** : an element *a* belongs to the set *A*, i.e. : $a \in A$
 #1. 磁石は鉄を引きつける。
Jishaku wa kurogane o hiki-tsukeru.
 (Magnets attract iron.)
- (2) ***mo* – comparison** : the element *a* belongs to the set *A*, this membership being established with respect to *b* which is another element belonging to the same set *A*, i.e. : $a, b \in A$
 #2. 今日もまた雨です。
Kyoo mo mata ame desu.
 (Today, too, it is raining.)
- (3) ***koso* – insistence** : the element *a* belongs to the set *A* and *A* is a subset of *B*, i.e. : $a \in A, A \supseteq B$
 #3. あの建物こそ代表的な日本家屋です。
Ano tatemono koso daihyôteki-na Nihon-kaoku desu.
 (It is precisely this building that is representative of Japanese house architecture.)
- (4) ***sae* – concession** : the element *a* belongs to the set *A* where *A* is a subset of *B* and the identity of *a* is established by contrast with *b*, i.e. : $a \in B, b \in A, A \supseteq B$
 #4. 学者でさえ知られないことを彼は知っている。
Gakusha de sae shirarenai koto o kare wa shitte iru.
 (He knows things even that scholars do not know.)

Moreover, we observed that the concordance particles {*wa*, *mo*, *koso*, *sae*} can be characterized by a logical square in which {*wa/mo*} are opposed to {*koso/sae*}. The fact that the concatenations *koso+wa* and *sae+mo* are possible cannot serve as a counter-argument against this position. On the contrary, it constitutes the proof of the square character of {*wa/mo* || *koso/sae* || *wa/koso* || *mo/sae*} oppositions because no concatenation – neither **koso+mo* nor **sae+wa* – is acceptable. This can be explained by the contradictory relations in the logical square.



Indeed, particles can mark different kinds of logical relations in different

sentence positions (not only in post-nominal positions). Among others, we find one set-theoretical class (concordance particles) and one predicate-theoretical class (case particles). However, we do not wish to suggest that all the logical relations have their equivalents or one-to-one mappings in natural languages.

2.2. Predicate and Set-theoretical Identities

Let us consider the following two kinds of identity :

- (1) *a* is *b*. **p(a,b)**; i.e.: predicative identity of *a* with respect to *b* where **p** = isa,
- (2) *a* belongs to *A*. (**a ∈ A**); i.e.: set-theoretical identity⁴ of *a*.

For our purpose, the most important distinction to be made between different functions of the copula concerns the *identification* (assertion concerning the terms of relations) and the *classification* (assertion about sets and their elements or their subsets of elements). If we want to formulate both at the same time, we must consider that there are indeed two different orders in utterances: actual (explicit) and virtual (implicit). Recall the syntagmatic and paradigmatic axes above. An attempt to formulate the two orders at once is given below :

$$\{a \in A, b \in B; p(a, b)\}$$

where *p* = the verb “to be” considered as a 2-place predicate of the *isa* kind. The reading of such a formula would be something like this: “[*a* being *a*] taken as an (explicit) element of an (implicit) set *A* is recognised as *b* taken as an (explicit) element of another (implicit) set *B*”.

We claim that such twofold relations can be used to explain the Japanese utterances containing *wa* and *ga* particles not only when they

⁴ The identity problem in any language is closely related to the copula *to be*.

- (1) identification: (a) equality: *a is b*, (b) identity : *The Morning Star is Venus*.
- (2) attribution: (a) as a relation of belonging: *Socrates is a man*, (b) as the subset relationship: *Whales are mammals*.
- (3) implementation: (a) location: *John is in London*, (b) existence: *God exists*, (c) possession : *John has a car*, (d) ingredience: *The hand has fingers*.

The above relations have different properties as concerns reflexivity, transitivity and symmetry. This difference is not clearly made in natural languages where the same copula may be used for one or the other relation; and this is the cause of many traditional paradoxes in syllogistic reasoning.

correspond to the concepts of Subject and Topic. Indeed, they express special cases of each of the above identities: predicative identity for Subject and set-theoretical identity for Topic. Furthermore, in Japanese as well as in other languages, Subject and Topic are often associated in speech processes. Let us mention that it is precisely due to this fact that the properties of the *wa* and *ga* particles constitute a difficult problem in Japanese grammar.

In order to grasp the specificity of the predicate structure in Japanese, let us compare the Japanese identification sentence *a wa b da* (which is the reading of our formula: isa(a,b) with its English equivalent “a is b”. We can consider this problem in a contrastive manner from two different points of view; i.e.: (1) starting from Japanese and (2) starting from English.

(1) Starting from Japanese. First, let us analyse the Japanese sentence *a wa b da*. We said its English equivalent was “a is b” but, as the matter of fact, if we take into account all its nuances, they might possibly be translated in four different ways :

- 1. *a* exists as *b*.
- 2. ?*a* exists as being *b*.
- 3. As for *a*, it exists as *b*.
- 4. ?As for *a*, it exists as being *b*.

Versions 1 and 3 are felt as more natural than versions 2 and 4. Despite their “unusual” character, versions 2 and 4 can be justified by the fact that the Japanese copula “*da*” is sometimes (especially in written language) even today replaced by “*de aru*” (*de* the participial form of “to be” and *aru* “(to exist)”).

	reflexive identity	analogical identity
simple membership	<p>は a wa</p> <p>negative indication</p>	
membership and inclusion		<p>は a wa</p> <p>contrastive comparison</p>

Fig. 2 Contrastive *wa* particle

#5. お父さんが御病気では、いろいろと心配なことです。
O-tôsan ga go-byôki de wa, iro-iro to shimpai na koto deshô.
 (Your father being ill, you must be very much worried.)

But there is another reason why *da* can be replaced by *de aru*. Indeed, different particles such as *wa, mo, koso, sae, dake* etc. are allowed between *de* and the verb of existence *aru*.

If we use a model-theoretical interpretation of linguistic predicates, then it becomes possible to assume that all the structures are equipped with an identity relation $id(a)$, and the exceptions will have to be explicitly mentioned. Therefore, our model of the simplest **isa** relation would be as follows:

$$ISA = \{a \in A, id(a); b \in B, id(b) : isa(a, b)\}$$

Thus, two different representations can be proposed for two different Japanese utterances:

$$\begin{aligned} a wa b da. & \quad \{a \in A, id(a) : isa(a,b)\} \\ a wa b de wa nai. & \quad \{a \in A, id(a); b \in B, id(b) : not isa(a,b)\} \end{aligned}$$

(2) Starting from English. In order to understand the specificity of the Japanese predicate structure, let us consider the possible equivalents of the English reading of the same identification formula *a is b*.

1. *a wa b da.* 2. *a wa b de aru.*
3. *a ga b da.* 4. *a ga b de aru.*

Two particles *wa* and *ga* occur alternatively in the above four sentences and it is necessary to distinguish the differences of their meanings in order to explain the Japanese sentence structure: “*a wa b da*”. Before we do this, we must add that sentences 1-2 differ from 3-4 in that the former are considered to be natural whereas the latter may be used only in a specific context (for example: “emphasis” or “exhaustive listing”, cf. Kuno S. – 1970, 1973, 1977). On the other hand, if we compare both versions 1-3 with versions 2-4, some Japanese native speakers might prefer the former couple. The reason is that one would rather use such sentences in speech (2-4 versions belong rather to the written style).

Let us now concentrate on the noun phrase with *a* only. At first sight, nothing allows us to compare *wa* and *ga* with English articles *the* and *a* since we do not even use “the a” or “an a” in the English reading of the formula. Nevertheless, it is possible to point out a few similarities between

some features of the Japanese particles *wa/ga* and the features of articles in English (and in some other European languages). Both noun and verb phrases may be *given* (supposed/intended to be known to the addressee) or both may be *new* (supposed/intended to be unknown to the addressee). The Japanese speakers use the version 1 in the first case, and the version 3 in the second case. On the other hand, the noun phrase with *a* may be considered as denoting some *given* (meta)information (a *wa*) or *new* (meta)information (a *ga*) while the verb phrase is supposed to contradict the above by denoting the opposite kind of (meta)information (*new* and *given* respectively). Because of this contradiction, the Japanese versions correspond in English to a topicalised utterance (As for *a*, it is *b*) or to a focalised one (It is *a* that is *b*).

When speaking we communicate our representations of the World rather than point to the 'Reality'. In this respect, the Japanese *wa* and *ga* particles play roles which are in some way related to those of definite and indefinite articles in that both of them help mark the *given* and *new* information respectively.

When both SUBJECT and PREDICATE are *given*, the *wa* particle attached to the SUBJECT has one of the following degrees of information validity: *anaphoric* < *virtual* < *habitual* < *general* < *generic*.

#6. 桜の花は大変美しいです。
Sakura no hana wa taihen utsukushii desu.
 (Cherry blossoms are very nice.)

We interpret utterance #6 as having a “general” value, i.e. expressing common knowledge about flowers.

When both SUBJECT and PREDICATE are *new*, the *ga* particle attached to the SUBJECT has one of the following degrees of information validity: *cataphoric* < *actual* < *occasional* < *particular* < *specific*.

#7. お庭の桜の花が綺麗ですね。
O-niwa no sakura no hana ga kirei desu ne.
 (The cherry blossoms in your garden are beautiful, aren't they?)

We interpret utterance #7 as asserting a “particular” state of affairs. The flowers of this garden are beautiful.

WA CONTEXT (Given information)	+5	Generic
	+4	General
	+3	Habitual
	+2	Virtual
	+1	Anaphoric
(ambiguity zone)	0	(undecidable)
GA CONTEXT (New information)	-1	Cataphoric
	-2	Actual
	-3	Occasional
	-4	Particular
	-5	Specific

Table 1. Two dual scales of degrees of metainformative validity

Examples:

Utterances with all “given” information
(WA Context)

Generic

地球は太陽の周囲を回転する。
Chikyū wa taiyō no shūi wo kaiten-suru.
(The Earth gravitates around the Sun.)
人間は考える葦である。
Ningen wa kangaeru ashi de aru.
(Man is a ‘thinking reed’.)

General

一般の日本人は本をよく読む。
Ippan no Nihon-jin wa hon wo yoku yomu.
(In general, the Japanese read a lot.)
Onna-no-ko wa hayai mon’ da yo.
女の子は早いもんだよ。
(Girls grow up quickly.)

Habitual

郵便配達人は1日2回郵便物を配って歩く。
Yūbin-haitatsujin wa 1-nichi 2-kai yūbin-butso wo kubotte aruku.
(The mailman delivers the mail twice a day.)

Utterances with all “new” information
(GA Context)

Specific

青空に富士山がくっきり浮き上がって見える。
Aozora ni Fujisan ga kukkiri ukiagatte mieru.
(Mt. Fuji stands out in bold relief against the blue sky.)

Particular

私の横に少年が寝ていた。
Watakushi no yoko ni shōnen ga nete ita.
(There was a young man sleeping on my side.)

Occasional

涙もなく涙がぽたぽた落ちていた。
Wake mo naku namida ga potapota ochita.
(Her tears flowed drop by drop without reason.)

Virtual

鷹は出来る限り高く飛ぶ。
Tobi wa dekiru kagiri takaku tobu.
(The falcon flies as high as it can go.)
戸は開かれる。
To wa hirakareru.
(The door opens ⇒ works).

Anaphoric

二つの道はそこで出会っている。
Futatsu no michi wa soko de deatte iru.
(Both roads meet over there.)

Actual

潮が引いている。
Shio ga hiite iru.
(The tide is going out.)

Cataphoric

兄さんが怒るよ。
(Your elder brother will be angry, you know ?)

It is precisely because the particles *wa* and *ga* may have the values described above that Japanese logicians sometimes mention them when discussing the logical concepts of Universal and Existential quantifiers. (Notice in passing that logical Quantification is often mentioned by European and American linguists when explaining the usage of articles in languages which have them.) As a matter of fact, indeed, the particles *wa* and *ga* can be compared (to some extent accurately) to articles because both of them play an important role as markers of the meta-informative value of utterances as “given” or “new”. However, we stress that the Japanese *wa* and *ga* particles probably do directly mark metainformative validity, whereas definite and indefinite articles are not specific markers of the “given” and “new” information.

2.3. Dynamic character of the «boomerang relation» between *wa* and *ga* particles

We have seen above that the particle *wa* may have two different interpretations (as a Topic marker in an utterance where there must be a small pause after *wa*, and as a Subject marker in an utterance where there is no pause). In modern Japanese, it is also the fact that the particle *ga* causes ambiguity in the written language - but not in conversation where intonation is different. Utterance #8 has two readings depending on the way it is pronounced, the first reading as the Subject marker, the second one as the Focus marker (with stress on the noun and intonational pause after *ga*)

#8. 太郎が来た。

Tarō ga kita.

(1) Taro came. (2) It's Taro who came.

We argue that *wa* and *ga* particles present to some extent historically motivated ambiguities which can be explained as the result of a *boomerang* relation between these morphemes. Although the *boomerang* relation is unknown in Structural Linguistics, there is much evidence that in Japanese grammar such a relation (which we defined as a *double privative relation*) should be added to the realm of structuralist “oppositions” that proved to be very useful in language studies.

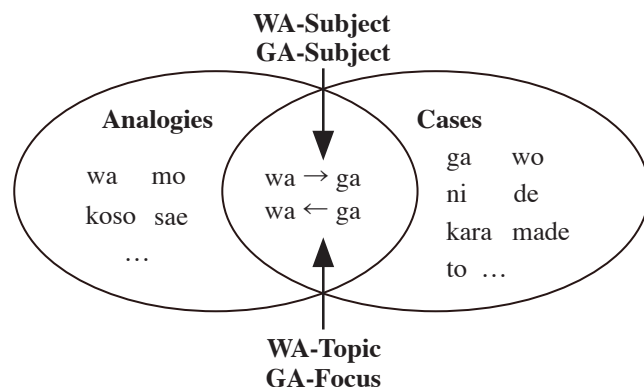


Fig. 3. *Bilateral relation between wa and ga particles as elements of analogies and cases*

As we consider that both *wa* and *ga* particles are now undergoing mutations, we introduced the ‘boomerang relation’ defined as a special kind of bilateral or double privative opposition⁵. Such opposition uses the notion of markedness⁶ of linguistic forms with respect to their categorial meanings and is, in our view, characteristic of transitory (dynamic) situations. Thus, we claim that by introducing the notion of ‘boomerang opposition’ and by using that of markedness we can capture more clearly than before the complex character of the Japanese *wa* and *ga* particles.

“The start and finish of any mutational process coexist in the synchrony and belong to two different subcodes of one and the same language. Hence, no changes can be understood or interpreted without reference to the system which undergoes them and to their function within this

system; and, vice versa, no language can be fully and adequately described without an account of its changes in progress. Saussure’s ‘absolute prohibition to study simultaneously relations in time and relations within the system is losing its validity. Changes appear to pertain to a dynamic synchrony.’ (Jakobson R. 1973, pp. 22-23)

Indeed, two different functions (τ and σ beneath) should be recognised as the origin of the ‘boomerang relation’ between *wa* and *ga* particles in contemporary Japanese.

$$\tau : WA \rightarrow GA \text{ and } \sigma : GA \rightarrow WA$$

These two different functions appear in Modern Japanese in two different types of utterances⁷:

- (1) simple utterances with SUBJECT (and/or OBJECT)
 $GA \geq_s WA$, where $S = \{ga - \text{SUBJECT} \amalg wa - \text{SUBJECT} \Sigma\}$ ⁸

- #9. 犬は主人の後に従って歩く。
Inu wa aruji no ushiro ni shitagatte aruku.
 (The dogs walk behind their master.)
 #10. 犬が主人の後に従って歩いている。
Inu ga aruji no ushiro ni shitagatte aruite iru.
 (A dog is walking behind its master.)

- (2) extended utterances with TOPIC (and/or FOCUS).
 $WA \geq_T GA$ where $T = \{wa - \text{TOPIC marker, ga} - \text{FOCUS marker}\}$

- #11. 生きるべきか、死ぬべきか、これが問題点だ。
Ikiru beki ka, shinu beki ka, kore ga mondaiten da.
 (To be or not to be, that is the question.)
 #12. この作家は、皆がよく知っている。
Kono sakka wa, minna ga yoku shitte iru.
 (As for this writer, everybody knows him well.)

Hence we say that the particles *wa* and *ga* have a partially equivalent area with respect to the domains T and S :

⁷ See below (3.1. Layers of Discourse and Centres of Attention)

⁸ See below in *Information and Meta-Information (Information Validity)* the definition of Σ and Π .

⁵ See Włodarczyk A. (1980, 1982, 1988)

⁶ Cf. Jakobson R. (1956)

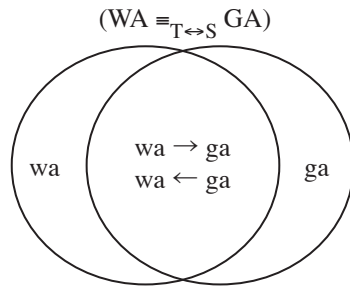


Fig. 4. Bilateral (boomerang) relation between wa and ga particles

Thus, *wa* → *ga* mapping share the expression properties on the level of extended utterances and *ga* → *wa* mapping share the expression properties on the level of simple utterances. But at the same time the particle *wa* has more attributes in the domain T and the particle *ga* has more attributes in the domain S. Hence, their roles are only similar because each one has its proper set of attributes which are different from those of the other.

Moreover, we claim that the TOPIC – GLOBAL COMMENT relation and FOCUS – LOCAL COMMENT relation are the result of a coincidence of information presented as “given” and information presented as “new”. Thus,

(1) when the SUBJECT is *given* and the PREDICATE is *new*, the particle *wa* is used and displays the identifying *exocentric* feature (*there is x who does something*). In this case the noun-phrase with *wa* is a TOPIC.

“Given” Subject (*wa*) + “New” PREDICATE

#13. 空は青い。

Sora wa aoi.

(As for the sky, it is blue [now or in general])

(2) when the SUBJECT is *new* and the PREDICATE is *given* the *ga* particle is used and displays the identifying *endocentric* feature (*it is x that does something*). In such an utterance, the noun-phrase with *ga* is a FOCUS.

“New” Subject (*ga*) + “Given” Predicate

#14. 空が青い。

Sora ga aoi.

(It is the sky which is blue [now or in general])

From our perspective, we find that semantic situations as expressed by linguistic predications can be divided into two kinds of validation of the propositional truth. As we have said, we further distinguish, in each kind of predication, five degrees of “given” information (*anaphoric* < *virtual* < *habitual* < *general* < *generic*) and five degrees for “new” information (*cataphoric* < *actual* < *occasional* < *particular* < *specific*).

2.4. Subject, Topic and Focus in Japanese

From our point of view, TOPIC and FOCUS are loosely related to belonging (superset and subset) relations because FOCUS – which is meant to be “new” (it is x that...) – and TOPIC – which is meant to be “given” (there is an x which...) – are conceptualised in their virtual relations to classes and/or their elements.

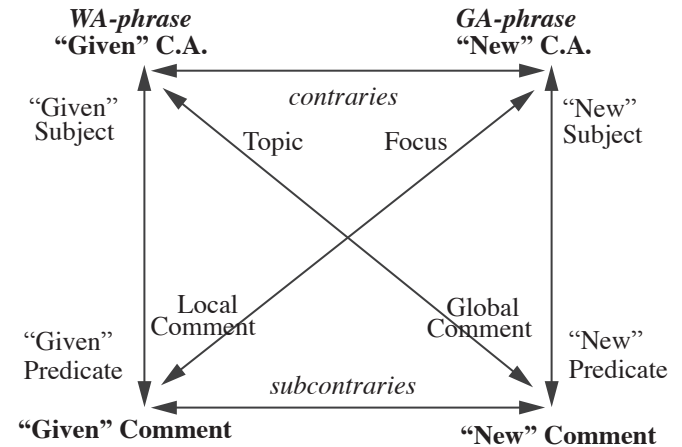


Fig. 5. Logical square of distinctions between wa- and ga-phrases, the Centres of Attention (C.A.) and the “Given” and “New”

It appears that utterances with TOPIC and/or FOCUS are the result of combining set-theoretical identity relations with semantic arguments. It may happen that TOPIC corresponds to the SUBJECT of an utterance (see utterances #1, #6, #7, #8 above and #15 hereafter).

#15. 留学生はアジアやヨーロッパばかりでなく、アフリカからも来ています。

Ryûgakusei wa Ajiya ya Yoroppa bakari de naku, Afurika kara mo kite imasu.

(As for foreign students, they are coming not only from Asia and Europe but also from Africa.)

In #15, in Japanese, the TOPIC-SUBJECT is simply viewed as an element belonging to a set or a subset included in another set. But it often happens that there is no such correspondence (#16 and #17).

#16. お父さんが御病気では、いろいろと心配なことです。

Otôsan ga go-byôki-de wa iro-iro-to shimpai-na koto deshô.

(Your father being ill, you certainly worry very much.)

#17. バスの停留場は家から歩いて5分とかからない。

Basu no teiryûjô wa ie kara aruite 5-fun to kakaranai.

(As for the bus stop, it is within five minutes' walk of my house.)

In #16, “otôsan ga go-byôki-de wa” is a topicalised clause where “de” of “go-byôki-de” is of course a participial form of “da/de aru” (to be).

In other utterances, because the Japanese verb has no infinitive form, actions and states cannot be directly topicalised. For this reason, they must be nominalised (or pronominalised) beforehand (using one of the so-called “formal nouns”: *no, koto, mono, tokoro* etc.).

Talking about entities, we mean their properties and relations between them. In an utterance with the particle *wa* with no pause after *wa*, we interpret the nominal phrase as a SUBJECT which has the same informative value as the predicate. Such utterances in Japanese express some general (or even generic) assertion.

#18. 駝鳥が飛ばないことを除いては、鳥は飛ぶ。

Dachô ga tobanai koto wo nozoite wa, tori wa tobu.

(With exception of the ostrich that does not fly, all birds fly.)

In #18, the predicative relation concerns a generic property of birds. On the other hand, utterances containing a TOPIC or FOCUS are always intonationally marked. That means that the Japanese particles *wa/ga* are pronounced with a slight stress, and a short pause follows the TOPIC / FOCUS part of the sentence.

#19. 空は、今日、本当に青いですね。

Sora wa, kyô, hontô ni aoi desu ne.

(The sky is blue today, isn't it? ⇒ (you see) the sky, it is really blue today.)

“Today's sky” is taken here by comparison with “another day's sky”. It is pointed out as the element having the property “blue”.

Notice that neither the Topic nor the Focus need not correspond necessarily to the Subject of the utterance (#20 and #21).

#20. 仕事の方は、どのくらい進んでいます？

Shigoto no hô wa, dono kurai susunde imasu ?

(As for your work, did you make any progress ?)

#21. 歩き方までが彼の性格を物語っていた。

Aruki-kata made ga kare no seikaku o monogatatte ita.

(The very way that he walked showed his character.)

To sum up, we propose a dichotomous treatment of TOPIC and FOCUS. TOPIC and FOCUS constitute salient fragments of information and, together with SUBJECT and OBJECT, contribute to point to certain information chunks introduced into the discourse as “given” or “new” meta-information (centres of attention). When there is no contradiction between information validity of the basic constituents of an utterance (i.e.: when *the centre of attention phrase* and its *comment phrase* are both either “given” or “new”), we have SUBJECT-PREDICATE utterances with (either “given” or “new”) global information validity. On the other hand, TOPIC and FOCUS are in essentially opposed (contrary) relations with the comment part of the utterance with respect to the validity of information they refer to.

3. Towards the Formal Analysis

In this part of our paper we describe an attempt to reconstruct formally the basic concepts which we have presented so far during all the stages of our research on the problems related to the use of the Japanese *wa* and *ga* particles mostly in the framework of functional linguistics. The aim of the reconstruction we present here is twofold: (a) to better formalise concepts elaborated in the functional framework and (b) to contribute to the process of building a formal functional interpretation of linguistic phenomena. The logical reconstruction of a concept is the “procedure which consists in (1) revealing all the primitive (non definable) terms of the given concept, (2) describing its characteristics using some adequate postulates, (3) giving the precise definitions of all other terms, (4) setting the deduction order in the set of statements created by the procedure (i.e.: fixing their proofs and

hypotheses). (Pogonowski J., 1997, p. 78).

3.1. Layers of Discourse and Centres of Attention

Functional linguistics emphasised the multi-functional character of linguistic units. For example, the *agent* of an utterance may be at the same time its SUBJECT. Such facts suggest that various mechanisms involved in the production and understanding of messages are activated in the mind simultaneously. On the other hand, the linear character of linguistic expressions reflects the incremental creation of various processes which create different “centres of attention” throughout the discourse. The superposition of “participants in semantic situations” (agents, experiencers, patients etc.) with “centers of attention” (subjects, objects, topics, focuses etc.) corresponds to the distinction between *information* and *meta-information* constituents respectively.

In our model therefore, we shall distinguish three parallel layers. Among the layers which determine the composition of information, we distinguish for the sake of analysis one such “zero-level” layer which could enable us to account for idealised semantic relations even though speakers never express them as such, i.e. without selecting any centre of attention. ZERO-ORDER LAYER (or INFORMATIVE LAYER), usually referred to as ‘sentence level’, is composed of idealised semantic structures of information. Thus, when analysing an utterance such as *Brutus killed Caesar*, linguists – using the very high level of semantic description – represent “Zero-order” information (or “referential” information) indicating merely the name of the situation, its roles, participants and propositional validity as follows:

sit |= <kill, killer : Brutus, killee : Caesar, true>

We propose to reserve the term ‘sentence’ for naming the adequate level of structures referring to ‘pure’ semantic information in *representation* only (out of any context). Consequently, we will use the term ‘utterance’ whenever we refer to the ‘context dependency’ of linguistic *expressions*. Another layer which conveys contents about some distinguished constituents of the lower layer will be called *meta-informative* (information about another information) or *1st order* layer. The last layer already belongs to the general knowledge which is rather loosely related to language. However, it shares its linear character with language in that it conveys information in time. The layers distinguished are shown below:

INFORMATIVE LAYER (0-order)	<i>layer of idealised semantic units (usually referred to as ‘sentences’)</i>
META-INFORMATIVE LAYER (1 st order)	<i>layer of utterances (linguistic units uttered in a context)</i>
COGNITIVE LAYER (2 nd order)	<i>layer of texts/dialogs.</i>

Indeed, let us observe that in the following series of utterances (1-6) the “zero-order” information is the same. What changes from one utterance to another is the distribution of meta-information – i.e.: centres of attention:

- (1) *Brutus killed Caesar.* (active SUBJECT & passive Object)
- (2) *Caesar was killed by Brutus.* (passive SUBJECT & active indirect Object)
- (3) *As for Brutus, he killed Caesar.* (TOPIC, active SUBJECT & passive Object)
- (4) *As for Caesar, he was killed by Brutus.* (TOPIC, passive SUBJECT & active indirect Object)
- (5) *It was Brutus who killed Caesar.* (active FOCUS & passive Object)
- (6) *It was Caesar who was killed by Brutus.* (passive FOCUS & active indirect Object)

It is possible to express even more compound centres of attention which may belong to the same level or to different levels of discourse.

(3bis) *As for Brutus, it was he who killed Caesar.* (TOPIC & active cleft FOCUS)

(4bis) *As for Caesar, it was he who was killed by Brutus.* (TOPIC & passive cleft FOCUS)

or even

(4ter) *As for Caesar, it was he whom Brutus killed.* (TOPIC & active cleft FOCUS)

It is possible therefore to distinguish between units of three different hierarchically arranged expression types according to the following levels of complexity of utterances.

- | | |
|--|--|
| 1. EXPRESSION (1 ST LEVEL COMPLEXITY): | compound linguistic unit built of items from the lexicon |
| 1.1. simple utterance | expression in its basic form |
| 1.2. extended utterance | enriched (extended) expression |
| 2. TEXT/DIALOG (2 ND LEVEL COMPLEXITY): | ordered set of linguistic expressions |

There are two levels of complexity of linguistic expressions. We will refer to them as the 1st and 2nd level complexity expressions. Using the criteria of the scope and of the compositional character of *centres of attention*, we distinguish *simple* and *extended* utterances which belong to the 1st level of complexity of linguistic expressions. The 2nd level complexity expressions are units of the layer of texts/dialogs.

3.2. Degrees of validity of information and centres of attention

Validation of information is a necessary condition of its *meta-informative* partitioning into two kinds of “centres of attention”: “given” or “new”. Degrees of validation of utterances can be represented by a dual scale as follows:

<i>Degrees of “Given”</i> (Σ)	<i>Degrees of “New”</i> (Π)
+5. Generic (Gen)	–5. Specific (Spe)
+4. General (Gal)	–4. Particular (Par)
+3. Habitual (Hab)	–3. Occasional (Occ)
+2. Virtual (Pot)	–2. Actual (Act)
+1. Anaphoric (Ana)	–1. Cataphoric (Cat)

The labels of the degrees of semantic information validity are arbitrary and intuitive: the *generic* and the *specific* degrees are seen here as the extreme values of the proposed scale. For instance, the degree –2 of Π is labelled as *actual* but it could also be labelled, for instance, as “real”. *Generic* could in some cases be called universal, *general* – regular, *occasional* – irregular, *cataphoric* – unexpected or improbable, *anaphoric* – probable etc. The distance between the five degrees in the scale is arbitrarily equal (±1, ±2, ±3, ±4, ±5). But intuitively the distances between the notions labelled by each degree may be felt as different. Let us point also to the ambiguity zone we call *undecidable*. As a matter of fact, we observed that in some linguistic contexts the opposition boils down to almost nothing. This zone

is very useful to describe what functionalist linguists call “concurrent uses of opposed categories” or “neutralised uses of oppositions”. As a matter of fact, neutralisation is never complete and the use of one or another marker always entails some semantic nuances⁹.

Degrees of “Given” (Σ)

Generic

Eng.: Whales are mammals.
Fre.: Les baleines sont des mammifères.

General

Eng.: That’s what you English always make. (J. Conrad, *Lord Jim*)
Fre.: C’est ce que vous autres, Anglais, faites toujours.

Habitual

Eng.: He used to go to the theatre every week.
Fre.: Il allait au théâtre toutes les semaines.

Virtual

Eng.: There may be those who could have laughed at his pertinacity. I didn’t. (op. cit.)
Fre.: Certains, peut-être, ont pu rire de son entêtement. Moi pas.

Anaphoric

Eng.: Peter didn’t attend the ceremony. (People say) **he was ill**.
Fre.: Peter n’a pas assisté à la cérémonie. (On dit qu’) **il était malade**.

Degrees of “New” (Π)

Specific

Eng.: Mary has two beauty spots on her left cheek.
Fre.: Marie a deux grains de beauté sur la joue gauche.

Particular

Eng.: All women are pretty, **some of them are really beautiful**.
Fre.: Toutes les femmes sont jolies, **quelques unes sont vraiment belles**.

Occasional

Eng.: He used to get up early in the morning, but on that day **he slept one hour longer**.
Fre.: Il se levait toujours tôt le matin mais, ce jour-là, **il a dormi une heure de plus**.

Actual

Eng.: I saw him in the garden. **He was reading a book**.
Fre.: Je l’ai aperçu dans le jardin. **Il était en train de lire un livre**.

Cataphoric

Eng.: It was all quiet around. Suddenly **a car braked very hard**.
Fre.: Tout était calme. Soudain, **une voiture a freiné très fort**.

⁹ See the study on verbal aspect in Polish and Russian (Włodarczyk H. 1997).

In order to gain more abstraction, we borrowed the metaphor of topological space and the Greek symbols¹⁰ Σ and Π following Igarashi J. (1993) who proposed to apply topological notions to linguistic phenomena using – in her work on verbal aspect in Japanese – a pair (more precisely, a dual pair) of topological space formation operators Σ and Π . Viewed as topological entities (spaces or points), SUBJECTS can be compared to single distinguished points in information spaces. TOPICS and FOCUSES are mappings between topological spaces and points. Metaphorically, TOPICS are *broadening* (points \rightarrow spaces) and FOCUSES are *narrowing* (spaces \rightarrow points) topological operations¹¹. In our application of topology, Σ -type information is viewed as a “broadening” space which, in this approach, exhibits the following five degrees of validity of situation types: *anaphoric* < *virtual* < *habitual* < *general* < *generic*. In accordance with logical duality, we claim that information is of Π -type when the degree of its validity is inverse to that of Σ . Thus, Π is a “narrowing” space with the values: *cataphoric* < *actual* < *occasional* < *particular* < *specific*.

3.3. Genericity and specificity as defined by modal temporal operators

Our linguistically (informationally) motivated metaphors correspond to some solutions made in First Order Logic where arguments of predicates can be “universally” or “existentially” quantified and to those – in Modal Logic – where statements are modified by “necessity” and “possibility” operators among others. On the other hand, our “mental situations” correspond to the “possible worlds” of Modal Logic and to the “total states” of Propositional Dynamic Logic. In the framework of many-valued systems of logic, one can find many attempts to overcome the difficulties of truth values¹² introducing such concepts as “anaphoric modality”, “degree of

confidence”, “set-temporal truth”, “dimensions of truth”, etc. For instance, [Belnap, 1977] proposed other parameters or combinations of parameters than the mere *per se* truth in order to enlarge the valuation capacities of logical formulae. From our point of view, such a four-valued system of logic introduces *anaphoric* parameters into the “truth value” system.

In modal temporal logic¹³, it is easy to define genericity and specificity using two temporal connectives: [F] *henceforth* (at all future times) and [P] *hitherto* (at all past times).

The *generic* value of an expression A is defined as “always necessarily true in past, present and future”:

$$A = [P]A \wedge A \wedge [F]A$$

and the *specific* value of an expression A can be defined as “possibly true in either past, present or future”:

$$\diamond A = \langle P \rangle A \vee A \vee \langle F \rangle A$$

The above formulae are dual, what can be shown by the following tautology

$$\diamond A = \neg \neg A$$

It is possible to define genericity and specificity as the limits of informative validity. In our terms, genericity is the extreme limit of Σ and specificity is the extreme limit of Π . The remaining dual values are organised as intermediary degrees.

The editor of Werth P. (1999, p.351) states in his preface that in NPs the **generic** is “a *family* of senses: the horse: ‘whole set’, (b) horses: ‘every member of set’ and (c) a horse: ‘(any) one member of set’. According to Werth, one should use concepts such as totality, membership, and single membership in order to define the difference between the generic and specific senses of noun phrases.

Let us add that Werth P. (1999, p.350) also proposed to analyse at the same time “generic” NPs with “generalising” VPs on the one hand, and “specific” NPs with “iterative” VPs on the other hand. In our more general terminology, the types of NPs + VPs mentioned correspond respectively to the utterances with only *given* or only *new meta-informative* values.

¹⁰ In Set Theory, the symbol Σ stands for union and the symbol Π for intersection. It is difficult today to find out why, when used, in Elementary Predicate Logic the symbol Σ stands for the Existential Quantifier and the symbol Π for the Universal one. In the history of mathematics, a rather curious comparison has been made by Peirce between the logical quantifiers and two set-theoretical operations Union and Intersection. Peirce claimed that the Universal and Existential Quantifiers could be connected to the Intersection and Union respectively. In a paper published later, Peirce drew a conclusion that this connection was incorrect and that $\Sigma_j x_j$ and $\Pi_j x_j$ are only similar – in his notation – to the Union Π and Intersection Σ (cf. Moore, 1988, p. 104, quoted after Gochet & Gribomont, 1990, p. 70)

¹¹ Cf. Włodarczyk A. (2001a).

¹² Let us mention the recent discussion about genericity by (Carlson G. & J. Pelletier, 1994).

¹³ Goldblatt R. (1992, p. 40.)

3.4. Subject and Object

We assume that linguistic messages are products of conversions which take place in our brains between parallel and sequential processes. These conversions deserve attention and should be considered as a key problem of natural language analysis/synthesis. The centres of attention which are built and maintained parallel in conceptual representation, when converted to sequences, may either (a) coincide (i.e. be integrated into the same unit) or (b) follow each other as two separate units. In both cases, once linearised (once information is converted to a message), SUBJECTS and OBJECTS can be analysed as *syntactic constituents* which represent salient parts of utterances.

Let us recall that traditional partitionings of the utterance into (a) dichotomous parts: *SUBJECT* | *PREDICATE* and (b) trichotomous parts: *SUBJECT* | *PREDICATE* | *OBJECT* have a long history both in logics and linguistics. The bipartite distinction of simple propositions goes back as far as to Aristotle's work "De Interpretatione". Geach (1979) pointed out that the Greek philosopher wrongly abandoned his prior position (borrowed from Plato) that any predicative sentence consists of two parts, a name (*onoma*) and a verb (*rhema*), and adopted the view that though a sentence has two parts both of them are 'terms' (*horoi*)¹⁴. Nowadays, we know from Classical Elementary Logic that both SUBJECTS (starting from the 1st Order Logic) and PREDICATES (in the Higher Order Logics) can be treated as variable terms.

In Logic, the *predicate* is a primitive notion but it is clear that besides its foundational role of class builder (i.e.: with respect to its extension), it establishes relations between the members (elements of the classes) themselves. For example, the predicate 'to be big' – besides its role of building the class of objects which are *big* – establishes the equivalence class relation between the objects in question. Hence, even such a unary predicate as 'to be big' is a relation and its extensional aspect ('comprehension') can be considered as its 'meaning'. Thus, *informative content* of linguistic utterances can be seen as comprehension ("extensional meaning") which is inseparable from predication and class formation.

"The three notions 'predicate', 'class' and 'meaning' refer mutually to one another, and it is not possible to define all three of them. On the

*other hand, if the notion of 'predicate' is considered as undefinable, i.e.: if it is taken as a primitive notion, the two remaining ones may be reduced to it."*¹⁵ (Grize J.-B. 1967, p. 149).

We claim that predicate-like and set-like relations co-occur in linguistic messages and that they basically represent respectively syntactic and paratactic relations (a) between the Subject or the Object (the main centres of attention) and the Predicate (the comment on the Subject), on the one hand, and (b) between the members of the classes to which the Subjects or the Objects belong, on the other hand.

We follow the European linguistic tradition where much attention is being paid to the basically bi-dimensional nature of linguistic relations which are considered to be syntagmatic (combinatory) and paradigmatic (selectional). In our approach, we propose to make a distinction between *syntactic* relations (on the syntagmatic dimension) and *paratactic* relations (on the paradigmatic dimension). The Subject and the Object are noun phrases which belong to different constituency levels and, consequently, their *syntactic* scopes are different: the Subject is syntactically *global* and the Object is *local*. In addition to that, the Subject and the Object are directly connected by another *syntactic* relation which is the dependency relation where the *Subject implies the Object*.

We propose to introduce the notion of "expressivity protocol" (expressivity defined as the set of all possible propositions having the same meaning). Indeed, we consider that SUBJECTS and OBJECTS are not 'terms' (arguments) themselves but only their 'identifiers' (selectors). As a matter of fact, since Elementary Logic uses the notion of 'predicate' only formally the interpretation of the formulae must follow the formal truth. Thus, when referring to semantic arguments of sentences, linguists should not mistake using the logical notion of 'predicate' as a meta-language to describe configurations of semantic roles for using this notion as a syntactic model of a sentence. In passing, it must be emphasized that the valency of verbs should not be considered as logical predicates either.

Just take as an argument in favour of our paratactical hypothesis the fact that languages have various markers which indicate relations based on equivalence classes (i.e.: relations between objects belonging to equivalence

¹⁴ See Geach, P. T. (1979) for discussion.

¹⁵ "Les trois notions « prédicat », « classe » et « sens » renvoient ainsi l'une à l'autre et il n'est pas possible de les définir toutes trois. En revanche, si celle de prédicat est considérée comme un indéfinissable, c'est-à-dire si elle est prise comme notion primitive, les deux autres peuvent s'y ramener."

classes). For example, adverbs such as ‘also’, ‘even’, ‘only’, ‘solely’, ‘exclusively’ etc. refer to such concepts as “comparison”, “concession”, “analogy”, “exclusion” etc. In Japanese, the particles ‘wa’ (identity), ‘mo’ (also, even), ‘koso’ (precisely), ‘sae’ (even), ‘dake’ (only), ‘shika ... nai’ (exclusively), ‘nomi’ (merely) recently often referred to by Japanese linguists as “toritate-joshi” are a fine example of this issue because particles are grammatical morphemes, hence all the above concepts are “grammaticalised” (!) in this language.

3.5. Topic and Focus

Centering of utterances can be done on three syntactic levels of complexity: simple utterance, extended utterance and text or dialog. The hierarchical organisation of different centres of attention of discourse is shown in Table 2.

TYPE OF EXPRESSION	CENTRE OF ATTENTION	
	Global	Local
1.1. Simple UTTERANCE	SUBJECT	OBJECT
1.2. Extended UTTERANCE	TOPIC	FOCUS
2. TEXT / DIALOG	GENERAL THEME	PARTICULAR THEME

Table 2. *Pivots of discourse*

Applying again topological spaces to building models of utterances, we used homotopy, namely its two particular kinds (“explosive” and “implosive” deformations of spaces), in order to represent the duality of the TOPIC/FOCUS distinction. TOPIC and FOCUS constitute salient fragments of information and, together with the SUBJECT and the OBJECT, help activate several centres of attention the values of which are either similar and congruent ($\Sigma + \Sigma$ or $\Pi + \Pi$) or opposite and disrudent ($\Sigma + \Pi$ or $\Pi + \Sigma$) with the PREDICATES or COMMENTS.

In short, TOPIC and FOCUS are salient fragments of information in discourse; with SUBJECT, they are manifestations of the activation of several centres of attention. TOPIC and FOCUS concern the movement of the speaker’s attention going respectively from “oneness to multiplicity” (exclusion, “explosion”) and from “multiplicity to oneness” (inclusion, “implosion”).

4. General Conclusion

The Japanese particles *wa* and *ga* have their historical roots in two different

classes of particles. The particle *ga* together with *o*, *ni*, *de*, *e*, *to*, *kara*, *yor*i, *made* etc. indicate cases (*ga*-type particles) and the particle *wa* together with *mo*, *koso*, *sae*, *dake*, *bakari*, *shika ... nai* etc. indicate set-like relations (*wa*-type particles). Except as for **ga + wa*, the members of each class can be concatenated in this order: *ga*-type particles + *wa*-type particles. Seen from the point of view of syntactic constituency, the *wa*-type particles can occur in the same NP with any *ga*-type particle. We have concluded that this fact is evidence that *wa*-type particles constitute a paradigm of morphemes which can follow case particles (can follow the NPs with given syntactic roles). For this reason among others, we propose that the distinction between the two types of particles should be interpreted with reference to two different *dimensions* of language: *syntagmatic* (*ga*-type particles) and *paradigmatic* (as for *wa*-type particles). Hence, it is possible to introduce another distinction between *syntactic* and *paratactic relations* defined as special cases of *syntagmatic* and *paradigmatic* relations respectively.

Table 3 shows the concatenations between *ga*-type particles and *wa*-type particles.

Case name Case +particle	Nominative ga+...	Accusative o+...	Dative ni+...	Allative e+...	Instrumental de...
case+ <i>wa</i>	wa*)	o-ba**)	ni wa	e wa	de wa
case+ <i>mo</i>	mo*)	o mo	ni mo	e mo	de mo
case+ <i>koso</i>	koso*)	o koso	ni koso	e koso	de koso
case+ <i>sae</i>	sae*)	o sae	ni sae	e sae	de sae

*) concatenation is impossible, **) *o-ba* is obsolete.

Table 3. *Concatenations of ga- and wa-type particles in Modern Standard Japanese*

The exception of **ga + wa* (in standard Japanese) is due to what we called the *boomerang opposition*. Indeed, the *ga* and *wa* particles are both markers of the Nominative case in simple (non-extended) utterances in Modern Japanese as in #22 and #23 below. This situation is close to the existence of definite and indefinite articles in other languages (Włodarczyk A. 1999b).

#22. 音がだんだん近付いてくる。

Oto ga dandan chikazuite kuru.

(There is a noise which is getting closer and closer.)

#23. 船はだんだん遠ざかっていく。

Fune wa dandan tōzakatte iku.

(The boat is moving further away.)

When speaking about “Nominative case” we must emphasise that in our approach the cases are considered to form a hybrid system. They can be subdivided into at least two classes: (a) cases as markers of *meta-informative* centres of attention (Subject and Objects which are closer to the nexus of utterances) and (b) cases as markers of *informative* (semantic) values which are peripheral with respect to the nexus.

The inverse part of the boomerang relation between the *wa* and *ga* particles determines *wa* as a TOPIC marker and *ga* as a FOCUS marker that we have defined as two different *centres of attention* of extended utterances. In the following example #24, the first NP containing *wa* (*Shūkyō wa*) is a TOPIC, its COMMENT being GLOBAL and the second NP containing *ga* (*dōtoku ga*) is a FOCUS, its COMMENT being LOCAL).

#24. 宗教は従であって、道徳が主である。

Shūkyō wa jū de atte, dōtoku ga shu de aru.

(As for religion, it is your companion, it is morals that are your master.)

However, in #25 below, *Are wa* is the TOPIC for both propositions *kaji wa yoku yaru* and *ryōri ga dame da* which correspond to its COMMENT. Thus, the GLOBAL COMMENT here is compound because it contains two propositions the first of which should be analysed as composed of TOPIC/Global COMMENT and the second one – as FOCUS/Local COMMENT.

#25. あれは、家事は、よくやるが、料理が、駄目だ。

Are wa, kaji wa, yoku yaru ga, ryōri ga dame da.

(As for that (woman), the housework, she does it well but at cooking she is bad.)

Often, what is considered to be a TOPIC in Japanese need not be translated by a TOPIC in languages like English or French. This is the case in the following example:

#26. 母は買物に出かけました。

Haha wa kaimono ni de-kakemashita.

(Mother is out shopping.)

The reason for this is that *haha wa* should be considered as a WEAK TOPIC. In fact, we propose to extend our theory in such a way that it includes also a distinction between STRONG and WEAK TOPICS and FOCUSES (Włodarczyk H. 1999).

If we represent syntactic relations by the horizontal axis, ga_1 as a nominative (though sometimes ambiguous) case marker goes not only together with o as an accusative case marker, but also with the particles wa_2 (as another, probably “definite”, nominative case marker) and (and even with mo ¹⁶). Similarly, if we represent paratactical relations by the vertical axis, wa_1 as Topic marker goes not only together with ga_2 as Focus marker, but also with the particles o_2 and mo_1 . Thus, we observe that the “boomerang opposition” described above is the result of interactions between “cases” and “analogies” in the dynamic synchrony of the standard Japanese grammar.

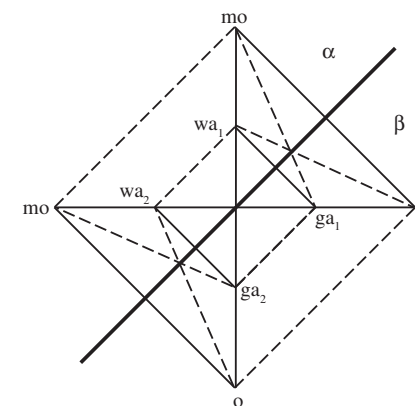


Fig. 6. The interaction between the *ga* and *o* case particles and the *wa* and *mo* “analogy” particles.

¹⁶ We do not distinguish clearly neither between mo_1 and mo_2 nor between o_1 and o_2 because, as a matter of fact, there is still not as much difference between them as between wa_1 and wa_2 , on the one hand, and between ga_1 and ga_2 , on the other hand, in contemporary Japanese.

The evidence of the Japanese language allows us to consider that there is a certain point where two linguistic morphemes belonging to different classes when opposed by a “boomerang” relation (instead of being concatenated in agglutinative manner) create a completely new twofold “paradigm” : as definite / indefinite nominative cases and as Topic/Focus markers).

On the other hand, as an important issue of our research on the Japanese utterances in the perspective of general linguistics, we have proposed to clarify the definitions of SUBJECT and (direct or indirect) OBJECTS. Namely, we defined them as linguistic units of a simple (non extended) utterance which should be analysed in two dimensions: (a) *syntactically* as phrases with as well **constituency** as **dependency** relations and (b) *paratactically* as phrases with identification (categorisation) functions. Let L be a lexical domain, S – a *syntactic* relation and P – a *paratactic* relation. The syntactic phrases (Syntaxemes = {L, S}) are relational structures with *lexical* domains (lexemes) whereas the paratactic ones (Parataxemes = {(L, S), P}) have syntactic phrases as their domains. Thus, it turns out to be necessary to combine two important relations which, in the history of *syntactic* parsing, were used in two different (opposed) trends, namely constituency- and dependency-based parsing techniques¹⁷. When defined as centres of attention, both SUBJECT and OBJECT are therefore linguistic units which convey *meta-information* (‘*reflexive*’ and ‘*relational*’ identities). Moreover, in order to grasp the difference between the Subject and the Object properly, we must also consider their reciprocal relations. Indeed, as centres of attention, SUBJECT is **main** (head) and OBJECT is **auxiliary** (dependent). According to this definition *SUBJECT implies OBJECT*¹⁸ in transitive utterances. Note that our definition avoids any reference to *information* as far as semantic roles and participants (which play the roles) are concerned in various situations.

As a consequence, this approach allows us to better understand the difference between Nominative and Ergative languages, too : namely, it makes it possible to explain the difference between the two types of

¹⁷ Needless to say that parsing technology would have achieved better results if computer science engineers had adopted the hypothesis of the fundamental bi-dimensional (syntactic and paratactic) nature of linguistic relations. The attempts to improve phrase structures introducing (in Logic Grammars) the so-called “unbounded dependencies” were rather halfway solutions to this problem.

¹⁸ This impication allows to understand better why whenever the Subject is absent from the Japanese utterance, the hearer is always able to uncover it.

languages without referring to the semantic roles traditionally considered as played by Subject and Objects. In Nominative languages, Subject is global and in Ergative languages, Subject can be either global or local in constituency, but their relation does not change in dependency in which Subject is head and Object is dependent. It is probable that though the Absolutive Case does not correspond necessarily to the Subject, the Ergative case is linked to the Object. However this hypothesis oversimplifies the problem and necessitates more elaboration.

Table 4 shows that *Syntax* (as the family of syntagmatic relations) and *Paratax* (as the family of paradigmatic relations) both concern the Form of linguistic expressions. It also makes clear the relation between Semantics and Pragmatics as opposed to Phonology, Morphology and Syntax & Paratax.

CONTENT	Semantics		
	Pragmatics		
FORM	Phonology	Morphology	Syntax & Paratax

Table 4. *Content and Form of linguistic expressions.*

Finally, this research has led us to make the following distinctions concerning the *linguistic communication systems*: (a) the **core infonic representation** (studied by semantics and pragmatics), (b) the **intermediary system** with *bidimensional*¹⁹ *processing capacities* (studied by syntax and paratax) and (c) the linear *expression production / recognition peripheral devices* (studied by phonetics and acoustics). Without pretending to be an alternative to the hypothesis of “transformation” between “deep” and “surface” structures, this proposal sheds more light on this problem suggesting that linguistic phenomena belong to the realm of high complexity problems. Indeed, we are convinced that the present controversy between *functional* and *formal* linguistics is most of all due to the lack of mutual understanding between linguists rather than to the incompatibility of their theoretical as well as practical research aimed at contributing to build either a *theory* or a *model* of language.

¹⁹ It is highly possible that multi-dimensional processing would be even more appropriate. Pogonowski J. proposed also to introduce the third kind of relations, namely interlevel relations, besides the syntagmatic and paradigmatic ones.

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