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On Identifying 'Centres of Interest' in the Japanese Discourse

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To all those linguists who prefer to live dangerously (on the edge of chaos) rather than to die in a well-formed frame of hope (the author).

ABSTRACT:

In order to communicate humans must designate the centres of their immediate and distal interest which partly cover what is widely known in linguistic science as SUBJECTS, TOPICS and FOCUSES. Thus, we shall address the much talked-about problem concerning the relative 'subjectlessness' of the Japanese language leading sometimes to the false assumption that the Japanese language is generally more ambiguous than European languages. In reply to such affirmations we oppose our research project aiming at establishing what in the Japanese subjectless utterances is truly ambiguous: for instance, is it the problem of "who is the participant (of the given situation) ?" or that of "who is the actor in question (in the given discourse) ?". We therefore claim that because natural languages inevitably convey only *partial* contents, any communication process is necessarily ambiguous.

From a cognitive point of view, 'centres of interest' (and SUBJECTS *are* indeed instances of the latter) can be disambiguated in Japanese, not only by attaching particles (such as *wa* and *ga*) to some linguistic units, but also by using expressions which contain information about persons, their respectful attitudes, situation orientation etc.

1. Introduction

It has become a commonplace in the fields of Language Teaching Methodology, Theoretical Linguistics and Socio-linguistics that the Japanese language is ambiguous. Most often experts mention only the ambiguity of the SUBJECT in an utterance, but it also happens that they go further, and claim that the Japanese language is ambiguous in general. A few

months ago, I was not even surprised to read the following e-mail message sent to me by a researcher in Natural Language Processing in New York (US):

"During our analysis of the current Japanese machine translation of text (without post-editing) it became apparent that the general ambiguity of the Japanese utterance structure makes machine translation difficult."

On the other hand, the research conducted by Ide S.[1] (2000) recently highlighted the fact that the European languages are ambiguous, too. And Kamishima J. (1990), a historian of Japanese political thought, has pointed out that the Japanese nevertheless may seem to be sometimes ambiguous[2] because they pay attention to the persons they are talking to. It may happen that they refrain from being clear with some people (when in public *tatemae* situations) and — on the contrary — that they specify things in great detail with others (when in private *honne* situations[3]).

In our opinion, the Japanese language teachers, theoreticians of linguistics and socio-linguistics specialists, who maintain that the above cliché is valid, address the problem of the alleged 'ambiguity' of the Japanese languages too recklessly, taking their assumptions for linguistic reality. Let us first recall that just as our knowledge of the world is incomplete (fragmentary), so is our communication. Hence, it is reasonable to suppose that human languages (=Natural Languages) are incomplete communication devices that use massively partial (as opposed to total) functions. For this reason, understanding linguistic messages demands many supplementary inferences about the acquired knowledge (cf. Searle's implicature) and much further information originating in the background (cf. Harada and Nakashima, 1995). We consider this fact, which we call *inherent partiality,* as one of main characteristics of language.

In spite of this, whenever a linguist attempts to create a new theory, he is used to restrict his position to an autonomous point of view with respect to the language. He claims therefore that his position is "purely" *linguistic*. And from the very beginning, he must take a position on this extremely embarrassing question: what is universal in languages across cultures ? Do all languages exhibit the same common (however still unknown) properties, or there are no (or at most not many) such properties. Because our approach is "non-purely" linguistic we intend to build a cognitive *model* of comprehension of linguistic messages. The cognitive approach to Language rejects the behaviourist linguistic (language-oriented) ideology in which language has been viewed as a black box. It is now commonly emphasised that one should try to make the black box as *transparent* as possible taking into account the capacity of man to interact with his environment.

Our approach to meaning and discourse has been elaborated as a continuation of a research on a "real world computer system" for natural language understanding MIND[4] the

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[1] As a guest speaker at the International Seminar on the Japanese Language in Theory and Practice « Le JAPONAIS 2000 » (Paris, 3 Nov. 2000), the author delivered a lecture entitled "The Asian Mirror : What looking at Asian languages can reveal about Western languages?" (to appear in book form as collected papers).

[2] Kamishima J. (1990): "As is often pointed out, Japanese sometimes tend to be non-committal, to refrain from clear yes-no answers and to be inclined to ambiguous language…" and further "Japanese sometimes talk in a roundabout manner, it is true, but not because non-committal speech is a national trait. They may be explicit or evasive, but it depends solely on where and to whom they are speaking."

[3] Kamishima J. (1990)"With Japanese there is a wide gap between tatemae (professed principles or reasons) and honne (honest views; real reasons). Publicly they will express themselves on a tatemae basis, but in their actual conduct they reveal themselves to be completely different."

[4] MIND - acronym of Methods for Interpreting Natural Data.

modules of which we sketched out in the framework of SCOOL[5], a programming language at the beginning of the 1990s. MIND's characteristics were namely: *non-logocentricity, priority to representation (over the ontological reference), partiality of knowledge and information, modularity of the architecture (distinction between know-how and know-what)*.

Still the question remains about the possibility of clarifying the distinction between the content of a linguistic message and the cognitive data which are "in the background". In other words, the question is whether the meaning conveyed by a language differs from the information stored in memory. This problem is not only known as « language ambiguity » but also as "principles of deletion", « less-than-fully specified representations », « under-specified representations » or « situated representations ».

The American Centering Theory which has recently been elaborated in the framework of Computational Linguistics brought to light certain notions which we also find, in part, in the School of Prague's Functional Perspective Analysis. However, what is worth borrowing from Centering Theory is undoubtedly the dynamic definition of "centres of attention" (in our theory "centres of interest"), namely their "backward" and "forward" orientations. These borrowings allow us to better distinguish the 'anaphoricity' (a degree of "old", "known") from "anaphora" on the one hand, and the 'cataphoricity' (a degree of "new", "unknown") from "cataphora" on the other (see below).

2. Signs, Infons and Noemes

According to [Simon J. C. (1975, p. 3)] , an entity of information is defined as "the pair consisting of a representation and an interpretation". Thus, stored data, for instance the set X of ordered data $\{x_1, x_2, \ldots, x_n\}$, can be considered as Representations of the World, and the Representations are inseparable from Interpretation. Although interpretation is not precise and may be "infinitely varied" [Simon J. C. (1975, p. 3)], it may be more or less "useful". But, in order to accomplish "useful" interpretations it is necessary to overcome triviality (initial interpretation) and achieve identification (final interpretation) defined as assigning names to identified objects. Therefore, in Computer Science, the IDENTIFICATION programme is an application defined in a constructive way as a function & which maps names X onto objects Ω (i.e. $\& : X \rightarrow \Omega$). Obviously, identification is not the only interesting interpretation of stored data (representation). One may wish to interpret scenes, actions, modifications etc. Such interpretations are useful for describing the situations of all kinds. We assume that mental activity consists of cognitive processes (cf. multi-agents in parallel programming) and their capacities of self-organisation through internal communication. In the same way as signs are viewed as bifacial units (inseparable units of signifiers - *signifiants* and signified - *signifiés*) concepts must be considered as compound units, in which representation cannot exist without interpretation, so that consciousness can be said to be *form which is just about to be interpreted/understood*, i.e. form to which a system associates some *contents*. Hence, we propose to define INFONS as information units having active (activated) representations as their form and concepts as their content. But INTERPRETATION goes merely halfway towards COMPREHENSION of speech. For this reason, we introduce another huge stratum which handles units of higher complexity we call Noemes[6] (see Table 1).

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[5] SCOOL - acronym of Stuttgart C Object Oriented Language, Stuttgart University, Institute of Computer Science (author: HANAKATA Kenji).

[6] This term was first used by Pottier B., 1992.

	SIGNIFICATION	INTERPRETATION	COMPREHENSION
	Sign	***Infon***	***Noeme***
Form	Signifier	Representation	Database-like Representation Network
Content	Signified	Concept	Knowledge

Table 1 Signs, infons and noemes

Thus, it was by oversimplifying this problem that Saussure defined Concept (in his clearly logocentric approach) as the *signified (signifié)* of linguistic sign. In our view, it is more appropriate to posit that the relation between signs and concepts requires a CONVERSION from signs to infons. Signs differ considerably from infons in that the structure of the signifier (*signifiant*) of signs is sequential (linear), whereas the nature of the representation of infons involves parallel processes. This is crucial for understandig communication functions of Natural languages. Indeed, (a) communication involves mainly CONVERSION processes between purely sequential (linearized) orders and parallel representations (hence the dynamics between "more elaborate (precise)" and "less elaborate (concise)" speech activities), on the one hand, and (b) it is based on METAMORPHOSES between more or less deep strata using various sensors and channels, on the other hand.

As an example of METAMORPHOSIS, we propose to consider the incremental transformations of forms into contents and vice versa. It is quite probable that such transformations occur on various activation levels of consciousness owing to the diversity of representations (internal codes[7]) related to different information processing faculties such as vision, speech etc. Needless to say that the processes of *interpretation* and those of *comprehension* are to be taken merely in the sense of "jugement" and "validation" as in Stalnaker's Pragmatic Logic. As usual, logical metaphors bring rather abbreviated (simplified) models of reality and, however, we are well aware of the incredible complexity of phenomena we are talking about, still we believe that at least the *conversion* processes which take place between signification and interpretation, on the one hand, and the *metamorphosis* processes which occur between interpretation and comprehension are of different nature. Saying so, we propose in fact a stratal view of the Mind[8] with at least the three following strata: SIGNIFICATION (signs), INTERPRETATION (infons) and COMPREHENSION (noemes). It is not clear however how the strata are interrelated or, rather to be more precise, as we suppose, how they are interleaved. As for today, we can only assume that *what is the Content of the lower level is the Form of the upper level*.

3. Identification

In human communication, two inseparable processes take place:

(1) identification of pieces of information (relations between entities) and of epistemic agents (speaker, hearer and other agents spoken about)

[7] Multi-coding of (scientific) information was first proposed by Greniewski H. (1968). He also described in the spirit of his cybernetic age one of the first communication simulation architecture proposing namely to distinguish between three types of information: incoming, outgoing and produced (created), on the one hand, and introducing the notion of meta-information, on the other hand.

[8] Cf. the computational model of mind 「心のダイナミクス」 "Dynamics of Mind" (OKADA N., 1987, 1997).

(2) presentation of information ([head | tail]: partitioning and modal relations between them).

Both the proponents of the Prague School Functional Perspective (and its extensions in today's research) and those of the American Centering Theory lay the foundation for the study of linguistic communication with the notion of INFORMATION. Indeed, one of the most important concerns of human communication is the exchange of information between epistemic agents (i.e. speaking and hearing individuals endowed with their own knowledge systems). In this sense, communication consists in transmitting chunks of knowledge from one knowledge system to another. A given knowledge system is extended when some incoming information increases its capacity, provided that this incoming information is consistent with the system. However, the communication process is defined by the interplay between two epistemic agents (cognitive systems). Their roles in communication change: once one of them is a sender (speaker) and the other one is the receiver (hearer), and on an another occasion vice versa. Nevertheless, agents never do communicate exclusively new information. They do communicate what they intend to present as either "new" or even "old" centres of their interests.

Linguistic utterances convey only those chunks of information which can be evaluated with respect to their qualitative and quantitative properties. However, it is not always a matter of true or false, good or bad. Since information has no *substitutive* character we argue that this partial encoding of information works unlike the Saussurian sign, which *stands for something else*. The partiality of encoded information represents a view (an aspect) of the world (be it real or fictitious). Although the principles which lie at the base of the structure of one language are not valid for any other language, those principles which support the structure of information are supposed to conceal many universal characteristics. We can only speak of *grammars of languages* in the plural. As for *strategies of informing,* our view is more universal.

Thus, we have described the two following types of operations :

(1) INTERPRETATION**,** which is supposed to be a *semantic* operation aimed at grasping the *partial content* (meaning) of a linguistic message, and
(2) COMPREHENSION**,** which is supposed to be a *cognitive* operation aimed at complementing the empty slots (for example, clarifying ambiguities) of the linguistic messages

However, the above operations are not entirely autonomous. We must use such open-ended representation structures sufficient to handle partiality properly.

4. Information Validity

Communicating agents in many cases need to specify whether the information which is being conveyed is to be taken as "old" (this information is supposedly shared) or "new" (the information should supposedly be shared from now on). The two kinds of information are roughly taken into account in most studies of communication pragmatics, but we claim that each sort of information must be further attributed one of five graded values.

Igarashi J. (1993) applied the metaphor of topological Union (Σ) and Intersection (Π) to two phenomena: (1) *the aspect of actions* (cf. verbal aspects) and (2) *the quantity of objects* (cf. noun quantifiers). She noticed namely that actions and objects have one common property: duality of their extreme values (as "colimit" of ∑ and "limit" of ∏). Following Igarashi, we borrowed two set-theoretical notions with their topological extensions, namely Union (σ) and Intersection (π) in order to work out a more formal definition of our notions of

GRADED VALIDITY[9] Σ for "old" and Π for "new" areas of information conveyed by linguistic utterances. Indeed, information has degrees of validity; i.e. it can be evaluated in a graded manner. For this reason, the validity of information reveals its *pragmatic power*[10]. The power of information may take one of the following values: for the Σ-type (or "old") information in terms of *generalisation* (Anaphoric > Virtual > Habitual > General > Generic) and, for the Π-type (or "new") information, in terms of *specialisation* (Cataphoric > Actual > Occasional > Particular > Specific). *Genericity* is the extreme degree of the Σ-type information whereas *specificity* is the extreme degree of the Π-type information. Needless to say that, going down on each scale, we encounter decreasing values. Both scales seem to be inverse of each other and their extreme degrees can be compared to Igarashi's "extreme values" (max and min). In doing so, we hypothesise that our graded scales exhibit dual properties.

The examples below are also dual, even though the degrees of their "inverse" values are different. Indeed, it is rather hard to conceive that it is possible to validate utterances with the same semantic (in our theory "object-relational") content but at the same time having exactly inverse degrees (just consider that it would be a contradiction if we wanted to state that something is both "true" and "false"). It happens more often that phenomena can be viewed in an inverse order but to different degrees.

a) 'ame wa furu' (Σ: degree 5 – "Generic")
SUBJECT ("old" information) + rest of the utterance ("old" information)
Ame *wa* fu*ru*. (lit. Rain falls = Rain is an atmospheric phenomenon)
b) 'ame ga futte iru' (Π: degree 2 - "Actual")
SUBJECT ("new" information) + rest of the utterance ("new" information)
Ame *ga* fut*te iru*. (It is raining [now].)

Note that in Igarashi's theory there is no question of the opposition 'furu/futte iru' because her definition of aspect is rather conceptual.

In order to define the dual validity of information, we must show first that genericity and specificity are characteristic not only of entities, but also of situations. Following the assumptions of modal logic, it is possible to define genericity and specificity introducing two temporal connectives [F] for *henceforth* and [P] for *hitherto*. The genericity of an expression A can be defined as necessity in time meaning: "(definitely) always": $\Box A = [P]A \wedge A \wedge [F]A$ and the specificity of an expression A can be defined as possibility at some time meaning : "(possibly) at some time (past, present or future)": $\Diamond A = \langle P\rangle A \vee A \vee \langle F\rangle A$. The above formulae are dual, which can be seen from the following tautology $\Diamond A = \neg\Box\neg A$. It is possible then to establish that *GENERICITY and SPECIFICITY determine two dual max extremes of information validity*. We are working now on the logically motivated presentation of the *min extremes* of our dual scale of information validity, i.e. ANAPHORICITY and CATAPHORICITY. Indeed, it seems necessary to distinguish the above pair of notions from that of anaphora and cataphora. The latter notions refer to what is known as "backward looking" and "forward looking" in the American Centering Theory.

5. Information and Meta-information

[9] Cf. Wlodarczyk André (1979, 1982 etc).

[10] See applications of this idea to the Slavic languages (Wlodarczyk Hélène 1997) and to the Japanese language (Wlodarczyk André 1982).

The semantic agent often (very "naturally" one would be tempted to say) corresponds Indo-European (I.-E.) languages to the SUBJECT of an UTTERANCE. This statement gives rise to a quite understandable confusion which consists in taking every SUBJECT for an agent because of the impression that the notion of agentivity can be extended as many times as needed due to the rhetorical operations such as metaphor or metonymy. Nevertheless, many linguists claim that this is not the case bearing in mind that AGENT and SUBJECT belong to two different kinds of notions: semantic and syntactic (sic?) respectively. We argue, however, that SUBJECT as representing a global centre of interest and its local partner OBJECT[11], in fact, refer first of all to pragmatic distinctions, namely they both point to some chunks (portions) of information, thus playing a meta-informative role in communication. In our view, *semantic information* and *pragmatic meta-information* are results of parallel (more specifically concurrent) operations. Human communication uses a (basically) one-way aerial channel so that parallel mental operations must be (1°) converted into/from a series of sequential (linearly encoded) operations and (2°) encoded/decoded into a linear order of sounds (the latter being modelled/recognised by phonemic abstractions). Obviously, the result of sequential operations (strings of phonemes) is known as Syntax. Undoubtedly, SUBJECT and OBJECT also display syntactic characteristics of linguistic expressions, but this is far from being their essential property.

Therefore, we claim that VERB VALENCY has a heterogeneous structure where semantic relations (information) are mixed with pragmatic topologies or strategies (meta-information). For example, information contained in the utterance "John gave Mary a book." can be represented as a set of formulae describing binary relations (cf. UNL version 3) as follows (note that `icl` is to be read as `is_of_class`):

"John gave…"	**`agt(give(icl >do)@past, John(icl>person))`**
"… gave Mary"	**`ben(give(icl >do)@past, Mary(icl>person))`**
"… gave … a book"	**`pat(give(icl>do)@past, book(icl>thing))`**

But the main centre of interest of the Speaker with respect to the information in question points to the SUBJECT (meta-information) of the utterance. In this case, both the semantic agent and the pragmatic SUBJECT are expressed by the same linguistic unit, and this fact should be explained as the result of two parallel constructors: one of information and the other one of meta-information. It is reasonable therefore to hypothesise that the valency of verbs (and other predicators, cf. Japanese adjectives) is rather like a bag (i.e. a "mixture", not a set) of elements and that it results from quite different functions: FORMATION (construction) of relations which represent information and COMPOSITION[12] (presentation) of selected parts of information.

Whenever we assign values to attributes in order to talk about objects we use information functions. However in Natural Languages such "pure" (directly expressed) information is never used. We always need to choose meta-information among two poles of validity (hence duality) that we attach to "pure" information. Bearing in mind the distinction (made for the sake of analysis) between semantic situation (information) and speech act

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[11] In our theory, OBJECT is defined as a composition relation between a 'local centre of interest' and a 'semantic patient'. It would be possible to label (as it was the case in Traditional Grammar) more such relations which concern the 'centres of interest' and various 'semantic roles'; for example: direct or indirect object related to the roles of beneficiary, instrument or experiencer etc.

[12] The need for distinguishing between « formation » and « composition » was stressed by the linguist and mathematician Mizutani S. (1983, French translation in 1991).

(discourse), we shall call "semantic information" what the speaker presents as the contents of his utterance (predication), and we shall call "meta- information" what the speaker presents as his centres of interest which constitute the pivot of information and what expresses his attitudes and viewpoints.

As a matter of fact, what linguists often take for *information* should rather be called *meta-information*. As etymology indicates, "information" designates action of giving shape (form) to something. Hence, and by extension, this term now refers to any meaning contained in a form. But in addition to the fact that the speaker, when expressing contents of his intellectual activity, presents at the same time information referring to these contents, we should consider this as "meta-contents", or speaking more appropriately, as *meta-information*.

6. Layers of Discourse and Centres of Interest

Defining sentence as a "SUBJECT-PREDICATE" relation goes back as far as to the logical origins of syntax. The primary motivation of logics is calculation of truth values of abstract statements which are unable to reflect common-sense truth. It is all the more inconceivable as both abstract and common-sense truths cannot be revealed without human interpretation. It follows that linguists, when mapping the logical "predication model of sentence" onto the linguistic utterances, often make a confusion between Syntax and Semantics (ignoring all of Pragmatics): First Order Logic's predicate arguments are taken either (a) for formal syntactic constituents or (b) for semantic roles. In fact, there is no such thing as "sentence" in discourse analysis because SUBJECT is not a semantic argument of a statement. Utterances are messages (communication units) and the linear order of their constituent sub-units is driven by imperatives of sequentiality.

From a cognitive point of view, let us distinguish therefore, among the three layers which determine the information composition, one such zero-degree layer which would be able to give account of idealised semantic relations, even though speakers never express them as such, i.e. without selecting a centre of their interest:

I. ZERO-DEGREE LAYER (informative): layer of idealised semantic units (usually referred to as 'sentences') but never expressed solely,
II. 1ST DEGREE LAYER (meta-informative): layer of utterances (linguistic units uttered in a context),
III. 2ND DEGREE LAYER (cognitive) : layer of texts/dialogs.

When linguistic (meta)-information is presented in form of concatenated units, i.e. from the point of view of linguistic communication of information, it is possible to distinguish units of three different hierarchically arranged structures: lexicon, expression and text/dialog.

0. LEXICON :	elementary linguistic unit
1. EXPRESSION :	complex linguistic unit produced with informative intention and built of configurations of items from the lexicon
1.1 SIMPLE UTTERANCE :	basic expression
1.2 EXTENDED UTTERANCE :	enriched expression
2. TEXT/DIALOG :	ordered set of linguistic expressions

It is essential to add that there is no one-to-one correspondence between discourse layers and linguistic communication units hierarchy. Lexicon's items exhibit very complex inner structures; for instance, in addition to their purely lexical contents, they convey many modal, aspectual, relational and other grammatical meanings. Expressions are further subdivided into *simple* and *extended* utterances depending on the scope of centres of interest

and their compositionality. They express meta-information from the 1ST DEGREE LAYER of discourse only.

7. Global and Local Centres of interest

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 interest 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 (i.e. be linearised as two separate units).

SUBJECT — as a unit of a simple utterance — can be defined as the *most salient part of information* or the *most concise (abstract) pivot* of message. Viewed as topological entities (spaces or points) SUBJECTS are single distinguished points in information spaces. TOPICS and FOCUSES are mappings between topological spaces and points. TOPICS are broadening (points → spaces) and FOCUSES are narrowing (spaces → points) topological operations[13]. These metaphors lead us to postulate that SUBJECTS themselves are meta-informative but TOPICS and FOCUSES are also made up of meta-informative representations with respect to the units of lower expression degree (i.e. SUBJECTS, OBJECTS etc.).

Although, in the past, tautology was considered to be a bad discrimination operation for the SUBJECT-PREDICATE[14] relation, we claim that an equivalence with respect to a given domain D can render the essential features of the most abstract pair which is as follows :

$$\text{Centre of Interest} \equiv_D \text{Periphery of Interest}$$

In topological terms SUBJECT differs from TOPIC and FOCUS in that it concerns a single space (and is obligatory in I.-E. languages). On the other hand we define TOPIC and FOCUS as distinguished spaces of the extended utterance which form a contrast with the space constituting the comment part. When the distinguished space belongs to the $\sum$ domain of information validity and the comment part of the same utterance belongs to the opposite domain ($\prod$) we speak of a TOPIC-comment structure. In the opposite case (schematised as $\prod + \sum$) we speak of an utterance with a FOCUS. Parts of utterances which constitute global and local centres of interest, once selected by the speaker, can be composed with semantic roles and expressed as SUBJECTS, TOPICS or FOCUSES. The organisation of different centres of interest of discourse is shown on Table 2.

[13] Cf. Wlodarczyk A. (2001a).

[14] However, we shall reserve the term *predicate* for the idealised semantic *structure* of the utterance and we propose to call *propos* (or Tail) the part of the simple utterance which is opposed to the *subject* (or Head), and we call *comment* the part of the extended utterance which is opposed to TOPIC or FOCUS.

TYPE OF EXPRESSION	CENTRE OF INTEREST	
	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

The embedding of centres of interest in utterances led, in Japanese (but also in some other languages), to the emmergence of curious syntactic constructions known as DOUBLE SUBJECT STRUCTURES comprising both GLOBAL and LOCAL SUBJECTS. These Japanese language structures are well-known in general linguistic by the example of:

象は鼻が長い。 *"Zô wa hana ga nagai."*

From the pragmatic (meta-informative) point of view, it is possible to analyse this utterance in two following ways :

1. [TOPIC+*wa*] + [SUBJECT+*ga*] + [Adjective].
(As for elephants, they have long trunks). <-- the state of affairs with a TOPIC.

2. [Global SUBJECT+*wa*] + [Local SUBJECT+*ga*] + [Adjective].
(Elephants have a long trunk). <–- the generic state of affairs without any TOPIC

Indeed, in Japanese, unlike in I.-E. languages, there exist utterances which are simple and not necessarily extended in spite of the presence of the morpheme *wa* (with an alleged exclusive value of a TOPIC marker). Such utterances should be interpreted as stand-alone units either with a dummy (anonymous, void, hidden) SUBJECT or without any SUBJECT (the latter being *optional* in Japanese). Subjectless utterances may contain however TOPICS and/or FOCUSES. This situation can be explained by the fact that Subject's links to semantic roles are stronger (and became obligatory in syntax) in I.-E. languages than in Japanese.

For diachronic reasons, we do not explain the topicalised variant of the utterance in question as in 3 below :

3. ??[Topicalised Global SUBJECT+*wa*] + [Local SUBJECT+*ga*] + [Adjective].
(As for elephants, they have long trunks). <-- the state of affairs with a TOPIC.

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 opposition[15]. Such opposition uses the notion of markedness[16] of linguistic forms with regard to their categorial meanings and is, in our view, characteristic of the transitory (dynamic) situations. Thus, we claim that by introducing the concept 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.

[15] Cf. . Wlodarczyk A. (1980, 1982, 1988)
[16] Cf. Jakobson R. (1956)

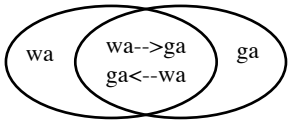

Fig. 1: Bilateral (boomerang) relation between wa *and* ga *particles*

Indeed, historically, two different functions (τ and σ beneath) should be established as the origin of the 'boomerang relation' between *wa* and *ga* particles in Contemporary Japanese.

τ : WA ---> GA and σ : GA ---> WA

For this reason, two kinds of oppositions must be distinguished between those particles in Modern Japanese:

WA $\geq_T$ GA where T = {*wa* - Topic marker, *ga* - Focus marker} and
GA $\geq_S$ WA, where S = {*ga* - Subject $\sum$, *wa* - Subject $\prod$}

Hence we say that the particles *wa* and *ga* possess a partially equivalent area with respect to their domains T and S (WA $\equiv_{T\leftrightarrow S}$ GA) ; *wa* → *ga* share the expression properties on the level of extended utterances and *ga* → *wa* 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 than those of the other.

8. Two local 'Centres of Interest' : SUBJECT versus OBJECT

We can see now that in Modern Japanese the interpretation according to which the particle *wa* is a marker of TOPIC and the particle *ga* is a marker of SUBJECT is not satisfactory because it makes use of a deletion rule concerning the *ga* particle when the SUBJECT is to be topicalised by *wa*. Furthermore, this interpretation is not proper for explaining multiple meanings of the Japanese *wa* and *ga* particles.

In order to make explicit the differences between *wa* and *ga* particles, we should keep in mind the following facts:

1. European grammars are based upon a predicative structure (with obligatory SUBJECT).
2. The Japanese utterance is — in this respect — somehow different from that of European languages because its SUBJECT constituent is optional and the Predicative part (Verb or Adjective) alone is sufficient to make a sentence.

Since in Japanese there is no morphological agreement between SUBJECT and Predicate, the SUBJECT is not obligatory and the verb (or adjective) is the only obligatory constituent of the sentence. On the other hand, the particle *ga* can refer to more than one syntactic functions (such as the OBJECT or the Location) and the particle *wa*, when attached to a SUBJECT constituent, is not always a topicalisation marker. 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.

9. Composition of centres of interest with semantic roles

We shall now show how the centres of interest of different utterances overlap with the semantic roles on different layers. Consider the following examples:

«教える：OSHIERU：TO TEACH» = V

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agent          (V(is_of_class > do),   X(is_of_class > person)
beneficiary    (V(is_of_class > do),   Y(is_of_class > person)
patient        (V(is_of_class > do),   Z(is_of_class > thing)
X = Tarô, Y = Hanako, Z = sansû
```

The parallelism [Subject || Agent] is one variant of the VALENCY of the verb "oshieru", namely it is its *active* variant[17].

太郎は花子に算数を教えた。

Tarô wa Hanako ni sansû o oshieta.

Active variant 1 = V([Subject || Agent || X], Y, Z)
(Taro taught arithmetic to Hanako.)
(Taro taught Hanako arithmetic.)

Active variant 2 = V([Topic || Subject || Agent || X], Y, Z)
(As for Taro, he taught arithmetic to Hanako.)
(As for Taro, he taught Hanako arithmetic.)

Note that there is a notable structural difference between the Japanese and English topicalisation. Whereas in Japanese topicalisation is an integrating operation (*"Taro wa"* can be Subject or topicalised Subject at the same time, but see also the remarks about the "boomerang relation" between *wa* and *ga*), in English topics are more often separate from the rest of the utterance (i.e. it is therefore easier to distinguish the "head" part and the "tail" part of the extended utterances).

The next example comprises two centres of interest from the extended utterance level, namely: one global (Topic) and one local (Focus):

太郎は算数を花子に教えた。

Tarô wa sansû o Hanako ni oshieta.

Active variant 3 = V([Topic || Subject || Agent || X], [Focus || Pat. || Z], Y)
(As for Taro, it is arithmetic he taught to Hanako.)
(As for Taro, it is arithmetic he taught Hanako.)

Let us mention one more example of two passive variants. This gives rise to the following parallelisms:

(1) [Obj || Pat]

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[17] Note that in English, as the translations above suggest, the verb "to teach" has two different active valency variants but their semantics is the same:
Active variant 1 = V([Subject || X], Z, Y)
Taro taught arithmetic to Hanako.
Active variant 2 = V([Subject || X], Y, Z)
Taro taught Hanako arithmetic.
These variants differ however by their informative cenetring of interests.

Passive variant 1 = V([Topic || Object || Patient || Z], [Subject || Agent || Y], X)

算数は花子が太郎に教えられた。

Sansû wa Hanako ga Tarô ni oshierareta.

(As for arithmetic, Hanako learned it from Taro.)

(2) [Obj || Pat] and [Focus || Subj] when pronounced with stress on "Hanako ga"

Passive variant 2 = V([Topic || Object || Z], [Focus || Subject || Y], X)

算数は花子が太郎に教えられた。

Sansû wa Hanako ga Tarô ni oshierareta.

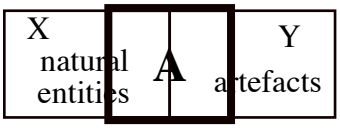
(As for arithmetic, it is Hanako who learned it from Taro.)

Indeed, we define the Subject and the Object in relation with semantic situation roles because we assume that participants which fullfil those roles can be typed in two huge categories: natural entities and artefacts.

[Global Centre || Agent] ⇔ ***Subject***

[Local Centre || Patient] ⇔ ***Object***

As animate entities are commonly thought of as being in-between, we need also to investigate how speakers manage to linearise that rather heterogeneous (and by nature parallel) representations which take the form of more or less informatively intentional expressions of 'centres of interest' of a discourse. Thus, we consider that the set of animate



entities A is in intersection relation with the set of natural entities X, on the one hand, and with the set of artefacts Y, on the other hand.The inanimate entities correspond therefore to the differences such as: $X\text{-}A = \{x \mid x \in X \text{ and not } x \in A\}$ for *natural* inanimate entities and $Y\text{-}A = \{x \mid x \in Y \text{ and not } x \in A\}$ for inanimate *artefacts*.

They are members either of a part of the set X (natural entities) or of a part of the set Y (artefacts). Thus, the animate category of entities is defined as an abstract category because animate entities do exist only either as natural entities or artefacts.

10. Contrast and Negation

In our famework, it turns out to be rather logical that the particle *wa* can be used with a contrastive meaning, too. The reason for this is that two elements of the same set may differ by a part of their characteristics. As shown on figure below, the element a of A is taken with respect to the element b of B.

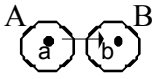


Fig. 2: Contrastive identity

信一郎は左側に、学生は右側に席を占めた。

Shin'ichirô wa *hidari-gawa ni, gakusei* wa *migi-gawa ni seki o shimeta.*

(Shin'ichirô took the seat on the left side and the students on the right side.)

There is also a pseudo-contrastive meaning in sentences with negation. In this case, the particle *wa* is used to indicate the identity of an element which is outside of the set A. We say that a is in the Universe (represented by the rectangle) of the set A.

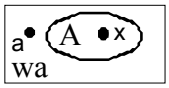


Fig. 3: Negative identity

Let us consider an utterance of the [A wa B de wa nai] type. The interpretation we can give implies the existence of three entities: A, B and C.

A does not exist as B (but it does exist as C).

As a matter of fact, we consider that the morpheme *wa* in the phrase [B de wa nai] refers to a paradigmatic relation. Its value is therefore the "identity of an item B not belonging to the set A; i.e. being in complementary relation as to A". In order to understand this, we have to go through the following logical reasoning:

[A is not B] implies [A is C]

N.B.: In those cases where we would like to say "A is not B", we can simply say [A wa B de nai]. (without the particle *wa* in the second phrase).

Here again, we notice that since the particle *wa* has been classified as identity marker, there are other morphemes that can be used instead of *wa* in the "attributive" part of identity utterances. The utterance "*A wa D de mo nai"* means that: A does not even exist as D (but that it may exist as B and C). For instance:

１年 日本語を勉強したのに、まだ平仮名もよく読めません。

(Ichi-nen Nihongo o benkyô-shita no ni, mada hiragana ***mo*** *yoku yomemasen.)*

(Although I have been learning the Japanese language for one year, I cannot even read well hiragana yet.)

In the above example, hiragana syllabary is related to katakana (C) and kanji (D) which are not mentioned in the utterance. It seems possible to discover the following logical reasoning: *A is B. ---> A is neither C nor D.*

11. Some Implicit 'Centres of Interest'

Given the necessity to *identify* the participants of the speech acts, languages possess different categories such as: Person, Respect, Process-orientation etc. One of the problems concerning how to identify 'centres of interest' is 'Locutive Identity'[18], i.e. the identity of the speech act participants. We claim that Person and Respect[19] (more frequently known as 'Politeness') are essentially identity-based language categories.

[18] Cf. Wlodarczyk André (1986).

[19] Cf. Wlodarczyk André (1996, 2001b).

There is increasing evidence of identification in language use in different linguistic theories. Let us mention only the last one (Kozai S., 1999) which "integrates Mental Space notions (Fauconnier G., 1994, 1997) and transitivity elements" comparing speaker's "profiling identity" in Japanese with "shading identity" in English. However, in this theory, the main concern is empathy as defined in terms of Viewpoint (Kuno S., 1987) and Blending (Fauconnier G. and Turner M., 1996); i.e. identification of the speaker with other participants (putting oneself in the situation of *alter* , taking his point of view etc.).

Out of speech context, the following Japanese utterance is ambiguous :

先生がいらっしゃいましたか。

"Sensei ga irasshaimashita ka ?"

(a) 'Did the professor come/go?'
(b) 'Professor, did you, come/go?'

For example, its meaning is (a) when uttered in the situation where the speaker is a schoolgirl and the hearer is her schoolmate and it is (b) when uttered in the situation where the hearer is the professor. Hence we recognise that the identifications needed for its situated analysis are either

(a) the Speaker's identity as regards the Hearer who is her 'schoolmate' or
(b) the Speaker's identity as regards the Referent (here: the individual spoken about).

In both cases, the disambiguation must take into account as well the semantic Agent as the informative 'centre of interest', i.e. the utterance SUBJECT which is absent from the information externalised in form of a linearised linguistic message.

Note also that - in addition - the interpretation (b) makes use of shared knowledge which can be represented as 'Hanako is a student of the professor in question'.

We argue that the (deictic) *identity of speech actors* (defined in a different way from the one proposed by Jakobson R. (1956) are as basic (primitive) as a concept as "face" in the FTA (Face Threatening Acts) analyses by Brown P. & Levinson S. C. - 1978 without replacing the latter, and consequently can serve as the common denominator when building a unified Theory of Person and Respect (i.e. a theory of deictic identification of speech actors).

12. Conclusion

We have shown that in communication processes 'centres of interest' are selected from three different layers of discourse in the following order: utterance < extended utterance < text/dialog. Today, especially in Computational Linguistics, investigations are conducted also on the topmost layer, namely on the layer of Text/Dialog. One of the first attempts made in the field of *theoretical* linguistics concerns the comparison of THEMES and SUBJECTS in English and Korean discourse practices.

"By employing experimental methodology, this study has shown that Korean speakers use roughly the same strategy as English speakers for selecting a referent as the syntactic SUBJECT of a clause. Like English speakers, Korean speakers are sensitive to the local theme, global theme and the previous theme when they tell a story." (Kim M.-H. (1997)

Leech G. N. (1983) touched upon the problems of information quantity, quality and economy saying for example that according to the Economy Principle, the speaker must "be quick and easy" and "reduce where possible". This idea is the closest to our Basic Pragmatic

Rule of Presentation of Information: “be exhaustive as much as (1) you can but not more than (2) you must”. In other words: use such a proportion of concision to precision that is appropriate (relevant) for the given communication conditions taking into account your possibilities and needs.

We claim that identifying 'centres of interest' is one of the crucial problems of most communication processes in any language and culture. Questions like "what are you actually talking about?", "who said so?", "what do you mean?" and "who did it?" are even sometimes asked and must be made explicit during conversations. Whereas in I.-E. languages and in Ergative languages Subject is *obligatory*, in Japanese it is *optional*. Obviously, both the Syntax of I.-E. languages and that of Ergative family languages forces speakers to always express the selected centre of interest within the limits of simple (non-extended) utterances even if this fact requires the use of dummy (anonymous) 'global centres of interest'. In Japanese the optionality of 'global centres of interest' is typologically close to the I.-E. languages in that what is global in active voice is Subject and what is global in passive voice is Object.

Indeed, linguists generally consider that, as a rule, Subject overlaps preferentially (a) with the role of Agent in the active voice and with that of Patient in the passive voice in I.-E. languages and it overlaps (b) with that of Agent (in absence of a patientive phrase) and with the role of Patient (in presence of an agentive phrase) in Ergative Languages. After setting the relation between "global centres of interest" and "semantic situation roles" (Global Centre || *Agent* ⇔ *Subject*, Global Centre || Patient ⇔ *Object*), it becomes possible to re-word this statement in the following way: (a) Subjects are *global* centres of interest in the active voice and Objects are *global* centres of interest in the passive voice in I.-E. languages whereas (b) Subjects are *global* centres of interest in absence of a patientive phrase and Objects are *global* centres of interest in presence of an agentive phrase in Ergative Languages.

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