FROM SYNTAX TO SEMANTICS
A Pronominal Approach to Valency in Japanese

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1. Introduction

In this paper I want to present a recently developed method for language description, the Pronominal Approach (PA), and its application to the syntax of Japanese, i.e. the description of valency templates of Japanese verbs.

The Pronominal Approach was conceived by Professor K. van den Eynde (1969) expounded in K. van den Eynde & C.Blanche–Benveniste (1978) and developed in C.Blanche–Benveniste et al. (1984).

Research for the compilation of valency dictionaries for French and Dutch with the PA as method, started at the University of Leuven (Belgium) with the Proton project in (1986) under the direction of Prof. Dr. K. van den Eynde.

The ultimate aim of the Proton project is to link parallel descriptions of different languages in an automated translation program. Valency dictionaries based on the PA for Dutch and French are already in use in the Siemens Metal Automatic Translation system.

Pronominal Approach provides a specific research method for the study of basic syntactic structures in any natural language. This approach wants to impose a system on linguistic material and it does so by making use of the pronouns. Pronouns do no stand for nouns. It is quite the opposite. Pronouns are methodologically anterior in that they are the basic deictic elements of a language (Quine 1964).

This approach offers a linguistic description that is essentially based on a lexicon of construction bearing elements (i.e. verbs and adjectives) and their combinatorics. It has the advantage that one can work with elements provided by the language itself, i.e the pronouns. The use of pronouns allows a limited field of observation on the basis of which the linguistic information is obtained by induction. This method allows for a syntactic analysis free from specific lexicalization problems while lexicalization by simple matching of paradigmatic features is anticipated.
Contrary to existing dictionaries, valency dictionaries compiled with the PA as method allow an almost exhaustive description of the construction possibilities for each lemma. PA allows also to link in a coherent way syntax, semantics and the lexicon.

2. Pronominal Approach (PA)

2.1. Methodology and scope of the present study.

The predicator, verb or adjective, is considered to be the nucleus of an utterance. For Japanese the present valency study is based on single verbal predicator constructions. For each predicator we will investigate all the verb-specific arguments or valents (optional as well as obligatory). Valency is thus the description of the specific construction possibilities determined by the predicator. Each predicator has a specific syntactic value in that it establishes a particular relationship between the arguments it can take. Valents can be pronominal (1), nominal (2), or sentential (3).

1) kare wa sore o kiita
   he heard that (it)

2) sawadasan ga nyuusu o kiita
   Mr. Sawada-ga / news-o / heard
   Mr. Sawada heard the news
   RF:PO[kare]ga p1[kore]o kiita

3) kare wa ashita tomodachi ga kuru to kiita
   he- wa / tomorrow friend-ga / come-to / heard
   he heard that tomorrow a friend is coming
   RF:kare wa ashita p1 sore o kiita
   RF:kare wa ashita p manner[soo]kiita

This study will however merely concentrate on nominal valents. Also discourse effects on the realisation of a valency scheme are not taken into account for the construction capacity of the verb. Since in Japanese, the predicator is the minimal utterance, verbs no matter how many valents they may take can appear without any valent and yet form a grammatically correct utterance. Unlike in Indo-European

Footnote:

For the meanings of the Japanese pronouns see p. 19.
languages the combination subject-predicate is not obligatory in Japanese for a normal linguistic utterance. The greater majority of Japanese sentences appear without a subject. This is, of course, when the omitted argument can be inferred from the context. The construction capacity of a given verb will be examined in free context and all the omissions of arguments, that frequently occur in spoken language, will not be taken into account.

2.1.1 Pronominal Paradigms

The PA takes advantage of the "algebraic" elements provided by language itself, namely the pronouns, based on the principle that syntactic structures in which a verbal nucleus is completed with merely pronominal elements, function as classifiers for the structures with lexical realisations. By analysing the pronominal sentence structures, abstracted from lexical variations, we can uncover the essential combinatorial properties of the language involved. The syntactic features obtained from observation of pronominal sentences fully characterise the basic features obtained from observation of lexicalized sentences. In working with pronominal constructions only, one has the advantage of a limited field of observation on the basis of which the basic linguistic information can be obtained by induction. Linguistic material will be converted onto a level at which only valency bearing elements such as verbs and adjectives, and pronouns will be retained. The predicate, whether verb or adjective is thus the only lexical element of the sentence.

4) kare wa ringo o taberu <----- kare wa kore o taberu
   he- wa / apple- o / eat           he- wa / this- o / eat
he eats an apple

                     kare wa           kore o           taberu
  ---- ------           ------
watashi          sore
satoosan       nanika

Sets of pronouns, in which each pronoun is in a relation of proportionality with the corresponding interrogative pronoun and has its specific features, are called pronominal paradigms. Since they are the basic media for reference they provide the standard for comparing lexical syntags.²

The first practical problem to deal with, then, is the compilation of a list of pronouns and the semantic features, each of the pronouns stands for. A thorough feature analysis will learn us that not all existing pronouns need to be taken into

²W. V. O. Quine [1964] called the pronouns "basic media of reference"
consideration for valency description, since the applicability of number of referentials can be easily predicted from others whose features they share.

According to the practice for valency study in Dutch, French, Portuguese, Danish, Russian, Japanese and Chinese\(^3\), not only pronouns in the traditional sense are used but also all other elements for which a relation of proportionality exists with the lexicalized arguments and that have proportional equations between them.

For Japanese, some pronouns used in this study have to a large extent the composition of noun phrases, but they can be used because they are minimal referents. Examples are _sono toki_ (that time) or _dono yoo ni_ (in which way) or _nan N\(A\) (how many nA). Henceforth pronouns will be referred to as referentials\(^4\).

<table>
<thead>
<tr>
<th>dare</th>
<th>dore</th>
<th>doko</th>
<th>itsu</th>
</tr>
</thead>
<tbody>
<tr>
<td>watashi</td>
<td>kore</td>
<td>koko</td>
<td>sono toki</td>
</tr>
<tr>
<td>anata</td>
<td>sore</td>
<td>soko</td>
<td>itsumo</td>
</tr>
<tr>
<td>kare</td>
<td>are</td>
<td>asoko</td>
<td>itsudemo</td>
</tr>
<tr>
<td>daredemo</td>
<td>doredemo</td>
<td>dokodemo</td>
<td></td>
</tr>
</tbody>
</table>

The interrogative referential asks for the syntagm indicated by a referential. When no interrogative referential is possible one can decide that there is no normal syntagm.

5) a) kare wa binboo o [ki ni shinai]  
   he- _wat_/ binboo- _o/ [don't care]  
   he is indifferent to his poverty  
   RF: p0[kare]wa p1[kore]o [ki ni shinai]

In (5a) the NP "ki ni" is not related to any referential and is thus no syntagm.

2.1.2. Relation of proportionality
The notion of proportionality existing between the referential paradigm (RP)

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\(^3\)These studies have been done or are under way within the frame of the Proton Project.

\(^4\)Whether the words termed as pronouns in Japanese differ syntactically from nouns is not relevant for this study. There is a set of words that might be labelled as pronouns since it has come to have a well established pronominal use. Since Japanese has not such an obviously distinct category of pronouns and since the PA does not use only pronouns in the traditional sense, the word referential, used by Hiz [1980] seems to be more appropriate to designate the pronouns. Since they indicate the minimal explicit reference they can be called (minimal) referentials.
and the lexical, i.e. non-minimal realisations of given syntactic units, is a basic concept of the PA.

\[
\begin{array}{c c c}
dare & = & dono \ yoo \ ni \\
kare & = & kono \ yoo \ ni \\
chichi & = & umaku \\
sore & = & ringo \\
\end{array}
\]

This relation of proportionality allows us to confirm that the whole of syntactic relations of the referential phrases will be applicable on the whole of lexical phrases. A lexical phrase can be proportional to a set of underlying referentials. It is the composition of that referential set that reflects the syntactico-semantic properties of the noun phrase. Two noun phrases that contain different lexical elements but have the same relation of proportionality with the referential set have the same syntactico-semantic properties.

6) a) tanakasan ga hon o kau
   Mr. Tanaka - ga / book - o / buy
   Mr. Tanaka buys a book
   RF: p0[ kare ] ga p1 [ kore ] o kau

   b) otoosan ga ringo o taberu
      father - ga / apple - o / eat
      father eats an apple
   RF: p0[ kare ] ga p1 [ kore ] o taberu

The syntagms tanakasan ga and hondasan ga are proportionally related to the same
   RP p0[ kare ga, ano hito ga ... ]
The syntagms hon o and ringo o are related to the same paradigm p1[ kore o, korera o, sore o, sorera o ... ].
Each valent is related to its own characteristic paradigm.

2.1.3. Preliminary considerations for a feature analysis of referentials

The RP's can be described by the semantic features - induced from formal data - common to the set of referentials within the paradigm. Each referential differs from all others in at least one feature. They can be schematised as proportional equations:
dare  nani  doko
----- = ----- = ----- = ....
kare  are  asoko

In these equations dare stands to kare as nani stands to are, etc. These equations can be represented in a more abstract way:

\[
\begin{array}{cccc}
A & C & A(1,1) & C(II,1) \\
----- &=& ------ &=& \ldots \\
B & D & B(1,2) & D(II,2)
\end{array}
\]

In other words each set of referentials (dare,kare,A,B...) corresponds to a unique set of features (I.II,1,2...) and each RP can be described with the features of each of the referentials it contains. The paradigm p0: dare ga / watashi ga, watashitachi ga, anata ga, anatagata ga, kare ga, karega ga, kanojo ga, kanojora ga...can be described by the features: [+susp/+human/+individual/+plural/+feminine...]. The paradigm p100 ni: dokoni/kokoni, sokoni, asokoni...can be described by the features: [+suspensive/+proximal or +mesial or +distal...].

A similar set of features can be projected onto a lexically realised syntagm each time a relation of proportionality to the corresponding referential exists(6). Each referential can be replaced by its feature-cluster and the same relation of proportionality will hold among these feature clusters. Lexicalized phrases correspond to similar sets of referentials or to similar feature-clusters.

In example (6) both the p0’s of (a) and (b) are related to the same referential kare... If we replace the referential by its feature cluster, we get:

kare = [-interrogative, +human, +individual, -plural...]

Both p0’s are proportionally related to the equation of feature clusters.

\[
\begin{array}{ccc}
dare & +interrogative, +human, +individual, +plural... \\
----- &=& \ldots \\
kare & \text{interrogative, +human, +individual, -plural...}
\end{array}
\]

Because lexicalized phrases correspond to similar referentials they can be grouped into similar functional clauses. The RP’s can be considered as prototypical markers of the syntactico-semantic relations in the language and their composition reflects the valency properties of the verb. RP’s can thus be described in terms of their function in predicative constructions and of the feature-clusters of their members.
7) a) shigoto ga agatta
   work -_gu / ended
   the work ended
   RF:p0[kore]ga agatta

   b) hannin ga agatta
   criminal -_gu / was found
   the criminal was found
   RF:p0[kare]ga agatta

In sentence (7a) the p0 has the distinctive feature [-human] and in (7b) it has
the feature [+human].
Each RP, as it has a specific function, can be indicated with a label representing
the referentials that may occur in that paradigm. We will use the label p0, traditionally used to indicate the subject, for what corresponds most to a similar function in
Japanese i.e. the RP followed by the grammatical particle _gu, in many cases by
_wu, when topicalized, and in some cases _ni(wu). The label p1 will be used for the
RP of the direct object, followed by the particle _o and P2 will be used for the RP
of the indirect object with the particle _ni. The other labels p+gram particle stand for
the postpositional paradigms. The grammatical particle will indicate its function in
the sentence: pni, pkara, pde, etc.
In this way we can describe the valency templates with the labels for the different
valency syntags.

8) watashi wa taaa san ni jitensha o katta
   I -_wu / Taroo -_ni / bycycle -_o / bought
   I bought a bycycle for Taroo
   RF:watashi wa p2[kare]ni p1[kore]o katta

   p0         p1         p2         Verb

2.1.4. The role of formulations
Not only the number of paradigms and their internal composition are taken
into consideration. The predicator and its arguments are also bound by the predicato rs's valency referential constructs, i.e. the reformulations, the linked construc tions, the related constructions and the verbal construction of the deverbative

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5 According to the valency studies in French, Dutch, Portuguese etc.
noun (see 2.2.4). The possible referential constructions are essential elements for the determination of the valency of the verb.

9) a) anata ga mata otoosan ni amaete iru ne
   you - wa / again / father - ni / take advantage of
   you are again making up to your father
RF: p0[anata]ga mata pni[kare]ni amaete iru

   b) kare ga ano hito no shinsetsu ni amaeru
   he - ga / he - no / kindness - ni / take advantage of
   he takes advantage of his kindness
RF: p0[kare]ga pni[kore]ni amaeru
Formulations: (D)pass . . potent . . caus . . te aru . RN . *RC . *LC.

Both sentences have the same reformulation possibilities except for the indirect passive that is possible in sentence (9a) but not in sentence (9b). On the basis of an exhaustive description of the features of these RP, their distribution and the correspondences between the RP in the different formulations, the primitive semantics will be derived. We thus oppose the primitive semantics of the RP to the secondary semantics which are induced by the lexicalizing elements, i.e. nouns, adjectives, infinitives and sentential complements. The whole of the formulations of a verb can realise with its arguments, forms a group of formulations.

For Japanese we have also taken into consideration the relation of the verbal construction template of the corresponding deverbative noun, i.e. a noun derived from a verb or vice versa and that we have labelled as related noun (RN). (19, 20)
A verb is thus defined by its number of arguments (10a) is trivalent and (10c) is bivalent, the paradigmatical composition of these arguments: (11a) [p0 Pločni], (11b), [p0 pman], the whole of its formulations of relations with its terms: (10a), (10b) where a shift of the function of the syntagms occurs and related nouns as in (19, 20).

10) a) kanojo ga keito de kutsushita o anda
   she - ga / wool - de / socks - o / knit
   she knit socks out of wool

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*The abbreviations stand for: D. pass. = direct passive; potent. = potentialis; caus. = causative; LC = linked construction; RN = related noun; RC = related construction; Ind. pass. = the passive formulation where the pni of the active formulation absorbs the function p0 of the passive formulation.
In the (10a) the paradigmatical formulation would be [p0 p1 [pde] Verb] where the ppde is optional. The (10c) sentence [p0 p1 Verb] can not have such an optional ppde. The formulations (a, b) and (c) are different in their number of arguments. The paradigmatical compositions of the p0 and p1 in both sentences are the same. The p0's are proportional to the paradigm dare/kare...(who/he...) and the p1's with the paradigm nani/kore. sore...(what/this,that...) As for their formulation possibilities, the (a) sentences is characterised by (D+Aff)pass..potent.,caus.,-te aru. LC, RN, *RC and the (b) sentence by (D+Aff)pass..potent.,caus.,-te aru. LC, RN, *RC and (c)(D+Aff)pass..potent.,caus.,-te aru, *RN, *RC, *LC. (a) and (b) are linked constructions of each other. For (c) there is no possibility of a linked construction nor is there any relation with a corresponding deverbative noun.

The potential referential constructs of a predicator, which are entirely based on the combinatory capacity of the occurring RP's as members of classes, can be roughly divided in four groups: Reformulations, Linked Constructions, Related Constructions and Related Noun Constructions.
2.2. Formulation groups

Different formulations of one and the same predicate are called "formulation group". None of these formulations is considered to be prior or more basic than the other. Passive for instance is not considered as a posteriori conversion of the active sentence. Both are reformulations of each other. (12a) is a reformulation of (12b) and vice versa.

2.2.1 Reformulation groups

One kind of formulations have been called reformulations. Reformulations are characterised by the stability of certain paradigmatical features while the verbal morphology is different. Here two different kind of reformulation groups have to be considered.

2.2.1.1 Equivalent reformulation groups.

Are considered as such those reformulations for which there exists a double implication as exists between the active/direct passive reformulations or between the active/indirect passive reformulations.

12) a) act.: sensei wa kono gakusei o hometa
    teacher- *wa* / that student- *o* / praised
    the teacher praises that student
    RF:p0[kare]wa p1[kare]o hometa

        b) D.pass.: kono gakusei wa sensei ni/kara homareta
            that student- *wa* / teacher- *ni* / was praised
            that student was praised by the teacher
    RF:p0[kare]wa pni/kara[kare]ni/kara homareta

13) a) act.: sensei wa seito ni eigo o oshieru
    teacher- *wa* / student- *ni* / English- *o* / teach
    the teacher teaches the students English
    RF:p0[kare]wa pni[kare]ni p1[kore]o oshieru

        b) Ind.pass.: seito wa sensei ni eigo o oshiereru
            student- *wa* / teacher- *ni* / English- *o* / are taught
            the students are taught English by the teacher
    RF:p0[kare]wa pni/kara[kare]ni/kara p1[kore]o oshiereru
In both examples (12) and (13) there exists a relation of equivalence between (a) and (b): if (a) is true than (b) is true too and vice versa.

3.1.2. Implicative reformulation groups

For this type of reformulation group there is only a one-way implication, like for instance between on the one hand the active and on the other hand the affective passive or the causative, potential and -te aru formulations.

14). a) act: Noriko no oniisan ga kodomo o butta
   Noriko- no brother- ga / child- o / hit
   Noriko’s brother hit the child
   RF: p0[kare]ga p1[kare] o butta

   b) Aff. pass: Noriko wa oniisan ni kodomo o butareta
      Noriko- wa / brother- ni / child(ren)- o / hit
      Noriko had her child(ren) hit by her brother
   RF: p0[kanojo]wa pni[kare]ni p1[kare] o butareta

Between the (a) and the (b) sentences of example (14) there is no relation of equivalence. There is only an implication in one direction: if (b) is true than (a) is true too, but not vice versa. The paradigmatical features of the p0 of (14a) are the same as those of the pni/kara of (14b). The same holds for the p1 of (14a) and the p0 of (14b).

Whether reformulations exist for a given predicator cannot be defined by rules. It is unpredictable and should be investigated verb by verb. They do however occur very frequently with great regularity in the morphological changes of the verb as well as in the change of the function of the valents. Because of their frequency and their regularity they will not be considered as different readings of the same morphological verb. The (im)possibility of a reformulation (passive, causative etc.) might however determine whether a verb should be split up into different readings or not. (15), (16) Each reading refers not to a particular formulation but to a formulation group. The readings of a verb are thus defined by a group of constructions or the construction group. A single construction can be ambiguous.

15) shigoto ga agatta
    work- ga / ended
   the work was finished
   RF: p0[kore]ga agatta
16) gekkyuu ga agaru
   salary-\textit{ga} / raises
   the salary raises
   RF: p0[kore]ga agatta
\textit{Dp Affp `caus. `potent. `te aru RC `RN}

2.2.2. Linked constructions

Linked Constructions (LC) which differ from reformulations in that the verb is morphologically identical, that some valents in one formulation will be in a different syntactic position in the other formulation and/or that the valents differ in number. Since this type of link is less frequent and more specific than the passive and passive-like formulations they will be considered as a different reading of that particular verb (17).

17) a) satoosan to katoosan ga itsumo arasotte iru
   Mr. Satoo \textit{to} Mr. katooo-\textit{ga} / always / are quarrelling
   Mr. Satoo and Mr. Katoo are always quarrelling
   RF: p0[karera]ga itsumo arasotte iru (monovalent)

   b) satoosan ga katoosan to itsumo arasotte iru
   Mr. Satoo-\textit{ga} / Mr. katooo-\textit{to} / always / are quarrelling
   Mr. Satoo is always quarrelling with Mr. Katoo
   RF: p0[kare]ga pto[kare]to itsumo arasotte iru (bivalent)

2.2.3 Related constructions

With related constructions (RC) we indicate the relations such as they exists between pairs of Transitive and Intransitive verbs, which are not morphologically identical but have a common morphological base. Though the valents and the morphology of the verbs are different, there is a relation between the RP's of the grammatical constructions of each verb of such a pair. They are verb-specific construction possibilities (18).

18) a) sensei ga kuji ni jugyoo o hajimeru (Tr)
   teacher-\textit{ga} / 9 o'clock-\textit{mi} / lesson-\textit{o} / begin
   the teacher begins the lesson at 9 o'clock
   RF: p0[kare]ga pni[sono toki]ni p1[kore]o hajimeru
b) jugyoo ga kuji ni hajimaru (Intr)
the lesson-\text{-gu} / 9 o'clock-\text{-ni} begins
the lesson begins at 9 o'clock
RF: p0\text{[kore]} ga pni \{sono toki\} ni hajimaru

2.2.4. Related noun constructions
Following examples show that a verb that is related to a noun derived from the verb in question is different from the one that hasn't such a relation. Correspondence or absence of correspondence with a related noun is one of the devices to distinguish between different readings of a verb. (19)(20)

19) (verb): shijin wa karera no eikoo o shi ni utatta
poet-\text{-wa} / they-\text{-noglory-} o / poem-\text{-ai} / sang
the poet sang their glory in a poem
RF:p0\text{[kare]} wa p1\{sore\} o pni \{sore\} ni utta

(noun): shijin wa karera no eikoo ni uta o tsukutta
poet-\text{-wa} / they-\text{-noglory-} ai / song-\text{-o} / made
the poet devoted a song to their glory
RF:p0\text{[kare]} wa pni \{sore\} ni p1 \{sore\} o tsukutta

20) (verb): ryookoku wa jooyaku ni heiwa no jitsugen o utatta
both countries-\text{-wa} / treaty-\text{-ni} / peace-\text{-norealisation-} o / sang
both countries celebrated the realization of peace with a treaty
RF:p0\text{[kore]} wa pni \{sore\} ni p1 \{sore\} o utatta

*(noun): ryookoku wa heiwa no joouaku no uta o utatta
*RF: p0\text{[korera]} wa p1 \{kore\} o utatta

3. Criteria for Valency

3.1. Minimal requirements for valency
A predicator can be constructed with a number of terms. Not all of these terms can be considered as valency-bound.

For a lexical group in order to be considered as a valent there is a first criterion that there must exist a relation of proportionality with a RP. Yet not all arguments
that are proportionally related to a RP can be considered as valency-bound. We have to make a distinction between verb-general and verb-specific arguments. Absence of proportionality indicates that a lexical group is not a real syntagm and as such it is the formal test for distinguishing pseudo-syntags from real ones. Lexical noun phrases that are not in a relation of proportionality with referentials, as it is the case in locutions and proverbs, do not belong to the normal syntax of the verb. They have only the appearance of a syntagm but in fact they form an indivisible unit with the verb (21).

21) kare ga binboo o [ki ni shinai]
   he - ga / poverty - o / doesn't mind
   he is indifferent to his poverty
RF: p0[kare]ga p1[kore]o ki ni shinai

In this example *ki ni* is not proportionally related to any referential and can thus not be considered as a normal syntagm.

3.2. Verb-general arguments
Arguments like lexical syntags of place (pde), time (p[ni]) or manner (p[ni]) are related to the referential paradigm with the interrogative referentials doko (where), itsu (when) and doo (how) and the corresponding assertive referentials. They can occur with virtually any verb, and thus are considered as verb general.

22) tokyoo de tanaka-san ni atta
    Tokyo - de/ Mr. Tanaka - ni/ met
    I met Mr. Tanaka in Tokyo
RF: ppde[soko]de pni[kare]ni atta

Yet some verbs do require such syntags in order to build grammatically correct sentences. In that case these paradigms are, of course considered as belonging to the valency of the verb. In the following example (23) a ppni (manner) is needed in order to make sense.

23) kenkyuu wa kantan ni wa ikanai
    research - wa / simply wa / doesn't go
    research doesn't go easily
RF: p0[sore]wa pmanner[sono yoo ni]wa ikanai
3.3. Verb-specific arguments

Verb specific arguments are those that are specific for a sub-class of verbs. They are considered as valents though they are not always absolutely needed to build up a well formed and complete sentence.

24) [yama no ue ni] hatake o tsuktte iru
   mountain - noup - ni / field - o / are making
   they are laying out fields on that mountain.
RF: pni[soko]ni p1[sore]o tsuktte iru

Contrary to the pde(location) the pni(location) (24) is only required by a sub-class of verbs and as such is verb specific and belongs to the valency of the verb.

25) kare wa [oosaka kara] tokyo ni iku
    he - wa / [Osaka - kara] / Tokyo - ni / iku
    he goes [from Osaka] to Tokyo

A pni(direction) (25) can also occur only with a sub-class of verbs and thus belongs to the valency of the verb. The pni(location) can be distinguished from the pni(direction) in that the pni(direction) always can, though not obligatory, be combined with a ppkara.

For predicates that can appear in different formulations, i.e. with different sequences of RP's, the correspondence between a RP in one formulation with the RP in another formulation, indicates that the argument involved belongs to the valency of the verb. (10a,b)

3.3.1. Restricted proportionality

For some predicates there exists only a relation of proportionality with the interrogative referential and not with the normally corresponding assertive referentials.

26) kotoshi oikutsu ni narimasu ka
    this year / how old - ni / become
    how old will you be this year

For the interrogative referentials iKutsu (how many), iKura (how much), naaNA (how many NA) there is no direct referential answer. The ultimate choice of consid-
erating the term as valency-bound or not depends on whether either of these qualifications will render the linguistic description more effective.

3.3.2. Restricted lexicalization possibilities
This will be also the case for those predicators that occur with an argument that has a proportionality relation to a paradigm but have very restricted lexicalization possibilities.

27) kare wa ootoo to seikaku ni ookina chigai ga aru
    he- wa /brother- to / character- ni / big difference- ga / there is
    there is a big difference in character between him and his brother
RF:p0[kare]wa pto[kare]to pni[sore]ni p0[sore]ga aru

In this example the lexicalization possibilities of the p0 with the pronominal paradigm ( nani, dore/kore, sore, are...) are restricted to: chigai (difference), sa (difference, variation).

3.3.3. Optional valents.
Given the difficulty, at least in some cases, to distinguish valents from verb-general arguments, also called rection elements, one should, in these cases, adopt the methodologically most effective choice. In many cases it is the (im)possibility of an optional valent that will help determining a different reading of a verb.

28) soo iu hon ga atta
    such a books- ga / existed
    such a books existed
RF:p0[sore]ga atta

29) tookaidooosen de densha no shoototsu ga atta
    Toookaidoo Line- de / train- nocollision- ga / happened
    There happened a train collision on the Toookaidoo Line
RF:pde[soko]de p0[sore]ga atta

For both sentences (28) and (29) the formulation possibilities are the same only the optional ppde allows to differentiate the two readings of the same morpho-

---

7 Gebruers [1991:283] "The appropriateness of labelling a Term as valency-bound or valency-free ultimately depends on the extent to which this choice allows the overall linguistic description to be simplified. Clearly, there is no point in lexically storing combinatory characteristics which can be predicted by general rule."
logical verb.

We can summarise by saying that the valency of a verb is not only defined by
the relation of proportionality with some RP and its function in the sentence, but
also by the whole group of reformulations, linked constructions, related construc-
tions and verbal constructions of the deverbative noun, that exist for a given predi-
cator. They are essential elements for the determination of the valency of a verb.

These relationships, together with the number of valents and the composition
of their pronominal paradigms determine the position of a given predicate in the
syntactico-semantic network of a language. (30->34)

30) kodomo ga soto de booru de asonde iru
   children-ga / outside-de / ball-de / are playing
   the children are playing outside with a ball

RF:p0ga[kare] ptoode[soko]de pde[kore]de asonde iru
(Aff)pass..potent..caus..-te aru,RN,*RC,*LC

31) kodomo ga inu to asobu
   child(ren)-ga / dog-to / play
   the children play with the dog

RF:p0[kare]ga pto[sore]to asobu
(Aff)paas..potent..caus..-te aru,RN,*RC,LC:kodomo to inu ga asobu

32) kodomo to inu ga asonde iru
   child(ren)-to dog-ga / are playing
   the child(ren) and the dog are playing

RF:p0[karera]ga asonde iru
(Aff)pass..potent..caus..-te aru,RN,*RC,LC:kodomo ga inu to asonde
   iru

33) kare ga enoshima ni asobu
   he-ga / Enoshima-ni / asobu
   he goes to an excursion to Enoshima

RF: p0[kare]ga ppni[soko]ni asobu

34) kikai ga asonde iru
machine(s) *-ga / are not in use
the machine is not in use

RF: p0[kore]ga is not in use

4. Conclusion.

Above I have tried to expose the essential characteristics of the PA that proves to be a general methodology that can describe the particular systems of languages.

The PA is a very useful tool for the compilation of valency dictionaries. These can be used in machine translation systems, data base queries, natural language information systems, dialogue handling, etc. It is also useful for the development of software for spoken or written language synthesis and automatic speech recognition as well as computer aided instruction.

Japanese dictionaries provide little or no systematic information about the construction possibilities of verbs. They are only illustrated with some examples and never in an exhaustive way.

Valency dictionaries compiled according the PA give a complete syntactic description of each verbal entry and as such are also very useful for foreign language students.

Abbreviations

Aff. pass.: affective passive
caus.: causative/permissive
CPF: causative/permissive formulation
D. pass.: direct passive
Ind. pass.: indirect passive
LC: linked construction
NA: numerary adjunct
NP: noun phrase
potent.: potential
2) Translation of the Japanese pronouns used in this article.

<table>
<thead>
<tr>
<th>Japanese</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>dare</td>
<td>who</td>
</tr>
<tr>
<td>daredemo</td>
<td>anybody</td>
</tr>
<tr>
<td>wata(ku)shi</td>
<td>I, me watashitachi, we, us</td>
</tr>
<tr>
<td>anata</td>
<td>you</td>
</tr>
<tr>
<td>anatagara</td>
<td>you (plural)</td>
</tr>
<tr>
<td>anohito</td>
<td>he, she, him, her</td>
</tr>
<tr>
<td>anohitotachi</td>
<td>they, them</td>
</tr>
<tr>
<td>kare</td>
<td>he, him</td>
</tr>
<tr>
<td>karera</td>
<td>they (-F)</td>
</tr>
<tr>
<td>kanojo</td>
<td>she, her</td>
</tr>
<tr>
<td>kanojora</td>
<td>they, them (+F)</td>
</tr>
<tr>
<td>nani</td>
<td>what</td>
</tr>
<tr>
<td>dore</td>
<td>which one</td>
</tr>
<tr>
<td>doredemo</td>
<td>anyone</td>
</tr>
<tr>
<td>kore</td>
<td>this</td>
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<tr>
<td>korera</td>
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<td>those</td>
</tr>
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<td>are</td>
<td>that there</td>
</tr>
<tr>
<td>arera</td>
<td>those there</td>
</tr>
<tr>
<td>dono yoo ni</td>
<td>in what way</td>
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<td>kono yoo ni</td>
<td>in this way</td>
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<td>in that way</td>
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<td>ano yoo ni</td>
<td>in that way there</td>
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<td>soo</td>
<td>so</td>
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<td>doko</td>
<td>where</td>
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<td>dokodemo</td>
<td>anywhere</td>
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<tr>
<td>koko</td>
<td>here</td>
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</tbody>
</table>
soko there
asoko overthere
ikutsu how many
itsu when
itsumo always, never
itsudemo any time
sono toki that time

Bibliography

Blanche-Benveniste, Claire & van den Eynde, K. 1987. *Pronom et Syntax* Paris-
Selaf.
Assisted Translation. The Proton Project. *Translation and meaning 1*
Linguistics Club.
Melis, L. 1987. Formulation, group de formulations et dispositifs. *Travaux de lin-
guistique.*
University Press.
van den Eynde, K. & Blanche-Benveniste. 1987. Syntaxe et mechanisms descripti-
tifs: presentation de l’approche pronominale. *Cahiers de Lexicologie, 32.1.*
Pronominal Feature Analysis of Coordination in French. *Computers and
Translation 3.*