言語研究（*Gengo Kenkyu*）**144**: 83–101（2013）

Inversion in Sayula Popoluca

Tomoko Tatsumi
Graduate student, Tokyo University of Foreign Studies / JSPS research fellow

Abstract: Sayula Popoluca, a Mixe-Zoquean language spoken in southeastern Mexico, exhibits an inverse system. Inversion is a grammatical phenomenon in which the topicality ranking of participants and their corresponding argument types determine the choice between direct and inverse constructions. The principal motivation for this contrast is deictic, which is represented by an SAP (speech act participant) > 3 hierarchy. Inversion is so pervasive in this language that all polyvalent verbs are involved. Morphosyntactically, there are three subsystems corresponding to three different participant-configurations: SAP/non-SAP, intra-SAP, and extra-SAP. Extra-SAP configuration involves another mechanism called obviation to rank participants. This paper aims to provide a descriptive sketch of the morphosyntax of Sayula Popoluca's inverse system and locate it within the typology of inversion.*

Key words: Inversion, Sayula Popoluca, Person marking, Obviation, Mexican indigenous languages

1. Introduction

Sayula Popoluca[1] has an inverse system that distinguishes direct and inverse constructions in all polyvalent verbs. This distinction is made on the basis of the hierarchical ranking of participants and corresponding argument types. Several parameters are used to rank participants, but the most important is the deictic

* This paper is a revised extract from the author's master's thesis (Tatsumi 2011). I would like to thank all the consultants in Sayula, professors and friends who have helped me during the course of my research. I would especially like to express my sincere gratitude to Dr. Roberto Zavala Maldonado for his advice and support from the beginning of my research in Mexico, to Dr. Nobuo Tomimori for his guidance with the master's thesis, and to Dr. Toshihide Nakayama for providing me with many helpful comments concerning this paper. Also, I would like to thank two anonymous reviewers for their valuable comments on earlier drafts.

[1] Sayula Popoluca (also known as Sayulteco, or referred to as *tümay ajw* by native speakers) is a Mexican indigenous language, spoken in the municipality of Sayula de Alemán, which is located in the southeast region of the state of Veracruz de Ignacio de la Llave. This language belongs to the Mixean branch of Mixe-Zoquean language family (Campbell and Kaufman 1976: 82, Wichmann1995: 9-10). The census in 2005 by INEGI (Instituto Nacional de Estadística, Geografía e Informática) reports 2583 speakers of Popoluca in the municipality of Sayula de Alemán (INEGI 2009: 147). The majority of the speakers are elderly and bilingual in Sayula Popoluca and Spanish.

distinction between speech act participant (SAP, a concept that includes first and second person) and third person. Inversion in Sayula Popoluca constitutes a fundamental mechanism of participant marking.

Typologically, the most prominent feature of the inverse system of Sayula Popoluca lies in its tripartite system. Three subsystems correspond to different participant-configurations, which are defined in terms of whether the central participants involve SAP and/or third person.

This paper aims to present an outline of the morphosyntax of Sayula Popoluca's inverse system and to characterize it typologically. The examples used in this paper were largely obtained from conversation, narrative and elicitation data, acquired during my field research;[2] the rest are taken from narrative texts in Clark (1961).[3]

2. Grammatical Features of Sayula Popoluca

Sayula Popoluca's morphology is characterized as polysynthetic. As for verbs, person and aspect are obligatorily marked, and other categories such as polarity and valency change are optionally marked with the use of affixes and clitics. This language has several ways to alter valency or reorganize syntactic configuration, such as noun incorporation, reflexive, applicative and causative constructions, but not passive constructions. In the following sentence, we can see an example of noun incorporation; the 'bucket' forms a part of the verb stem.[4]

(1) *i=kubeeta-kom-ka-ja-w*
3PROX:3OBV=bucket-put-PL-APPL-COMP.INDEP
'They put them (the fruits) in the bucket.'

---

[2] The field research was conducted three times during the period from September 2008 to April 2010 in the municipality of Sayula de Alemán, where the language is spoken. 24 consultants (11 men and 13 women of different occupations including farmer, housewife etc.) participated in the research. They are native speakers of Sayula Popoluca, and have an excellent command of Spanish. Data consist mainly of conversation in naturalistic settings and narrative. Elicitation was conducted in order to clarify some morphosyntactic questions. The total length of audio recording is about six hours. All data were transcribed and coded by the author.

[3] As for sentences cited from Clark (1961), segmentation and glosses are added by the author.

[4] Abbreviations; 1: first person, 2: second person, 3: third person, A: transitive subject, APPL: applicative, CAUS: causative, COMP: completive, DEF: definite, DEP: dependent clause, DIM: diminutive, DIR: direct, EPN: epenthesis, EXCL: exclusive, INC: incompletive, INCL: inclusive, INDEP: independent clause, INT: intensifier, INV: inverse, IRR: irrealis, LIM: limitational, NEG: negative, O: transitive object, OBV: obviative, PL: plural, PROX: proximate, PSR: possesor, S: intransitive subject, SUB: subordinator, -: affix boundary, =: clitic boundary

Examples are given in phonological transcription. I indicate here the phonetic realization of some letters used in the transcription; x:[ʃ], j:[h], ':[ʔ], y:[j]. Sayula Popoluca has six vowels /a, e, i, o, u, ü/ with their long counterparts /aa, ee, ii, oo, uu, üü/. The /ü/ is a high-mid vowel. The letter '0' in examples indicates zero morpheme.

The distinction between independent and dependent clauses is relevant to verbal morphology, which is similar to the case of other Mixe-Zoquean languages. As shown in example (2), when a verb is preceded by certain words or phrases (usually temporals, locatives, matrix verbs or dislocated nominals), it is marked as dependent with a different set of aspectual suffixes, and also with a different set of person clitics in certain cases. In this case, the third clause ('many fruits he sells'), which is a dependent clause, contrasts with the preceding two independent clauses. The basic word order would be SVO, although it varies in accordance with pragmatic conditions, and S is often absent.

(2) *i=to'k-p* *papa*
3PROX:3OBV=sell-INC.INDEP potato
i=to'k-p *pera*
3PROX:3OBV=sell-INC.INDEP pear
may *küytüjm-a-jat* *igi=to'k-0*
many fruit-EPN-PL 3PROX:3OBV=sell-INC.DEP.DIR
'He sells potatoes, he sells pears, many fruits he sells.'

3. General Account of Inversion

3.1. Outline of inversion

Inversion is a grammatical phenomenon in which direct and inverse constructions are distinguished on the basis of the ranking of participants and their argument types. Examples of inversion in Plains Cree, an Algonquian language, are cited below together with original glosses and English translation. Example (3a) is a direct construction, and (3b) is an inverse construction. The difference is marked with direct/inverse markers ("theme sign" in Dahlstrom's terminology). Only the person of SAP is marked in both cases ("p" stands for plural); thus the direct/inverse markers allow us to interpret who acted on whom.

(3) a. Direct
ni-wa.pam-a.-na.n
1-see-direct-1p
'we (excl.) see him'

b. Inverse
ni-wa.pam-iko-na.n
1-see-inverse-1p
'he sees us (excl.)'

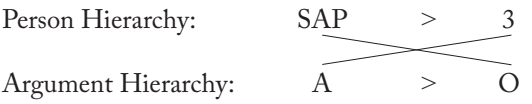
[Dahlstrom 1991: 37–38]

Model (4) illustrates the typical mechanism of inversion. This model sets up two hierarchies: person hierarchy (SAP > 3) and argument hierarchy (A > O). Direct and inverse constructions are explained by the alignment and misalignment between these two hierarchies. The person hierarchy represents one dimension of inherent topicality which is understood as a cover term encompassing various interrelated parameters (cf. generic topic hierarchies by Givón (1994a: 22), hierarchy of features by Silverstein (1976: 122), *inter alia*). A direct construction appears when a topical participant corresponds to A and a less topical one to O, as shown in model (4a). Sentence (3a) is a typical direct example in which the first person participant is A and the third person participant is O. For inverse constructions,

the opposite occurs. Two hierarchies fail to align, for which the construction results as marked. Model (4b) illustrates this crossing or contradictory relation. In an inverse construction, the third person participant is A, while the SAP is O, as exemplified in (3b).

(4) a. Direct

b. Inverse



In terms of information flow, direct constructions are said to be more natural. If we employ DeLancey's (1981) terms, direct constructions tend to agree linguistically with the natural attention flow, which moves from agent to patient in transitive events. The starting point (agent) and viewpoint coincide, thus the construction results as unmarked. Inverse constructions are used when there is a conflict in which the starting point does not correspond to the viewpoint. This system should have much to do with a viewpoint that prioritizes a topical participant (even when it does not have an agent role). In this respect, as Payne (1994: 317) argues, inverse constructions resemble passive constructions.

3.2. Hierarchy

Universal person hierarchy is SAP > 3 (e.g. Klaiman 1992, Gildea 1994, Aissen 1997, Zavala 2002, Zúñiga 2006). SAP includes first and second person. They are involved in speech acts and are thus considered to be inherently more topical than third person participants. The hierarchy between SAPs varies from language to language (1 > 2, 2 > 1 etc.). When all central participants are third person, the hierarchy can be extended as SAP > 3PROX (proximate) > 3OBV (obviative) if the given language shows obviation. Obviation is a mechanism that differentiates third person participants depending on their topicality. Topical participants are called proximate and others are obviative.

3.3. Configurations

Languages differ considerably as to the domains in which inversion takes place. Some languages have inversion operating only between third person participants (e.g. Kutenai: Dryer 1994, Zúñiga 2006), while others exhibit more extended inversion for every combination of participants (e.g. Plains Cree: Dahlstrom 1991, Olutec: Zavala 2002). In this paper, the term "configuration" is used for the different types of participant combinations.

4. Inversion in Sayula Popoluca

In Sayula Popoluca, inversion is so pervasive that all polyvalent verbs are involved

in its scope. The choice between direct and inverse constructions is determined by the person and argument type of central participants, as shown above in model (4). Direct constructions are morphologically unmarked and more frequent in use, while inverse constructions are marked. Inversion in this language is syntactically non-promotional and does not involve any change in verbal valency. It only alters the mapping between participants and their argument types. Essentially, the formal difference between these two constructions is found only in verbal morphology.

4.1. Person hierarchy

The person hierarchy in Sayula Popoluca is represented in (5). In this language, first person exclusive and inclusive are distinguished both in plural and in singular.[5] This results in a characteristic hierarchy with forking. Hierarchical relations between first person inclusive and first person exclusive, as well as those between first person inclusive and second person cannot be set up owing to the overlap of members.

(5) Person hierarchy in Sayula Popoluca

$$\begin{matrix} \text{1EXCL} > 2 \\ \text{1INCL} \end{matrix} > \text{3PROX} > \text{3OBV}$$

4.2. Configurations

In Sayula Popoluca, morphological patterns allow us to establish three participant-configurations. These configurations are essential for the description of the inverse system. As shown in (6), we have SAP/non-SAP, intra-SAP, and extra-SAP configurations.[6] SAP/non-SAP configuration takes place when something or someone outside (third person) concerns the inside, namely the speaker or hearer (SAP), or vice versa. Intra-SAP configuration refers to the interactions between the speaker and the hearer (both are SAPs). In extra-SAP configuration, participants are situated entirely outside the speech act. These configurations can be thought of as dynamic deictic categories (Zúñiga 2006: 30–31).

(6) Three participant-configurations
   a. SAP/non-SAP configuration: SAP ↔ 3
   b. intra-SAP configuration: SAP ↔ SAP
   c. extra-SAP configuration: 3PROX ↔ 3OBV

[5] The distinction between inclusive and exclusive works differently in singular. The first person inclusive in singular is used mainly in sentences with impersonal interpretation. The first person exclusive in singular represents a typical first person singular. Singular is marked by the absence of plural marker *-ka* on the verb.

[6] These terms are used to be clear about participants' combinations. Different authors use different labels for configurations in the literature on inversion. A relatively typical label for intra-SAP configuration is local configuration (e.g. Zavala 2002; Zúñiga 2006).

4.3. Morphology of inversion

The inverse system of Sayula Popoluca consists of three subsystems corresponding to three participant-configurations. Table 1 lists the combinations of participants for direct and inverse constructions in each configuration. Three subsystems show different morphological patterns. This tripartite organization is an important characteristic of Sayula Popoluca's inversion.

Table 1. Subsystems of inversion in Sayula Popoluca

Participant-configuration	Central participant	Combination[7]	
		Direct	Inverse
SAP/non-SAP configuration	SAP and 3rd person	(SAP: 3)	(3: SAP)
Intra-SAP configuration	only SAPs	(1EXCL: 2)	(2: 1EXCL)
Extra-SAP configuration	only 3rd person	(3PROX: 3OBV)	(3OBV: 3PROX)

Sayula Popoluca presents several ways to mark inversion. Table 2 shows markers of person and inversion[8] for independent clauses, only to give a rough morphological outline. The person of A is indicated in the leftmost column and the person of O on the top. For SAP/non-SAP configurations, the inverse maker is the prefix *x-*. Different marking patterns are observed in intra-SAP and extra-SAP configurations. In addition, some forms (not included in this table) are shared across different configurations. One of these forms is the suffix *-ak*, the inverse marker used in imperative sentences and in certain types of subordinate clauses, although dependent clauses are not within the main scope of this paper. The following sections illustrate the morphology of participant marking in each configuration.[9]

Table 2. Sayula Popoluca morphology of person and inversion for independent clauses

A \ O		SAP			Non-SAP	
		1EXCL	1INCL	2	3PROX	3OBV
SAP	1EXCL			*tü=*	*tün=*	
	1INCL				*na=*	
	2	*ix=*			*in=*	
Non-SAP	3PROX	*tü=x-*	*na=x-*	*i=x-*		*i=*
	3OBV				*igi=*	

4.3.1. SAP/non-SAP configuration

In SAP/non-SAP configuration, where an SAP and a third person participant

[7] Parenthesis (X, Y) is used to indicate that X is A and Y is O.

[8] Clark (1961) has described the morphology of these markers using the terms "ascending/descending action" which would correspond to direct/inverse. However, he did not analyze prefix *x-* as an inverse marker.

[9] For intransitive verbs, person markers are; 1excl.: *tü=*, 1incl.: *na=*, 2: *mi=*, 3: *0=*.

interact, the prefix *x-* is used to mark inverse constructions. Morphological person marking applies only to the participant who is ranked higher in person hierarchy (SAP > 3). In other words, the person of SAP is always overtly coded, irrespective of its argument type (A or O). The forms of person markers are illustrated in Table 3. They also imply the distinction between A and O. When the SAP corresponds to A, forms belonging to the A set are used, and if it corresponds to O, forms belonging to the O set are used. The third person participant, who is lower in the person hierarchy, is never marked morphologically on the verb. Direct constructions are unmarked and only display person markers, while inverse constructions require both person markers and the inverse marker *x-*.

Table 3. Person markers in SAP/non-SAP configuration

	A	O
1EXCL	*tün=*	*tü=*
1INCL	*na=*	*na=*
2	*in=*	*i=*

Examples of all combinations are shown below. Sentence (7) is a direct construction because the first person exclusive participant corresponds to A and the third person participant to O. On the verb, only first person is marked by a clitic. Similarly, in (8), first person exclusive is marked. However, this participant corresponds to O, and thus, the verb is marked as inverse by the prefix *x-*. Examples (9) - (12) follow these patterns.

(7) 1EXCL: 3 (direct)
üü ***tün****=jat-p* *ayüüpaa* *yamay ajw*
I A1EXCL=know-INC.INDEP this sayula.popoluca
'I know this Sayula Popoluca.'

(8) 3: 1EXCL (inverse)
tü*=****x****-che'k-taak-ka-p=ama*'
O1EXCL=INV-scold-INT-PL-INC.INDEP=DEF
'They scold me.'

(9) 1INCL: 3 (direct)
na*=ka-jawi-ka-p*
A1INCL=NEG-know-PL-INC.INDEP
'We don't know it.'

(10) 3: 1INCL (inverse)
je ***na****=****x****-wan-ka-p*
she O1INCL=INV-want-PL-INC.INDEP
'She wants us.'

(11) 2: 3 (direct)
in*=pük-aj* *mo'x*
A2=grab-IRR.INDEP corn
'You grab corn.'

(12) 3: 2 (inverse)
i*=*x*-*kay*-*aj
O2=INV-eat-IRR.INDEP
'He will eat you.'

In SAP/non-SAP configuration, the choice between direct and inverse constructions is conditioned by the person hierarchy. Only one of these two constructions is acceptable for any given proposition. For example, sentence (12) 'He will eat you' must be formed as an inverse construction and does not allow a direct construction, because A corresponds to a lower-ranked person (third person) and O to a higher one (second person). It would be worth pointing out that direct/inverse switching diametrically changes propositional content (e.g. 'You will eat him' vs. 'He will eat you'), while, in contrast, typical active/passive alternation does not (e.g. 'You will eat him' vs. 'He will be eaten by you').

4.3.2. Intra-SAP configuration

In intra-SAP configuration, all core participants are SAPs. This configuration includes (1EXCL: 2) and (2: 1EXCL) constructions. Markers for these are shown in Table 4. Synchronically, these forms are no longer segmentable[10] and appear to code both person and direct/inverse distinction. The inverse marker *x-* is not used in this configuration. We cannot ascertain the hierarchy between first person exclusive and second person on the basis of these forms, but other distributional patterns, such as that of the inverse marker *-ak* and that of plural markers, suggest that first person exclusive ranks higher than second person.

Table 4. Markers of person and direct/inverse in intra-SAP configuration

Intra-SAP direct (1EXCL: 2)	*tü=*
Intra-SAP inverse (2: 1EXCL)	*ix=*

Direct and inverse constructions in intra-SAP configuration are illustrated below.

(13) 1EXCL: 2 (direct)
tü*=*ka*-*kay*-*p
1EXCL:2=NEG-eat-INC.INDEP
'I don't eat you.'
(14) 2: 1EXCL (inverse)
jinap ***ix*=*kay*-*aj*=*ama***'
now 2:1EXCL=eat-IRR.INDEP =DEF
'Now you are going to eat me.'

[10]We have no resource for studying diachronic change and nothing can be said about older forms of these grammatical markers. However, the form *ix=* seems to imply a possible former analysis as *i=* and inverse marker *x-*. Comparison of corresponding forms in neighboring languages will be an important approach in this respect.

Concerning the hierarchy between first person exclusive and second person, the distribution of the suffix *-ak*[11] is discussed here. This is another inverse marker used in imperatives and subordinate clauses with certain subordinators. To identify the suffix *-ak* as an inverse marker, distributional patterns in other configurations should be mentioned. This suffix is also found in subordinate clauses of the SAP/non-SAP inverse construction (3: SAP) and extra-SAP inverse construction (3OBV: 3PROX) marking inverse construction. The underlined subordinate clause ('she helps you') of (15) is an example of a SAP/non-SAP inverse construction.

(15) [subordinate clause] 3: 2 (inverse)
tün=mu-kots-0 *je* *ma=i=x-maji-y-**ak***
A1EXCL=APPL-speak-COMP.INDEP she SUB=O2=INV-help-EPN-**INV**
'I told her to help you.'

The same marker appears in imperative (16) and subordinate clauses in (17), both of which are (2: 1EXCL). These can also be understood as inverse constructions. Example (18) is (1EXCL: 2) without the marker *-ak*, and this is a direct construction. Therefore, the person hierarchy between SAPs is established as 1EXCL > 2.

(16) [imperative] 2: 1EXCL (inverse)
*mo-**ak*** *ja-titik-na'*
give-**INV** other-little-DEF
'Give me some more.'

(17) [subordinate clause] 2: 1EXCL (inverse)
üü tün=ka-wan-p *pa mi ix=e'p-**ak***
I A1EXCL=NEG-want-INC.INDEP for you 2:1EXCL=see-**INV**
'I don't want you to look at me.'

(18) [subordinate clause] 1EXCL: 2 (direct)
mi in=ka-wan-p *pa üü tü=e'p-0*
you A2EXCL=NEG-want-INC.INDEP for I 1EXCL:2=see-INC.DEP.DIR
'You don't want me to look at you.'

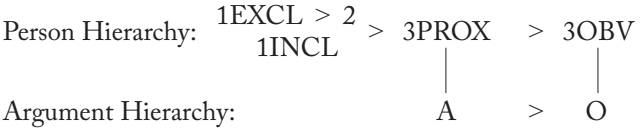
4.3.3. Extra-SAP configuration

In extra-SAP configuration, all core participants are third person. This subsystem involves another mechanism known as obviation. Aissen (1997: 705) defines obviation as "systems which obligatorily rank third person nominals according to a complex function which includes grammatical function, inherent semantic properties, and discourse salience". Following the conventional terminology, high-ranked or topical participants are termed proximate (PROX), while others are called obviatives (OBV). Person hierarchy between these is determined as 3PROX > 3OBV, and inversion takes place on the basis of this hierarchy. Model (19) shows

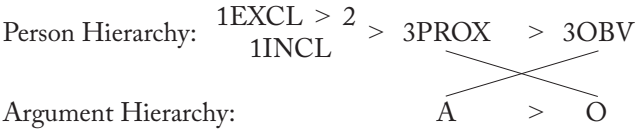
[11] This inverse marker *-ak* seems to play an essential role in interpreting participants' relations because imperatives do not take person markers (see example 16). Additionally in subordinate clauses, the other inverse marker *x-* appears not only in inverse but also in direct constructions, therefore losing its distinctive function as marking the inverse.

that direct and inverse constructions are explained by setting up two hierarchies in the same manner as for the SAP/non-SAP configuration (extending model 4). Extra-SAP direct constructions are represented as (3PROX: 3OBV) and extra-SAP inverse constructions as (3OBV: 3PROX).

(19) a. Extra-SAP direct (3PROX: 3OBV)



b. Extra-SAP inverse (3OBV: 3PROX)



The morphological marking of inversion in extra-SAP configurations is shown in the following table. The clitics are portmanteaux forms, and both the person and argument types of participants are interpreted on the basis of these forms. Noun phrases are not marked as proximate or obviative. In this respect, the marking of Sayula Popoluca differs from that of Algonquian languages (e.g. Plains Cree's obviative marker described in Dahlstrom 1991).

Table 5. Markers of person and inversion in extra-SAP configuration

Extra-SAP direct (3PROX: 3OBV)	*i=*
Extra-SAP inverse (3OBV: 3PROX)	*igi=*

I now analyze how proximate and obviative are determined in this language. The assignment of proximate and obviative can be explained in terms of animacy or discourse topicality.

Animacy is a semantic parameter in which animate and inanimate participants are distinguished as in (20). This is considered as one dimension of inherent topicality. Example (21) shows that animacy determines the assignment of proximate and obviative. Animate participants are more topical than inanimate ones, thus 'a classmate' is proximate, while 'this top' (referring to a 'toy') is obviative. Because the obviative participant appears as A, this sentence is formed as an inverse construction marked by the clitic *igi=*.

(20) Animacy: animate > inanimate

(21) 3OBV: 3PROX (inverse)

tu'k	*tün=kumpar-na'-jat*			
one	PSR1EXCL=classmate-DEF-PL			
igi*=ta'n-kot-0*		*ayüü*	*tu'k*	*trumpu-na'*
3OBV:3PROX=leg-stab-COMP.INDEP		this	one	top-DEF

'This top stabbed one of my classmates in the leg.'

When there is no difference in animacy, discourse topicality comes to rank participants. Discourse topicality refers to the relative topicality of participants in a given discourse context. We can represent it hierarchically as in (22). Topical participant in a surrounding context is proximate, and others are obviative. It thus implies that newly mentioned participants are obviative and already mentioned participants are considered more topical and thus assigned proximate.

(22) Discourse topicality: topical > less topical

In (23), the core participants are 'rabbit' and 'crocodile'. The 'rabbit' is already introduced in the preceding context (indicated in [ ]) and is topical; therefore, this participant is proximate. The participant 'crocodile' is new and thus obviative. The proximate participant 'rabbit' corresponds to the A and the obviative 'crocodile' to the O. Consequently, this construction is direct, which is marked by the clitic *i=*.

(23) 3PROX: 3OBV (direct)

i=*paat-0*	*ayeemaa*	*uxpi-na'*
3PROX:3OBV=encounter-COMP.INDEP	that	crocodile-DEF

[context: A rabbit was walking by the riverside.]
'It (the rabbit) ran across a crocodile.'

In (24), the 'rabbit' and 'coyote' are the core participants. The participant 'rabbit', a stranger in the surrounding context, is obviative, while the 'coyote', which appeared in the preceding context, is more salient and proximate. This proximate participant 'coyote' corresponds to the O, and thus, the sentence is set up as an inverse construction.

(24) 3OBV: 3PROX (inverse)

kune:xu-na'y	***igi***=*e'p-w-y=u*
rabbit-DEF	3OBV:3PROX=see-COMP.INDEP-EPN=LIM

[context: That coyote took hold; he drinks, he drinks only water, he drinks water.]
'The rabbit just looks at it (the coyote).' [Clark 1961: 169]

Discourse topicality is observable in certain formal dimensions concerning possession and anaphoricity. These can be represented like (25) for clarity. As a general principle in discourse, the possessor is more topical, while the possessed participant is less topical. Concerning anaphoricity, topical participants tend to be represented using light forms such as pronouns and demonstratives, or interpreted only through verbal agreement. Less topical participants often appear as full noun phrases. Therefore, we can consider possession and anaphoricity as relevant to the assignment of proximate and obviative. However, I do not postulate these as independent parameters but regard them as a manifestation of discourse topicality. It is worth clarifying that the possessor and possessed participants are not involved in a typical possessive relation when these two are equal in animacy. Which participant to describe as the possessor or possessed is a discourse-based choice. In the inverse construction in (26), the possessor ('he') is proximate, while the possessed participant 'his mother' is obviative. We can observe the topical status of the proximate

participant in that it is the possessor and represented by a pronoun, not by a lexical noun phrase. Examples (23) and (24) also show cases in which the difference of anaphoricity is clearly observable.

(25) Possession: possessor > possessed
Anaphoricity: light form > full noun phrase

(26) 3OBV: 3PROX (inverse)
je *i=maam* ***igi****=ak-o'k-p*
he PSR3=mother 3OBV:3PROX=CAUS-die-INC.INDEP
'His mother killed him.'

The last parameter, discourse topicality, is not semantically inherent but discourse-pragmatic. Sayula Popoluca uses discourse topicality to rank participants when other criteria do not serve to differentiate them.

4.4. Inversion in various verb types

In Sayula Popoluca, all polyvalent verbs are inside the scope of inversion. This section offers examples of different verb types to illustrate the productivity of this mechanism, though not exhaustively.

First, we look at some examples where the verb is not prototypically transitive in meaning. Example (27) shows that a stative verb 'be missing' (which is similar to *faltar* in Spanish) takes the participant in need as O and the needed thing as A, thus the sentence results in an inverse construction. Example (28) shows a mental verb, and the dependent clause in (29) shows a perceptive verb 'see'. The A participants in these cases are clearly less agentive and the O participants are less patientive than prototypical transitives. As these examples demonstrate, inversion takes place irrespective of verbal semantic classes.

(27) [stative verb] 3: 1INCL (inverse)
tü=x-togoy-p *maas* *tumin*
O1EXCL=INV-be.missing-INC.INDEP more money
'We need more money.'

(28) [mental verb] 3: 2 (inverse)
na=teejat *i=x-wan-p*
PSR1INCL=god O2=INV-want-INC.INDEP
'Our god wants you.'

(29) [perceptive verb] 2: 1EXCL (inverse)
te *ix=ka-e'p-p* *ix=che'n-p*
if 2:1EXCL=NEG-see-INC.DEP.INV 2:1EXCL=look.for-INC.INDEP
'If you do not see me, you would look for me.'

Next, verbs of morphosyntactically different types are shown below. They are as follows: a typical ditransitive verb (30), causative of transitive verb (31), applicative of transitive verb (32), and non-derived transitive verb (33). Not only canonical transitive verbs but all the polyvalent verbs can exhibit a contrast between direct and inverse constructions.

Ditransitive verbs have three central participants, but only two of them are relevant for inversion. Example (30) is inverse because the third person participant 'they' is A and the first person 'me' is O. Here, the recipient ('me') is treated as the core participant and not the theme ('money') because Sayula Popoluca is a language of primary object type (term coined by Dryer 1986). In (31), the first person exclusive causer is A and the third person causee 'those animals' is O. The theme participant 'it (the corn)' is not in the scope of inversion.

(30) [typical ditransitive verb] 3: 1EXCL (inverse)
tü=x-moy-ka-p *tumin-way*
O1EXCL=INV-give-PL-INC.INDEP money-DIM
'They give me money.'

(31) [causative of transitive verb] 1EXCL: 3 (direct)
*tün=**ak**-tsün-ka-p* *ayee* *animaat-na'-jat*
A1EXCL=**CAUS**-hump-PL-INC.INDEP that animal-DEF-PL
'We made those animals hump it (the corn).'

Applicative constructions show that participants with additional semantic roles can be involved. A promoted participant, otherwise unconcerned with inversion, takes part in this grammatical mechanism. Two examples of the verb *nüm* 'say' are illustrated below: one applicative (32) and the other non-derived (33). The suffix *-ja* marks the goal applicative construction (concerning mainly recipient and benefactive roles). In (32), A corresponds to 'they' and O to 'us'. In terms of semantic roles, they are an agent and goal, respectively. The remaining theme participant *ka* 'no' is not relevant to inversion. On the other hand, in (33), a non-derived verb with two participants displays the agent ('he') as A and the theme ('that the shock passed') as O. We see from these two examples that the applicative process promotes the goal participant to O, and thus the participant becomes involved in inversion.

(32) [applicative of transitive verb] 3: 1INCL (inverse)
jem *na=x-nüm-ka-**ja**-w* *ni'k* *ka*
there O1INCL=INV-say-PL-**APPL**-COMP.DEP.INV SUB no
'There they said "no" to us.'

(33) [non-derived transitive verb] 3PROX: 3OBV (direct)
i=nüm-p *ni'k* *0=nax-0* *ux*
3PROX:3OBV=say-INC.INDEP SUB S3=pass-COMP.INDEP shock
'He says that the shock passed.'

Example (34) shows another interesting case in which the possessor of the theme (first person 'me') is treated as O, resulting in an inverse construction. This participant can also be considered as malefactive, an indirectly affected party. The robbed participant (theme) 'my wife' is not involved in inversion.

(34) [applicative of transitive verb] 3: 1EXCL (inverse)
tün=to'xay *tü=x-chi't-ka-**ja**-w*
PSR1EXCL=woman O1EXCL=INV-rob-PL-**APPL**-COMP.INDEP
'They robbed me of my wife.' [Clark 1961: 132]

The following two applicative verbs derived from intransitives are given in order to show more varieties in terms of semantic organization. In (35), the instrumental participant functions as O. The suffix *-tu* marks the instrumental applicative. As for (36), the first person exclusive participant is O, which would semantically be described as a goal.

(35) [applicative of intransitive verb] 1EXCL: 3 (direct)
kaniika *tün=**tu**-iik-ka-p*
marble A1EXCL=**APPL**-play-PL-INC.INDEP
'We play with marbles.'
(36) [applicative of intransitive verb] 3: 1EXCL (inverse)
tu'k *tumin-way* *tü=x-min-ka-**ja**-p*
one money-DIM O1EXCL=INV-come-PL-**APPL**-INC.INDEP
'Money comes to us.'

We have seen how inversion manifests in various semantic classes and morphosyntactic classes of verbs. Various semantic roles can correspond to A and O as a consequence of the fact that inversion in Sayula Popoluca concerns all polyvalent verbs.

5. Typological Analysis

This section seeks to characterize the inverse system of Sayula Popoluca in light of typology. Before proceeding to the typological analysis, I summarize some important viewpoints related to inverse phenomena including their diagnostic features.

5.1. Formal and functional accounts of inversion

Cross-linguistically, inversion manifests an impressive diversity in formal and functional aspects. We do not have a complete definition of inversion that accounts for all the inverse systems that exist. However, there are some diagnostic features. Here, Thompson's (1994) structural diagnostics are itemized. He characterizes inversion by contrasting it with typical voice alternation between active and passive constructions.

1. Passives tend to be promotional, but inverse constructions often are not.
2. Agent is not generally structurally suppressed with inverse constructions; it does not appear in an oblique phrase, and it is generally just as likely to be a full NP as it is in an active/direct clause.
3. Verb is no more stative nor less transitive in inverse than it is in active/direct clauses.
4. While passives tend only to assign topic status to a patient or direct object, inverse constructions are more likely to mark the topicality of any object.

[Thompson 1994: 49]

The mechanism of inversion has been argued about from various perspectives. Many researchers characterize this phenomenon by contrasting it with active/passive alternation or by locating it in a certain grammatical voice category. I now overview some important ideas for understanding inversion.

Zúñiga and DeLancey emphasize deictic concepts as a fundamental motivation of direct/inverse contrast. Zúñiga (2006: 27) argues that dynamic deictic categories (like "he-me" or "you-us") are key and he uses a preferred label "direction-marking system" to refer to an inverse system. DeLancey (1981) uses attention flow (which goes from the initiator to the endpoint of the action) and viewpoint, and gives a psychological account for the deictic motivation of inversion.

On the other hand, Givón (1994a) focuses on relative topicality between transitive core participants. He characterizes the inverse construction by comparing it with active/direct, passive and antipassive constructions in terms of topicality. The inverse construction is categorized as a de-transitive voice in which "[t]he patient is more topical than the agent, but the agent retains considerable topicality" (Givón 1994a: 9). In his argument, the motivation for direct/inverse contrast can be semantic, pragmatic, or both of these. A similar account to Givón's subcategorization of inversion is that of inverse alignment and inverse voice proposed by Gildea (1994). Semantically motivated inversion is related to case marking and verb agreement and is thus called inverse alignment. On the other hand, pragmatically motivated inversion is identified as inverse voice. He locates inversion in these two different spheres and characterizes this property as a particularity of the inverse phenomenon.

These standpoints describe, besides some disagreements, different aspects of the inverse phenomenon. In terms of motivation, deixis should be considered as the most fundamental. As Zúñiga (2006: 31) argues, dynamic deictic categories (e.g. "he-me" or "you-us") should constitute the basis of the system, as opposed to static categories (e.g. "I" or "you"). Further, DeLancey explains that the direct/inverse contrast is triggered by whether viewpoint and natural attention flow (AF) correspond to each other, which provides a psychologically plausible account. Givón and Gildea focus more on the subcatgorization of inversion using the distinction between semantic and pragmatic motivation. According to them, semantic motivation refers to person, animacy, and other categories less dependent on discourse, whereas pragmatic motivation refers to discourse-dependent distinctions. As Gildea argues, these two types of motivation result in inversion concerning two grammatical spheres: alignment and voice.

5.2. Typological interest of Sayula Popoluca's inverse system

Before proceeding to the main points, I evaluate Sayula Popoluca's inverse system using Thompson's diagnostics presented above. First, inversion in this language is not syntactically promotional. Second, both direct and inverse constructions involve A and O participants and do not suppress the less topical participant. Third, verb meaning itself does not change. Finally, with respect to the locus of inversion, there are various possibilities. Because this language is a "primary object"

type language, the so-called "indirect object" is one of the central arguments in inversion. In addition, arguments of various semantic roles can be involved through applicative promotion. Therefore, Sayula Popoluca's inverse system meets all of the four diagnostics proposed by Thompson (1994). As we have seen, this direct/inverse contrast is essentially different from the typical active/passive contrast. Direct and inverse constructions in Sayula Popoluca are the most basic transitive constructions with two core participants, and they show complementary distribution which is conditioned by the ranking of participants and corresponding argument types. In terms of pragmatic effect, unlike passives, inverse constructions neither suppress A nor topicalize O.

In the following, I point out typologically important features of Sayula Popoluca's inverse system.

• Tripartite system

Sayula Popoluca's inverse system consists of three subsystems that correspond to different configurations: SAP/non-SAP, intra-SAP, and extra-SAP. Morphosyntactic patterns differ across these subsystems. Consequently, according to Gildea's (1994: 222-223) framework, inversion in Sayula Popoluca belongs to the split system type because it has both inverse alignment (in the SAP/non-SAP configuration) and inverse voice (in the extra-SAP configuration), which are coded differently. As for intra-SAP configuration, the distinction between direct and inverse constructions is coded by another morphological pattern. Thus, in terms of Zúñiga's (2006: 250) classification, the whole system conforms to the symmetric type in which three configurations are formally distinguished.

Sayula Popoluca's inverse system exists as a set of three subsystems. However, certain unity is observed across different subsystems, and this seems to be another characteristic element of Sayula Popoluca's system. Patterns of plural marking, aspect marking in dependent clauses (although not treated in this paper), and distribution of the inverse suffix *-ak* are shared among the different configurations. These common morphological patterns show that Sayula Popoluca treats (SAP: 3), (1EXCL: 2), and (3PROX: 3OBV) as direct and (3: SAP), (2: 1EXCL), and (3OBV: 3PROX) as inverse. In this way, the tripartite system of Sayula Popoluca also manifests itself as one integrated inverse system.

• Motivating parameters

The ranking of participants in Sayula Popoluca can be explained in terms of three factors: person, animacy, and discourse topicality. We can reorganize the first two as an inherent topicality hierarchy by combining person and animacy as in (38). When a verb involves at least one SAP, person is the criterion. This occurs in SAP/non-SAP and intra-SAP configurations. In extra-SAP configuration, animacy comes into play where applicable. In all remaining cases, discourse topicality in a given context ranks participants. Alignment or misalignment between the hierarchical relation of participants and argument hierarchy (A > O) is the key to explaining direct/inverse constructions, as we have seen in the models (4) and (19).

(37) Inherent topicality hierarchy in Sayula Popoluca

$$\begin{matrix} \text{1EXCL} > 2 \\ \text{1INCL} \end{matrix} > \text{animate 3} > \text{inanimate 3}$$

This constitutes an important feature of the inverse system in Sayula Popoluca. Potentially, there are many more parameters related to inherent topicality. What parameters to prioritize and to distinguish linguistically is a language-specific and typologically relevant question.

6. Conclusion

An important characteristic of the inverse system of Sayula Popoluca lies in its tripartite organization. Three subsystems correspond to different configurations: SAP/non-SAP, intra-SAP, and extra-SAP. Each subsystem has a different morphology, and this characterizes the inversion in Sayula Popoluca as a split system, according to the typology proposed by Gildea (1994), or a symmetric system according to Zúñiga's (2006) classification. In SAP/non-SAP and intra-SAP configurations, the alignment of person to argument type determines whether the construction is direct or inverse. In extra-SAP configurations, animacy and discourse topicality determine the ranking of third person participants, which is called obviation. Then the choice of a direct or inverse construction is based on the alignment of proximate/obviative to argument types.

The deictic distinction between SAP and third person is essential in inverse languages. These are fundamentally different concepts with respect to speech acts, as claimed by many linguists, including Benveniste (1946). Therefore, participant-configurations which are defined dynamically in terms of SAP and third person can also be considered as a fundamental categorization for conceptualizing and verbalizing events. The tripartite system of Sayula Popoluca seems to present this idea in a relatively clear manner.

References

Aissen, Judith (1997) On the syntax of obviation. *Language* 73: 705–750.

Benveniste, Emile (1946) Structure des relations de personne dans le verbe. *Bulletin de la Société de Linguistique de Paris* 43: 1–12.

Campbell, Lyle and Terrence Kaufman (1976) A linguistic look at the Olmecs. *American Antiquity* 41: 80–89.

Clark, Lawrence E. (1961) *Sayula Popoluca texts, with grammatical outline*. Summer Institute of Linguistics publications in linguistics and related fields 6. Norman, Oklahoma: Summer Institute of Linguistics and University of Oklahoma.

Dahlstrom, Amy (1991) *Plains Cree morphosyntax*. New York: Garland Publishing.

DeLancey, Scott (1981) An interpretation of split ergativity and related patterns. *Language* 57: 626–657.

Dryer, Matthew S. (1986) Primary objects, secondary objects, and antidative. *Language* 62: 808–845.

Dryer, Matthew S. (1994) The discourse function of the Kutenai inverse. In: Talmy Givón (1994b), 65–99.

Gildea, Spike (1994) Semantic and pragmatic inverse: "Inverse alignment" and "inverse

voice" in Carib of Surinam. In: Talmy Givón (1994b), 187–230.
Givón, Talmy (1994a) The pragmatics of de-transitive voice: Functional and typological aspects of inversion. In: Talmy Givón (1994b), 3–44.
Givón, Talmy (ed.) (1994b) *Voice and inversion*. Amsterdam: John Benjamins Publishing Company.
INEGI (Instituto Nacional de Estadística, Geografía e Informática) (2009) *Perfil sociodemográfico de la población que habla lengua indígena.* México.
Klaiman, M.H. (1992) Inverse languages. *Lingua* 88: 227–261.
Payne, Doris L. (1994) The Tupi-Guarani inverse. In: Barbara Fox and Paul J. Hopper (eds.) *Voice: Form and function*, 313–340. Amsterdam/Philadelphia: John Benjamins Publishing Company.
Silverstein, Michael (1976) Hierarchy of features and ergativity. In: R.M.W. Dixon (ed.) *Grammatical categories in Australian languages*, 112–171. Canberra: Australian Institute of Aboriginal Studies.
Tatsumi, Tomoko (2011) Sayula Popoluca go ni okeru hanten to soka. [Inversion and obviation in Sayula Popoluca]. MA dissertation, Tokyo University of Foreign Studies.
Thompson, Chad (1994) Passives and inverse constructions. In: Talmy Givón (1994b), 47–63.
Wichmann, Søren (1995) *The relationship among the Mixe-Zoquean languages of Mexico*. Salt Lake City: University of Utah Press.
Zavala, Roberto (2002) Verb classes, semantic roles and inverse in Olutec. In: Paulette Levy Podolsky (ed.) *Del cora al maya yucateco: Estudios lingüísticos recientes sobre algunas lenguas indígenas mexicana*s, 179–267. México: Instituto de Investigaciones Filológicas, Seminario de Lenguas Indígenas, Universidad Nacional Autónoma de México.
Zúñiga, Fernando (2006) *Deixis and alignment: Inverse systems in indigenous languages of the Americas*. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Author's contact information:
ILCAA, Tokyo University of Foreign Studies
3-11-1 Asahi-cho, Fuchu-shi, Tokyo 183-8534, JAPAN
e-mail: info@hassaku.upper.jp
personal website: http://hassaku.upper.jp/

[Received 25 April 2012;
Accepted 2 August 2013]

【要　旨】

サユラ・ポポルカ語の反転

巽　　智子

東京外国語大学大学院生／日本学術振興会特別研究員

メキシコ合衆国東南部で話される先住民言語サユラ・ポポルカ語（ミヘ・ソケ語族）では反転 inversion が観察される。反転は，トピカリティーによる参加者のランキングと項の対応関係によって，順向と逆向の構造が区別される文法現象である。参加者のランキングは基本的に直示的区別によるもので，SAP（発話行為参加者）＞3 人称という階層で表される。サユラ・ポポルカ語において反転は参加者標示体系の根本を成すものであり，全ての多項動詞は反転による対立を見せ得る。形態統語上，3 つの下位体系が観察され，それらは SAP/non-SAP, intra-SAP, extra-SAP の 3 つの参加者構成の区別に対応する。extra-SAP 構成においては，参加者をランク付けする疎化 obviation のメカニズムに，有生性およびディスコース上のトピカリティーが関与する。本稿は，サユラ・ポポルカ語の反転体系の形態統語論を概観し，この体系を反転の類型論の中に位置づけることを目的とする。