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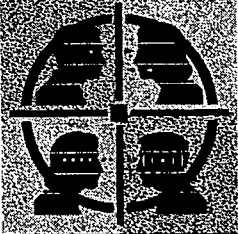
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ABSTRACT

This study investigated the process of acquisition of syntax in Japanese as a second language (JSL) in five university students over a period of 3 years. The report begins with an overview of Japanese syntax and an explanatory model of second language learning based on human information processing. Four phases of JSL learning with 16 sub-stages are described; development of sentence and noun phrase structure in JSL is also chronicled. Results indicate that development of Japanese syntax in JSL learners is highly regular. All learners first establish basic sentence structures with copula and verb and basic categories of noun and verb. Syntactic extensions with the function of modification, then establishment of new categories, and variability of annotation of lexical items and syntactic units follow. Complexity of syntactic operations increases incrementally. Processing rules postulated in previous research were not found applicable to noun phrases and their development, which is instead dictated by characteristics inherent in the Japanese noun phrase system. Comparison of noun phrase and sentence development and the temporal relation of acquisitions shows that developmental changes on both levels are qualitatively similar, and that acquisition at the noun phrase level always precedes acquisition at the sentence level. Contains 12 references. (MSE)

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That's why the lady is a dress:

Developmental Stages
in Japanese Second
Language Acquisition

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Publications are envisaged as spanning a range from the completed monograph to the working paper on on-going research as well as reflections on the possible application of language acquisition understanding to language teaching.

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Dr George Saunders,
ASLA Editorial Board,
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National Languages and Literacy Institute of Australia
Language Acquisition Research Centre
University of Western Sydney, Macarthur

PO Box 555 Campbelltown NSW 2560 AUSTRALIA
Phone: (02) 9772 9446 Fax: (02) 9792 2924

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Developmental Stages in Japanese
Second Language Acquisition

Kirsten Ina Huter

NLLIA/LARC

University of Western Sydney, Macarthur

1997

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Foreword

It is particularly pleasing for me to be able to introduce this sixth volume of Australian Studies in Language Acquisition. The core research mission of LARC is to investigate the process of language acquisition from a psycholinguistic standpoint, and Kirsten Huter's work takes us another stride forward in testing the central paradigm in which we work. It is particularly useful in that it tackles a language that is typologically different from German and English, on which the original work in this area was done.

LARC's program of research in language acquisition has two foci. On the one hand, we see basic research as essential to challenge and refine the Pienemann-Johnston model; the study of the development of typologically different languages is a crucial part of this process. On the other hand, theory needs to be put into practice, and we are keen to encourage applied research that will take the findings of scholars like Kirsten Huter and design syllabuses that reflect our knowledge of how languages are acquired.

I urge language teachers and applied linguistics to note Kirsten's work and to reflect on the practical message that can be drawn from it: That language teaching curriculum design must be well motivated, and must reflect the psycholinguistic processes that underlie language acquisition.

*Stuart Campbell
NLLIA/LARC,
University of Western Sydney Macarthur*

Introduction

Background

The following article is based on a longitudinal study of the acquisition of syntax in JSL over a three year period. In this study, five students of Japanese as a second language (JSL) have been interviewed at regular intervals.

The aim of this research is to describe the development of syntactic and morphological knowledge in learner language. It is assumed that interlanguage is not comprised of an increasing number of arbitrary structures and features, but that it is, as any other grammar, systematic. The structures and the order of their acquisition occur similarly in learners from different language backgrounds and in different learning environments. This development can be described and predicted, and therefore has potential to test explanatory models in SLA.

All data collected and presented in this article are from spontaneous spoken language, elicited in conversations between the informants and the researcher. The theoretical approach underlying the study influences the methodology of the data collection: As the study attempts to determine the learner grammar, it is important to analyse learner production rather than listening comprehension, as the latter can be facilitated by factors other than grammatical knowledge.

Scope of this Article

This paper will begin with the presentation of an explanation of grammar development, following Pienemann (see Pienemann, Johnston and Brindley 1988, Pienemann 1995), with a particular focus on findings on human information processing skills and their acquisition.

Next, the influence of these factors on JSL acquisition will be examined: After a short overview of Japanese syntax, phases and stages in the acquisition of JSL syntax from beginners to intermediate level will be described.

'Stages' consist of syntactic structures, which are acquired in a fixed order. 'Phases' describe the kind of syntactic operation that learners perform in acquiring and producing those structures, the increasing complexity of those operations thereby becoming obvious. Several stages are grouped under each phase.

The last section applies this methodology in order to explain the stages of JSL acquisition, discussing its range of applicability as well as considering other explanations, which can expand the account of incremental learner language.

Overview of Japanese Syntax

Japanese is a headfinal language. Usually the unmarked **word order** is SOV, as in 1.

1. *Tomoko ga ringo o taberu.*
(name) (sub-p) apple (ob-p) eat
Tomoko eats an apple.

As Japanese is a non-configurational language, the order of subject, objects and adjuncts can be changed according to pragmatic needs (Kuno 1973, 3).

Case-particles follow the noun, as do postpositions and the topic-marker 'wa'. The topic-marker replaces the subject- and object marker and follows postpositions. However, both discourse-topics and adverbial phrases can precede the canonical word order (CWO)-sentence.

Noun phrases consist of at least one noun and one case particle or postposition. As Japanese is leftbranching, the modifying element precedes the modified; adjectives and quantifiers precede the noun, and adverbs precede the verb, exemplified in 2. and 3. below:

2. *Okii zoo wa takusan ringo o taberu.*
 big elephant (top-p) many apple (ob-p) eat
 Big elephants eat many apples.

3. *Zoo wa hayaku hashiru.*
 elephant (tp-p) fast run
 Elephants run fast.

Nouns can also be modified by another noun by duplication of the simple noun phrase:

4. *nihonjin no tomodachi wa*
 Japanese (con-p) friend (top-p)
 the friend of the Japanese; the Japanese friend

This complex noun phrase looks like the English genitive construction, however, its meaning is not always possessive as is the case in English. "no" is a particle connecting two nouns, and the kind of relationship must be inferred from the context.

Verbs consist of a stem plus endings marking tense, negation, desiderative, progressiveness, passive, causative and so on. As Japanese is an agglutinative language, endings can pile up, resulting in verbs like "tabesaserarekakemasendeshita" - "I am about to be made to eat". Despite being called agglutinative, Japanese shows clear patterns of inflections. The inflections are highly regular and complicated only by the high number of possible endings (Lewin 1975, 1ff).

Complementizers stand in the sentence-final position behind the verb:

5. *Tenki ga kirei da kara sampoo o shimashoo.*
 weather (sub-p) good (cop) because walk (ob-p) do-let's
 Because the weather is good, let's have a walk.

Some complementizers **subordinate**, others **coordinate**. Subordination is marked with an unmarked verb form that can be finite, but in the case of subordination, marks infiniteness.

Relative clauses, like all modifiers, precede the head noun. There are no relative pronouns or other complementizers in relative clauses. A relative clause can be sentence-initial, or it can be embedded, depending on the noun that it relativizes:

6. *Asoko ni miru hito wa Tanakasensei desu.*
 over there (plce-p) see person (top-p) (name) teacher (cop)
 The person that you see over there is Mister Tanaka.
7. *Ban ni kinoo katta hon o yomitain desu.*
 evening (time-p) yesterday bought book (ob-p) read-want (cop)
 Tonight I want to read the book that I bought yesterday.

Although not a comprehensive list of all features of the Japanese language, the preceding presentation includes the basic patterns of the language as well as those structures that learners acquire up to intermediate level. However, there are some minor features to be encountered in the presentation of all acquired structures, which will be explained when relevant.

An Explanatory Model of SLA: Human Information Processing

The concept of interlanguage as a developing system goes back almost thirty years. While Selinker was the one who coined the term 'interlanguage' (Selinker 1972), it was researchers like Dulay and Burt (1973) who set the developmental aspect of language acquisition into perspective. They showed that learners from different language backgrounds acquire morphological features of English in the same fixed order.¹

Clahsen, Meisel and Pienemann (1983) present an in-depth study of over forty adult learners of German. The results of the data analysis include five stages of acquisition for GSL. Many later studies by other researchers support the validity of the described structures and their order, and there are now descriptions of acquisitional phases of other languages such as English (Pienemann, Johnston and Brindley 1987), Swedish (Pienemann and Hakansson, in press), and Spanish (Johnston 1995).

Differing explanations have been proposed for the ordering of acquisition (e.g. Meisel 1990). Pienemann claims the answer lies in the way human information processing works (Pienemann, Johnston,

¹ Dulay and Burt's study and the conclusions drawn are flawed in many ways; this, however, does not change the fact that it was this study that brought the developmental aspect of interlanguage to people's attention.

Brindley 1988, Pienemann 1995). He suggests that a sentence should be understood as a string of information, and that one should apply to it what cognitive psychologists have found out about human information processing. As human processing skills are considered universal, they influence all learners, acquiring any language in any kind of environment.

Of particular interest is the experimental finding that the first and the last position of a string of information is perceptually more salient:

" ... the person typically is presented a dozen or more words in sequence. ... we find that words presented early in the list are better recalled than those presented in the middle of the list. Those at the end of the list are also better recalled than those in the middle ..." (D.H. Dodd, R.M. White, 64)

Transferred to the production of sentence structures, this suggests that the processing of information in sentence-initial and sentence-final positions is easier than the processing of sentence-internal information. It is not unreasonable to assume then that non-linguistic factors influence the choice of sentence elements on which information can be marked, and of sentence positions between which information can be exchanged. This is supported by interlanguage-data, which show that learners can perform their first operations at these salient positions.

Table 1: Stages of complexity in strings of information

<u>stage 0:</u>	A B C
<u>stage 1:</u>	A B C X
<u>stage 2:</u>	X A B C
<u>Stage 3:</u>	X A B C -> A X B C
<u>stage 4:</u>	X A B C -> X B A C

Learners incrementally acquire the ability to produce structures of increasing complexity:

Once the canonical word order is acquired (stage 0), the first operation a learner can perform on a sentence is at the sentence-final position. Any element can be attached (stage 1). For this operation, lexical items need not be annotated for their grammatical category.

In the next step, learners produce elements in the sentence-initial position (stage 3); adverbial phrases or adjuncts are inserted here. Annotation for category is unnecessary at this stage, as this operation can be carried out on the basis of semantic knowledge. Stage 2 might be more complex than stage 2, because the canonical word order-sentence

has to be held in short-time memory whilst the adverbial phrase is produced.

The next complex operation is the exchange of grammatical information from a sentence-internal position to a salient one (stage 3). This information can be marked by a word (e.g. the particle 'off' in 'to switch off') or a morpheme (e.g. 3. person -s). At this stage, category distinction is necessary in order to identify the element to be transferred.

Naturally, the next complex operation is the information exchange from one non-salient position to another non-salient one (stage 4).

Questions of information exchange are more important for a language with strict word order-rules like German than they are for Japanese, but we still find the same regularities in JSL learner grammars. It is important to note that learners are well able to produce correct sentences without having annotated the lexical items in question for their category and the structural features that go with it (at stages 0, 1, and 2). This will become apparent in the following presentation of the stages of acquisition of JSL.

Phases and Stages in the Acquisition of JSL

In the acquisition of JSL we find several phases, which are distinguished by the kind of syntactic operation that is acquired. In each phase, several grammatical structures are acquired. A fixed order underlies their acquisition. Table 2 demonstrates the phases of acquisition in JSL, and Table 3 the structures of those phases, found in the data from university students up to their third year.

Table 2: Phases of acquisition in JSL

<u>phase 1:</u>	Basic sentence structures, basic categories
<u>phase 2:</u>	Extension of noun phrase, verb phrase, sentence
<u>phase 3:</u>	Change of some category features and thereby establishment of new subcategories (which are filled with new lexical items)
<u>phase 4:</u>	Sentence level of clause and syntactic category of lexical items can be changed (depending on syntactic environment and intended meaning)

Table 3: Stages of acquisition in JSL

<u>phase 1</u>		
1.	Copula-sentence incl. NP:	S -> NP N cop
2.	Verb-sentence incl. NP:	S -> NP NP V
<u>phase 2</u>		
3.	Complex noun phrase:	NP -> N no Np
4.	Verb inflection:	V -> V-endg
5.	Meaningful order of elements:	NP -> N1 no N2 p
6.	Adv-Fronting:	S -> X S
<u>phase 3</u>		
7.	Quantifier:	NP -> qu N p
8.	Adjectives:	NP -> adj N p
9.	Coordination:	S -> S compl S
10.	Adverbs:	VP -> adv V
<u>phase 4</u>		
11.	Subordination (sentence-initial):	S -> sub.cl. S
12.	Subordination (sentence-internal):	S -> NP su.cl. NP V
13.	Clause-chaining:	S -> cl cl cl cl ...
14.	Aspect-marking:	VP -> V-te V S -> S asp
15.	Adjective inflection:	adj -> V adj -> adv
16.	Nominal adjectives:	adj N-> NoAd na N adj V -> adv V

Phase 1:

In phase 1, learners establish the basic sentence structures, i.e. the canonical word orders, and the basic grammatical categories of the language. These basic sentence structures are the **copula sentence** and the **verb sentence** (i.e. the canonical word order sentences), and the two categories are the **noun** and **verb**. There are also two closed categories of particles and the copula (one form of copula only: 'desu').

It is likely that the copula sentence is acquired before the verb sentence, as in the learner grammar it seems to consist of two noun phrases only; the copula is treated as a particle with the specific feature of 'sentence-final position'. However, the data presented here were collected at the end of the first semester of instruction, by which time all learners had already acquired both structures.

Of course learners already use lexical items that are, in target Japanese, annotated for categories other than noun or verb, for instance, adjectives are used to describe colours. It is crucial to note here that these adjectives occur only as copula complements, i.e. in a noun slot, and therefore show no structural behaviour to distinguish them from nouns. Although learners use 'adjectives' at this stage, it is not justified to claim that the category 'adjective' is acquired.

Phase 2:

In the next phase, students start to **extend** and **modify** the structures described above. They extend both the categories and the sentence; no new elements or categories are established.

The noun phrase is extended by its **duplication**: NP -> Np Np. In the learner language, this structure has a genitive function. First, learners are able to build a complex noun phrase containing both involved noun phrases without having mastered the connection of form and function, i.e. the order of both nouns and the direction of modification, and often produce structures with - in target language terms - a meaning like 'the friend of the name'. The rate of correctly constructed genitive phrases does not exceed chance. It is only in a second step that learners acquire the knowledge of Japanese being leftbranching, i.e. the direction of modification, and start to say consistently 'the name of my friend'.

The sentence is modified by **verb inflection**. Past tense or negation is marked. Learners never mark two functions at the same verb; if negated past is to be marked, learners simply drop the past marker. The reason for this is not entirely clear, but the rule of one-form-one-meaning seems to be applicable here. Studies have shown that beginning language learners establish a one-to-one mapping of form and function; the ability to map, depending on the context, different functions on the same form, is acquired only relatively late in the acquisition process. In particular,

learners of Japanese establish verb inflection as one position, which can therefore mark only one meaning; either tense or negation.²

The sentence is modified and also extended by **adverb-fronting**, i.e. a new, sentence-initial position is established. Adverbial phrases either have the structure of noun phrases ('tsukue no ue ni' - 'on top of the table') or they are what might be called 'sentence-initials': little words like 'dakara' or '*kara' ('that's why') or 'demo' or '*ga' ('but') that mark some kind of logical relation between the preceding and the following sentence.

It is sometimes difficult in the analysis to define whether an adverbial phrase stands in a position preceding the CWO or is part of it, because an adverbial phrase has the form of a noun phrase, and a subject can be dropped, resulting in the adverbial phrase formally being part of the CWO. In the analysis of this study, only those adverbial phrases that precede a complete CWO were counted as an adverb-fronting structure.

² Learners also produce constructions with nominalizers: '... koto ga arimasu' and '... koto ga dekimasu'. These sentences, which formally contain relative clauses relativizing the nominalizer 'koto', are here considered formulaic, therefore the sentence is considered a main clause with a - quite long - verb inflection. The same applies to the desiderative 'V-tai desu'.

Phase 3:

Learners now begin to alter the established structures such that **new features** and therefore **new categories** occur. This happens at the noun phrase and verb phrase level.

A subset of nouns (those that characterize) and a new group of lexical items - quantifiers - are established, which have a modifying function and do not need to be connected to the modified element by a particle ('no' in the noun phrase structure of phase 2). Complex noun phrases containing **adjectives**, or **quantifiers**, or both, develop.

This feature of 'preceding modified element directly' is transferred to the verb phrase, where the first **adverbs** occur. These adverbs are either adverbials like 'mata' - 'again' or adjectives like 'hayai' - 'quick'. The ending -ku that converts an adjective into an adverb (like English '-ly') is sometimes, not always added; however, even without the correct inflection, the verb-preceding position is established.

It is possible that the sentence-preceding position, established in the last phase, was firstly only filled by adverbial phrases of noun phrase-structure. The 'sentence-initials' might be acquired in this phase, where directly preceding modifiers, which have no particle, are acquired. The analysis of further data is necessary to clarify this point.

Learners also establish a new sentence-final position. This is the complementizer position, and learners usually fill it with 'ga' - 'but' and 'kara' - 'because', and produce now the first complex, i.e. **coordinate sentences**. Learners used those complementizers as sentence-initial elements before. This is incorrect in terms of the target language, but is a creative solution in order to reach the communicative goal of describing logical relationships between propositions, when the ability of producing complex sentences is not acquired yet.

The complementizer can be described as being transferred from the sentence-initial to the sentence-final position, thereby allowing for coordination.

Phase 4:

In this phase, learners start to perform **complex syntactic operations** like building subordinate clauses with and without complementizers, that is, **changing clause levels**, and changing a **word's category** by inflection. Whereas in the last phase, new categories like "adjective" were established, in phase 4 learners are now able to change the category of the same lexical item, and the clause level of a sentence according to these elements' syntactic environment and the intended meaning.

Learners start to inflect an **adjective** for seriality, so that another adjective, or a sentence - at a later stage of acquisition - can follow. Adjectives are also changed into adverbs, marked by the appropriate inflection, or a verb (being finite, marked for tense or negation), again by inflection.

A new group of adjectives, **nominal adjectives**, is established. This category is difficult to acquire, as it has an adjectival meaning, but behaves structurally almost like a noun: it is connected to the following noun by a particle; not by 'no', but by 'na'. It cannot be inflected for tense and negation.

Verbs are inflected for subordination, and occur first in subordinate complementizer clauses and then in subordinate clauses without

complementizers, which are relative clauses. Some learners also start to 'chain' sentences, a target-like operation³.

Learners also start to produce serial verbs, thereby connecting sentences, and marking aspect with verb clusters containing the main verb inflected for seriality and an 'aspect-marking' verb like 'shimau' (perfective) or 'oku' (indicating that it is done for future use).

Only in phase 4, where rather complex operations take place, do learners start to use the verb for the construction of different sentence structures and for marking different kinds of aspect. It looks as if learners of Japanese need to first establish the more static structures of noun phrase and sentence, before they are able to 'juggle' these stable reference points in order to increase the variety of expression beyond the pure statement of propositions.

Up to phase 4, learners have not acquired the ability to perform syntactic operations that require a **change in the mapping of functional on grammatical roles**. In phase 4, learners started to change the category of lexical items and the clause level of a sentence. However, passives or causatives, which require a change of the

³ The record in the data presented is a sentence with seven co- and subordinate clauses. This is produced by learner J, who underwent, beside the university instruction, some natural acquisition as well. The comparison of his data to those of the other students clearly shows the differences and similarities between instructed and natural syntax acquisition: While J goes through the same stages of acquisition, he masters the structures more quickly and uses them more often, resulting in a higher variety of expressions.

functional role that is mapped onto a grammatical role, are not yet produced.

The following tables show data from three learners of JSL. Each column shows the acquired structures at the end of each semester of instruction. The thick lines underline the most advanced structure acquired for each semester. The tables clearly show the implicational relationship of the structures acquired; only rarely is a structure of an earlier phase not produced. The implicational factor lies over 90 per cent.

Table 4: Informant J, acquired structures in JSL through 2.5 years

structure	J1	J2	J3	J4	J5
cop+verb-sent.	+	+	+	+	+
N to/no N	+	+	+	+	+
Verb infl.	+	+	+	+	+
N1 no N2	+	+	+	+	+
Adv-Front	+	+	+	+	+
Quant+N+p	-	(2)	+	+	+
Adj+N+p	(2)	+	+	+	+
Coordination	-	+	+	+	+
adv+V	-	(2)	(1)	+	(2)
Sub.cl. initial	-	+	+	+	+
Clause-chaing	-	+	+	+	+
Sub.cl.internal	-	-	+	+	+
Aspect-markg	-	-	-	+	+
NoAd na N	-	-	(2)	(2)	+
Adj-infl.	-	(3)	(4)	+	(4)

Learner J is by far the most advanced learner of the three presented here. J's acquisition of Japanese was facilitated through Japanese friends, with whom he spoke in Japanese, as well as through his work in a Japanese restaurant. J produces more utterances than the other students, uses

more different syntactic structures, and more different structures per utterance.

Table 5: Informant M, acquired structures in JSL through 2 years

structure	M 1	M 2	M 3	M 4
cop+verb-sent.	+	+	+	+
N to/no N	+	+	+	+
Verb infl.	+	+	+	+
N1 no N2	-	+	+	+
Adv-Front	-	+	+	+
Quant+N+p	-	+	+	-
Adj+N+p	-	+	-	(2)
Coordination	-	+	+	-
adv+V	-	-	-	?
Sub. cl.initial	-	(1)	(1)	-
Clause-chaing	-	-	-	-
Sub.cl. internal	-	-	-	-
Aspect-markg	-	-	-	-
NoAd na N	-	(2)	-	-
Adj-infl.	-	-	-	-

There are no data for M's fifth semester of acquisition of JSL. It seems that M regressed after her second semester. She acquired a few more structures, but seems insecure about their usage and mostly restricts herself to well-established CWO-sentences.

Table 6: Informant K, acquired structures in JSL through 2.5 years

structure	K 1	K 2	K 3	K 4	K 5
cop+verb-sent.	+	+	+	+	+
N to/no N	+	+	+	+	+
Verb infl.	+	(2)	+	+	+
N1 no N2	+	+	+	+	+
Adv-Front	-	+	(1)	+	+
Quant+N+p	-	-	-	-	-
Adj+N+p	+	-	(1)	(1)	+
Coordination	-	-	-	(1)	(1)
adv+V	-	-	-	+	+
Subcl. initial	-	-	-	-	(1)
Clause-chaing	-	-	-	-	-
Sub.cl. internal	-	-	-	-	-
Aspect-markg	-	-	-	-	-
NoAd na N	-	-	-	-	-
Adj-infl.	-	-	-	-	-

K is a reticent student, and it is hard to judge if some structures are acquired at all. She restricts her utterances to basic CWO-structures and avoids relativizing propositions, for instance by adjectives or quantifiers.

As these tables show, the order in the learners' developmental process is similar, and each learner proceeds through the same stages of acquisition. Therefore it is justified to pool all the data together in one table, so that the evidence for the different stages becomes clearer:

Table 7: Informants J, M, K, acquired structures in JSL through 2.5 years

structure	M1	K 1	K2	K3	J1	M 4	M 2	M 3	K4	K 5	J2	J3	J4	J5
cop+verb-sent	+	+	+	+	+	+	+	+	+	+	+	+	+	+
N to/no N	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Verb infl.	+	+	(2)	+	+	+	+	+	+	+	+	+	+	+
N1 no N2	-	+	+	+	+	+	+	+	+	+	+	+	+	+
Adv-Front	-	-	+	(1)	+	+	+	+	+	+	+	+	+	+
qu/Adj+N+p	-	+	-	(1)	(2)	(2)	+	+	(1)	+	+	+	+	+
Coordination	-	-	-	-	-	-	+	+	(1)	(1)	+	+	+	+
adv+V	-	-	-	-	-	+	-	-	+	+	(2)	(1)	+	(2)
Subcl. initial	-	-	-	-	-	-	(1)	(1)	-	(1)	+	+	+	+
Clause-chaing	-	-	-	-	-	-	-	-	-	-	+	+	+	+
Sub.cl. internal	-	-	-	-	-	-	-	-	-	-	-	+	+	+
Aspect-markg	-	-	-	-	-	-	-	-	-	-	-	-	+	+
NoAd na N	-	-	-	-	-	-	(2)	-	-	-	-	(2)	(2)	+
Adj-infl.	-	-	-	-	-	-	-	-	-	-	(3)	(4)	+	(4)

In Table 7, we find evidence for a structure constituting a stage for every structure listed. While more data from learners from other kinds of instruction are necessary to claim universality for the order of all structures, the claim of a fixed order of phases, i.e. of certain kinds of syntactic operation, is strongly supported.

Development of Sentence Structure and Noun Phrase Structure in JSL

Our original question was how the order of acquisition can be explained, and one explanatory approach, based on laws of human information processing, was presented. This approach is basically concerned with sentence structure.

To look at the grammatical development in more detail, the developments of sentence level and phrase level should be separated. For the sake of clarity of presentation, we will start with asking how learners come to the point where they are able to produce relative clauses.

To look at this development, we will first look at the development of sentence structures, because a relative clause is a kind of sentence, and secondly at the development of noun phrases, because a relative clause is actually part of a complex noun phrase.

Table 8 presents the sequence of the different features a speaker has to have acquired in order to be able to produce a subordinate clause:

Table 8: Development of sentence structure

1.	Canonical word order:	S -> NP NP V
2.	Verb inflection (in sentence-final position)	S -> NP NP V-infl
3.	New sentence position: Adverb-fronting Adverbial phrases and 'sentence-initials' in sentence-initial position:	S -> X NP NP V
4.	New sentence position: X goes to sentence-final position and coordinates sentences:	S -> NP NP V X NP NP V
5.	Subordination: Subset of X becomes subordinating:	S -> Ssub X NP NP V
6.	Subordination without subordin. element: Relativisation:	NP -> rel.cl. NP NP V

Learners start off with the canonical word order CWO. The first manipulation of the CWO is verb inflection, which occurs in the

sentence-final position. Adverb-fronting with an adverbial phrase or a sentence-initial in the sentence-initial position follows.

Then exchange of information takes place: A subset of sentence-initial elements is now being produced at the sentence-final position, where they take on the function of conjunctions. The learners now have the first opportunity to construct complex, that is coordinate sentences.

Now the proposal suggested by Table 7 becomes logically concrete: Without the 'but's and 'that's why's' in the sentence-initial position, without this position in the first place, sentence-coordination would not be possible, because the learner has to be able to express a logical relationship between two propositions with two simple sentences, before s/he can learn to express this complex meaning in a complex sentence.

In the next step, a subset of conjunctions becomes subordinating. Subordination is marked with by verb inflection, the so called plain dictionary form. Learners hardly ever produce subordinating complementizers before mastering the marking of subordination, i.e. produce incorrect subordinate clauses. This might be different in acquisition in a natural context, where communicative pressure is much higher.

Only after the production of subordinate clauses before complementizers is mastered, do learners acquire the skill to produce subordinate clauses without complementizers, i.e. relative clauses.

The laws of human information processing clearly apply to the acquisition of JSL. The first information that goes beyond the CWO is coded in the sentence-final position, the first new positions appear in the salient sentence-initial position, the first exchange of information happens from one to the other salient position. However, so far we have no instrument to explain how the subordinate clause develops and how it is inserted in the noun phrase.

The sequence of developmental steps towards a relative clause in the noun phrase is as follows:

Table 9: Development of noun phrase:

1.	Basic noun phrase:	NP -> N p
2.	Modification by duplication:	NP -> N p N p
3.	Establishment of meaningful form (order of elements):	NP -> N1 p N2 p
4.	Establishment of directly preceding modifier:	NP -> Qu N p NP -> A N p
5.	Relativisation: Relative clause modifies and directly precedes N:	NP -> Sub cl N p

Learners start with the basic noun phrase in the form of noun plus particle. Particles are hardly ever dropped. The first modification that occurs is a duplication of the noun phrase; the learners acquire an increase in available forms to express meaning without having to establish a new structure.

It does take learners a separate step not only to duplicate the noun phrase, but to apply some meaning to the order of the nouns, i.e. to acquire the knowledge of Japanese being left-branching, and thereby to develop the skill to produce elements in their appropriate order .

On the basis of these skills, learners establish a new category of elements, which modify like nouns in the duplicated noun phrase, but do not need a particle to be able to connect to the head noun: the adjective. With this acquisition, there is now a slot of directly preceding modifiers, into which the learner can firstly insert adjectives and quantifiers and, after a while, also relative clauses.

In this development, we can clearly observe how in every step of the process just one feature in form or function changes to create a new structure. The rule seems to be "one thing at a time", and one acquisition builds the necessary prerequisite for the next one. The incremental fashion of development is evident.

Jakobson (1968) has described the development of linguistic systems, that is based on the immanent logic of one component being a necessary prerequisite for the next component and leading to its acquisition. He studies the acquisition of phonetic knowledge and suggests that the same principle is true for other areas of language:

" ... the grammatical components of language are subject to the same principle of stratification, and ... this stratification of linguistic values ... possesses its own immanent justification. ... A component of this system ... which, with respect to some other component ..., proves to be necessarily secondary, arises and does not occur in the languages of the world without the corresponding

primary components. ... This principle is simple to the point of being trivial: one cannot erect the superstructure without having provided the foundation ... The stratified structure of language is in this way revealed." (R. Jakobson 1968, 92-94)

The principle of a systematic development, in which one component is secondary to another is clearly observable in the acquisition of noun phrase structures in JSL. While this observation cannot serve as a sufficient explanation of the phenomena, it sets it into context and proves that noun phrase acquisition is not arbitrary, thereby suggesting strong reasons for the assumption of a similar path of development for all learners.

If we set both developmental sequences side by side, we find that there are qualitative similarities in the development of the noun phrase and the sentence structure, and also that there is a regular temporal relationship between both developments:

Table 10: Development of sentence structure and noun phrase

<p>1. NP -> N p</p> <p>2. Modification by duplication: NP -> N p N p</p> <p>3. Form (order) becomes meaningful: NP -> N1 p N2 p</p> <p>4. Establishment of directly preceding noun modifiers: NP -> Qu N p NP -> A N p</p> <p>5. Relativization: Subordinate clause modifies N: NP -> Sub cl N p</p>	<p>1. S -> NP NP V</p> <p>2. Verb inflection (sent-final position) S -> NP NP V-infl</p> <p>3. 'Adverb-fronting', AdvP and sentence-initials: S -> X NP NP V</p> <p>4. X goes to sent-final position and conjoins sentences: S -> NP NP V X NP NP V</p> <p>5. Subset of X becomes subordinating: S -> Ssub X S</p> <p>6. Subordination without subordinating element: Relativisation NP -> rel.cl. N p</p>
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The first changes after the acquisition of the basic structures (CWO and NP) take place at noun phrase level: Learners acquire the ability to modify, and know that the modifying element precedes what is

modified. After that is established on phrase level, it is transferred to sentence level, and an adverbial phrase is put in front of the sentence, thereby modifying it.

The production of (correct) complex sentences also relies on the knowledge of the order of elements, as there is a difference between " I eat, because I am hungry" and " I am hungry, because I eat". Learners produce such sentences before they have acquired the function of the order of elements. (However, they do not produce those structures before they have acquired the previous stage). The production of coordinate sentences relies on the insertion of a complementizer in the sentence-final (and therefore salient) position.

Learners then produce subordinate clauses. Up to this stage, complex sentences have had the structure of a noun phrase, where two nouns are connected by a 'complementizer', the particle 'no', which demands another noun to follow .

Only with the acquisition of directly preceding modifiers - adjectives and quantifiers -, which again happens on phrase level first, are learners able to also produce directly preceding subordinate clauses: relative clauses.

These observations indicate that new developments, i.e. the acquisition of new features, take place first at the phrase level and are then transferred to sentence level. Relative clauses are the first structure where the outcome of both developments feed into each other and are

mutually dependant. Obviously, a relative clause cannot be produced without there being a position for it, and a relativization has to exist in order to be able to be inserted into the noun phrase. Therefore we find a mutual dependency of noun phrase and sentence level acquisition in the production of a complex sentence with a relative clause.

Comparing the sequences of sentence and noun phrase development with the full developmental sequence (see Table 3), we also find that there is no structure in the development that is not a productive part of development, i.e. that does not advance the acquisitional process. The only exception is the construction VP -> adv+V, where the knowledge of the directly preceding element is transferred to the verb phrase. Interestingly, this structure, which is unproductive in terms of overall development, is produced only rarely, so that it is often difficult to decide if a learner has acquired this structure at a the time of a certain interview.

In the first four phases of acquisition, learners rarely develop the verb phrase at all. This development happens, as J's data show, only after all sentence structures are acquired.

Conclusion

This article presented the first developmental phases and stages of JSL acquisition, based on a longitudinal study of five university students. It has been demonstrated that the development of syntax in JSL shows highly regular patterns. All learners first establish the basic sentence structures with copula and verb and the basic categories of noun and verb. Syntactic extensions with the function of modification, then establishment of new categories, and then variability of annotation of lexical items and syntactic units follow. The complexity of the syntactic operations increases incrementally.

Pienemann's definition of stages was applied to the explanation of the JSL stages, and it was found that up to a certain point in the acquisition of sentence structures, this cognitive approach could be used to explain the regularities found in JSL acquisition.

The rules of information processing were not, however, applicable to noun phrases and their development. We found that noun phrase development is dictated by the characteristics inherent to the system of Japanese noun phrases, that is in the system that has to be developed. This dependency of a developmental course of the system to be acquired is related to the phenomenon discovered and described roughly fifty years ago by Jakobson.

A finding from the comparison of noun phrase and sentence development and the temporal relation of the acquisitions is the discovery that developmental changes on both levels are qualitatively similar, and that acquisition at the noun phrase level always precedes a similar acquisition at sentence level. New features seem to be acquired first at noun phrase level and are then transferred to verb phrase and sentence structure.

It is not yet possible to explain these phenomena or to know if it is true for the acquisition of other languages as well. It is, however, an hypothesis to be tested in further research.

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