



January 2013

# The Mouthing Of Verbs In Japanese Sign Language

Mark Penner

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THE MOUTHING OF VERBS IN JAPANESE SIGN LANGUAGE

by

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M.A., Western Conservative Baptist Seminary, June 1982

A Thesis  
Submitted to the Graduate Faculty  
of the  
University of North Dakota  
in partial fulfillment of the requirements

for the degree of

Master of Arts

Grand Forks, North Dakota  
August  
2013

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This thesis, submitted by Mark Penner in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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This thesis meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

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Wayne Swisher,  
Dean of the Graduate School

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## ACKNOWLEDGEMENTS

First, I thank my wife Mary Esther. Your patience with the long hours that this project entailed, your grace-filled support throughout the process, and your steady encouragement made this work possible.

Thank you also to my Deaf Japanese friends and JSL teachers, too many to name. You allow me to be a part of your community, greatly enriching my life. A special thank you to Tomomi Hagiwara. Your work in chunking, glossing, and translating into Japanese three of the texts analyzed here, your insight into your language, and your patience with my questions have been invaluable.

Thank you to my advisor Albert Bickford. Your hours on Skype patiently talking through issues, and then even more wading through several drafts offering valuable suggestions and directions for further research made it possible to think through and write this thesis. You did more than just work on a thesis, you mentored me in the world of linguistics. I also thank my committee members, Kathryn Hansen and Robb Fried. Your thoughts, corrections, and perspective added both substance and clarity. I also thank the many teachers in the UND linguistics program whose level of excellence and dedication is a continual inspiration to me. In particular, this thesis owes its origins to Stephen Levinsohn, who went far beyond the teacher's call of duty, continuing to look over and comment on my work in JSL discourse analysis long after the class itself was over.

## ABBREVIATIONS

### **Abbreviations in the thesis text**

ASL.....	American Sign Language
ISL.....	Israeli Sign Language
JSL .....	Japanese Sign Language
NGT .....	Sign Language of the Netherlands
RC.....	Relative clause

### **Abbreviations in charts and example sentences**

0.....	Toward or referencing nothing, no one, or nowhere in particular
1.....	Toward or referencing signer (1 <sup>st</sup> person)
2.....	Toward or referencing 2 <sup>nd</sup> person
3.....	Toward or referencing 3 <sup>rd</sup> person
CL.XXX.....	Classifier construction (XXX describes the expression)
COH .....	Cohorative
COND .....	Conditional
d.....	Lower (signing space reference)
DUR .....	Durative aspect
EYGZ.....	Eyegaze
INTS.....	Intensity (adverbial non-manuals)
l .....	Left (signing space reference)

m ..... Middle (signing space reference)

MIME.XXX ..... Mimetic expression (XXX describes the expression)

narr ..... Narrator

NEG ..... Verb of non-existence or verb of negation

NM ..... Non-manual marker

NOD ..... Head nod

P ..... Plural

PT ..... Indexical fingerpoint

r ..... Right (signing space reference)

RefS ..... Reference Shift

RS ..... Role Shift

TOP ..... Topic (usually topicalizing non-manuals in sign language studies)

u ..... Upper (signing space reference)

YNQ ..... Yes/No question (polar question)

## ABSTRACT

Analyzing four publicly available stories told by Japanese Deaf people, this paper shows that verbs are mouthed in natural Japanese Sign Language roughly 20% of the time, whereas other word classes are mouthed roughly 46% of the time. More than half of mouthed verbs are always or nearly always mouthed as one of their lexical properties. Abstract verbs tend to be mouthed more frequently than concrete verbs. When a Japanese Sign Language verb corresponds to a word that is not a verb in Japanese, it is far more likely to be mouthed. Verbs in headed relative clauses are mouthed whenever possible. Half of the verbs in clauses of emphasis proper are mouthed. Verbs in realis clauses are mouthed roughly 13% of the time, whereas in irrealis clauses, they are mouthed 33% of the time. In seven cases, verbs co-occurred with mouthings to distinguish between multiple possible meanings of a sign.

# CHAPTER 1

## INTRODUCTION

### 1.1 General direction and motivation for the study

#### 1.1.1 *Description of study*

In this study, I analyze natural Japanese Sign Language (JSL)<sup>1</sup> texts from a discourse/typology perspective with particular attention to mouthing of Japanese words while signing JSL verbs. I find that though mouthings<sup>2</sup> with verbs are less common than with other word classes<sup>3</sup>, they do occur. My investigation is based on the premise that since mouthing with verbs is less common than with other word classes, I should be able to determine which verbs and groupings of verbs are commonly mouthed and find reasons for why particular verbs are mouthed in particular settings. I find that in general, the frequently mouthed verbs tend to be more abstract in meaning and the less frequently mouthed verbs more concrete. I find that the function of mouthing for verbs in JSL is not

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<sup>1</sup> Out of deference to the Deaf community of Japan, I will be abbreviating Japanese Sign Language as JSL. Although the Japanese name for their language is “Nihon Shuwa,” and thus NS would also be an appropriate choice, for many reasons, the Deaf community in Japan has chosen to use JSL.

<sup>2</sup> For the purpose of this paper, “mouthings” or “mouthed words,” discussed in 1.3 below, refer to mouth shapes that follow the word formation patterns of a spoken language, usually produced with little or no voicing. These generally co-occur with manual signs that have roughly the same meaning as the mouthed word. Other uses of the mouth I refer to as mouth movements.

<sup>3</sup> Because we are dealing with a signed, not a spoken language, I will be using “word classes” rather than the usual “parts of speech” when referring to JSL.

just semantic but that mouthing in JSL has pragmatic uses as well. Also, when a JSL verb corresponds to a word that is not a verb in Japanese, it is far more likely to be mouthed.

Other factors that favor mouthings are that the verbs they accompany are:

1. Always mouthed as one of their lexical properties;
2. Mouthed to distinguish between two or more possible meanings of a sign;
3. In relative clauses;
4. In emphasized clauses; or
5. In some kinds of irrealis clauses.

### *1.1.2 Relevance of study*

This study contributes to the field of sign language linguistics in three ways. First, it adds to a growing movement away from reliance on elicited data and an increased use of naturally occurring sign language data. Secondly, it adds to our understanding of the function of mouthings in signed languages. Finally, it adds to our knowledge of how signed languages form relative clauses.

### *1.1.3 Basic distinctives of the discourse/typological approach*

The discourse/typology approach is broadly characterized as one that examines real-life language data with basic discourse principles in mind (Levinsohn 2009, vii). These discourse principles are informed by broad-spectrum typological generalizations, which are in turn affected by discoveries made by linguists in their new examination of texts. While not being strictly structured within one framework may have its disadvantages, the looser structure of this approach does allow for new ground to be broken.



One strength of this approach is that all language data have to be accounted for. If, for instance, a writer frequently changes from a perfect to imperfect tense in apparently random fashion, it is unacceptable to simply say “stylistic variation.” The researcher is required to seek out reasons for the variation. “Live data” of real communication tends to be extremely messy, and making sense of it is often a huge challenge. Yet when generalizations can be reached, they often open up new and helpful ways of understanding old material. For instance, this kind of linguistic analysis has made possible a much deeper understanding of Koine Greek than what I saw in seminaries 30 years ago. Also, it was exactly this kind of analysis that led to the hypotheses I defend here.

Some verbs are accompanied by mouthings. Most are not. When asked about it, most native speakers have no idea *that* they mouth verbs, much less why. Indeed, I have observed informally that when I elicit a relative clause, JSL signers sometimes do not mouth the verb in the relative clause, even though it would always be mouthed in natural discourse. They accept mouthed versions, and even produce them themselves, but when thinking about producing relative clauses, they don’t always use mouthings.<sup>4</sup> Nor are they generally able to articulate why they might mouth a particular verb in a particular instance. It remains the job of the researcher in situations like this to ferret out the patterns in the data and produce hypotheses to explain them.

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<sup>4</sup> I have also noticed that in translated work, where a concerted effort is made to distance oneself from the Japanese source text, RCs may not be mouthed where expected. A study comparing elicited with naturally occurring RCs in JSL might be instructive.

## 1.2 JSL sociolinguistics and “standard JSL”

JSL is the language of the Deaf community in Japan, which numbers anywhere from 180,000 to 250,000 by conservative estimates. Modern JSL has roots traceable to at least 1875 (The Deaf School 1975), and by some accounts, it existed before that time as well (Nakamura 2006, 40). JSL itself has undergone substantial changes through the years of its existence. For instance, often signers ages 80 and above use no mouthing at all, but perhaps due to a shift to an oralist approach in Deaf schools, mouthing has become an integral part of modern JSL.

For the purpose of this paper, the JSL under discussion is that which is passed on by Deaf children with Deaf parents through the Deaf schools to the larger Deaf community. This delimitation reflects an ongoing discussion among Japanese people with hearing loss as to what constitutes “pure JSL.”<sup>5</sup> On the one end of a continuum is the signing used mainly by hearing, hard-of-hearing, late-deafened people, and, more recently, deaf people educated in hearing schools, with Japanese as their first (if not always naturally acquired) language. This signing, sometimes called “signed Japanese,” closely follows Japanese word order and grammar patterns, and the manual signs are generally each accompanied by a mouthed Japanese word. On the other end of the continuum is the signing used by those who were educated in Deaf schools, with JSL as their first language. Between these two poles lie a range of language experiences that are all called JSL.

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<sup>5</sup> Nakamura (2006), pp. 13-16 introduces the various definitions of JSL and the politics of JSL, with a fuller discussion in chapter 11.

Though my research interest in is the latter group, just deciding to analyze texts by signers who identify with the Deaf community is not sufficient. It is axiomatic that linguistic data for any given language comes from people who are native to that language. In general, this means that they were exposed to and functioned in that language from infancy. However, by that definition, the vast majority of the population that uses JSL as their primary means of communication are non-native to JSL, since their parents are hearing and do not use natural JSL. That is to say, most of the people who are part of this latter group do not have a “native language” in the technical sense, since their parents were not Deaf, and they did not acquire their JSL from infancy. On the other hand, people who are regarded as the most skilled JSL communicators may be more heavily weighted with the small percentage of the population who have Deaf parents, but it is certainly not the case that all of them have Deaf parents. By the same token, just being Deaf and having Deaf parents does not make one an expert in their native language.<sup>6</sup> Also, until recently, a large proportion of the Deaf community encountered JSL as early as age four or five, and some as early as three; all still within what is considered primary language learning years. Although it might have been safest to limit data gathering to verifiably native signers of JSL, in this study, I have included some who had hearing parents but grew up in Deaf schools.

In terms of language contact, JSL has some obvious Japanese influences but is still a very different language from Japanese. Though the basic word order of both languages is

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<sup>6</sup> In fact, it is not uncommon for top-level Deaf leaders with Deaf parents to become very proficient at Signed Japanese before making a conscious choice to return to their native language.

SOV, and borrowing in the form of fingerspelling (rare) and mouthing (common) occurs, a widely differing modality results in major differences in syntax. Japanese verbs have one set of suffixes to denote a wide variety of aspects and modes and another set that distinguishes between the relative status of the speaker and the addressee. JSL, in contrast, does not have a required tense/aspect system; it uses either non-manual markers that co-occur with the manual sign or separate words to indicate modes; and its politeness forms are much less overt and systematized. Still, it would be hard to maintain that Japanese has had no influence on JSL grammar. For instance, the most common kind of relative clause in JSL seems to be patterned on the standard relative clause of Japanese. The JSL and Japanese examples below show a similar word order.

(1) Japanese

*saki*    *kita*            *hito*  
before   come-PAST   person  
'the person who came before'

(2) JSL

ALL.OF.YOU   KNOW   MOVIE  
'The movie you all know'

Both use the standard gap strategy of relativization without a relativizer, and both RCs precede the head. It is certainly possible to posit that this kind of relative clause in JSL is directly influenced by Japanese, especially since there are other ways in JSL to form relative clauses.

### 1.3 The place of the mouth in sign language studies

Although the earliest studies of signed languages focus mainly on the hands, with studies of various non-manuals (including the mouth) quickly following, in recent years

the function of the mouth in signed languages is receiving more attention. Sandler (2009) gives a useful synopsis of what is currently known about use of the mouth in signed languages, breaking down mouth usage into four categories: mouth morphemes, mouth components (or “lexical uses of the mouth”), mouthings, and mouth gestures. The first three she sees as part of the linguistic domain, as they are “conventionalized, combinatoric, and have systematic distribution” (Sandler 2009, 248). Mouth gestures she sees as outside the linguistic system, varying from signer to signer, filling a function similar to manual gestures in spoken languages, the “emotional or paralinguistic expressions” (Sandler 2009, 247) of a signed language. Mouthings are mouth shapes that follow the word formation patterns of a spoken language, usually produced with little or no voicing.<sup>7</sup> Since these are the focus of this study, and since the differences between mouth movements that are gestures, morphemes, and components have yet to be standardized in JSL, I simply refer to Sandler’s three other categories (besides mouthing) together as mouth movements. If the mouth action relates to a spoken Japanese word, I call it a mouthing or a mouthed word.

The discussion of mouthing in the literature has tended to center around the question of whether mouthings should be considered part of a particular sign language at all. Bank, Crasborn, and van Hout (2011, 251) summarize the debate as follows: “There is a continuum between these two extreme positions. On one end of the continuum,

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<sup>7</sup> When I mention sign language mouthings, I do not mean using a spoken and signed language simultaneously. Signed languages vary substantially from spoken languages, making this impossible. Rather, these are words, used in a matrix of signing, on which a mouthing of a spoken language word co-occurs with the manual sign. 75% of the time the whole Japanese word is mouthed, 25% of the time, only part of the word is mouthed.

mouthings can be seen as the outcome of online code-blending, where the user can freely choose between the various options that both (signed and spoken) languages offer. On the other end of the continuum, mouthings can be seen as fully lexicalized in the lexicon of the sign language, thus constituting an inherent part of the linguistic structure of the sign language. This would make mouthings in principle obligatory co-articulations for the user, although this may vary between signs.”

Perhaps as a result of this focus, little is written about the actual function of mouthings. Sandler says of Israeli Sign Language (ISL), “In fact, we do not know much about how mouthing is distributed in ISL, but we can make the following two observations. First, it is sometimes used to disambiguate two meanings of a single sign, such as the ISL sign SIBLING, with Hebrew mouthing for either “brother” or “sister.”” Second, mouthing tends to follow ISL prosodic constituency, so that mouthing of a lexical sign is likely to extend over a host and clitic” (Sandler 2009, 266). Vinson et al. (2010, 1,158) make a similar claim about British Sign Language studies. They note one use of mouthings, that of distinguishing between multiple meanings of one manual sign, but then go on to say, “However, such mouthings are also commonly associated with nonambiguous signs that occur in spontaneous conversation.” Their paper argues for “a dissociation between lexical retrieval for mouthings and manual components of signs” (Vinson et al. 2010, 1,166), which may be of interest given some of the functions of mouthing that are found in JSL, but they do not examine the pragmatic function of mouthings. With regard to Sign Language of the Netherlands (NGT), van de Sande and Crasborn (2009) argue for inclusion of mouthings as an integral part of NGT. Bank, Crasborn and van Hout (2011, 266), in working to discern whether mouthings are part of

the sign language lexicon or independent meaningful units, note that the same sign can occur in one instance with a mouth gesture and in another with a mouthing, but again, they do not examine the question of function. Mouthing is known in some signed languages to be a factor in distinguishing between nouns (mouthed) and verbs (unmouthed) (Kimmelman 2009). This, again, is disambiguation, though of a different sort. Ebbinghaus and Hessmann (2001, 137ff) argue that mouthings in German Sign Language are words in and of themselves, and co-occurrence with manual signs may be either redundant or used to indicate finer semantic distinctions within the possible range of a signed word. He says, “. . . in a sign language context spoken words have primarily semantic function; their syntactic value turns out to be quite irrelevant for a system of communication that relies on independent structural means.” Weisenberg (2003) does find another function, noting that American Sign Language (ASL) interpreters use mouthing not just for disambiguation but also for discourse related purposes such as emphasizing contrast within a sentence. This work, however, is not claiming anything about ASL per se, but only referencing the behavior of bilinguals in the context of simultaneous interpretation, and again the central argument revolves around the question of how mouthing relates to ASL.

As for what word classes co-occur with mouthing and how often, signed languages exhibit a wide variety. Boyes-Braem and Sutton-Spence (2001, 4) find that in general, mouthings tend to occur on nouns and non-modified verbs. Schermer (1990) finds that in NGT, this is true only with those mouthings that are temporally reduced or that serve to disambiguate or further specify the meaning of the manual sign. Other mouthings are spread evenly among the word classes. On the other hand, mouthing or lack thereof is

used to distinguish between nouns (mouthed) and verbs (unmouthed) in Russian Sign Language (Kimmelman 2009). Even though no specific numbers are given in Kimmelman's paper, since he considers mouthing a tip-off that a lexical item is a noun, it seems safe to think that verbs would be mouthed less than nouns in Russian Sign Language, if they are mouthed at all. He also implies that this finding applies to other signed languages besides his own when he writes, "Another criterion that has been found to be (relatively) reliable is mouthing, which—at least in some sign languages—accompanies mostly nouns" (Kimmelman 2009, 167). The highest percentage I found for verbal mouthings is in Austrian Sign Language, where 92% of nouns, and only 50% of verbs are mouthed (Hunger 2006). Nadolske and Rosenstock (2007) found that 80% of nouns and adjectives in ASL are mouthed, and perhaps 40% of the verbs.<sup>8</sup>

JSL appears to be one of the languages about which Kimmelman was writing. Though there are no studies specifically verifying this, there is a general understanding that mouthing is normal except with verbs. For example, when I was learning JSL, I was taught that mouthing of Japanese words with nouns and adjectives is acceptable, but that verbs should not have mouthings. In analyzing natural JSL texts, however, I find that mouthings do occur with verbs, though not as often as with other word classes, and sometimes in patterns that are pragmatically significant.

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<sup>8</sup> They divide verbs into five categories, but do not give an overall figure. In the chart on page 46, plain verbs are shown as mouthed 53% of the time and directional verbs 38% of the time. In the chart on page 55, modal verbs (infrequent occurrence) are mouthed 90%, plain verbs 45%, directional verbs 39%, aspectual verbs (infrequent occurrence) 21%, and classifier verbs 6%.



#### 1.4 A note on the notation system

There are two approaches to glossing in signed languages, the multi-line and the single-line methods. In the multi-line approach that has become the standard for sign language studies, glosses of manual components are characteristically input in all capital letters on the lowest gloss line, and non-manual signals are input on one or more lines above, with the extent of their scope or duration indicated by a line over the glosses below. The free translation is commonly placed below this. In example (3), the top line shows in italics the Japanese word that was mouthed, and in plain text mouth movements that are unrelated to a spoken language. For partial mouthings, the unexpressed portions of the Japanese word are enclosed in parentheses. The next line down shows aspectual modifications and the line below that shows adverbial modifications. For the lines that follow, “RS” refers to a role shift, in which the character depicted by the signer changes. When “narr” follows the period, it refers to the narrator role, and all other words following the period refer to various characters in the narrative whose persona the signer takes on. “RefS” refers to a reference shift, in which the persona of the signer remains the same, but the character who that persona relates to changes. For spatial references, “1” (for “1<sup>st</sup> person”) refers to the signer position, and for the space in front of the signer, “d” (for “down”) is lower, “m” is middle, “u” is upper, “r” is right, and “l” is left. For corner references, two letters are used, with the left/right axis preceding the upper/lower axis. “0” refers to “null space,” where the signer is referencing no-one in particular.

(3) JSL multi-line example

<i>isuraeru</i>	<i>jin</i>			<i>ejiputo</i>	<i>ou</i>	<i>paro</i>
			durative (4.2)			
			difficult			
		RefS.audience		RefS.0		
RS.narr						
ISRAEL	PEOPLE	ALL	WORK	EGYPT	KING	PA-RO
‘Over there in Egypt, the Israelites are all working hard, and with the king of Egypt, King Pharaoh,						
<i>(o)u</i>			pa(x3)			
			heavyhandedly	suffer		suffer
			RefS.king	RefS.Israelis	RefS.king	difficult
			RS.Israelis			RefS.0
			RS.king			RS.Israelis
KING(ru)	PT.KING	1.RULE.ld	ru.FORCE.1	SUFFER	WORK	
ruling over them harshly, they are forced by him to suffer hard, continuous work.’						

In the multi-line approach, non-manual adverbials and mouthings have separate lines as needed. Though the multi-line approach is more visual and in some cases easier to grasp at a glance, it does have some drawbacks. The first is technical—it is not possible at this point to output multi-line glossing from ELAN (*ELAN Linguistic Annotator*, 2013) annotation software that has proven quite useful and increasingly popular in analyzing signed languages. As more and more analysis is done in ELAN or similar types of software, it is helpful to have a way of including all of the relevant information about a sign in one line. Another drawback of the multi-line system for discourse studies in particular is that there are often several non-manuals overlapping, and the number of lines required to record all the data in a longer sentence quickly becomes unwieldy. Typical example sentences in linguistics journals are short, and show one or two non-manual lines above the gloss line. The example sentence (3) above is about average length—some are much longer—but the role shifts (RS) and reference shifts (RefS) are crucial to

understanding the passive idea of the sentence and must be included, along with adverbials, and since mouthing is the focus of the thesis, adding that line brings the total number of lines to six. Of course, when it comes time to report on the findings, for many sentences two or three lines may be enough to report the necessary information, but in the beginning stages, it is not always clear which particular non-manuals will be relevant and which will not. In the investigation stage at least, it has been helpful to have a glossing system that can easily include all of the potentially salient non-manual information. One other drawback is that the RS and RefS markings do not show where the roles and referents shift, but rather come at the end of the section for which the signer had taken the roles, which seems counter-intuitive.

The one-line approach functions similarly to that used by most linguists studying spoken languages, with a few simple modifications that allow for the specific needs of signed languages. This is the glossing system that I used for the discourse studies underpinning this study. With this approach, signs are glossed in English in lower-case, with periods separating multi-word glosses of a single sign. For reporting (e.g. in this thesis), I put glosses of the manual sign in boldface type to make them easier to find among the non-manual information surrounding them. (Boldfacing is not available in ELAN.) Mouthed words are indicated in italics. For partial mouthings, the portions deemed missing are indicated in parentheses. Unless otherwise indicated, the English translation of the mouthed Japanese word is the same as the gloss for the manual sign. As with the standard sign language notation, letters or numbers before and after the verb, separated from the verb by periods, are used to indicate directional verbs (x.verb.y), and verbs involving three locations are notated thus: verb.x.to.y.to.z. Grammatical markers

are indicated with capital letters in the standard abbreviations. To the convention of using a hyphen to separate morphemes that occur sequentially, I have added the use of a “plus” sign for morphemes that occur simultaneously (common enough in signed languages, but apparently not common enough in spoken languages to warrant a notation convention). RS and RefS precede the gloss of the sign<sup>9</sup> and are only signaled at the change point, with the assumption that the role or reference will remain constant until the next notice of change. When the role changes, the reference is assumed to change accordingly. The resulting notation may be seen in example (4) below.

(4) JSL one-line example

**Israel**+*isuraeru* **people**+*jin* **all** RS.Israelites+**work**+difficult+DUR(4x2)  
 RefS.ru(king)+**Egypt**+*ejiputo* **king**+*ou* **Pa-ro**+*paro* **King**+*(o)u* **PT.king**  
 RS.king+1.**rule**.ld+heavyhandedly+pa(x3) RS.Israelites+RefS.ru+ru.**force**.1+suffer  
 Ref.S.0+**Suffer Work**+difficult+suffer.

‘Over there in Egypt, the Israelites are all working hard, and with the king of Egypt, King Pharaoh ruling over them harshly, they are forced by him to suffer hard, continuous work’

In the original investigative glossing, instead of, for example PT.king, or RS.king, the notation was PT.ru (right upper), indicating the locus rather than filling in the reference from the context. For readability, and since the thesis topic does not require careful spatial referencing, I have at times changed these to indicate the referent rather than the locus.

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<sup>9</sup> From a sign language perspective, I judged that the more intuitive rendering was to have the RS and RefS first, as they seem to precede the manuals slightly in the signing, and one also needs to know who in the story is acting/communicating before processing the words that define the action/communication. For data sorting and analysis, though, this proved to be problematic. RS information had to be deleted before glosses could be sorted properly. I recommend that the gloss of the manual sign come first in data input.

For reporting in this paper, I use both systems. For sample sentences, I use the standard multi-tiered system and include only those tiers with information relevant to the discussion. For single words, I indicate glosses in capital letters. For larger amounts of data in charts, I use the one-line system.

## **CHAPTER 2**

### **METHODOLOGY**

#### **2.1 Choosing data**

All four texts used in this study come from the DVD publications of a yearly Deaf storytelling event called “Enjoying Sign Language” sponsored by the Deaf advocacy group D-PRO’s Deaf literature department (D-PRO 2004, 2007). The fact that two of these four are retellings of movies and one is a video diary seems particularly significant for the purposes of this study, as the strong visual nature of the source means that there is less likelihood that the texts would be influenced by Japanese, and mouthings, of course, are closely tied to Japanese.

The first text is signed by Masahiro Minamida and entitled “The first welfare?” Minamida is Deaf himself and has Deaf parents and attended Kagoshima Deaf School in southeastern Japan. He is familiar with public address, since he works as a pastor speaking publicly every week. He has also done on-camera translation work for a Deaf cable news program and extensive translation work for a JSL Bible translation organization. This, combined with his training in JSL teaching, has given him a good understanding of his own language and how it differs from Japanese. His familiarity with public address in various forms also means that the data is less likely to be influenced by the recording situation. The main portion of this text is a third-person narrative of the movie-retelling genre. It is set in the matrix of a discourse on the world’s first reference

to public welfare. The data I analyzed consists of six minutes, nine seconds (6:09) of signing from a 9:58 long presentation. In addition to the story portion,<sup>10</sup> I included the introductory and closing comments that bracketed the retelling proper.

The second text, “Swimmy,” is signed by Kiyoshi Kawashima, a graduate of Shakuji Deaf School in Tokyo. He is a former president of D-PRO, has received extensive training in JSL pedagogy, and is well loved as a Deaf storyteller. Though he has hearing parents, his story is included in the study because of his deep connection with the core Deaf community and because it is a movie adaptation, similar to the first text examined in detail. In his presentation he is ostensibly simply telling a story from a children’s story book, “Swimmy,” but also incorporates large sections of the movie “Finding Nemo,” as well as TV programs and fragments of traditional Japanese stories, ending with a “moral of the story” relating to the Deaf community. The data I analyzed consists of 5 minutes, 35 seconds (5:35) of third person narrative out of a 7:30 long presentation. In addition to the story, the final 1:17 of explanation, essentially “the moral of my story,” is included in analysis, roughly corresponding to the pre- and post-movie material in the Minamida story.<sup>11</sup>

The third text is “Mirror,” signed by Akihiro Yonaiyama, a very well known Deaf of Deaf stage and movie actor, movie director, lecturer, sign language teacher, and activist, graduate of the prestigious School for the Deaf connected with the University of Tsukuba.

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<sup>10</sup> The story is largely a retelling of a movie, but also includes 50 seconds of extended story after the movie ends.

<sup>11</sup> The first 37 seconds of video where he brings a children’s book onstage, discusses it briefly, thumbs through the book, and then carries it off stage are not included in the analysis.

He was the mainstay of D-PRO's Deaf literature department (which is no longer active), mentoring and training Deaf storytellers. This story was taken from a talk on mirrors. I examined 7:11 (seven minutes and eleven seconds) of video story and explanation out of a 12:40 presentation. Of the portion I analyzed, 5:17 was third person narrative, and 1:54 was explanatory material about the strange qualities of mirrors and how people should treat them.

The fourth text is "Today I did . . . what?" Yumiko Kawai signs it. She was born in Hokkaido, the northernmost island of Japan, and moved to Tokyo in 1988. She is a member of the Japan Deaf Theater, known for her ability to play a wide variety of roles in various genre. She is also part of the D-PRO movement, a newscaster for the National Television station's program "Children's Sign Language Weekly," a JSL teacher with membership in the Sign Language Teacher's Center, and a popular lecturer all over Japan. I was also told that she has Deaf parents but was unable to confirm this. Her presentation is cast as a series of entries in a video diary. Out of a total of three "diary entries" covering 15:27, I analyzed the final entry of 6:34, told in the first person. The amount of explanatory material included is virtually none, because even the explanation at the end turns out to be part of the story. I chose this story because, although it is not a retelling of a movie, it is cast as one entry from a video diary, and thus fits into the mold of stories that are less likely to have mouthings. Much of the action is played out in depictive expressions (explained below in 2.3.1), but Yumiko does a lot of "talking to herself" in the role of the main character (herself), and much of this is mouthed.



## 2.2 Processing the data

Because the core findings of this study were uncovered during a detailed discourse analysis of Minamida's text, there were some differences in how I processed the data in this text and the other three that I analyzed later.

In the first case, with input from Minamida and other Deaf Japanese people, I broke the text down into paragraphs, sentences, clauses, and words, and made a free translation of each sentence. Using ELAN, a linguistic annotation software program, I made a detailed gloss of each sign, including co-occurring non-manuals and all relevant information, using the one-line glossing system explained in 1.4 above, with each gloss synchronized to the corresponding video portion. This material I then output from ELAN into a text file. Then, having determined that the basic word order of JSL is SOV, I prepared a chart with pre-nuclear, subject, object, verb, and post-nuclear slots and input each gloss into the appropriate section of the chart.<sup>12</sup> After this, the chart was examined with respect to a series of discourse analysis parameters, leading to some of the observations that will be detailed in this paper. In the analysis, mouthings were noted on all words, and with verbs, I added a further breakdown into various kinds of mouthing.

For the remaining texts, I adopted a somewhat abbreviated procedure designed to confirm the discoveries from the first text. These texts were first processed by Tomomi Hagiwara, a Japanese Deaf person who, though not technically a "native signer," since the language of her home was not JSL, nevertheless attended a Deaf school in a class

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<sup>12</sup> Charting the text helped me determine how words functioned in clauses, and how clauses related to each other and to the larger discourse. It also greatly simplified the process when it came time to find relative clauses, complement clauses, and adjunct clauses

with anywhere from four to six classmates with Deaf parents, where she was exposed to JSL from pre-school age. She has also received training as a JSL teacher by a Deaf advocacy group related to D-PRO that focuses on teaching “true JSL.” Using ELAN as noted above, she separated out each word and made a simple gloss in Japanese. She also noted all mouth movements in the text,<sup>13</sup> and then classified all verbal mouthings and mouth movements. She made a free translation into Japanese of each clause.<sup>14</sup> I then examined each verb myself and made corrections when necessary after confirming with her.

After this, for all texts, I analyzed and categorized each mouthed verb in several ways. In order to find out whether subordination was involved in mouthing of verbs in relative clauses, I examined the text to determine for each verb whether it was in an independent clause, a relative clause, a complement clause, or an adjunct clause. I separated verbs into groups detailed in Chapter 3 below. This was done mainly to determine whether all stative verbs triggered mouthings, or just those that were related to Japanese adjectives, though I expanded the scope of the examination to see what else I might find. Based on other observations I made during discourse analysis, I also categorized verbs into realis and various kinds of irrealis, and marked verbs that were in circumstances of emphasis proper. I then made correlations between the various groupings and how often mouthing occurred.

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<sup>13</sup> This step she also did on the Minamida text as well.

<sup>14</sup> A multilingual JSL interpreter has translated the glosses and free translation into English to make them available to a wider community.

## 2.3 Determining what is a verb in JSL

### 2.3.1 *Depictive expressions*

JSL, like most signed languages, has a richly productive class of verbs commonly called classifier constructions.<sup>15</sup> These are constructions that incorporate morphemes called “classifiers” consisting only of handshapes. The classifiers reference some object(s); the movement, location, and orientation of the classifier construction represent motion or description of the object(s) referenced by the classifier. A classifier handshape referencing a car, for instance, can speed up a hill and down and around a sharp curve, while the signer’s body, depicting the driver’s, leans sharply into the turn, and the signer’s face, depicting the driver’s, has an expression appropriate to the story. The “car” might also spin out of control, slide along a guardrail, flip over it, and land upside down in a ravine. This is to say, the range of expressions that can be created out of the classifier system are virtually unlimited. Stylized mime constructions<sup>16</sup> are similar but more limited, since signers only act upon or with immediately available objects (usually one of their body parts). Even a hand in a particular shape, for instance, refers only to itself in that shape, not to a separate referenced object. These are not lexicalized in any sense, but are not pure mime either. Since they follow the same general constraints that classifier

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<sup>15</sup> The appropriateness of the label is now widely questioned, and this phenomenon has subsequently accrued multiple labels, but classifier, or more accurately, classifier construction, still seems to be the best-known label and is still widely used in sign language studies. I use the common abbreviation “CL.XXX.XXX,” in my glossed data where “XXX.XXX” stands for multiple words separated by periods that describe briefly what is depicted in the construction.

<sup>16</sup> In my data these are glossed as “MIME.XXX.XXX,” where “XXX.XXX” stands for the words separated by periods that describe briefly what is depicted in the construction.

constructions do, and seem to function as verbs in the larger context, I have included them as verbs. Since this is not the primary focus of the thesis, I refer to both together as depictive expressions.

The main point at issue here is that since these are usually glossed with multiple words, and thus usually have no obvious mouthing available, they are far less likely to be mouthed. In the texts I examined, predominately stories, and with two stories including retellings of movies, it is not surprising that of the 1,250 verbs examined, 478 of them, roughly 38%, are depiction verbs. Mouthing is not impossible—I do find 18 examples—but including these as verbs does lower the total percentage of verbal mouthings. My solution was to include them for the sake of completeness, but to give mouthing percentages with them excluded as well.

### *2.3.2 Distinguishing nouns and verbs*

One issue that must be faced is determining word classes, particularly, separating out verbs from nouns. JSL does not have a morphological parameter on the hands (such as reduplication for some minimal pairs as in ASL) that help determine which words are nouns and which are verbs. Usually a word's syntactic function in a clause makes it clear whether it is being used as a noun or a verb. For example, distinguishing CHAIR from SIT, if the manual sign functions as UNDERGOER, with an ACTOR performing an action on it that is delineated by a separate verb, it is clearly "chair". If the manual sign is accompanied by non-manual imperative morphemes, or portrayed as an action performed by the ACTOR, it is clearly a verb. Ambiguity is also tolerated. It is simply not necessary, for example, to distinguish between "this chair please" and "sit here please." If disambiguation is necessary, there are strategies available within the larger discourse.

Because such a wide variety of verbs are mouthed—including cases that are clearly verbs such as GO, SEE, and KNOW—it is obviously not the case that mouthing in and of itself turns a verb into a noun.<sup>17</sup> Even when a Japanese noun is mouthed, this does not necessarily mean that the JSL sign that the mouthing co-occurs with is a noun. Even assuming that the mouthed word is a borrowing from Japanese,<sup>18</sup> this does not mean it will be a noun in JSL, as words borrowed from another language can sometimes change word class. Also, I have clear evidence of verbs with noun mouthings in my data. In the Minamida text is the word:

(5) Minamida’s mouthed depictive expression

uma  
CL.RIDE.HORSE

Here ‘*uma*’ (‘horse’) is a fully mouthed Japanese noun, and the whole expression is a JSL verb. In this case, the noun HORSE in JSL has the same handshape, location, and orientation as the classifier construction. The movement is also the same, except that it is intensified and has more repetitions than the noun form. It is the face and body, with the signer in the role of the rider eagerly leaning into the chase, that makes it necessary to label this a verb. Clearly the signer is portraying a soldier riding a horse, which is a verbal concept, and not just referencing a horse as a noun, even while mouthing the

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<sup>17</sup> It is certainly conceivable that with minimal pairs, such as CHAIR and SIT, mouthing might be called upon to disambiguate between word classes, but I did not look for this in my data nor am I aware of any claims to that effect.

<sup>18</sup> Borrowing is not a given. Ebbinghaus (2001, pp138-139) argues that there is no evidence of a German Sign Language without mouthed German words, and that therefore these were never “borrowed in” but were always part of German Sign Language.

Japanese word for horse. This is not idiosyncratic to Minamida. Yonaiyama mouths ‘*shashin*’ (‘photo’) with TAKE.FACE.PHOTO, Kawashima mouths ‘*sakana*’ (‘fish’) with CL.FISH.SWIM.FAST.OVERHEAD, and Kawai mouths ‘*densha*’ (‘train’) with CL.TRAIN.LURCH.TO.A.STOP.

### 2.3.3 *Distinguishing between verbs and adjectives, auxiliaries, and modals*

Nouns are not the only problem. There is a whole class of words in JSL that could be considered either stative verbs or adjectives. They are mouthed in JSL as Japanese adjectives but take aspectual modifications and co-occurring non-manual adverbials that are normally associated with JSL verbs. Since determining basic word classes is not a part of this research project, I chose to include them in the count, but in a separate category from other verbs. This enabled me to find out whether the mouthing patterns were similar to or different from other verbs.

Similarly, there were words that could reasonably be analyzed as auxiliary verbs or modals in JSL but are mouthed with Japanese nouns, verb endings, or other parts of speech. Because I did not want to assume that JSL and Japanese word classes are the same, I again separated these out to examine in more detail.

## **CHAPTER 3**

### **MOUTHING WITH VERBS**

#### **3.1 Introduction**

This study finds that mouthing does indeed occur with verbs in JSL, though substantially less frequently than with other word classes. The chart below shows the distribution of all mouthing that I found in the four texts. Depictive verbs are included in this chart. For each parameter in the left-most column, I give separate totals for the number of words, the number of mouthed words, and the percentage of mouthed words for each of the four texts, as well as totals and an average for the four combined. For the sake of completeness, I use two ways of defining verbs. The broad count includes all tokens of all lexical items that might be verbs. Included with the standard verbs that have normal verbal mouthing patterns are two other groups. One group consists of lexical items that act like stative verbs in JSL, but are mouthed with Japanese adjectives. The next group includes lexical items that act like modal auxiliary verbs in JSL, but are mouthed with Japanese auxiliaries and modals from other parts of speech besides verbs. Both groups have a much higher percentage of mouthing than verbs that correspond to Japanese verbs, and some might question whether they are verbs at all. The narrow count excludes these last two groups. I also list the two debated verb groups separately, and although the row title bears the non-verb alternative names Adj/Aux/Mod (adjective, auxiliary, modal), the reader should bear in mind that these may also be analyzed as

verbs. Those labeled “Non-V” (non-verb) are all other words besides those counted as verbs. Under the “(Narrow)” label, since fewer tokens are counted as verbs, there are more “non-verbs,” and under the “(Broad)” label, since more tokens are counted as verbs, there are fewer “non-verbs.” Of the column titles, “all” refers to the total number of words in the groups referred to by the row title, “mthd” refers to the number of mouthed words in that group, and “percent” refers to the percentage of words in that group that are mouthed.

Table 1 Mouthing distribution

	Minamida			Kawashima			Yonaiyama		
	All	Mthd	Percent	All	Mthd	Percent	All	Mthd	Percent
All Words	497	164	33.0%	557	142	25.5%	486	173	35.6%
V (Narrow)	287	58	20.0%	332	52	15.7%	223	41	18.4%
Non-V (Narrow)	210	106	51.2%	225	90	40.0%	263	132	50.2%
V (Broad)	295	65	22.0%	360	69	19.2%	273	59	21.6%
Non-V (Broad)	202	98	48.5%	197	73	37.1%	213	114	53.5%
Adj/Aux/Mod	8	7	87.5%	27	16	59.3%	50	18	36.0%
Adj	6	6	100.0%	22	12	54.5%	32	17	53.1%
Aux/Mod	2	1	50.0%	5	4	80.0%	18	1	5.6%

	Kawai			Four texts total		
	All	Mthd	Percent	All	Mthd	Percent
All Words	470	143	30.4%	2,010	622	30.9%
V (Narrow)	274	53	19.3%	1,116	204	18.3%
Non-V (Narrow)	196	90	45.9%	894	418	46.8%
V (Broad)	322	87	27.0%	1,250	280	22.4%
Non-V (Broad)	148	56	37.8%	760	341	44.9%
Adj/Aux/Mod	48	34	70.8	134	76	56.7%
Adj	40	28	70.0%	100	63	63.0%
Aux/Mod	8	6	75.0%	34	13	38.2

In the four texts, verbs (narrowly defined) are mouthed 18.3% of the time. With everything that might be classed as a verb in JSL, including modals, auxiliaries, and words that are adjectives in Japanese and mouthed as adjectives in JSL, the total of



mouthings comes to 22.4%<sup>19</sup>. All words falling outside these classifications, mainly nouns, are mouthed 44.9% of the time. (If the modals, auxiliaries, and “potential adjectives” are classed as non-verbs, then the “all other words” class is actually mouthed 46.8% of the time.) Although these numbers do disprove the conventional claim of JSL teachers that mouthing should not occur with verbs<sup>20</sup>, they also affirm (because verbs are less commonly mouthed) the source of that claim.<sup>21</sup>

In order to examine verbal mouthing percentages without the influence of rarely mouthed verbs and frequently mouthed verbs (for example, when I investigated verb groupings), I sometimes deleted depictive expressions and frequently mouthed verbs from the data. The chart below shows the overall result of these deletions:

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<sup>19</sup> Modals, auxiliaries, and what may be adjectives are mouthed 57.1% of the time. See sections 3.4.4 and 3.4.2 for a full discussion.

<sup>20</sup> I am using “JSL” here as indicated in section 1.1.3—the signing characteristic of native signers educated in Deaf schools—though of course there are many in the wider deaf community who would mouth all words and expect their students to do so as well.

<sup>21</sup> One also has to wonder what words the instructors would consider to be verbs when they say verbs are not mouthed. For example, verbs of existence and non-existence are nearly always mouthed, but, lacking any action component, may not be seen as verbs. At the very least, the stative verbs that are mouthed as Japanese adjectives are also not likely seen as verbs.

Table 2 Mouthing distribution comparison

<b>ALL</b>	<b>Total</b>	<b>Mouthed</b>	<b>Mouthed %</b>
Verbs (narrow definition)	1116	204	18.3%
Verbs (broad definition)	1250	280	22.4%
Adj/Mod	134	76	56.7%
<b>No depictive expressions</b>			
Verbs (narrow definition)	639	186	29.6%
Verbs (broad definition)	772	262	33.9%
Adj/Mod	133	76	57.1%
<b>No depictive expressions or frequently mouthed verbs</b>			
Verbs (narrow definition)	539	96	17.8%
Verbs (broad definition)	647	151	23.3%
Adj/Mod	108	55	50.9%

As mentioned above, I began my investigation with the premise that since mouthing with verbs is less common than with other word classes, after determining which verbs and groups of verbs are commonly mouthed, I should be able to find reasons why particular verbs are mouthed in particular settings. In large part, I have been able to do so, as I show below.

It could be suggested that mouthings always occur except when other mouth morphemes or broad adverbial or emotive uses of the mouth over-ride them. The chart below puts this theory to rest.

Table 3 Percentage of verbs with different types of mouth involvement

<b>Mouth involvement</b>	<b>Minamida</b>	<b>Kawashima</b>	<b>Yonaiyama</b>	<b>Kawai</b>	<b>Total</b>
Mouthed	19.8%	15.7%	18.4%	19.0%	18.2%
Other mouth movements	64.2%	65.0%	70.4%	70.0%	67.4%
No mouth involvement	16.0%	19.3%	11.2%	11.0%	14.4%

Percentages vary from signer to signer (and may well vary between text types by the same signer), but with each person, there are a substantial number of verbs signed where nothing at all is happening on the mouth. While it might (or might not) be true that frequent interference from other uses of the mouth over time resulted in a general tendency not to mouth verbs, it is not true that in the present, verbs are mouthed unless there is another conflicting mouth-related action happening.

Before examining specifics as to which verbs are mouthed and why, I should also be clear that it is not just a matter of which lexical item is being signed. That is, it is not the case overall that some verbs are mouthed and others are not. In some cases, it does seem that mouthing is lexically-specified as an obligatory element of a particular verb or class of verb, but many other verbs are only mouthed in certain circumstances, and always in those circumstances. For instance in the example below, the word KNOW, occurring in a relative clause, is mouthed.<sup>22</sup> As a main verb in the same sentence, it occurs unmouthed.

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<sup>22</sup> As will be shown later, the type of relative clause in which this verb is found is almost always accompanied by mouthings unless there is no equivalent Japanese word to mouth.

(6) (Minamida, Sent. #2)

<i>shitta</i>	<i>eiga</i>	<i>ju</i>	<i>kai</i>	<i>iu</i>	<i>eiga</i>	topic
[YOU KNOW] <i>MOVIE</i> [10 COMMANDMENT SAY] <i>MOVIE</i> HEAR						
The movie you all know, the movie called “10 Commandments” you’ve heard (of it),						

ynq  
eygz.2P  
KNOW  
you know (it), right?

Clearly it is not simply a matter of some lexemes being mouthed and others not, although this is one factor for some verbs.

What remains, then, is to find out which instances of verbs are mouthed and why. There is not one simple explanation, but rather a variety of reasons that can trigger mouthing on verbs. Broadly speaking, verbs that indicate existence or non-existence are almost always mouthed. Stative verbs that correspond to Japanese adjectives have a much higher percentage of mouthings, as do verbs that are mouthed with words from other parts of speech (besides verbs) in Japanese. There are also some individual lexical items from various groupings of verbs that are almost always mouthed. Apart from these, mouthed verbs are found more often with abstract verbs, verbs in relative clauses, verbs in situations where special emphasis is given to a particular word or the idea behind it, verbs that are modals or auxiliary verbs themselves or occur with modals and auxiliaries, and verbs in other irrealis clauses. Some verbs are also mouthed to disambiguate between two or more possible meanings of a sign. These reasons are explained in more detail in what follows.

One complicating factor that must be taken into consideration is the variation that occurs between signers. The chart below shows one example of such variation.

Table 4 Comparison of mouthing patterns between signers

	<b>Kawashima</b>	<b>Yonaiyama</b>	<b>Kawai</b>	<b>Minamida</b>	<b>Average</b>
All Words	26%	36%	30%	33%	31%
Other	37%	54%	38%	49%	45%
Mouthed verbs	16%	18%	19%	20%	18%
Adjectival mouthing	55%	53%	71%	100%	63%
Auxiliary & Modal	80%	6%	75%	50%	36%

Kawashima, Kawai, and Minamida mouth auxiliary verbs and modals between 50-100% of the time, and Yonaiyama rarely mouths them. Further, of the three signers who mouth auxiliaries and modals, some mouth them with Japanese verbal endings and some with whole Japanese words. For example, Kawashima (07:03.9) has **think**+*kangae* **must**+*banaranai*, where the Japanese *kangaebanaranai* is a verb stem *kangae* (think) with a modal verb ending *banaranai* (must). In contrast, Minamida (04:06.2) has **go.home**+*kaeru* **must**+*hitsuyou*. In Japanese, *kaeru* (go.home) is a fully inflected verb with an imperfective ending, and *hitsuyou* (necessary) is a noun. **Must** has the same function in both constructions. Kawashima's mouthing is normal Japanese, Minamida's is awkward Japanese at best and might be considered ungrammatical for Japanese, though there may be regional differences involved. Both, of course, are normal JSL.

In addition, one sign might have multiple uses with separate mouthing patterns for each use. The word glossed BE.DIFFERENT can be used to negate a statement just made, or as a confirmation seeker, or as a confirmation seeker that has the effect of strengthening the statement just made. For Kawai, all uses of this word for negation are

unmouthed, and all modal uses are mouthed. Yonaiyama has two modal uses, neither of which are mouthed (as noted above, Yonaiyama rarely mouths auxiliaries or modals).

With this kind of variation, it should be clear that in general, JSL does not have normative rules that govern mouthing so much as general patterns that are manifested to different degrees in different signers. In order to find these patterns, I looked first to see if some verbs were always mouthed. Those I found that are always or frequently mouthed I call frequently-mouthed verbs. I also labeled and sorted all verbs by class to see if different types of verbs had different patterns of mouthing. I looked for patterns in the data related to the discourse function of emphasis proper. I looked for patterns relative to the function of the verb—whether it was a main verb, and if not, whether it was embedded in a relative clause, a complement clause, or an adjunct clause. I also examined whether verbs in quotations<sup>23</sup> were mouthed more frequently than verbs outside of that context. In each of these parameters, I also made comparisons between the four signers to see what variations I might find.

### **3.2 Mouthing in quotations**

Because some heavily mouthed sentences occurred in quotations and reported thought, I separated out all of the verbs in the Minamida text that occurred in this context to find out if this might be a conditioning factor for mouthing with verbs. By quotations, I mean portions of the discourse where the signer is reporting what someone in their

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<sup>23</sup> In a typical discourse analysis this would be called “reported speech,” but “speech” in the Deaf community has added implications, so I am using the less technical and more general “quotations” for that concept.

narrative is saying or thinking. In discourse studies, the usual nomenclature is either “reported speech” or “reported thought,” but since “speech” in JSL sometimes only refers to spoken languages, I am using the word “quotations” instead. Despite the examples that prompted the search, I found no substantial difference overall. 97 out of 295 verbs occur in this context (including both depictive expressions and words that may be stative verbs but are mouthed as adjectives), and they are actually mouthed slightly less than verbs in normal narrative context; 18.6% in quotations as opposed to 19.2% in regular narration.

### **3.3 Frequently mouthed verbs**

In the four texts are verbal lexical items that are mouthed every time, or nearly every time, they occur, which I label frequently mouthed verbs. For a verb to be classified as lexically mouthed, every token would have to be mouthed. With a wider corpus, the number of lexical items that fit this description across a broad range of signers in JSL is likely to be very small. For instance, preliminary data on Yasuko Sato’s “A ghost on trial” from the D-PRO series shows her mouthing only 10.5% of all word classes combined, and a quick glance through the text shows that the majority of mouthed words are not verbs. Because my corpus is very small, it would be premature to make any definitive statements about whether a particular verb is lexically mouthed. I can show that some verbs are definitely not lexically mouthed, but the best I can do is show that some verbs are mouthed far more often than most. Thus, I will only call them “frequently mouthed verbs,” based on their observational description, leaving open the question of whether they are lexically-specified as requiring mouthing.

Even verbs that may ultimately be considered to be lexically mouthed do not have mouthing in all their instances. The word COMMAND illustrates this phenomenon. It is

used 17 times in the four texts, 13 in Minamida and 4 in Kawashima. Minamida is usually very clear in the partial mouthing ‘*mei*’, though once or twice he has just a trace. In Kawashima, the first in a series of four is very clearly mouthed with the same ‘*mei*’ as Minamida used, with a length of 0.363 seconds on the manual sign. The second instance (0.264 seconds) and third (0.214) use progressively less clear mouthing as the manual sign also becomes shorter. In the fourth occurrence, the manual sign is a mere 0.099 seconds in duration, and the mouthing is dropped completely. So though the mouthing rate is not 100%, the disappearance of mouthing in these cases appears to be a consequence of performance effects—loss of phonetic detail in a rapidly-pronounced sign.<sup>24</sup>

BE.PERMITTED illustrates two more situations where a verb that may ultimately be considered to be lexically mouthed does not have a mouthing. All four texts contain this lexical item, and it is mouthed in 12 out of 15 tokens, so is a strong candidate to be considered lexically mouthed. Examining the three exceptions, I find that Kawai has three mouthed uses and one unmouthed use of this word (9:05.8). In this one case, it is clear that the adverbial mouth movement of pursed lips took priority over the mouthing. Yonaiyama uses this word six times, and two are unmouthed. In one instance (11:05.7), as with Kawai’s exception, the mouth is clearly involved in expressing the attitude of the person whose role he is taking at that moment, thus over-riding the mouthing. In these two cases, another use of the mouth pre-empts the mouthing.

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<sup>24</sup> “COMMAND” will also be discussed as a modal, since it overlaps with the imperative mode.



The other situation is that a verb that is normally mouthed is unmouthed for no apparent reason. Yonaiyama's second exception is an example of this (7:38.0). Here there is no clear adverbial use of the mouth that pre-empts a mouthing, nor is the word signed quickly, and the reason for lack of mouthing is not entirely clear. Just as there are a small number of tokens where verbs that are normally not mouthed are mouthed without any known conditioning factor, here is an instance where a token of a lexical item that is usually mouthed is unmouthed without any obvious explanation.

In my analysis, I generally do not consider a word to be frequently mouthed if it is mouthed less than five times total or if fewer than 60% of its tokens are mouthed, and am cautious when there is a plausible alternate explanation for the mouthing. Judgment calls had to be made though. In my data, BE.CALM appears nine times, only in Kawai's text, always mouthed, but also always in an imperative mode, which could also explain the mouthing. I report it as frequently mouthed and also refer to it when discussing the influence of modality on mouthing. BE.TOO.MUCH, and BECOME, both occur less than five times, but I have classified them as frequently-mouthed because of observations I have made in the JSL community outside of this corpus that they are usually mouthed. With these guidelines, I have identified 11 lexical items as frequently mouthed, with a total of 125 tokens.

Table 5 Frequently mouthed verbs

Word	Mouthed	Unmouthed
be.calm+IMPV	9	0
be.permitted	12	3
be.too.much	2	0
become	3	0
command	16	1
exist	20	0
good	6	0
let's.go	5	3
NEG (or not.exist)	23	4
say <sup>25</sup>	5	0
take.face.photo	10	3
Total	111	14

As can be seen in the table, six of the lexical items are mouthed 100% of the time in my data. For the rest, one must then ask what motivates a lack of mouthing in each unmouthed token. COMMAND, as discussed above, is fairly straightforward. NEG is discussed 3.4.1 below.

With TAKE.FACE.PHOTO, like COMMAND discussed above, the unmouthed tokens seem to be a consequence of a loss of phonetic detail in a rapidly-pronounced sign. Whereas the first reference is executed in .76 seconds and most range between that and .50, the three unmouthed instances are .36 seconds, .32 seconds, and .26 seconds.

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<sup>25</sup> There is only one use of SAY in the four texts, the use that delineates the previous word or set of words as an official definition or name or description of something that is under discussion. It may be its use as a verb of grammatical instruction triggers the mouthing, and that other uses of SAY will not be mouthed. A larger corpus is needed to determine whether this verb is ever used to indicate a simple act of telling or communicating, and if so, if this usage is also mouthed.

(There is also one quickly mouthed token of this item that was only .30 seconds long, so mouthing was obviously not impossible at that speed, just less common.)

LET'S.GO is a bit more complicated. It occurs eight times, three are un-mouthed, five are mouthed. What is actually mouthed looks much like an imitation of actors in the movie that is being re-told, as does the arm motion. This word blurs the line between a depictive expression and a normal verb. The common form upon which this unique expression seems to be based is glossed COME.ON in my data. It consists of a small wave of the hand, usually toward the signer, but sometimes toward another locus. The five mouthed occurrences of LET'S.GO are all in situations where a leader is addressing people with either an imperative or cohortative mood involved, and there is a strong mimetic representation from the movie of a leader "leading the charge." All are signed as direct quotations, with the emotional state of the person quoted fairly or very intense, ranging from extreme rage to excitement over an unforeseen opportunity. Each is in a situation where the group is stopped and invoked to start out. With the unmouthed occurrences, one is told from the narrator's perspective and is not a quotation, one is in a lengthy quotation with "lets.go" occurring near the end as part of an explanation of what will happen after they start going. The third is in a quotation with both intensity and a direct command involved, but where the pursuit is not starting up, but actually ongoing at the time of the quotation, with the quotation providing further background for the purpose of the pursuit. On the one hand, then, the attending circumstances are more relevant to the mouthing status than the verb itself, which suggests that it may not, in fact, be lexically mouthed. However, since this is a word tailored specifically to these exact attending

circumstances, if it were to be used again, it is certainly likely that percentage of mouthings would be in the same range, and this is why I report it as frequently mouthed.

### **3.4 Mouthing with verbs analyzed by groupings**

In order to find not just individual lexical items, but whole groups of verbs that are mouthed more often than others, I separated the verbs in my texts into groups with similar meanings and examined these to determine mouthing frequency. The chart below summarizes for each grouping the total number of tokens, the number of mouthed tokens, and the resulting percentage of mouthed tokens for that group. Depictive expressions are not included in these numbers. Frequently mouthed verbs are also excluded, except in the case of verbs of existence, which occupy a whole group by themselves and are included to facilitate the discussion of frequently mouthed verb groupings. In addition, there are three groups in which the verbs correspond to Japanese non-verbs, and when mouthed are mouthed accordingly. These are the modal auxiliaries group, the stative verbs group, and state change verbs group. For reasons detailed below, in these cases I give two figures, one with all potential verbs included (broad definition), and one with the questioned lexical items excluded (narrow definition). Data is sorted by number of occurrences, except for the three broad definition groupings, which are placed under their respective narrow definition groupings.

Table 6 Verb mouthing by groupings

<b>Verb grouping</b>	<b>Total</b>	<b>Mouthed</b>	<b>Percentage</b>
Stative verbs, narrow definition	129	22	17.1%
(Stative verbs, broad definition)	216	67	31.0%
Other action verbs	129	21	16.3%
Verbs of movement	65	13	20.0%
Verbs of communication	60	5	8.3%
Verbs of existence and non-existence	47	43	91.5%
State change verbs, narrow definition	42	9	21.4%
(State change verbs, broad definition)	48	13	27.1%
Verbs of cognition	36	8	22.2%
Verbs of physical sensation	34	4	11.8%
Non-intentional actions	23	6	26.1%
Verbs of non-movement	12	5	41.7%
Modal auxiliaries, narrow definition	7	1	14.3%
(Modal auxiliaries, broad definition)	22	7	31.8%
Non-modal auxiliary verbs	2	2	100.0%

### 3.4.1 *Frequently mouthed verb groupings*

Two of the above groups have mouthing percentages that merit inclusion in the group of frequently mouthed verbs detailed above. Verbs of existence and non-existence are overwhelmingly mouthed. The two existence verbs, animate and inanimate,<sup>26</sup> occur 20 times in the four texts, and are mouthed 100% of the time.<sup>27</sup> Verbs of negation or non-existence occur 27 times and are mouthed 23 times, 85% of the time. (The JSL sign glossed as NEG functions both with other verbs to indicate negation and by itself to indicate non-existence.) They are all included in the table of frequently mouthed verbs,

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<sup>26</sup> In JSL, the animate form is only used for animate objects, but in contrast to Japanese, the inanimate form has a broader usage.

<sup>27</sup> In fact, in another text I have seen, a signer who mouths much less frequently is found clearly “mouthing” EXIST, but with her lips closed and only her throat and jaw moving.

but are included again here to aid in showing a pattern in the data. “BECOME,” though grouped with state change verbs, also has a range of meaning that overlaps with this group, and again is a frequently mouthed verb. It relates to this category as a word that either indicates a state of existence that is predicted to begin in the future or is said to have come into existence in the past with a present continuing result.

The other frequently mouthed group consists of non-modal auxiliaries,<sup>28</sup> verbs that express tense, aspect, and voice. Auxiliary verbs that are used to express modality and some kinds of illocutionary force are examined separately in 3.4.4 below. Of those in this group, only SAY has enough tokens (five) to show up on the frequently mouthed verb list. Though glossed as SAY, this is a case of bleached meaning,<sup>29</sup> and TO.SUMMARIZE would be a more accurate gloss for the five tokens in the texts under discussion. Although it is listed with verbs of communication, the five tokens are used either to delineate the previous word or set of words as an official definition or name or description of something that is under discussion, or to refer to a discussion as a single entity. As such, its use is grammaticalized. There are three other verbs in this group, each with only one token, each mouthed. RECEIVE is used as an indicator of passive voice and REPEAT is used aspectually to reinforce multiple iterations of the previous verb. COME, though grouped as a lexical item with verbs of motion, is used in one token to indicate future

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<sup>28</sup> The chart above shows only two tokens, but including words from other groups that have grammatical functions, there are eight tokens with this usage.

<sup>29</sup> This refers to words in which the meaning loses the richness (eg. of motion and place for “going to”) and starts being used in stereotyped ways for grammatical and/or other purposes, as when in modern English, “going to” (or “gonna”) becomes a future tense marker.

tense, and this use is mouthed. Even though these three only have one token each, as a group there are eight tokens, all mouthed. Further study on a wider corpus is needed before this can be called a frequently mouthed group, however.

### 3.4.2 *Mouthing with verbs of non-motion*

Before examining verb groupings with noteworthy results, an explanation of the high percentage of verbs of non-motion is necessary. Of the twelve tokens noted in the chart, ten are of one lexical item, WAIT, and of these, five are mouthed. All of the mouthings are in the context of Kawai's main character repeatedly doing self-talk and commanding herself to wait. As can be seen in section 3.7 below, in Kawai, the imperative mode is a very strong trigger of verbal mouthing (88.9% of her imperatives are mouthed). Thus the high percentage of verbal mouthing is not likely the result of being in this group, but rather the result of one word in a small set being used frequently in the imperative mode.<sup>30</sup> A larger, more varied corpus is likely to give a lower result than 42% mouthing for this grouping of verbs.

### 3.4.3 *Mouthing with stative verbs*

Using the broadest definition, there are 216 instances of stative verbs, verbs that convey a state of being, in the four texts, of which 67 are mouthed, which results in the 31% found in the "Stative verbs, broad definition" row of Table 6. This is a higher percentage of mouthing than I find with most other verb groupings, and in this sense,

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<sup>30</sup> For the most part, I controlled for effects like these by not including lexically mouthed items, but in this case, only 50% of the tokens for this lexical item were mouthed, and the trigger seemed to be modal rather than lexical, so it was not included in the frequently mouthed verb category.

stative verbs as a group are more frequently mouthed. There is, however, another parameter mixed in with this verb group that offers a better explanation of the data.

I write “broadest definition” above, because in this category are words that when mouthed, are mouthed as Japanese adjectives, but since they take aspectual modifications, and co-occur with adverbials, may be best classed as stative verbs. For the sake of distinguishing them from other stative verbs, I refer to them here as possible adjectives. In order to find out whether stative verbs as a whole are more frequently mouthed, or whether the mouthing frequency only includes the smaller subset of possible adjectives, I put them, along with words that functioned as modal auxiliary verbs, in a separate section of the mouthing data. By definition, the mouthings that accompany tokens in this subset are always Japanese adjectives.

There is a clear difference in mouthing patterns between the possible adjectives and other stative verbs. In the data are 102 possible adjectives, and 63 of them are mouthed, for a total of 61.8%. With all frequently mouthed verbs deleted from the data, there are 78 possible adjectives, with 43 mouthed, or 55.1% mouthing. Both of these numbers are substantially higher than the 17.1% of mouthed verbs, 22 mouthed out of 129 total, for the rest of the verbs that depict a state of being.<sup>31</sup> Clearly it is not stative verb status that triggers the mouthing.

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<sup>31</sup> It might be pointed out that verbs of existence and non-existence are also stative verbs, mouthed as verbs in Japanese, but have been separated out into a group by themselves, because they are so frequently mouthed. If they are included, then the figure jumps to 36.9%, but of course they were separated out (along with the potential adjectives “GOOD” and “BE.PERMITTED”) for the very reason that they were so frequently mouthed.



In the ongoing discussion as to whether potential adjectives are JSL verbs or adjectives, this is potentially an argument in favor of considering them to be adjectives, whether or not it is decisive. Either these should be considered as adjectives in JSL instead of stative verbs, or mouthing frequency in JSL is not based on the JSL word class of the lexical item being signed, but the Japanese word class of the accompanying mouthing.

As with verbs in general, it is theoretically possible that stative verbs as a group, including both verbs and potential adjectives, are always mouthed unless there is something else happening on the mouth. This is not the case, however. Of the 129 items that are left in this group when depictive expressions and lexically mouthed verbs are deleted, 18 have no mouth involvement of any kind. This comes to 14%, very similar to the average percentage for all of the signers shown in Table 3. Thus, it is not true that stative verbs are mouthed unless there is another conflicting mouth-related action happening. Potential adjectives were not analyzed in detail for the parameter, but only marked as mouthed and unmouthed, so percentages of tokens with no mouth involvement are not readily available, but a quick check through the 35 unmouthed potential adjectives shows that in this group also, at least four (11.4%) would have been classified as having no mouth involvement.

#### *3.4.4 Mouthing with modal auxiliary verbs*

This category includes helping verbs or auxiliary verbs that are modal such as “BE.ABLE,” “MUST,” and “NEED.” It also includes words that sometimes function as modals, changing the mode of the verb to various types of irrealis, such as “BE.SAME+ynq” or “BE.DIFFERENT+ynq.” Like the potential adjectives mentioned

above in the stative verb discussion, this group also includes lexical items that act like verbs in JSL but are mouthed more often and with words from other parts of speech in Japanese. As with the potential adjectives, I separate out modal auxiliary verbs that correspond to other parts of speech in Japanese in order to include them for the sake of completeness without losing track of what is happening with those that are surely verbs. This accounts for the separate rows for broad definition and narrow definition in the chart above.

I find a clear difference in mouthing patterns between modal auxiliaries mouthed with Japanese words from other parts of speech and those that are mouthed with Japanese verbs. The former have 31 tokens<sup>32</sup> in the data, of which 13 are mouthed, giving a 41.9% mouthing rate. The latter have a 14.3% rate of mouthed verbs, one mouthed out of seven total. Though a higher number of tokens would give a surer result, once again, it appears that mouthing correlates more with Japanese parts of speech than with JSL function (or once again, these words should not be considered verbs in JSL).

One final observation regarding this group of lexical items is that JSL signers vary in their mouthing patterns. As mentioned above at the end of 3.1, Kawashima and Kawai tend to mouth one Japanese word over two separate JSL signs, one sign with the mouthing of the Japanese verb stem and one sign with the mouthing of the Japanese auxiliary or modal verb ending. Minamida tends to mouth the verb with a Japanese verb

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<sup>32</sup> This number is higher than the number found in the chart. This is because not all tokens that are used as modals come from the “modals and auxiliary verbs” group. Some lexical items have multiple usages, some modal and some not. Verbs like this were listed in groups based on their other usages, but were labeled as modals in the verbal mouthing data.

and mouths a separate Japanese word with the auxiliary or modal. Yonaiyama tends not to mouth them at all.

#### *3.4.5 Mouthing with state change verbs*

Verbs in this group are not remarkably different from other groups. The only explanation needed is regarding the 27.1% figure found in the “State change verbs, broad definition” row of Table 6.

Included in the broader definition group is the verb “BE.DIFFERENT.” This lexical item, in six instances, is used with accompanying yes/no question non-manuals as a modal, a confirmation seeker at the end of an utterance that could be translated “is it not so?” This use is mouthed four out of six times (66.7%), always with a Japanese confirmation seeker particle and not a Japanese verb. This mouthing percentage roughly corresponds to the 41.9% mouthing of auxiliaries and modals discussed above that might not be verbs. On the other hand, this word is also used both with the meaning of “differ” or “be different,” and with the meaning of “no” or “disagree.” It is used with these meanings 14 times, and only two of them are mouthed (14.3%), always with a Japanese verb. Because this is one JSL sign, all uses remained listed in the state change group in my data, but since it has two separate uses that put it in different groups both for usage and for mouthing, I gave one figure for all usages (broad definition) and one figure excluding the six modal uses (narrow definition).

### **3.5 The effect of Japanese parts of speech on JSL mouthings**

Analyzing JSL verbal mouthing by groupings does not produce noteworthy results for most groups. Although some groups appear to have higher mouthing percentages,

further analysis shows that the grouping itself is not the reason for the higher percentage. Three groups in particular show that the word class of the Japanese word being mouthed has more bearing on mouthing than the class of the word in JSL. Stative verbs separate out neatly by this parameter, as do modal auxiliaries. In the discussion of state change verbs, I show that even two separate uses of the same word (BE.DIFFERENT) pattern differently, mouthed with separate Japanese parts of speech and with separate percentages of mouthing for each use. In addition to these, the chart below shows other lexical items that are mouthed with Japanese words from other word classes.

Table 7 Verbs mouthed with Japanese word from other word classes

<b>Lexical item</b>	<b>Mouthing</b>	<b>Data</b>	
be.above	ue	M	00:43.4
be.difficult	goku(roo)	Ki	13:39.9
be.difficult	go(kuroo)	M	01:10.6
become.non-functional	shiboo	Ki	13:24.7
be.in.love	koi	Ki	10:36.6
be.excessive	sugi	Ki	14:46.2
imagine	(s)ozo	Ki	14:39.9
imagine	so(z)o	Ki	14:48.9
imagine	yosoo	M	05:00.9
finish	owatta	Ki	14:24.6
come.to.the.end	owari	Ks	06:11.1
flatten.out	taira	M	04:14.6
kill.themselves	jisatsu	Y	07:54.9
accident	jiko	Y	07:55.5
sick	byooki	Y	07:56.7

BE.IN.LOVE and COME.TO.THE.END have two tokens each in the four texts, one mouthed and one unmouthed. IMAGINE is mouthed in three out of five tokens. The remaining words in the chart are always mouthed in the four texts examined. This results in 19 tokens, of which 15 are mouthed. I also searched the four texts for other JSL verbs that are glossed with nouns, and found GRADUATE (two tokens) and PREPARE (one

token). All of these together result in a total of 22 tokens, of which 15 are mouthed, for a mouthing percentage of 68.2%. Clearly JSL verbs that are mouthed with words from other parts of speech in Japanese are mouthed more frequently than those that are mouthed with Japanese verbs.

One hypothesis that could account for this phenomenon is that the complex verbal morphology of Japanese verbs makes it difficult to use for mouthing. Perfect and imperfect (often functioning as past and present/future), levels of politeness, voice, and a multitude of other parameters such as causative, permissive, and simultaneous action, just to name a few, combine to make a morphology that is difficult for second language learners. Some of this is evidenced in 3.4.4 above with some signers mouthing Japanese modal verb endings and others mouthing other parts of speech in Japanese. With a large portion of time in most Deaf schools devoted to practice in lipreading, speech, and Japanese language, some aspects of Japanese verbal morphology do connect with JSL lexical items, but it is certainly possible that the complexity of the system discourages mouthing in general except for the very complex (modal auxiliaries)<sup>33</sup> and the very simple (eg. EXIST, which occurs mainly with plain perfect and imperfect forms—polite forms are rare in JSL and have additional implicatures).<sup>34</sup> On the other hand, when a

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<sup>33</sup> Signed words separate from the verbs stem that are already known to Deaf students are used to teach the meanings of some of the complex Japanese verb endings.

<sup>34</sup> I had an interesting conversation with a Deaf friend who couldn't understand why hearing people didn't understand the JSL difference between EXIST+*aru* and EXIST+*arimasu*. In Japanese it is obviously only a matter of register—the meanings are the same, whereas in JSL, the implicatures are obviously different.

Japanese word from some other word class is available, there is no obstacle to mouthing, and thus use of these items for mouthing is more frequent.

### 3.6 Mouthing differences between abstract and concrete verbal items

With the caveat that some groups have very small numbers, the verb grouping data chart also shows a less obvious trend.

Table 8 Verb mouthing by grouping sorted by percentage<sup>35</sup>

<b>Verb grouping</b>	<b>Total</b>	<b>Mouthed</b>	<b>Percentage</b>
Non-modal auxiliary verbs	2	2	100.0%
Verbs of existence and non-existence	47	43	91.5%
Verbs of non-movement	12	5	41.7%
Non-intentional actions	23	6	26.1%
Verbs of cognition	36	8	22.2%
State change verbs, narrow definition	42	9	21.4%
(State change verbs, broad definition)	48	13	27.1%
Verbs of movement	65	13	20.0%
Stative verbs, narrow definition	129	22	17.1%
(Stative verbs, broad definition)	216	67	31.0%
Other action verbs	129	21	16.3%
Modal auxiliaries, narrow definition	7	1	14.3%
(Modal auxiliaries, broad definition)	22	7	31.8%
Verbs of physical sensation	34	4	11.8%
Verbs of communication	60	5	8.3%

Re-ordering the data in Table 6 by mouthing percentage, and excluding verbs of non-movement because one word in a small set accounts for all of the mouthings, the groups likely to include more abstract verbs have slightly higher percentages of mouthing. This

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<sup>35</sup> Except for EXS verbs, which are essentially all lexically mouthed, figures shown here are with depictive expressions and frequently mouthed words deleted from the data. Broad definition groups are ordered under their respective narrow definition groups.

is most obvious with grammatical verbs and verbs of existence. Though verbs of communication and verbs of movement might be ordered differently if abstract/concrete and not mouthing were the parameter, yet non-intentional actions, verbs of cognition and state change verbs do seem more abstract than verbs of action, sensory verbs, and verbs of communication, and they have a slightly higher percentage of mouthing. A much larger corpus is needed to see whether or not this correlation will hold, but this is certainly worth investigating.

In order to test whether mouthing is indeed more frequent with abstract verbs other than those encountered as stative or grammatical instruction verbs, I examined the full list of verbs in alphabetical order and divided them into two groups, those that seemed more abstract (see chart) and those that seemed more concrete (such as SWIM, KILL, SEE, MEET, etc.). I chose the 22 most abstract verbs. After deleting words that are mouthed as other parts of speech in Japanese (NEED, CAN'T, BE.SAME, and SAME; these were dealt with in 3.4.2 and 3.4.4 above), I was left with the following 18 items:

Table 9 Chart of abstract words that are not connected with states of being

<b>Lexical item</b>	<b>Mouthed</b>	<b>Unmouthed</b>	<b>Percentage</b>
become	3	0	100.0%
exist	20	0	100.0%
NEG	23	4	85.2%
say (grammaticalized use)	5	0	100.0%
happen	1	0	100.0%
come (future tense)	1	0	100.0%
unexpected.happens (no J.word)	0	1	0.0%
unable	0	2	0.0%
able	2	1	66.7%
be.different	6	15	28.6%
try.it.out	0	5	0.0%
begin	1	0	100.0%
start	0	3	0.0%
finish	1	0	100.0%
come.to.the.end	1	1	50.0%
stop (transitive)	0	1	0.0%
remain	2	0	100.0%
return	4	1	80.0%
Total	70	34	67.3%

Although the total does not reach the 100% or 91.5% mouthing that can be seen with verbs of existence and non-modal auxiliary verbs, 67.3% of the tokens are mouthed—a much higher percentage of mouthing than with most verbs, even higher than with other word classes such as nouns. This is one parameter that explains the high occurrence of mouthing for both verbs of existence and non-modal auxiliary verbs, as well as for other abstract verbs that do not fit either of those categories. Even if EXIST and NEG are



deleted from the chart, the mouthing percentage is still 47.4%.<sup>36</sup> Though not a mouthing trigger for every abstract verb in JSL, abstractness does seem to play an important role in triggering mouthing.

### **3.7 Mouthing in emphatic contexts**

Another place where mouthing of verbs happens more frequently is with emphasis proper. Emphasis proper refers to a way of highlighting or giving prominence to information. According to Levinsohn (2009, p. 63), emphasis proper, also called emphatic prominence, is used “to convey heightened emotion, as when a speaker feels strongly about something or considers that an event is unexpected.” This kind of prominence demands a “speaker.” In the four texts are examples where a presenter is expressing their heightened emotion directly to the audience and also where a character in the narrative is signing to someone else in the narrative. Contexts include situations like making a dramatic goal in football or meeting again a friend who was thought to be eaten by a shark (Kawashima text), seeing an ocean suddenly draw back to form a dry path (Minamida text), and reacting to unthinkable behavior done by an arm with a mind of its own on a public train (Kawai text). Signers show eyes wide with delighted surprise or faces contorted by horror, anger, shame, or fear, parameters that are fairly obvious and easy to spot.

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<sup>36</sup> Of course, there is a certain amount of circularity in doing this, since the hypothesis is that abstractness triggered the high occurrence of mouthing in these frequently mouthed groups, and with a larger corpus, if all frequently mouthed verbs were deleted, there would be little effect left to test.

Out of a total of 81 instances of emphasis proper in my texts, 41 are mouthed—50.6%. An additional three are caricatures of hearing people in emphatic contexts yelling multiple unintelligible words or single nonsense words, and 38 (46.9%) are unmouthed. Of the 204 mouthed verbs (narrow definition) in the four texts, there are 32 (15.7%) that occur in the context of emphasis proper, and for 15 of these, there is no other conditioning factor which can account for the mouthing. Clearly emphasis proper is a trigger of verbal mouthing in JSL.

### **3.8 Mouthing with verbs in irrealis clauses**

Mouthing of verbs is substantially more frequent in irrealis clauses than in realis clauses. In realis clauses, the action is portrayed as actually happening, whereas in irrealis clauses, it is not specified whether the action actually takes place or not. Irrealis indicators can be modals such as imperative, cohortative, or desiderative. They can be auxiliaries (such as “must”), questions, or any other construction (such as future tense) that indicates that the action is not portrayed as actually happening. A comparison of mouthed verbal tokens in realis and irrealis clauses can be seen in the chart below:

Table 10 Comparison of irrealis and realis mouthing patterns

<b>Irrealis</b>			
	<b>Total</b>	<b>Mouthed</b>	<b>Mouthed %</b>
Broad count verbs	353	132	37.4%
Narrow count verbs	284	94	33.1%
“Adjectives” & modals	69	38	55.1%
“Adjectives”	38	25	65.8%

<b>Realis</b>			
	<b>Total</b>	<b>Mouthed</b>	<b>Mouthed %</b>
Broad count verbs	897	147	16.4%
Narrow count verbs	831	108	13.0%
“Adjectives” & modals	66	39	59.1%
“Adjectives”	65	39	60.0%

Percentages for words mouthed as Japanese adjectives, auxiliaries, or modals show little difference, but for all other verbs, tokens in realis clauses are only mouthed 13% of the time, whereas tokens in irrealis clauses are mouthed 33% of the time. Although the total mouthing percentage for irrealis verbs is not as high as for the triggers of mouthing examined above, irrealis verbs on the whole are mouthed almost three times more than realis verbs.

Simply being in an irrealis clause, though, is not the conditioning factor. The chart above includes any verbal token in a sentence that as a whole is in the irrealis mode, however distant from the actual irrealis sign the token might be. The next chart (see below) makes it clear, however, that proximity to the irrealis sign (or the sign that co-occurs with the irrealis non-manuals) does affect the mouthing percentages.

Table 11 Comparison of mouthing with distance from irrealis indicator

	<b>Total</b>	<b>Mouthed</b>	<b>Mouthed %</b>
Irrealis indicator	113	42	37.2%
1 verb distant	92	33	35.9%
2 verbs distant	28	10	35.7%
3+ verbs distant	51	9	17.6%
Total	284	94	33.1%
(3 verbs distant)	15	1	6.7%

Clearly being near an irrealis indicator is a trigger of verbal mouthing. Irrealis indicators and tokens within one or two words of them account for 85 out of the 94 total instances of mouthing in irrealis clauses (nearly 90%). Tokens that are three or more words removed from the irrealis indicator are less likely to be mouthed. In fact, they have only a slightly higher percentage of mouthing than verbs in realis clauses. In addition, the “three verbs distant” line at the bottom of the chart shows that there is a sharp drop-off in mouthing percentages when the token in question is more than two verbs away from the irrealis indicator, rather than a gradual decline that correlates with distance. Of course with the number of tokens as small as it is, it would be too much to say that tokens that are three verbs away are less likely to be mouthed than verbs that are farther away, but this line of the chart does substantiate the claim that the critical point is being no more than two verbs away from the irrealis indicator.

Within the broad scope of irrealis are many different kinds, and verbal mouthing patterns vary considerably between them. Some have manual signs associated with them, such as NEED or WANT, others are only indicated with non-manual modals that co-occur with signs. For instance, an imperative can be executed with the eyebrows down, face stern, and movement of the sign tense, or with eyebrows down and a chin lift (or a chin point if the verb is directional), and movement of the sign tense. There do not appear

to be substantial differences in mouthing patterns between manually and non-manually indicated irrealis. I did notice that Yonaiyama mouths a manually indicated conditional clause quite heavily, whereas he does not mouth a non-manually indicated conditional clause, but this pattern does not show up in the amalgamated data with all four signers represented.

Different kinds of irrealis show different mouthing patterns. The chart below shows the result of sorting by kind of irrealis. Tokens that are three or more verbs away from the irrealis indicator are not included in these numbers, since they do not contribute much to increased verbal mouthing.

Table 12 Comparison of irrealis kinds

	<b>Total</b>	<b>Mouthed</b>	<b>Mouthing %</b>
Abilitative	9	2	22.2%
Cohortative	7	2	28.6%
Concessive	8	1	12.5%
Future	5	3	60.0%
If	14	8	57.1%
Then	11	3	27.3%
Imperative	54	26	48.1%
Other	56	19	33.9%
Reason	27	9	33.3%
Result	20	4	20.0%
WH question	4	0	0.0%
Y/N question	20	9	45.0%
Total	235	86	36.6%

This chart comes with two caveats. First, for most kinds of irrealis the numbers are quite small, and one or two tokens can substantially influence the percentages. Also, in many cases there is overlap between kinds. For instance, in the following example, IF, REQUEST, and NEED all occur within the same sentence, and each is a different kind of irrealis indicator.



Most of the time, imperative sentences are quite short, and in only two instances are the tokens more than two verbs away from the irrealis indicator. The three signers who use imperatives each have a good number, which gives us a clear picture of the variation. Kawai almost always mouths imperatives, mostly in the context of her main character repeatedly doing self-talk and commanding herself to wait, calm down, or not worry. Minamida also has a high percentage relative to mouthed irrealis verbs, but five of his mouthed tokens are of the frequently mouthed item COMMAND, and if these are discounted, his percentage drops to 17.6%. So although this kind of irrealis has greater numbers than others, strong predictive power is limited mainly to Kawai.

In conditional clauses, I find it helpful to delineate between the protasis (if) and the apodosis (then). For the protasis, though tokens are relatively few, mouthing is frequent for all three signers who have examples:

Table 14 Mouthing of verbs in conditional prodasis (if) clauses

<b>Signer</b>	<b>Total</b>	<b>Mouthed</b>	<b>Mouthing %</b>
Kawai	0	0	-
Minamida	3	1	33.3%
Kawashima	8	6	75.0%
Yonaiyama	3	1	33.3%
Total	14	8	57.1%

In addition, three of the tokens have no other conditioning factors that could account for the mouthing. Even without the five tokens that have other conditioning factors, there is still a 33.3% rate of verbal mouthing for this kind of irrealis.

For the apodosis of the if/then sequence, the tokens are even fewer, but the chart below shows fairly clear results.

Table 15 Mouthing of verbs in conditional apodosis (then) clauses

<b>Signer</b>	<b>Total</b>	<b>Mouthed</b>	<b>Mouthing %</b>
Kawai	0	0	-
Minamida	1	1	100.0%
Kawashima	5	1	20.0%
Yonaiyama	5	1	20.0%
Total	11	3	27.3%

Minamida's one token is mouthed, but is also part of a reason clause, and the mouthing may be triggered by the word REASON which immediately follows it. Yonaiyama's token is a frequently mouthed verb. If these are discounted, the figure drops to one mouthed verb out of nine, or 11%. Though the numbers are too small to be dogmatic, the conditional apodosis, does not seem like a place where mouthed verbs should be expected.

In the reason/result irrealis clauses, the numbers for mouthing in the reason clause are fairly robust and consistent across signers.

Table 16 Mouthing of verbs in reason clauses

<b>Signer</b>	<b>Total</b>	<b>Mouthed</b>	<b>Mouthing %</b>
Kawai	8	4	50.0%
Minamida	4	0	0.0%
Kawashima	5	2	40.0%
Yonaiyama	8	3	37.5%
Total	25	9	36.0%

Though Minamida's numbers appear to be lower than the rest, three of his tokens in this kind of irrealis clause are words with no ready Japanese equivalent that could be mouthed. Yonaiyama, on the other hand, who is less likely to mouth irrealis clauses, appears to break his pattern with this kind of irrealis. A closer examination, however, reveals that of three mouthed tokens, two are frequently mouthed verbs, and the other is



in a pre-head noun relative clause, where mouthing of verbs is also expected. Still, the numbers are at least consistent with the general numbers for mouthing of irrealis verbs, if not clear enough to pinpoint mouthing patterns from signer to signer.

With result clauses, the picture is also fairly clear, though there are slightly fewer tokens.

Table 17 Mouthing of verbs in result clauses

<b>Signer</b>	<b>Total</b>	<b>Mouthed</b>	<b>Mouthing %</b>
Kawai	4	3	75.0%
Minamida	6	1	16.7%
Kawashima	2	0	0.0%
Yonaiyama	8	0	0.0%
Total	20	4	20.0%

Yonaiyama and Kawashima don't mouth any of their eight and two tokens; Minamida mouths only one of six tokens. Only Kawai has a high percentage, but this is based on a very small sample. Two of her tokens are one and two verbs away from the word MEANING. MEANING usually connects to the reason half of the reason/result sequence, but in this case indicates the result. Because result clauses in general do not trigger mouthings, and MEANING frequently does, proximity to MEANING is a more likely trigger than the fact that this is a result clause. Thus, although the numbers are too small to make a strong prediction, it does seem likely that the result clause, like the apodosis of the conditional, is not a place where verbal mouthings should be expected.

As the next chart shows, yes/no questions give good evidence of being a conditioning factor for mouthing of verbs.

Table 18 Mouthing of verbs in yes/no question clauses

<b>Signer</b>	<b>Total</b>	<b>Mouthed</b>	<b>Mouthing %</b>
Kawai	6	4	66.7%
Minamida	9	2	22.2%
Kawashima	2	2	100.0%
Yonaiyama	3	1	33.3%
Total	20	9	45.0%

Although there are only 20 tokens, the percentage is fairly high, each signer has mouthed examples, and four of the mouthed tokens have no other known trigger for the mouthing.

In summary, though irrealis clauses as a whole are mouthed substantially more often than realis clauses, the mouthing percentages in general are not as high as other conditioning factors that are shown in this study. It is also clear that not every kind of irrealis clause can be expected to trigger the same percentage mouthings. Separating out various kinds of irrealis reduces the number of tokens, though, so in many cases it is mainly a matter of pointing out potentially emerging patterns rather than assured results.

### **3.9 Mouthing for semantic distinction**

As noted in 1.3 above, distinguishing multiple senses of the same sign is for the most part the only function of mouthing mentioned in sign language studies. It is beyond the scope of this project to examine all mouthed words, but with verbs in JSL, there are some tokens where mouthing is triggered by the need to distinguish between two possible meanings of a single sign. These are listed in the chart below.

Table 19 Mouthing of verbs for semantic distinction

Lexical item	Mouthing	Data	Trigger
CL.big.fish.coming	<i>sakana</i>	Ks 05:10.1	Identify noun in CL <sup>a</sup>
CL.big.fish.swim.above	<i>sakana</i>	Ks 03:28.4	Identify noun in CL
CL.big.fish.coming	<i>sakana</i>	Ks 05:08.1	Identify noun in CL
CL.shell.moving	<i>kai</i>	Ks 00:51.5	Identify noun in CL
CL.flowers.around.r.arm.in.casket	<i>hana</i>	Ki 13:33.1	Identify noun in CL
know.by.intuition	<i>kanji</i>	Y 07:08.9	Distinguish from ‘think’
CL.jellyfish.r.front+see+worry	<i>kai</i>	Ks 03:58.4	Identify noun in CL

a “CL” is short for “classifier construction,” a kind of depictive expression described in 2.3.1 above.

One example is KNOW.BY.INTUITION. It is very similar to the verb for THINK. Both involve placing the index finger by the side of the head in the temple area, and they are distinguished only by a slight lifting of the head and the finger together in the case of KNOW.BY.INTUITION, whereas THINK has no movement. This is the only token of KNOW.BY.INTUITION in my data, with no other obvious trigger for the mouthing. Other tokens are in depictive expressions. As a class, mouthing is rare with these, but there are times where the handshape and context do not specify clearly enough the object that is being portrayed, and a mouthing is used to specify it. In the case of CL.FISH.COMING and CL.FISH.SWIM.ABOVE, they do not occur close together in the data, and every instance is mouthed. In the case of CL.JELLYFISH.RIGHT.FRONT, multiple occurrences in various areas of the signing space follow each other in quick succession, and only the first token is mouthed.

### 3.10 Relative frequency of occurrence for mouthing motivations

One final point of interest is the frequency with which the various triggers of verbal mouthing occur, shown in the chart below. Because some of the categories are

overlapping (irrealis and imperative, for instance), and because some verbal mouthings have more than one trigger, the total of the motivations exceeds the 204 mouthed verbs listed.

Table 20 Conditioning factors for verbal mouthing

<b>Conditioning factor</b>	<b>Number</b>	<b>% of total</b>
Frequently mouthed verbs	102	50.0%
All listed irrealis	86	42.2%
Emphasis proper	41	15.7%
Japanese non-verb	15	14.2%
Imperative	26	12.7%
No known conditioning factor	16	7.8%
Yes/no question	9	4.4%
Reason	9	4.4%
Conditional prothesis (if)	8	3.9%
Non-modal auxiliaries	8	3.9%
Distinguishing	7	3.4%

### **3.11 Mouthing with depictive expressions**

Contrary to what we have looked at thus far, depictive expressions stand out because they are very infrequently mouthed. Out of 468 tokens, only 18 (3.8%) are mouthed. This is not surprising. As mentioned in 2.3.1 above, these are semantically complex. They correspond to multiple words in Japanese, and thus usually have no obvious simple Japanese mouthing available.

What may be surprising is that some mouthings actually do occur with depictive expressions. Nine of the 18 mouthed tokens in this class are mouthed with Japanese nouns, eight with verbs, and one with a noun followed by the Japanese copula. Every

signer has some mouthings with depictive expressions. Kawai is the most prolific with seven, followed by Kawashima with five, Minamida with four, and Yonaiyama with two.

Some fascinating mouthings are found here. Kawai (10:56.9) mouths *shi*, the first half of *shita* ('did') in Japanese, with CL.RUB.BUTT.OF.r.PERSON and *ta*, the second half, with CL.PUT.HAND.ON.HAND.OF.r.PERSON. The Japanese word she chose is not redundant to any part of the verb, nor does it serve for semantic distinction. Proximity to MEANING appears to be the conditioning factor. Later, in 13:13.1, strongly accusing her wayward arm, she mouths *hiite* ("pull") in Japanese while depicting the right arm pulling the left arm away and keeping it from signing, an example of emphasis proper. Six other mouthings in this class are triggered by the need to clearly define the noun element in the depictive expression; these are listed in 3.9 above. For the other half of this small niche of verbal mouthings in an unexpected place, there is no clearly discernable conditioning factor.

### **3.12 Conclusion**

To summarize, though some verbs are mouthed in JSL, the percentage of mouthed verbs is smaller than percentages of mouthed words in other word classes. This is not simply because other mouth activities are overriding or displacing the mouthings that would otherwise be present. Nor is it solely a matter of some verbs always being mouthed and others never being mouthed, although this is the case with some lexical items.

As for factors that condition verbal mouthing, half of the mouthed verbs are lexical items that are mouthed all or most of the time, and are included in the list of frequently mouthed verbs. JSL verbs that are more abstract are mouthed more commonly than concrete verbs. JSL verbs that are mouthed with words from other parts of speech in

Japanese are also more frequently mouthed than other verbs. For instance, lexical items that may be stative verbs but corresponding to Japanese adjectives are much more frequently mouthed than stative verbs that correspond to Japanese verbs, and a similar situation holds for words that might be considered auxiliary verbs in JSL but correspond to other word classes in Japanese. It may well be that they are rightly classed as verbs in JSL, but at the very least, they do act differently with regard to mouthing than other verbs do.

In addition to these overall factors are specific situations that favor verbal mouthings. Emphasis proper is one of these, as are some kinds of irrealis. Verbs that occur with auxiliaries are more frequently mouthed. Verbs that occur in quotations, on the other hand, are not mouthed any more frequently than normal.

It should be remembered, though, that these are not hard and fast rules. It is true that many of the lexically mouthed or frequently mouthed verbs are of the more abstract and conceptual variety, words that relate to being, not being, starting, finishing, becoming, and others. Still, there are always counterexamples, words like “BE.DIFFERENT” that are abstract but not mouthed any more often than other verbs, except in modal uses. It is true that JSL verbs mouthed with other parts of speech in Japanese are more commonly mouthed, but there is also BE.SAME, which is mouthed (always with a Japanese word that is not a verb) less than the average both in its modal and its normal use. If three signers often mouth verbs that occur with or are themselves modals and auxiliaries, there is the one signer who generally doesn’t mouth verbs in that context. Finally, although many instances of mouthing with verbs can be explained by these different factors, not all can.

## CHAPTER 4

### MOUTHING WITH VERBS IN RELATIVE CLAUSES

In the previous chapter, it became apparent that though some verbal mouthings are predicable, not all are. Aside from frequently mouthed verbs, most conditioning factors only trigger mouthings with verbal tokens in their sphere of influence roughly 50% of the time or less. In light of that, it is particularly striking that mouthing with verbs happens very often in JSL relative clauses (RCs). Indeed, this is one of the strongest conditioning factors; due to the complexity of its analysis, I deal with it here in a separate chapter. This chapter describes how RCs in JSL compare to those found in other signed languages, shows how mouthings pattern differently with the different kinds of RCs that occur in JSL, and then examines possible motivations behind these patterns.

#### 4.1 Defining a relative clause

The first task is to define what an RC is. From a typological framework, in order to compare any particular grammatical phenomenon cross-linguistically, terms must be defined in ways that make it possible to find differing expressions of similar functions in differing languages. For example, if I were to define a relative clause as a clause containing a relative pronoun or particle, the standard Japanese pattern for expressing the equivalent of an English relative clause would be ruled out *a priori*, since there is no relative pronoun or particle in Japanese. One could search multiple Japanese texts and never find a “relative clause” defined in this fashion. As languages vary in structure,

researchers must employ semantic and sometimes pragmatic criteria to avoid ruling out the structures they are setting out to find (Croft 2003, 13–14). Though this is not a broad, cross-linguistic study, it seems best, following Keenan and Comrie (1977), to use a semantically-based definition of relative clauses in order to gain wide selection of possible relative clauses for analysis.

There are any number of definitions to start with. Keenan and Comrie (1977, 63–64) define a relative clause as follows:

We consider any syntactic object to be an RC if it specifies a set of objects (perhaps a one-member set) in two steps: a larger set is specified, called the *domain* of relativization, and then restricted to some subset of which a certain sentence, the *restricting* sentence, is true. The domain of relativization is expressed in surface structure by the *Head NP*, and the restricting sentence by the *restricting clause*, which may look more or less like a surface sentence depending on the language.

Andrews (2007, 206) puts it more succinctly: “A relative clause (RC) is a subordinate clause which delimits the reference of an NP by specifying the role of the referent of that NP in the situation described by the RC.” Both of these, because the purpose of their studies was a broad typological comparison, apply only to restrictive RCs, not non-restrictive ones. Although these definitions apply to many JSL examples in my corpus, other examples are analyzable as non-restrictive RCs. Croft, in summarizing Keenan and Comrie’s definition, gives one that is both more succinct and also includes non-restrictive RCs: “a referent (noun phrase) being qualified (modified) by a proposition (clause, or



verbal form plus its modifiers) in which the referent plays a role (has a grammatical relation)” (Croft 2003, 147). SIL (2004) has a simpler definition: “A relative clause is a clause which describes the referent of a head noun or pronoun. It often restricts the reference of the head noun or pronoun.” These, however, could be construed to rule out situations where the head noun phrase is not specifically expressed, as in so-called “headless” RCs. Modifying the SIL definition somewhat, for the purpose of this paper, I am defining an RC as an embedded clause that modifies a head noun or pronoun (expressed or implied) and helps narrow down its reference or further describes it.

In the examples of this study, the noun phrase in the matrix clause that is being further described, also called the domain nominal or head noun, is written in italics. The RC itself is bracketed.

## 4.2 JSL relative clauses

Using the definition above, I found three types of RCs in the JSL data. The most common and obvious is the one that parallels the structure of a Japanese RC. Japanese uses the standard gap strategy found in many languages that use a subject-object-verb word order, as seen in the following example:

(8) Japanese (adapted from Andrews 2007, 208)

- a. Yamada-san ga saru o kat-te iru  
 Yamada-Mr SUBJ monkey DO keep-PTCPL be-PRES  
 Mr. Yamada keeps a monkey
  
- b. [Yamada-san ga kat-te iru] saru wa sakana wo tabe-ru  
 [Yamada-Mr SUBJ keep-PTCPL be-PRES] *monkey* TOP fish DO eat-IMPF  
*The monkey* [which Mr Yamada keeps] eats fish.

Here (6b) is an embedded RC. The RC is inside the noun phrase in the matrix clause, but external to and preceding the domain nominal, in this example, monkey. As there is no relative pronoun, article, or other indicator of a noun phrase showing in the RC itself to replace the “missing” noun, this kind of RC is said to use the “gap strategy.” The clause-final verb of the RC generally immediately precedes the head noun, which then in turn takes various case markers to function as any noun might in the larger sentence.

JSL has no nominal case markers, but apart from that, follows the same basic strategy, as the following example illustrates:

(9) JSL Minamida, Sentence #6

[GODS DON'T.NEED BE.ABOVE]	<i>GOD</i>	RS.God+HEAR
<i>The God</i>	[who is above the unneeded Gods]	hears

This is a typical instance of the gap strategy with the RC preceding the head. In JSL, as in Japanese, there are no relative particles or other overt noun phrases that function within the RC to assign a grammatical role to the referent of the head noun. Topicalizing non-manuals often co-occur (seven out of twelve instances, 58% in my data), usually over the whole RC and the head noun. This kind of RC is often used for introducing new characters, objects, or ideas to a discourse, serving as points of departure and other topicalized constituents, though again, not all RCs of this type have clear topicalizing non-manuals or function as points of departure.

Unlike Japanese, JSL also has RCs that follow the head noun instead of preceding it.<sup>37</sup>

(10) JSL Yonaiyama 5:00

COMPANY *YOUNG* [CL.PEOPLE.LINED.UP(m).FACING.1 EXIST] PT.1 1.EXPLAIN.mP  
I'll explain (things) to *the young people* of the company [who are there lined up in front of me]

No instances of this kind of RC have another noun in the RC itself.<sup>38</sup> Generally the RC either consists entirely of or also includes a depictive expression that has elements co-referential with a noun, or alternately, a verb that references a noun only by directionality or by non-manual markers such as eyegaze. Also, topicalizing non-manuals occur less frequently than with pre-head noun RCs. Only four of the nine instances (44%) of this kind of RC are accompanied by topicalizing non-manuals.<sup>39</sup>

JSL has a third strategy, also not available in Japanese, that of a “headless RC”. In Japanese, something, if only a pronoun or genitive particle, must occupy the head-noun slot. In the following JSL example, there is no head noun at all.

(11) JSL—Kawashima 4:41

eyebrows furrowed

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[BEFORE MEET] ∅ NEG LOOK.FOR, FRIEND NOT.EXIST,  
(*Those*) [met before] not being (there), he looked for (them); (his) friends not being (there),

LOOK.FOR CL.FISH.SWIM.AWAY.1  
he swam away to the left to look for them

---

<sup>37</sup> It should be noted that JSL is not alone among head external RCs in allowing the RC to be either before or after the head noun. Andrews (2007, 209) points out that though it is unusual, there are other languages that allow this, and gives Tagalog as an example.

<sup>38</sup> Eg. “books” and “cats” in: The *dog* [that likes to eat books and chase cats].

<sup>39</sup> Much work remains to be done on topicalization in JSL, so it is hard to speak with confidence here.

In this example, “before meet” can only refer to a group of characters that he had been with earlier in the discourse and is now seeking. JSL allows implicit pronominal elements, and since nothing besides the RC is needed to identify the referents, there is no overt head.

There is also one borderline example that could be analyzed either as a non-restrictive post-head noun RC or as a headless RC.

(12) JSL Kawashima 2:20

<i>urashimataro</i>	<i>kame</i>	<i>i(jime)ta</i>
topic		
URASHIMATARO(ru)	TURTLE(m)	ru.HELP.m-PTru, [r.BULLY.m] ru.HELP.m ...
As for Urashimataro, he helped a turtle, (he) helped ( <i>him</i> ) [who someone was bullying] . . .		

This cannot be analyzed as an appositional phrase (“Urashimataro helped a turtle—someone was bullying it—he helped it . . .”), because there is no pause following r.BULLY.m as would normally be the case with an appositional clause in JSL. The remaining question is how to interpret the pause preceding [r.BULLY.m]. It might be that the pause between the clauses signals a non-restrictive RC interpretation, with the RC modifying TURTLE. In this case, the translation would read: “As for Urashima Taro, he helped a turtle, who someone was bullying.” There are problems with this. Firstly, it is highly unusual to have the RC move away from the head noun in an extraposed RC. Not only that, there is a clitic fingerprint (PTru) referencing Urashimataro, the subject of the matrix clause, included in the pause, more evidence of a clausal break prior to the RC that would not be consistent with extraposition. Furthermore, this rendering does not deal adequately with the fact that the verb HELP occurs twice. This leaves us with the headless RC indicated in the free translation of example (12) as the strongest analysis. Even if there were no other instances of headless RCs yet in the data, I might want to

start looking for them based on this sentence. Since they do exist elsewhere, the simple explanation that this RC is headless should be preferred.

### **4.3 Relative clauses in other signed languages**

Much has been written about RCs in various signed languages. In ASL, work can be found as early as 1975 (Liddell 1975). Although analyses differ, there appears to be a good bit of overlap between topic marking and relative clauses. That is, non-manual syntactic markers for topic marking are similar to those used in relative clause constructions. Not only this, RCs are generally confined to sentence-initial position as points of departure. Coulter (1983, 317) writes: “In many ways, ASL restricting clauses are similar to ASL topics. They are marked by almost identical facial expressions . . . they are both initial, non-asserted constituents which must be followed by an assertion, and they both can have the structure of either an NP or an S.”<sup>40</sup> Pfau and Steinbach (2005) note a similar situation in German Sign Language. In Israeli Sign Language, though the non-manuals differ, again topic markers are involved (Dachkovsky and Sandler 2009). Italian Sign Language (LIS) is unique in having a manual relative pronoun, but again, it is accompanied by non-manuals that are very similar to topic markers (Cecchetto, Geraci, and Zucchi, 2006 and Branchini and Donati, 2009).<sup>41</sup>

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<sup>40</sup> Coulter (1983, p. 306) describes the RC marker “r” as “involving a raised upper lip, raised eyebrows, and lifted chin, whereas the TOP marker “t” has only the raised eyebrows and lifted chin.

<sup>41</sup> Both write about an LIS manual sign that they gloss PROREL, a relative pronoun. Though they disagree about whether it is a true relative or correlative, it clearly serves the same function as examples from the other sign languages mentioned above. Cecchetto et al, in arguing for correlative analysis over a true relative clause, mention “eyebrow raise,” which they connect with topicalization, though they do not

JSL seems to be unique among signed language RCs studied so far. It has more than one kind of RC. Topic marking non-manuals, though often present over the RC and the head noun, are not required, nor is the RC restricted to the topic position overlapping with point of departure or other fronted elements. In examples (10), (11), and (12) above, note that it is not the fronted, topicalized element that the RC modifies, nor is it the subject of the sentence, but the direct object.

#### **4.4 Mouthed verbs and relative clauses in Japanese Sign Language**

The most striking characteristic of RCs in JSL is that for the most part, verbs of RCs are mouthed whenever possible. In the four texts, 19 out of 31, or 61% of verbs in RCs are mouthed, a much larger percentage than the 22% of the verbs (by the broadest count<sup>42</sup>) that are normally mouthed. More telling still, with only one exception, all unmouthed RC verbs in constructions with an overt head noun are either signs without a clear Japanese equivalent, or depictive expressions (described in 2.3.1 above), which by definition have no Japanese equivalent; such verbs are very rarely mouthed. This means that, setting aside for the moment headless RCs, in 96% of the cases where it is easily possible to mouth a verb, the verb is mouthed. Ironically, the one exception (see Ks 6:29 in the chart below) is a stative verb that, if mouthed, would have been mouthed as a Japanese adjective, and as seen in 3.4.3 above, these are very often mouthed.

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pursue it in detail. In Branchini, however, it becomes clear that these are RCs, and that the manual marker PROREL does not stand alone, but is always accompanied by non-manuals that are clearly related to topicalization.

<sup>42</sup> This figure includes all lexical items that may be verbs in JSL, including those that are mouthed with lexical items from other parts of speech in Japanese discussed in 3.4.3 ff.

The chart below lists all of the RCs found in the texts that I examined. The left-most column shows where in the data the example may be found (the Minamida text has sentence numbers, all others are referred to by time-code). Following are columns for (1) a gloss and translation of the RC; (2) where the RC is located relative to the head noun (“pre” means that the RC precedes the head noun, “post” means that the RC follows the head noun, and “none” indicates a “headless RC,” where the head noun is only implied; (3) the mouthing of the verb in the RC (“n/a” means “none available” to borrow from Japanese, e.g. in a depictive expression; “trace” means something is mouthed, but it is not clear exactly what; “none” means there is no mouthing, though there was a Japanese word corresponding to the JSL sign that could have been mouthed; a partial mouthing is indicated by parentheses around the omitted portion of the word); and (4) whether topicalizing non-manuals are used. To avoid two uses of italics in this chart, italics are used only to indicate RC heads; mouthings are underlined. (As mentioned in 1.4 above, bold type is used to distinguish the manual sign portion of the gloss from the non-manual information also included in the gloss.)

Table 21 List of all relative clauses

<b>Data</b>	<b>Relative clause</b>	<b>Type</b>	<b>Mouthing</b>	<b>TOP</b>
M2	[RefS.2+PT.2Pm+TOP know+TOP+EYGZ.2+shitta] movie+TOP+EYGZ.2 The movie [you know]	Pre	shitta	Yes
M2	[10+TOP+EYGZ.2 commandments+TOP+EYGZ.2 say+TOP+EYGZ.2+iu] movie+TOP+EYGZ.2 hear+TOP+EYGZ.2 know+YNQ+EYGZ.2 . . . the movie [called “Ten Commandments,”] you’ve heard (of it), you know (it), right?	Pre	iu	Yes
M6	[RSnarrator+gods+TOP don’t.need+TOP be.above+TOP+ue] God+TOP RSGod+Hear The God [who is above the unneeded Gods] hears	Pre	ue	Yes
M8	[Mo- - - se, CL.fluffy.beard, CL.strike.pose- say+iu] man the man [called Moses, who has a beard and strikes the pose with the staff]	Pre	iu	?
M19	ocean+TOP+umi [know+EYGZ.2+TOP+shi] sweep.away+EYGZ.2+TOP Scrap the ocean [you know]	Post	shi(tteiru?)	Yes
M30a	time+TOP+NOD PT.ahead+TOP ocean+TOP [CL.walls.straight.up.high+TOP ] RS.God+look.md+EYGZ.md+DUR 1.command.md+mei At the time, as for sea that has walls straight up, God looks at them, commands, . . .	Post	n/a	Yes



M38a	RefS.ld+PT.man.ld+concern mo- - se+EYGZ.ld+concern PT.man.ld+EYGZ.ld+concern [1.commission.l+EYGZ.ld+concern+mu CL.fluffy.beard+EYGZ.ld+concern RS.Moses+CL.strike.pose] PT.ld RS.God+ru.command.man.l+EYGZ.man.ld+ INTS+mu He commanded and commissioned Moses, <i>the one</i> [he had commissioned], <i>the one who</i> [had the big fluffy beard and did the staff-pose].	(Pre & Post?)	(tano)mu	No
Ks1:21	RS.TV.narrator+bad gangster-PT3 [CL.scar.on.face+TOP] <i>three.people</i> three bad gangsters who had scarred-up faces . . .	Pre	n/a	Yes
Ks2:21	RS.narrator+Urashima.Taro(ru) turtle(m) ru.help.m-PTru [r.bully.m+i--ta] ru.help.m As for Urashimataro, he helped a turtle, helped ( <i>the</i> <i>turtle</i> ) [who someone was bullying] . . .	None	i-(jime)ta	No
Ks2:53	[2.explain.1+anashi] ∅ hear+kiku thing/matter+koto NEG+nai (it is an) [explained] ( <i>thing</i> ) that is <i>a thing</i> not [heard] (of)	None	(h)anashi	No
Ks2:54	[2.explain.1+anashi] ∅ [hear+kiku] thing/matter+koto NEG+nai that's an [explained] ( <i>thing</i> ) that is <i>a thing</i> not [heard] (of)	Pre	kiku	No
Ks3:02	today PT2+TOP [every.year.x2+TOP have.a.match.x2+TOP+(shi)a(i)] soccer+TOP come.on Today, lets do the <i>soccer</i> [that we have a match (at) every year].	Pre	Trace	Yes
Ks3:52	[little.while.ago disappeared] ∅ where Where are ( <i>those who</i> ) [disappeared a little while ago]?	None	None	No
Ks4:41	[before meet] ∅ NEG look.for, ( <i>Those who</i> ) [he met before] not being there, he looked for them.	None	None	No
Ks5:38	[deceive+TOP+chigae be.able+TOP+ekiru] ∅ make be.good+COH Lets make ( <i>something</i> ) [that can deceive] . . .	None	chigae	Yes

Ks6:29	[ <b>be.disappointed be.sad</b> ] <i>announcement</i> <b>exist+aru</b> I have an <i>announcement</i> [that is sad and disappointing]	Pre	None	No
Y 5:00	<b>company young+wakai</b> [ <b>CL.people.lined.up(m).facing.1</b> ] <b>exist+iru</b> pt. 1 1.talk.to.mP I'll explain (things) to the <i>young people</i> of the company [who are there lined up in front of me],	Post	n/a	No
Y 5:55	<b>child+TOP face+TOP</b> [ <b>MIME.smile.like.baby+TOP</b> ], <b>face refuse wrong</b> (One) has to refuse as wrong a child's <i>face</i> [that is smiling like a baby].	Post	n/a	Yes
Y 7:31	<b>or house+TOP in+TOP</b> [ <b>be.old-pt3+TOP</b> ] RS.buyer+ <b>be.satisfied+look.at.house house</b> RS.Narr+ <b>purchase</b> . . . or being satisfied after looking at <i>the inside of a house</i> [which is old] (he) purchases (it), . . .	Post	<i>furui</i> (J. Adj)	Yes
Y 7:51	<b>reason+TOP before+TOP family+TOP</b> <b>everyone+TOP</b> [ <b>CL.look.at.mirror.x2</b> ]+ <b>TOP</b> <b>among.them</b> Because among <i>all the family members</i> [who used to stand in front of the mirror] . . .	Post	n/a	Yes
Y 7:54	(Cont. from above) <b>among.them</b> [ <b>kill.self+jisatsu</b> <b>accident+jikou be.sick+byouki die</b> ] $\emptyset$ <b>exist+iru</b> . . . are ( <i>those</i> ) [who killed themselves or died from disease or accident], . . .	None	<i>jisatsu jiko byouki</i>	No
Y 8:12	<b>Reason+TOP+riyu</b> [ <b>before used+tsukatta</b> ] <b>people+hito CL.face.reflecting.multiple.times</b> <b>CL.show.face.in.mirror it.seems+rashii</b> This is because the reflections of the faces of <i>people</i> [who have used the mirror before] still remain in the mirror, they say.	Pre	<i>tsukatta</i>	No
Y 8:36	<b>Japan+TOP shrine+TOP path+TOP</b> [ <b>CL.put.up.circular.object.overhead(mu)</b> ] <b>mirror+TOP exist+TOP pt.circle.mu+TOP</b> <b>meaning</b> The [circular] <i>mirror</i> [placed overhead] that Japanese shrine paths have--this is what they mean.	Pre	n/a	Yes
Y 8:55	[ <b>be.afraid+kowai</b> ] <b>story+hanashi be.different</b> (This is) not a [scary] <i>story</i> .	Pre	<i>kowai</i>	No

Y 10:48	<b>after+ato mirror+kagami [three+san CL.fold.two.flat-surfaces.in.together+men] throw.away be.unable+fear</b> Afterward, (you) won't be able to throw away the <i>mirror</i> [that is long and flat and has three surfaces folded together].	Post	<i>men</i>	?
Y 11:05	<b>be.OK+COND next</b> RS.descendant+receive+don't.know.what.to.do [die] ∅ CL.hold.three.fold.mirror+worried <b>be.perplexed</b> If not, the next generation will receive it and be stuck with a mirror from ( <i>a person</i> ) [who died].	None	None	No
Ki9:54	<b>MIME.notice.on.right</b> RS.Narr+ <b>supercool guy</b> , [ <b>supercool</b> , <b>CL.hair.swoop</b> , <b>CL.big.shoulder.cuts.to.waist</b> , <b>CL.stands.cool.pose</b> ], RS.Kawai+reason+YNQ+exited She looks to the right and notices a supercool <i>guy</i> , [who is supercool, with hair swooping down over his forehead, a muscular v-shaped torso, and standing in a cool-looking pose], and excitedly thinks, is this the reason!? . . .	Post	n/a	No
Ki12:49	<b>well, [friend meet] promise keep</b> well, (I) will keep a <i>promise</i> [to meet a friend]	Pre	<i>ya(kusoku)?</i>	No
Ki14:35	<b>[dream write] story have</b> (I) have a <i>story</i> [that is a writing of a dream]	Pre	<i>ka(ku)</i>	?
Ki14:41	<b>Terminator+TOP know</b> [ <b>CL.walk.like.scary.robot</b> ] see+TOP+mi <i>Terminator</i> , you know, [who walks like a scary robot] . . .	Post	n/a	No
Ki14:45	<b>[Terminator +TOP know</b> [ <b>CL.walk.like.scary.robot</b> ] see+TOP+mi] <b>habit</b> <b>go.overboard+sugi</b> My <i>habit</i> of [watching <i>Terminator</i> , (you) know, who walks like a scary robot], went overboard	Pre	<i>mi(ru/ta)</i>	Yes

In the Minamida text, a look at all occurrences of the word KNOW presents a clear example of how mouthing on verbs functions in the most obvious type of relative clause

used in JSL. In sentence 2 are two occurrences of the verb KNOW, one in a relative clause and one in the main verb phrase.

(13) (Minamida, Sent. #2)

<i>shit-ta</i>	<i>eiga</i>	<i>ju</i>		<i>kai</i>	<i>i-u</i>	<i>eiga</i>			
							topic	ynq	
								eygz.2P	
[YOU KNOW]	MOVIE	[10	COMMANDMENT	SAY]	MOVIE	HEAR	KNOW		
The movie you all know, the movie called “10 Commandments” you’ve heard (of it), you know (it), right?									

The first occurrence of KNOW located in the RC, is mouthed.<sup>43</sup> The main verb KNOW at the end of the same sentence has no mouthing. Elsewhere in the text, in 10c and 6g, KNOW occurs again as the main verb, sentence final, and again is not mouthed. There are, of course, other occasions when verbs tend to be mouthed, and these are discussed in Chapter 3, but apart from these, this pattern holds consistently throughout the text. That is, main verbs are generally not mouthed; verbs in pre-head noun RCs are mouthed whenever mouthings are available in Japanese for the JSL verb involved.

The three other texts produce identical results for the pre-head noun RC, as can be seen in Table 21. When the standard Japanese RC strategy is followed, with the RC preceding the head noun, the main verb of the RC is mouthed whenever possible, with one exception. That is, verbs in RCs preceding the head noun almost always either have mouthings or mouthings are not available in Japanese for the verb involved.

When the RC follows the head noun, the mouthing pattern does still hold, though the evidence isn’t as strong due to limited data. Out of ten instances, six have no

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<sup>43</sup> “shit-ta” and “i-u” are Japanese mouthings with the verb ending following the hyphen.

corresponding Japanese word available to mouth. The remaining four all have mouthings, but it is not clear that the RC triggers them. In the RC of Minamida's text at sentence 38a, the verb is mouthed, but Minamida uses the same partial mouthing two other times signing this word outside of an RC environment, so this might be explained as a lexically-required mouthing. (Yonaiyama has one instance of this verb with a mouth morpheme, not a mouthing, but a case could still be made that mouthing is lexically-inherent for this verb, since lexically-inherent mouthing can sometimes be pre-empted by mouth morphemes.) The other three mouthings with RCs of this type occur in Yonaiyama's text. The verbs at 05:00 and 07:31 are both of a type that usually have a mouthing with or without a RC involvement. At 10:48 is a rather complicated construction where, in terms of mouthing, a JSL noun, "three-sided mirror," seems to have been created for this specific context out of a numeral and a depictive expression. It is rare to have mouthings with depictive expressions, and this might point toward the RC as a trigger of the mouthings. On the other hand, the mouthing doesn't match the depictive expression exactly since it is a nominal construction in Japanese but verbal in JSL, and also, it is unlikely that this combination would be understood standing alone. The mouthing could be seen as necessary for disambiguation. Due to these considerations, all I can say for sure is that all verbs in RCs of this type happen to be mouthed in the corpus; it is not clear yet whether they are mouthed *because* they are in RCs. In other words, the evidence is not as strong as it is for mouthing with pre-head noun RCs. Further data will be needed in order to make predictions with any confidence.

In headless RCs, where there is no overt head, the situation changes. Here the data shows three RCs (out of seven total) in which the verbs are *not* mouthed. Since each

token—MEET, DISAPPEAR, and DIE—are easily mouthed, these are counterexamples to the general trend of mouthing with verbs in RCs. Granted, there are also four instances of RCs of this type with mouthed verbs, but each of the mouthed examples has another conditioning factor that could be triggering the mouthing. Kawashima’s example at 5:38 is in a construction with a modal, and with him, a verb in this setting would be mouthed regardless of RC involvement. Yonaiyama’s at 7:54 is a complicated structure with a list of three items. The Japanese words that are mouthed are all nouns or adjectives. Kawashima’s example at 2:53 is also mouthed as a Japanese noun. As indicated in 3.5, this is not a surprising context in which to find mouthings, independent of whether it occurs in an RC. The final example of a mouthed headless RC is in Kawashima’s text at 2:21, discussed in example (12) above, certainly not a typical case. Though the discussion there showed it to be a headless RC, it is still not clear that this was the trigger for the mouthing. Because the “non-existent” head noun is referenced in the immediately adjacent clause, this may be the trigger for the mouthing rather than the fact that it occurs in a headless RC (more on this in 4.6 below). A wider sampling of this kind of RC will confirm or disconfirm it, but these four texts point to a hypothesis that headless RCs do not trigger mouthings, although verbs in headless RC may be mouthed for other reasons.

#### **4.5 Complement clauses and relative clauses**

In view of the fact that RCs subordinate to an expressed head noun are so consistently mouthed, it is significant that verbs in complement clauses, clauses that function as arguments of a verb rather than modifying nouns, are generally not mouthed, and neither are verbs in adjunct clauses. Like RCs, these are subordinate clauses, but as can be seen in the chart below, mouthing on verbs in these clauses is actually less

frequent than mouthing on verbs in general. Only 8.3% of these verbs are mouthed as opposed to the 18.3% figure seen in section 3.1 for mouthing on all verbs.

Table 22 Mouthed verbs in complement clauses and adjunct clauses

	<b>Minamida</b>	<b>Kawashima</b>	<b>Yonaiyama</b>	<b>Kawai</b>	<b>Total</b>
Total	13	17	63	16	109
Mouthed	1	2	4	2	9
Mouthing %	7.69%	11.76%	6.35%	12.50%	8.26%

Subordination itself, then, is not the cause for mouthing in RCs. If subordination were a reason why some verbs are mouthed and others are not, one would expect that verbs in complement clauses, subordinate to the main verbs, would also be mouthed, as would verbs in adjunct phrases. One would also expect that verbs of headless RCs would be mouthed, since they, too, are in subordinate clauses. Since they are not, it is safe to say that subordination is not the conditioning factor for mouthing RC verbs.

#### **4.6 Nominalization and JSL relative clauses**

Why would verbs in RCs be so consistently mouthed? At this point in signed language research, a full explanation is probably impossible, since this phenomenon is not recorded as happening in other sign languages; it is at some level an arbitrary fact about JSL. Still, there may actually be some motivation for mouthing with RCs. Nouns are commonly mouthed in JSL, and it is possible that this attracts mouthing to the verbs of clauses associated with them. According to Andrews (2007, p. 232), it is not uncommon cross-linguistically for nominalization, or movement toward noun-likeness, to happen around RCs. In his definition, “Nominalization occurs when the structure of a clause gives some evidence of at least a partial conversion to nominal type.” One item in

his list of typical indicators of nominalization is “attaching other typical nominal morphology such as determiners or case marking to the verb.”

It is certainly possible that mouthing of verbs in JSL RCs is in some way functioning as an indicator of nominalization. Of interest here is the fact that mouthing in JSL is generally more strongly associated with nouns than with verbs. At this stage in JSL research, with boundaries of word classes less than clearly defined, it may not be possible to maintain dogmatically that RC verbs are actually nominalized in a strong morphological sense, but there does seem to be at least some affinity with a cross-linguistic typological trend at work here.

If this line of thought is correct, there is one further question. Is it grammatical noun-likeness that motivates the mouthing, or is it close proximity to the head noun? Though the data set is too small to speak with absolute assurance, two pieces of evidence point to the latter.

First, in these data, mouthing occurs whenever possible<sup>44</sup> in constructions where the main verb of the RC immediately precedes the head noun, but in contrast, when the head noun is null in a headless RC, the RC verb is not mouthed unless otherwise motivated. Both of these constructions are equally noun-like in grammatical terms; in fact, it could be argued that the construction with no head noun is even more noun-like, since it bears all the weight of the noun without sharing it with the head noun. But despite its noun-like function in the sentence, in this type of construction, the verb is not mouthed. This points

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<sup>44</sup> That is, whenever there is a corresponding Japanese word to mouth.



to the presence of the head noun as an important variable in determining whether or not the verb will be mouthed.

Example (12), shown above, also provides some support for the head noun proximity hypothesis. Although this is a headless RC, it does have a mouthing, which is unexpected since there is no other trigger for the mouthing. However, this headless RC is not like the others. The others have no previous reference in the immediate context to the implied head noun of the headless relative clause. In this example, though, the noun referenced as “m” in the verbal morphology of the RC [r.BULLY.m] is clearly TURTLE, signed (with a mouthing) in the previous clause just two words away. Of course, the fact that this is the only known trigger for the mouthing of BULLY does not guarantee that the presence of the head noun actually triggered the mouthing, but it does lend some support to the hypothesis.

To summarize, there are two possible hypotheses regarding what triggers mouthing with the verbs of RCs. One is that grammatical noun-likeness is the trigger, the other is that close association with the head noun is the trigger. The latter best explains the facts of the data in my set. It explains why verbs of RCs that are associated with explicit head nouns are almost always mouthed, be they pre- or post-head noun RCs.<sup>45</sup> It explains why

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<sup>45</sup> As noted above, where the verb of the relative clause immediately follows the head noun, there are no clear cases where the RC was the only trigger for the mouthing. An expanded data set will hopefully make it clear what we should expect in these circumstances. If we find that mouthing is expected, proximity to the head noun will clearly be the most likely explanation for the prevalence of mouthing, as stated here. If not, perhaps the fact that the pre-head noun RC parallels the Japanese RC would explain the mouthings—borrowed mouthings with a borrowed construction.

verbs of headless RCs are not mouthed unless other triggers are involved, even though they function as NPs. It also gives the best account for the verbal mouthing in example (12), where the RC itself is technically headless, but the implied noun is present in the immediately adjacent clause.

#### 4.7 Relative clauses and the adjective versus stative verb question

In 3.4.2, I note one problem that arises when what I call “potential adjectives” are labeled as stative verbs. Again, these are words that in JSL are mouthed with Japanese adjectives, but have verb-like qualities as well and could be classed as stative verbs. The sentence below illustrates another problem with that analysis.

(14) JSL—Yonaiyama, 7:47

cond kagami  
EVERYONE MOVE MIRROR CL.UNSCREW.4.CORNERS CL.TAKE.OFF.WALL  
Everyone if they move should unscrew the mirror, take it off the wall,

atarashii  
THROW.AWAY, NEW BUY CL.PUT.ON.WALL MUST  
throw it away, buy a new {one}, and put it up.

If “NEW” is a stative verb, then it must be a one-word headless relative clause, instead of simply a substantive use of an adjective.<sup>46</sup> A similar construction occurs in Yonaiyama at 5:00 (See example 2 or Table 21 above), where YOUNG would be a

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<sup>46</sup> Another potential problem with this analysis would be that headless RC verbs are generally unmouthed, unless there are other triggers for the mouthing, and this one is mouthed. However, the “other trigger” is clearly present, since the fact that the JSL word corresponds to a Japanese adjective is a known trigger of mouthings.

headless RC serving as the head noun of another RC, an even more complicated analysis. Yonaiyama 7:31 and 8:55 have similar structures. There is also a pre-head noun RC in Kawashima at 6:29 that is not mouthed: [BE.DISAPPOINTED BE.SAD] ANNOUNCEMENT EXIST+*aru*(‘exist.inanimate’).

If it can be shown that these must be stative verbs, they are stative verbs of a class that behaves very differently than normal verbs—even other stative verbs. It is beyond the scope of this paper to go deeper into the arguments for word classification, but though neither cumbersome analysis nor different mouthing patterns are an ironclad argument against considering these stative verbs, this does bring some points of consideration to the ongoing discussion.

## **CHAPTER 5**

### **CONCLUSION**

#### **5.1 Overview of mouthing with verbs**

In this study, I have analyzed natural JSL texts from a discourse/typology perspective and shown that mouthings with verbs are less common than with other word classes.

I have found several overarching patterns in the data. Some verbal lexical items, labeled as frequently mouthed verbs, are mouthed in every token, and some in most tokens. Of the total of mouthed tokens in the four texts, half fall into this category. Non-modal auxiliary verbs, those that give grammatical processing instructions, are very frequently mouthed. Concrete verbs, those that add information as to what happens in the discourse, tend to be mouthed less frequently than abstract verbs. Verbs that are usually glossed (and mouthed) with a Japanese noun, adjective or other non-verb lexical item are also mouthed more frequently than verbs that are mouthed with Japanese verbs.

Apart from these factors, the context in which verbs occur also affect mouthing. The main verb of a pre-head noun RC is mouthed whenever there is a Japanese equivalent available to mouth. This may happen in a post-head noun RC as well. There is mouthing in such clauses whenever possible in the four texts, but always with other possible conditioning factors for the mouthing, so a larger corpus is needed to see whether post-head RCs trigger mouthing on verbs. In headless RCs, by contrast, verbs are not mouthed

unless there is another motivation for the mouthing. In addition to RCs, verbs that occur on or near irrealis indicators are mouthed nearly three times more frequently than verbs in realis clauses, though there is considerable variation between the different kinds of irrealis, and the mouthing percentages in general are not as high as the other conditioning factors mentioned above. I have also ruled out quotation as a context in which verbal mouthings appear more often than others—it doesn't.

Pragmatic and semantic functions of mouthing with verbs include adding emphasis proper and distinguishing between two or more possible meanings of a sign.

For the most part, these are tendencies, not categorical rules. Apart from mouthing in relative clauses, it is not possible to predict exactly where mouthing with verbs will occur, or what other verbs (not in this corpus) will be lexically mouthed. Not all signers follow all of these tendencies, and there are individual words, too, such as BE.SAME and BE.DIFFERENT (section 3.4.4), that don't seem to follow the general patterns.

The study has largely sustained my premise that since mouthing with verbs is less common than with other word classes, after determining which verbs and groupings of verbs are commonly mouthed, I should be able to find conditioning factors that explain why particular verbs are mouthed in particular settings. There remain, however, 16 instances out of 204 where I have not been able to determine with any certainty a conditioning factor for the mouthing.

Finally, although not central to the thesis, one of my findings bears on the question of whether words corresponding to Japanese adjectives should or should not be considered stative verbs. They are mouthed much more frequently than stative verbs that correspond to Japanese verbs, and a similar situation holds for words that might be

considered auxiliary verbs in JSL but correspond to other word classes in Japanese. It may well be that they are rightly classed as verbs in JSL, but at the very least, they do act differently with regard to mouthing than other verbs do. This is certainly not a final answer, but may contribute to the ongoing dialogue on this question.

## **5.2 Limitations**

This study is only valid for the specific genre that I examined; publicly told stories and retellings of movies with a small amount of explanatory information. The fact that these verbal mouthings are found in the genre where they seem least likely to occur suggests, however, that similar results may be found in other genres.

Though the use of publicly available data has the advantage of giving a broad cross-section of signers in a natural Deaf setting, the single camera angle and lack of facial detail sometimes made discerning mouthings difficult. Further studies could profit from texts recorded with multiple cameras and under more controlled conditions to capture fine details of facial expression. A larger corpus of glossed and translated material would of course be helpful.

## **5.3 Further questions raised by this study**

It would be informative to examine the role of mouthings with other word classes. Mouthing is more common with nouns but is not ubiquitous. It would be good to know of non-verbs, also, whether some word classes are mouthed more than others, or why some in a class are mouthed and others are not, or why some instances of the same word are mouthed and others not.

## APPENDIX

The chart below lists all of the mouthed verbs in the four texts I examined. For “data,” the time code indicates where on the video to find the example. M indicates Minamida, Ks indicates Kawashima, Y indicates Yonaiyama, and Ki indicates Kawai. For sorting purposes, some glosses have been changed to begin with the main word of the gloss and not numbers or letters indicating directional modifications of the lexical entry. Some of the glosses for the Minamida text have been shortened to fit the chart. Headless RCs were included in parentheses for those who wish to locate them in the data, even though they are not triggers of mouthing.

### Abbreviations in the chart of mouthed verbs

(n/n)	First number is of mouthed tokens in data, second is of all tokens in data
A	One verb after a trigger
A2	Two verbs after a trigger
ABIL	Abilitative
B	One verb before a trigger
B2	Two verbs before a trigger
CL	Classifier construction (depictive expression)
COH	Cohortative
CONC	Concessive
EMPH	Emphasis proper
FUT	Future
GRM	Non-modal auxiliary verb (grammatical instruction)
If	Prodisis of non-manually signified conditional
If M	Prodisis of manually signified conditional
IMPV	Imperative
IRR	Irrealis, other
Jp Non-V	Japanese non-verb
JpN	Japanese noun
LEX	Frequently mouthed verb
LEX?	Probably a frequently mouthed verb
N	Noun
NM	Non-manual
RC	Relative clause
REAS	Reason portion of reason/result clause
YNQ	Yes/no question
YNQ Rh	Rhetorical yes/no question

Table 1 All Mouthed verbs

Gloss	Mouthing	Data	Mouthing trigger
know+TOP+EYGZ.2	<i>shitta</i>	M 00:05.0	RC
say+TOP+EYGZ.2	<i>iu</i>	M 00:09.4	RC
CL.video.into.dec	<i>ire</i>	M 00:13.5	?
whip.l	<i>bishibishi</i>	M 00:35.0	?
Recieve	<i>uke</i>	M 00:36.3	GRM, Abstract
be.above (higher.than)+TOP	<i>ue</i>	M 00:43.4	RC, Jp Non-V
say	<i>iu</i>	M 00:57.3	RC, LEX, GRM, Abstract
commission	<i>tanomu</i>	M 00:58.4	LEX? (3/3)
command.man(l)	<i>mei(rei)</i>	M 01:03.2	LEX, IMPV
be.difficult	<i>go(kuro)</i>	M 01:10.6	Jp N, LEX?
command.2P	<i>mei(rei)</i>	M 01:23.5	LEX
repeat+ITER(1extra)+INTS	<i>kuri</i>	M 01:28.0	GRM, (1/1)
command.rd+INTS	<i>mei(rei)</i>	M 01:58.3	LEX
lets.go(r.to.l)+INTS	<i>ike</i>	M 01:59.2	LEX, IMPV
command.rd+INTS	<i>mei(rei)</i>	M 02:00.3	LEX
lets.go	<i>ike</i>	M 02:00.8	LEX, IMPV
CL.ride.horse+INTS	<i>uma</i>	M 02:01.7	Jp N on CL
command.rd	<i>mei(rei)</i>	M 02:06.8	LEX
command.rd+INTS	<i>mei(rei)</i>	M 02:09.5	LEX, IMPV
kill.r.to.m	<i>koro</i>	M 02:24.3	B2 "reason", YNQ Rh,
die+YNQ	<i>shi(nu?)</i>	M 02:24.8	B "reason", YNQ Rh, EMPH
escape	<i>nigeru</i>	M 02:39.4	EMPH, ARG of N
NEG+panic	<i>nai</i>	M 02:40.2	LEX, EMPH
NEG	<i>na</i>	M 02:42.4	LEX, EMPH
know+EYGZ.2+TOP	<i>shi(tteiru?)</i>	M 02:54.9	RC
able+PST+surprise(=become)	<i>dekita</i>	M 02:57.9	EMPH
be.dry	<i>kawa</i>	M 03:00.6	EMPH (Jp ADV or V stem)
NEG.sweep+surprise	<i>karakara(?)</i>	M 03:04.2	EMPH
NEG.sweep+surprise	<i>karakara(?)</i>	M 03:08.8	EMPH
open.up(sliding)+surprise	<i>hiraita</i>	M 03:13.2	EMPH
lets.go	<i>ikoo</i>	M 03:17.3	LEX, COH
lets.go	<i>(i)koo</i>	M 03:32.7	LEX, COH, CONC prodasis
command+toward.left.group+INTS	<i>mei(rei)</i>	M 03:44.8	LEX
CL.ride.horse+INTS	<i>uma</i>	M 03:47.2	Jp N on CL
command+seabed.direction	<i>mei(rei)</i>	M 04:00.6	LEX
return+REP	<i>mo(doru)</i>	M 04:05.8	EMPH, Abstract, LEX? (4/5), B2 IRR
go.back+reverse.direction+IMPV	<i>kaeru</i>	M 04:06.2	EMPH, B IRR "must"
lets.go+reverse.direction+IMPV	<i>ike</i>	M 04:07.6	LEX, IMPV
flatten.out	<i>midare</i>	M 04:14.6	?
return	<i>modo(ru?)</i>	M 04:15.8	Abstract, LEX? (4/5)
CL.body.float.along.shore	<i>nagare</i>	M 04:26.0	?



song/sing+slow+happy	<i>uta</i>	M	04:44.2	Jp N (distinguish from "MUSIC")
sing+ecstasy	<i>uta</i>	M	04:56.3	Jp N (distinguish from "MUSIC")
imagine	<i>yosoo</i>	M	05:00.9	B ABIL (IRR)
amazing+INTS+amazed+TOP	<i>(s)ugo(i)</i>	M	05:03.2	?
commission	<i>(tano)mu</i>	M	05:14.4	RC, LEX? (3/3)
command.man.l+EYGZ.man.ld+	<i>mei(rei)</i>	M	05:16.0	LEX
commission	<i>(tano)mu</i>	M	05:16.5	LEX? (3/3)
exist(animate)+INTS+concern	<i>iru</i>	M	05:18.8	LEX
command.m+stern	<i>mei(rei)</i>	M	05:24.9	LEX, IMPV M
command.m+stern	<i>mei(rei)</i>	M	05:33.4	LEX, IMPV M
command.m+stern	<i>mei(rei)</i>	M	05:42.0	LEX, IMPV M
announce+INTS	<i>a?</i>	M	05:46.6	?
command+toward.3Pmd+EYGZ2	<i>mei(rei)</i>	M	05:48.9	LEX
exist.inanimate-Pt.ru+surprise	<i>atta</i>	M	05:56.2	LEX
say+TOP+eba	<i>ieba</i>	M	05:59.6	GRM, Abstract
begin+EYGZ.ru+YNQ	<i>hajimaru</i>	M	06:00.7	Abstract, LEX? (1:0)
say+EYGZ.2+StemPpa	<i>i</i>	M	06:04.2	GRM, Abstract
CL. shell.moving	<i>kai</i>	Ks	00:51.5	Identify N in CL
watch + Ta(FM)+YNQ	<i>m(i)tano</i>	Ks	01:05.9	YNQ (Modal Jp mouthing)
NEG	<i>nai</i>	Ks	01:28.0	LEX
NEGx2	<i>nai</i>	Ks	01:31.2	LEX
NEG	<i>?</i>	Ks	01:48.5	LEX
not.allow+friendly.face	<i>ii</i>	Ks	02:00.8	IRR OTHER
bully.m	<i>ijimeta</i>	Ks	02:20.2	RC (near Head-N), B2 REAS
go.back	<i>kae</i>	Ks	02:22.9	REAS
exist	<i>aru</i>	Ks	02:53.1	LEX, YNQ
explain.1	<i>(hana)shi</i>	Ks	02:53.6	Jp N, (headless RC),
hear	<i>kiku</i>	Ks	02:53.8	RC, w/ Jp nominalizer &NEG
NEG-pt3	<i>nai</i>	Ks	02:54.2	LEX
have.a.matchx 2	<i>i</i>	Ks	03:00.9	RC
come.on	<i>koi</i>	Ks	03:04.9	IMPV
Yay!	<i>yata</i>	Ks	03:25.9	EMPH
CL.big.fish.swim.above	<i>sakana</i>	Ks	03:28.4	Identify N in CL
NEG.sweep (talking.to.himself	<i>dareee</i>	Ks	03:48.5	LEX
NEG	<i>nai</i>	Ks	03:54.8	LEX
NEG	<i>nai</i>	Ks	03:55.9	LEX
CL.jellyfish.right.front + see + worry	<i>kurage da</i>	Ks	03:58.4	Identify N in CL
withdraw	<i>hike</i>	Ks	04:31.1	IMPV
NEG	<i>nai</i>	Ks	04:44.1	LEX
exist	<i>ita</i>	Ks	04:55.6	LEX, EMPH
come.through.safely	<i>buji</i>	Ks	04:56.5	EMPH
NEG	<i>nai</i>	Ks	04:58.4	LEX
come.through.safely	<i>buji</i>	Ks	04:59.0	EMPH

return-pt3	<i>modo(ru?)</i>	Ks	05:01.7	Abstract (4/5), COH
CL.fish.coming	<i>sakana</i>	Ks	05:08.1	If, B2 ABIL, Identify N in CL
CL.fish.coming	<i>sakana</i>	Ks	05:10.1	B2 IRR, Identify N in CL
NEG	<i>nai</i>	Ks	05:11.5	LEX
die	<i>Shi(takunai)</i>	Ks	05:11.9	B IRR, B2 NEG
NEG	<i>(shi)takunai</i>	Ks	05:12.5	LEX
not.allow	<i>iya</i>	Ks	05:25.1	?
deceive	<i>ga</i>	Ks	05:38.3	B ABIL M (headless RC)
command	<i>mei(rei)</i>	Ks	05:42.9	LEX, Clearest Mouthing
command	<i>mei(rei)</i>	Ks	05:46.4	LEX, Less
command	<i>mei(rei)</i>	Ks	05:50.7	LEX, Less
come	<i>kita</i>	Ks	06:03.0	EMPH
come.to.the.end	<i>owari</i>	Ks	06:11.1	Jp N, Abstract
exist	<i>aru</i>	Ks	06:32.8	LEX
decrease	<i>he(te?)</i>	Ks	06:49.3	?
exist	<i>aru</i>	Ks	06:51.0	LEX
see	<i>mi</i>	Ks	06:54.2	B ABIL
become	<i>natt</i>	Ks	06:55.4	Abstract (3/3), B FUT
come	<i>kuru</i>	Ks	06:55.9	FUT (tense use of COME)
born+COND	<i>umare</i>	Ks	06:59.6	A IF M
NEG	<i>nai</i>	Ks	07:00.9	LEX
think	<i>kanga</i>	Ks	07:03.9	B IRR (need)
talk.1	<i>(i)utta</i>	Ks	07:05.4	?
be.alive	<i>iki(nokoru)</i>	Ks	07:10.7	B2 IF
remain	<i>(iki)nokoru</i>	Ks	07:11.1	B IF, Abstract, LEX? (2/2)
say+eba	<i>ieba</i>	Ks	07:11.5	GRM, Abstract
NEG+YNQ	<i>nae</i>	Ks	06:25.7	LEX, IF
exist	<i>aru</i>	Y	04:17.7	LEX
take.face.photo	<i>shashin</i>	Y	04:20.7	LEX
take.face.photo	<i>shashin</i>	Y	04:22.1	LEX
take.face.photo	<i>shashin</i>	Y	04:24.9	LEX
NEG(NM)-NEG.zero1	<i>nai</i>	Y	04:25.5	LEX
exist	<i>aru</i>	Y	04:26.6	LEX
take.face.photo	<i>shashin</i>	Y	04:30.9	LEX
take.face.photo	<i>shashin</i>	Y	04:35.4	LEX
take.face.photo+TOP	<i>kaotori</i>	Y	04:41.3	LEX, B REAS
take.face.photo+TOP	<i>sha</i>	Y	04:45.8	LEX
exist	<i>iru</i>	Y	05:01.8	LEX, FUT
go.back+TOP	<i>kaeru</i>	Y	05:12.1	LEX? (3/4 mouthed)
exist	<i>iru</i>	Y	05:22.1	LEX
NEG	<i>nae</i>	Y	05:54.6	LEX
NEG	<i>nae</i>	Y	05:54.6	LEX
take.face.photo	<i>kao</i>	Y	06:03.3	LEX
take.face.photo	<i>shin</i>	Y	06:05.3	LEX
NEG-zero2	<i>na</i>	Y	06:06.1	LEX
exist	<i>aru</i>	Y	06:13.5	LEX, B YNQ Rh

NEG	<i>nae</i>	Y	06:17.6	LEX
take.face.photo+TOP	<i>shashin</i>	Y	06:41.4	LEX
know.by.intuition-pt 2	<i>kanji</i>	Y	07:08.9	Identification (INTUIT-THINK)
exist	<i>aru</i>	Y	07:25.0	LEX
move (dwellings)	<i>hikkoshi</i>	Y	07:29.8	A RESULT M, A IF M
purchase	<i>kai</i>	Y	07:34.0	IF (A4 IF M)
exist-pt3	<i>aru</i>	Y	07:41.1	LEX, B YNQ Rh
exist-pt3+REAS	<i>aru</i>	Y	07:43.7	LEX
kill.themselves	<i>jisatsu</i>	Y	07:54.9	Jp N, A2 REAS M (Headless RC)
accident	<i>jiko</i>	Y	07:55.5	Jp N (Headless RC)
sick	<i>byooki</i>	Y	07:56.7	Jp N/Adj (Headless RC)
exist (Animate)	<i>iru</i>	Y	07:57.5	LEX
remain	<i>nokoru</i>	Y	07:58.7	Abstract, LEX? (2/2)
return	<i>modoru</i>	Y	08:10.3	Abstract, LEX? (4/5 mouthed)
exist+YNQ	<i>aru</i>	Y	08:11.5	LEX, A2 REAS
use	<i>tsukatta</i>	Y	08:14.0	RC, (Pre), A REAS M
exist-pt,mu+YNQ	<i>aru</i>	Y	08:40.5	LEX
exist	<i>aru</i>	Y	09:01.8	LEX, B YNQ Rh
CL.copy.face.out.multiple.x	<i>kao</i>	Y	09:36.1	? (N mouthing on CL)
die	<i>shinda</i>	Y	10:36.9	? (ARG of N, RC?)
CL.fold.two.flat-surfaces.in.together	<i>men</i>	Y	10:50.9	RC (Post-head noun)
burn	<i>moyashi</i>	Y	11:03.2	B IRR, A2 THEN
forget	<i>wasurema</i>	Ki	08:55.4	B IRR M
go	<i>iku</i>	Ki	09:10.7	B IRR
CL	<i>densha</i>	Ki	09:46.4	? N mouth on CL
be.sorry (f)	<i>gomenasa</i>	Ki	10:09.9	EMPH (talk to hearing?)
not.allow	<i>arimasen</i>	Ki	10:19.8	EMPH (talk to hearing?)
be.in.love	<i>koi</i>	Ki	10:36.6	Jp N, B IRR M, YNQ Rh,
CL.touch.r.person's.butt	<i>shi(↓)</i>	Ki	10:56.9	B2 RESULT M ("reason"), B2 YNQ
CL	<i>(↑)ta</i>	Ki	10:57.2	B RESULT M ("reason"), B YNQ
be.calm+IMPV	<i>ochitsuite</i>	Ki	11:00.4	LEX, IMPV
become	<i>natta</i>	Ki	11:24.6	LEX, YNQ
happen	<i>okotta</i>	Ki	11:27.4	B RESULT M ("reason"), YNQ, Abstract
be.calm+IMPV	<i>ochitsuite</i>	Ki	11:28.9	IMPV
be.calm+IMPV	<i>ochitsuke</i>	Ki	11:30.2	IMPV
be.calm+IMPV	<i>ochitsuke x2</i>	Ki	11:31.9	IMPV
be.calm+IMPV	<i>ochitsuke</i>	Ki	11:33.3	IMPV
talk.1+YNQ	<i>itta</i>	Ki	11:53.0	YNQ
wait+IMPV	<i>mate x3</i>	Ki	12:02.2	IMPV
be.calm+IMPV	<i>ochitsuke</i>	Ki	12:02.8	IMPV
NEG (w/V)	<i>nai</i>	Ki	12:11.0	LEX, B2 REAS M
wait+IMPV	<i>matte</i>	Ki	12:16.7	IMPV

be.connected	?ru	Ki	12:19.0	?
be.calm+IMPV	ochitsuite	Ki	12:25.0	IMPV
go	ittahouga	Ki	12:27.7	CONC
wait+IMPV	ma(te) x2	Ki	12:30.9	IMPV
be.calm+IMPV	ochitsuite	Ki	12:31.4	IMPV
not.notice+IMPV	kinishinai x2	Ki	12:39.6	IMPV
not.notice+IMPV	(kini)shinai x2	Ki	12:40.4	IMPV
be.calm+IMPV	ochi ochitsuke	Ki	12:41.4	IMPV
wait.IMPV	mate x2	Ki	12:47.4	IMPV
meet	a(u)	Ki	12:49.4	RC, B IRR M
NEG (w/Adj)	na(i)	Ki	12:57.6	LEX
become	na(ru)	Ki	13:00.5	LEX
CL.stop.lh.from.signing	hiite	Ki	13:13.1	EMPH
become.non-functional	shiboo	Ki	13:24.7	Jp N
CL.flowers.around.r.arm.in.casket	hana	Ki	13:33.1	Identification of N in CL
MIME.touch.arm+mouth"I'm.sorry"	gomen ne	Ki	13:35.3	EMPH
MIME.touch.arm+mouth"I'm.sorry"	gomen	Ki	13:36.4	EMPH
be.difficult	goku	Ki	13:39.9	EMPH Jp N
thank.you.arm	arigatoo	Ki	13:47.2	EMPH
thank.you.arm	arigatoo	Ki	13:49.6	EMPH
wait+IMPV	mate	Ki	13:57.9	IMPV
be.connected	korewa	Ki	13:59.5	REAS
finish	owatta	Ki	14:24.6	Abstract
write	ka(ku)	Ki	14:35.7	RC
exist	aru	Ki	14:36.5	EXS
imagine	(s)ozo	Ki	14:39.9	Jp N
see	mi	Ki	14:45.1	RC
be.excessive	sugi	Ki	14:46.2	REAS, B IRR, Jp N
imagine	so(z)o	Ki	14:48.9	Jp N
exist	aru	Ki	14:53.4	LEX
sleep	neru	Ki	14:57.4	?
be.different+WHQ	chigau	Ki	15:11.6	YNQ
be.different+YNQ(non-modal)	chigau	Ki	15:19.7	YNQ

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