Chapter 6
Mouth Actions in ISL – Linguistic Factors

Having looked at the sociolinguistics of mouth actions in ISL in the previous chapter, the following elaborates on correlations between linguistic factors and mouth actions. Interrelations between mouth actions and word classes in sign languages have been recently mentioned in the literature (e.g. Crasborn et al. 2008; Schwager & Zeshan 2008; Meir 2012). They are claimed to be a modality-specific tool for PoS classifications in sign languages. More explicitly, these correlations are argued to hold between the morphological complexity of a sign and the different kinds of mouth actions. Morphologically more complex structures have been found to correlate with mouth gestures, in opposition to morphologically simple signs that were found to correlate with mouthings. The issue of morphological complexity needs further explanation here. While the immense morphological possibilities of verbs are often specifically mentioned in the literature and will be elaborated on later in this chapter, lexemes belonging to other word classes, such as nominal compounds, are admittedly morphologically complex as well. However, with respect to compounds I hypothesize that a) “dvandva” compounds typical of sign languages (Sandler & Lillo-Martin 2006; Meir 2012) need mouthings for meaning disambiguation and in order to compensate the semantic drift that occurred with the individual components. Dvandva compounds are constructions in which all parts are equal, i.e. no part modifies another. A typical example of this phenomenon is the ASL sign FRUIT composed of the (shortened) signs for BANANA/APPLE/CHERRY [etc.]. Morphological complexity will not be the driving force for mouth action occurrence in this case. Typical noun compounds found in spoken languages (noun + noun compounds, for instance), will be analyzed as well. Concerning this kind of sign, I further hypothesize b) that the mouthings of the individual nouns forming the compound will be maintained as they are closely linked to the individual items in endocentric compounds\textsuperscript{67}, whereas a new mouthing has to develop for exocentric compounds.

As was shown above, morphological complexity serves as the main criterion on which the broader hypotheses of this chapter are based. However, in special cases such as the ones mentioned above, other factors such as the semantics in relation to the form of the sign play an important role. The data from the SOI will be analyzed with respect to this point. This investigation on the one hand tries to verify the fact that a certain kind of mouth action
frequently co-occurs with a certain word class and on the other hand tries to provide a first step towards an empirical analysis of word classes in the language. While a differentiation of word classes in ISL has been assumed by most researchers working on the language (e.g. Ó Baoill & Matthews 2000; Leeson 2001), this distinction has never been empirically investigated. Viewed the results of earlier studies on other sign languages, I expect morphologically complex signs or lexical classes like verbs (in case they exist in ISL), to occur most frequently with mouth gestures, while morphologically less complex signs or lexical classes like nouns will occur most frequently with mouthings.

Analyzing the data in reference to the hypotheses set up here, the chapter is structured as follows. The first part provides a theoretical background on word class research in spoken as compared to signed languages. In the second part of the chapter, the data from the SOI are analyzed in order to determine the syntactic categories and lexical classes of ISL. In the third and last part, correlations between mouth actions and the previously determined PoS of ISL will be tackled.

6.1. Word Classes – Historical and Theoretical Background

While all known languages seem to make some kind of distinction between major classes of words, word classes or parts-of-speech vary immensely in quality and number between individual spoken languages (Schachter 1985). Questions of which distinctions are universal and which are language-specific play a crucial role, especially in typological linguistic research (Evans & Levinson 2010) while they are rather neglected in generative theory (Croft 2000). Linguistically distinct word classes have been acknowledged by scholars as far back as antiquity and are even considered to be “one of the most fundamental traits of human cognition” (Rijkhoff 2007; Evans & Levinson 2010; Rauh 2010) and one of the central elements of the linguistic analysis of a language (Erlenkamp 2000). However, the classification of linguistic elements into different classes is rather controversial. Rauh (2010) provides a very thorough account of the differences in word class distinctions in the framework of different linguistic theories. One of the central issues in theories on word class distinction is whether a categorization of words is functional or categorical (Sasse 1993b). Different opinions expressed with respect to this point reflect the theoretical framework of the respective researcher as supporting either a semantic, syntactic or morphosyntactic approach. Irrespective of the current theoretical standing of a certain researcher, all theories go back to the traditional word class categorization of ancient Greek.
The system of categorization of linguistic entities thus developed and used in Western grammatical theory, became one of the most integral parts of formal grammar. The development towards present-day linguistic theories of word class distinction can be divided into three periods (Sasse 1993b; Erlenkamp 2000). These will be outlined in the following.

The first period is the phase of the development and firm establishment of traditional word class distinction. It is also the longest of all three periods, extending from Plato’s time until the 18th century. Plato as well as Aristotle utilized a mix of morphological, syntactic and semantic criteria for the distinction of word classes. While they only distinguished two different classes, later approaches extended the system to eight and acknowledged the complementary distribution of syntactic and morphological criteria in parts-of-speech distinction. Priscian was first to apply this system to another language, Latin. Although a development of the classification of parts-of-speech in this first period is certainly present, it completely lacked a theoretical discussion of this classification.

In the second period, starting in the 18th century, researchers started to criticize the traditional distinction of words, leading to the development of different approaches to word class distinction in the 1930s. They were primarily concerned with the question of whether word classes are morphological, syntactic or semantic classes and started to raise the issue of the choice of criteria for parts-of-speech distinction for the first time.

Finally, the third period which started with American structuralism, constitutes a break with traditional grammar and its distinction of word classes. Moreover, the question of the universality of word classes and their theoretical status, given a universal grammar, arose. According to the binary features applied in Universal Grammar, four main word classes could be distinguished: nouns, adjectives, verbs and prepositions.

Having outlined the history of word class distinction, its development from antiquity to present-day theories has been made clear. However, the traditional categorization of words established by the Ancient Greeks has never been completely abandoned (Sasse 1993b; Erlenkamp 2000). This is evident in the general discussion on the question of whether all categories are universal cross-linguistically. While it has been generally acknowledged that some word classes, like adjectives, are not found in all languages of the world, the general distinction between nouns and verbs is rather controversial. This distinction, which is very clear-cut in the Indo-European language family, is by no means universal when applied cross-linguistically. Eskimo, just as the Uralic and Altaic languages, is an often cited example of a language family that does not have verbs because they are actually nouns (Sasse 1993b). The
opposite claim is often made for some American Indian languages such as the Salishan languages. Kinkade (1983) proposes a general distinction into full words and particles only. This distinction is based on the basic split of categories into full and function words that are often assumed in parts-of-speech research. Full words refer to items that have clear semantic content, while functional items usually arise by way of grammaticization and function as markers of syntactic functions (Sasse 1993b). Broschart (1987) agrees, claiming that nouns and verbs cannot be distinguished for these languages on formal grounds and are at best two sub-categories of a larger category of full words. The Philippine language Tagalog is very similar to the Salishan languages in that it also shows a distinction between full words and particles only (Himmelmann 1987; 2008). The languages of the Iroquoian family are also difficult concerning the general noun-verb distinction, however, they behave very differently from the language families mentioned so far. In Cayuga, e.g., all full words are inflected for person and hence are all predicative – the language was even considered by Sasse (1993b) not to have any nouns at all. However, other researchers such as Mithun (2000) convincingly state that the Iroquoian languages do indeed have a noun category.

It can thus be stated that although a universal noun-verb distinction was taken for granted by many researchers for a long time, it is not ubiquitous in the languages of the world. Rather, there is a continuum ranging from clear-cut distinctions to theoretical non-distinction of nouns and verbs (Sasse 1993b). This continuum is arranged around the prototypes of nouns and verbs, relating to the fact of gradience of word classes, thus entailing prototypical and less prototypical members of the respective classes. The prototype approach to word classes is described in detail in section 6.1.1.

Diachronically, languages might move within this continuum Sasse (Sasse 1993b:660 f.). It is hence noteworthy that the number of parts-of-speech categories of individual languages might change drastically over time as historical developments might not only affect the noun and verb classes but all lexical categories of a language.

Contrary to the noun-verb distinction, the closed class of pro-forms is a class that seems universal cross-linguistically (Sasse 1993b:669). More traditionally, these items are called “pronouns”, however, it seems noteworthy that Sasse (1993b) uses the broader term “pro-forms” to acknowledge the possibility of pro-verbs, pro-sentences, etc. and the fact that these forms are usually not a single class. Traditionally, grammarians divided the class into personal, reflexive, reciprocal, possessive, demonstrative, relative, interrogative and indefinite pronouns. This distinction, as it is based on classical Latin, is rather euro-centric, however, and does not acknowledge the
reality of other non-Indo-European languages that do not have as many sub-
classifications. The most central class, namely personal pronouns, is elabo-
rated on below.

Functionally, this word class is defined as substituting a member of the
 corresponding full-word category, as shifting reference and as having deictic
function (Greenberg 1986; Sasse 1993b; Evans 2000). Supporting the fact
that they are central to the pronoun class is the fact that the occurrence of
personal pronouns in the world’s languages is nearly universal. However, a
sub-categorization of the class proves rather controversial. While it is gener-
ally acknowledged that the class is organized along person and number lines
(Evans 2000; Helmbrecht 2004), the feature person itself is problematic.
Sasse (1993b:670) states that three persons are found universally, namely
first person (that of the speaker), second person (that of the addressee) and
third person (that of an entity that is neither speaker nor addressee) while
Greenberg (1986:XIX) claims that first and second person are more central
to the class, as many languages do not have a third person pronoun that is
distinct from one or more demonstratives (Greenberg 1986; Sasse 1993b;
Helmbrecht 2004). Helmbrecht (2004) elaborates on the reason for this
controversy: he states that there is a major functional division between first
and second person pronouns as shifters (of reference) on the one hand and third
person pronouns relating anaphoric and cataphoric reference on the other.69

The outline of the controversy around a universal noun-verb distinc-
tion in the languages of the world and the description of personal pronouns
has shown that different researchers indeed apply different parameters to
parts-of-speech distinctions. For the noun-verb distinction, for instance, the
notions gradience, centre of a category and prototype were mentioned. These
are taken from semantic approaches to word class distinctions. Apart from
these semantic accounts, there are also syntactic and morphosyntactic theo-
ries of parts-of-speech categorizations. Along with an outline of the different
theories on word classes in sign languages, these different approaches will be
discussed in the following sections.

6.1.1. Semantic Approaches to Word Class Distinction

Although it has been pointed out in the literature that a purely semantic
categorization of words is impossible (e.g. Schachter 1985; Sasse 1993b),
some textbooks divide words into classes according to semantic criteria. This
is also called the “notional approach” (e.g. Croft 2000). A purely semantic
account of word class categorization is Jackendoff (1983). Hence, nouns are
claimed to denote persons or things, verbs to refer to actions, processes and states and adjectives to properties (Dixon 1982; Sasse 1993b). They occupy an intermediate position between nouns, which usually express completely time-stable things or concepts, and verbs, which mostly refer to rapidly changing states of affairs. Although this kind of distinction is very intuitive, it fails to account for the enormous amount of disagreement between lexical and semantic classes in many languages. Abstract nouns, for instance, present obvious problems. Thus, nouns denoting concepts like ‘ugliness’ or ‘jealousy’ are difficult to classify as “things” while they still have nominal character and are thus classified as nouns in languages such as English or German. Moreover, the existence of synonyms mapped onto different word classes in different languages is problematic for a purely semantic account. Evans (2000) cites the French verbs savoir and ignorer and their English counterparts know and be ignorant of as a case in point. Conversion, as in English words like kiss (verb) and kiss (noun), is another argument that proves the deficiency of purely semantic approaches to parts-of-speech categorization.

However, Sasse (1993b) emphasizes that the semantic criterion cannot be discarded altogether. Consequently, he proposes to consider a semantic viewpoint for a general motivation of universal word class distinction, which might serve as a point of departure for language-specific morphosyntactic analyses of word classes. The classification of human impressions of the real world into various semantic groups such as materials, states, processes, etc. could be utilized for a rough universal categorization into different lexical and semantic classes (Sasse 1993b:648).

Another semantic analysis is put forth by researchers postulating a prototype approach to parts-of-speech categorization. In her theory of semantic primitives, Wierzbicka (2000) claims there are universal semantic exemplars of every part-of-speech category that are based on a set of universally lexicalized concepts that emerged from empirical cross-linguistic investigation carried out in the “Natural Semantic Metalanguage” framework (cf. e.g. Wierzbicka 1996). In the noun category, PERSON and THING are universal lexical primitives of nouns. For verbs, DO and HAPPEN are universal lexical exemplars. The universal semantic exemplars of the adjectival category are BIG and SMALL. She further mentions I and YOU as universal semantic exemplars of the pronoun category. In a second step, she combines her theory with universal syntax. According to her, universal semantic exemplars are to be preferred over a general notional account because they are more concrete than the broad generalizations put forth by for example Schachter and Sasse and at the same time more general than...
Another key term in the context of semantic approaches, especially prototype theories, is gradience. Publications such as Croft (1991), Knobloch & Schaeder (2000) and Evans (2000) have mentioned the issue of (semantic) gradience of word class membership for language specific as well as universal parts-of-speech categorization. The theory of gradience in word class membership is based on prototype theory stating that there are always core (prototypical) members of a certain category and other members that are at the periphery of the category in question. The core members therefore display all of the semantic characteristics of the category, while the peripheral members show only some of them and lack others. Croft (1991) thus states that prototypical nouns refer to objects, have zero valency and refer to stative, persistent and non-gradable entities. Concrete nouns are hence prototypical category members, while a more abstract noun like change lacks the characteristic of stativity and is consequently a more peripheral member of the category. It is also noteworthy that these non-prototypical members of a class are most likely to show cross-linguistic variation in parts-of-speech membership. While prototype approaches to word class categorization are generally very much favoured in current word class theories, some researchers such as Erlenkamp (2000) question the applicability of prototype theory to the problem of parts-of-speech distinction (especially with reference to sign language). She refers to the fact that prototype theory is originally a theory from the domain of cognitive psychology and cannot easily be applied to other subject matters such as linguistics and word class distinction.

While it is undeniable that prototype theory did not originate in the domain of linguistics, I do not see its application to word class distinction as problematic as Erlenkamp. Her central criticism seems to be that the establishment of prototypical and less prototypical members of a word class is totally arbitrary and not verifiable by any metalinguistic means. However, if prototype theory is applied to linguistics, it is only reasonable to apply linguistic (instead of metalinguistic) criteria to the establishment of categories. Although these are not easily identifiable and applicable cross-linguistically, they are more or less unproblematic when looking at single languages as they are determined culturally. Therefore, I suggest that prototype theory seems rather plausible in the context of parts-of-speech classification and should not be summarily discarded. I also agree with the aforementioned authors in that there certainly are prototypical and rather peripheral members of categories and that this fact accounts for a lot of the linguistic diversity that can be observed around
the world. However, we should keep in mind that most category definitions are rather euro-centric, resulting in the Indo-European word classes being at the centre of every category, while less studied languages’ parts-of-speech are almost always at the periphery.

 Especially interesting in this respect are what we call adjectival concepts in Indo-European languages. To date, it remains unclear why some languages show a distinct adjective class while others do not. Rijkhoff (2000), for instance, follows up on the claim that adjectives only occur in languages in which the numeral is in a direct construction with a noun (but not vice versa). He finds out that this is only partly true, as the occurrence of adjectives seems to be linked to a certain lexical feature that is typically absent in classifier languages. Hence, in languages which use nouns with the semantic feature [-Shape], there is no way of distinguishing between nouns and adjectives, resulting in the languages apparently not having a distinct adjective class.

 However, languages without an adjective class or with a relatively small and closed class, employ other strategies in order to express property concepts. Dixon (1982) investigates adjectival concepts in seventeen different languages, analyzing how languages with a small closed adjective class express the concepts that are referred to by adjectives in adjectival languages. For his theory, Dixon postulates a semantic account and relies on prototype theory (Dixon 1982:12).

 Typologically, there are two kinds of languages: those that have an open adjective class by which all seven semantic types are expressed, and languages that have a closed adjective class in which only some of the seven universal semantic types are present. Moreover, the notion of gradience can also be applied to the adjective class: languages can be situated along a continuum from strongly adjectival languages (in which all seven universal types are associated with the adjective class), to strongly verbal ones (in which the marked pole of an adjectival opposition is usually expressed by a verb while the unmarked one is represented by an adjective or noun) to neutral (in which for some oppositions the marked pole is realized as a verb but where the majority of cases is associated with only one single part-of-speech).

 While the above facts do not repudiate prototype theory, they certainly question our traditional parts-of-speech classifications. Sasse’s statement that although a purely semantic approach does not suffice to distinguish word classes on a universal level, the semantic criterion should not be discarded with and be taken into account for parts-of-speech classifications, is surely the most important issue to be kept in mind in this respect.
6.1.2. Syntactic Approaches to Word Class Distinction

The syntactic level is central for parts-of-speech distinctions, especially to generativist accounts of word class categorizations. This is reflected by terminology: many researchers refer to word classes as “syntactic categories”. A categorization of words according to syntactic criteria reflects the view that word classes are functional rather than categorial in nature (Sasse 1993b). Whether this claim can actually bear up against critical analysis will be discussed in the following paragraphs.

Applying the syntactic criterion, researchers like Benveniste (1966) mention that ultimately, word class distinctions are subsidiary to syntax and certain syntactic slots like subject or predicate. Consequently, nouns are predisposed to be subjects and usually function as arguments, verbs are predisposed to be predicates and typically head a clause, while adjectives may function either as dependents of nouns or as predicates (Evans 2000). However, this view faces similar problems as a purely semantic approach. It lacks absoluteness as nouns do not always coincide with the subject of a clause just as verbs do not always fill the predicate slot. Hengeveld et al. (2004) divide languages into those that have a rigid parts-of-speech system and those that have a flexible one. Flexible systems have only one class to fill all syntactic slots (like Samoan, for example), while rigid ones have extremely specialized classes (Tuscarora for instance). In flexible languages that have only one class, this class of words fills both syntactic slots, i.e. no predisposition for any syntactic constituent can be observed. Therefore, the claim that word classes are purely functional in nature does not seem plausible. Further, these facts hint at the insufficiency of the syntactic criterion alone for a parts-of-speech distinction.

Besides Hengeveld (1992, 2004), there are other syntactic approaches to word class distinctions in the world’s languages. Croft (2000) especially emphasizes distributional (syntactic) analysis as a major tool in parts-of-speech categorization because it provides the complete picture of the grammatical patterning of a language and might reveal covert categories. However, it might also uncover fuzzy category behaviour at the boundaries of the established classes. This relates to the aforementioned prototype analysis of categories and gradience theory, which Croft clearly supports, stating that category membership is not always clear-cut for individual lexical items. What is more, Croft himself admits to certain flaws of the distributional analysis approach. Consequently, he states that distributional analysis alone cannot determine whether in some cases a separate class analysis or a subclass analysis should be preferred.
Another criterion that can be directly linked to the syntactic analysis of word classes is the pragmatic or discourse criterion. Since sentence structure is often dependent on the larger discourse that sentences are embedded in, researchers have attempted to derive the basic noun-verb distinction from discourse categories such as topic and comment (Hopper & Thompson 1984; 1985). Especially Hopper and Thompson (1985) have emphasized the fact that the topic function seems to coincide with the category of nouns cross-linguistically, while the comment function is usually reserved for verbs. They hypothesize that the nature of nouns originates in the need for a word class that functions as introductory of participants and props, whereas verbs are ideally made up to report events.

As has become apparent, a purely syntactic or discourse account for word class categorization is equally insufficient as a purely semantic one. However, I agree with Sasse (1993b) that, just as the semantic criterion, a syntactic discourse based account might help in understanding the general mechanisms of word class categorization.

6.1.3. Morphosyntactic Approaches to Word Class Distinction

The morphosyntactic criterion is central to the distinction of form classes in the Classical languages that were ultimately defined by their inflexional composition. Hence, the observation that lexical categories behave differently with respect to their ability to take inflections and thus create different forms, was crucial for parts-of-speech categorization (Sasse 1993b). The main distinction between category-establishing and category-changing morphology was also made relatively early. While the first indicates the general functions of a category, as tense, aspect, mood and person do for verbs, the latter is concerned with deferring lexemes from one category to another (by means of derivational morphology, for example). Both kinds of morphology can be used to define the characteristics of word classes in a single language. Nevertheless, it is not valid for a cross-linguistic account of word classes and is therefore not universal.

Firstly, the morphosyntactic account is not without flaws because the notions of gradience and prototype play important roles just as in semantic theories. In those languages that show morphological inflections for nouns, they typically inflect for number, gender and case. Consequently, these grammatical categories are at the centre of the prototypical morphological criteria defining nouns. Evans (2000) mentions that number and gender inflections usually reflect characteristics of the referent while case inflections provide
information on the syntactic function of the noun in the clause. He cites Russian as an example of an Indo-European language in which nouns are inflected for all three and also govern adjectival agreement concerning these features. Less prototypical morphological information represented on the noun are the aforementioned inflections for tense or mood in some languages of the Tupí-Guaraní family. A final grammatical category that is relatively widespread among the languages of Africa, the Caucasus and Australia is that of nominal class. Class systems categorize nouns into subsets, usually on a semantic basis. The class systems found in many African languages, however, are highly grammaticized and their semantic basis is hence no longer clearly visible (Sasse 1993b). Gender systems found in many Indo-European languages are often considered to be equal to the noun class systems found in non-Indo-European languages (Aikhenvald 2000; Grinevald 2000). However, they show a more limited semantic motivation of assignment to classes and are often portmanteau morphemes combining other grammatical categories such as number and case.75

Turning to the category of verbs, cross-linguistically, they are the word class with the most complex morphological possibilities (especially in polysynthetic languages like Nahuatl, for example). Evans (2000:712) lists tense, aspect, mood, negation, voice, reflexives, reciprocals, applicatives, person, number, gender, object-definiteness, markers of switch-reference, logophoricity, honorifics or conjugation membership as the most common ones. Moreover, there are numerous possibilities to morphologically derive other lexical classes from verbs, as for instance nominalizers or participal morphology transforming verbs into modifiers. Prototypically, verbs inflect for tense, aspect, mood and person. There are however languages in which other categories show one of the aforementioned inflections. In Hausa, for example, what seem to be pronouns when applying syntactic and semantic criteria, inflect for tense and mood, a rather exceptional historical development that Hayward (2000) has commented on.

Not only is the verb class able to show the most complex morphological phenomena, but it can also be further subdivided into smaller sub-classes according to different criteria. Looking at argument structure, the subclasses of intransitive, transitive, ditransitive, semi-transitive or subjectless can be established (Evans 2000). Two other sub-classes that are often observed are copula and auxiliaries. However, it is noteworthy that while some languages consider the first as a sub-class of verbs, other languages have a special class of copulas, like Hausa, for instance. The latter verbal sub-class, namely auxiliaries, usually “form a closed class of words encoding information about inflectional categories typically morphologically associated with verbs
and with the clause level in terms of their scope” (Evans 2000:718). This class is far from universal though, as there are many languages that lack this category.

Finally, there are various languages with morphologically quite limited or closed verb classes. In these languages, predicate constructions are usually expressed by verb + preverb combinations. Evans (2000) lists Hindi and the Papuan languages Kalam and Kobon as examples of this kind of language. Additionally, these languages might employ the strategy of verb chaining in order to form complex predicate constructions.

Looking at adjectives, they prove to be a very heterogeneous class with respect to its morphological markers (cf. e.g. Dixon 1982; Croft 2000; Rijkhoff 2000). However, it can generally be stated that they usually do not take tense, aspect or mood inflections or specify for person and number.

Finally, a short comment on the closed class of pronouns seems noteworthy. Morphologically, they might show traits that are special for these forms. Hence, in Indo-European, many pronouns possess special case endings with no direct affinity to the noun. These kinds of discrepancies can also be found outside Indo-European, as in present day Arabic, for instance (Sasse 1993b).

Generalizing the morphological potential of the individual word classes compared to the abovementioned concrete examples, Croft’s structural coding and behavioural potential criteria from his radical construction grammar framework add to the problem of the morphosyntactic criterion and prototype theory. According to his criteria, the marked (and thus less prototypical) member of a category is encoded by at least as many morphemes as the unmarked member.

Another flaw of the morphosyntactic account is isolating languages which rather employ word order and/or adpositions in order to convey categories like tense, mood, etc. Word classes in these languages have to be defined using either syntactic, semantic or a mix of both criteria since classes simply cannot be established on a morphosyntactic level. Furthermore, Evans (2000:711) mentions that many head-marking languages utilize pronominal agreement on the verb (and leaving the noun unmarked) in order to provide information about syntactic relations. Hence it becomes apparent that while morphosyntactic criteria are certainly among the most traditional and also for some languages the most clear-cut and convincing parameters for word class distinction, they are not sufficient on their own.

Sasse (1993b) proposes a morphosyntactic account for categorization as the starting point for parts-of-speech classification in one language, leading on to a syntactic and finally a semantic, universally applicable, account.76
Agreeing on that point, one criterion, be it semantic, syntactic-discourse related or morphosyntactic, does not suffice to account for a cross-linguistic distinction of word classes. While one linguistic level may certainly suffice for a parts-of-speech categorization in a single language, it cannot be applied cross-linguistically. Even the semantic criterion that seems to be closest to a universal criterion for word class distinction, fails to account for all languages. Its application as sole criterion for categorization would reflect the abovementioned euro-centric view of lexical classes that is certainly not appropriate for a typological analysis of word classes. It would completely fail to account for the diversity discovered in the systems of the world’s languages (Haspelmath 2010).

6.1.4. Word Class Distinction in Sign Languages

While the distinction of word classes or parts-of-speech reaches back to antiquity for spoken language research and is an essential part of formal grammar, it remains an under-represented and neglected topic in sign linguistics (Schwager & Zeshan 2008; Meir 2012). There are several reasons for this neglect. Meir (2012:85) mentions three central issues that often complicate word class research in sign linguistics. Firstly, sign languages are articulated in another modality than spoken languages which makes word class distinctions hardly comparable to traditional classifications. Secondly, sign languages are much younger than most spoken languages, which is why they show different linguistic traits in general. Finally, the field of sign linguistics is rather young as compared to spoken language linguistics. The body of literature and research that sign linguists can draw upon is simply much smaller than that of spoken language linguistics.

The main issues concerning word class distinction in sign languages are related to the criteria used for establishing distinct categories. Firstly, there is an overlap between formational and meaningful functions of the sub-lexical parts of a sign. This results in the fact that phonemic features and morphemes cannot easily be distinguished from one another. Zeshan (2002:170) and Schwager and Zeshan (2008) also mention that the concept of duality of patterning is seriously challenged by sub-lexical parts of iconic signs which they claim to be meaningful on a sub-lexical level. For instance, the handshape feature of a sign might be exploited for its iconic potential and become meaningful within the discourse (a special case of phono-symbolism (Stokoe 1960; Mandel 1980)). Currently, there is no widely accepted overt definition of the morpheme unit in sign languages (Schwager & Zeshan
Moreover, the notion of ‘word’ is equally problematic with respect to sign languages. While many researchers claim that most signs are monomorphemic (Zeshan 2002; Zwitserlood 2003; Schwager & Zeshan 2008; Meir 2012), and the concepts of grammatical and phonological word can be applied meaningfully to sign languages although the first is weakened due to non-concatenative morphology, there are signs that elude the definition of a monomorphemic sign. However, it is generally accepted that the definition of a phonological word adheres to the following constraints (Sandler 1999): it is monosyllabic, it uses only one set of fingers for its handshape, it uses only one major body area and it obeys constraints on two-handed combinations. Besides, Zeshan categorizes signs into three types according to morphological and semantic criteria, namely phonosymbols, arbitrary signs and classifiers.

While some researchers consider the abovementioned critical cases to be indeed morphologically complex signs (Zwitserlood 2003), others have come up with special terms in order to avoid the notion of morphological complexity in this respect. The issue of compounds also remains fairly unresolved as far as sign language morphology is concerned.

As was outlined above, the morphological criterion is problematic as far as word class distinction in sign languages is concerned. Due to their rather young age, sign languages have not had the chance to develop a large amount of inflectional morphology (Meir 2012). Adding to the aforementioned facts is the problem of morphological marking that, when it occurs, often cannot be related to word class establishment (Schwager & Zeshan 2008). Only very few word class determining affixes are mentioned for sign languages. Aronoff et al. (2005) report a class of prefix deriving verbs in IsSL. These prefixes consist of pointing to a sense organ, the mouth or head and conveying the meaning of ‘to X by (eye)/hearing (ear) thinking/(head)/intuiting (nose)/saying (mouth)’. A suffix attaching to nouns and adjectives in IsSL and forming adjectives is mentioned in Meir (2004), Meir and Sandler (2008) and Meir (2012). It can be glossed as -NOT-EXIST and is equivalent to the English suffix –less. Meir et al. (2010) comment on toponymic compounds in ABSL which usually consist of a pointing sign in the second part of the construction.

Besides problematic issues related to morphology, the syntactic behaviour of sign languages has not been sufficiently researched to be a reliable criterion for word class assignment. Despite the fact that the body of research on ASL syntax is relatively large, little is known about the syntax of other, smaller sign languages. Padden (1988) tried to establish three major open word classes and three verbal subclasses for ASL based on syntactic grounds.
Hence, she argued that ASL nouns can be modified by quantifiers, adjectives can be inflected for intensive aspect while verbs are defined negatively in that they cannot be combined with quantifiers and cannot be pre-modifiers of other signs. The tests Padden used for her study prove problematic for other sign languages and her results are thus not universally applicable. This situation is therefore similar to morphosyntactic criteria for word class distinction in spoken languages as these cannot be applied cross-linguistically as well.

A traditional notional analysis of parts-of-speech for sign languages has been attempted as well. Schwager and Zeshan (2008:520, ff.) put forth a feature analysis of DGS and Kata Kolok. They assume eight semantic classes (person/thing, event, property, place, time, relation, quantity and situation, based on Stassen (1997) and Anward (2000)) and a subdivision into subclasses based on the ontological classification of Aristotle and Dionysius Thrax. Relying on semantic feature analysis, they deny the idea of gradience of category membership and prototype theory. This seems rather problematic, looking at the discussion of this approach in the previous sections of this chapter. Based on the previous semantic classification, they map the individual classes on syntactic roles and morphological operations. Altogether, their analysis presents a comprehensive account of word class distinctions in sign languages and illustratively depicts cross-linguistic differences in parts-of-speech classifications in sign languages.

Finally, Zeshan (2000) suggests a modality-specific classification of word classes in IPSL. Signs are thus classified according to spatial characteristics, i.e. signs that cannot move in space at all, signs produced in neutral space, etc. Even though this account is certainly innovative and maybe even accurate for the language discussed, it has been criticized for its inapplicability to larger cross-linguistic comparisons with spoken languages (Meir 2012).

After these fairly general remarks on problematic issues arising in the distinction of word classes in sign languages, I will briefly comment on concrete problems concerning those word classes that are undisputed among sign linguists. These are almost all open classes, namely nouns, verbs and adjectives. Moreover, pronominal systems in sign languages will be discussed as they are essential for verb morphology in sign languages, which is highly relevant for correlations with mouth actions.

An issue that has brought forth a considerable amount of research and literature is the distinction of similar or even phonologically identical noun-verb pairs in the sign languages of the world. Pairs like these have been described for ASL (Lillo-Martin 2005), LIS (Pizzuto & Corazza 1996), Auslan (Johnston 2001) and for Langue des Signes Québécoise (LSQ) (Bouchard et al. 2005; Voghel 2005) to name but a few. Generally, there is
said to be a derivational relationship between nouns and verbs. An important criterion in this respect is the different movement patterns of the two sign classes: verbs show single, unrestrained, long movement while nouns display repeated, restrained, short movement. This can be related to the fact that in verbs, repetition of movement may convey what has been called aspect in the literature, such as iterative or durative (Voghel 2005). However, Johnston (2001) mentions that with respect to his studies on Auslan, repetition alone does not seem to be a productive nominal derivational process, although it is generally true that 57% of the nouns in their data showed repeated movement (1.5 movement cycles) while 79% of the verbs showed only single movement. It might be possible that this process is only productive in certain sign languages while it is not in others.

Moreover, some researchers mention the different possibilities of morphological marking on verbs and nouns. Hence, verbs can be marked for tense, person, number and take negation; predicates can be marked for aspect. However, according to Padden’s (1988) tripartite verb class distinction, not all verbs participate in this agreement system. Also, it is claimed that neither nouns nor verbs can be marked for gender in ASL. This, too, may hint at cross-linguistic variation concerning this feature. Furthermore, nouns can be used with the possessive while verbs cannot. They are also assigned a spatial locus while most verbs only reuse spatial loci. Moreover, adjectives are mentioned to function as verbs sometimes (Lillo-Martin 2005). My own interpretation of these items in ISL is discussed in 6.2.2.

What is more, almost all researchers working on the topic of noun-verb distinctions of meaning related, formally similar noun-verb pairs mention mouth actions as an important distinguishing feature. This holds true for all sign languages mentioned above (except Lillo-Martin (2005) on ASL). Johnston (2001) mentions that the mouthing of English words is more frequent with nouns while it only occurs with verbs in a minority of cases and might be a primary way to distinguish nouns from verbs in Auslan. He even claims it to be more significant than the oft-cited movement patterns. Voghel (2005) also mentions that word mouthings usually accompany nouns in LSQ while “expressive mouth movements” (= mouth gestures) occur more frequently with verbs. She concludes that word mouthing and expressive mouth movements seem intimately linked to a certain category. The validity of this claim with respect to ISL will be investigated in section 6.2.

Finally, a completely different view of the problematic issues related to a noun-verb distinction in sign languages shall be mentioned. In her work on syntactic categories and lexical classes in German Sign Language, Erlenkamp (2000) claims that a noun category does not exist in DGS. According to her
analysis, there are only two syntactic categories in DGS, namely verbs and multifunctional signs, and five lexical classes. Meir (2012) also mentions the abundance of multifunctional signs in the world’s sign languages. Erlenkamp’s approach is certainly an interesting theory that might be considered for other studies as well.

Before closing this section, a few comments on pronominal systems seem noteworthy. As in spoken languages, pronouns form a closed word class in sign languages. Major issues concerning pronouns in sign languages are firstly the similarity of definite determiners and pronouns, the motivatedness of pronouns as well as the controversy of which person distinctions can be made.

With respect to the first issue, it can be observed that pronouns and definite determiners may be identical in phonological form. Hence, pointers (indices) can function either as pronouns or as definite determiners, depending on the context (Lillo-Martin 2005). In case the pointer initially assigns a locus, it functions as a determiner, if it refers back to a specific referent, it is a pronoun. This shows that phonological or morphological criteria alone do not suffice in order to determine a sign’s category but that their use in the larger discourse is essential.

Concerning the motivatedness of pronominal systems in sign languages, indexicality is the key feature to be mentioned. Therefore, all indexic signs, pronouns being one class, point to a location in space associated with a referent. This makes them seem very iconically motivated, and indeed Cormier (2007) mentions indexicality as one type of visual motivation. However, pronominal reference in sign languages is linguistic in terms of morphology or discourse structure and not exclusively iconic. Moreover, pronouns are lexicalized with respect to their location. Nevertheless, there are some cases of non-indexic pronouns attested for ASL and BSL. Cormier (2007) found that not all pronouns point to their referents in the same way as plural pronouns in general are less indexic than singulars and first person plurals are more indexic than general plurals. She also found that this lack of indexicality in some pronouns is due to ease of articulation and general motor skills of the human body. Thus, signers might sometimes produce a pronoun at a location that is motorically easier, as ease of articulation may override indexicality. From a more theoretical point of view, Keller (1998) claims that the traditional spoken language distinction between deictic and anaphoric pronouns does not hold for sign languages and should be expanded by a generic term “chorophoric” (Keller 1998:66).

Finally, person distinctions in sign languages have been and still are rather controversial. While the first person is undisputed for all sign languages, it
is not clear whether a further distinction between second and third person can be made as well or if the basic distinction is between first and non-first person only. Those that claim a three-person system are for example Friedman (1975) or Klima and Bellugi (1979). They postulate a system that distinguishes a first person (signer), a second person (addressee) and a third person (non-addressed third participants). This older view was replaced by a newer theory that does not refer to person in the context of pronouns at all, but to locations. The problem with the theory of the tripartite system is that each non-signer and non-addressed participant in a discourse would have the same value, namely third person (Cormier 2007). Moreover, there are theoretically an infinite number of third person values as far as locations in the signing space are concerned. Hence, many researchers nowadays argue in favour of a locus analysis, analyzing the loci as retrieving their content from the discourse (cf. e.g. Lacy 1974; Cormier et al. 1999; Cormier 2007). A third analysis of the pronoun system of sign languages claims a dual distinction into first and non-first person. This theory takes into account the special status that is assigned to the first person in sign languages across the world. According to Meier (1990) for instance, there is no grammatical distinction between a possible second or third person since the only distinction between reference to the addressee or a non-addressed third person is eye gaze (which is also not always a reliable criterion). This view is currently followed by many researchers, such as Lillo-Martin (1995), Emmorey (2002), Rathmann and Mathur (2002) or Zwitserlood (2003).

6.1.5. Discussion

Having outlined the different theories of word class research in spoken and signed languages, the present section provides a short summary and comparison of these theoretical bases.

The main difference between spoken and sign language word class research is that the first is an ancient discipline reaching as far back as antiquity, whereas the latter represents a relatively young field (just like all other sign linguistic research). While spoken language parts-of-speech analysis constitutes a major part of formal grammar, it is a fairly neglected topic in sign linguistic typological research. The most important reason for this is the relative youth of the discipline of sign linguistics in general. It is therefore not surprising that the mere lack of research on sign languages and their structures conditions many of the central problems concerning the distinction of categories. The inability to determine the border between
phonological and morphological structures and the small number of studies on sign language syntax (other than that of ASL) are thus highly problematic. A purely notional, i.e. semantic, account of the distinction of word classes in sign languages would be as inadequate as it is for word classes in spoken languages. The problems with this framework were outlined in detail in section 6.1.1. Consequently, this fact represents one of the similarities between parts-of-speech categorization in spoken and signed languages.

Another similarity is the insufficiency of the application of one linguistic level as the basis for word class categorizations. As was shown, morphological and morphosyntactic, syntactic, discourse analytic and semantic accounts have to be combined in order to formulate cross-linguistically applicable theories. This holds true for languages from both modalities. However, sign languages, being from the visual gestural modality, have the advantage of being able to take other linguistic “levels”, namely non-manual features and spatial relations, into account. This tool is therefore unavailable in spoken language research.

Finally, the theoretical basis for the empirical study in the next sections shall be outlined. As this book is primarily concerned with mouth actions, the importance of mouth actions for PoS classifications in ISL will be the main issue treated in the following section. However, I do not suggest that mouth actions are the only tool for a thorough analysis of parts-of-speech in ISL or any other sign language for that matter. In order to achieve a correct and typologically valid word class categorization, other linguistic levels have to be taken into account. Thus, I will follow for example Sasse’s (1993) approach and utilize a combination of all abovementioned criteria for the analysis. The main criteria for syntactic categories and lexical classes that are going to be distinguished will be outlined in 6.2.

6.2. Mouth Actions and Word Classes in ISL

After having outlined the theoretical background of word class differentiation in spoken and signed languages, the second part of this chapter is concerned with the presentation and evaluation of the data from the Signs of Ireland Corpus. This analysis is essential for the later analysis of correlations between mouth actions and word classes as a thorough analysis of PoS distinctions in ISL is the prerequisite for a valid analysis of mouth action-PoS correlations. The current investigation is the first to empirically research word class distinctions in ISL. Other publications have simply presupposed the word classes of spoken English (e.g. nouns, verbs) but this analysis will
investigate word class difference in ISL on the basis of typological theories of PoS distinctions. In line with other researchers such as Sasse (1993a, b), Erlenkamp (2000) and Rauh (2010), a difference between syntactic categories and lexical classes is made. Syntactic categories are therefore categories of formal characteristics that are related to the argument, predicate, etc. phrase while lexical classes are classes whose members display a certain composition of inherent characteristics that are distinct from the characteristics of other classes (Erlenkamp 2000:27). Sasse (1993a) mentions the importance of the disentanglement of the parameters applied for the establishment of word classes. He distinguishes four levels of parameterization (Sasse 1993a:196):82

1. **The formal parameter**: including inflection, derivation and distribution.
2. **The syntactic parameter**: slot-filler-relation, the mapping onto syntactic categories.
3. **The ontological-semantic parameter**: the mapping onto ontological categories and classes of meaning.
4. **The discourse-pragmatic parameter**: the mapping onto basic discourse functions (reference, predication, modification).

For most European languages, syntactic categories and lexical classes can be established and are identical. Sasse (1993a) calls these TYPE A languages. However, cross-linguistically, this is not always the case. Sasse mentions three other types of languages that can be found with respect to word classes. TYPE B languages have distinct syntactic categories and lexical classes which do, however, not correlate. An example of this is Tagalog or (according to Erlenkamp’s analysis) DGS. TYPE C languages show distinct lexical classes but do not distinguish syntactic categories. Sasse’s analysis of Cayuga provides an example of this kind of language. Finally, TYPE D languages only show distinct syntactic categories but do not differentiate lexical classes. Tongan is mentioned as an example of this kind of language (Sasse 1993a:200).

For ISL it remains to be shown which type of language it constitutes. Answering this question will be one of the central issues of this chapter. In order to do so, the four parameters mentioned above will be applied to ISL. With respect to the formal parameter, the supposed lexical class of nouns should be able to inflect for number and the possessive, while verbs can be marked for person, object, manner and aspect. Whether this can be proven with respect to the data will be part of the analysis. For the syntactic parameter,
basic clause structure plays a crucial role. This has been found to be rather flexible. Leeson (2001) investigated basic clause structure as part of her study on verbal valency in ISL and found a general order theme-verb-undergoer for transitive sentences with plain verbs and theme-verb(-undergoer) for transitive sentences with morphologically marked verbs. The important thing to note here is that plain verbs usually pattern with overt arguments, while morphologically marked verbs pattern with implicit arguments as those are referred to by the referential loci of the verb. Moreover, classifier constructions (predicates) always have to be preceded by a referring NP.

While the above paragraph only outlines the formal and syntactic parameters for word class identification in general, a more detailed account will be provided in the following sections. The most important characteristic to be considered here is whether mouth actions can serve as a modality-specific tool for word class recognition in ISL. Finally, the issue of mouth gestures as a separate word class will be tackled. Due to their often reported and observed iconicity, they resemble ideophones in spoken languages as is discussed in section 6.2.4.

6.2.1. Syntactic Categories of ISL

Concerning the syntactic categories of ISL, I have looked exclusively at content words (signs) that would be able to fulfill the functions of predicate, argument or modifier. Predicates constitute the proposition of a sentence, arguments the theme of this proposition and modifiers may either modify the predicate (adverbial modifiers) or the argument (attributive modifiers). A few problematic issues concerning this point are the abovementioned free word order and the lack of a lexical copula to distinguish predicating, specifying and identifying predicates. Predicate and argument (S) are juxtaposed just as argument and attributive modifier. As there are usually no morphosyntactic markers for predicative or attributive use, it is inherently difficult to distinguish between the two. Examples of this are shown in (1) and (2):

(1) **BOY SOME FUNNY**       
    boy some be.funny
    ‘Some boys are funny/some funny boys […]’

(2) **EAMON-HAYES HAPPY**      
    Eamon-Hayes be.happy
    ‘Eamon-Hayes was happy/[The] happy Eamon-Hayes […]’
While most signs for these property concepts cannot be inflected for person like verbs (funny and happy are examples of this), others can. Some of these signs have been mentioned in the literature (cf. right and wrong in Ó Baoill & Matthews 2000). These property concepts were then called “adjectives that function as verbs”. While it is certainly true that these items denote property concepts from a semantic point of view, I think it is indispensable to clearly distinguish semantics and morphosyntax. Thus, from a morphosyntactic point of view, these signs are inflected like verbs and function as predicates. From a syntactic point of view they are, therefore, predicates. This issue is discussed in more detail below.

Another problematic point is the influence from spoken English on ISL resulting in many of the property attributing items preceding the N. Constructions like (3) and (4) were frequent in the data. Generally it can be stated that there are two different construction types that look alike on the surface level. There are either postpositioned attributes (status-assigning predicates) or predicatively used/property-assigning predicates (Kutscher 2007).

(3)  FABULOUS  PLATE  m.at.  [ISL]
    be.fabulous  plate  mat
    ‘a fabulous plate mat’

(4)  DIFFERENT  PART  COUNTRY++  [ISL]
    be.different  part  country.PL
    ‘different parts of the country’

Other influences from spoken English were sometimes visible when spatial syntax was expressed by using English prepositions or by using inflectional or derivational endings from English. Sentences that openly displayed influences from spoken English or another sign language (such as BSL) were also excluded from the analysis. Examples of English morphology that is taken over into ISL can be seen in (5) and (6).

(5)  THEY NEED ME BAD –LY  [ISL]
    ‘They need me badly.’

(6)  MOTHER […] DRINK-TEA –ING TEA  [ISL]
    ‘The mother was drinking tea.’

In (5), the English inflectional ending for adverbs is used, in (6) the English inflectional ending for the progressive. The signs, taken over from Signed
English, are in fact homonymous signs that look the same for both inflectional endings although different meanings are expressed in the different contexts.

While this phenomenon also had a certain impact on syntax and basic word order, it was especially problematic with respect to category distinguishing morphology for lexical classes. It will be taken up in section 6.2.2.

After the above outline of problematic issues concerning the establishment of syntactic categories in ISL, I will now turn to the syntactic categorization of signs in the data. The category that is most easily and most obviously identified is that of predicates. Distributionally, items that are morphologically marked for person (including reflexivity and reciprocity), direction of movement/transfer and optionally aktionsart are restricted to the predicate slot sentence finally. Sentence final predicates thus most frequently show rather complex morphological marking. While these predicates often occur with an explicit argument, they may also occur on their own, i.e. with implicit arguments (cf. Leeson 2001) and constitute the utterance. Examples can be seen in (7) with an explicit argument and (8) with implicit arguments:

(7) **CONDUCTOR** CL-5-PALM-UP
    conductor 5.CLTwo-legged-entity.walk-past-speaker
    ‘Five conductors walked past me.’

(8) **MEET-PERSON++**
    meet.person.PL
    ‘I met several people.’
As can be seen in (7), classifier predicates always have to be preceded by the referring NP, CONDUCTOR in this case. Non-classificatory agreement verbs like MEET in (8) do not need to fulfill this requirement.

Predicate phrases do not always occur sentence finally though. Especially in sentences including explicit arguments, they are often sentence medial or sometimes even sentence initial. These predicates are usually not marked morphosyntactically, i.e. that the items filling these slots cannot be marked for person and direction of movement/transfer. Optionally, they are marked for aktionsart (intensive, iterative, distributive expressed by reduplication). As they are distributionally and morphosyntactically different from predicate phrases as described above, I suggest a different terminology here. The term bare predicates seems appropriate.

Turning to the next syntactic category, arguments are constituted by NPs or referential phrases. Similar to bare predicates, they are often morphosyntactically unmarked. However, they can be optionally marked for number and the possessive. Both markings can also be expressed periphrastically. An example of signs restricted to the argument slot is BOY in example (1). It also provides an example of the optionality of number marking which is exclusively expressed by the quantifier SOME. Another option to express number would be by adding a numeral.

Modifier phrases, as mentioned in section 6.2, can either precede or follow NPs. Distributionally, it is thus sometimes difficult to identify them. This is enforced by the fact that they are also optionally marked for aktionsart. However, only intensive and distributive aktionsart are possible in this case whereas they cannot be marked for the iterative. An example of a modifier phrase following a referential phrase is shown in (9). In this case, the slot is morphosyntactically unmarked.

(9) INDEX+fr WANT SHOVEL GOOD [ISL]
1SG want shovel be.good
‘I want a good shovel.’

While reduplication of the item GOOD (GOOD++) could either signify an intensive reading, ‘very good’, or a distributive reading presupposing a plural NP, ‘several good shovels’, an iterative reading is rather unlikely, *‘repeatedly good’. This would rather be expressed periphrastically. Testing for the possibility of iterative reading is therefore a practical tool for the distinction between bare predicate phrases and modifier phrases.
Summarizing the results of this section, it can firstly be stated that ISL possesses four different syntactic categories. These categories including their characteristics are the following:

1. **Predicates**: occur sentence finally, are marked for person or direction of movement/transfer and possibly aktionsart. Example: MEET-PERSON.

2. **Bare predicates**: occur sentence initially, medially and finally, can be optionally marked for intensive, distributive and iterative aktionsart. Example: CRY.

3. **Referential phrases**: syntactically unrestricted, can be optionally marked for number and possessive. Example: BOY.

4. **Modifier phrases**: precede or follow referential phrases, can be optionally marked for intensive and distributive aktionsart. Example: GOOD.

Having outlined the syntactic categories of ISL, I will now turn to the lexical classes of the language. A crucial point of this analysis will be to determine the patterning of lexical classes onto syntactic categories.

### 6.2.2. Lexical Classes of ISL

Lexical classes, as mentioned frequently in the literature, are not purely based on semantic or ontological criteria (cf. e.g. Sasse 1993a, b). The correlation of formal word classes with conceptual classes has often been used as an additional tool in determining lexical categories though. While it has been proven that conceptual classes exist for all languages, they are by no means the same cross-linguistically (Croft 1991). Sasse (1993a:202) calls “the existence of universal ontological categories a problematic idea, viewed current findings in cognitive linguistics”. Ontological criteria will only be one of the minor parameters used for determining the lexical classes of ISL. The ontological classification of ISL lexical items will have to be conducted independent of ontological classifications in other sign languages, English or Irish.

A more important parameter for the determination of lexical classes is morphology. As in the above section on syntactic categories, I have exclusively considered content words in this analysis. However, it can be stated that there seems to be a larger class of functional particles in ISL that includes prepositions and pronouns/indexicals, for instance. All these items have in common that they are under no circumstances morphologically markable while content words can occur with morphological markers.
Most easily identifiable from a morphological point of view is the class of full verbs. The verb itself constitutes a lexical base that has to be marked for person or direction of movement/transfer when inserted into a sentence. They are thus closely linked to spatial syntax and reference points in the signing space. This lexical class coincides with the syntactic category of predicates, examples are sentences (7) and (8) in the previous section. From an ontological point of view, these verbs are always dynamic verbs and never stative. They usually refer to some sort of action involving movement in space, literally or metaphorically.86 One group of signs that seems to be problematic in this respect is all signs denoting conversational acts such as tell or ask. Although their morphological properties are the same as those of the other members of the verb class, their semantics do not seem to involve an action of movement. I suggest that the (metaphorical) movement component of these signs is expressed very clearly in the visual-gestural modality. To be more precise, it is an action of transfer that is performed. The item that is transferred here is the verbal message (from speaker to addressee or vice versa in so called backwards verbs). This message is visually represented by the hand configuration that moves from speaker to addressee (cf. figure 2.7). It is the visual-gestural modality that makes us realize the inherent semantics of these kinds of verbs. Therefore, it is legitimate to categorize them as verbs from a morphological as well as from an ontological/semantic point of view.

While most studies on verbs in sign languages refer to Padden’s (1988) tripartite classification of the verb class into plain verbs, agreement verbs and spatial verbs, I found this not to be applicable to the data from the SOI. Generally and independent of the ISL data, the distinction seems to be a semantic instead of a morphosyntactic one. Aronoff et al. (2005) mention that spatial verbs denote motion in space, while agreement verbs denote transfer and plain verbs neither nor. From a morphosyntactic point of view, spatial verbs are said to have beginning and end points determined by their spatial referents, while agreement verbs have beginning and end points determined by the referential loci of their arguments, and plain verbs have invariant beginning and end points. However, the distinction between spatial referents and referential loci (which are ultimately also just certain spatial reference points) seems to be rather marginal. A part from the arguments against the distinction between spatial and agreement verbs mentioned in this paragraph, the literature on ISL does not support this distinction either. Ó Baoill and Matthews (2000) mention only two verbal subclasses: morphologically marked and morphologically unmarked verbs. Consequently, the dichotomous distinction of morphologically marked verbs into spatial
and agreement verbs does not seem plausible and is not further applied for the current study.

The subclass of plain verbs suggested by Padden does not seem plausible from a syntactic point of view for the ISL data either. Many items of an alleged plain verb category occur with predicative function, however, these predicates are not sentence final in transitive sentences. This is in line with Leeson’s (2001) statement that basic clause structure in transitive sentences including “plain verbs” is theme-verb-undergoer (including explicit arguments), while it is theme-verb(-undergoer) (with possible implicit arguments) in sentences featuring a morphologically marked verb. Viewed these facts, what has been traditionally called “plain verbs” do not belong to the main class of full verbs but form a lexical class of their own. Additionally, they do not show the same morphosyntactic features as full verbs, as they cannot be inflected for person or direction of movement/transfer. However, they can be optionally marked for aktionsart (iterative, intensive, distributive). Examples of this kind of lexical item are shown in (10) to (12).

(10) HAVE BANANA BOAT [ISL]
    have banana boat
    ‘[We] had a banana boat.’

(11) r.d.s. AFTER INDEX+f STOP FOR CUP-OF-TEA [ISL]
    rds after LOC stop for cup.tea
    ‘After the RDS (there), we stopped for a cup of tea.’

(12) LAST DAY INDEX+sr CRY++ [ISL]
    last day 1PL cry.INT
    ‘The last day we cried a lot.’

Sentence (10) shows a transitive sentence with a sentence initial predicate. HAVE in ISL cannot be marked for person, a marking for direction of movement/transfer is not possible due to the inherent semantics of the item. It also could not be marked for aktionsart. Example (11) shows an intransitive context with an alleged plain verb. Similar to the previous example, it could neither be marked for person nor for direction of movement/transfer. However, it could be marked for iterative aktionsart expressed by reduplication of the sign. Finally, in sentence (12) CRY is marked for the intensive. Thus the meaning ‘to cry a lot’ is acquired. Given these morphological characteristics, the signs cannot be classified as full verbs. As aktionsart inflections play a major role in the determination of this class, I termed it aktionsart verbs 1.
Moreover, property concepts as mentioned in examples (1) and (2) show similar distributional and morphosyntactic characteristics as aktionsart verbs 1. Most frequently, they occur as heads of predicates and they cannot be inflected for person or direction of movement/transfer either. These signs often occur as heads of predicates but might, as opposed to aktionsart verbs 1, occur as heads of modifiers (attributively). In the past, this has led researchers to state that these signs are adjectives. This conclusion seems to be based on additional semantic criteria (the items denoting property concepts) and seems biased by the researchers’ mother tongues (English or other European languages) in which property concepts are expressed by a class of adjectives (cf. Sasse 1993a:202). In ISL it seems that these items rather have to be interpreted as stative verbs. Hellwig (2010) discusses a similar problem for Goemai (a West Chadic language of the Afroasiatic language phylum). Viewed the features outlined in the previous paragraph, a syntactic category of adjectives seems unlikely for ISL. Rather, items of the kind exemplified in sentences (1), (2), (9) and (13) seem to belong to the class of aktionsart verbs. The first three examples do not show inflection for aktionsart though. Only in (13) reduplication representing intensive aspect is shown. Despite this one very straightforward example, it is not always clear whether the reduplication of movement that expresses aktionsart might not actually be a distributive marker. Consider same++ in the following context:

(13) EVERY DAY DIFFERENT++ [… ] OFFICE [… ] SAME++ [ISL]
    everyday be.different.DISTR office be.same.INT
    ‘[At school] every day is different. In an office it’s very much the same.’

While the transcription suggests an intensive interpretation, it could very well be a marker for the distributive, taking up the distributive marker of DIFFERENT++. It turns out that only in the cases involving an aspectual sign, the distributive marker can be excluded. In all other cases, a distributive reading is as possible as an intensive one and can only be inferred from the (syntactic) context. This in itself is reason enough to distinguish a separate lexical class. While being similar to aktionsart verbs 1 in terms of general patterning, some distributional criteria (additional occurrence in modifier slots instead of referential phrases) and some morphological criteria (no inflection for iterative) are different from items in this category. Consequently, I sub-categorized the class and called the first group aktionsart verbs 1 and the latter aktionsart verbs 2.

A further lexical class that could be determined is morphologically recognizable by optional marking for number and the possessive. The exact
dynamics of this marking were already mentioned in section 6.2.1, showing that this marking does not have to take place by morphological inflection but can be expressed periphrastically using quantifiers or pronouns. Examples could be seen in most sentences, such as boy in (1), mother in (6) or shovel in (9). Syntactically, these items are restricted to referential phrases. The class includes mostly signs that can precede a classificatory verb as head of an NP. Often, but not exclusively, these signs function as subjects. This class of items is referred to as nouns.

A part from signs like aktionsart verbs 2 that can occur in two different syntactic slots, there are a few signs that are even less syntactically specified. These items can occur as heads of predicates, as heads of attributive modifiers and as heads of referential phrases. Examples of these are the signs hearing or deaf, of which the latter is shown in sentences (14) – (16).

(14) ONE DEAF SAY CURIOUS INDEX+f,hí [ISL]
    one deaf say be.curious 3SG
    ‘One deaf person said he was curious.’

(15) […] WITH FRIEND FOUR DEAF PERSON [ISL]
    with friend four be.deaf person
    ‘[...] with four deaf friends.’

(16) INDEX+me DEAF [ISL]
    1SG be.deaf
    ‘I am deaf.’

In (14), deaf is the head of the argument, whereas it functions as attributive modifier in (15). In (16), it is the head of the predicate. As can be seen in the examples, no category changing morphology is needed in order to make the sign available for another syntactic category. However, it is possible to morphologically mark items like deaf or hearing for all morphological categories except for person and direction of movement/transfer. This morphological as well as syntactic indeterminacy results in a high degree of multifunctionality. This is in line with current sign linguistic theory postulating that due to their young age sign languages exhibit a rather large number of multifunctional categories (Meir 2012). I call this lexical class multifunctional signs. While Erlenkamp (2000) categorized all DGS signs other than verbs as multifunctional signs with different sub-classes, signs like deaf or hearing display the utmost degree of multifunctionality in ISL. Accordingly, when referring to “multifunctional signs” in this book, only signs that can fill argument, predicate and modifier slots are referred to.88
After this general outline of the morphological and syntactic criteria determining the different lexical classes of ISL, I will briefly turn to the semantic/ontological criterion. Regarding the class of full verbs it was already mentioned that semantically, all items belonging to this class denote some kind of transfer or motion in space. This might also be realized metaphorically (cf. the beginning of this section).

Concerning aktionsart verbs, these signs are not clearly identifiable as a class on semantic ontological grounds. Even within the subclasses of aktionsart verbs 1 and 2, items tend to vary in their meaning. In order for the expressed notions of aktionsart verbs 1 to be available for iterative aspect, many of them have a dynamic and a telic component as non-telic items usually seem weird in iterative contexts. Examples of this are BUY, END, HURRY and STOP. With respect to the subclass of aktionsart verbs 2, it seems that they constitute a class of property concepts. However, it has become clear from the examples and the rest of the data that an interpretation as stative verbs seems more adequate.

Finally turning to nouns, the items of this class refer to objects, individuals, abstract concepts and states. The semantics of this class thus seem relatively homogeneous.

Summarizing the results obtained in this section, there are four main lexical classes of ISL signs. These classes, including their morphological, syntactic and semantic features, are shown below.

1. **Full verbs**: morphologically marked for person and direction of movement/transfer, occur in sentence final predicates only, are usually dynamic verbs denoting (metaphorical) movement in space. Example: MEET-PERSON.

2. **Aktionsart verbs 1**: morphologically markable for intensive or iterative aktionsart, occur in sentence initial, medial and final bare predicates, many involve a telic meaning component. Example: CRY.

3. **Nouns**: morphologically markable for number and possessive, occur in referential phrases only, denote objects, individuals, abstract concepts or states. Example: BOY.

4. **Multifunctional signs**: morphologically markable for everything but person and direction of movement/transfer, occur in all syntactic categories but (full) predicates, semantically indeterminate. Example: DEAF.
While the number of lexical classes is the same as that of syntactic categories, they are not congruent. The class of lexical full verbs coincides with the syntactic predicate slot, just as aktionsart verbs 1 always fill the bare predicate slot and the lexical class of nouns coincides with referential phrases. However, the class of aktionsart verbs 2 can fill bare predicate as well as modifier slots and multifunctional signs can fill every syntactic slot except that of predicates.

Altogether, ISL turned out to be a TYPE B language according to Sasse’s (1993a) classification: while both syntactic categories and lexical classes can be distinguished, they do not match. Figure 6.2 below shows the relations between the syntactic categories and the lexical classes of ISL. As this was commented on extensively in the above analysis, the component of the morphological form of the sign is not shown in Figure 6.2.

![Figure 6.2](image)

Figure 6.2 Relation of lexical classes and syntactic categories in ISL

After having distinguished the lexical classes of ISL and compared them to the syntactic categories established in the previous section, I will now take a closer look at the question whether mouth actions can be used as a modality specific tool for word class recognition in ISL. In order to do so, the next section investigates the correlations of the ISL word classes with the different types of mouth actions.

6.2.3. **Correlations of Word Classes and Mouth Actions**

As mentioned at the beginning of this chapter, it has been previously stated that there seems to be a correlation between the different kinds of mouth actions and word classes in sign languages. This correlation is ultimately
based on the parameter of morphological complexity as mentioned in 6. Thus, other researchers found morphologically less complex signs to correlate with mouthings while morphologically complex structures frequently occurred with mouth gestures. However, in most cases, syntactic categories and lexical classes as the basis of the analysis were conflated, due to parameters from different levels that were applied and not properly distinguished. The case of the morphosyntactic tripartite verb distinction by Padden (1988) often applied without further investigation is only one example. Consequently, earlier findings with respect to the correlation of mouth actions and word classes in sign languages can only be a rough guideline for the current investigation.

Having criticized the lack of distinction between syntactic categories and lexical classes in other studies, I clearly want to separate both levels of analysis here. In a first step, the correlation of mouth actions and syntactic categories will be tackled, while the co-occurrences between mouth actions and lexical classes are treated in the second part of this section. Below, the correlation between mouth actions and the syntactic categories of ISL established in chapter 6.2.1 is shown. While the analysis in chapter 5.3 and 5.4 included the category “nothing” besides mouthings and mouth gestures, this has not been included in the investigation of correlation with word classes. With respect to syntactic categories and lexical classes I am exclusively interested in their co-occurrence with mouth actions as this is assumed to correlate with the morphological complexity of a sign. For the sociolinguistic analysis, signs not accompanied by any mouth action were relevant as they hinted at the educational background of a signer, which is why I included the category there.

![Figure 6.3 Correlation between mouth actions and syntactic categories in ISL](image-url)
As can be seen in figure 6.3 above, all syntactic categories except for predicates mainly co-occur with mouthings. This was to be expected, given that predicates are the only category with obligatory morphosyntactic marking in ISL. With all other categories, although morphosyntactic marking is possible, it is optional. This is reflected by the figures obtained for co-occurrences with mouth gestures. Predicates, on the other hand, have to occur with mouth gestures as they are always morphologically complex in that they have to be inflected for a spatial morpheme.

Despite the fact that bare predicates, referential phrases and modifiers all co-occur most frequently with mouthings, subtle differences between the frequencies are visible. Referential phrases show high frequencies of co-occurrence with mouthings (83.7% = 246 items), modifiers even higher (89.1% = 49 items). Bare predicates are slightly different from these two categories as they occur less frequently with mouthings (71.6% = 240 items). This indicates their higher morphosyntactic complexity as compared to the other two categories. It also hints at the fact that morphological marking is more frequent (although also optional) with this category than with the others. However, altogether it can be stated that all investigated categories occur most frequently with mouthings, except for predicates which occur most frequently with mouth gestures (65.6% = 118 items).

Given these findings, mouth actions do not seem to be a very helpful tool in the determination of a sign’s syntactic category in ISL. They may only serve to make a major distinction between predicates and all other syntactic categories. A slot correlating with a mouth gesture is often a predicate, but a slot accompanied by a mouthing might be a referential phrase, a bare predicate or a modifier phrase.

Having looked at the co-occurrence of mouth actions with the syntactic categories of ISL, I will now turn to the lexical classes of the language. Figure 6.4 displays the correlation between mouth actions and the lexical classes of ISL established in section 6.2.2.

When looking at the figure it seems noteworthy that multifunctional signs are the category that correlates most often with mouthings (85.7% = 6 items). This might be due to the fact that they are highly semantically and functionally indeterminate so that they need an accompanying mouthing for meaning disambiguation. This claim is in line with Schermer’s (1990) paradigm of the functions of mouthings, one of them being the disambiguation of homonyms. As can be seen from figure 6.4, the results obtained for lexical classes are also similar to those obtained for syntactic categories. The morphological complexity of signs is reflected in these co-occurrences in that mouthings frequently occur with nouns which are morphologically less complex (due to
optional morphological marking) than verbs. The latter frequently co-occur with mouth gestures (43.7% = 257 items) which is in line with the hypothesis set up earlier. It should also be mentioned that compounds, which were mentioned in 6, always occurred with mouthings. This exclusively refers to compound structures that are also found in spoken languages, such as noun + noun. An example of this could be seen in (3) where both parts plate and m.a.t. were accompanied by mouthings. Dvandva compounds were not found in the data and can therefore not be commented on. Concerning the sub-classification of the verb class, the general split between full verbs and aktionsart verbs is clearly visible in the co-occurrences with mouth actions. The distinction between aktionsart verbs 1 and 2 is hardly visible though, frequencies of co-occurrence with mouth gestures are very similar (73% = 197 items with mouthings in aktionsart verbs 1, 71.3% (72 items) with mouthings in aktionsart verbs 2). This is illustrated again in figure 6.5.

While at a first glance this seems to question the sub-classification of aktionsart verbs into 1 and 2, there are enough arguments in favour of this distinction. One of the reasons for distinguishing two different subclasses was distribution. This however, is not reflected by co-occurrences with mouth actions. Moreover, while the morphology and morphosyntax of aktionsart verbs 1 and 2 is different in quality, i.e. different kinds of aktionsart are applicable, it is not different in complexity. As co-occurrences with mouth gestures only reflect the morphological complexity of a sign, no significant distinction is visible between aktionsart verbs 1 and 2 in this respect.
In summary, the larger sub-classification of the verb class is reflected by co-occurrences with mouth actions, for a more fine-grained sub-categorization, morphological and distributional criteria are necessary.

Summarizing the results of this section, it can be concluded that the hypothesis that morphologically complex signs frequently co-occur with mouth gestures while morphologically simpler structures correlate with mouthings could be proven. However, no fine-grained distinction between the different syntactic categories and lexical classes of ISL can be achieved by looking at mouth actions only. They solely reflect the split between morphologically very complex full verbs/predicates and morphologically simpler structures. I also want to distance myself from earlier claims that mouth actions indicate or correlate with certain word classes. This does not seem to be the case, at least not in ISL. Consequently, and contrary to claims made by other researchers, analyzing correlations between mouth actions and word classes in ISL is no practical modality-specific tool for word class recognition or establishment. The most salient parameters for the distinction of syntactic categories and lexical classes are distribution and morphology, mouth actions merely hint at the morphological complexity of an item.

6.2.4. Mouth Gestures as a Category in Its Own Right?

The last issue that seems noteworthy in the context of word classes in ISL is mouth gestures. This might seem rather odd, given that mouth gestures were
already treated in the previous section on correlations between syntactic categories/lexical classes and mouth actions. However, a certain feature of mouth gestures that has been observed for different sign languages was also found for the ISL data. This feature is the iconicity of certain mouth gestures and it is the iconicity of these mouth gestures combined with their distributional properties that attracted my attention. Before analyzing the ISL data with respect to this point however, a short summary of the literature on the iconicity of mouth gestures and the iconic word class of ideophones, found in many Asian and African languages, will be provided.

Sandler (2009) commented on the phenomenon of iconic mouth gestures in IsSL, Fischer and Kollien (2009) on DGS, Fowler and Heaton (2006) on BSL and Woll (2001) (although from a slightly different angle) also on BSL. In her article on the symbiotic relation between hand and mouth in sign languages in general and in IsSL in particular, Sandler argued that there is a certain type of mouth gesture that is gestural in nature as it is not conventionalized and subject to idiosyncracies of signers. Moreover, these mouth gestures all seem to be iconic. She defined iconic gestures along the lines of theories from gesture studies (McNeill 1992; Kendon 2004) as “gestures that picture aspects of the object or event being described by speech. [... They] create a likeness of an object or concept symbolically, through a configuration of the hands (or mouth)” (Sandler 2009:249ff). She clearly distinguishes these gestures from lexical material and explicitly mentions that not all mouth gestures belong to this category. Conventionalized adjectival and adverbial mouth gestures do not form part of her object of study. The most important points of her analysis are that although non-standard, these mouth gestures contribute to the overall meaning of an utterance (hence the term symbiosis) and they often occur with classifier predicates.

Fischer and Kollien (2009) also distinguished between different kinds of mouth gestures and commented on those that are iconic in nature. These iconic kinds of mouth gestures mostly seem to occur with highly idiomatic sign language utterances and classifier constructions. The overall question they tried to answer in their study was whether onomatopoeia exist in DGS and whether they are expressed by mouth gestures. They argued, similarly to Sandler, that mouth gestures add to the semantic content of an utterance. According to them, constructed action, classifier constructions and onomatopoeic mouth gestures all add to the meaning of a proposition and result in the immense complexity of sign language utterances. Answering their research question they found that sounds are not expressed iconically by mouth gestures, i.e. that there was no proof for onomatopoeia in a narrow sense in DGS. However, they made another interesting finding. Many of the iconic mouth gestures are
visualizations of other sensory qualities (esp. tactile qualities in their experiments). They called the use of mouth gestures in this context the “synaesthetic symbolisation of tactile perception” (Fischer & Kollien 2009:466).

The theory of echo phonology was already outlined in detail in section 3.4.2. The important issue to be mentioned here is that the other studies outlined in this section focused on non-conventionalized mouth gestures and their iconicity related to the extra-linguistic world. Woll’s echo phonology analyzed mainly conventionalized mouth gestures that are iconic in that they depict the manual sign on the mouth. Moreover, these mouth gestures are obligatory for the manual sign to be well formed. This contradicts the abovementioned theories in that they emphasize the fact that only non-conventionalized mouth gestures are iconic. A point which all studies agree upon is that (conventionalized) adverbial mouth gestures are usually not iconic. However, I will try to show that this is not the case (in ISL).

In fact, I want to argue that certain mouth gestures might even form a category in its own right. All of the mouth gestures in question are iconic, either in the way described by Sandler (2009), Fischer and Kollien (2009) or by Woll (2001). As these mouth gestures also mainly occur with certain manual sign structures, they seem similar to a word class abundant in many languages of Asia and Africa, namely ideophones. A brief introduction to ideophones is provided in the following.

Ideophones have not received very much attention in word class research as they tend to occur in the more “exotic” languages of the world and are elusive with respect to grammar. They are usually absent from sample sentences as they are difficult to elicit. While terminology suggests some kind of relation to sound and it might therefore be weird to mention them in the context of sign languages that are situated in the visual-gestural modality, newer studies on ideophones emphasize their general relation to all kinds of sensory imagery. “Ideophones are marked words that depict sensory imagery” (Dingemanse 2011), “[...] ideophones are expressives, characterising sounds, sensations, textures and feelings, usually but not always, through morphological patterning” (Blench 2009). This is shown in examples from Bura (a Chadic language spoken in Nigeria): bâdâbâdâ = ‘describes running fast’, cîpcîp = ‘in good order, straight, orderly’ and curr = ‘describes the sound of water pouring into a vessel’ (Blench 2004). Only the last of these examples is concerned with sound symbolism, while the other two actually describe other sensory imagery.

As could be seen from the definitions and examples, ideophones are very much concerned with iconicity in language in that they depict sensory imagery by linguistic means. While they do so by using sounds in spoken languages, I suggest that there is a similar phenomenon in sign languages
which expresses this sensory imagery by mouth gestures. Another characteristic of ideophones noteworthy at this point is their markedness. These words are marked by clearly standing out phonotactically and morphologically from other words of a certain language (Dingemans 2011). Moreover, their meanings are usually difficult to describe as they are at the centre of idiomatic expressions of a language. Their etymology is usually rather hazy (Blench 2009). Ideophones are usually not restricted to one specific lexical class of a language. However, there is a certain tendency to occur in the adverb or verb class in African languages (Westermann 1907; Blench 2009), a fact that is not surprising, viewed that it is often actions that are depicted. They are clearly conventionalized forms and are not made up ad hoc, depending on the context of a situation. Nevertheless, new ideophones are invented as new technologies are introduced to societies (Blench 2009). Keeping these core characteristics in mind, I will now turn to the investigation of a subgroup of mouth gestures in ISL.

Having distinguished three different kinds of mouth gestures (semantically empty, enacting and adverbial mouth gestures) in section 3.4.1, it is almost obvious that only two of these kinds of mouth gestures can be considered in the context of ideophones, namely adverbial and enacting mouth gestures. As the class of ideophones is usually easily identifiable semantically (Blench 2009), semantically empty mouth gestures are excluded from the analysis. Consequently, it seemed most sensible to exclusively look at mouth gestures occurring with lexical verbs (either full or aktionsart). Mouth actions that fulfilled these criteria (belonging either to the category of enacting or adverbial mouth gestures and hence occurring with a manual verb) show a striking degree of iconicity. One very good example of this was shown in figure 4.14 (again shown for convenience in figure 6.6), exemplifying PLAY-HARD-AGAINST-EACH-OTHER.

![Figure 6.6 The ISL sign PLAY-HARD-AGAINST-EACH-OTHER](image-url)
The adverb ‘hard’ is expressed by the clenched teeth mouth gesture. This mouth gesture is iconic in that it depicts an action that a person could exhibit in a fight or a serious game like the one reported in the story. Moreover, it also fits the movement of the hands which is strained and slower than in the sign unmodified by an adverbial. Figure 4.17 (again shown in 6.7), depicting THROW-DOWN-SHOVEL (angrily), also provides a good example of an iconic mouth gesture.

Although the adverb is not expressed in the gloss, this is a problem of transcription, as it is clearly taken up by the following verb storm-off. The closed, stretched mouth is iconic in that it depicts the deep exhaling one would actually display when in anger and lips pressed together angrily, while on a second level it reflects the downward movement of the manual sign. This shows that while these kinds of mouth gestures are often iconic with respect to the extralinguistic world, they might also be iconic with respect to the manual sign they accompany. This is a point made by Woll (2001) as well. It might be the case that a high degree of lexical iconicity in the verb sign enforces this phenomenon as it can be observed for THROW-DOWN-SHOVEL, reminiscent of a pantomimic movement. Apart from the adverbial mouth gestures, enacting mouth gestures are often iconic as well. Figure 4.23 (again shown in 6.8), depicting the sign call, is obviously iconic with respect to the action of calling from the extralinguistic world.
As this mouth gesture constitutes the whole sign, it cannot be iconic concerning the action of the hands. This sign seems to be extremely marked in that it only involves a limited manual component. A similar example is the sign LICK (figure 4.21) which sometimes lacked the manual component. However, if it included a manual sign, the mouth gesture can be said to be iconic on two different levels, one depicting the action of licking in the extralinguistic world, the other reflecting the movement of the hands iconically depicting the licking action.

Applying Dingemanse’s (2011) definition of ideophones to the above-mentioned examples of mouth gestures in ISL, a class of ideophones seems reasonable. The first criterion of his definition, markedness, was already mentioned briefly above. Structurally, iconic mouth gestures are extremely marked as compared to other lexical classes in that they only use one of the articulators available in sign languages (the mouth), in order to convey meaning. This is especially the case with respect to adverbial mouth gestures that accompany manual signs. Enacting mouth gestures might be even more marked as they can constitute the whole sign (verb), lacking a manual component altogether. The criterion of being a word of the respective language is slightly more complicated than the other criteria and will thus be treated at the end of this outline.

Turning to the feature of depiction, it is evident that mouth gestures depict the extralinguistic world or the manual component in an iconic way. The term depiction actually applies in a very literal sense in this case, as mouth
gestures are also situated in the visual-gestural modality and can therefore visually depict their meaning. The fourth characteristic of ideophones refers to expressing sensory imagery. In the examples from Bura it became clear that this does not exclusively refer to sounds. Additionally, the study by Fischer and Kollien (2009) showed that while onomatopoeia do not seem to exist in DGS, mouth gestures often iconically depict tactile feelings. In the examples from ISL, sounds as well as other sensory imagery were depicted iconically. **call** iconically depicts sound imagery, while **lick** and **hard** refer to the tactile sense. **throw-down-shovel** is really an action and thus similar to **bádábádá** which also describes an action or a certain movement.

Finally returning to the issue of ideophones being words, it is not clear whether this criterion actually refers to mouth gestures in ISL. As was mentioned earlier in this book, there are certainly some mouth gestures that are conventionalized, always occurring in the same form with the same meaning (e.g. the manner markers of ISL). However, there is a large number of mouth gestures that are non-conventionalized. Some of them were included in the examples mentioned above (e.g. **throw-down-shovel** with a closed, stretched down mouth gesture). They could not be considered words as this would imply a conventionalization component and these mouth gestures are clearly not part of the lexicon of ISL. Despite this fact I would argue for their inclusion in an ideophone class.

In conclusion, I suggest another lexical class of ISL signs, namely that of ideophones expressed exclusively on the mouth. Distributionally, they usually occur with verbs or constitute a “verb” themselves. So far, mouth gestures have been neglected with respect to word class research in sign languages – or rather, they have been considered a modality-specific tool for the distinction of word classes. However, I propose that apart from that, they are a category in its own right that requires further investigation.
of the many criteria that are necessary for a thorough distinction of word classes, concentrating solely on morphology, syntax, semantics or discourse-pragmatics. It was emphasized that all these factors need to be combined in order to achieve a plausible parts-of-speech distinction. Although the parameters applied are universal, parts-of-speech classifications are always language specific. A final point made in this context was that syntactic categories and lexical classes have to be distinguished in present day theories and that languages constitute one of four types according to the matching of their syntactic categories with their lexical classes. Most Indo-European languages constitute TYPE A languages in which syntactic categories and lexical classes coincide, a fact that has led researchers to believe for a long time that all languages function according to this pattern. Concerning theories on PoS distinctions in sign languages, it was stated that to date, word class research in sign languages, especially from a typological point of view, has been rather neglected. Most researchers simply applied the PoS distinction from their native spoken language to the investigated sign language. For many sign languages, different movement patterns between nouns and verbs have been claimed. A tripartite morphosyntactic distinction of the verb class has been claimed for most sign languages, ignoring the fact that this distinction was originally developed for ASL and is based on ASL syntax. Finally, co-occurrences of certain word classes with mouth actions have been claimed for many sign languages, generally based on differences in the morphological setup of the respective signs. The overall argument was that morphologically complex signs co-occur with mouth gestures while morphologically simple signs coincide with mouthings.

In the second part of this chapter, the ISL data were analyzed regarding PoS distinctions. It was found that on the syntactic level, there are four different syntactic categories distinguished by their distribution and morphosyntax. Predicates always occur sentence finally and are always morphologically marked for person or direction of movement/transfer. Bare predicates occur sentence initially, medially and finally and are optionally marked for aktionsart. Referential phrases are syntactically unrestricted and are optionally marked for number and/or possessive. Modifier phrases precede or follow referential phrases and are optionally marked for aktionsart. With respect to the lexical classes of ISL, it was firstly found that the traditional tripartite distinction of the verb class as claimed by Padden (1988) for ASL does not apply to ISL. The lexical class of verbs is sub-classified into two categories, full verbs and aktionsart verbs which can in turn be subclassified into aktionsart verbs 1 and 2. Generally, there are four different lexical classes in ISL, distinguished on morphological grounds. Full verbs
are morphologically marked for person or direction of movement/transfer. Aktionsart verbs 1 are optionally marked for iterative and intensive aktionsart while aktionsart verbs 2 are optionally marked for intensive and distributive aktionsart. Nouns are optionally marked for number and/or possessive. Multifunctional signs are morphologically markable for every morphological category except for person and direction of movement/transfer.

When analyzing the matching of syntactic categories and lexical classes, it turned out that ISL is a TYPE B language in Sasse’s (1993a) terminology, in which both syntactic categories and lexical classes can be distinguished but do not coincide. Accordingly, full verbs are restricted to the predicate slot, aktionsart verbs 1 to the bare predicate slot and nouns to referential phrases. Aktionsart verbs 2 are syntactically multifunctional in that they can occur in bare predicates and modifier phrases. Multifunctional signs are even more syntactically indeterminate, given that they can occur in referential phrases, bare predicates and modifier phrases.

After the establishment of the syntactic categories and lexical classes of ISL, their correlation with mouth actions was tested. The aim of this analysis was to find out whether mouth actions function as a modality-specific tool in word class recognition in ISL. The hypothesis that morphologically simpler signs (nouns/RPs and multifunctional signs/RPs/bare predicates/modifiers) co-occur with mouthings while morphologically complex signs (verbs/predicates) co-occur with mouth gestures, was proven. Moreover, the subclassification of the verb class into full verbs that are highly morphologically complex and aktionsart verbs that are less so, was supported. This however partly refutes the claim that mouth actions serve as a modality-specific tool for word class recognition in ISL, as only the class of full verbs is clearly singled out by its co-occurrence with mouth gestures. All other classes co-occur with mouthings and distributional and morphological criteria are the most salient features for the distinction between the different syntactic categories and lexical classes of ISL.

Finally, it was suggested that mouth gestures might form a category in its own right, namely that of ideophones. This argument is based on the findings with respect to the iconicity of mouth gestures in other sign languages as well as on research on ideophones in the spoken languages of the world. It was shown that adverbial and enacting mouth gestures in ISL are usually iconic and additionally adhere to modern definitions of ideophones. This would expand the lexical classes of ISL to five. Further research in this area seems necessary.

Finally, the results of the current analysis shall be situated within current linguistic theory on word classes. As the categorization of syntactic categories
and lexical classes of ISL is based on the criteria put forth by typological studies on spoken languages (Hopper & Thompson 1984; Schachter 1985; Croft 1991, 2000; Hengeveld 1992; Sasse 1993b; Evans 2000; Hengeveld et al. 2004; Rijkhoff 2007; Himmelmann 2008; Haspelmath 2010), the current study is also situated in a typological functional framework. Assuming a close relation between linguistic typology and linguistic functionalism (Croft 1990), the analysis of ISL PoS is situated in a functional grammatical model such as proposed by Dik ([1989] 1997), for instance. Thus, Dik’s theory focuses on communicative competence of a natural language user, emphasizing the function of a linguistic expression in its particular setting (Rauh 2010). Pragmatics plays a major role in this theory, constituting an all-encompassing framework (Dik 1997:8). In the following, similarities between the typological functional approaches discussed in 6.1.1–6.1.3 are outlined and possible adjustments with respect to sign languages are proposed.

While chapters 6.1.1–6.1.3 elaborate on the main semantic, syntactic and morphosyntactic approaches to word class distinction, chapter 6.2 summarizes the four main criteria for the categorization of word classes applied to the ISL data: the formal, distributional, ontological-semantic and discourse-pragmatic parameters. These are also listed in typological studies requesting the balanced use of different linguistic parameters for the establishment of word classes (e.g. Schachter 1985; Sasse 1993a). Moreover, the distinction between open and closed classes as proposed in traditional grammar and by typologists like Schachter (1985) is applied to the ISL data as only open classes or lexical categories were investigated (cf. chapter 6.2.1).

Further, and on a more general level, the typology of mouthings proposed in chapter 4.2.1 is clearly functional and meaning-related. Those are for example TYPE 6a (simultaneous compounds/modifiers) in which the mouthing adds a meaning component. Even types such as 4 (inflected mouthings) which in terminology seem to refer to formal criteria, were shown to serve inherently semantic functions in creating semantic congruence. Pragmatic or discourse-related functions that are mentioned as an all-encompassing framework by Dik (1997), are clearly represented by the metalinguistic functions of TYPE 6c (metalinguistic remarks).

A n often discussed question in typological analyses of PoS is that of precategoricality or the hen and egg question of what was there first: constructions or lexically categorized items. This is especially relevant for languages with flexible PoS systems such as Samoan that possess lexical items that can fill each syntactic slot. As mentioned in chapter 6.1.4, due to their young age, sign languages possess many multifunctional items that can be used in several syntactic slots. Erlenkamp (2000) is a case in point, categorizing
all DGS signs other than verbs as multifunctional. The multifunctionality of signs was also shown for ISL in chapter 6.2.2 with respect to the lexical category of multifunctional signs. The existence of a category like this also raises the question of pre-categoricality.

“Neo-constructionist approaches” (Baker 2003) like Borer (2005a, b) suggest that items are always pre-categorical in that the specification for a lexical category is a matter of syntax. While this works easily for isolating languages like Chinese which is often cited in Borer’s work, studies like Himmelmann (2008) disprove this claim. Himmelmann convincingly shows that Tagalog roots are not always neutral. The same holds true for ISL. While multifunctional signs are syntactically indeterminate as compared with full verbs, for instance, they are by no means neutral. Thus, they are not morphologically markable for person and direction of movement/transfer which precludes them from the predicate slot. Similarly, Himmelmann (2008:286 ff.) showed that not all Tagalog roots are compatible with each morphological specification and are therefore not pre-categorical. Consequently, I argue that the items of the multifunctional class in ISL show a rather high degree of neutrality as compared to the other lexical classes but are by no means pre-categorical.

Finally turning to the functional grammar model proposed by Dik (1997), the current study and its results shall be categorized in this framework. A functional grammar according to Dik (1997) consists of three components: the “Fund” which contains the lexicon consisting of “basic predicates” and “basic terms”. The second component forms “complex underlying clause structures” on various layers while the third component consists of “expression rules” ordering clause structures (phonologically) and finally forming linguistic expressions. Figure 6.9 shows a schematic representation of Dik’s model (modified from Dik 1989:60).

Viewed this model, Dik argues that the formation of nuclear predications is achieved by combining basic or derived predicates with basic or derived terms from the Fund. Except for basic terms like pronouns and proper names, all other lexical items are classified as predicates with verbal, nominal or adjectival specifications (Rauh 2010). Verbal predicates (V) fulfill the prototypical predicative functions, nominal predicates (N) prototypically function as heads of terms and adjectival predicates (A) are primarily used in attributive functions. While this seems logical with respect to N and V, the A category is arguably not applicable to all languages. However, Dik argues that some languages might use the same forms to express two functions, such as V and A in Bahasa Indonesia, specifying the corresponding predicates as VA (Dik 1997:195). Applying this classification to the ISL data, the syntactic category of referential phrases is clearly associated with N, while modifier
phrases are linked to A. Concerning V, it can be filled by two different forms, either bare or (full) predicates. This split of the V category in ISL is purely based on form and distribution, the basic function of both predicate categories is that of predication though.

In order to determine the structure of nuclear predications, predicates are represented as predicate frames of the structure (Dik 1997:59):

\[ \text{give} \ [V] \ (x_1; <\text{anim}> (x_1))_A \ (x_2)_G \ (x_3; <\text{anim}>(x_3))_R \]

This represents the valency structure of a V like give, with three arguments \(x_1, x_2, x_3\) and their semantic functions as Agent, Goal and Recipient. Nuclear predications are then formed by inserting basic or derived terms into
argument positions like $x_1$: $(x_1; \text{John} [N] (x_1))_{\text{Ag}}$. Derived terms are formed by term-derivation rules which will however not be discussed here. ISL predicate frames for a V like $P_1$ would be similar to the one depicted above, with the difference that $x_1 (\text{Ag})$ and $x_3 (\text{Rec})$ would be expressed spatially, while $x_2$ would constitute a movement. The citation form of a V like \textit{give} would therefore be similar to a spoken language item like \textit{give}. A major difference to the spoken language predication would be that a V like ISL \textit{give} would feature another semantic role, namely the Theme represented by a classifier. This would be an essential part of the predicate frame, as opposed to spoken language elements.

Before the level of pragmatic function that is depicted in figure 6.9, several other layers of rules and operators are applied to the nuclear predication. They are not central for situating the ISL data in the grammatical model and are consequently not commented on here. The pragmatic functions depicted in the above figure are that of Topic and Focus and finally derive clause structure. Mouth actions are central in this regard as they can function as one of the markers of focus, for instance (Boyes Braem 2001).

In order to form linguistic expressions, expression rules have to be applied to the clause structure (cf. figure 6.9). These consist of formal expression rules, order-determining expression rules and prosodic rules. Of these, only the first two are important for the study of PoS and will be discussed here.

Formal expression rules correspond to morphological inflection rules or the formal parameter mentioned in chapter 6.1. They might also introduce syntactically autonomous forms such as adpositions, for instance, that fulfill similar functions to inflections (Rauh 2010). This function is often fulfilled by movement or spatial specifications in sign languages, such as a repetition of the movement parameter of a noun in ISL hence representing the inflectional ending for the plural or the movement path of a verb like ‘give’ thus representing the inflection for person.

Placement or order-determining expression rules map constituents of the clause structure to their final positions in the sentence structure. These rules are consequently comparable to the syntactic parameter mentioned in chapter 6.2. These ordering patterns are accounted for by certain ordering principles whose choice is functionally determined. Two of these principles are especially important for sign languages and the syntactic structures frequently found in them (Dik 1997:399):

$(GP_1)$: \textit{The Principle of Iconic Ordering} [...] ordering in one way or another iconically reflects the semantic content of the expression [...]
The Principle of Pragmatic Highlighting […] (New Topic, Given Topic, Completive Focus, Contrastive Focus) are preferably placed in “special positions”, including, at least, the clause-initial position.

As was mentioned in chapter 2, sign languages are often claimed to be topic prominent languages which means that GP₇ often operates on sign language sentences. As mentioned above, this might coincide with other means of highlighting certain elements, such as mouthings. The importance of iconicity was already discussed at length in several chapters of this book and will not be repeated here. The only syntactic phenomenon that has not been mentioned explicitly in this context is serial verb constructions that have been found to be abundant in sign languages (e.g. Supalla 1990). These constructions are based on the principle of grammatical iconicity (e.g. Aikhenvald 2006) which is thus highly relevant for sign languages.

This short description of functional linguistic theories, Dik’s model of functional grammar has clearly situated the results from the analysis of the ISL data presented in chapters 6.2.1 and 6.2.2 in a functional framework. Being concerned with mouth actions in this book, a comment on their placement and functions in this framework seems necessary. Due to their heterogeneous nature, the different types of mouth actions are also situated at different points in the above model.

Concerning mouthings, TYPE 1 (formally and semantically congruent), 3a+b (prepositional verbs and classifiers) and 5 (reduced) mouthings are usually part of basic predicates or terms (in that case of proper names). TYPE 2 (semantically similar but formally different) mouthings are best described as part of the predicate frames as they are not fully part of the basic predicate or term as it occurs in the lexicon. TYPE 4 (inflected English) mouthings are actually formational expression rules that operate on the clause structure. Thus, they function as inflections. TYPE 6a (adding a nuance of meaning) + c mouthings contribute to the pragmatic functions of a clause, as was mentioned above. TYPE 6b (spread) mouthings are at the interface of formational and placement expression rules as they are concerned with the marking of terms on the one hand and syntactical distribution on the other.

With respect to mouth gestures, there is a dichotomous distinction between either forming part of basic predicates (semantically empty mouth gestures) or constituting basic predicates themselves (enacting and adverbial mouth gestures).

As was shown here, similar to their heterogeneous nature, mouth actions also fulfill a variety of different functions when mapped onto a functional grammatical framework.