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COMPARATIVE ANALYSIS OF SELECTED COMPOUNDS TYPES IN AMERICAN SIGN LANGUAGE AND ENGLISH

(Bakalářská práce)

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Abstract

This thesis deals with selected types of compounds and the issues that are associated with them – namely nominal incorporation compounds, recursive compounds, and coordinate compounds. All three types are first examined in English to provide a basic frame for the following analysis in American Sign Language.

Key words

Anotace

Tato práce se zabývá vybranými typy kompozit a problémy, které se s nimi pojí – jmenovitě deverbálními kompozity s nominální inkorporací, rekurzivními kompozity a přiřazovacími kompozity. Všechny tři typy jsou nejprve zkoumané v angličtině kvůli vytvoření základního rámce pro následující analýzu v americkém znakovém jazyce.

Klíčová slova

Americký znakový jazyk, kompozita, neverbální kompozita, nominální inkorporace, rekurzivní kompozita, přiřazovací kompozita

CONTENT

1 INTRODUCTION

I made my first contact with American Sign Language (ASL) when I accidentally came across a television series by the ABC channel named Switched at Birth, where the half of the leading actors were deaf or hard of hearing and watching them sign aroused my interest in ASL and the Deaf culture (note the difference between the words *deaf* as is physically unable to hear and *Deaf* meaning the cultural identity).

Sign languages in general became publicly and scientifically recognized only several decades ago. It was an American linguist named William Stokoe who in nineteen sixties helped not only the American but also other sign languages extend and diversify the academic research and contributed to the recognition of sign languages as fully-fledged and equal to the spoken ones (Loos 2009). Unfortunately, this also means that ASL linguistics still has many uncovered topic and the search for relevant sources might require extra portion of patience and skills. With this work I hope to contribute to the development of ASL linguistics and to raise general interest in signed languages.

The present thesis focuses on several types of ASL compounds whose counterparts can be also observed in English, which will serve as a meta-language and background for the analysis of the ones found in ASL.

This thesis is meant for those who have no or only very little experience with American Sign Language and is structured as follows. Firstly I will briefly describe the evolution of ASL and its linguistics, following with a brief introduction to ASL phonology, morphology, and syntax. In the following chapter I will have a look at selected types of compounds in English; namely deverbal synthetic compounds, recursive compounds, and coordinate compounds. After that, based on the observations of their English counterparts, I will examine the same types of compounds in ASL.

The purpose of this thesis is not only to formally examine compounds, but also to support the notion of ASL as a language which, despite being undeniably developing under a great influence of English spoken in the United States, has its own structure and cannot be considered a mere signed version of spoken English. By aligning the processes observed in English to the compound formation in ASL I also hope to support the notion of language universal and their presence in languages functioning in a different modality.

2 BRIEF INTRODUCTION TO AMERICAN SIGN LANGUAGE

This chapter gives a brief introduction to American Sign Language (ASL) and its history. In the beginning I will cover how sign languages differ from the spoken ones in general. From there we will move on to the development of ASL and the sign systems that are often mistaken for a sign language and ASL. Before discussing the linguistics of American Sign Language, I will introduce the glossing system of ASL using English as the meta-language. Following that I will briefly describe the phonetic, morphological and syntactic properties of ASL.

2.1 Signed versus spoken languages

The most fundamental difference, obvious also to naïve users of both languages and from which arise other ones, is the mode in which each of the languages happen. The manual-visual mode allows the sign languages to exploit the space surrounding the signer and gain multilayer complexity, enabling different signed units and concepts to be expressed simultaneously, to use locus verbal agreement, or express directionality. This mode also allows sign languages to use non-manual markers, such as eyebrow movement or eye-gaze, which are fully grammaticalized and add semantic and syntactic value to the signed information.

These non-manual markers, in spoken languages present only as gestures accompanying speech, are also probably the reason behind sign languages being considered just a system of gestures as well. Unlike gestures, signs in a sign language are always produced in a particular way, thus are indeed standardized. Also, any sign can be analyzed using the same terminology as used for analyzing words of a spoken language[1], as well as become a member of a syntagmatic relation (Valli and Lucas 2000, Sandler, 2005). Nevertheless, sign languages are not exclusive to conventional signs. Mimetic elaborations on signs (or even full pantomime) are often incorporated in a sign utterance and it is hard to define a clear line between such gestures and lexicalized signs[2] (Klima and Bellugi 1979).

Another popular misconception about sign languages is also presuming that there is one unified sign language spread across the world or that sign languages are in general mutually intelligible, again probably stemming from the view of sign languages as mimetic gestural system. Paradoxically, non-signing observers are just very unlikely to indentify the content of the signed information without the help of an interpreter. It is true that sign languages are highly iconic, however, this iconicity,

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[1] This will be discussed in chapter 2 of this thesis.
[2] Klima and Bellugi (1979) illustrate this on the example of a spilled cup, which in ASL can be signed either as CUP SPILL, thus using conventional signs, or signing CUP and then mimetically showing the spilling. They offer also other examples making use of e.g. pro-nominal classifiers or full pantomime which are to be found in the initial chapter *Iconicity in Signs and Signing.*

as Sandler (2005, p. 14) puts it, has to be "understood in the right perspective" – many of the signs sign are just as arbitrary as words and syllables of spoken languages and even if signs are motivated, their iconicity may not be obvious to non-signers. Also, despite the source of motivation of a sign might be the same, the actual visual representation might differ[3]. Similarly, even if the visual representation of a motivated sign might overlap across languages it does not serve as a proof for any historical relations, but simply proving the source of the motivation is the same.

To conclude, sign languages might have a different structure, which is probably even deeper that the one spoken languages can ever have thanks to the use of space, yet they indeed have the universal properties shared with all world languages. Therefore it cannot be assumed they are purely pictorial or mimetic as such assumption would mean sign languages are very different from the spoken ones, in which the symbols representing conceptions are arbitrary

2.2 A brief history of American Sign Language and sign language linguistics

The history of American Sign Language as we know it today is not very long. The year of the origin of this could be marked in 1817, when the first public school for deaf opened – before that, there was no standard sign language used in the US (Jay 2010). However, its roots are to be found in a history much older than that.

Before opening the school, there were only a few communities across the United States where sign languages could flourish and develop freely. The best know and one of the earliest stable Deaf communities formed in 1690s on an island called Martha's Vineyard. On this island, almost everyone possessed some fluency in a language called Martha's Vineyard Sign Language (MVSL). Other important Deaf societies emerged in Henniker, New Hampshire and Sandy River Valley, Maine. The type of language used in these places is called *a village sign language[4]*.

There was also a very strong European influence on modern ASL. It all started in France in 1750 with Abbé de l'Epée. This man opened the first public school for the hearing impaired and was the first one to recognize *the natural language of signs* (which was for him the French Sign Language (FSL) at the time). He was also the first one to attempt to learn it and use it for teaching French language and culture, but soon enough he found out that FSL is simply not sufficient for teaching the

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[3] Sandler (2005) illustrates this on the sign BIRD in ASL and Israeli Sign Language (ISL). While the ASL sign resembles a bird's beak, the motivation for the ISL sign can be found in the wing movement of this animal. Also, in other sign languages, e.g. Bulgarian or Ukrainian, the sign BIRD depicts both the beak and the wing movement in just one sign.

[4] A village sign language is a new language that emerges in a relatively small, often insular community where there is a number of deaf children born (Meir et al, 2010a). These languages, despite being used only locally, have fully developed structures (as opposed to so-called home signs, which are usually conventionalized only to communicate with deaf family members; this kind of communication is rather a sign system than a language).

language and culture of 18th century France. However, it did not stop l'Epée from teaching – when he observed there is a FSL sign suitable for describing grammatical phenomenon of French, he would adopt and adapt it[5]. He also used *methodical signs (signes méthodiques)* – signs he invented himself to describe grammar structures which were used in French but could not be found in FSL[6]. The latter of the methods is now considered a meta-language.

The last catalyst for the emergence of ASL was a Yale graduate by the name of Thomas Hopkins Gallaudet. He was teaching his friend's deaf daughter Alice Cogswell to read and write. He managed to achieve some success – that impressed Alice's father so much, that he urged Gallaudet to establish a school for the American Deaf (Baker-Schenk, 1999). However, there were no efficient methods of teaching the deaf known at that time, so soon Gallaudet left for Europe in search of an appropriate way to educate hearing-impaired people. In London, he met Abbé de l´Épée´s successor Abbé Sicard with his two deaf pupils, Jean Massieu and Laurent Clerc. Eventually, Sicard invited Gallaudet to Paris, where he was indoctrinated of the Parisian manual method while learning FSL from Clerc and Massieu.

In 1817 upon his return from Europe, Thomas Gallaudet established the first public school for deaf in the US – The American School for the Deaf (ASD). Laurent Clerc, who Gallaudet convinced to come with him back to the US, became the first teacher here. Majority of the students were coming from Martha's Vineyard bringing MVSL with them and a significant amount of students also came from Henniker and Sandy River Valley, also bringing their own village sign languages. Gallaudet and Clerc were teaching using FSL and methodical signs. Thanks to this extensive language contact (FSL + MVSL + methodical signs + home signs), it seems inevitable that a new language emerged, today known as ASL and as many new deaf schools have been found (mostly by former pupils of ASD), ASL quickly spread all over the United States (Bahan 1996).

When it comes to a linguistic research in the field of sign languages, it was not until the 1960s that scientists paid any particular attention to those. The change was initiated by Willian Stokoe, a pioneer linguist who in 1960 published

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[5] For example, he noticed that his students throw/wave their hand back behind their shoulder to indicate an action happening in past – this is a common way to express past also in modern ASL (Stokoe 2005).

[6] A great example of a methodical sign would be l'Epée's signs for French definite articles *la* and *le*. The handshape of both is a crooked index finger; what differs is the location – for *la* as the female article the location is near the cheek (because ladies 18th century coiffures often ended at that level), for male *le* the location was at the brow (common practice of men touching their hats as a greeting) (Stokoe 2005). The fact that up to these days, the dimension for female sign is located around cheeks or the lower half of the head as such whereas the male signs are located at the top of the head (prototypical examples would be MOTHER and FATHER) serve as a proof of the profound influence l'Epée's work had on modern ASL.

Another example of a methodical sign coined by l'Epée is the sign for the preposition *pour*, which starts with a index finger touching one's forehead and ends with pointing at an object. The sign FOR is still signed the same way in ASL (Stokoe 2005).

a groundbreaking paper *Sign Language structure: An Outline of the Visual Communication Systems of the American Deaf*. In this paper he described ASL and sign languages as such by the same terminology as was used for the spoken ones. Thanks to the impact his work had on the fields of sign language research (ASL in particular) and deaf education, he is considered a hero within the Deaf community.

In the following years more and more linguists started recognizing sign languages as equal to the spoken languages, and despite being noted there are differences in structure attributable to a different modality[7] (Klima and Bellugi 1979, Sandler 2005) they revealed that sign languages share all the important characteristics with the spoken ones; that they have a unique structure and own lexicon and their independent own genetic relations and history[8] (Wilcox and Shaffer 2005). Done so, in 1989 ASL was finally recognized by the Supreme Court as a fully fledged language equal to English.

2.3 English, ASL and the signing in between

Even though it was acknowledge that sign languages are unique and independent, among naïve language users the most common misconception is that sign languages are simply mirroring languages spoken within the same area (in case of ASL it is English). What probably leads to such a conclusion is the fact that there indeed are ways of signing English, which are shortly described below.

2.3.1 Rochester Method, Cued Speech and Manually Coded English

Probably the easiest way to represent English manually is to fingerspell the whole utterance – this is called the Rochester method (or Visible English). This method is very unpopular, as it requires an incredible amount of time to be produced; also it is said that not more than 50% of signs are clearly produced – if the signers is an average teacher it can be even less. Deaf people also reported they find it rather demanding and tiring to focus on lengthy speeches signed this way (Baker-Schenk and Cokely 1999).

Very similar to the Rochester method is Cued Speech. Cued Speech relies on 8 different handshapes and 8 different locations to represent the phonemic aspects of English words. Combining handshapes and locations thus represents the syllables of a spoken language. What is interesting about this system is that it can be adapted to any language in the world. This system can also support the sound recognition for those wearing a Cochlear implant and avoid confusion while lip-reading (Cuedspeech.org 2018).

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[7] Vocal-auditory vs. manual-visual

[8] According to Woodward (as cited in Bahan, 1996), there are about 60% of modern ASL signs historically related to old FSL – making FSL the closest genetic relative to ASL. Likewise, that English is spoken as a native language in other countries does not mean that the sign language in these countries is the same. Australian Sign Language, for example, has its roots in British Sign Language brought to Australia in the mid 19th century.

Besides Rochester method and Cued Speech, there are several other systems invented to model English using manual signs. Among the best know are Seeing Essential English (SEE I), Signing Exact English (SEE II), Linguistics of Visual English (L.O.V.E.) and Signed English. As you might have noticed, they are referred to as systems, not languages. They were invented with the sole purpose to mirror spoken English, thus are artificial codes. They simply reflect English syntax and morphology using methodical signs. These systems use also signs, which are to be found also in ASL, but there is often a shift in the meaning of those signs or a change in their distribution.[9] These systems, encompassed by the term Manually Coded English (MCE), are not accepted as an appropriate way of communication among the Deaf community. On top of that, it is also argued by numerous linguists that properties of an audio-oral language, like English, cannot be accurately represented by these manual-visual systems, which work in a completely different modality[10] (Baker-Schenk and Cokely 1999).

2.3.2 Pidgin Sign English (PSE)

A special case of a not-ASL signing is the Pidgin Sign English (or Contact Signing in general), which can be perceived as a mid-stage between English and ASL. In comparison with the MCE systems, PSE aroused naturally from the need of interaction between the Deaf and hearing people and has different structure than either of the native languages. Second major difference is that PSE has never meant to represent English; the signs are used for their meaning and the structure copies – to a various extent – patterns from both languages. To simplify, one could say that in most cases PSE makes a use of ASL lexicon and English syntax.

This way of communication is also widely accepted among the Deaf as it does not try to bring any change to ASL and it does not interfere with the Deaf identity.

2.4 Glossing American Sign Language

In the following chapter I will introduce the system of glossing ASL patterned on the system introduced by Jay (2011, p. 18-20) in *A Student´s Guide to Mastering ASL Grammar*. I will list only the basic rules that are relevant for my thesis.

Each ASL utterance exemplified will be glossed and provided with an English translation (in this order)[11].

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[9] Baker-Schenk and Cokely (1999) provided a great overview of the abovementioned systems. The summary with multiple examples illustrating the differences between each of the system and also PSE and ASL are to be found in chapter III, section C starting on page 65.

[10] As MCE codes were devised solely for the purpose of syntax and morphology transmition, they cannot capture for example the meaning conveyed by the prosodic features of speech. This is applicable for any coding that uses a different medium than the coded language.

[11] These are only the basic examples of ASL glossing. If other gloss is needed, I will provide the explanation ad hoc in the footnote.

Signs are glossed using capital letter as in (1).

(1) ME LIKE YOU
    I like you.

Multiple English words representing only one ASL sign are connected by dashes as in (2).

(2) ME EAT DON´T-WANT
    I don't want to eat.

Letters of finger-spelled words are shown with hyphens in between each letter[12] as in (3).

(3) MY NAME A-L-E-X.
    My name is Alex.

Non-manual markers (NMM) are shown by placing a line over signs over which they take a scope as in (4) and (5).

(4)   ___whq[13]
    YOU NAME WHAT?
    What is your name?
(5) _____y/n[14]
    DEAF YOU?
    Are you deaf?

For the NMMs used in this thesis I will always include their meaning in a foot note when they appear for the first time.

2.5 An introduction to American Sign Language Grammar

This part gives a brief description of ASL from morphological, phonological and syntactic point of view which are necessary to lay some general background information first before moving to specific issues of ASL compounds. The other purpose of this section is also to support the claim, which spreads over this thesis, that ASL in its essence has the same universal organizing principles as any other spoken language and thus is not merely idiosyncratic or submissive to English.

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[12] Other sources might also use initial "fs-" before a glossed word to indicate finger-spelling.
[13] Wh- questions – frowned eyebrows.
[14] Polar questions – raised eyebrows.

2.5.1 Phonology of American Sign Language

Just like words in spoken languages, signs can also be broken into smaller units. In this part I will show how signs are composed of a finite list of distinctive meaningless components analogous to phonemes [15] of spoken languages. These components can also be further analyzed by distinctive features (e.g. [+- closed thumb] or [+- bent hand]) and undergo phonological operations, such as assimilation etc., just like phonemes and allophones of spoken languages (Bahan 1996).

At the very beginning of ASL linguistics, William Stokoe (1960) described three sub-lexical sign components – namely handshape, location and movement. Later, Robbin Battison observed the fourth component – palm orientation and established the term *parameters of signs*. This was a major observation and the very first proof that manual signs are not holistic gestures; in fact they can be analyzable just like any word of a spoken language. This has lead to other important discoveries, many of which revealed not only differences, but also similarities between the two language modalities (Del Guidice 2007).

Nowadays, altogether there are five parameters known – handshape, location, movement, palm orientation and recently added non-manual (NM) expression. According to Wilcox and Shaffer (2005) the existence of these can be demonstrated by the existence of minimal pairs as described by Klima and Bellugi (1979).

Below I will provide several examples of the minimal pair signs, each of them illustrating one distinctive parameter. Examples (6), (7) and (9) are taken from *The Signs of Language* (Klima and Bellugi 1979, p. 41-42), example (10) is to be found in *A Student´s Guide to Mastering ASL Grammar* (Jay 2011, p. 67).

(6) *Handshape as the contrasting feature in minimal pairs*

Sign:	CANDY	Sign:	JELAOUS
Handshape:	**index finger extended from a closed hand**	**Handshape:**	**little finger extended from a closed hand**
Palm orientation:	facing away from the signer	Palm orientation:	facing away from the signer
Location:	cheek	Location:	cheek
Movement:	inward rotation	Movement:	inward rotation
NM expression:	neutral	NM expression:	neutral

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[15] Although sign languages work in a different modality, the terms like *phonology* and *phoneme* were adopted as the abstract units of sign languages are the same as of the spoken ones. Stokoe (1960) coined the terms *cherology* (analogue of phonology)*, chreme* (phoneme) and *allocher* (allophone), but these terms have never entered the core of the linguistic lexicon and are not used by contemporary researchers.

(7) *Palm orientation as the contrasting feature in minimal pairs*

Sign:	CHILD	Sign:	THING
Handshape:	"B" hand shape	Handshape:	"B" hand shape
Palm orientation:	**facing down**	**Palm orientation:**	**facing up**
Location:	in front of the body	Location:	in front of the body
Movement:	arced sideways movement	Movement:	arced sideways movement
NM expression:	neutral	NM expression:	neutral

(8) *Location as the contrasting feature in minimal pairs*

Sign:	MOTHER	Sign:	FATHER
Handshape:	"5" hand shape	Handshape:	"5" hand shape
Palm orientation:	facing down	Palm orientation:	facing up
Location:	**chin**	**Location:**	**forehead**
Movement:	towards location	Movement:	towards location
NM expression:	neutral	NM expression:	neutral

(9) *Movement as the contrasting feature in minimal pairs*

Sign:	CHAIR	Sign:	TRAIN
Handshape:	"H" hand shape	Handshape:	"H" hand shape
Palm orientation:	facing down	Palm orientation:	facing up
Location:	non-dominant hand (NH)	Location:	non-dominant hand
Movement:	**taping the NH**	**Movement:**	**sliding back-and-forth on the NH**
NM expression:	neutral	NM expression:	neutral

(10) *Non-manual expression as the contrasting feature in minimal pairs*

Sign:	LATE	Sign:	NOT-YET
Handshape:	"B" hand shape	Handshape:	"B" hand shape
Palm orientation:	backwards, fingers pointing down	Palm orientation:	backwards, fingers pointing down
Location:	next to the body, waist level	Location:	next to the body, waist level
Movement:	waving the palm to the back	Movement:	waving the palm to the back
NM expression:	**neutral**	**NM expression:**	**tongue sticking out**

As we could observe in this part, ASL signs can be analyzed in the same way as words in spoken languages. Therefore it is only logical to anticipate that we can adapt the spoken language terminology also in other fields of linguistic like morphology and syntax.

Having examined the smallest units of signs, we will now move to a theory developed by Liddell and Johnson, which is based on the notion of the sign parameters.

2.5.2 The Hold-Movement Model

The Hold-Movement model is the basic framework proving the existence of sequentiality signs developed by Scott Liddell and Robert Johnson (1986). With their theory they overcame William Stokoe's (1960) original idea of sign parameters[16] being articulated purely simultaneous and thus being very different from words of spoken languages. However, the observation of Liddell and Johnson supported the idea of sign languages sharing the abstract structures with the spoken ones.

First, they divided signs into segments – either holds (H) or movements (M). Each segment is then linked to a so-called articulatory bundle (AB) consisting of features specifying each of the segments. Segments contain the information about whether the segment is a hold or a movement and the information about the type and manner of movement[17]; the articulatory bundles then further specify other parameters, most importantly the hand configuration[18] (Sandler, 2006).

A movement is characterized as "a period of time during which some aspect[19] of the articulation is in transition" (Liddell and Johnson 1986, p. 447) and these articulatory changes are phonologically significant. Oppositely, the definition of a hold is "a period of time during which all aspects of the articulation are in a steady state" (ibid., p. 448) meaning there is no change in articulation. Therefore there are always two ABs linked to a single M and there is always just one AB linked to H[20], showing the transitional nature of a movement and static nature of a hold.

This representation is parallel to vowel-consonant structures of syllables of spoken languages, which also make a distinction between two types of segments each of which is further specified by a bundle of features.

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[16] In this thesis, the term "parameters" will only be used in connection to phonology. Elsewhere the term "feature" will be preferred.

[17] Holds can have internal movements too, e.g. wiggle (short repetitive movements).

[18] Hand shape, palm orientation and location of a sign.

[19] Aspect = feature

[20] Depending on the position of a hold, the articulatory bundle of the hold also happens to be the initial or final AB of a movement.

2.6 Morphology of American Sign Language

Morphemes are the smallest units of language which carry a meaning. Such units can also be found in sign languages proving, again, that signs are not holistic iconic units.

2.6.1 Morphological typology

ASL, like other sign languages, is a synthetic language with polysynthetic tendencies, what is best demonstrated in directional verbs[21], whose nice examples is provided by Wilcox (2005, p. 2) in his paper – English sentence "I very carefully gave [one] to each [person]" can be expressed with a single ASL sign.

As for the word formation processes, compounding is the far most common way of creating new lexicon input and will be taken a deeper look at in the following chapter. In this chapter I will briefly describe the morphemes in non-compound signs and other word-formation processes.

2.6.2 Morphemes in ASL

Analogically to spoken languages, morphemes in ASL are composed of meaningless units – the parameters of signs. The morphemes can be further divided into process morphemes (the segmental structure) and the form morphemes (hand shape, location, palm orientation and non-manual signal if articulated) (Vicars 1997-2015). It is important to note that these parameters become form morphemes only under special circumstances (e.g. numeral incorporation, verbs incorporating subject and/or object etc.) and that the sign morphemes can comprise various parameters (e.g. in case of numeral incorporation it is hand shape that gains morphological value; verbs incorporating agreement in their meaning give morphological value to location etc.).

2.6.3 Sequential affixation

Sequential affixation describes the type of affixation prevalent in spoken languages, when the affix is added to already existing word, which is however fully capable of functioning without having the affix added to its structure. Though this process is rather restricted compared to English, there is a limited number of sequential morphemes in ASL as well. Below I will describe the most common one – the agentive suffix glossed as –ER – to explain how the process works in ASL. The other two most common ASL affixes are used in age signs, and in comparative/superlative forms.

The agentive suffix can be added to a limited number of verbs. It is produced by two B shaped hands facing each other in front of the body executing a downward movement. When this suffix is added to a verb, the final hold of that verb gets deleted. It is a bound morpheme that is only a part of nouns derived from verbs and usually not used alone in the meaning of "person" (Liddell and Johnson 1986).

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[21] See 2.6.7.2.

2.6.4 Deverbal noun-verb pairs

In ASL, there are two possible ways of deriving a noun from a verb. These derivations show regular pattern and are quite productive and both involve changes in movement. Their analysis shows that these verb-noun pairs consist of two morphemes – the segment structure and the hand configuration.

The first prototypical examples are signs SIT and its nominal derivation CHAIR. The segment structure for SIT is MH. To sign CHAIR, we will reduplicate the segment structure inserting an additional movement after the hold in SIT. The resulting structure would be then MHMMH and all the other parameters would remain as in SIT.[22]

In case of verbs that are already signed with a repetitive movement, their nominal derivations do not reduplicate the repetition, but show differences in the manner of movement. In such derived nouns the movement is relatively restricted – the path is usually shorter and the whole movement is quicker (Bahan 1996).

2.6.5 Numeral incorporation

As was mentioned above, under special circumstances the sign parameters can gain morphological value. This is exactly the case of numeral incorporation. In ASL, each number has a distinctive hand shape. These hand shapes can substitute for the basic hand shapes of a limited list of signs capable of expressing numeric information (e.g. WEEK, MONTH, DOLLAR AMOUNT, TIME, pronouns etc.) and that way specify the numeric value of those signs.[23]

2.6.6 Finger-spelling

Despite under the influence of English it might lead many into thinking differently, signs representing graphemes of spoken languages are fully-fledged signs which can be broken into the same units as any other ASL sign.

These signs are considered free morphemes as they retain their meaning (individual letters of English alphabet) also when they stand alone. If a signer produces each morpheme representing each letter of the given English word separately, it is called full fingerspelling. When these multiple morphemes begin to act like a single one, we talk about a lexicalized sign or lexicalized fingerspelling.[24]

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[22] SIT is a two hand sign – both hands are in H shape, palm facing down, located in front of the body, dominant hand moving downwards to the weak hand and the sign ends with final contact hold.

[23] For example, to sign what would translate as "three weeks" in English, we would use just the single sign THREE-WEEKS. This sign have two bound morphemes – one morpheme consisting of the segmental structure and the location, palm orientation, and non-manual signals; the second morpheme consisting only of a single parameter, the hand shape. If we were signing just THREE (single free morpheme), the handshape would not have any meaning itself, therefore in the case of THREE it has only phonetic value. However, in THREE-WEEKS the hand shape parameter has gained morphemic value because in carries the meaning denoting the number of weeks we want to express (Valli and Lucas 2000).

[24] Lexicalized fingerspelling is glossed with # before the sign.

2.6.7 Space as morpheme

In the manual-visual modality it is inevitable that signs happen in space or has a certain location. As a sign parameter of plain signs, location has only distinctive phonemic function as in example (8). However, in two special classes of signs, which will be discussed below, it can have a unique meaning, giving the location morphological value.

2.6.7.1   Locative verbs

Locative verbs use the signer's space as a reference to relative 3-dimensional space. This usually concerns verbs of movement, like PUT or THROW. The location of the final hold is relative to the starting position, so to sign PUT-up[25] the signer would execute the movement in an upward direction.

An example of a non-motion using location morphemically is HURT. In this case the location of the sign can refer to different body parts that are hurting – HEADACHE is signed as HURT located in front of the signer's forehead.

2.6.7.2   Directional verbs expressing verbal agreement

In sign language, it is possible to indicate the subject and the object (or just the object) of a verb without having to sign them separately. Verbs like GIVE, HATE, ASK etc. have their verbal agreement incorporated in the location and/or palm orientation, which then act like morphemes, not mere phonological units. Below I will discuss the verbs GIVE and HATE to exemplify how the agreement incorporation works.

The verb glossed as $_{PRO1}$-GIVE-$_{PRO3}$[26] (with segmental structure HMH) is composed of 3 different morphemes. First morpheme carrying the lexical meaning of this sign comprises the handshape, palm orientation, non-manual signals and movement. The subject is then referred to by the location of the first hold and the beneficiary object has its referent in the location of the final hold.

In case of HATE it is the palm orientation that picks up the morphological status. This sign produced with the back of the hand facing the signer and the palms of his hands facing the referential location in which the object of their hatred is established will be glossed $_{PRO1}$-HATE-$_{PRO3}$. With the change of the morphemic parameter and turning the hand so that the palms face the signer, the meaning will change to $_{PRO3}$-HATE-$_{PRO1}$.

2.7   Syntax of American Sign Language

In the final part of this chapter I will discuss the grammatical structure of ASL. Despite functioning in different mode, ASL does follow the same universal

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[25] Lower case letters attached to an upper case gloss indicate directionality of the verb.
[26] PRO1 – first person pronoun; PRO3 – third person pronoun

principles found in languages across the world. One of such principles is e.g. recursion – the capacity of language to apply a finite set of rules to create an infinite number of new and possibly infinitely long sentences (Sandler 2006). In the following subparts I will offer a brief introduction to ASL word (or constituent) order, the relations between adjacent and non-adjacent elements of ASL utterance and constraints on these relations.

2.7.1 Non-manual markers (NMMs)

Before I shadow the basic sentence structures, it is important to explain a feature of ASL that is not found in spoken languages – the non-manual markers.[27] Thanks to the manual-visual mode any body part capable of making rapid conscious changes can be incorporated in a sign language and use NMMs grammatically. They can also be common across different sign languages, but are not iconic neither they express emotions[28] (Sandler 2005).

NMMs involve features like raised or squinted eyebrows, various head tilts, eye gaze, etc. As will be discussed below, seemingly same signed utterance can be often distinguished only by taking the NMM into account and therefore they are crucial for indicating the sentence or clause type (Baker-Schenk and Cokely, 2000).

The gloss for NMM is a vertical line spreading above a given constituent. It includes the information about its meaning and also the scope of the NMM. Also, the only NMMs that are glossed are the ones that have been grammaticalized.[29]

2.7.2 ASL sentence types and word order

ASL is considered a language with subject-verb-object (SVO) word order being the default structure (Liddell 1986; Bahan 1996; Valli and Lucas 2000; etc.) and uses several different sentence types – declarative, interrogative and imperative. These three types will be described below. Other syntactic constructions then can be built on the base of these sentence types (e.g. negation, conditionals, commands), but these will not be discussed here. For further reading see Valli and Lucas (2000).

What will be discussed below in addition to the basic sentence types are selected deviation to these structures I have selected those deviation that are relevant for this thesis.

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[27] Different sources use either the term „non-manual markers" (NMM) or „non-manual signals" (NMS). However, I decided to use the NMM for non-manual features that are significant syntactically and NMS for features of either phonological or morphological importance.

[28] This, of course, does not mean sign languages lack facial expressions of affection. In fact, they might have evolved from such expressions (Sandler 2005) and before syntactic status was assigned to NMM, Deaf people were thought of as simply more emotional and expressive than spoken language users (Liddell 2003).

[29] Sandler (2005) refering to Liddell (1980) notes, that in ASL the facial movements indicating phonological or morphological changes (NMSs) are often executed on the lower part of the face, while facial expressions of syntactic significance (NMMs) are involve the upper part of the face or the whole head.

2.7.2.1 Affirmative declarative sentence

In ASL, the grammaticality of utterance depends both on the word order and appropriate NMMs. Ignoring either of these two would result in an ungrammatical sentence or a change in the meaning. Accordingly, NMMs can also be neutral, which is the case of the affirmative declarative statements and as there is no marking in such statements, we can consider those the default, unmarked structure (Baker-Schenk and Cokely 1999).

As for the word order, the subject always come first and is followed by a predicate, which consists either of a single intransitive verb as in (11) or a transitive verb followed by its object as in (13).

(11) BOY FALL
       The boy fell.
(12) *FALL BOY
       The boy fell.
(13) GIRL EAT TOMATO
       The girl ate a tomato.
(14) *GIRL TOMATO EAT
       The girl ate a tomato.
(15) *TOMATO EAT GIRL[30]
       The girl ate a tomato.

Changing the structure without appropriate NMM would be ungrammatical as in (12), (14), and (15).

2.7.2.2 Polar questions

Polar questions follow the same unmarked word order as declarative affirmative sentences, but they have to be accompanied by an appropriate NMM – raised eyebrows, forward head tilt and sometimes even raised shoulders as is indicated in (16). Omitting appropriate NMM would result into an ungrammatical sentence as in (17). Also, the last sign is usually held comparatively longer, sometimes it can even be held during the addressee's response.

(16) _____q
       BOY FELL?
       Did the boy fall?
(17) *BOY FELL?
        Did the boy fall?

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[30] This sentence could be grammatical if the denoted meaning was "The tomato ate the girl", which is however semantically restricted.

With polar questions associate a so-called "question mark wiggle"[31]. This sign indicates either the signers is surprised, skeptical or that they want to double-check what has been just signed. It can either stand alone or be added at the end of a polar question.

2.7.2.3 Wh- questions

Unlike polar questions, Wh-questions need to include also a lexical interrogative sign (e.g. WHAT, WHO, WHERE, etc.) substituting for the element we seek information about.

(18) _____wh
   PRO3 WHO?
   Who is she/he?

(19) ___wh
   PRO3 WHO?
   Who is she/he?

(20) _____wh
   WHO YOUR TEACHER WHO?
   Who is your teacher?

(21) ___wh   ___wh
   *WHO YOUR TEACHER WHO?
   Who is your teacher?

As for NMM, the Wh-questions require an eyebrow squint, frequently also a head tilt and/or raised shoulders, spreading over the whole sentence as in (18) or just the interrogative sign as in (19). Similarly as in polar questions, the final hold of the last sign can be held for a longer time. Also, in this type of question, the lexical interrogative sign can occur both at the end and the beginning of the question. In this case, the NMM has to spread over the whole sentence as in (20), not only the Wh-signs as in (21), which is ungrammatical.

2.7.2.4 Negation

What is interesting in negating ASL sentences is that besides a compulsory NMM, ASL does not require a separate sign to indicate negation, although they can have one. Valli and Lucas (2002) note, that the use of a separate sign for negation indicates emphasis of the negative statement (e.g. NOT, NEVER, NONE, etc.). According to Bahan's (1996) inflectional phrase (IP) structure analysis, such signs then have to be produced before the lexical verb, but after the sign bearing the tense information [32] as in (23) and (19). Changing the sign order would result in ungrammaticality as in (20) and (21).

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[31] Glossed as QM.
[32] That is either a modal or lexical tense marker.

(22) _____neg
I HUNGRY
I am not hungry.

(23) _____neg
I NOT HUNGRY
I am not hungry

(24) _____neg
I PAST NOT SLEEP
I was not asleep.

(25) _____neg
*I SLEEP NOT
I am not asleep.

(26) _____neg
*I NOT PAST SLEEP
I was not asleep

It also can be observed that in case of using separate lexical negative sign, the negative NMM can spread only over the node C-commanded by this sign without making the sentence ungrammatical. This sign can also appear at the end of a sentence for emphasis.

2.7.2.5 *Elements standing outside the main clause and deviations to the traditional SVO sentence structure*

From the beginning of the linguistic research to the mid-1970s it was believed that the word order of ASL is simply random and is not syntactically significant. Later the researchers agreed that the word order in ASL is indeed subject-verb-object, but they claimed that there also is a high degree of flexibility based on semantics of a given verb. In other words, the word order was considered to be of any use only if the entities in both subject and object position could switch their semantic roles (Liddell 2003).

On the other hand, there are several rules in ASL which when applied may lead to these false conclusions, like subject/object deletion or topicalization, which are to be described below.

2.7.2.5.1 *Topicalization*

Topicalization is an operation in ASL which moves elements in the front of their original clause. The purpose of this is to make an introduction of what the signer wants to talk about. The topicalized segments can be preceded by signs KNOW, YOU-KNOW or KNOW-THAT to check if the addressee is familiar with the signer's object of discussion.[33]

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[33] Done so, the topic strongly resembles a polar question and taking the subject deletion rule into an account it seems that they indeed might be analyzed as two separate sentences as well.

Topicalization is marked by NMM – raised eyebrows – which spreads over the topicalized element[34] and a pause between the topic and the rest of the sentence. As examples (27)-(24)suggest, the difference between the topic NMM and the NMM used for the rest of the sentence also shows that topics stand outside the main clauses.

(27)   _____n
         T-O-M FORGET HIS PURSE
         Tom did not forget his purse.

(28)   _____t _____n
         HIS PURSE T-O-M FORGET
         As for his purse, Tom did not forget it.

(29)   _____n
         _____t
         *HIS PURSE, TOM FORGET
         As for his purse, Tom did not forget it.

The sentences in (27)-(24) show just the examples of a topicalized object. Nevertheless, subjects can also be topicalized, but in they would remain in situ in the linear representation as is demonstrated in (30). What they have in common is that in the hierarchical structure, it is possible to see the movement of the constituents from their default position in the SVO structure.

(30)   _____t
         VEGETABLE I LIKE TOMATO

Nevertheless, Liddell and Johnson (1986) propose a theory, that topics do not have syntactic ties to the main sentence constituents. He supports his claim with the evidence of topics that do not seem to be promoted from the subject or object position as those are already occupied by other entries as in (30). This fact indicates that in some cases topics can be base generated in the default version of a sentence as opposed to e.g. those in (27)-(24) which can be considered derived.

2.7.2.5.2 Subject deletion rule and empty object positions

In ASL, it is possible to omit a subject or an object if their referents have already been made prominent in the discourse. An event resulting in an element's prominence can be e.g. a question asked by the other communicant or the abovementioned. In a situation when signer A asks signer B why the boy is crying, the answer like in (31) would be completely grammatical.

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[34] This operation could also serve as a constituency test in ASL.

(31) e^{35} FALL
    The boy fell.
(32)   ___nd[36]
    e FALL PRO3[37]
    He fell, he did.

The phonological emptiness however does not mean the subject is not there. The evidence can be found in (32), where the process probably started with the subject pronoun copying followed by the subject deletion resulting in a structure that might evoke a false notion of a post-verbal position of the subject.

Accordingly to the subject deletion rule, the object position can remain phonologically in spite of the fact that its verb is syntactically transitional like EAT in (33).

(33) SORRY, I EAT e.
    I am sorry, I ate it.

In a context where signer A asks signer B what happed to the cake he got from his mom, the response could look like in (33).

2.8 Summary

After I have offered a short insight into the development of American Sign Language and introducing its basic grammar pattern, now I will move onto the main topic of the thesis. In the following two chapters I will describe selected types of compounds – first in English and then I will examine their ASL counterparts.

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[35] The cursive letter e indicates a phonologically empty position of a sentence member.
[36] NMM referring to a head-nod
[37] The pronoun at the end of this sentence is a result of the Subject pronoun copy rule. For more information about this process read for example Bahan (1996, p. 44- 46).

3 COMPOUNDING IN ENGLISH

Compounding is a very productive process of word formation in English and many other world languages. However, until now the linguistic researchers were unable to propose a definition of compound word that could be used cross-linguistically and universally. What are compounds? What do they consist of? Are they built up on meaning or syntax? To answer not only these questions, compounds are usually put in juxtapose with phrases. There is a good deal of arguments supporting the view of compounds as single lexical units (as opposed to phrases, which in theory can comprise of an infinite number of lexical units creating a superordinate syntactic one), those criteria are not completely reliable neither universally applicable.

On the other hand, what the researches have agreed upon so far is the fact that compounds in any language have at least two lexical elements (Altakhaineh 2016, Lieber and Štekauer 2009, Bisetto and Scalise 2005 etc.). Also there are different approaches according to which researchers tried to define and classify compounds, like the presence of a semantic head or the relations between the compound constituents or propose classification overlapping both semantic and syntactic criteria (Mortensen 2012). An interesting approach to compound formation is also the theory that compounds are not merely lexemes or word put together but they indeed show a phrase-like structure (Harley 2008, Spencer 2005).

In the following chapter I will offer a description of a prototypical English compound and then discuss several types of specific English compound formation processes to provide a background for their further comparison with the compounds found in ASL.

3.1 Prototypical English compound

A prototypical English compound consists of two parts conjoined to form a single unit with a special meaning, usually different from the meaning denoted by the same constituents having purely a hierarchical syntactic relation. When divided, each part is perfectly capable of functioning as a member of a phrase and has a meaning on its own.

The semantic head is the rightmost elements which morpho-syntactic properties spread over the whole compound making it also the syntactic head of the whole unit and disallowing the non-head member to take any inflection. The non-head also cannot be individually modified in order to preserve the meaning of the whole compound; in the other hand the non-head itself has an attributive, determinative relation to the head.

The primary stress is assigned to the leftward member of the compound with possible reduction in the vowel bearing original stress of the second element, but otherwise the phonological realization remains the same as of the original elements (Klima and Bellugi 1979).

3.2 Incorporation as a compound formation process in English

Nominal incorporation is a phenomenon observed in word formation processes, in which a verb forms a compound with the head noun of its direct object or its adjunct, but retaining their original category of verbs. Using the terminology proposed by Bisetto and Scalise (2005), compounds formed this way are in subordinate relationship in which the meaning of the verb (or its derivate) are determined and narrowed-down by the meaning of the non-head element (verbal object argument). Compounds formed this way can be classified as synthetic compound – built on the basis of syntactic structures – opposing the root compounds which are said to be built on semantics.

However, in English, this type of compounding is rather rare and poses number of questions. First of all, true incorporation would mean that the resulting compound has the category of verbs, but that seems rather problematic in English.

The sentence in (34) is the default version where the verb "slay" is transitive and its object argument is the DP[38] "the king". However, from the (35) it is clear that a "true incorporation" is impossible in this case, but possible if the verb is nominalized as in (36) and (37).

(34) *James slayed the king with his sword.*
(35) **James kingslayed yesterday.*
(36) *James is a famous kingslayer.*
(37) *Kingslaying is fun.*

This fact then raises a question whether the compounds in (36) and (37) were created by incorporating the head noun of the direct object or they in fact do not belong to the class of synthetic compounds, but rather to the class of root compounds which consist of elements in a subordinate relationship.

As was already mentioned above, verbal object cannot take part in the true nominal incorporation, but can be included in the nominal deverbal construction creating a complex noun. Another function they can gain when they merge into one unit with their superordinate verb is, after appropriate derivation, adjectival as in (39).

(38) *The farmer grows wheat quickly.* (default sentence for examples (39) and (40)(41))
(39) *a wheat-growing farmer*
(40) **a quick-growing farmer[39]*

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[38] Determinative phrase
[39] Also notice, that the object of "grow" seems to have disappeared from the compound construction.

It is also interesting, how Harley (2008, p.14) citing Roeper and Siegel (1978) shows us, that in this operation, adjuncts can participate too, however, only if they are the first sister of the head as in (41) – thus when the verbal element of the compound is intransitive, it can form a phrase like in (41); when the verb has an object, incorporating the element from adjunct would result into an ungrammatical sentence as in (40). This again brings up a question whether this is a process based on syntax or such compounds are purely semantic.

(41) *The farmer's boy grows quickly.*
(42) *a quick-growing boy*

Harley (2008) finds arguments supporting the claim that these structures are indeed built on syntax in Distributed Morphology. She argues that the argument of a root is internal and it is present even before the root merges with the head assigning it its category (for detailed analysis, see Harley ibid.).

On the other hand, there are cases of nominal incorporation allowing the verb to preserve its syntactic category as is presented in (45).

For some reason, this kind of nominal incorporation with the verb retaining its syntactic category is perfectly grammatical. As we can see, if the verb tried to incorporate the head noun of its direct object as in (43), in English this operation would result into an impossible compound, while when it incorporates the head noun of the adjunct into a verbal compound as in (44), the grammaticality of this complex cannot be denied.

(43) *She is smoking all her cigarettes in a chain.* (default sentence for (44)-(47))
(44) **She is cigarette-smoking in a chain.*
(45) *She is chain-smoking all her cigarettes.*
(46) *She is a chain-smoker.*
(47) *Chain-smoking is fun.*

To avoid disputes about the syntactic category of the compound created in (44), I have deliberately formulated the sentence to show the verbal selection of an object argument. Also, this type of compound allows further nominal derivation as in (46) and (47).

In the above examples (48)-(52) we can observe the same phenomenon as in the examples (43)-(47) – direct object incorporation is banned, but adjunct head noun incorporation seems to be grammatical and productive.

(48) *I wrote that letter by hand.*
(49) **I letter-wrote by hand.*
(50) *I hand-wrote that letter.*
(51) *I am a hand-writer.*
(52) *Hand-writing is fun.*

Yet there is a difference in the incorporated elements – while in examples (43)-(47) the incorporated element is the adjunct of manner, in (48)-(52) the adjunct part specifies the instrument used to execute the meaning of the verb.

After observing the nature of noun incorporation in the examples (34)-(52), it might be tempting to simply make a conclusion that only adjuncts can participate in the true nominal incorporation. However, examples (53)-(58) proves there are indeed some constraints also on the adjuncts that can possibly participate in this process.

(53) *I was watching Walking Dead yesterday.*
(54) **I was <u>yesterday-watching</u> Walking Dead.*
(55) *I am walking my dog in the park.*
(56) **I am <u>park-walking</u> my dog.*
(57) *She eats candy a lot.*
(58) **She <u>lot-eats</u> candy.*

While adjunct of manner as in (43)-(47) and adjuncts expressing an instrument (examples (48)-(52)) seem to form grammatical compounds with the verbs they modify, we cannot say the same about the temporal ((53) and (54)), locative ((55) and (56)) or degree expressing ((57) and (58)) ones.

The last set of examples (59)-(67) show verbs that are often misjudged as products of nominal incorporation. In reality, when we tried to reverse the process by which one assumes they were former, the resulting sentences turn to be pragmatically very unlikely, if not completely ungrammatical.

(59) *She was <u>sun-bathing</u> at the beach.*
(60) *?She was bathing in sun at the beach.*
(61) *Extensive <u>sunbathing</u> can be dangerous.*
(62) *Mass media tend to <u>brain-wash</u> their audience.*
(63) *?Mass media wash the brains of their audience.*
(64) *The younger generation is quite <u>brain-washed</u>[40].*
(65) *When I was younger I used to <u>baby-sit</u> a lot.*
(66) **When I was younger, I used to sit babies a lot.*
(67) *<u>Baby-sitting</u> helped me paid my tuition.*

Also, the reverse analysis of the compounds in (59)-(67) shows, that the nominal parts of the compounds would have to occur in the object position or as a semantically inappropriate adjunct candidate, excluding them from the true incorporation process.

As is showed above, in English objects can be incorporated only into deverbal nouns or adjectives. On the other hand, incorporation of an adjunct seems to be more

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[40] Adjectival complexes created by noun incorporation can also appear in a participle form.

productive as it can be incorporated both into deverbal complex nouns and adjectives and also into complex compound verbs.

3.3 Recursive compounds and structural ambiguity in English

One of the main properties of a language is recursion – the ability of the language to ever produce new units by the same means those units were originally created. The compounding as a productive process is no exception to this rule.

In compounding recursion is most visible in the case of subordinate noun+noun compositions. Despite in some of the world languages there are more than two elements that can involve in compounding at a single level, in English the relationship between the units forming a compound is binary[41]. On the other hand, this does not prevent elements created by compounding enter the same process again.

As we can see in (68)-(73), there seems to be no upper limit to how many times we can apply the compounding process on an already existing compound.

(68) *English department*
(69) *English department headquarters*
(70) *English department headquarters building*
(71) *English department headquarters building construction*
(72) *English department headquarters building construction site*
(73) *site [of construction [of building [of headquarters [of department [of English]]]]]*

The source of these compounds can be found in the of-phrase structures (73) – the leftward member of the compound is in a complement relation to the head making the compound classified as subordinate.

The recursion in English, however, creates space for ambiguous units to appear in language. In compounds as in (75)(74) and (75), the leftmost element is in an attributive relation to the unit it modifies, but without taking a look into the syntactic structure of these compounds it is not possible to identify the scope of attribution.

(74) *toy car crusher*
    "a crusher of cars which are toys"
    "a crusher of cars that serves as a toy"
(75) *California tea factory*
    "a factory producing tea and that tea grows in California"
    "a factory producing tea and that factory is located in California"

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[41] Exception to this statement can probably be coordinate compounds, but since I was not able to find any compounds composed of three or more units, I assume such compounds either do not exist or are very rare and discourse conditioned.

In cases like (74) and (75) we could also rely on the stress distribution. Traditionally, primary stress of a compound is assigned to the leftmost member of the composition. The secondary stress is then pronounced at the beginning of the other unit and is thus offering a clue leading to correct interpretation of the information. The effects of stress distribution can be observed in (76)-(79).

(76)   ´toy ´car crusher
       "a crusher of cars that serves as a toy"
(77)   ´toy car ´crusher
       "a crusher of cars which are toys"
(78)   ´California ´tea factory
       "a factory producing tea and that factory is located in California"
(79)   ´California tea ´factory
       "a factory producing tea and that tea grows in California"

Nevertheless, the stress can be assign only after one decides what the information they want to deliver is and that is grounded in syntax. Furthermore it is also important to remember that in real speech the stress is a subject to other processes as well (e.g. emphasis) and therefore cannot be completely reliable.

The issue of ambiguity in compounds can serve as another argument for English compounds being built of syntax and not (purely) semantics – without having done the structural analysis we could only guess what the meaning of the compounds can be.

3.4   Coordinate compounds in English

The last type of compounds examined in this thesis is coordinate compounds. These compounds are formation whose constituents can be tied by the conjunction "and". According to Lieber's theory of lexical semantic representation (2004) described in Bisetto and Scalise (2005, p. 329) "every lexeme is represented with a skeleton (containing grammatical information) and a body (containing encyclopedic information)" and the elements of a coordinate compounds have to match on both levels – as for the skeleton, all the grammatical features have to match; as for body, even though not every single features has to match, the degree of matching features is very high.

In English, coordinate compounds are also often referred to as "dvandva" compounds, adopting the classic terminology from Sanskrit. Bauer (2006, p. 496) argues, that this use of the Sanskrit term is imprecise, as dvandvas "denote a unity made up of the two distinct items named in the element of compound" and only a few English compounds can classify for having such a property[42]. He prefers

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[42] As examples of true dvandva compounds in English Bauer (2006, p. 496) presents e.g. geographic names or more names

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the term "coordinate" which embraces also dvandva type compounds and to avoid any confusion. I will also use this term in my thesis.

The above examples in (80)-(83) are typical English coordinate examples. Unlike subordinate or attributive compounds, whose members have clearly hierarchical relation, elements of a coordinate compound are of equal rank - in each of the examples the constituents could be separated and connected with the conjunction "and" to form a phrase while retaining the intended meaning.

(80) *bittersweet*
(81) *dancer-singer*
(82) *blue-green*
(83) *Bosnia-Herzegovina*

The entity these compounds refer to thus have the characteristics denoted by both of the constituents. Both elements can function as a hyperonym of the compound, Bisetto and Scalise (2005) therefore consider them having two heads and hence being endocentric (Loos 2009).

Different cases are the examples (84)-(86) where the semantic head is neither of the two elements and its referent has to be searched outside the compounds. The exocentricity of these compounds causes that the meaning is opaque.

(84) *south-east*
(85) *skinhead*
(86) *parent-child (relationship)*

(85) does not refer neither to a head nor to skin, but rather to a person who has a skinhead; (86) does not have its referents neither in child not parent, but rather refer to the entities who have a relation to the following element of the compound with which the coordinate construction is in an attributive relation. Bauer (2008) uses a more specified terms for the compounds like in (86) – co-participant compounds.

The compound in (84) is in Loos (2009) mentioned as an example of an exocentric compound, but there are reasons to think its headedness is subjective to the communicant – some people might consider "south-west" as neither south nor west; on the other hand, the meaning can be interpreted as both[43].

From formal point of view, all the compounds in (80)-(86) have their syntactic head within the rightmost element, as is typical for English. It is also easier in the case of coordinate compounds to identify their syntactic category – stemming in

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[43] I consider this compound endocentric and double headed especially in the discourse of direction description – as for the place which is considered a starting point, if someone moves "south-east" they will necessarily end at a point that is both south and east of the place of origin. My point of view is also supported by Vercellotti and Mortensen (2011, p. 567) who claim that according to current data "these direction coordinate compounds can have ether reading", resulting in being listen as both endo- and exocentric compounds.

the condition that coordinate compounds need to match in their skeletons, it is necessary for them to be compatible also in terms of syntactic category.

Anyhow, in the examples (87)-(92) I will try to support the statement of their right-headedness. In (87) and (88) their compoundhood is supported by the adjacency – no other element can be inserted in between the two compound members of a compound. In (89)-(92) the status of compound is supported by the inner modification restriction – neither derivation nor inflection are allowed to be applied onto the compound members after they have once entered the compounding process.

(87) *bitter-more-sweet; more bittersweet
(88) *dancer-pretty-singer; pretty dancer-singer
(89) *greenish-blue; green-bluish
(90) *southern-western; south-western
(91) *two skins-heads; two skinheads
(92) *parents-child (relationship); parent-children (relationship)

Based on these examples and also the data from other sources I want to draw a conclusion, that if given a choice, the language will select the default regular pattern and in case of the syntactic head of coordinate compounds will select the right element.

The issue of headedness in coordinate compound is a topic of debate among many linguists. While traditionally the main focus in the field of coordinate compounds is on headedness and the relation between the compound members and their referent, there are some researchers, like for instance Padrosa-Trias (2009) or Adams (2001) arguing against even the mere existence of coordinate compounds claiming, that it is not possible for these compounds to be based on morphology and their origin has to be sought in syntax. However, if the fact that compounds cannot be built on syntactic structures was really determinative, we could possibly argue about the existence and status of other compound type as well. Nonetheless, the compoundhood of not only coordinative compounds is a long discussed issue in linguistics of English.

Having covered the three selected types of compound processes in English, I will now move to the corresponding compound processes in ASL.

4 COMPOUNDING IN AMERICAN SIGN LANGUAGE

In the early 1970s, the word "streaker" appeared in the English discourse. As for a neologism, it caught the attention of Klima and Bellugi who were curious how ASL signers will deal with this new concept/idea. They observed several new sign sequences including the sign for NUDE and resembling the structure of compounds in spoken languages – existing signs were assigned a new meaning. This initiated their interest in new word formation in ASL, which revealed there are two ways for new concepts entering the lexicon of signers – either coining new signs or recycling contemporary signs.

In *The Signs of Language* (1979) Klima and Bellugi in cooperation with other deaf researches created their own compound corpus and conducted the initial research on ASL compounds. Followed by an extensive phonological research by Scott Liddell and Robert Johnson in 1986 they laid the ground base for the further studies and examination of compounding in ASL.

In the following parts of this chapter I will provide a description of a canonical ASL compound sign. Based on that I will have a closer look on several specific types of compounds[44] and I will attempt to align the productive processes of compounding found in English to my observations of ASL compounds.

4.1 Prototypical ASL compound

Just like compounds in English (and any other language), ASL compounds consist of at least two identifiable units which could function as individual signs in a different context, but acting like a single syntactic unit when used as a compound. The compound as such has usually lexicalized.

In contrast with English, however, a prototypical ASL compound exhibit an extensive change in the phonology of the input that the phonological output of the compounding process that especially a non-native signer could face a hard time identifying the original compounds.[45]

Speaking of the morpho-syntactic criteria for compounds, they do follow the same rules that are valid for compounds in English – the head of the compound tends to appear on the right side and is modified by the non-head element while the non-head alone cannot undergo an individual modification of inflection, the components of a compound cannot be individually used in syntactic constructions (e.g. referents for anaphors) and they have to remain adjacent to one another.

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[44] The classification will be based on the classification of compounds found in English.

[45] The phonological structure of a compound sign may resemble a blend, like English word *smog* (smoke+fog). However, the phonological changes in blending, unlike the phonological reduction in ASL compound formation, are not predictable (Liddell 2003).

As for the phonology of compounds, it is possible to draw a parallel between the phonological changes between the changes occurring in ASL and English. Klima and Bellugi (1979) observed that there are rhythmic differences between the production of signs in a compound and their individual use – the production of a compound sign tends to be shorter than the sequence of its original parts signed in a phrase. Also, the sign in the initial position tends to be shorter than the following one [46] - here it seems we could talk of a parallel to the stress shift in English compounds, as we know that the stressed syllables are indeed longer that they unstressed counterparts.

4.1.1 The Great ASL Compound Hoax

In his study "The Great ASL Compound Hoax" (2016) Ryan Lepic challenges the canonical view of ASL compounds, calling it "a misconception that has […] been uncritically circulated within sign language linguistics" (p. 228). He points out that what have been considered a canonical compound in ASL is always a combination of signs that merged over time into a simplex unit [47] and has a lexicalized meaning and that the new forms are highly neglected in the ASL research. He also argues that phonological reduction is a result of lexicalization of frequently used compound signs and the tendency of languages to become as economic as possible.

That is to say – completing his own compound corpus, he proves the existence and also wide usage of novel forms which have not yet merged into a single phonological unit, but from morphological and syntactic point of view they can be treated as compounds. For the purpose of this thesis, the phonological form does not play an important role and will only serve as a clue, but not a criterion for deciding about the compoundhood of a given compound candidate.

4.1.2 The question of compoundhood in diachronic compound signs

The canonical compounds in ASL are subjects to a crucial morpho-phonological change resulting in such a form that it can be rather hard to identify the simplex signs that originally entered the compound formation process. These changes often include deletion of hold and movement segments and the articulatory bundles connected with them [48]. Subsequently the signs merge into a unit which resembles the structure of simplex signs. This then raises a question whether the term "compound" can be correctly applied on these structures. However, as this thesis does not analyze

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[46] Klima and Bellugi (1979, p. 213) investigated compounds with corresponding signs in both initial and final position (e.g. BED^SOFT and SOFT^FOOD) to examine whether some signs are inherently shorter in production or it is a positional feature. As is mentioned above, they confirmed their hypothesis that it is the position within a compound that is crucial in determining the rhythmic properties of the compound elements.

[47] Unlike in ASL, English words that started as compounds are not treated as ones in modern English – Lepic (2016) lists examples like *gospel* or *lord* offering also a list of the original constituents.

[48] The changes are best described in the study presented by Liddell and Johnson (1986) who also formulated the rules that govern these processes.

the phonological properties of simplex and complex signs, I will follow the traditional classification and regard to them as compounds.

4.2 Incorporation as a compound formation process in ASL

The word incorporation might remind the reader of the numeral incorporation briefly described before in this thesis. However, it is important to make a clear distinction between these two usages of this word.

Numeral incorporation is a derivation morphological process that fuses the handshape of a number sign and with the rest of phonological features of a sign assigning numeral value to the head sign. The particular handshape thus functions as a bound morpheme – just the handshape alone would not have any lexical value[49].

Contrasting the boundness of the numeral incorporated element, the kind of nominal incorporation about to be described in this part is a kind of compounding process and hence the elements involved in this process need to be able to function also separately as two independent lexical units. Consider e.g. LUNCH – leaving aside the phonological processes that took place over time, this sign originally consists of EAT and NOON, which can both be used as individual sentence members.

In this part of the thesis I am going to try to apply the results of the observation of pattern in English compounds incorporating a nominal element to the existing ASL ones and trying to propose several novel ones, which could pass the test for compoundhood.

Having in mind that ASL is a Subject-Verb-Object language, based on (94) we can say that BUY is a transitive verb. Based on what we know about nominal incorporation, we can therefore assume that the compound in (93) was created by this particular process – incorporating the object of BUY into a complex sign.

(93) I FINISH FOOD^BUY
I went grocery-shopping[50].
(94) I FINISH BUY FOOD
I bought food.

An experienced signer may ask what leads to the assumption this is a case of synthetic compounding (namely nominal incorporation) and not a root compound. The reason for such a doubt about the source of compounding is the fact that ASL signs are indeed multicategorial and they often do not overtly belong to a single category. The sign that is glossed in the above examples as EAT (a verb) could be as

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[49] For more see e.g. Clayton and Valli (2000), Liddell (2003), or Jay (2011).
[50]The English translation is not precise as English lacks a single word embracing the meaning of ASL FOOD^BUY and English would not allow an incorporational compound "to grocery-shop".

well as be glossed as FOOD (a noun) if in isolation. This kind of false assumptions about ASL signs is often caused by the English glossing system.

If the sign glossed as FOOD had the category of a verb, we would have to assume that it is merely a combination of two lexical units. It will be also hard to decide which one is the head and also the meaning would probably have to be highly opaque.

However, creating a new entries in language usually follows regular predictable patterns and if we assume that the first sign of FOOD^BUY is a noun stemming from the object argument position of BUY, we indeed can observe such operation. Also, when compounds are created, Loos (2009) argues that they by default choose the endocentricity and compositional meaning (at least to some degree).[51]

(95)   __rhq
      MY PARENTS HAPPY, WHY, TODAY WEDDING^CELEBRATE
      My parents are happy because today it is their anniversary.
(96) YESTERDAY WE CELEBRATE WEDDING
      Yesterday we celebrated the wedding.
(97) I WANT MONEY^GIVE-to NEW CAR
      I want to buy a new car
(98) PRO3-GIVE-PRO1 MY MONEY NOT-YET
      He has not given me my money yet.

The examples (95)-(98) show we can apply the same compound formation process as was applied in (93) and (94). Also the sentence in (98) suggests that with directional verbs such as GIVE it will be the object with the semantic role of theme that is involved in the nominal incorporation. The examples in (99)-(103), however, seem to show a different kind of nominal incorporation that the one of the object head noun.

(99)   _____t _____n
       MORNING, I EAT^MORNING
       I do not eat breakfast in the morning
(100) _____t _____n
       MORNING, I EAT
       I do not eat in the morning.
(101) _____t
       MORNING, I EAT CEREAL
       In the morning, I eat cereal.
(102) I SLEEP^SUNRISE NEVER

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[51] The non-compositional meaning is then formed later due to lexicalization.

I never oversleep.

(103) _____t
SUMMER, I SLEEP AFTER SUNRISE NEVER
During summer, I never sleep after sunrise.

From the pragmatic point of view it is not possible to form a sentence with MORNING in the object argument position of EAT. That leads us to the assumption that it is then not the object but rather an adjunct specifying when the eating happens – this is proven in (101), where in fact the object position is occupied by a different element and thus prevents MORNING to be assigned that position.

Also the compound in (102) seems not to incorporate an object but rather an adjunct, as SLEEP is intransitive verb and it is simply impossible to form a sentence where SLEEP would have an object argument.

What is also worth noticing is that in the transitive verbs from (93)-(98) the incorporated element precedes the verb; contrary to (99)-(103) where the incorporated adjunct is uttered after the verb it originally modifies.

In (104)-(107)I listed a couple more examples confirming the observation that in case of the synthetic compounds the position of the incorporated element depends on whether it is an object of the verb or an adjunct.

(104) SOIL^MEASURE
a survey
(105) BODY^BURN
a cremation
(106) KNOW^CONTINUE
to remember
(107) THINK^SAME-as
to agree

It also seems that when it comes to adjuncts, this process is not restricted to nouns only (as in (106) and (107)). It is also disputable whether we can talk about true noun incorporation – despite the compound sign can undoubtedly incorporate their objects or adjuncts, in some cases it is not clear if the compounds meet the condition of retaining the category of a verb. Nevertheless, as shown above, it is possible to trace the origin of the compounds back to their original phrasal form, which makes it undoubtedly synthetic.

Based on the data above, I dare to draw a conclusion that incorporation is a productive predictable process in ASL and it hence should be possible to create new entries following this process as is suggested in the examples (108)-(113).

(108) ?I FINISH FOOD/EAT BUY
I am done with eating and shopping.
(109) __rhq

MY PARENTS HAPPY, WHY, TODAY <u>WEDDING CELEBRATE</u>

My parents are happy because today they have a wedding and we celebrate.

(110) ICE-CREAM^SELL

an ice-cream seller

(111) TEA^DRINK

a tea-drinker

(112) DRINK^BINGE

binge-drinking/ to binge-drink

(113) WRITE^HAND

hand-writing

What is to be considered is that such novel compound would not have undergone the lexicalization process and they would have to be compositional and signed separately, which might lead the addressee to confusion or to consider such a sentence ungrammatical. In (108) and (109) I provided imaginary examples of how the information could be misinterpreted if the compound items were signed as two separate signs. However, such compositions as in (110)-(113) should be indeed possible and to reveal if the addressee would be able to recognize them as compounds could be a subject for a further fieldwork research.

4.3 Recursive compounds and structural ambiguity in ASL

As compounding is one of the most productive word-formation processes in sign languages and recursion is universal to languages as such, it can be assumed that compounding in ASL allows recursion as well.

Likewise in English, noun+noun combination seems to be especially productive when it comes to recursion in compounding. Also, similarly to English, units that are themselves compounds can be again included in the compound formation.

In the examples below we can see that recursive compounding in ASL is not restricted to a particular type of sign – (114) represents a ASL conventional, lexicalized compound sign that have merged into a single unit; (115) includes sign from (114) and is followed by a simplex sign; (116)-(118) involve only simplex signs; in (119)-(120) one of the compound units is a lexicalized sign; (121) and (122) present the usage of finger-spelling.

(114) BLACK^BIRD

a black-bird

(115) BLACK^BIRD CAGE

a black-bird cage

(116) MOTHER DAY

Mother's day

(117) MOTHER DAY SURPRISE
       Mother's day surprise
(118) MOTHER DAY SURPRISE PARTY
       Mother's day surprise party
(119) #ASL COMMUNITY
       ASL community
(120) #ASL COMMUNITY MEMBER
       ASL community member
(121) HANDSHAPE H-A-N-D-S-H-A-P-E [52]
       a handshape
(122) HANDSHAPE H-A-N-D-S-H-A-P-E STORY
       a handshape story

Based on the claim made by Lepic (2016) and the observation of compounds available in other sources (Klima and Bellugi 1979, Sandler and Lilo-Martin 2006, Loos 2009, Valli and Lucas 2000, etc.) the ASL compounds are typically right-headed, at least when it comes to novel subordinate or attributive class[53]. In the following part of this thesis I will build further analysis on this assumption.

In the same way recursion can cause structural ambiguity in English, so it can in ASL as is demonstrated in (123). DEAF is either in an attributive relation CLASS TEACHER "teacher of a class" or in subordinate relation with respect to CLASS "class", but without further syntactic analysis it is not possible to decide which of the meanings is this sequence supposed to denote.

(123) DEAF CLASS TEACHER
       a Deaf class teacher "teacher of the class about the Deaf"
       a deaf class teacher "teacher of a class who is deaf/Deaf"

The compounds in (124) seems to show the same properties as the one in (123), but with a slight difference – there is only one possible interpretation for this sign sequence and that is the one where BLACK "black" is in an attributive relation to BIRD CAGE "bird cage". From the gloss it is clear that in (124) the compound is a sequence of three individual signs.

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[52] This kind of compounding is very own to ASL and does not have a counterpart in English. Lepic (2016, p. 236) called this type "chain compounds". The sign in ASL is connected to the finger-spelled synonym in English and they seem to serve as a resolution to the polysemy of ASL signs or for pedagogical purposes. For more details about the use of finger-spelling in compounds read Lepic (2016, p. 236-240).

[53] The syntactic headedness of ASL compounds is a tricky issue as the individual sign and the compounds themselves are not unusually multicategorial; the semantic head is also usually hard to identify due to the lexicalization and the shift of meaning in many ASL compound signs. For further reading on ASL compound headedness see Loos (2009).

(124) BLACK BIRD CAGE
       a black bird-cage "black cage for a bird"
       *a black-bird cage "cage for a black-bird"

To have the meaning of a black-bird, the compound would have to be signed as in 0–
the gloss of BLACK^BIRD "black-bird" suggests this is a diachronic lexicalized
compound which has already undergone a reduction in its form, so the two signs
necessarily create a unit and cannot be treated individually.

(125) BLACK^BIRD CAGE
       *a black bird-cage "black cage for a bird"
       a black-bird cage "cage for a black-bird"

That is to say, unlike in English, phonological changes in compound units are crucial
in ASL - lexicalization does not only have a blocking effect on the meaning of novel
compounds, but thanks to the phonological changes usually associated with it,
lexicalization is also a helpful and reliable criterion for indentifying the constituent
boundaries in a complex compound.

As it is obvious from the previous examples, the issue of ambiguity is present
also in ASL compounds. While for a novel compound it can be difficult to clearly
indentify its constituents without investigating its syntactic structure, the
lexicalization of a compound and the subsequent phonological changes make the
compound structures more transparent and comprehendible.

As for the lexicalization, some novel compounds like NAME SIGN "name
sign" or DEAF SCHOOL "Deaf school", whose constituents belong to one of the
most frequent signs in ASL, despite presenting a singular concept or idea are still
signed as two individual signs. However, such signs would also be easily
recognizable as single units in complex compound structures, simply by the virtue of
their frequent use and the following lexicalization of their meaning among ASL
signers (Lepic 2016). Also, I agree with Lepic (ibid, p. 245), that such frequent signs
can also face reduction in the future, as ASL tends to favor monosyllabic structures[54]
(Sandler and Lilo-Martin 2006).

4.4 Coordinate compounds in ASL

As in English, the relation between the members of a coordinate compound is not
hierarchical – in relation to the meaning of the compound they are on the equal level.

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[54] Specifically for NAME SIGN and DEAF SCHOOL, according to the data presented by Loos
(2009), these two compounds are likely candidates for reduction – she observed, that in
the prevalent majority of ASL compound signs the second sign is two-handed and that location of
articulating the signs preferably moves in a downward, away-from-signer's-body direction.

Also, the term "dvandva" cannot be applied to all ASL coordinate compounds for the reasons that will be described below.

The coordinate compounds in (126) and (129)can match the definition of dvandva compounds as described in 3.4 of this thesis – both these structures denote a unity of the referents of the elements involved in the given compounds and cannot include other members in their meaning. They are considered exocentric as neither of the elements is a hyperonym of the overall meaning.

(126) MOTHER^FATHER
       parents, *a family
(127) BOY^SAME
       a brother
(128) GIRL^SAME
       a sister
(129) BROTHER^SISTER
       siblings; *family

In the examples above we can also see that the class of signs involved is not restricted to simplex compounds and what is diachronically a compound (as in (127) and (128)) can also take part in formation of such structures[55]. Another argument supporting the compoundhood is that the phonological properties of these signs have been accommodated to those of canonical lexicalized compound signs and thus differentiate them from mere sign sequences.

In (130) and (131) there is a sign-sign construction that might resemble not yet lexicalized ASL coordinate compounds. As ASL only seldom uses the conjunction "and", we might be tempted to draw the conclusion that any juxtaposed signs can be considered such compounds.

(130) MY PARTY, FAMILY FRIENDS COME-to
       My family and friends will come to my party.
(131) _____t
       MUSIC I-N-S-T-R-U-M-E-N-T, I PLAY CLARINET PIANO GUITAR
       As for musical instruments, I can play clarinet, piano, and guitar.

However, such utterances as in (130) and (131) does not have their referents in a single object or any unity – there are rather lists of items and each element has its own referent, hence they cannot be considered compounds (Lepic 2016).

(132) and (133) present an interesting type of coordinate compounds, which does not have a counterpart in English and does not accommodate the definition of

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[55] However, I was unable to find coordinate compounds that would consist of novel compounds which have not yet undergone the phonological reduction. As I cannot deny nor confirm the existence of such compounds, I suggest it rather to be a subject for a further analysis.

dvandva compounds as more than two elements are involved in this type of compound formation. Loos (2009) citing Klima and Bellugi (1979) accurately describes the relation between the compound members and its meaning - these compounds "denote a superordinate category of which the constituents are not the only representatives". Based on this, Klima and Bellugi (ibid.) then divide signs to basic level and superordinate signs.

(132)   _____t
       CLARINET^PIANO^GUITAR (ETC.)[56], I CAN PLAY GUITAR/VIOLIN.
       As for the musical instruments, I can play guitar/violin.

(133)   _____t   _____n
       APPLE^ORANGE^BANANA (ETC.), I DON'T-LIKE BANANA
       As for the fruits, I do not like bananas.

These signs are also considered exocentric, as neither of the basic level signs is not a hyperonym of the meaning of the whole superordinate unit. Therefore to denote that guitar is the instrument one can play as in (132), it has to be overtly uttered as the object of PLAY. At the same time, as the meaning of the whole compound is not restricted by the meaning of the basic level signs, if GUITAR was changed for VIOLIN, the resulting sentence would not contain a contradiction. Based on the same reason the sentence in (133) is not ungrammatical, too.

To sum up, the difference between (130)-(131) and (132)-(133) is in that the former ones are simplex coordinate signs and the latter are single units, thus compounds. The latter meet the typical criteria for deciding compoundhood – they are single lexical units; they are also treated as single syntactic units; their meaning is not transparent. They are also subjects to phonological changes typical for compounds – the first element is reduced; the duration of articulation of individual signs is shorter than of their individually signed counterparts and the transition movement between each of the element is smoother and smaller (Klima and Bellugi 1979, Meir et al. 2010b).

In terms of the Lieber's framework described in 3.4 it is obvious that the elements of this superordinate-level compounds have to, on one hand, mutually agree in their skeletons (grammatical information) and have to share at least one common feature in their bodies (encyclopedic information). The examples in (134) and (135), however, do not meet these requirements

(134) *I PLAY CLARINET^GUITAR^FOOTBALL
      I play musical instruments and football
(135) *GUN^KNIFE^KILL
      deadly weapons

---

[56] The sign ETC. "et cetera" is optional in these constructions and therefore put in parentheses.

In (134), the referent of the last element FOOTBALL cannot be listed as a musical instrument, which is obviously the tie between CLARINET and GUITAR; in (135) despite all three referent can have ties to "ending one's life", the last element is a verb, which does not follow the requirement for matching skeletons of the compound elements.

Vercellotti and Mortensen (2011) mention also coordinate compounds whose meaning matches English translation, like the example in (136).

(136) NORTH^EAST
      north-east

They encounter similar problem with their semantic headedness – they can be view either as having two heads (endocentric) or having none (exocentric). They argue that the headedness of this compound depends on the reading – the directional reading results in the compound being exocentric, as the direction is neither north nor east; however, the regional reading is inherently endocentric, as "the region is both hyperonym of the both larger regions" (p. 576).[57]

Having examined ASL coordinate compound structures, the coordinate compounds in ASL tend to be exocentric, as the above examples suggest (but it is possible to speak of some degree of compositionality). Unlike in English, the compoundhood of these signs cannot be denied, as they pass all the formal criteria for an ASL compound – lexicalized meaning, adjacency and also typical phonological changes which are not present in signs which are individual constituents of a phrase.

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[57] I stick with my opinion, that this kind of compound is endocentric, for the reason explained in the footnote under section 3.4 on page 35.

5 CONCLUSION

Recognition of sign languages as fully fledged language equal to the spoken ones is still rather young and the subsequent linguistic research is still often neglected. This does not exclude American Sign Language in which, despite being the most often studied sign language, there are still many areas only waiting for a profound research. On one hand it can be complicated to find relevant sources and data; on the other hand it offers many options for contribution in a variety of fields, which was also the aim of this thesis.

Another aim of this thesis was to support the notion of language universal regardless of the modality a language is realized in. This was accomplished by observing the behavior of compounds in English and finding a parallel in the compounds in ASL.

Firstly, I examined the incorporation process in English deverbal compounds. From the collected data it was obvious that the deverbal compounds are treated differently according to the source of the incorporated element – while verbs incorporating their objects have to take an additional morpheme to create a nominal or adjectival compound, verbs incorporating the adjunct of manner or instrument can retain their verbal category.

A similar difference in treatment of incorporated elements was also observed in ASL – incorporated objects are usually preceding the verbal base; adjuncts on other hand seem to take the post-verbal position. Like in English incorporating compounds, the actual form of the compound can be traced back to its original phrasal structure. This proves that compounding is not only semantic or morphological process, but the syntax also plays a crucial role in its formation.

The analysis of deverbal compounds was followed by examining recursive compounds and the issue of structural ambiguity that is connected with it. It was proven that in case of English, the only criterion for deciding constituency can be the stress distribution, but even that is not reliable as the actual pronunciation can be affected by e.g. emphasis. Also, one can make a use of that only if the compound is uttered. Without taking a look in the syntactic structure of the compound it is only hard to correctly understand the meaning coded in such structure.

In ASL we observed the same issue – as for novel compounds, without examining the hierarchical structure it will not be possible to correctly interpret the meaning denoted by a given complex compound. However, unlike in English, the canonical ASL compound signs as a part of their lexicalization process undergo crucial phonological changes in the two elements entering the compounding process. Such changes then serve as a reliable criterion for deciding the constituents. Also, based on the observations both in English and ASL we can make a conclusion that the hierarchical structure, which highly resembles the structure of phrases, is again an important factor influencing the compounding process.

As the third and last type examined in this thesis I have chosen the coordinate compounds. After taking a closer look on those, I have revealed that the issue in this case is not only the compound formation process, but even the compoundhood and status of these formations as such. It is true that the formation process of this type has its roots undoubtedly in the coordinate phrase structure; nevertheless it still follows the formal rules for compound formation (e.g. inaccessibility for syntax, no inflection or derivation inside a formed compound etc.).

In this kind of compounds we also have to deal with the issue of headedness, as the dissociation of semantic and syntactic head is inevitable. I have observed that regardless of the compound centricity, the syntactic head tends to appear in the traditional rightward position. Here I have drawn a conclusion, that is there is a choice, the language users tend to follow regular, more common patterns in language and hence the right headedness is preferred.

In ASL, there are more types of coordinate compounds than in English and unlike in English, there are easily found also so-called dvandva formations, which are often mistaken for its superordinate category of coordinate compounds. There is also one common coordinate compound type which does not have a parallel in English, but the universal criteria for compounds are nevertheless applicable in this case too. The latter type of compounds mentioned here relies on the coordination of signs referring to basic elements of a superordinate group while none of the signs denote their own referents. Based on the data listed here and in other sources we can say that ASL coordinate compounds are exocentric – both semantically and syntactically due to the multicategoriality of signs and their meaning often understood only in context. However, unlike in English, there is not really space to doubt their compoundhood as they show the formal properties of a typical ASL compound sign.

I also have observed one property of compound which I was unaware of before writing this thesis – compounding as such is not merely lexical process of word or roots or signs being used together as a single unit and the answer to the compound formation of at least the first two types described here can be found in syntax.

Summing up, this thesis has achieved its goals to enrich sign language research and to find parallels between English and ASL, not only to demonstrate the existence of linguistic universal but more importantly to support the notion of ASL being a language worth equal treatment as any other spoken one.

6   RESUMÉ V ČEŠTINĚ

Uznání znakových jazyků za plně vyvinuté a rovné těm mluveným je pořád ještě záležitostí docela mladou a případný jazykový výzkum je často zanedbáván. To se týká i amerického znakového jazyka (ASL), ve kterém je, přestože mezi znakovými jazyky je tím nejvíc probádaným, pořád mnoho oblastí čekajících na důkladný výzkum. Na jedné straně může být komplikované získat relevantní zdroje a data; na straně druhé to ale nabízí mnoho možností k příspěvku v různorodých oblastech, co bylo cílem i této práce.

Dalším cílem této práce bylo podpořit myšlenku jazykových univerzálií bez ohledu na modalitu daného jazyka. Toho bylo dosaženo pozorováním chování kompozit v angličtině a hledáním příslušných paralel v kompozitech v ASL.

Ukázalo se, že všechny tři typy srovnávaných kompozit více či méně korespondují v obou jazycích – podobná byla nejen jejich struktura, ale i problémy, které se s nimi pojí. Vyskytly-li se nějaké odlišnosti, byly ve většině případů důsledkem odlišné modality, ve které daný jazyk probíhá.

Při psaní této práce jsem rovněž vypozorovala jistou specifickou vlastnost kompozit, které jsem si před psaním této práce nebyla vědoma – vznik kompozit není pouze lexikálním procesem spojování slov či kořenů do jediné jednotky. Odpovědi na otázky ohledně formace kompozit, alespoň v prvních dvou typech popsaných v této práci, můžou být rovněž nalezeny v syntaxi.

Ve výsledku tahle práce dosáhla svých cílů, čili rozšíření výzkumu znakových jazyků a nalezení paralel mezi angličtinou a ASL, nejen aby demonstrovala existenci lingvistických univerzálií, ale co je důležitější, podpořila myšlenku ASL jako jazyka, který si zaslouží zacházení rovné těm mluveným.

7 LIST OF REFERENCES

Adams, Valérie. 2003. *Complex words in English*. Harlow: Longman.

Altakhaineh, Abdel Rahman Mitib. 2016. What is a Compound? The Main Criteria for Compoundhood. In *Explorations in English Language and Linguistics, vol. 4 issue 1*, *58-86*. De Gruyter Open.

Armstrong, David and Sherman Wilcox. 2003. Origins of Sign Languages. In Marc Marschark and Patricia Elizabeth Spencer (eds.), *Oxford Handbook of Deaf Studies, Language, and Culture*, 305 – 318. New York: Oxford University Press.

Bahan, Benjamin J. 1996. *Non-manual Realization of Agreement in American Sign Language*. Boston: Boston University. (Dissertation.)

Baker-Shenk, Charlotte Lee and Dennis Cokely. 1999. *American Sign Language: A Teacher's Resource Text on Grammar and Culture (4th ed.)*. Washington, D.C.: Gallaudet University Press.

Bauer, Laurie. 2006. Compounds and Minor Word-formation Types. In Bas Aarts and April McMahon (eds.), *The Handbook of English Linguistics, 483-506.* Blackwell Publishing.

Bauer, Laurie. 2018. Dvandva. In *Word Structure, volume 1, issue 1, 1-22.* Edinburgh: Edinburgh University Press

Bisetto, Antonietta and Sergio Scalise. 2005. The Classification of Compounds. In *Lingue e linguaggio Rivisita Semestrale, vol. 4, issue 2, 319-332*. Il Mulino.

Cuedspeech.org. 2018. What is Cued Speech? National Cued Speech Association. http://www.cuedspeech.org/. Retrieved on 5.4.2018.

Del Guidice, Axel. 2007. A Constraint-based Analysis of Compound Formation in the Sign Modality. Retrieved on 15.4.2018 from http://idiom.ucsd.edu/~delgiudice/DelGiudice-ASLcompounds.pdf.

Harley, Heidi. 2008. Compounding in Distributed Morphology. In Rochelle Lieber and Pavol Štekauer (eds.), *The Oxford Handbook of Compounding, 129-144*. New York: Oxford University Press.

Jay, Michelle. History of American Sign Language. *Start ASL.* Published on 1.10.2010. https://www.startasl.com/history-of-american-sign-language.

Jay, Michelle. 2011. *Don't Just Sign... Communicate! A Student´s Guide to Mastering ASL Grammar.* Jueda Media, LLC.

Klima, Edward and Ursula Bellugi. 1979. *The Signs of Language*. Cambridge, Massachusetts: Harvard University Press.

Lepic, Ryan. 2016. The Great ASL Compound Hoax. In Aubrey Healey, Ricardo Napoleão de Souza, Pavlína Pešková, and Moses Allen (eds.), *Proceedings of the High Desert Linguistics Society Conference 11*, *227–250.* San Diego: UC San Diego.

Liddell, Scott. 1980. *American Sign Language Syntax*. The Hague: Mouton

Liddell, Scott K.. 2003. *Grammar, Gesture, and Meaning in American Sign Language*. New York: Cambridge University Press.

Liddell, Scott K and Robert E. Johnson. 1986. American Sign Language Compound Formation Processes, Lexicalization, and Phonological Remnants. In *Natural Language and Linguistic Theory, vol. 4, issue 4, 445-513*. New York: Springer.

Lieber, Rochelle. 2004. *Morphology and Lexical Semantics (Cambridge Studies in Linguistics)*. Cambridge: Cambridge University Press.

Lieber, Rochelle and Pavol Štekauer. 2009. Introduction: Status and Definition of Compounding. In Rochelle Lieber and Pavol Štekauer (eds.), *The Oxford Handbook of Compounding, 3-18*. New York: Oxford University Press.

Loos, Cornelia. 2009. *WORD FORMATION IN AMERICAN SIGN LANGUAGE. Investigating headedness in ASL compounds.* Leipzig: University Leipzig. (Master thesis.)

Meir, Irit et al. 2010a. Emerging Sign Languages. In Marc Marschark and Patricia Elizabeth Spencer (eds.), *Oxford Handbook of Deaf Studies, Language, and Culture*, *Vol. 2*. New York: Oxford University Press.

Meir, Irit et al. 2010b. Sign Languages and Compounding. In Sergio Scalise and Irene Vogel, *Cross-Disciplinary Issues in Compounding, 301-322*. Amsterdam: Benjamins.

Padrosa-Trias, Susanna. 2009. Are There Coordinate Compounds? In *Mediterranean Morphology Meeting 7 Proceeding.* Nicosia: University of Cyprus.

Roeper, Thomas and Muffy E. A. Siegel. 1978. A Lexical Transformation for Verbal Compounds. In *Linguistic Inquiry, vol. 9, issue 2, 199-260.* Cambridge: The MIT Press.

Sandler, Wendy. 2005. Sign Language: An Overview. In Brown, Keith (ed.), *Encyclopedia of Language and Linguistics*. New York: Elsevier Science.

Sandler, Wendy and Diane Lilo-Martin. 2006. Sign Language and Linguistic Universals. New York: Cambridge University Press.

Spencer, Andrew. 2005. Word Formation vs. Syntax. In Pavol Štekauer and Rochelle Lieber (eds.), *Handbook of Word-Formation, 73-97*. Dordrecht: Springer Verlag.

Stokoe, William C. 2005. Sign language structure: An outline of the visual communication systems of the American deaf. In *Journal of deaf studies and deaf education, volume 10, issue 1, 3-37*. New York: Oxford University Press.

Valli, Clayton and Ceil Lucas. 2000. *Linguistics of American Sign Language: An Introduction (3rd ed.).* Washington, D.C.: Gallaudet University Press.

Vercellotti, Mary Lou and David Mortensen. 2012. A Classification of Compounds in American Sign Language: An Evaluation of the Bisetto and Scalise Framework. In *Morphology, vol. 22, issue 4.* Dordrecht:Springer Verlag.

Vicars, William. 1997-2015. *American Sign Language University.* www.lifeprint.com

Wilcox, Sherman and Barbara Shaffer. 2006. Modality in American Sign Language. In William Frawley (ed.), *The Expression of Modality, 207-237.* Berlin: Mouton de Gruyter.