

Connecting iconic gestures with units of speech

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Abstract

The aim of this study is to look at the connections between speech and gesture at the level of iconic gestures and their lexical affiliates. The primary interest is to see if the lexical affiliates of gestures representing the four aspects of iconicity belong to any specific word class or take a specific position within clause structure. David McNeill's theories on gestures and the growth point as well as Nick Enfield's idea of the composite utterance serve as the main theoretical background for this study. The findings suggest that iconic gestures connect to specific units of speech.

Keywords: gesture studies, iconic gesture, lexical affiliate, audiovisual data

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1. Introduction

Gestures are an ever present part of human interaction. We all use gestures when we speak, whether we pay attention to them or not. Sometimes we use them merely for the sake of punctuating the rhythm of our speech or to highlight important points, and sometimes to express some aspect of the meaning we intend to make; perhaps a detail not expressed in speech. In spite of all this, gesture is often left out when defining language. Even though it complements language and supplies additional meaning, gesture has not been considered a 'proper linguistic phenomenon' by most linguists. Before the 1970s with Adam Kendon and his pioneering idea of gesture and language as two sides of the process of utterance, there were hardly any linguistic studies of gesture. Since then the situation has changed, but the interest in gesture studies is still marginal.

Gesture as a term includes movements of all limbs. In interaction many of these gestures are used by both the speaker and the listener, but hand gestures tend to be "largely, if not entirely, a speaker's phenomenon" (Schegloff, 1984, p.271). In most cases only the speaker gestures with their hands. In the same study on gestures' relation to talk, Schegloff (1984) states that this kind of connection between speakership and hand gesture hints at "the possibility that hand gestures are organized, at least in part, by reference to the talk in the course of which they are produced" (p.273). Studying video material of everyday life has further confirmed this organisation to be the case (Schegloff, 1984).

The connection between speech and gesture arises from the point of origin for both of them. McNeill (2005) describes it as the growth point: "a minimal unit of dialectic in which imagery and linguistic content are combined" (p.18). In the same book he describes speech-synchronous gestures – that is, gestures that appear with speech – as having "a specific character that exists when the system of speech and gesture is intact" (p.28). In this study the focus will be on speech-synchronous hand gestures. They are divided into four types: iconic, metaphoric, deictic and beat. Iconic gestures represent different aspects of iconicity that depict motion, size, shape or spatial relation of the lexical component they connect to. The lexical component is called a lexical affiliate, and it is the unit with which the gesture corresponds with the most. I will discuss iconic gestures and the lexical affiliate in more detail later in this paper, as they are very central to my thesis.

It should be noted that the use of gestures is somewhat culture and language specific. For example, in Kita & Özürek (2007) speakers of different languages produced different gestures when talking

about the same event. According to them it is due to differences in packaging information: the typological preferences of a given language shape the process, and this affects the gestures as well. As this study focuses on native English speakers, the results should be treated as such. They only relate to English language and gestures used in association with it.

What I will attempt to do in this study is to see if there is a connection between iconic gestures and specific units of speech: to see if the lexical affiliates of iconic gestures fall into any specific category or categories, and if they take any specific position in the clause structure. I will also look at each aspect of iconicity separately to see if their lexical affiliates differ in some way. For this purpose I have analysed a part of *Never in Canada*, an hour-long recording of 3 students engaged in natural conversation with no interference from the researchers.

Next I will present a quick overview of both the history and the current state of gesture studies in linguistics, followed by a section on the theoretical background of this study. Then I will present the data and how I handled it, before moving on to the analysis. After discussing the results, I will conclude this thesis in a summary and a short discussion of possible future courses of study.

2. Gesture studies in linguistics

In this section I will briefly expand on the history of gesture studies in linguistics, and present its current state. While gestures have been thought of as a key part of human interaction – and even a language of their own – for centuries, linguists have not taken an interest in them until as late as the latter half of the 20th century. Even now interest in this subject is marginal, but it is slowly increasing.

While gestures themselves have been studied for centuries, they have not been widely researched in a linguistic context. There were some studies of gesture and body movement during in the mid-20th century, but it was not a relevant topic until the 1970s. Around those times film recordings became available for scientific research: the possibility of reviewing the material made research and micro-analysis of speech and body motion possible.

Adam Kendon's research in the 1970s and 1980s made him a pioneer in researching body movements, as he formulated "the idea of gesture and language as being two sides of one process of utterance" (Ladewig et. al., 2013, p.58). His theories have served as basis for many linguistic gesture theories. In 1979 David McNeill proposed a theory where language and gesture, two different modalities, formed one integrated system. Kendon and McNeill both concentrated on gestures as hand movements due to their particularly close relation to language. A little over 10 years later in 1992 McNeill published his landmark book "Hand and Mind. What gesture reveal about thought". There he describes gesture and speech as different sides to language, and the dialectic tension between the two as they represent different modes of thought. The book went on to become a landmark for both linguistic and psychological approach to the relation of gesture and speech.

In the last decade the amount of gesture research has been steadily increasing. Cognitive linguists have begun to include gesture as a part of linguistic analysis, and gesture studies have become a "developing new field at the intersection of the humanities, linguistics, psychology, social science, neuropsychology, and computer engineering/computer science" (McNeill, 2005, p.15).

3. Theoretical background

In this section I will discuss the theory behind this study. As there is not that much research on the specific phenomenon of connecting iconic gesture with units of speech, the theory I use includes pieces of different researchers work. It is mainly built on David McNeill, Nick Enfield and Adam Kendon's theories and ideas on gesture and composite utterance with support from other research.

I will begin with gesture itself, its different types and phases. There is no sense in studying gesture in isolation, however, as "[it] is an intrinsically parasitic phenomenon, something that gets its meaning and organization from the way in which it is fluidly linked to the other meaning making practices and sign systems that are constituting the events of the moment" (Goodwin, 2007, p.198). In other words, there is no point in studying gesture without looking at the speech it is connected to, as when the two are put together, a more complete version of meaning can be realised. This relation between speech and gesture comes down to the lexical affiliate, the growth point and the composite utterance, which I will explain in detail before discussing how the theoretical background informs my analysis.

Gestures have two core features: they carry meaning and they express it with speech in a synchronised fashion. The two are co-expressive and synchronous, often expressing the same meaning or variations of it, but neither is irrelevant or unneeded as they are two different modes of expression that employ different media with different resources. These two modes realise meaning in different ways, and in doing so gesture and speech each bring their own aspects of meaning to the composite utterance. "Speakers often employ gesture in such a way as to make something that is being said more precise or complete" (Kendon, 2000, p.51): spoken words are always ambiguous, needing context to make their meaning, and gestures are providers of such context. A different gesture brings different additional meaning to the same word: while it remains the same word lexically, in another sense it has become a different word as its meaning has been altered on some level.

Gestures can be divided into four types: iconic, metaphoric, deictic and beat. However, as one gesture might be partially one type and partially another, the types should be treated as dimensions rather than categories. Treating them as categories would force researchers to come up with a system that would accurately summarise relationships and hierarchies between gesture types: this would prove difficult, as the dominance would alternate between gesture types in different contexts

(McNeill, 2005). As dimensions provide a non-hierarchical approach to dividing gestures into different types, they form a more reliable basis for doing so. McNeill (2005) has also suggested that the names of the types should be changed to correspond with their dimensional nature: iconicity instead of iconic, metaphoricity instead of metaphoric and so on.

Iconic gestures “present images of concrete entities and/or actions” (McNeill, 2005, p.39). These gestures share some recognisable features with what they represent, whether it be size or motion. Metaphoric gestures are somewhat similar to iconic gestures, except that they present the abstract instead of the concrete. In metaphoric gestures something abstract, unimaginable, is made into an image, and “metaphoricity in gesture is important for extending the process of an imagery-language dialectic to abstract meanings that lack imagery of their own” (McNeill, 2005, p.45). Deictic gestures, also known as pointing gestures, are exactly that: some part of the body, most often a finger, is used to point at something. Whatever is pointed at does not have to be physically present, it is the act of pointing itself that makes the gesture. The last type of gesture is beat. These gestures follow the rhythm of the speech, often highlighting the things the speaker finds important.

Of the four aforementioned gestures, the focus of this study will be on iconic gestures. Iconic gestures represent concrete things, and “the sign [the gesture] is taken to stand for the object because it has perceptible qualities in common with it” (Enfield, 2009, p.17). These are signs that have common qualities with what they represent, and they require only two things: some movement and a lexical component to depict. McNeill (2005) explains that different aspects of the gesture correspond with different aspects of the event it represents. There are four different aspects of iconicity an iconic gesture can represent: motion, size, shape and spatial relation. I will be looking at all four in this thesis.

Each gesture consists of phases. There are five possible phases, but only one of them is obligatory to any gesture, and that is the stroke. If there is no stroke, it means the gesture did not occur. According to McNeill (2005), “the stroke is the gesture phase with meaning” (p.32). At nearly all times it appears simultaneously with co-expressive speech, and it can include a stroke hold – a stroke done with a motionless hand, or a stroke where the meaning arises from halting all motion after preparation – which is obligatory with static gestures. Other holds are optional, and they occur when the stroke is finished but the co-expressive speech is not. Pre- and poststroke holds both ensure synchronisation with co-expressive speech. The additional phases of preparation and retraction move the limb from the rest position to the start position of the stroke and back. The

stroke is especially important to this study as it has a tendency to precede or coincide with the lexical affiliate of a gesture.

The lexical affiliate of a gesture is “the word or words deemed to correspond most closely to a gesture in meaning” (McNeill, 2005, p.37). It should not be confused with the co-expressive speech segment, even though the two may be the same thing, as co-expressive speech “can be defined only in relation to the context of speaking” (p.37) just as a lexical affiliate is found when gesture and word are compared (McNeill, 2005). It should be noted, that while a gesture may precede its lexical affiliate, it is still simultaneous/synchronous with its co-expressive speech segment. Schegloff (1984) has observed that iconic gestures have a tendency to precede their lexical affiliate instead of co-occurring with it.

Growth point is where imagery (the starting point for gesture) and linguistic content (the starting point for speech) are combined and where two “opposite semiotic modes of meaning capture – instantaneous, global, nonhierarchical imagery with temporally sequential, segmented, and hierarchical language” (McNeill, 2005, p.18) are contained. In the growth point the same idea that exists in different modes causes instability, and from this unstable point the information is then unpacked and reformed into a more stable structure that is then expressed in gesture and speech. This process is repeated time after time, only ceasing temporarily before it continues as a new cycle. The instability caused by the combination of different modes affects how and in what amount the information is materialised: the more unstable the growth point is, the more the idea is materialised and vice versa.

Meaning does not begin with language, even though language can express meaning. Meaning can be found in everything: we take signs as representations of meaning no matter the mode of realisation. However, signs are not necessarily realised in a simple, mono-modal manner where one single sign realises all of the meaning there is to realise. Composite signs express meaning in a combination of two or more signs: a unified meaning emerges as multiple signs are “interpreted as co-relevant parts of a single whole” (Enfield, 2009, p.7). Co-occurring speech and gesture are no different: they are a composite sign. When interpreted separately some of the meaning is lost, but together they realise a more complete version of the meaning. In doing so they interact with each other. Interaction is key to a composite utterance as well, as it is an interactional turn. It is a composite sign that is affected by the turn before it, and it in turn affects the following turn. Enfield (2009) describes a composite utterance as “a situated unit of social behaviour with causes (or

conditions) and effects” (p.10). Each turn, each new utterance provides new information that the next turn will have to take into account: this affects the sign-making process.

As there is no one clear theoretical approach for studying the relation of gesture and its lexical affiliate, I have applied the aforementioned theories and studies in my own study rather freely. I have analysed the data with the help of McNeill’s idea of the growth point, Enfield’s idea of the composite utterance as well as other studies and theories. McNeill’s theory on the dimensionality of the gesture types was a guiding factor in finding the iconic gestures from the data. I focused on finding iconic gestures that were mostly iconic and not too beat or metaphoric, as there were rather many gestures that were more towards the beat dimension than the iconic. These gestures emphasised the rhythm of the speech more than they represented some aspect of iconicity, so I chose to exclude them. Schegloff (1985) study and McNeill’s (2005) theory on the lexical affiliate informs a great part of my analysis, as the focus of my thesis is on the lexical affiliate. My focus is specifically on the grammar of the lexical affiliate, or what kind of a word class it falls into as well as what position it takes in clause structure, and for this purpose I have utilised two grammar books, a smaller, more general grammar book as well as a comprehensive grammar book. The following section covers the data as well as my method of looking for gestures.

4. *Never in Canada*

Here I will present the data and briefly describe how I am going to use it in this study. The data is an hour-long recording from *The Oulu Corpus of Spoken English* called *Never in Canada*. It was recorded in February 2003 by a “Discourse Analysis” class of the English Department at Oulu University. Two cameras were used, and the video from the main camera is divided into shorter segments: the full length of the recording is approximately one hour, and the shorter segments last between 8 and 16 minutes. In this study I will analyse the first 34 minutes of the recording. The recording from the second camera is of lower quality, and only one of the participants is visible from that angle. Also, it starts at a later point than the recording from the main camera. *Never in Canada* is available for research but not to the general public or for commercial purpose. The electronic files include both audio and video.

Never in Canada has three students – one Canadian and two Americans, all native speakers of English – engaged in natural conversation in English, seated around a kitchen table. There is no interference from the researchers, as they leave the room a few minutes after the recording starts, and the participants are left to interact on their own. The transcript covers the first 34 minutes of the recording.

Audio-visual data is important for studying the connections between language and gesture as it allows the researcher to look at their co-occurrence as it captures both speech and gesture and review any interesting or important section at will. Especially data recorded in natural environments with no interference is valuable, as it records actions ‘as they are’ with their full complexity, with all the gestures and multimodality they possess. “Naturalistic data arise from an interest in social interaction as organized collectively by the participants in a locally suited way, in the very setting in which activities are ordinarily accomplished” (Mondada, 2013, p.987). As I will be looking at the connection between language and gesture, audio-visual data is most important.

I did the analysis in 3 parts by analysing the first three video segments individually. I started by watching the segment to familiarise myself with its contents. While I did not concentrate on the gestures at this point, I paid attention to them and started to shift my focus toward finding iconic gestures among them. I also made notes, focusing on things that might be important, some prominent gestures and the topics surrounding them. Next I watched the segment several times, and marked all the iconic gestures I could find into the transcript. It shows the onset and possible

prestroke hold (<---), stroke (=) and offset and possible poststroke hold (--->) of each gesture. The finished transcript contains the information that is necessary for my analysis: at what point of an utterance each gesture starts, where its peak is and where it ends. Every gesture is highlighted in the transcript.

Next I copied each occurrence of an iconic gesture into a separate file: it contains the corresponding lines of transcript. I went through each gesture again, and roughly marked down the time, and wrote a short description of the gesture. After finishing these tasks, I started looking for the lexical affiliate of each gesture and marked them into the separate file as well. The final task before starting my analysis was to do a preliminary categorisation of each lexical affiliate according to its word class and position in the clause structure. During this task and the analysis, I used the third edition of Leech & Svartvik's *A Communicative Grammar of English* (2002) and Quirk et. al.'s *A Comprehensive Grammar of the English Language* (1985) to identify the correct grammatical forms.

The data will be presented as samples from the transcript (see (1) below), and descriptions of the gestures and their lexical affiliates.

(1) Iconic gesture synchronised with predicator verb

250 JAS: so you sneak your clothes in,

251 <-----=====-----

252 at eight forty,

253 ----->

5. Analysing different aspects of iconicity

In this section I will analyse the gestures I have found in *Never in Canada*. The section is divided into subsections, each dealing with a different type of iconic gestures. These types represent different aspects of iconicity. The first subsection will be about iconic gestures that represent the motion aspect of iconicity. I will analyse the lexical affiliates of the gestures I have found in the data, and see if most of them fall into any specific word class or word classes, e.g. if they are verbs, nouns, adjectives, adverbs or prepositions. This includes looking at the possible phrase – e.g. noun phrase, verb phrase – the lexical affiliate belongs to. I will also be looking at the position the lexical affiliate takes in the clause structure, e.g. if it is a predicator, a subject, an object, an adverbial or a complement. When it comes to the gestures representing the motion aspect of iconicity, I will also be looking at the form of the verb. The other two subsections will focus on iconic gestures representing the shape aspect and the spatial relation aspect of iconicity. The structure of these sections will be similar to that of the first subsection.

All in all I found 29 examples of iconic gestures in the data. There were some more, but they were not suitable for this study due to a variety of reasons. Some gestures were obscured from the view as the speaker's hands were behind a mug, or in some cases the speech was so unclear that it was not possible to be certain of what was being said even with the help of the transcript. Mostly that was due to several people talking at once, or the speaker speaking in a very low, very quiet or very fast voice. There were also some gestures that I could partially see but not well enough due to the recording crew standing in front of the camera at the beginning of the video. This occurred a few times. Unfortunately the video that was recorded from another angle started so much later than the main camera's video that it was of no help in those cases.

<i>Aspect of iconicity</i>	<i>Amount of gestures</i>
Motion	20
Shape	4
Spatial relation	5
Size	0

Table 1. The amount of gestures in the data by aspect of iconicity.

The total amount of iconic gestures in the data is 29, and they can be divided into different aspects of iconicity as is shown in the above table (*Table 1*). Most of the gestures (a total of 20) represent

the motion aspect, which means iconic gestures that have something to do with motion, such as throwing something or going somewhere. Unfortunately there were no gestures that represented the size aspect of iconicity in the data, but I could find some gestures that represented the shape and the spatial relation aspects of iconicity. The former means gestures that have to do with the shape of something, and the latter means gestures that might represent the location of something, or where it is in relation to something else. I could find only four to five gestures belonging to these categories, so any results will be tentative at best, and further study will be required. Such is the case with the larger category of iconic gestures representing the motion aspect as well, but as there are still twice as many gestures in that category as there are in the two smaller categories together, the results are somewhat more extensive.

Both of the smaller categories – shape and spatial relation – contained a repeated gesture, and it occurred shortly after the original gesture. In the shape category, the same person repeated the same gesture again with minor changes in the co-expressive speech segment, while in the spatial relation category two different people repeated nearly all of the composite utterance, word for word and gesture for gesture. The repeats are not completely identical, however; their lexical affiliates remain the same, but some changes happen around them, as the either phrases they belong to change, the co-expressive speech segment changes or the timing of the gesture's stroke changes. This is why I have chosen to include them in my analysis. There were no repeats in the other larger motion aspect category; some lexical affiliates were similar, but no gesture was repeated along with its lexical affiliate.

A thing to note is that I have chosen to use predicator instead of verb as the word for the clause element verb. This is to avoid confusion as I will also be discussing verb as a class of word. Likewise I will call the first appearance of a gesture the original gesture, and the repeat either a repeat, the gesture repeat or the repeated gesture.

5.1 Iconic gestures that represent the motion aspect of iconicity

This section will focus on iconic gestures that represent the motion aspect of iconicity. As was explained before, this means gestures that have to do with motion. These gestures were the most unified group of gestures in the data. I found 20 gestures that represented this category, and all of their lexical affiliates were verbs that took the predicator position in the clause structure. They were not completely the same, however, as the form of the verb varied somewhat. Many of the lexical affiliates were in base form, but there were also some that were in –ing or –ed form. It should be noted that in cases where the lexical affiliate was not in its base form, it was in most cases a part of a verb phrase that acted as the predicator in the clause in question. The verb phrases were mostly finite, and only three of the example gestures had lexical affiliates that were a part of a non-finite verb phrase. The following table (*Table 2*) shows the division of the lexical affiliates into different verb forms.

<i>Verb form</i>	<i>Amount of lexical affiliates</i>
Base form	11
-s form	1
-ing form	3
-ed form	3
past participle	2

Table 2. Lexical affiliates categorised by verb form.

I have included the lexical affiliates that were verbs in past participle form in the same part of analysis as the –ed form verbs as the two past participle verbs appear in similar contexts and in a similar manner to the verbs in –ed form.

I have chosen three examples to look at more closely. I will analyse them by starting from gestures with a base form verb as their lexical affiliate, because they cover over half of the gestures in this category. I will not analyse the single gesture with a –s form verb as a lexical affiliate on its own, as it is very much the same as the base form verbs. Instead I will include it among the base form verbs.

(1) Iconic gesture synchronised with predicator verb in base form

248 JAS: so you sneak your clothes in,

249 <-----=====

250 at eight forty,
251 ----->

My first example (1) has a base form verb, *sneak*, as the lexical affiliate. It is a part of a complete clause, and takes the predicator position. The stroke occurs simultaneously with the lexical affiliate. The gesture itself is quick forward movement of the right hand, going by the stationary left hand.

Seven other cases of base form verbs as lexical affiliates appear in similar contexts: a mostly complete clause with the verb alone as the predicator. The single –s form verb appears in a similar clause structure as well. The three remaining base form verbs as lexical affiliates are infinitives. They all appear as a part of one single sentence, each of them in their own clauses as parts of a verbal phrase. All three share the same linking verb, *am going to*.

(2) Iconic gesture synchronised with predicator verb in –ing form

368 JAS: (0.8) looking around you know
369 <----->

Example (2) has an iconic gesture with the lexical affiliate *looking around*, with a phrasal verb in –ing form. It takes the predicator position of a complete clause as a part of a finite verb phrase *am looking around*. In the gesture the right hand is first pushed forward with two fingers slightly extended, then a finger is pointed up and moved in a circle; again the stroke occurs simultaneously with the lexical affiliate. The other two –ing forms as lexical affiliates appear in similar, mostly complete clauses. One of them is a phrasal verb like the lexical affiliate in (2).

(3) Iconic gesture synchronised with predicator verb in –ed form

533 JAS: No,
534 <--
535 We walked up a road,
536 ----->

The final example (3) has a very similar structure to what most of the base form verbs as lexical affiliates had. The lexical affiliate is *walked up*, a phrasal verb in –ed form, and it takes the predicator position. It forms a finite verb phrase on its own. In the gesture the right thumb is moved to point back, and the stroke occurs simultaneously with the lexical affiliate. Two of the remaining four –ed form verbs that act as lexical affiliates appear in similar contexts as the example (1). The other two,

both of them verbs in past participle form, appear with an auxiliary verb in otherwise similar contexts.

5.2 Iconic gestures that represent the shape aspect of iconicity

Another aspect of iconicity, and the focus of this section, has to do with the shape of what is being represented. As I mentioned before, I could not find more than five examples of this category in the data. These iconic gestures represent the shape aspect of iconicity, and had the greatest variance in the position the lexical affiliate can take, as four of the five lexical affiliates took a different position, with only one position, object, having two lexical affiliates take it. In contrast all five gestures' lexical affiliates belonged to the same word class; they were all nouns. Three of the five lexical affiliates were in plural form, and the remaining two in singular form. Finally, four of the lexical affiliates were a part of a noun phrase, while one was a part of a prepositional phrase. The following table (*Table 3*) depicts the distribution of the lexical affiliates into different clause positions.

<i>Clause element</i>	<i>Amount of lexical affiliates</i>
Subject	1
Object	2
Complement	1
Adverbial	1

Table 3. Lexical affiliates and their position in the clause structure

I will present three of the gestures and their lexical affiliates in more detail. One of them, example (4), appears in a similar context as two other gestures, and the other two examples, (5) and (6), are a gesture and its repeat. I will look at the latter two together to contrast the differences between them, and also to emphasise the connection of speech and gesture; more specifically how the connection remains despite an apparent repair.

(4) Iconic gesture synchronised with object noun

1033 MAR: My dad wants a bumper sticker

1034 <=====>

Here we have an example of an iconic gesture synchronised with object noun. This gesture consists of the onset of moving the hands into position, a stroke hold where both hands are held in such a position that the forefingers and thumbs create an area, and the offset of relaxing the hands back into home position. Again the stroke occurs simultaneously with the lexical affiliate. The lexical affiliate of this gesture is *a bumper sticker*, a noun in the object position. There was another noun

as a lexical affiliate that took the object position as well; the only difference was that the noun phrase contained adjectives as well. The third iconic gesture followed a mostly similar pattern, except that the lexical affiliate took the complement position. However, it was the logical subject of the clause, as the clause had an introductory *there* that acted in a subject-like manner, but was not the true subject.

In the repeated gesture both hands are held on the table. The fingers are loosely curled, and only the forefingers and thumbs are extended to form an angular shape; the strokes' of both the original and the repeat occur simultaneously with the lexical affiliate. This repeated gesture – shown in examples (5) and (6) – has the same lexical affiliate, *license plates*, on both occasions, but the co-expressive speech segments are slightly different. Due to that difference the lexical affiliates take different positions in their respective clauses. The lexical affiliate of the gesture repeat is also a part of a prepositional phrase *on the license plates*, where the lexical affiliate of the original gesture was a part of a noun phrase, *their license plates*.

The first time the gesture appears, the lexical affiliate's clause is incomplete and it takes the place of a subject in a verbless that-clause:

(5) Iconic gesture synchronised with subject noun

958	MAR:	And I love that,
959		their uh,
960		<-----==
961		(0.6)
962		=====
963		license plates?
964		=====>

The verb and any other possible clause elements of the that-clause are omitted, and only the lexical affiliate, the subject, is left. The repeat of the gesture follows almost immediately after;

(6) Iconic gesture synchronised with adverbial noun

965	MAR:	(.) @it--
966		it says taxation without representation on them,

967		on the—
968		<=====
969	SOP:	It [does]?
970	MAR:	[License] plates.
971		=====>

This example (6) takes place immediately after previous example (5). As we can see, the only notable change is in the lexical affiliate. More specifically, the lexical affiliate becomes a part of a prepositional phrase, and where the previous gesture's lexical affiliate took the subject position, this gesture takes the adverbial position, and changes from a noun phrase into a prepositional phrase. Most likely these changes and the repeat are all due to a restructuring of the linguistic content, which caused a repair of the whole composite utterance. The repeat of the gesture highlights the connection between gesture and speech; imagery and linguistic content are combined in the growth point and reformed into a structure of gesture and speech. I will discuss this repeat in more detail in the discussion section.

5.3 Iconic gestures that represent the spatial relation aspect of iconicity

The last of the three categories has to do with the spatial relation aspect of iconicity, or how the thing that is being represented is located in space and what is its relation with other things or objects. Again, there were only a few cases of this kind of gesture in the data; I found five iconic gestures that represented this aspect of iconicity. While the lexical affiliates of all five gestures fill the adverbial position, there is some variance as to what word class the lexical affiliate belongs to. There was no such variance in the other categories, as all the lexical affiliates in each category belonged to one word class.

<i>Word class</i>	<i>Amount of lexical affiliates</i>
Preposition	3
Adverb	2

Table 4. Lexical affiliates categorised by their word class.

As the above table (Table 4) shows, two of the lexical affiliates are adverbs and three of them are prepositions. When the lexical affiliate is a preposition, it is in all three cases part of a prepositional phrase. I have chosen two gestures as examples, so that I have an example of lexical affiliate from both word classes.

(7) Iconic gesture synchronised with adverbial preposition

644 JAS: [2(It's been) a2]ward-winning [3around the world3].

645 <=====----->

The gesture in this example (7) has the lexical affiliate *around*. It is a preposition and a part of the prepositional phrase *around the world* that takes an adverbial position in the clause structure. In the gesture the right index finger is pointed up and moved in a circle 'around' something, and the stroke occurs at the same time as the lexical affiliate. The two other prepositions as lexical affiliates appeared in similar contexts as a parts of prepositional phrases. Both phrases took an adverbial position in their respective clauses.

(8) Iconic gesture synchronised with adverbial adverb.

2419 MAR: [Oh],

2420 <----

2421 all over,
2422 =====>

This is an example (8) of a lexical affiliate, namely *all over*, an adverb phrase that takes the adverbial position in an incomplete clause that is missing all the other clause elements. The gesture is movement of the left index finger in the air in a small circle. Mary does the original gesture, and Jason repeats it before the original gesture is finished; the strokes of these two gestures are mostly simultaneous. This causes an interesting phenomenon; the stroke of the original gesture occurs simultaneously with its lexical affiliate, but the stroke of the repeat does not. The lexical affiliate of the repeat occurs immediately after its stroke. Another difference between these two gestures is the slight difference in timing and the larger scale and slightly different execution of the repeat. Where the original gesture was a single small circle done with the left index finger, the repeat is a larger circle done with the right index finger.

6. Discussion of the findings

My analysis has shown that there are indeed certain word classes and certain positions in clause structure that the lexical affiliates of the three different aspects of iconicity seem to fall into. The following table (*Table 5*) shows the most common word classes the lexical affiliates fall into, and the most common positions they took in the clause structure. As the iconic gestures that represented the shape aspect of iconicity did not have a common position in the clause structure, I have left the cell empty.

<i>Aspect of iconicity</i>	<i>Word class</i>	<i>Position in clause structure</i>
Motion	verb	predicator
Shape	noun	-
Spatial relation	preposition, adverb	adverbial

Table 5. Lexical affiliates' most common word classes and positions in clause structure by aspect of iconicity

Of course, there is no guarantee these results apply to anything but this study and the data I used, as the scale of this study is rather small as is the amount of data I had. In any case, on the basis of this study, it can be said that this phenomenon actually exists, and is worth studying; there is a connection between iconic gestures and specific units of speech.

Even though the lexical affiliates of iconic gestures representing different aspects of iconicity seem to follow some kinds of patterns when it comes to their word class and placement in clause structure, there seem to be no apparent patterns inside the categories themselves. When it comes to iconic gestures representing the motion aspect of iconicity, there are no explicit dominant features apart from the lexical affiliates all being verbs in the predicator position. Only the base form appeared somewhat more often than the other forms, but the nature of the speech acts might explain that. The participants were often telling stories when they used iconic gestures; using the present tense is common in spoken stories, and most persons of the present tense – excluding 3rd person singular which uses the –s form – the base form of the verb is used.

The lexical affiliates of iconic gestures that represent the shape aspect of iconicity do not seem to take any specific position in the clause structure. Even though two lexical affiliates took the object position, it can hardly be called a pattern. A more detailed, larger scale study could provide different results, as there were not many iconic gestures that represented the shape aspect of iconicity in the

limited amount of data. One pattern did emerge, as all the lexical affiliates were nouns, and apart from one they were all parts of noun phrases.

From what I can say when it comes to the limited available data on the iconic gestures that represent the spatial aspect of iconicity, two patterns emerged. First of all, the lexical affiliate was always either a preposition or an adverb, and second, it always took the adverbial position in the sentence structure. Similarly the lexical affiliate was either a part of a prepositional phrase or a complete adverb phrase. Again, a larger scale study is needed to further confirm these observations.

The repeats proved to be interesting cases. When looked at in the light of McNeill's growth point theory, the repeat of *license plates* and its accompanying gesture seems to be a restructuring of the original information that was contained in the growth point. The same person does both gestures, and it seems a repair occurred and the linguistic content was repackaged into somewhat different speech, while the imagery remained as it was as the same gesture that was already used before. As the linguistic content remained basically the same – only some minor grammatical details were altered – it can be argued that it all came from the same growth point. The other repeat does not provide any relevant information to this study. It does present some intriguing questions about copying and repeating gestures, however, which are something that could be studied in the future. In any case, when it comes to these repeats, it would seem that both the linguistic content and the imagery behind them remain largely the same even if the details of representation, such as the position the lexical affiliate takes in the clause, might change between the original and the repeat.

Another thing to note is that there are prepositional phrases with different parts of them as lexical affiliates. The lexical affiliate could be the noun, as it is in the case of *on the license plates* where the lexical affiliate is *the license plates*. However, the lexical affiliate could be the preposition as well, as it is in the case of *around the world*, where the lexical affiliate is *around*. Even though it might seem random as to why the lexical affiliate falls into a different part of the prepositional phrase instead of the whole phrase, there is a reason for it. In each of the cases, the gesture represents a different aspect of the prepositional phrase. The former phrase's accompanying gesture represented the shape of the license plates, and the latter, circular motion of a finger, represented spatial relation and tied to the preposition.

The next section will conclude this thesis by summarising what I set out to do, how I set out to do it, and what I have found out during the course of this study. I will also discuss possible future courses of research.

7. Conclusion

The aim of this thesis was to see if there is a connection between iconic gestures and specific units of speech. Mainly this meant looking at the lexical affiliates of iconic gestures; analysing them and trying to see if it could be said that they belonged to some specific word class or took a specific position in clause structure. For this purpose, I studied *Never in Canada*, an audio-visual recording of natural conversation. During the course of this study the original hypothesis was confirmed; iconic gestures are connected to units of speech. More specifically, different types of iconic gestures representing different aspects of iconicity are each connected to specific units of speech. The lexical affiliates of the different types belonged to one or two word classes, and mostly took the same position in clause structure.

During the course of this study possible future courses of research emerged. The most important of them is the need for a larger scale study of this phenomenon. As the scale of this study was too small to say anything for certain, a study with more resources and data is needed to see if the results can be applied outside the data used in this study. Another course of research could be to look at the stroke and the lexical affiliate; nearly all of the iconic gestures' lexical affiliates co-occurred with the stroke, instead of preceding it like Schegloff (1985) had noted. However, Schegloff (1985) did also say that the gesture would be at least breaking down when the lexical affiliate occurs.

It would also be interesting to see if the fact that out of the three participants who were filmed for the data, Jason, the only man, was the one to gesture the most. When I looked at how much he gestured compared to the two women, Mary and Sophie, I noticed that Jason gestured twice as much as the women together. It made me wonder if there is a difference in the use of iconic gesture between the genders, or if it is just something that applies to this one recording. I suspect the case could very well be the latter, as there was also a slight difference in what the participants were talking about. Jason had a tendency to tell stories, and use iconic gestures to represent different aspects of it, while the two girls acted more as commenters than story tellers. They also held onto things often, so their hands were not "free" to gesture. Of course, all of this applies only to the iconic gestures in this data, as I have not analysed any other gestures in it. In any case, it would be interesting to study the differences between genders when it comes to the use of iconic gestures.

Finally, the two repeated gestures present two different courses of research. The repeat of *all over* and its accompanying gesture present a possible study of gestures repeated by a different person

than the one who used the original gesture. It would be interesting to see if something about this repeat, such as the stroke shifting away from the lexical affiliate, is not unique to it, but happens elsewhere as well. The other repeat, *license plates* and the iconic gesture representing its shape aspect, present a possible study of the same person repeating a gesture during a repair.

Despite the small scale of this study, it has succeeded in confirming that the connection between iconic gestures and specific units of speech is indeed a real phenomenon. Although at first it seemed unlikely that the data would contain enough gestures to study the phenomenon, in the end there were enough for a small scale study. This study has also raised some questions about iconic gestures and their use, which I will keep in mind for possible future research. In any case, there is a demand for more research, as first of all the results achieved in this study need to be confirmed, and second, it seems that for each question answered, a new one emerges when it comes to studying the connection between language and gesture.

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